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PREDICATION THEORY: CLASSICAL VS MODERN

Abstract

This essay aims, first, at describing the conflict between the theory of predication (classical, Aristotelian) prevailing in philosophy until the end of the 19th century, and the theory arisen with the new logic (modern, Fregean). Three features characterize the pre- Fregean period: 1) conflation of predication and subordination (extensionally: membership and class-inclusion), 2) conflation of identity and predication, 3) the view of quantificational phrases (e.g. "some men") as denoting phrases. A possible fourth feature is suggested by the consideration of the so-called Locke's "general triangle". Most of the paper is devoted to the first feature, also called the "principal" one, stated by Aristotle. Frege seems to be the first, in 1884, to reject the first feature; he also rejected, not less vehemently, the second and the third features. Fregean predication theory became standard, and just taken for granted in the subsequent developments of logic as well as in the mainstream of philosophy. The second aim of this paper is to evaluate— relative to the notion of predication submitted in section 1 — the conflict between the two traditions, and to determine if both are somehow right, or one is right and the other wrong. The main result is that the Fregean revolution in predication theory is, at least with regard to the first and second features of the classical view, a clarification that would probably be welcomed by the classical authors themselves (*pace* Hintikka's "logic of being").[1]

[1] Part of the material included in this essay was presented as a "Bradley Medieval Lecture", Boston College, 1996, and in seminars at the Universidad Nacional de La Plata, Argentina, 1998, and Universidad Católica de Chile, 2003. I am grateful to the participants in those meetings, as well as to L. Cates, N. Cocchiarella, A. d'Ors, E. García Belsunce, J. Gracia, H. Hochberg, A. Martinich, and T. Seung, for very helpful remarks.

1. What is predication?[2]

In a first, rather external approach, the phenomenon of predication can be described as follows. There is a user of language who produces an oral or written linguistic expression — the predicate— in order to *declare* (just as in going through customs: Aristotle says that a predicate δηλοί, declares a thing, 1949, 2b, 31) a feature or even the nature of the object. Two items are required: the predicate and the object. Normally, however, the object is not present and must be referred to by a singular term, which becomes the third item. In this preliminary approach predication appears as a relation between a linguistic expression, the predicate, and the object in question. This is predication in the external, *linguistic* sense, described by Quine: "Predication joins a general term and a singular term to form a sentence that is true or false according as the general term is true or false of the object, if any , to which the singular term refers" (1960, p. 96). It is quickly seen, however, that such a linguistic analysis of predication falls short of highlighting what is really important. In a customs declaration what matters is not the attaching or "joining" (Quine) the label (predicate) to the object, but the *meaning* of the label. The linguistic predicate means something, namely a property of the object, and this property is what one really says, or predicates of the object— the property, a non-linguistic entity, is the predicate in the relevant sense. This is the *ontological* sense of "predication". (My distinction seems to correspond to that between "linguistic" and "metaphysic" predication in Bogen, *Introduction*, in Bogen 1985). It is in the ontological sense that one may say, with Cocchiarella, that "predication has been a central, if not the central, issue in philosophy since at least the time of Plato and Aristotle" (1989 p. 253).

2. The first (principal) feature of classical predication theory

The following Aristotelian passage is paradigmatic for classical predication theory[3]:

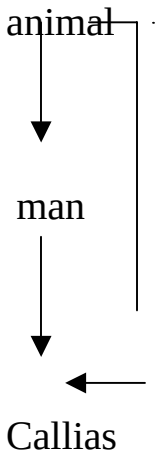
> Of all the things which exist some are such that they cannot be predicated of

[2] The approach of this paper is philosophical and historical; a recent, increasing interest in predication from the standpoint of linguistics is shown, for example, in Blight 1997.

[3] All texts are given in English translation. When the reference is made to a non-English source, the translation is mine.

> anything else truly and universally, e.g. Cleon and Callias, i.e. the individual and sensible, but other things may be predicated of them (for each of these is both man and animal); and some things are themselves predicated of others, but nothing prior is predicated of them; and some are predicated of others, and yet others of them, e.g. man of Callias and animal of man. It is clear then that some things are naturally not stated of anything: for as a rule each sensible thing is such that it cannot be predicated of anything, save incidentally : for we sometimes say that that white object is Socrates, or that that which approaches is Callias. We shall explain in another place that there is an upward limit also to the process of predicating : for the present we must assume this. Of these ultimate predicates it is not possible to demonstrate another predicate, save as a matter of opinion, but these may be predicated of other things. Neither can individuals be predicated of other things, though other things can be predicated of them. Whatever lies between these limits can be spoken of in both ways: they may be stated of others, and others stated of them. And as a rule arguments and inquiries are concerned with these things. (1971, *Analytica Priora* I, 27.)

In two waves, the passage offers an inventory "of all the things which exist". All entities are divided into universals (animal, man) and individuals (Callias), and are, moreover, ordered by the relation of predication. Universals are predicates, individuals are not. All universals, except the "ultimate" ones, "may be stated of others, and others stated of them". Consider for example the universal man, which is predicated of Callias. What are the "others stated of" man? What can be said of the universal man? A modern reader would expect that, for example, the universal "universal" is predicated of man— not so. Instead, Aristotle thinks of "animal" as something predicated of the universal man. Since "animal" is also predicated of Callias, the following diagram results:



On the basis of this example, the first or principal feature of classical predication theory can be generally described as follows. Consider the universals P, Q, and suppose all Qs are P. Then P is predicated of Q (just as P is predicated of each individual that is Q).

3 The principal feature systematized and strenghtened— but with a rival

There are endless texts showing that the "principal feature" of classical predication theory dominates logical thought till Frege's 1884 revolution. Two marvellous examples are from Porphyry's *Isagoge* and from Aquinas' commentary on *De Interpretatione*:

> 1) *Porphyry*: Having discussed all that were proposed, I mean, genus, species, difference, property, accident, we must declare what things are common, and what peculiar to them. Now it is common to them all to be predicated, as we have said, of many things, but genus (is predicated) of the species and individuals under it, and difference in like manner; but species, of the individuals under it; and property, both of the species, of which it is the property, and of the individuals under that species; again, accident (is predicated) both of species, and individuals. For animal is predicated of horse and ox, being species, also of this particular horse and ox, which are individuals, but irrational is predicated of horse and ox, and of particulars. Species, however, as man, is predicated of particulars alone, but property both of the species, of which it is the property, and of the individuals under that species; as risibility both of man, and of particular men, but blackness of the species of crows, and of particulars, being an inseparable accident; and to be moved of man and horse, being a separable accident. Notwithstanding, it is pre-eminently (predicated) of individuals, but secondarily of those things which comprehend individuals. (*The Introduction of Porphyry*, ch. 6, in Aristotle 1853, p. 624).

> 2) *Aquinas*: It should be observed that something is said of a universal in four ways. [...] Sometimes we attribute to the universal [...] somethint that pertains only to the operation of the intellect, as when we say "man is predicable of many", or that it is "universal", or that it is "species". The intellect in fact forms these notions and attributes them to the intellected nature insofar as it compares the nature with the things that exist outside the mind. Sometimes something is attributed to the universal considered, again, as apprehended by the intellect as one, still what is attributed to it does not pertain to the act of the intellect but to the being that the apprehended nature has in the things outside the soul, such as for instance when we say that "man is the worthiest of creatures". For this belongs to the human nature also insofar as it is in the singulars. Each man indeed is worthier than all the irrational creatures; but all singular men are not

> one man outside the soul, but only in the intellect; and in this way the predicate is attributed to the universal as to one thing. In another way something is attributed to the universal, insofar as it is in the singulars, and this is done in two ways. Sometimes by reason of the universal nature itself, such as for example when something that belongs to its essence or that follows its essential principles is attributed to it; as when we say "man is animal", "man is risible". Sometimes something is attributed to the universal by reason of the singular in which the universal nature is found, such as for example when something is attributed to it that belongs to the action of the individual, as when we say "man walks". (Aquinas 1955, *In Perihermeneias Lectio X*, n. 126).

Texts such as these strongly *systematize* the principal feature of classical predication. There is no doubt: a predicate or universal P is said of any predicate or universal Q such that all objects that are Q are P. In the words of a later philosopher: "the genus may be affirmed of every species, and both genus and species of every individual to which it extends." (Reid 1843 V, 1,7). The extreme case in which P = Q must be regarded as included: "a proposition is identical (*identica*) if its extremes are the same words...such as man is man" (Gasconius 1576 f. 12).

Aquinas distinguishes four types of statements about a universal. A predicate P can be said of a predicate Q, not only when (1) all Qs are P (principal feature) but also (2) when an individual Q has a property P even if not all Qs are P, as well as in two more cases exemplified by: (3) P = worthiest of all creatures, Q = man, and (4) P = one of the following: "predicable of many", "universal", "species" and Q = man.

The Aristotelian ontological ("of all the things which exist") inventory offered in the text quoted in section (2) presents only predicates of predicates of type (1). Now three more varieties of predicates of predicates emerge. These new (relative to the quoted Aristotle's passage) varieties cannot be simply "added" to the Aristotelian inventory; for one thing, only in type (1) predication appears to be a transitive relation. Even iconographically, if one imagines the Aristotelian inventory, typically, with the more universal predicates above the less universal ones, and the individuals at the bottom, *à la* Porphyrian tree, it seems hard to find an appropriate place for the predicates of predicates of types (3) and (4). Once "animal" is a predicate of the predicate man, put in a position higher than the latter, *where* should the predicates "worthiest of all creatures", "universal" be placed? For type (2) there is no problem; the Aristotelian ontological inventory exhibits only the category of substance, so that

predicates like "walks" can be accomodated in parallel Porphyrian trees, for the accidental categories.

However, the number of the varieties of predicates of predicates displayed in Aquinas' text can be reduced. With regard to type (3), "being the worthiest of all creatures" may be dissolved into (3a) a statement about any individual man relative to any non- man, or can be viewed as (3b) a property of the property man, like "universal"; (3a) involves no longer predicates of predicates but predicates of individuals, and (3b) can be seen as of type (4). With regard to type (2), predicates of predicates like "walks" are surely well established (in Trendelenburg's paraphrasis of *Categoriae*: "In the same sense, in which the predicate "proficient in languages" is said of the individual man, it can also be said of man in general", 1846 p. 59). At the same time, however, what these predicates say about a universal is construed, at best, in the spirit of Aquinas' quoted text, as what happens to the universal insofar as instantiated in one or other individual; thus, only "secondarily" those predicates can be said of the universal (cf. Porphyry's text). Aside from this charitable treatment, predicates of type (2) are clearly to be viewed as a mere *façon de parler*. Only the predicates of predicates of type (4) appear as irreducible; they express what one really wants to say about a universal (e.g. that it is a universal).

The reduction from four to two varieties does not make, however, the task of "enlarging" the Aristotelian inventory any easier. In type (4) predication is not transitive, in type (1) it is. Beyond this formal discrepancy there is a profound conceptual difference, obviously, between predicating "animal" of the universal man and predicating "universal" of the universal man. Short of taking the radical course of revising the very notion of predication, pre-Fregean authors must be content with acknowledging that *praedicari de praedicato contingit dupliciter* ("to be predicated of a predicate is twofold", Cajetan 1934, p. 117-8).

Henceforth, the phrases "predicate of predicate" and "higher predicate", possibly with "property" instead of "predicate", will be used equivalently. Predicates of predicates of type (4) will be occasionally referred to as the "new" higher predicates.

4. Two groups of pre- Fregean logicians with regard to the new higher predicates

Not everybody among the pre- Fregean logicians has been interested in the new higher predicates; the latter are not, after all, the predicates with which "as a rule arguments and inquiries are concerned" (cf. the end of Aristotle's text quoted in section 2). The most distinguished member of the uninterested group is Aristotle himself; the interested group includes several ancient Greek commentators and above all the scholastics.

For the uninterested group it is not urgent to take a deeper look at the nature of predication and at the issue of whether it is transitive or not. Aristotle states the transitivity of predication in his *Categoriae*: "for all we affirm of the predicate will also be affirmed of the subject" (1949, 5, 3b, 5). To be fair, in the first "antepredicamental rule" the transitivity is stated *with a qualification*: "When you predicate this thing or that of another thing *as of a subject* the predicates of the predicate will also hold good of the subject" (1949, l, l1b, 10, emphasis mine). There is some ambiguity in this rule. Consider the chain: X is predicated of Y, Y is predicated of W. In order to infer that X is predicated of W should "X is predicated of Y" be as of a subject, or rather "Y is predicated of W", or both? Examples and ancient commentators suggest that "X is predicated of Y" should be as of a subject. Next, the question arises of what is the nature of the restriction. Again, from examples and ancient commentators, the phrase limits the application of the rule of transitivity to "essential" predicates (cf. Philoponus 1887, p. 39). Thus, from : X is predicated of Y, Y is predicated of W, it is correct to infer that X is predicated of W only if X is "essentially" predicated of Y. This fits well with the example "animal-man-Callias": "animal" is essentially predicated of man, so that with "man is said of Callias" one may infer "animal is predicated of Callias". Anyway, the restriction is hardly necessary for Aristotle and the pure Aristotelians, who are not too interested in predications like "man is universal". This explains a number of minor textual, editorial, or translational oversights found in the literature, in connection with the first antepredicamental rule and the restriction it contains. Here are some of them: a) Waitz in his *Commentarius* briefly presents the rule as follows, as if the restriction did not exist: "if B is predicated of C, and A of B, A is predicated of C" (Aristotle 1844, vl. 1, p. 277). b) Also C.F. Owen omits the qualification in his *Analysis of Aristotle's Organon*: "Whatever is said of the predicate may

be said of the subject of which it is predicated", Aristotle 1853, p. 635; the qualification is found only in the translation. c) The qualification "as of a subject", omitted in the Oxford translation of *Categoriae* (Aristotle 1971), was inserted only recently, in the"revised Oxford translation", Aristotle 1991. d) The Loeb edition- translation of the *Categories*, in the *Summary of the principal themes* (Aristotle 1967, p. 9), describes the content of chapter 3 as follows: "Predicates of the predicate are predicable also of the subject". e) Ackrill, in his translation, preserves the restrictive clause but in his commentary he forgets it: "Aristotle affirms here the transitivity of the 'said of' relation" (Aristotle 1963, p. 76).

Authors interested in the new higher predicates, contrary to Aristotle himself and the pure Aristotelian commentators or translators, cannot afford being unclear about transitivity. On the other hand, insofar as they continue to take for granted the principal feature, all they can do is impose restrictions on transitivity when predication has to do with the new higher predicates, to which end all they have at hand, in Aristotle's writings, is the little restriction inserted in the first antepredicamental rule. This means that a predicate like "universal" will have to be regarded as "non- essential" relative to, for example, man— an odd view indeed.

5 The pre- Fregean response to the new higher predicates

The above quoted Cajetan's phrase: "to be predicated of a predicate is twofold" may appear, in itself, as a jewel in the history of predication theory, but the way in which it was understood is disappointing. The pre-Fregean authors skipped the debate on the notion of predication, which is what the conflict between old and new higher predicates required, and transferred the ambiguity to the *content* of the predicates involved.

Consider "universal is predicated of man" and "animal is predicated of man". For the scholastic Aristotelians it is not the term predication but the word man that is ambiguous: in the first case it signifies *man-in-the-mind*, in the second case it denotes *man-in-itself*. In the sentence "walking is predicated of man" the word man refers to *man-in-the-individual*. These are the three ways in which essences (natures, properties, predicates, universals...) can be considered: as existing in the mind, as existing in the individuals, as in themselves. Such is the scholastic doctrine of the threefold consideration of essences, visible in the Aquinas text quoted in

section 3. The doctrine (neglected by historians of medieval logic) provides three channels through which the three competing kinds of "predicates of predicates" flow separately without colliding (cf. my 1991).

Now, what is exactly man- in- itself? Universals are traditionally conceived as sets of other universals; e.g. man = {animal, rational}. Each component is called in Latin a *nota* of the universal, in German a *Merkmal*, my preferred English translation being *mark*. Man -in- itself is exactly man with all its marks *but without anything else*, i.e. without any of the properties that man has insofar as it is intellected (universal, etc.) and without any of the properties that man has insofar as it is in the individuals (white, walking, asleep). It does not take much to realize that the strategy of considering a universal "in-itself" is an abstraction that has one purpose: to get rid of —"to abstract from"—any predicate of the predicate man for which transitivity does not hold, i.e. to retain only the higher predicates of type (1).

The *pax Aristotelica* seems to be preserved: the three competing crowds of predicates of a predicate Q are disciplined into the appropriate channels. The user of language is just required to know, for each candidate P to be said of Q, whether Q is to be taken as in the mind, or as in itself, or as in the individuals. If, for example, P = universal, then one knows that P is predicated of Q-in-the-mind, neither of Q-in-itself nor of Q-in-the-individuals. And one knows that for such a P predication is not transitive, and no further problems seem to arise.

6. The pre-Fregean response is both inadequate and ineffective

There is, to be sure, a philosophical cost to this peace. Let us ask ourselves how the higher predicates of type (4) can have originated, relative to Aristotle's text quoted in section (2) as a starting point. This text offers an ontological inventory with two main sorts of entities: individuals (Callias) and universals (man, animal). The latter are *predicated of* the former. Even if the principal feature makes us view most predicates as said of other predicates (animal of man), it is common to all the predicates in the given inventory that they are said *of individuals*. It is only natural, at this point, that a reader takes distance from, *reflects* on the landscape offered by the Aristotelian text, and starts thinking of statements that can be made *about the predicates of individuals*: they are "universal", "predicable of

many", "genus", "species", etc. Higher predicates of type (4) can have emerged only thus in the history of logic. Now, the intention of those who discovered the new predicates could not have been to attribute them to new, strange entities called, for example, "man-in-the-mind", but *to the same* old predicates, for example "man" which are, in Aristotle's fundamental text, predicated of the individual Callias. The pre-Fregean doctrine fails to be adequate to this original intention, or insight, concerning higher predicates of type (4).

Aside from the criterion of conceptual adequacy, one may judge the pre-Fregean doctrine in practical terms: does it really succeed in keeping the higher predicates for which predication is transitive away from those where predication is not transitive? The two following remarks suggest that the answer is rather negative.

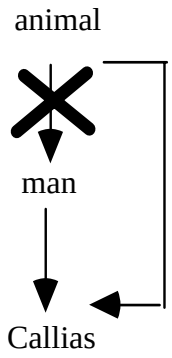
1) Even in making statements about the nature-in-the-mind, Aristotelian - scholastic authors hesitate, and feel that, in order to make absolutely clear that the predicate ascribed to the nature-in-the-mind *does not become a mark* of that nature, special caution and explicit warnings are needed. Whenever a predicate P emerges as a predicate of a predicate, Aristotelian authors instinctively tend to think of it as a *mark* of the predicate. If it is *not* a mark, then they feel that this must be explicitly stated, just to avoid misunderstandings. Thus a sort of preliminary ritual becomes customary, normally consisting of a *negative* statement saying that the predicate we ascribe to another predicate is *not* a mark (*nota*, etc.) of the latter, or equivalently: not a part or component of its essence. In Gilson's commentary on Duns Scotus the following intriguing statement is found: "even if one takes it [the nature] such as it exists in the mind, it does not possess immediately and per se the universality" (1952, p. 450). The neo-scholastic Tonquedec says "The essence *man* is affirmable of many individuals", which sounds, to our modern ears, as innocently true, but not to the neo-scholastic author's ears. He feels that it is necessary to warn the reader that the property of being affirmable of many individuals "belongs only to it [the essence], not to the individuals in which it is realized. One affirms of the individuals the essence, not the affirmability" (1929, p. 163 fn.). Such a behavior is understandable in someone who takes for granted the transitivity of predication: "All that is said of the attribute will be asserted of the subject" (1929, p. 546).

2) One may construe the pre-Fregean plan of focussing on the nature-in-itself as an attempt to abstract, in talking about a predicate Q, from any predicate P (possibly true of Q) such that P is not true of every individual Q. One will just say "man is animal", "man is rational", but will "hide" (abstract from) other true statements ("man is universal", "man walks"). The problem with abstraction is that it generates *abstracta*, and philosophers cannot refrain from talking *about* them (not of course *while* doing the abstraction, but at some other time). Here the abstractum is the universal-in-itself, man-in- itself. Now, philosophers quickly start thinking of many properties that the universal-in-itself has: "to be a nature in itself", "to be distinguished from the nature- in- the- mind and from the nature- in- the- singulars", etc. The advent of these new predications reiterates the problem that Aristotelian logicians faced when they first encountered "universal", "species", and the like. Should one now say that, for example, "to be man- in- itself" applies not to man-in-itself but to... "man-in-itself-in-the-mind", thereby expanding the doctrine of the threefold consideration of essences into an endless multiplication of considerations of essences? In fact, a further distinction among the predicates true of a nature absolutely considered has been actually introduced in the history of scholasticism: (i) the marks of the nature, (ii) all the others: "to be a nature in itself", "to be common", etc. The danger of such a "fourth" way of considering essences is allegedly removed by claiming that group (ii) "coincides" (Suárez: "coincidit") with the predicates true of the nature as existing in the mind (Suárez 1965. VI, III, 6; for earlier references to the "fourth status", cf. also De Wulf 1895, p 207). Such a "coincidence", however, may lead to the destruction of the original distinction between nature-in-itself and nature-in-the-mind. It is also said that one can make certain statements about the nature-in-itself, such as that it is "common" only "negatively", not "positively" — a strange distinction indeed (John of St. Thomas 1930, I, p. 315; Pesch 1888, II, n. 719, p. 209).

7 Frege's rejection of the principal feature.

Frege, outside the Aristotelian magnetic field, took the bold course of rejecting the principal feature. This was accomplished in Frege 1884 § 53: "By properties which are predicated of a concept I naturally do not mean the marks which make up the concept. The latter are properties of the things which fall under the concept, not of the concept.". The concepts

animal, rational are marks of the concept *man*, they are properties of Callias, they are predicated of Callias, not of *man*. In the diagram illustrating the classical predication theory one predication arrow has to be removed:



While in Frege's momentous text the adverb "naturally" is amusing and should be deleted (until 1884 it was "natural" to say that marks of a concept were properties predicated of the concept), another adverb should be inserted: "The latter are properties of the things which fall under the concept, not *necessarily* of the concept ". In fact, a mark of a concept *may* be a property of the concept: *being predicated* is a mark of the concept *genus* as well as a property of it.

Frege seems to be really the first in rejecting the principal feature. In this connection it is important to observe that it is not enough that a distinction between the predications "man is universal" and "man is animal" be acknowledged. While the terms "Merkmal" and "Eigenschaft" were much used in the 19th century and earlier, it seems, however, that nobody said, before Frege, that marks of a concept are not properties said or predicated of the concept. The contrary is found: Mauthner (one of the few proper names in Wittgenstein's *Tractatus*) writes: "each mark of a concept may be predicated of it" (1923, III, p. 360).

The relation from man to animal was called, by Frege, *subordination* (*Unterordnung*). The converse of predication is called by Frege *subsumption* (*Subsumption*) or *falling under*. Frege tends to avoid the terminology "predication", "predicate" precisely because of its having been so much misused, but he would keep it, provided it is corrected: "One should either get rid of "subject-predicate" in logic, or one should restrict these words to the relation of the falling of an object under a concept (subsumption). The relation of subordination of one concept under another

is so different from it that it is not admissible to speak here too of subject and predicate." (1976, p. 103).

As a corollary of Frege's revolution, the phrases "higher predicate" and "predicate of predicate" lose the ambiguity Cajetan claimed for them. From "universal" and "animal" only the former is a predicate of a predicate, a higher predicate or a higher property. If needed, one may speak of the *genuine* meaning as opposed to the old, *spurious* sense.

8 Evaluation of the conflict with regard to the principal feature

Relative to the notion of predication submitted in section (1), it is clear that, for example, "animal" cannot be truly predicated of the universal man, since the latter is not an animal, or does not have the property of being an animal. Thus, simply enough, it follows that Frege is right: the principal feature has to be rejected (*pace* recent critics, such as Sommers).

Against this conclusion three sorts of objections can be considered. 1) "Predication" in the classical theory does not mean the notion presented in section (1) but something else. (2) Frege's rejection of the principal feature is both an anachronistic and a foreign imposition on the classical, essentially metaphysical, philosophical tradition, of ideas stemming from modern mathematics. (3) Frege's rejection of the principal feature is an intrusion of modern symbolic logic into the sacred preserve of natural languages in which pre-Fregean logic was expressed.

The reply to the first objection is that, if a different notion of predication is assumed then, of course, the problem disappears, or is shifted. So, for example, in Mignucci 1996, where "x is predicated of y" is read as "x is a part of the whole y". With regard to the second objection, Frege's removal of the principal feature is not a mathematical surgery "external", or foreign to classical philosophy and metaphysics. In fact, it could not be more "internal" to the latter. In fact, Frege achieves what Cajetan did not accomplish, in spite of his promisingly beautiful statement *praedicari de praedicato contingit dupliciter* ("to be predicated of a predicate is twofold"). When we say both "animal is predicated of man" and "universal is predicated of man", we are not using "man" in different senses (as Cajetan and Aristotelian-scholasticism end up claiming) but we are using "predication" in two different senses, only one of which is genuine.

Whereas Cajetan avoids the real issue —the nature of predication— and shifts the ambiguity from the word "predication" to the content of the predicates, Frege attacks straightforwardly the heart of the problem, and boldly decides that the nature of predication is not compatible with the principal feature. The reply to the third objection will be given in the last section of this essay.

The presence of the principal feature in pre-Fregean philosophy has not been innocuous. Here are two examples of inconveniences stemming from it (cf. also my 1967 4.5). The first concerns self- predication. Because of the principal feature, the "identical" propositions, such as "homo est homo", look like self-predications —they are not: the universal man is surely not a man. On the other hand, subtle philosophers, since Antiquity, have detected the interesting phenomenon of (genuine) self- predication. In the 16th century, Gasconius points out that the predicate universal, among other predicates, is itself a universal, since it is predicated of other items, or in perhaps more appealing words: the property universal has the property of being universal. Such a nice start is ruined, alas, by a qualification: the property of being universal has the property of being universal... "by accident though" *(ex accidenti tamen*, 1576, f. 13). Such a qualification is unnecessary, and only due to the obsessive trend towards keeping properties of a property P "outside" the set of marks making up P. Another example is the notion of extension, popularized by Port Royal (Arnauld 1683, I, ch. 6). If the extension of an idea is "the subjects to which this idea applies", i.e. all that of which the idea is truly predicated, it turns out that, for example, the extension of "animal" is not, as we understand today, the set of all individual animals, but the set of subsets of the set of animals as well.

There are also iconographical oddities, if not conceptual inconveniences, stemming from the principal feature, such as its impact on the spatial representation of individuals and universals. The typical traditional spatial representation puts the individuals at the bottom, and the universals at the top. Within universals, the more universal are placed above the less universal; for example, animal is above man, just as man is above the individuals. The scores of Porphyrian trees produced through the medieval and post-medieval centuries exemplify such a spatial arrangement. (The 18th c. Sulzer considers universals extensionally, i.e. as classes, and divides the latter into classes of first order, second order, etc. Higher order

classes are not, contrary to our expectations, classes of classes in the modern sense but more inclusive classes, cf. my 1974). When the new higher predicates, such as "universal" arrive, there is no room left for them in the ontological building. To add one storey at the top would be confusing. The only solution is to build a new house, side by side with the old one, or to plant a new Porphyrian tree next to the ten or so already existing (one for each category). This became known as the *eleventh category* (a meticulous description of which is found, for example, in the post-medieval Gasconius). The inhabitants of the eleventh category are often called "second intentions", and are globally classified as "mental being", opposed to the "real being" of the other categories. (The "second" in "second intention" wrongly suggests that the hierarchy of higher predicates stops at the second level, with just predicates of predicates of individuals, whereas it actually goes upwards indefinitely.)

Once the merits of Frege's revolution have been acknowledged, a critical historian of logic should be open to the understanding of what went on in the classical predication theory. It is an exaggeration to write (as in my 1967) that the latter is "another" theory, but its peculiarities must be respected. Two of them are the following.

First, it is suggestively intriguing that the principal feature is not an isolated phenomenon affecting only predication: it also occurs in connection with the other fundamental relation of classical ontology: inherence of accidents in substances. As Pacius tells us: "both primary and secondary substances [both this man Callias and his essence man] are subjects of accidents", 1600, cap. 3, n.3. This fact may point to some deeper phenomenon, to which historians of logic should be alert.

Secondly, the formidable notion of essence has surely contributed to the strength of the principal feature. The popular Port Royal logic textbook describes essence, echoing Aristotle's *Metaphysics* Z, 6, in a way that suggests it is identical with the individual: "the essential attribute, which is the thing itself" (Arnauld 1683, I, ch. II), a Latin translation of which sounds even more emphatic: "essentiale attributum, quod ipsissima res est": the essential attribute is the very thing itself (Arnauld 1765). It must be granted that, within such a perspective, the Fregean insistence upon a sharp distinction between concepts (universals, predicates, for example man) and objects (individuals, for example Callias) loses much of its force.

In fact, in the foreground of classical metaphysics (not however in the text from *Analytica Priora* quoted in section 2) it is not the contrast between individuals and universals that is prominent. Rather, the scene is dominated by one single kind of entity (*ousia*, *res*, *Ding*, *chose*, thing, essence, nature) to which it "happens", as it were kaleidoscopically, to be sometimes universal and some other times individual. The nature in itself is "indifferent" to such universal or individual states (here we recognize the threefold doctrine). Against such a background, to discuss whether "animal" is predicated of man or of Callias is rather eccentric. Indeed, it may even appear that "animal" is predicated primarily of man, and secondarily of the individual man. For example, Callias is risible (can laugh) *because* man is risible (Aquinas 1949, 8, 1, resp.; also 1950a, n. 845: "for such accidental predicates are primarily said of the individuals, and secondarily of the universals, whereas the contrary holds for essential predicates"; a similar view in the text quoted above in section 3), and Callias is rational *because* man is rational (Suárez 1965, V, 2, 2). To be sure, nothing therein is enough to justify the principal feature. The essence cannot be really identified with the individual (if it is assumed that more than one individual share the same essence!), and even if the essence is viewed as a source of properties, the latter are in any case properties of the individuals, not of the essence.

Finally, a historiographical comment. The principal feature of classical predication theory has not been paid adequate attention by historians of logic, especially of medieval logic. Generally, under the heading "predication", they refer to other aspects of this notion, for instance, and most frequently, to a distinction between predication understood as inherence and predication understood as identity (cf Pinborg 1972). However, the principal feature is far more central and significant for the history of philosophy as a whole than the much repeated inherence - identity contrast. It is equally regrettable, indeed annoying, that some translators, for the sake of readability in modern languages, prefix indefinite or definite articles to the general terms in question ("homo est animal" becomes "a man is an animal"), the effect of which is to conceal, to the eyes of modern readers, the peculiarities of the principal feature. A readable modern text is surely obtained, but the fact remains hidden that the Aristotelian predication theory officially views, or construes "S is P" as a statement in which P is said of S— sometimes even primarily said of S, and only secondarily of the individuals falling under S. A readable text

can be produced, without distorting the content, by enclosing the article(s) in special brackets.

9 A second feature of the classical theory: conflation of identity and predication

In the history of philosophy, identity has been viewed as somehow the underlying *truth-maker* of predication, or of propositions in general. Aquinas writes: "Predication is something achieved by the intellect in its act of combining and dividing, having for its foundation [*fundamentum*] in reality the unity of those things, one of which is attributed to the other (1948 *Cap. quartum*, p. 29). Also: "In every true affirmative proposition the subject and the predicate must signify somehow the same thing in reality, but given under different aspects" (1950b, I 13 12 c). The view that the identity of subject and predicate is the truth-maker of propositions continues through the history; one finds it in obscure writings, such as an early modern disputation: "the unity or identity of predicate and subject is the cause and the foundation of an affirmative proposition being true and good" (Vogl 1629), as well as at the basis of philosophical peaks, such as Kant's *Critique of Pure Reason* (notion of *Schema*).

Now, the view of identity as truth-maker of true predications should not necessarily lead to a confusion of identity and predication. In fact, Aquinas, as pointed out by Weidemann, "is well aware of the difference between the "is" of predication and the "is" of identity": Aquinas distinguishes between a predication "in the way of an identity" (*per modum identitatis*) and a predication "in the manner in which a universal thing is predicated of a particular one" (*sicut universale de particulari*) which is predication "more properly" (1986, 183).

However, Aquinas' awareness of the distinction is the exception relative to the scores of logic textbooks produced before Frege; even the supposedly Thomist ones tend to conflate the two notions. For example, Fonseca views the sentences "this philosopher is Plato", or "this city near the river Mondego is Coimbra" as predications in which, respectively, "Plato" is predicated of attributes of Plato and "Coimbra" is predicated of attributes of Coimbra (1611, *Lib. Primus, Cap.* XXVI).

Frege states the distinction much more vehemently and prominently than

Aquinas. From the many Fregean texts on this issue a relatively less known one occurs in a letter to Wittgenstein. Frege complains that the first proposition of the *Tractatus*: "Die Welt ist alles, was der Fall ist", is unclear because of the ambiguity of the first "is". Frege explains: "The 'is' is used either as a sheer copula, or as the identity sign in the fuller sense of 'is the same as'" (Frege 1989. letter to Wittgenstein, March 2 1920).

It follows from the above that the conflict between Frege and the previous tradition, with regard to identity and predication, is not total as in the case of the principal feature. There is surely a conflict between Frege and the scores of logic books produced before him, but not between Frege and at least one important author: Aquinas. Frege goes beyond Aquinas simply in requiring that the distinction be not merely conceptual but also expressed notationally. Fonseca's examples should not merely be *thought* as identities but even *rewritten* as identities, for instance:"this philosopher = Plato" instead of "this philosopher is Plato".

Frege's move towards a full, even notational acknowledgment of the distinction seen by Aquinas is, in my view, to be evaluated positively. It is, in the first place, a clarification, to be welcomed as such. Secondly, it should be observed that making individuals into predicates is contrary to the intuition underlying the ontological inventory offered by Aristotle in the passage quoted in section 2. Thirdly, the conflation of identity and predication generates one more kind of "predicates of predicates" to the already confusing varieties listed, for example, in the Aquinas' text quoted in section 3. The presence of this (fifth!) type of predicates of predicates derails the study of the issues pertaining to the validity of the rule of substitutivity of identicals from its proper context into a strange discussion involving pseudo-properties of properties, as is obvious in Aristotle's, as well as traditional discussions of the fallacy of accident. Consider, for instance, the argument: "the man who is approaching is Coriscus, you know Coriscus, hence you know the man who is approaching". From within the confusion of identity and predication the diagnose of what is wrong in the argument is not worded, as it should be, in terms of the failure of the substitutivity of identicals but in terms of a failure of the transitivity of predication (cf. my 1976).

10. Third feature: denoting quantificational phrases

Feature 1 makes "man" subject in indefinite sentences (i.e. sentences without quantifier) such as "man is animal", "man walks", and leads to viewing "men" as the "subject term" in categorical sentences such as "all men are rational", "some men walk". Feature 3 perversely goes further in that it views the *entire* phrases of the form "all P", "some P", or their supposed meanings, as *subjects*: "all men" becomes the subject of "all men are rational", "some men" becomes the subject of "some men are walking". Such a view of predication is, if not classical (a scholastic antecedent might be found in the notion of *individuum vagum*, vague individual), at any rate very much in vogue among algebraic, pre-Fregean logicians such as Boole and Schröder. Boole, for instance, writes: "In the proposition ,"All fixed stars are suns", the term "all fixed stars" would be called the subject, and "suns" the predicate" (1951, p. 59). The expression "all P" denotes, in this vein, the class of objects that are P, whereas "some P" refers to an indefinite subclass thereof. Frege rejects this view, cf. for example 1967. The issue is less dramatic than in the case of the principal feature, or even of the second feature. Nonetheless, Frege's intervention should be welcomed, also here, as a convenient clarification.

11. Locke's triangle: a fourth feature?

Locke writes, in a non-obvious place of the *Essay* (1959, IV, 7, 9):

> For example, does it not require some pains and skill to form the general idea of a triangle, (which is yet none of the most abstract, comprehensive, and difficult) for it must be neither oblique nor rectangle, neither equilateral, equicrural, nor scalenon; but all and none of these at once. In effect, it is something imperfect, that cannot exist; an idea wherein some parts of several different and inconsistent ideas are put together.

In traditional jargon, and leaving aside the predicates "oblique" and "rectangle", we have in the Lockean triangle a genus (triangle) with three species (equilateral triangle, isosceles [=equicrural] triangle, scalenon triangle) each of which results by adding a differentia (equilateral, isosceles, scalenon) to the genus. There is a *negative* and a *positive sequence* of statements about the triangle: 1) the triangle is equilateral, the triangle is isosceles, the triangle is scalenon; 2) the triangle is not equilateral, the triangle is not isosceles, the triangle is not scalenon. In the

positive sequence, each of the differentiae is affirmed, *predicated* of the genus, only to be denied of it in the negative sequence.

The negative sequence is not surprising, and should not be troublesome. The triangle, insofar as general and abstract, cannot be scalenon, isosceles or equilateral, and there is no problem in this, *pace* Locke: abstract entities are precisely that: abstract, truncated , imperfect entities. The negative sequence can be disturbing only for those who continue to presuppose the classical predication theory and its principal feature, including the extreme case of pseudo-self-predications (cf. sections 3 and 8), which in this case would include "*triangulum est triangulum*". If the triangle is (a?) triangle, and every triangle is either scalenon or isosceles or equilateral, then the triangle is either scalenon or isosceles or equilateral, which contradicts the negative sequence.

The really interesting puzzle is created by the positive sequence. It offers, in a way, the converse of the principal feature. By the latter, the universal "triangle" is predicated of any of its species, say of "isosceles (triangle)". Now Locke claims that "isosceles" is predicated of triangle. While Aristotle says that "animal" is predicated of man, Locke's famous text adds the converse: "man", or at any rate the differentia "rational", is predicated of animal. Needless to add, the positive sequence is the source of inconsistency, not only by combining it with the negative sequence but also by some simple reasoning: if the triangle is isosceles, and no isosceles is scalenon, then the triangle is not scalenon, whereas in the positive sequence we have that it is.

Is Locke's assertion that the species are said of the genus just the result of a hasty, sloppy writing, or does it reflect something serious, either in Locke himself or in the previous philosophical tradition? In Porphyry's *Isagoge* we read:

> *Nor does animal possess all the contradictory differences,* for the same thing at the same time would have contradictory properties, but, as they believe, animal possesses *potentially*, not *actually*, all the differences of the subordinate species. Thus, nothing arises from not-being, nor will contradictories exist at the same time in the same thing (my emphasis, 1887, 11,1)

Porphyry would say that the triangle possesses the contradictory differences, but potentially, not actually as in Locke. In a treatise from the early 17th c the author goes one step further in the direction of the

contradiction:

> It is the case that the genus contains under itself both the species and the differentiae subordinated to it, *at least in potency*, for this appears to belong to the nature of the potential or universal whole, otherwise one cannot understand how [that universal whole] could be predicated of them [the species and differentiae] (Eustachius a Sto. Paulo 1616, p. 37, emphasis mine).

The "at least" (*saltem*) leaves the door open for actuality instead of mere potentiality. In fact, Eustachius walks through the open door and affirms that the differences *are* in act, not just in mere potency, in the genus...although the explicit contradiction is avoided by making an agonizing distinction between "confused" and "distinct" act. Thus, the positive sequence becomes: 1*) the triangle is *in confused act* equilateral, the triangle is *in confused act* isosceles, the triangle is *in confused act* scalenon. To be sure, the full Lockian contradiction is avoided by Eustachius only if the phrase "confused act" has any meaning at all.

This intriguing phenomenon of the fourth feature has a motive obviously in the view that the genus must be somehow the source of the differences (cf. Porphyry's above quoted passage: "nothing arises from non-being"). One may also speculate that the requirement of some identity in order to make a predication true (cf. section 9), in conjunction with the principal feature, generates some sort of identity between a universal and its inferior universals, for example between animal and man (given that the former is predicated of the latter). Of course, identity works both ways, and in addition to "man is animal" the converse "animal is man" quickly emerges for consideration.

In conclusion, classical predication theory comes very close to having a fourth feature— in fact, one may say that it is a "potential" fourth feature (actual in Locke probably because of careless writing, and short of actual in Eustachius just because of a smart phrase). Many authors, from Berkeley to Husserl and Beth, because of their unawareness of the historical roots of Locke's general triangle, have taken the latter too seriously, and contributed to its undeserved fame.

12 The return (not of classical philosophy but) of classical predication theory

In recent decades a revolt has developed against the distinctions made by the modern theory of predication, as pioneered by Frege, and one may speak somehow of a return of the three (hopefully not four) features of classical predication theory. Prominent in the rebellion has been J. Hintikka, who blames Frege for "corrupting" the logical mind of the 20th century (1984, p. 28). Hintikka, focussing on the "being" side of the coin rather than on the "predication" side, attacks Frege's claim that "is" is ambiguous (predication, subordination of concepts, existence, identity, assertion), and develops a "logic of being", which is a campaign with two fronts: a theoretical one (ordinary language fares well without any distinctions in the meaning of "is"), and a historiographical one (Fregean distinctions in the meaning of "is" were not needed by the pre-Fregean philosophers and are not needed for our better understanding of them). I have stated my criticism of Hintikka's "logic of being" in my 2003. The "logic of being" reflects the linguistic phenomenalism that replaced, in recent decades, the opposite extreme, namely the "symbolic logic" euphoria of the first part of the last century— from formalism to naturalism. Two errors affect Hintikka's logic of being. Theoretically, it is forgotten that language is not nature, governed by physical laws, but culture, governed by norms; the very expression "natural language" is as preposterous as "natural aircraft carrier". Tools (for instance the verb "to be") can be improved— "sharpened", like a pencil— or discarded if beyond repair. Historiographically the error is to think of pre-Fregean logic as if it was "nature", in contrast with the artificiality of a *Begriffsschrift*; the truth is that both the *Organon* and the *Begriffsschrift* are expressions of culture, both belong in the realm of norms, and both are, if compared with what is natural, equally artificial. Frege's work just furthers (whether rightly or wrongly is another issue) the traditional normative view of language.

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