What Locke devotes in his Essay to the topic of individuals and universals, and to abstraction as a way that leads from the former to the latter (II, 11, sections 9, 10, 11; II, 32, sections 7, 8; III, 3) is a watered down version of scholastic textbooks. One starts with a relation of similitude among individuals (III, 3, 13), one performs a leaving out and a retaining of features in the given individuals (III, 3, 7). Surprising is Locke's arrogance in claiming that he has found the solution of the "mystery of genera and species" (III, 3, 9).

In spite of these innocent appearances, a Lockean passage, lost towards the end of the long Essay, has caused a lot of turmoil, and even infuriated some philosophers from Berkeley to Husserl, to the point that special studies have been written on the problem of "Locke's universal triangle". I am referring to the phrase "...", occurring in the following text (Book IV, ch. 7, section 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 [isosceles], nor scalene; but all and none of these at once [my emphasis]. In effect, it is something imperfect, that cannot exist; an idea wherein some parts of several different and inconsistent ideas are put together.

Let us focus on the phrase "all and none of these at once". The "these" refers to the "differentiae" (differences) that, added to a genus, constitute the various species that are subordinated to the genus. The phrase has two parts: a positive and a negative one. The positive is: "all these differences at once", the negative: "none of these differences". If we abbreviate "the general idea of a triangle" by means of the generic description "the triangle", the example given by Locke generates five statements in the positive side and other five statements in the negative side: p1) the triangle is oblique, p2) the triangle is

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rectangle, p3) the triangle is equilateral, p4) the triangle is scalene, p5) the triangle is equicrural; n1) the triangle is not oblique, n2) the triangle is not rectangle, n3) the triangle is not equilateral, n4) the triangle is not scalene, n5) the triangle is not equicrural. It is hard to imagine a more inconsistent gathering of statements!

In order to simplify the discussion, and to facilitate the comparison with other authors, I will replace "the triangle" (the genus) by "the F", and I will assume that there are exactly two species into which the genus F is divided: H₁ and H₂. These two species are assumed to be exhaustive (all F is H₁ or H₂). According to Locke, the F is H₁, the F is H₂, the F is not H₁, the F is not H₂.

In the first place it must be pointed out that the issue that emerges in Locke's passage is not new; it originates in ancient philosophy and occurs in the foreground of scholasticism. I will give two examples.

Porphyry, in his *Eisagoge*, recognizes, as Locke does, the negative part (text A), and "half- recognizes" or "half- grants" the positive part (text B) as something "potential"⁶:

A. "Ας δὴ καὶ ὄριζόμενοι φασίν διαφόρα ἐστὶν ἣν περισσεύει τὸ εἴδος τοῦ
[111] γένους, ὁ γὰρ ἄνθρωπος τοῦ ἄνδρου πλέον ἔχει τὸ λογικὸν καὶ τὸ
θητητὸν: τὸ γὰρ ἄνδρον οὔτε οὐδὲν τούτων ἑστίν, ἐπεὶ πόθεν ἄν τὰ εἶδη
σχοῖνεν διαφόρα [difference is that by which the species exceeds the genus. Man,
for example, possesses more than animal, namely the rational and the mortal.
Now animal is none of these, for, if not, how could the species be different from
one another? (my emphasis)].

B. οὔτε δὲ πᾶσας τὰς ἀντικειμένας ἔχει, ἐπεὶ τὸ αὐτὸ ἀμα ἐξεί τὰ
ἀντικειμένα, ἀλλὰ ως ἄξιον, δυνάμει μὲν πᾶσας ἔχει τὰς τῶν ὕψι αὐτὸ
[5] διαφορὰς, ἐνεργείας δὲ οὐδεμίαν. καὶ οὕτως οὔτε ἐξ οὐκ ὑπνορ τι
γίνεται οὔτε τὰ ἀντικειμένα ἀμα περὶ τὸ αὐτὸ ἑστεῖ. [Nor does animal
possess all the contradictory differences, for the same thing at the same time
would have contradictory characteristics. They maintain, however, that animal
possesses potentially, not actually, all the differences of the subordinate species.
Nothing then arises from not-being, nor will contradictories exist at the same time
in the same thing (my emphasis)]

In Porphyry one reaches man from animal in two stages: first animal is divided into rational and irrational, then rational- animal is divided into mortal and immortal. In connection with the schema given above, if animal = F, rational = H₁, we should subdivide H₁ into two species: G₁ = mortal, G₂ = immortal. Strictly, Porphyry says in A that the F is not H₁, and that the F is not G₁ either. It seems obvious, however, that the idea behind text A is that the genus is not any of its differentiae, i.e.: the F is not H₁, the

F is not H₂, the H₁ is not G₁, ...the F is no G₁.... The reason given by Porphyry is that otherwise it could not be understood how the species of the genus are different from one another. For example, if the F was H₁, everything that falls under F would also be H₁, even the H₂ would be H₁.

Text B considers another issue: somehow there should be an explanation of how the differentiae emerge, and it is assumed that they do not proceed from nothingness (ex nihilo). Somehow the differentiae must be in the genus, not in act — the F is H₁, the F is H₂, which leads to the contradiction insofar as H₁ and H₂ are opposite — but in potency. That is, according to Porphyry, "the F is potentially H₁", "the F is potentially H₂".

The first phrase of text B includes the word "all", that we would probably like to replace by "none of". In saying "all" the text seems to leave the possibility open for the genus possessing some of the opposite differentiae — but, obviously, Porphyry does not want that.

Many centuries later, around 1600, we see in Eustachius a Sto Paulo a greater acknowledgment of the positive part. This author from the second scholasticism awakens our curiosity by the following description of the way in which the differentiae are in the genus: "the genus contains the subordinate species at least potentially". This "at least" is not what one expects: from the standpoint of avoiding the contradiction one would expect "only" (or "at most" instead of "at least"). With "at least" the door remains open for "actually". But there is no mistake: Eustachius immediately moves in that direction, denies that the differentiae are only potential, and affirms that they are actual, albeit with an agonizing distinction between "confused" act and "distinct" act; the differentiae are in the genus in confused act, not in distinct act. Thus, according to Eustachius, it is true that "the F is actually (confusedly) H₁", "the F is actually (confusedly) H₂".

If we stop for a moment and reflect on Porphyry and Eustachius and their efforts to avoid the contradiction in the positive part, we will quickly realize that such efforts are pointless to the extent that one continues to accept the negative part (the F is not H₁, the F is not H₂). The negative part, by itself, generates the contradiction. If the F is not H₁, and the F is F (here is the problem!), then the F must be H₂ (we have assumed that H₁ and H₂ are exhaustive). If the F is not H₂ we have that the F is H₁.

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7 Summa Philosophiae Quadripartita, de rebus dialecticis, moralibus, physicis et metaphysicis, authore Fr. Eustachio a Sancto Paulo, ex congregacione Fuliensi, ordinis Cisterciensis, Coloniae 1616. I am referring to the quaestio de quomodo genus dicatur continere subiectas species, itemque differentias inferiores. This quaestio occurs within the discussion of universals, on p. 37 of the edition I am using. The Latin text with the surprising "at least" is the following: Constat quidem genus continere sub se tum species cum differentias sibi subiectas, saltem potestate
Going back to Locke's phrase, which is different from Porphyry in the fact that it omits the clause "in potency" or "potentially" in the positive part, we see that this omission is really quite correct. It is not worth to bother with distinctions "in act- in potency", "in confused act- in distinct act" within the positive sequence, given that the negative sequence, by itself, on the basis of a few logical assumptions, generates the positive part, as it has been shown.

The problem with Locke's phrase is that one does not know if it is the product of a careful reflection (leaving out the "in act- in potency" qualifications because they are useless) or just an incomplete repetition of a scholastic common place. The phrase is lost towards the end of the Essay, lacks any explanation on the part of the author, particularly with regard to its connection with the sections of the Essay devoted to abstraction (which is the path leading from individuals to universals, from an F to the F).

But even if one takes seriously Locke's general triangle, there is a fact that should be mentioned. The problem of the general triangle happens to be better stated, and above all, solved, before Locke. The author I am referring to is John of St Thomas, whose text I will quote now: 8

Secundo colligitur, quod universalitas et particularitas pertinent at rationem status ipsius naturae, quae ab universalitate vel singularitate denominari potest. Unde triplex status solet assignari in qualibet natura, ut constat ex doctrina D. Thomae 4. cap. de Ente et Essentia et Caietano ibi.

Primus est status naturae secundum se, quia in eo non considerantur nisi tantum illa, quae constituant ipsum naturam et quidditatem. Unde vocatur etiam status indifferentiae, quia natura secundum se indifferentem ad praedicata accidentia [aquí una variante textual añade: nec includit illa ex se nec excludit a se, sed tantum est capax illorum et explicit sua praedicata essentialia tantum]. Et vocatur etiam status solitudinis, quia natura est sola ab omni extrinseco praedicato. Et vocatur etiam communis negative, quia non intelligitur multiplicitate natura.

Secundus status est secundum esse, quod habet in singularibus, qui est status singularitatis.

Tertius denique status est secundum esse, quod habet in abstractione intellectus; quae abstractio etiam dici potest status solitudinis, non pro solitudine ab omni extrinseco praedicato, sed solum pro solitudine seu praecisione ab individuis. Et isti duo status non conveniunt naturae secundum se, quia neuter eorum est praedicatum essentiale naturae; si enim natura secundum se esset universalis, numquam posset esse singularis, vel si secundum se esset singularis, numquam posset inveniri universalis. Quare in statu naturae secundum se omnia, quae non sunt praedicata quidditativa, illi denegantur. Et hinc est, quod extrema, quae

videntur contradictoria, addita particula "secundum se" negantur de natura in illo primo statu. Dicimus enim, quod natura secundum se neque est una nec plures, nec est alba nec est non alba, quod est dicere: essentialiter non est una, essentialiter non est plures, sed capax utriusque. Nec tamen inde inferas verificari duas contradictorias de natura secundum se; hoc enim numquam est possibile, sed semper altera est vera, altera falsa. Si enim dicas: "homo secundum se non est albus", "homo secundum se est albus", haec secunda est falsa et prima vera, quia est sensus: "homo essentialiter non est albus", quod verum est, "homo essentialiter est albus", quod falsum est. Et sic non valet: secundum se non est album, ergo secundum se est non-albus, quia variatur appellatio, propter illam particulam "secundum se".

An English translation:

Secondly it is concluded that universality and particularity belong to the concept of the status of the nature, which [nature] can be referred to from the standpoint of universality or from the standpoint of singularity. Hence a threefold status is usually distinguished in any nature, as it is established from the doctrines of Thomas (ch. 4 of De Ente) and of Cajetan (in his commentary thereupon).

The first is the status of the nature in itself, for in this status nothing is considered except the constituents of the nature and quiddity itself. Hence this is also called the status of indifference, for the nature in itself is indifferent towards the accidental predicates [here a textual variant adds: neither includes them nor excludes them per se, but is just capable of them, and displays only its essential predicates]. And it is also called the status of solitude, for the nature is alone and separated from every extrinsic predicate. And it is also called common—negatively, for the multiplied nature is not meant here.

The second status is according to the being that the nature has in the singulairs, which is the status of singularity.

Finally the third status is according to the being that the nature has in the abstraction of the intellect, which abstraction can be also referred to as a status of solitude—not of solitude in the sense of separated from every extrinsic predicate, but only in the sense of being separated (cut off) from the individuals.

And these two status do not belong to the nature in itself, for neither of them is an essential predicate of the nature; if, in fact, the nature in itself was universal, it could never be singular, or if it was in itself singular, it could never be found as universal.

This is why in the status in itself all the predicates that are not essential are denied of the nature. Hence that properties [extrema?] that seem to be contradictory, are denied of the nature in that first status—having added the phrase "in itself". For we say that the nature in itself is neither one nor many, neither white nor non-white, which means: essentially it is not one, essentially it is not many, but
capable of either.

You should not infer therefrom that those two contradictory propositions are true about the nature in itself; for this is never possible, but always one is true, and the other false. If, in fact, you say: "man in itself is not white", "man in itself is white, the latter is false, and the former is true, for the meaning is: "man, essentially, is not white", which is true, "man, essentially, is white", which is false. Thus it is not valid to argue as follows: "[it] in itself is not white, therefore it is in itself non-white", because the "appellation" has varied, due to the phrase "in itself".

This text is part of a general discussion on the topic of universals. At the beginning of our text, John of St Thomas presents the doctrine of the "threefold state of essences (or natures)". The nature man can be considered in itself (secundum se), in the individuals in which it is instantiated, or in the mind. To consider the nature man in itself is to consider only and exactly its marks (notae, German Merkmalen as Frege would say). In talking about man in the state of "loneliness" (as it has been poetically said, instead of "secundum se", "in itself") we make about man statements such as the following, and only such statements: "man is animal", "man is rational", "man is substance", "man is biped"...The question then arises of whether, in talking about man in its loneliness consideration we should simply ignore predicates that are "extrinsic" to the human nature (such as the "universal", "species"...on the one hand; "white", "black", "runs", "sleeps" ....on the other hand) or rather regard the attribution of these predicates to the nature man as false.

In reading John of St. Thomas, the first impression is that this author prefers the first approach; he says that the nature man is in itself "indifferent" ("neutral") with respect to the extrinsic predicates. A textual variant reinforces this interpretation; in this variant it is said that the nature man neither excludes nor includes, by or in itself (in the state of "loneliness") the "accidental" predicates (as the above mentioned: "universal", "white"...). But rather soon our author reveals a definite preference for the second approach: every predicate that is not an essential ingredient of the lonely nature must be denied of it. The human nature, secundum se, in itself, is neither white nor non-white; it is false (not nonsensical!) to say that it is white, it is false to say that it is non-white. Thus it turns out that it is true to say: 1) man (in itself) is not white, 2) man (in itself) is not non-white.

The second- scholastic artisan notices the the threat of a contradiction (videtur: it seems, or it appears) and immediately tries to eliminate that danger. John of St Thomas affirms that although (1) and (2) are both true, it does not follow from (1) that (3) man (in itself) is non-white. Only with (3) we have a contradiction; propositions (2) and (1) are not contradictory. That (3) does not follow from (1) is explained by John of St Thomas by means of the theory of appellatio, as one can see at the end of the quoted passage.

I do not see exactly how to apply the theory of appellatio in this particular case. But that theory, generously explained by John of St. Thomas in various sections of his treatise, is nothing else but a manifestation of a fundamental theme in classical logic and philosophy: the recognition of the fact that our statements use to be, as it were,
"mediated" by a particular aspect under which we consider the subject of the statement. This, in turn, becomes especially clear in the so-called "reduplication", i.e. in talking about something "qua" such and such. Reduplication, again, is but one side of a coin whose other side is abstraction, as I have indicated elsewhere\(^9\). Consequently, I believe that the reconstruction, proposed below, of the propositions (1), (2) and (3), in terms of modern abstraction, is not only plausible in general but, also, corresponds exactly to what John of St. Thomas calls appellatio.

In modern abstraction, generic descriptions ("the triangle", "[the] man"...) are reconstructed as definite descriptions (ιx x is triangle, ιx x is man...), with the only difference that on the top of the x following the iota one writes a tilde. This tilde hints at the equivalence relation with respect to which one performs the abstraction and with respect to which the predicate that occurs in the generic description ("x is triangle"...) is an abstractive predicate (i.e.: if x and y satisfy the predicate, then x and y stand in the chosen ~ -relation). If now we imagine the generic description "the triangle" replaced by such an analysis, and we suscribe to the eliminability of abstract terms or descriptions, the issue of the scope of the elimination context immediately arises. Proposition (1) says that, once the generic description has been eliminated, it is not true that for every x, if x is man, then x is white; proposition (2) says that it is not true either that, for every x, if x is man, then x is non-white. Proposition (3) says something quite different from (1): for every x, if x is man, then x is non-white. We have now no problem in accepting (1) and (2) as true, without thinking that (3) follows from (1). Thus, in this analysis, which I believe faithfully reflects what John of St. Thomas has in mind with his appellatio, the threat of a contradiction disappears.

The application of John of St. Thomas' remarks on his "general man" to Locke's general triangle is of course immediate. One discovers, thus, how undeserved has been the posthumous fame of Locke's universal triangle. But we should not penalize Locke for this. The pseudo- fame of Locke's general triangle is rather a consequence, in authors like Berkeley and Husserl, of their being "disconnected" from the scholastic tradition. In Berkeley the disconnection is deliberate, if one recalls his referring to the Schoolmen as "those great masters of abstraction" (Principles, Introduction, 17), a phrase involving a self-defeating negative view of the preceding philosophical tradition. In Husserl the disconnection is no longer his own achievement but the remote consequence of a defective philosophical historiography that has not yet been corrected even today.

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\(^9\) Abstracción y reduplicación, in this journal, VI, 3 (November 1980) 255-256.