CONCEPTUAL ATOMISM, *"APORIA GENERIS"* AND A WAY OUT FOR LEIBNIZ AND THE ARISTOTELIANS

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SECTION I

Conceptual atomism (CA), as usually understood,[1] can be defined as a doctrine consisting of the following two theses:

CA1 Every concept can in principle be analysed into a set of simple, further unanalyzable *primitive concepts*.

CA2 When the primitive concepts combine to form complex concepts, they behave like "atoms" – that is, they are in no way intrinsically affected by entering into composition with one another, and the relation between them is one of bare, purely external composition.

It is well established that Leibniz subscribed to both these theses. Nevertheless, for the purposes of the present paper only CA1 is relevant. It seems therefore convenient to define CA only on the basis of the first thesis, that is, in short, as *the belief in primitive concepts*.[2] By this broad setting of scope we gain the advantage of making our results relevant not only for Leibniz's doctrine, but for much wider spectrum of thinkers – practically, the entire Aristotelian/scholastic tradition (an important source of inspiration for Leibniz, unlike most of the rest of the modern philosophers) can be regarded as conceptual-atomistic.[3]

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[1] It seems that the term originated with H. Burkhardt: *Logik und Semiotik in der Philosophie von Leibniz*, München: Philosophia Verlag 1980 (see esp. p. 170–173).

[2] Cf. Burkhardt, *op. cit.* p. 172: "*Diesen konzeptuellen Atomismus, d. h. den Glauben an die Existenz einfachster, unaflösiger Begriffe, verdankt Leibniz höchstwahrscheinlich Jungius.*"

[3] The influence of the Aristotelian tradition on the early modern thinkers (and in the case of Leibniz it was especially important) is often ignored or neglected, partly because the late scholastic thought of the 16th and 17th centuries is so far very little explored. Thus Burkhard attempts to trace Leibniz's CA back to Jungius (see the reference in note 2), who, however, is just a representative of the broad Aristotelian tradition, with very little original input.

It is the adherence to CA2 which distinguishes Leibniz most sharply from that tradition, as regards his theory of concepts.[4] The idea of the existence of a set of primitive, unanalyzable concepts, into which all other concepts can be resolved, is already present in Aristotle (at least in the notion of the "highest genera" or "categories") and was further developed by scholastic thinkers such as Duns Scotus.[5] In Aristotelianism, however, the primitive concepts – the highest genera or the concept of *being* on the one hand, and the ultimate differentiae on the other – are not considered to be inert "atoms" which are merely heaped together to form a more complex concept, but their composition is explained in terms of the Aristotelian act-potency apparatus: a genus is regarded as a kind of potency, and a differentia as the corresponding act. A combination of an act and potency essentially implies an *intrinsic* affection of both of them: the potency is being intrinsically *actualised* and *determined* by the act, while the act becomes *inherent within* the potency and gives over its own perfection to it. As a result, the constituted composite whole exhibits in this view a much greater degree of *unity* than a mere aggregate of inert "atoms" would, and it cannot be entirely reduced to the sum of its parts.[6]

Leibniz famously criticised this scholastic doctrine, taking the view that the difference between the determined (potential, *genus*) and the determining (actualising, *differentia*) part of a concept is purely linguistic or grammatical.[7] But the problem that lies hidden in CA and which I am going to investigate was

[4] Of course, there are other essential differences from the Aristotelian tradition in Leibniz's understanding of concepts, such as Leibniz's representationism vs. Aristotelian realism, or his innatism. These are however rather epistemological in nature, and thus fall beyond the scope of our present concern, which is purely logical. In global perspective, however, they are undoubtedly of crucial importance and deserve closest attention.

[5] More on Scotus's version of CA see below, esp. section VIII.

[6] Cf. for instance the following paradigmatic exposition by Duns Scotus: *"In specie autem non sunt nisi duae primae partes essentiales, scilicet actus ultimus quo species est id quod est, et proprium potentiale respectu illius actus ultimi – quotcumque ordinata includat illud potentiale, sive ordinata realiter, naturaliter, sive aliter, de quo dicetur in quarto articulo. Differentia ultima, quae est specifica, a qua est unitas rei et definitionis, includit praecise de suo per se intellectu actum ultimum in re, qui est causa unitatis completa; et genus proximum praecise per se includit proprium potentiae respectu illius actus"* – *In Met.* VII, q. 19, a. 3, n. 21. ed. Bonav. IV, p. 363; and see also section VIII for a passage from Scotus's *Ordinatio* characteristic for this view.

[7] See for example his *Nouveaux Essais sur l'entendement humain* III.3.10: *"Au reste il est encore bon de remarquer que bien souvent le genre pourra être changé en différence, et la différence en genre, par exemple : le carré est un régulier quadrilatéral, ou bien un quadrilatère régulier, de sorte qu'il semble que le genre ou la différence ne diffèrent que comme le substantif et l'adjectif; comme si au lieu de dire que l'homme est un animal raisonnable, la langue permettait de dire que l'homme est un rational animable, c'est-à-dire une substance raisonnable douée d'une nature animale; au lieu que les génies sont des substances raisonnables dont la nature n'est point animale, ou commune avec les bêtes. Et cet échange des genres et différences dépend de la variation de l'ordre des sous-divisions."*

not created by this rejection, but it was in fact inherited from the Aristotelian tradition, and only revealed itself more clearly in Lebniz's purely atomistic conception.

SECTION II

Leibniz formulated a well-known argument in favour of the CA. The argument appears several times in his writings, but the fullest expression seems to be the following:

> *Whatever is thought by us is either conceived in itself, or involves a concept of something else. Whatever is involved in the concept of something else, it is again either conceived in itself, or it involves a concept of something else. And so on. Thus either one has to go in infinitum, or else all cogitations ultimately resolve into such that are conceived in themselves. If nothing is conceived in itself, nothing at all will be conceived. For what is conceived solely by means of something else, is conceived only insomuch as this 'something else' is conceived, and the same holds for this other thing; and for that reason no sooner it is said that we actually conceive something, than we come upon that which is conceived in itself.*[8]

The argument has a peculiar quality of suggestive simplicity; we can express the gist of it in the following way:

P1	*Any concept is either conceivable in itself, or its conceiving involves conceiving some other concepts.*
P2	*But it is impossible that all concepts be of the latter kind, since that would lead to an infinite regress and consequently no concept at all would be conceivable.*
CA	*There are concepts conceivable in themselves, i.e. such that conceiving them does not involve conceiving of any other concept.*

The conclusion of the argument states in other words that there are primitive concepts – because composite concepts, of course, cannot be conceived

[8] *"Quicquid cogitatur à nobis aut per se concipitur, aut alterius conceptum involvit. Quicquid in alterius conceptu involvitur id rursus vel per se concipitur vel alterius conceptum involvit. Et ita porro. Itaque vel eundum est in infinitum, vel cogitationes omnes resolvuntur in eas quae per se concipiuntur. Si nihil per se concipitur, nihil omnino concipietur. Nam quod non nisi per alia concipitur, in tantum concipietur in quantum alia illa concipiuntur et hoc rursum ita: ac proinde tum demum actu ipso aliquid concipere dicemur, cum in ea quae per se concipiuntur incidemus."* – A.6.4.157. (I will use the following abbreviations for reference to Leibniz's works: A = Gottfried Wilhelm Leibniz: *Sämtliche Schriften und Briefe*, edited by the German Academy of Science, Darmstadt – Berlin: Berlin Academy 1923–, cited by series, volume, and page; G = *Die Philosophischen Schriften von Gottfried Wilhelm Leibniz,* edited by C. I. Gerhardt, Berlin: Weidman 1875–1890; cited by volume and page.)

without their constituent concepts being conceived, as no whole can be conceived as such without its parts.

Although Leibniz claims to be the first one to formulate this argument, it seems that very similar thoughts, although perhaps not so precisely formulated, have always lain behind the acceptance of CA throughout history. Dennis Plaisted documents that the general line of argumentation was not foreign to the early modern precursors of Leibniz like Locke or Arnauld,[9] but a very similar idea comes to its expression already by Thomas Aquinas[10] and is manifestly present in Duns Scotus's doctrine that all concepts that are "one of itself" (*per se unus*) can be in principle resolved into irreducibly simple (*simpliciter simplices*) and mutually "primarily diverse" *(primo diversa)* elements, namely the concept of *being* and the set of ultimate differentiae (*differentiae ultimae*).[11]

At the first glance, one is not very surprised that in one or another form, explicitly or implicitly, this argument was commonly accepted by the tradition: for it looks quite obviously persuasive. The major premise seems to be a logical truth, and the minor is based on an obvious *reductio* to infinite regress – so it is hard to see how one could reasonably reject the conclusion. As a matter of fact, the most serious criticisms of the argument do not attack it as *to weak*, but rather *too strong*: opponents try to show that it proves *too much*, that if it is sound at all, it forces us to accept conclusions which are manifestly false – and therefore it *cannot* be sound, however difficult it may be to see where the error lies.

The most common objection is that the argument not only settles the existence of primitive concepts, but it asserts our general capability to analyze any concept whatsoever. For if we can conceive the composite concepts only insomuch as we are able to conceive their parts, then it seems that if we have a concept at all, we have also all the primitive concepts from which it is composed, and therefore we can give the ultimate analysis of it. But that seems to be clearly false – for i) it is an empirical fact that we have a lot of concepts we are unable to resolve; ii) different thinkers propose different analyses of the same concepts – at least one of them must be wrong, then.

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[9] Dennis Plaisted, "Leibniz's Argument for Primitive Concepts", in: *Journal of the History of Philosophy* 41.3 (2003), p. 333.

[10] *De Veritate*, q. 1, a. 1, c.: *"Quod sicut in demonstrabilibus oportet fieri reductionem in aliqua principia per se intellectui nota, ita investigando quid est unumquodque, alias utrobique in infinitum iretur, et sic periret omnino scientia et cognitio rerum."*

[11] See for instance *Ord*. I, d. 3, p. 1, q. 3 n. 132, ed. Vat. III, 81, or *Collationes* q. III, in: C. S. R. Harris, *Duns Scotus*, vol. II, New York 1959, p. 371–375. Compare also J. Wolter, *Transcendentals and their Function in the Metaphysics of Duns Scotus*, p. 81–83. See also below section VIII and note 41, and especially section IX.

In my opinion, a very plausible response to attack of this kind was offered by Plaisted in his excellent paper.[12] A hint that the argument is not meant so as to deny our possession of concepts we are unable to resolve, is given by the fact that none of the proponents of this or a similar argument (including Leibniz) seems to be driven by it to this conclusion either.

Others, like Jan Palkoska, have objected that the argument already presupposes that our concepts have "atomic" structure (which makes it at best question-begging, at worst circular). Palkoska writes:

> *Given that the content of any analyzable concept is wholly derived from its* analysata*, which are themselves again concepts, the argument seems plausible: the suggested* regressus in infinitum *seems then vicious, indeed. Granted this, however, we are in position to approach the true core of the problem: it will be observed that the plausibility of the argument in question depends heavily on the assumption of atomic nature of the conceptual content, so that the question now reads, what are Leibniz's reasons for* this*?*[13]

Unlike Palkoska, I don't think that the "atomic nature of the conceptual content" is something that is *assumed* in the argument – or at least, Palkoska seems to have made no hint how such an assumption should be necessary for the argument. The conclusion follows formally from the two given premises, and the truth of the premises can, at least as it seems, be established without any appeal to atomic structure of our concepts: the first premise is meant simply as a tautology, and the other is warranted by a very straightforward reduction to infinite regress.

But it is not the purpose of this paper to defend the argument in favour of CA (although I hope that the subsequent discussion will provide some additional support for it – see sections IX and X), but rather to solve the dilemma for those who, like Leibniz and the tradition, do accept it, and then arrive at the serious difficulties we are going to expose just now.

SECTION III

"Aporia generis" is the traditional label applied to a problem first formulated by Aristotle in Chapter 3 of Book B of his *Metaphysics*, as one item on his list of the philosophical problems that are to be solved in his newly conceived science. The problem has thereafter lived his own quite interesting life; and one of its last and perhaps most crystal-pure incarnations can be discerned in

[12] See note 9.

[13] J. Palkoska: *Substance and Intelligibility. Leibniz's Notion of Substance and Its Place in His Metaphysical Project*, Ph.D. Thesis, Charles University, Prague 2004, p. 27.

Leibniz's theory of concept. It is my ambition in this paper to show that this problem can be solved, or rather shown to be merely apparent, by abandoning certain, as it seems, unconscious assumption, which is typically shared by the adherents of the CA throughout the history and which is undoubtedly quite natural, but nevertheless erroneous. By removing this elusive misconception, I hope to present a version of CA that is more natural and plausible with regard to our intuition concerning the nature of our concepts than the standard Aristotelian-Leibnizian one, but such that it nevertheless does justice to the Leibnizian argument cited above.

The problem or *aporia* we are talking about arises when we start thinking about the so-called *transcendental concepts*, that is, concepts that are so general, that they transcend all extensional borders, so to speak. The prominent transcendental is the concept of *being*, which is accompanied by several others like *one*, *thing*, *something*, or *good*. The original Aristotle's formulation of *aporia generis* concerns the concepts of *being* and *one* and is the following:[14]

> *But it is not possible that either* one *or* being *should be a single genus of things; for the differentiae of any genus must each of them both* be *and be* one, *but it is not possible for the genus taken apart from its species (any more than for the species of the genus) to be predicated of its proper differentiae; so that if* one *or* being *is a genus, no differentia will either* be *or be* one.[15]

The argument contained in the quoted text is obvious. We could formalise it into a standard Aristotelian syllogism in the following way:[16]

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[14] I am using the Revised Oxford Translation of Aristotle's texts (*The Complete Works of Aristotle: The Revised Oxford Translation,* ed. Jonathan Barnes, 2 vols., Princeton University Press, 1984), with occasional modifications indicated in the footnotes

[15] »…οὐχ οἷον τε δε τῶν ὄντων ἕν εἶναι γένος οὔτε τὸ ὄν· ἀνάγκη μὲν γαρ τὰς διαφορὰς ἑκάστου γένους καὶ εἶναι καὶ μίαν εἶναι ἑκάστην, ἀδύνατον δὲ κατηγορεῖσθαι ἢ τὰ εἴδη τοῦ γενούς ἐπὶ τῶν οἰκειῶν διαφορῶν ἢ τὸ γένος ἄνευ τῶν αὐτοῦ εἰδῶν, ὥστ᾽ εἴπερ τὸ ἓν γένος ἢ τὸ ὄν, οὐδεμία διαφορά οὔτε ὂν οὔτε ἓν εἴσται.« – *Met* B, 998b24–27. I have modified the translation by W. D. Ross by using concrete rather than abstract terms to translate »τὸ ἕν« and »τὸ ὄν«, which is in accord with the *prima facie* grammatical meaning of the Greek words as well as with their unanimous interpretation by the later tradition. Unfortunately, in English the term "being" has a double meaning: both the concrete one, "that which is" – »τὸ ὄν« in Greek and "*ens*" in Latin –, and the abstract one, "that which formally makes a thing be" – Greek »τὸ εἶναι« and Latin "*esse*". In this paper, when speaking in the technical sense, the *concrete* meaning is always intended, unless indicated otherwise. "The concept of being" is the equivalent of Latin "*conceptus entis*", not "*conceptus essendi*" (or "*conceptus* τοῦ *esse*").

[16] I am leaving out the concept of *one* and focus solely on the concept of *being* for the sake of brevity and clarity. All the subsequent reasoning concerning the concept of being can be analogically applied to the concept of one, *mutatis mutandis*.

P3^{Ari}	*No genus is predicated of its differentiae.*	PeM
P4^{Ari}	Being *is predicated of its differentiae (or else they would not* be*).*	SaM
AG	*Ergo,* being *is not a genus.*	SeP

As the scheme given on the right shows, this is a valid Aristotelian syllogism in the mode *cesare* of the second figure.[17] But is the argument also *sound*? Although the Aristotelian tradition originally wished to accept this argument as sound, one can sense a growing uneasiness in the approach of the schoolmen when it comes to exact stating of the argument and pinning down the precise meaning of the premises – to the effect that in later scholasticism the discussion of the argument drifted toward what I hope to show to be the *real* logical problem in the common version of CA.

SECTION IV

So what is wrong with the original, Aristotle's *aporia generis*? Put shortly, it appears that it is impossible to give such a meaning to it that both of the premises be jointly true. The problematic notion is that of *predicating of the differentiae*. It appears that it is impossible to come with a satisfactory interpretation of it – that means, to say exactly *what entity* is intended to be referred to as the subject of the said predication.

In order to show that, let us consider the possible alternatives; and in order that we don't *a priori* exclude any entity from our investigation, let us take into account as rich a theory of concepts as possible. The most generous theories are found among the late scholastics of the moderate realist party, that is, in late Thomism, Scotism and Suarezianism of the 16th and 17th centuries. These theories offer basically *four* alternatives of what may be regarded as the referent of the term "differentia" as used in the Aristotelian argument, or, in more scholastic terms, four alternatives of what kind of *supposition* (the scholastic near-equivalent to reference) is to be ascribed to a given "differential" term that is the subject of the predication mentioned in the argument.[18]

[17] I am using the classical medieval notation (which seems more fitting than the modern formalisation to express Aristotelian syllogisms), where M means the middle term, S the subject of the conclusion and P the predicate of the conclusion, and the letters e, a, o express a universal negative, universal affirmative and partial negative judgement (thus MeP means *No M is P*, MaS means *Every M is S* etc.).

[18] I would like to make it absolutely clear that I am not going to distinguish the various modes of the supposition of the term "differentia" as used in the propositions from which the argument consists (it is clear that it has the standard, that is personal, supposition), but the various modes of supposition of the subject-terms of the propositions *mentioned* in the argument, that is, the propositions where something (a genus or the concept *being*) is predicated of a particular differentia. By going through these alternatives, we will nevertheless investigate the various possible interpretations of the term "differentia" as used in the formulation of the Aristotelian argument, but

Let us explain it on an example. Suppose that the essential definition of man is *rational animal*. Here, *rational* is the differentia, and *animal* is the genus. Now the premises of the Aristotelian argument claim, with respect to these instances of genus and differentia, that

P3$^{Ari'}$ *Animal* is not predicated of *rational*.
P4$^{Ari'}$ *Being* is predicated of *rational*.

The four alternatives of how to understand these two propositions, and consequently the generalized premises of the *aporia generis*, concern the question *what does the term* "rational" *refer to,* or, scholastically put, *how or for what does it supposit*. We can discern the following four entities that build up the complete picture of the semantics of the term "rational" (see the figure below).[19]

1. **The very word "rational".**[20] This interpretation would correspond to the so-called *material supposition* of the term "rational".
2. **The mental act or formal concept 'rational'** – that is, the mental entity by means of which and through which we conceive rational things as such; the mental sign or representation of all rational things as such. This would correspond to the so-called *simple supposition* of the term "rational", conceived in a nominalist (or conceptualist) manner.
3. **The intentional object of the formal concept, the objective concept *rational*** – that is, the universal abstracted from the individual instances of rational beings, as existing merely intentionally, as an object of our mental act or as the immediate *repraesentatum* of the formal concept. This corresponds to the realistically interpreted *simple supposition* of the term "rational".
4. **Any real thing falling under the universal concept *rational*** – that is, any of the real objects of the formal concept 'rational', any real individual in which the comprehension (conceptual content) of the objective concept *rational* is realised of which exemplifies it – simply put, anything that is rational. This would be the *personal supposition* of the term "rational".

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these are not various interpretations of the mode of supposition of this term, but rather of its meaning (or "signification", in the scholastic jargon). No matter which *meaning* the term "differentia" will be assigned in the argument, though, it will *stand for* whatever satisfies this meaning, which is personal supposition.

[19] For a more thorough explanation of a version of the moderate realist semantic theory see: Lukáš Novák, "The Scotist Theory of Univocity", in: *Studia Neoaristotelica* 3 (2005) / 1, p. 17–27.

[20] I use the convention that I when I wish to use a term to stand for the objective concept (or sense) it expresses, I italicise it; when I wish to refer to the formal concept associated with it, I enclose it in single quotes, and when I wish to refer to the term itself, I enclose it in double quotes.

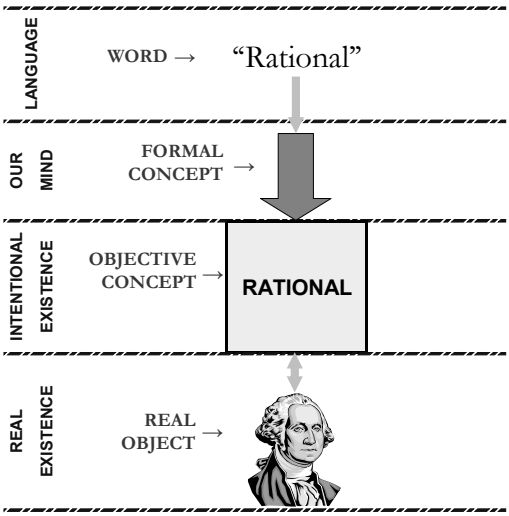

FIGURE 1 – SEMANTICS IN MODERATE REALISM

Can the argument be interpreted as a sound one, given that by the "differentiae" are meant entities of any of these four kinds? Let us see!

SECTION V

Alternative 4 – personal supposition. We will start from this last alternative, since personal supposition is the default one, it is the mode of supposition such that the term stands for what it ultimately signifies (that is, what satisfies its sense or the objective concept it expresses): the term "man" stands for men, the term "horse" for horses, the term "the last president of Czechoslovakia" for Václav Havel, and the term "rational" for rational beings. How about the truth of the premises of the Aristotelian argument in this interpretation?

I hope it is obvious that whereas premise $P4^{Ari}$ is certainly true – *being* is truly predicated of individual rational beings (any rational being is a being), premise $P3^{Ari}$ is indisputably false. For it is evident, that genera *are* in fact *always* truly predicated of their respective differentiae in this sense: It *is* true that any or at least some rational being is animal, that anything sensitive is live being, and so on. This follows *a priori* from the fact that a genus and its differentia are not incompatible concepts – otherwise they could not combine to form a species. Therefore, the intersection of their possible extensions cannot be empty, and consequently at least the particular affirmative proposition will

necessarily be true. It seems beyond doubt therefore that in this first and most natural interpretation the argument trivially fails.

Alternative 3 – realist simple supposition. So what if we interpreted the argument as if that which is meant by the "differentiae" were objective concepts? This alternative is a bit more complicated, since it is difficult to evaluate the major premise (P3^{Ari}): can or cannot, for example, the objective concept *rational* truly be said to be an animal? But fortunately we need not bother with the truth value of this premise, because this time it is the minor premise (P4^{Ari}) which is clearly false. For in any theory which takes objective concepts into account at all, they are, *as such*, never regarded as real beings, but as mere *beings of reason*, entities which do not *as such* have real existence, but mere *intentional* or *objective* existence, that is, they exist merely insomuch as they are conceived by us.[21] The concept of *being*, on the other hand, applies by definition to *real beings* exclusively. Therefore, no differentia, understood as an objective concept, really *is*, or is a (real) being, and so the argument is rendered unsound by this interpretation, too.

Alternative 2 – nominalist simple supposition. What about differentiae as formal concepts, then? Formal concepts are real beings: they are real accidental forms "informing" our intellect, real intentional acts through which our mind really conceives of things. Therefore, the truth of the minor premise (P4^{Ari}) cannot be questioned in this interpretation. But the major premise is problematic. For although it is not true that a genus can be predicated of its differentia in all cases, there are certainly at least *some* indisputable true instances of such a predication. Of course, the formal concept 'rational' is not an animal – for, in the first place, it is not a substance but an accident, whereas all animals are substances. But what about the differentiae that constitute different species of colours, for example? Or different species of moral virtues? Among the higher genera that are contracted by these differentiae we would find concepts like *quality*. And formal concepts undoubtedly are qualities, for they are individual acts of the immanent cognitive operation, which belong to that category.

Of course, all these specific claims (taken over from the tradition) concerning the exact classification of formal concepts, colours and virtues may be disputed. But since formal concepts *are* real beings, they must be *some kind* of real beings, that is, they must belong to *some* category of real being, under *some* genus (and *some* species), and *this* genus, irrespectively of whether we know

[21] Of course, the objective concepts do have real existence – but not as *such*, as *universal objective concepts abstracted from the individuals*, but as *individualised* and *multiplied* in the individuals.

exactly which one, will be truly predicated of any differentia understood in this sense. Thus the major premise ($P3^{Ari}$) of the *aporia* fails to be true again.

Alternative 1 – material supposition. The evaluation of the last remaining alternative will be easy (putting aside the obvious fact that Aristotle probably did not mean to refer to linguistic entities by the term "differentia", which makes this interpretation rather implausible). For systematically this alternative does not differ from the previous one. Just like formal concepts are real mental signs, words of a language are real linguistic signs. Therefore they, too, are real beings, and consequently must fall under some genus of being, which is then inevitably truly predicated of them. So even in this interpretation the *aporia* fails.

SECTION VI

We have seen that all the four attempts at interpreting *aporia generis* as a sound argument have failed. A question that may occur to us now is: are there not any other possibilities? Have we exhausted really *all* alternatives concerning the interpretation of the premises? We may notice that the analysis we have just undergone gives us certain hint, how to answer this question *a priori*.

Above we have argued that assuming that a differentia is a *being*, that is, that *being* is predicated of it, it must be *a kind of being*, that is, it must fall under some genus of being and therefore some genus must be truly predicable of it. It is impossible, analytically, that anything were a being but of no kind of being – in other words, it is impossible that there be anything, of which we could truly predicate *being* but no genus of being. This amounts to saying that it is analytically impossible that the two premises of *aporia generis* be jointly true, and therefore this argument is bound to fail, no matter how we interpret the meaning of "differentia".

When one comes to a conclusion that an argument, that was formulated by one of the greatest philosophers in history and has subsequently been regarded as quite important by anyone who ever seriously worked on the topic, is irreparably unsound, they should with great probability expect that the matter is more complicated than it has so far seemed and that a deeper investigation may prove rewarding. We will see that this case is no exception.

An obvious way to dig deeper into the matter is to ask, *why* Aristotle accepted the two premises of his argument. With regard to the major premise, we may find the answer in other Aristotle's texts, especially in the Topics, where in several places Aristotle considers the mutual relations between genus, species and differentia. The key passage is the following:

> *Again, see if the genus be predicated of the differentia; for the general view is that the genus is predicated, not of the differentia, but of the objects of which the differentia is predicated. Animal (e.g.) is predicated of man or ox or other walking animals, not of the actual differentia itself which we predicate of the species.* [i] *For if animal is to be predicated of each of its differentiae, then animal would be predicated of the species several times over; for the differentiae are predicates of the species.* [ii] *Moreover, the differentiae will be all either species or individuals, if they are animals; for every animal is either a species or an individual.*[22]

Aristotle's point in the longer passage from which this extract is taken is to suggest various ways how an erroneous definition may be detected by an opponent. As one of the symptoms of error Aristotle identifies the event that the differentia of the definition allows that the genus be predicated of it – and therefore it cannot be the correct differentia at all, since genus is never predicated of its differentia. And he gives two different reasons (marked [i] and [ii] by me in the translation) why it is so, both of them quite telling with regard to our present concern.

Let us look at the second reason first, since it reveals an important element in Aristotle's understanding of predication. The argument is based on a principle that a genus is predicated either of the individuals that instantiate it, *or of its subaltern species*: "every animal is either a species or an individual". The individuals that instantiate the genus, and the universal species that "subalternates" to it, are being put on the same level by this principle, both Socrates and the universal *man* are called *animal* **in the same sense**.

It seems to be clear that this assumption – that "first intentions" or first-order predicates (i.e. those ascribed to individuals) can be ascribed to universal concept at all – is an important prerequisite of Aristotle's trouble with the predication of the concept *being* of the differentiae. In my opinion, we have to admit here that Aristotle was simply wrong, that he confused, in modern terms, first-order and second-order predication, or scholastically put, did not distinguish real beings (individuals) from the mere beings of reason (universals). As soon as we understand "man" to refer to (or stand for, or supposit

[22] »πάλιν εἰ κατηγορεῖται τὸ γένος τῆς διαφορᾶς, ἀλλὰ καθ᾽ ὧν ἡ διαφορά, τὸ γένος δοκεῖ κατηγορεῖσθαι, οἷον τὸ ζῷον κατὰ τοῦ ἀνθρώπου καὶ τοῦ βοὸς καὶ τῶν ἄλλων πεζῶν ζῴων, οὐ κατ᾽ αὐτῆς τῆς διαφορᾶς τῆσ κατὰ τοῦ εἴδους λεγομένης. εἰ γὰρ καθ᾽ ἑκάστης τῶν διαφορωντὸ ζῷον κατηγορηθήται, πολλὰ ζῷα τοῦ εἴδους ἂν κατηγοροῖτο· αἱ γὰρ διαφοραὶ τοῦ εἴδους κατηγοροῦνται. ἔτι αἱ διαφοραὶ πᾶσαι ἢ εἴδη ἢ ἄτομα ἔσονται, εἴπερ ζῷα· ἕκαστον γὰρ τῶν ζῴων ἢ εἶδος ἐστιν ἢ ἄτομον.« – *Topics* Z.6, 144a31–b3. I have modified the translation by W. A. Pickard-Cambridge by removing all the quotation marks added by the translator, in order not to narrow the possible scope of interpretation.

for) anything else than individual men, we cannot truly say that man is an animal: The universal objective concept *man* is not an animal, since it would have to be a kind of substance, that is, a kind of real being, which it is not – it is a mere abstraction, mere being of reason which does not occur in reality.[23] The formal concept 'man' is not an animal either, because although it *is* a real being, it is a mental accidental form, therefore not a substance or any kind of substance; and finally, whatever the very word "man" is, it likewise is not an animal.

So it seems that it holds not only with regard to differentia and genus (as Aristotle says in the first quoted sentence), but with regard to any universal first-order objective concept that they can universally be predicated "of each other" only insomuch as the subject is taken to supposit personally, i.e. to stand for the individuals that instantiate it. Aristotle's impression that there is a difference between the species and the differentia in this regard appears to be an illusion, caused by the incapability of distinguishing the various modes of supposition; and it won't surprise us that as soon as the theory of supposition was elaborated in the Middle Ages, the *aporia generis* generally ceased to be employed in the original form as a valid argument.

But there is also the first of the two reasons, which, as I would like to argue, allows us to see a rational core of Aristotle's worries concerning the relation of the genus and differentia. Aristotle warns that if the genus were predicated of the differentia, then it would be predicated "many times" of the species (»πολλὰ ζῷα τοῦ εἴδους ἂν κατηγοροῖτο«, literally "many animals would be predicated of the species"). It is a bit difficult to say what Aristotle means by the manifold predication here, and why it should matter. Is there an

[23] Certainly the concept *man* does *contain* the concept *animal* in his comprehension as its note – but between a *note* of a concept's comprehension and a *property* (predicated) of the concept is a crucial difference. The notes of a concept C are concepts that necessarily are predicated of whatever C is predicated; they are therefore predicates of the same order as C (see below, section VIII). On the other hand, the properties of a concept C are *not* included in that which is predicated whenever C is predicated, they are *not* predicated of the individuals that instantiate C. (C has the properties of being universal, or a genus, e.g., but we do not say that of any of the individuals instantiating C that it be universal or a genus.) They are predicated of the concept C itself and must therefore belong to the order one step higher than C. This distinction was *de facto* present already in the scholastic theory of the *natura absolute considerata* and its different modes of existence, famously formulated by Avicenna and taken over by the Latin thinkers (for an exemplary treatment see e.g. Thomas Aquinas, *De ente et essentia* IV), but the belief that the predicates that belong to the *natura* "per se" (that is even insomuch as it is considered absolutely) can be predicated of it in *any* of its statuses – that is, *both* insomuch as exists really and individualised, *and* insomuch as it exists merely intentionally as an objective concept – did nevertheless still persist in the realist tradition even after it integrated the theory of supposition (which is rather of nominalist origin). The matter is however too complicated and merely tangential for my present purpose, therefore I will refrain here from pursuing it further.

infinite regress implied, or just a repetition several times over? Does Aristotle envisage the problem as a mere redundancy, or as an impermissible absurdity?

It seems to me that it would be perhaps too much to demand a definitive, clear-cut answer to these questions: for it may well be that the very Aristotle's thought was somehow blurred – quite probably so, if our above criticism was correct. Nevertheless, we can try to trace down the real problem that Aristotle struggled to grasp and that he tried to express with his perhaps not entirely adequate or comprehensible wording.

So what may be hidden behind the "manifold predication"? Drawing only on what the text immediately suggests, it is possible to think at worst of a "twofold" predication of the genus of the species: once the genus is predicated of the species in its own virtue, and the other time in virtue of the difference, of which it is (*ex hypothesi*) predicated and which is itself predicated of the genus as well (»αἱ γὰρ διαφοραὶ τοῦ εἴδους κατηγοροῦνται«) – it suffices to employ some principle that would assure the transitivity of the relation of predicability and we can derive the aforesaid conclusion. The problem is that this interpretation hardly accounts for the "many" predications that Aristotle mentions, nor does it explain why it should be undesirable to concede that the genus is predicated of the species on a twofold basis.

W. D. Ross suggests in his commentary to the passage of *Metaphysics* B quoted above that we can consider a higher genus that is predicated of each of the successive differentiae that in turn contract it.[24] Such higher genus would indeed be predicated of the species more than two "times", on the given assumptions, but on the other hand Aristotle does not say of a genus in general, or of an indefinite genus, that "many of them" will be predicated of the species, but of the very genus "animal" which immediately constitutes the species "man". And there is no series of successive differentiae to contract "animal" that would warrant Ross's interpretation. Besides, this interpretation does not explain the grounds on which such an implication should be regarded as implausible either.

In order to understand Aristotle's worries it will be useful to recall our conclusion drawn above that Aristotle does not distinguish between *predication* of a concept of an individual, and *containment* of a concept in another concept – or more exactly that he speaks of predication even in cases where he should rather speak of conceptual containment, for example when he says that the

[24] *"If it* [i.e. the genus] *were so predicated* [i.e. of the differentiae]*, the genus would be predicated of the species many times over, since it would be predicated of each of the successive differentiae which constitute the species"* – W. D. Ross: "Commentary", in: Aristotles *Metaphysics*, A Revised Text with Introduction and Commentary, vol. 1, Oxford University Press 1997, p. 235.

genus is predicated of the species.[25] So what if we tried to substitute "is contained in" for "is predicated of" in the quoted text? For the relation that is being talked about is clearly a relation between two *concepts*. Argument [i] would then read thus:

> *For if animal is to be contained in each of its differentiae, then animal would be contained in the species several times; for the differentiae are contained in the species.*

I am going to argue below that in *this* reading Aristotle's argument [i] from the *Topics* Z.6 touches a real problem – *the* problem, perhaps, that Aristotle sought to bring to light here. Furthermore, by projecting the change of the focus from *predication* to *containment* into the formulation of the *aporia generis* itself, we will likewise gain an argument that is much more plausible and which will allow us to see what I hope to show to be the ultimate source of the entire puzzle of the concept of *being*.

SECTION VII

Before we turn to that, it may perhaps be mentioned that to read *aporia generis* and its supportive argument form the *Topics* Z.6 in terms of containment rather than predication is not a novelty at all: for this is the reading to which the interpretation of this argument in the Aristotelian-scholastic tradition in fact drifted. It seems therefore suitable to let oneself lead to the proper formulation of the *aporia* by this historical current of thought.

Thomas Aquinas in his *Summa theologiae* formulates the argument thus:

> *Being cannot be the genus of anything; this is because every genus has differentiae that are outside the essence of the genus, whereas no differentia could be possibly found that would be outside being – for a non-being cannot be a differentia.*[26]

It is obvious that by substituting "not have outside of itself" for "to be predicated of" Aquinas moved in the direction of the conceptual-containment interpretation of the *aporia*. Nevertheless his formulation is still quite defective. The major premise is evident enough: it is clear that differentiae cannot be contained in (i.e. must be outside of) the genus – a genus abstracts *by definition* from the differentiae, i.e. excludes them from its comprehension. On the other hand, the minor premise is extremely problematic: it implicitly states that the

[25] See note 23.

[26] *"Ens non potest esse genus alicuius, omne enim genus habet differentias quae sunt extra essentiam generis; nulla autem differentia posset inveniri, quae esset extra ens; quia non ens non potest esse differentia."* – ST I, q. 3, a. 5, co.

concept *being* contains in its comprehension *all* the differentiae – which is a really counter-intuitive claim, since we are used to conceive of the concept of *being* as of the most empty, most abstract and general concept; furthermore, it seems that such a concept would be intrinsically incoherent, because the specific differentiae constituting different species and the generic differentiae constituting different genera are mutually incompatible.

On closer inspection, one can hardly escape the conclusion that the Angelic Doctor confused intensional *conceptual containment* and *extensional inclusion* in his rendering of the argument. For suppose that the very last assumption he introduces to support the minor premise is true: that indeed every differentia must be a being. From that follows that every differentia belongs to the *extension* of the concept *being* – not that it is part of its comprehension! The entire argument therefore commits the fallacy of equivocation: the "having outside of itself" must be taken intensionally in the major premise and extensionally in the minor premise, in order that both premises be possibly true:

P3^{Aq}	Every genus has differentiae outside of itself (i.e. outside of its comprehension).	PaM_1
P4^{Aq}	*Being* does not have differentiae outside of itself (i.e. outside of its extension).	SeM_2
AG	*Being* is not a genus. (*does not follow because of equivocation in the middle term*)	SeP

or more concisely and in the same logical form as the original Aristotelian argument:

P3$^{Aq'}$	No genus contains the differentiae (in its comprehension).	PeM_1
P4$^{Aq'}$	*Being* contains all differentiae (in its extension).	SaM_2
AG	*Being* is not a genus. (*does not follow because of equivocation in the middle term*)	SeP

Nevertheless, the Thomists have never abandoned this form of the argument, and in order to save its formal validity boldly accepted the minor premise in the *intensional* sense. The doctrine that the concept of *being* has not only universal extension, but also the fullest possible *comprehension*, became an important feature of Thomistic metaphysics: it became connected to the doctrine of *analogy of being*, according to which the concept of *being* is not univocal but analogical, precisely because it cannot be perfectly abstracted and separated from the differentiae. J. Gredt offers a short summary of this classical doctrine, in which the echo of the Thomas's interpretation of the argument can be well discerned:

> *Just like categorical being is analogical in relation to its inferiors by the analogy of proper proportionality… so transcendental being, insomuch as it is predicated of God and creatures… is analogical in the same way in relation to all its inferiors. For the differentiae of all these are entities as well, and therefore the concept of being cannot prescind from them, but merely confounds all of them in the explicit notion of having being* [esse], *which is proportionately one. … Therefore, when being is said to be abstracted to the maximal degree from any determinations whatsoever, this is not to be understood in the sense of abstraction through perfect precision, but in the sense of abstraction through imperfect precision, that is, through confusion.* [27]

It is not our task here to delve into the complicated Thomist theory of analogy; I have quoted this textbook passage just in order to manifest, how in Thomism the argument is, attemptedly, saved. The inferential scheme behind the Thomist manner of expressing the *aporia* is roughly the following:

Th1 All differentiae are (essentially) entities or beings.
Th2 Therefore, the concept of *being* is implied in every differentia.
Th3 Therefore, differentiae cannot be separated from the concept of *being*.
Th4 Therefore, *being* cannot prescind from the differentiae.

P4^{Aq*} Therefore, *being* contains all differentiae in its comprehension.

Leaving aside the problem of the truth value of the first assumption (Th1),[28] the crucial step is certainly that from Th3 to Th4 – for it is based on another hidden assumption, namely that the relation of inseparability or conceptual containment is always *symmetric*: But this assumption is quite dubious, if not clearly false: there does not seem to be a reason why, given that it is impossible to "cleanse" any given differentia of the conceptual note *being* (or in other words, given that *being* is implied in every differentia), it should be impossible to cleanse *being* of all the differentiae. Why could not the conceptual implication be just one-directional? It seems therefore that the late Thomist interpretation of the *aporia generis* is not very persuading either.

[27] *"Sicut ens praedicamentale ad inferiora sua est analogum analogia proportionalitatis propriae (continente virtualiter analogiam attributionis…), ita ens transcendentale, quatenus dicitur de Deo et de creaturis, de ente completo et de ente partiali, et ens supertranscendentale, quod dicitur de ente reali et de ente rationis, analogum est eodem modo ad inferiora sua omnia. Nam etiam horum omnium differentiae entitates sunt, a quibus proinde conceptus entis praescindere nequit, sed quas confundit tantum in ration proportionaliter una habendi esse, quam explicat. … Cum igitur ens dicitur maxime abstractum a quibuscumque determinationibus, hoc intelligatur non de abstractione per praecisionem perfectam, sed de abstractione per praecisionem imperfectam seu per confusionem."* – J. Gredt: *Elementa philosophiae Aristotelico-Thomisticae*, Barcinone – Friburgi Brisgoviae – Romae – Neo Eboraci: Herder 1961, vol. II, p. 1, c. 1, § 618, p. 9–10.

[28] We will return to that premise in the next section.

I hope nevertheless that these analyses have provided us with certain preliminary insight into the problem; we can now leave the Thomists and consider a yet different formulation of the argument, the one which can be found in Duns Scotus's *Lectura*:[29]

> *For the Philosopher says in Book III of his* Metaphysics *that being is not a genus. This is proved so that the genus is not part of the concept of the differentia; but being is included in the concept of any differentia, and therefore being is not a genus.*[30]

The formal representation of this wording of the argument is as follows:

P3^{Sc}	No genus is contained in the differentiae.	PeM
P4^{Sc}	*Being* is contained in the differentiae.	SaM
AG	*Being* is not a genus.	SeP

For the sake of historical accuracy let us note first that Scotus in fact does not subscribe to the minor premise of this argument – rejecting of this premise is his way how to solve the *aporia*. On the other hand, the Subtle Doctor makes sure to express the argument in the strongest possible form, before rejecting it, and indeed it is my contention to show that in *this* formulation finally (which differs from the succinct Thomist formulation merely by the reversed "direction" of the relation of containment) the *aporia generis* poses – together with the supportive argument derived from the *Topics* – a real difficulty, at least for those who subscribe, like Scotus or Leibniz, to the common form of CA. So let us investigate the problem at last.

SECTION VIII

We have arrived at the following "intensional" formulation of *aporia generis* (let us repeat it here for convenience):

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[29] There are several other places where Scotus discusses the Aristotelian argument; I have chosen this one because it represents a formulation of the argument which is free of the several problems discussed above. For other Scotus's versions of *aporia generis* cf. for example *Collationes* q. III, Harris, *op. cit.*, p. 373: "*Conceptus communis univocus si contrahatur, oportet quod contrahatur per aliquod additum, illud additum aut est ens, aut aut non ens; quia illud quod contrahit aliud, oportet quod sit extra rationem eius. Sed nihil est extra rationem entis; si est non ens, non contrahit.*" or *Ord.* I. d. 3, p. 1, q. 3, n. 152 (ed. Vat. III, p. 152): "*Contra istam univocationem entis arguitur: Per Philosophum III. Metaphysicae, quia secundum ipsum ibi ens non est genus, quia tunc secundum ipsum, ibidem, differentia non esset per se ens; si autem esset commune dictum 'in quid' de pluribus differentibus specie, videretur esse genus.*"

[30] "*Dicit enim Philosophus III.* Metaphysicae *quod ens non est genus. Quod probatur per hoc quod genus non est de intellectu differentiae; sed ens includitur in intellectu cuiuslibet differentiae; ergo ens non est genus.*" – Duns Scotus: *Lectura* I, d. 3, p. 1, q. 1-2, n. 106, ed. Vat. XVI p. 264.

P3 No genus is contained in the differentiae.
P4 *Being* is contained in the differentiae.
AG *Being* is not a genus.

In part VI we have also established a corresponding "intensional" reading of the supportive argument for the major premise – the wording we arrived at was the following:

> *If animal is to be contained in each of its differentiae, then animal would be contained in the species several times; for the differentiae are contained in the species.*

What is to be shown now is how in this reading the entire argumentation represents a real puzzle. To do so, let us concentrate first on the premise P4, which represents a notorious point of dispute between the Thomists and the Scotists: the Thomists accept it, whereas the Scotists reject it. The Thomists' acceptance of the premise rests, as we saw, on the difficult assumption

Th1 All differentiae are (essentially) entities or beings.[31]

I say that the assumption is difficult because of all the ambiguity of the predication of *being* of the differentiae we explored in sections IV and V. In which of the four senses distinguished above should this assumption be understood in order that P4 can be derived from it? In order to answer this question, we obviously need a more precise understanding of the relation of *conceptual containment*. It seems to me that the most neutral way how to understand this notion is by means of *strict implication*:[32]

[31] My use of the operators of "essentiality" and necessity in the following discussion perhaps needs a short explanation. I am adding these operators more or less wherever I "need" them; but I consider this practice innocuous, as the discussion is being conducted on the level of essential, that is *de re* necessary, predicates (genus, species and differentia), and the mutual relations of concepts are *logical*, that is, logically or *de dicto* necessary. It can therefore be assumed that any true proposition in this context is necessarily true, and the occasional explicit necessitation does not introduce any new hidden assumptions.

[32] Leibniz offers various definitions of conceptual containment. One of them is a definition in terms of *primitive concepts*: a concept F is contained in a concept G iff the set of the primitive concepts that constitute F is included in the set of primitive concepts that constitute G (see Palkoska, *op. cit.*, p. 28 for a discussion of this definition). However, this definition presupposes the CA, which is something I would like to avoid at this point. To this Leibnizian definition would ultimately be reduced also the definition of conceptual containment in terms of definitory notes (F is contained in G iff G is ultimately defined by means of F); besides, as will be made clear below (see s. XI), there are other drawbacks of this general approach. This is why I chose the purely formally logical definition given above. For another statement of Leibniz's definition of conceptual containment see Hans Poser, *Zur Theorie der Modalbegriffe bei G. W. Leibniz*, Wiesbaden: Franz Steiner Verlag GMBH 1969, p. 40, Burkhardt *op. cit.* p. 173–174, and also note 59 below. Nevertheless, there is also a formulation of the definition in Leibniz of conceptual containment which is practically identical to the one presented here: "*A includere B seu B includi ab A, est de A subiecto universaliter affirmari B praedicatum*" (G.6.208).

CC A concept F is contained in a concept G iff necessarily, every G is F;[33]

or in the modern formal notation

CC' $(G \supset F) =_{df} \Box\forall x\ (Gx \Rightarrow Fx)$[34]

Given this definition, it seems that the only plausible way how to read Th1 in order that P4 can be immediately derived from it is that which corresponds to the alternative of *personal supposition* of the differential concept (see Alternative 4 in Section V) – that is, we should understand Gr1 in the following way:

Th1' Necessarily, anything of which a differentia can be predicated is an entity or a being.

or, in the modern formal way of expression:

Th1" $\forall\Phi\ (D\Phi \Rightarrow \Box\forall x\ (\Phi x \Rightarrow Bx))$

In this interpretation, Th1 is a completely uncontroversial claim, as was explained in Section V, Alternative 4 – for if every differentia is a *first intention* or a first-order predicate, then anything of which it is predicated is a real being, that is, an individual (as opposed to a property) in the modern sense. Moreover, P4 follows from it almost trivially.[35]

But the undeniable truth of P4 can be manifested even more clearly by clarifying the comprehension of the concept *being*. The entire later Aristotelian tradition, including Leibniz (who must be regarded at least partially as its heir) adopted a conception of *being* which may be described as "possibilist": Duns Scotus and his disciples, the post-Cajetan Thomists, Suárez and Leibniz more or less agree on the quasi-definition[36] of being as that which *can be*, that which is *possible* – that is, that which *can really exist*, what is compatible with or capable of existence. In other words:

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[33] For the sake of simplicity, I refrain from an attempt to properly address the (not entirely trivial) problem of the use-mention distinction (with regard to the concepts) here. I hope the following modern formalisation gives the exact idea of what is meant.

[34] I borrow the symbol for set inclusion (⊃) to signify conceptual containment. Note that the relation between the *extensions* of the concepts is *reversed*: if the concept F is contained in the concept G, then the extension of G is included in the extension of F.

[35] It may be mentioned here that this interpretation of Th1 most probably is not true to the Thomist actual view. It seems that the Thomists rather understand Th1 as if it referred to differentiae in the sense of *objective concepts* (alternative 3 or "realist simple supposition"). In this sense, however, both the truth of Th1 and the inference from Th1 to P4 would be problematic. See also note 23.

[36] It is not a true definition in the Aristotelian-scholastic sense, for as an irreducibly simple and most common concept, *being* cannot be resolved in a more common generic concept and a constitutive differentia.

DfB Being is$_{df}$ that of which existence does not involve a contradiction.[37]

The subtle distinctions between the different authors and schools need not bother us here, since for all the slightly different conceptions of these authors one and the same argument can be made: namely that *the concept of* being, *thus defined, is necessarily implied by every consistent first-order concept*, or in other words, *every consistent first-order concept contains the concept of being*, for every consistent first-order concept expresses – *by definition* –something that can possibly exist. And since every differentia is a first-order consistent concept, every differentia must contain the concept of *being*, thus defined.[38] For convenience, let us put the argument down in a bit more formal way:

[37] For Scotus see e.g. *In Met.* IX, q. 1-2, n. 21, ed. Bonav. IV p. 515: "*Ista* [scil. metaphysica] *potentia tripliciter accipitur. Uno modo opponitur impossibili, non quidem ut dicit modum compositionis..., sed ut dicit dispositionem alicuius incomplexi; quemadmodum secundum Aristotelem... aliqua ratio dicitur in se falsa, quia contradictionem includit. Et sic possibile convertitur cum toto ente, nam nihli est ens cuius ratio contradictionem includit.*" For Suárez see *Disputationes Metaphysicae* II, s. 4, n. 5: "*Dico secundo: si ens sumatur prout est significatum huius vocis in vi nominis sumptae, eius ratio consistit in hoc, quod sit habens essentiam realem, id est non fictam nec chymaericam, sed veram et aptam ad realiter existendum.*", and ibid. n. 7: "*Quid autem sit essentiam esse realem, possumus aut per negationem aut per affirmationem exponere. Priori modo dicimus essentiam realem esse quae in sese nullam involvit repugnantiam, neque est mere conficta per intellectum. Posteriori autem modo explicari potest, vel a posteriori per hoc quod sit principium vel radix realium operationum vel effectuum, sive sit in genere causae efficientis, sive formalis, sive materialis; sic enim nulla est essentia realis quae non possit habere aliquem effectum vel proprietatem realem. A priori vero potest explicari per causam extrinsecam (quamvis hoc non simpliciter de essentia, sed de essentia creata verum habeat), et sic dicimus essentiam esse realem, quae a Deo realiter produci potest, et constitui in esse entis actualis. Per intrinsecam autem causam non potest proprie haec ratio essentiae explicari, quia ipsa est prima causa vel ratio intrinseca entis et simplicissima, ut hoc communissimo conceptu essentiae concipitur; unde solum dicere possumus essentiam realem eam esse quae ex se apta est esse, seu realiter existere.*" For the late Thomist view, see J. Gredt: *Elementa*: "*Ens ut nomen igitur significat id cuius actus est esse (essentiam in concreto seu concretum essentiae: essentiam ut «quod», e.g. homo); consignificat autem ipsum esse, a quo nomen entis imponitur. Quem actum essendi ens habet aut actualiter, aut possibiliter tantum (ens possibile). Ens ut nomen ergo et de ente actuali et de ente possibili praedicatur essentialiter, quia utrumque essentialiter, ratione essentiae, est aliquid, cuius actus proprius est esse.*" Whether this is a correct interpretation of Aquinas may however be disputed – sometimes it seems that Aquinas would regard as a being solely that which exists *actually*, and refer the possibilia to the realm of non-being. Leibniz's identification of *being* and *possible* is well-known and almost omnipresent in his metaphysical writings, cf. e. g. A.6.4.930: "Ens *seu* possibile *est, cujus definitionem quantumlibet resolutam non ingreditur* A non-A, *seu contradictio.*"

[38] Let me note here that there is no point in redefining "being" in order to escape the conclusion – for no matter how we choose to call the concept here called "being", or whether we decide not to speak of it at all, the problem that it involves won't disappear of itself.

DfB	Being is_{df} that of which existence does not involve a contradiction.
P6	Necessarily, every consistent first-order concept is a concept of something that does not involve a contradiction.
P7	Necessarily, every consistent first-order concept is a concept of something that is a being.
CC	A concept F is contained in a concept G iff necessarily every G is F.
OB[39]	*Being* is contained in every consistent first-order concept.
P8	Every differentia is a first-order consistent concept
P4	*Being* is contained in every differentia.

The argument is logically valid, and its soundness rests upon the truth of the four premises: DfB, P6, CC, and P8. DfB and CC are definitions, they cannot be possibly rejected, and P6 and P8 seem to be conceptual truths, evidently based on the very meaning of "consistent first-order concept" and "differenitia". Thus it is hard to see how the conclusion of this argument could possibly be rejected.

SECTION IX

As far as I know, Duns Scotus, who rejects P4, nowhere discusses any argument in favour of P4 that is sufficiently similar to the one presented above (in this or a very similar form it is tackled first by the later Scotists[40]), so that it is difficult to say how his exact reply would look like. On the other hand, he is able to offer quite strong arguments *against* P4, and these will be the object of our attention now.

In the first place, Scotus distinguishes the "ultimate differentiae", that is, differentiae which are irreducibly simple (*simpliciter simplices*) and further non-analysable, and differentiae which are not ultimate, and concedes that the non-ultimate differentiae may contain the concept of *being*.[41] But this is quite irre-

[39] Shorthand for "Omnipresence of Being", which is how I am going to refer to this thesis.

[40] Cf. for example the detailed discussion by John Punch (Joannes Poncius, 1599/1603–1672/73) in his *Philosophiae ad mentem Scoti cursus integer*, Lugduni, sumpt. Ioannis Antonii Hugetan 1659, Met., disp. II, q. II, concl. I, p. 888b–890a. The solution of the late Scotists approaches the one we are going to advocate here, for they weaken the Scotus's position by denying merely that *being* be predicated of the differentiae *formally* and allowing its *real* or *identical* predication (cf. Punch, *ibid.* p. 888b: "*Ens non praedicatur formaliter de differentiis, aut modis intrinsecis determinativis, aut contractivis eius ad illa inferiora, de quibus supra dictum est ipsum secundum omnes praedicari; bene tamen praedicatur de ipsis realiter et identice…*"). Nevertheless the objection can still be raised (Punch, *ibid.* p. 889a): "*convenit ipsis* [i.e. *differentiis et modis intrinsecis*] *definitio entis realis: ergo includunt ens reale.*" It is impossible to follow the discussion further here, but see note 60 for the gist of Punch's solution (which seems to be more or less standard among late Scotists).

[41] Cf. *Ord.* I, d. 3, p. 1, q. 3, n. 131, ed. Vat. III p. 81: "'*Differentia ultima' dicitur quia non habet differentiam, quia non resolvitur in conceptum quiditativum et qualitativum determinabi-*

levant, since, according to Scotus, all concepts are ultimately resolved into the concept of *being* and the concepts of ultimate differentiae, as is excellently illustrated by the following text (it is worth to quote it in full, since it represents a unique exposition of an Aristotelian version of CA and thus documents how much does Leibniz in fact owe to the Aristotelian tradition):

> *Just like a composite being is really composed of an act and a potency, so is a composite concept which is one of itself* [per se unum] *composed of a potential concept and an actual concept, or in other words, of a determinable concept and a determining concept. Therefore, just like the resolution of composite beings terminates ultimately at irreducible simples – that is, the ultimate act and the ultimate potency, which are primarily diverse, so that nothing of the one contains anything of the other, for otherwise the one would not be primarily act and the other primarily potency (since what contains some potentiality is not primarily an act) – so must in the case of concepts every concept that is not irreducibly simple and yet one of itself, be resolved into determinable and a determining concepts, so that the resolution terminates at irreducibly simple concepts, namely at a concept that is purely determinable (so that it does not contain anything determining), and a concept that is purely determining (which does not contain any determinable concept). This "purely determinable" concept is the concept of being, and the "purely determining" is the concept of the ultimate differentia. These will therefore be primarily diverse, so that one does not contain anything of the other.*[42]

But why cannot the ultimate differentiae contain the concept *being*? This is the point where we finally get to see the problem. For Scotus's chief argument against P4 may be regarded as an elaboration of the Aristotle's argument from the *Topics* refuting the containment of the differentiae in their genera (in its

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lem et determinantem, sed est tantum conceptus eius qualitativus sicut ultimum genus tantum quiditativum habet conceptum." Ord. I, p. 1, d. 3, q. 1-2, n. 71, ed. Vat. III p. 49: *"…conceptus 'simpliciter simplex' est qui non est resolubilis in plures conceptus, ut conceptus entis vel ultimae differentiae."*

[42] *"…sicut ens compositum componitur ex actu et potentia in re, ita conceptus compositus per se unus componitur ex conceptu potentiali et actuali, sive ex conceptu determinabili et determinante. Sicut ergo resolutio entium compositorum stat ultimo ad simpliciter simplicia, scilicet ad actum ultimum et potentiam ultimam, quae sunt primo diversa, ita quod nihil unius includit aliquid alterius – alioquin non hoc primo esset actus, nec illud primo esset potentia (quod enim includit aliquid potentialitatis, non est primo actus) – ita oportet in conceptibus omnem conceptum non simpliciter simplicem, et tamen per se unum, resolvi in conceptum determinabilem et determinantem, ita quod resolutio stet ad conceptus simpliciter simplices, vidlicet ad conceptum determinabilem tantum, ita quod nihil determinans includat, et ad conceptum determinantem tantum, qui non includat aliquem conceptum determinabilem. Ille conceptus 'tantum determinabilis' est conceptis entis, et 'determinans tantum' est conceptus ultimae differentiae. Ergo isti erunt primo diversi, ita quod unum nihil includet alterius."* – *Ord.* I, d. 3, p. 1, q. 3, n. 133, ed. Vat. III p. 82–83.

"intensional" formulation to which we have arrived above). As a matter of fact, Scotus merely applies the same argument on the concept of *being* and shows that it is equally absurd that the differentiae contain this concept, as it would be absurd to postulate their containing any standard generic concept:

> *If the differentiae contain being as predicated univocally of themselves and are not entirely identical with each other, they will be distinct beings which have something in common. But such things are "different" in the proper meaning of that word, according to Book V and X of the* Metaphysics. *Therefore, these ultimate differentiae will be "different" in the proper meaning of that word, and therefore they will differ by means of other differentiae. And if these latter contain being quidditatively, the same argument will apply to them that was applied to the former ones. This would be an infinite series of differentiae, or else one will arrive at some differentiae that do not contain being quidditatively – which is our thesis, for only these will be the ultimate ones.*[43]

To sum up the argument: whenever we have a quasi-generic concept G (the argument holds of the concept of *being* as well as of any ordinary genus) and its corresponding differentiae, either the differentiae contain G or not. If they do not contain it, they are *primarily diverse* from G, if they contain it, they are merely *different*.[44] But in case they are merely different, they must still contain some notes *by which* they differ – that is, other differentiae. These can again either contain or not contain G – and so on. It is clear that if the first differentiae are to be different from G *at all*, there ultimately *must* be something *by which* they ultimately differ: the Scotus's ultimate differentiae. In other words, the recursive analysis must have a finite number of steps.

It is interesting to note that if we take this argument as an interpretation of the Aristotelian thought from the *Topics*, it allows us to answer both the crucial questions it prompted:[45] even if we take into account just one (quasi-)genus (which is in accord with the Aristotle's original formulation making use just of a single specimen of a genus, viz. *animal*), we can derive an *infinite* regress from the assumption that the differentiae by which the various species of that genus *ultimately* differ, contain the genus. We can even understand Aristotle's wording that "many animals would be predicated of the species" (»πολλὰ ζῷα τοῦ

[43] *"Si differentiae includant ens univoce dictum de eis, et non sunt omnino idem, ergo sunt diversa aliquid-idem entia. Talia sunt proprie differentia, ex V. et X.* Metaphysicae. *Ergo differentiae illae ultimae erunt proprie differentes: ergo aliis differentiis differunt. Quod si illae aliae includunt ens quiditative, sequitur de eis sicut de prioribus – er ita esset processus in infinitum in differentiis, vel stabitur ad aliquas non includentes ens quiditative, quod est propositum, quia illae solae erunt ultimae."* – *Ord.* I, d. 3, p. 1, q. 3, n. 132, ed. Vat. III p. 81.

[44] That is, having some, but not all, features in common.

[45] See section VI.

εἴδους ἂν κατηγοροῖτο«): for if the species can be divided into the genus G and a differentia D_1, the differentia D_1 again into the genus G and a differentia D_2, and so on indefinitely, the genus G will be contained in the species indefinitely many times. Furthermore, it seems that the infinite regress is truly vicious – it does not involve a mere redundancy of "many genera" contained in the species, but it effectively destroys the very distinction between the genus and the species, since if the analysis never stops, one never arrives at that by which the species ultimately differs from the genus, there is no ultimate differentia, and thus the species does not ultimately differ from the genus by anything definite.

This can be illustrated by the following scheme: imagine the species as a line composed of two parts: the red genus and the yellow differentia, and suppose that the ultimate differentia of the species, that by which the species ultimately differs from the genus, contains the genus. On this assumption, no part of the line will be yellow, since any such part would have to be further divided in a red part and a yellow part, and the remaining yellow part as well, and so on. The length of the yellow part after an infinite number of steps will be zero: $(1 - ½ - ¼ - ⅛ - \ldots) = 0$.

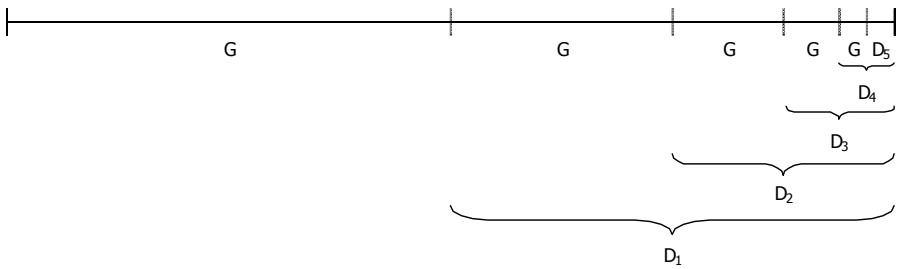

FIGURE 2 - INFINITE REGRESS OF DIFFERENTIAE

Likewise, the scheme shows well the Aristotle's »πολλὰ ζῷα« – the many genera contained in the species.

Now what is crucial here is that the same argument which serves to establish the claim that no genus contains its differenitae (P3) can be applied to the concept of *being* and thus used to refute P4. It may also be noted that the argument relies strongly on the conceptually-atomistic understanding of the nature of concepts, incarnated in the notion of the *ultimate differentia* – one could even argue that the present argument from the infinite regress (intended to establish the existence of *ultimate differentiae*) is just another incarnation of the generalised Leibniz's argument in favour of CA (i.e. intended to establish the existence of *primitive concepts* in general). It seems therefore that by accepting

CA one is committed to this argument as well; by accepting the existence of primitive concepts one must concede the existence of ultimate differentiae (if one accepts, pace Leibniz, the Aristotelian distinction between a genus and a differentia at all), that is, the differentiae which are irreducibly simple and which therefore cannot contain the concept of *being* (nor any other concept).

On the other hand, there is the argument in favour of P4 that was analysed in Section VIII. As it seems, if there ever was an *aporia* hidden in the concept of *being*, we have just hit it.

SECTION X

The problem will arise even clearer in the Leibnizian setting. As it has been said, Leibniz rejects any distinctions between concepts as regards their potentiality/actuality, or determined/determining character. For that reason, the distinction between a genus and a differentia evaporates in his pure atomistic conception: any note (either already irreducibly simple, or composite) of a given concept can count as its genus, as well as its differentia. The highest genera are the *primitive concepts* (the analogues of the scholastic *conceptus simpliciter simplices*), the next-to-highest genera are binary combinations of the primitive concepts, the next lower genera are the ternary combinations of the primitive concepts, and so on. The figure below represents thus Leibnizian-reformed "Porfyry's tree" built on a supposition that there are just five primitive concepts, and making use only of the operation of conjunction to construe the composite concepts (Leibniz would probably admit at least one more operation, viz. that of negation[46]).[47]

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[46] This is necessary to avoid the problematic (as Russell has argued) conclusion that *any* concept whatsoever is consistent – Cf. Hans Poser, *op. cit.* p. 38–39; and Raili Kauppi: *Über die Leibnizsche Logik*, Helsinki 1960, p. 111–113.

[47] It may noted here that for Leibniz the (positive) primitive concepts represent at the same time the attributes of God – they are the Leibnizian incarnation of St. Anselm's and Scotus's "pure perfections" (*purae perfectiones*). And since that which has all the pure perfections is God, it follows that the "lowest species" in the scheme, i.e. the concept that combines *all* the primitive concepts, is the concept of God. The Leibnizian "individual" or "complete concepts" of all other individual substances or monads would, presumably, contain all the primitive concepts as well, but some of them under negation. Another notable aspect of Leibniz's remodelling of the categorial scheme is that one and the same concept or individual can, and even as a rule must, belong to more than one of the highest genera. In a sense, Leibniz's highest genera represent an exact opposite of Aristotle's Categories: whereas the Categories are mutually incompatible concepts with no intersection of their extensions, Leibniz's primitive concepts are all mutually compatible, because they can coexist in God as His attributes (this is again a feature they inherited from the Scotist pure perfections). In this context it may be noted that the status of the primitive concepts as God's attributes is not to be confused with their status as ideas in the divine mind (as I suspect Palkoska has a tendency to do). Although God necessarily conceives all His attributes, and therefore to every God's attribute corresponds an idea in His mind, the reversed implication does not

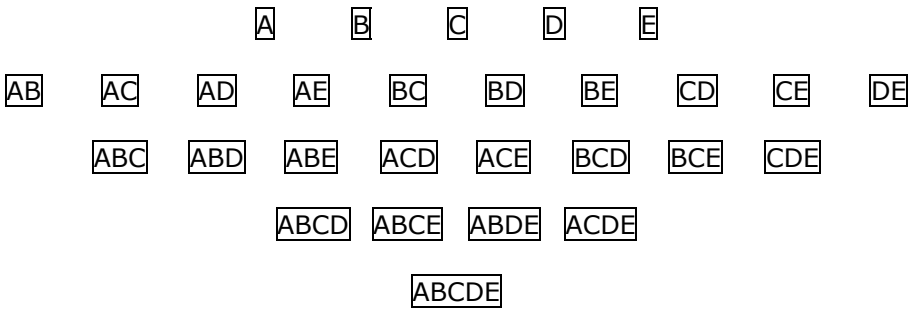

FIGURE 3– A LEIBNIZIAN "PORFYRY'S TREE" (SIMPLIFIED)

Leibniz simplified matters also in another respect: whereas in the scholastic accounts we must carefully distinguish at least between the level of objective concepts and the level of things (leaving aside the levels of formal concepts and language), and consequently between first-order and second-order predication, between possibility of existence and mere conceptual consistence, and finally between conceptual containment and truth of predication, in Leibniz all these complications fall off. For as far as his epistemology goes, Leibniz is not an Aristotelian realist, but a follower of the Cartesian rationalist tradition, in which there is an unbridgeable gap between the subject and the object, the realm of intelligible "ideas" and the realm of really existing things. In this tradition, cognition does not consist in reality itself entering our cognitive faculties, there is no Aristotelian identification of the knowing subject with the object known. Instead, cognition is explained as *mirroring*, as *isomorphism* between the two orders.[48]

This has a paradoxical twofold consequence. On the one hand, the separation of cognition and its object may lead (or must lead, some would argue) to insoluble difficulties in epistemology; one may find oneself caught in the philosophical "trap of the subjectivity", incapable of ever reaching the objective reality as it is in itself.[49] On the other hand, the assumption of isomorphism between the intentional and the real order makes it possible to treat the inten-

hold: not every idea in God's mind is an idea of one of His attributes (e.g. the idea of man is not). By having an idea as an object of his thought, God need not for that reason *exemplify* it. Cf. Hans Poser, *op. cit.*, p. 37: "*Die Garantie für die Kompossibilität der einfachen Begriffe… sieht Leibniz offenbar wiederum im göttlichen Denken, das die einfachen Begriffe als göttliche Begriffe nicht nur positiv und vollkommen,* ***sondern als Vollkommenheiten auch vereinbar, d. h. kompossibel, enthält, was in heutiger Sprachweise bedeutet, daß die einfachen Begriffe ein Modell besitzen, und zwar in göttlichen Verstand***" (bold emphasis mine).

[48] See the discussion by Burkhardt, *op. cit.* p. 158ff.

[49] One is tempted to the remark that this is precisely what has happened to the most part of the continental post-scholastic philosophy.

tional order simply *as though it were real* – without the uncomfortable necessity (generated in Aristotelianism by the possible intersection of the two orders) to always carefully distinguish which aspects of the conceived object originate from the reality and which come merely from our mode of conceiving the reality. In the rationalist conception, *nothing* ever comes from the reality[50] – but we can then as well say that *everything* does, because we assume that our cognition mirrors the reality and we will never have the opportunity to actually *compare*.

Thus we may notice that Leibniz sometimes really does speak of concepts as of things (which may be somewhat confusing[51]), that he simply identifies conceptual consistence and possibility of real existence, to the effect that the concepts of *being* and *(logically) possible* coincide,[52] and furthermore, he reduces the truth of predication to conceptual containment.[53] Many of the complications we had to resolve in the preceding sections, concerned precisely with this kind of distinctions, are therefore not present in the Leibnizian picture. That simplifies greatly our exposition of the problem, but, what is important, does not *create* it: for as I have tried to show in the preceding sections, the *aporia* itself is present in any version of CA, in the more complicated Aristotelian form of the doctrine it is just more difficult to trace it down.

So how does the problem look like in the Leibnizian setting? It is very simple. For Leibniz, the concept of *being* is identified with the concept of the *logically possible*, which means *logically consistent*, that is, *not containing a conceptual contradiction* (a concept and its negation).[54] Therefore, *being* is predicable of every primitive concept, since every primitive concept is, trivially, logically consistent. Now according to Leibniz, any true predication is always based on conceptual containment; therefore, if *being* can be truly predicated of any of the primitive concepts, it follows that all the primitive concepts *contain* the concept of *being*.

[50] Recall the notorious Leibniz's claim that the monads have "no windows".

[51] Cf. Palkoska's troubles to answer the question whether for Leibniz *possibilia* are possible things or consistent concepts (Palkoska, *op. cit.*, pp. 23–25). Palkoska arrives, on the basis of the textual evidence, at the conclusion that they are concepts, even including the somewhat odd implication that the concept of *being* is in fact predicated not of beings, but of concepts. In my opinion this entire question is a pseudo-problem in the Leibnizian epistemological frameset: Leibniz could have talked of concepts as well as of that which is represented (or "expressed") by them, because as a matter of fact he *cannot* possibly directly "reach" the things themselves and his talk remains bound to the realm of concepts; on the other hand, anything that is valid on the level of concepts has a direct implication for the realm of things, due to the real-ideal isomorphism; thus by talking of the concepts, he is *eo ipso* talking of the things expressed by them, in the only manner such a talk is possible.

[52] See Poser, *op. cit.* p. 44 for a discussion and a number of references.

[53] This is one of the most fundamental ideas of Leibniz, which is implicit in all his philosophical writings; explicitly defended it can be found e.g. in Leibniz's correspondence with Arnauld. For a discussion of this intensional theory of truth see e.g. Burkhardt, *op. cit.* p. 243ff.

[54] Cf. note 37.

But this contradicts the assumption that they are truly primitive, that is, irreducibly simple concepts. We have arrived at the same problem as before – on the one hand, we must assume that there are primitive concepts (just like we had to assume above that there are ultimate differentiae), on the other hand we are forced to admit that *being* is contained in them, and therefore they cannot be primitive but composite.[55]

For the sake of simplicity I have appealed to Leibniz's idiosyncratic intensional conception of predication in order to arrive at the conclusion, but this assumption is not essential for the argument. We need not derive the containment of the concept of *being* in each of the primitive concepts from the fact that it can be truly predicated of them, but (as above) from the fact that consistency is a logical, and therefore necessary, feature of every concept. That *being* is contained in every consistent concept then follows, by our definition of conceptual containment (CC), even without the Leibnizian assumption that not just a *necessary*, but *any*, true predication implies conceptual containment.[56]

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[55] Leibniz was aware of the puzzle, he formulated it himself in his fragment *De iis quae per se concipiuntur* (A.6.4.25ff), only instead of the concept of *being* he speaks of the concept of *reality* or *conceivability* (*cogitabilitas*): *"Quoniam realitas in omnibus una, essentia diversa, ideo id in quo distinguuntur non debet continere realitatem, si quidem positivum est. Nam differentia ipsorum A et B contineat, iterum realitatem, ideo non erit differentia mera. Ergo pura seu mera duarum rerum differentia, in qua scilicet nihil sit amplius commune, nullam continebit realitatem absolutam. Brevius et clarius. Sint duae res A, B utique distinctae, assignetur ergo tum quod est in ipsis commune, tum quod est in singulis; seu differentia pura, nihil amplius commune continens. Aio differentiam puram non continere realitatem, quia realitas est aliquid commune quod in differentia pura contineri non debet. Re tamen accurate expensa videtur inesse sophisma ratiocinationi, et postulatum esse impossibile, nam cum omnia quae concipiuntur a nobis sint realia cogitabilia (nihil aliud enim realitas quam cogitabilitas), ideo non debemus postulare ultimam quandam differentiam, in qua nulla insit realitas seu cogitabilitas, nam supposuimus omnibus inesse. Sed hinc porro sequetur nihil a nobis cogitari simplicissimum, saltem enim duo habet, cogitabilitatem, et speciem cogitabilitatis, aliquid scilicet commune et aliquid proprium. Sed in hoc proprio rursus est cogitabilitas. Alioqui non cogitaretur. Ergo hinc sequetur illa duo non esse separanda, nec a nobis cogitari nisi uno actu."* Cf. the discussion by Raili Kauppi, *op. cit.*, p. 110, a short treatment by Palkoska, *op. cit.* p. 23–25, and an allusion to this problem in Burkhardt, *op. cit.* p. 171–172. Burkhardt and Kauppi seem to agree that it was this puzzle in the first place what forced Leibniz to abandon the view that the primitive concepts are conceivable for us; unfortunately, it is far from clear how this *epistemological* move could make any change with regard to this purely *logical* problem. Irrespectively of the fact whether we are capable of conceiving the absolutely primitive concepts or whether we have to be content with concepts which are primitive merely *for us* (*notiones secundum nos primae*), there still is the problem that the primitive concepts cannot be primitive, if they are to be consistent, conceivable, and so on. In the quoted fragment Leibniz concludes that *conceivability* (which, for Leibniz, actually coincides with consistency or possibility, which in turn defines the concept of being) must be conceptually inseparable from any difference or primitive concept. But how is that possible, given that the concept is primitive, i.e. unanalysable, remains obscure.

[56] Palkoska (*op. cit.* p. 28) seems to imply that in order to derive the *aporia* we have to assume in addition that *being* itself is a primitive concept. But this assumption is not at all

We see that the *aporia* is induced directly by the CA as such: the mere assumption that there are consistent irreducibly simple concepts seems to imply that there can be none, since there are concepts, like the concept of *being*,[57] which are contained in every consistent concept. On the other hand, there are strong arguments in favour of CA. Unless Kant is right and the human reason necessarily gets trapped in antinomies as soon as it turns to metaphysical matters, there must be something wrong somewhere in the entire exposition of the problem. But what, and where? We will answer this question in the concluding section.

SECTION XI

I have already indicated in Section III my ambition in this paper is to show that the entire *aporia*, which I have taken pains to dig from under the heaps of inadequate formulations, will dissolve as soon as we become aware of certain hidden assumption – an assumption which is shared commonly by the adherents of CA (and quite naturally so), which enters unconsciusly into their arguments, but which is nevertheless false. Until now I have played the game and construed all the arguments above so as not to give away its pernicious role; but now it is finally time to reveal the villain and expose his crimes.

The assumption I am talking about may be characterised as *mereological understanding of conceptual containment*: that is, understanding of conceptual containment as completely analogous to the relation of part-whole in material bodies. Or perhaps more exactly, it is conflating of the purely logical notion of conceptual containment, which is captured by the above definition CC, and this "mereological" notion. In the present Section I am going to show that as soon as we keep these notions apart, the *aporia* disappears.

When we look at the arguments *against* the containment of *being* in the primitive concepts or ultimate differentiae, we may notice that the reasoning always, more or less openly, involves the assumption that if a concept A is contained in a concept B (and is not entirely identical with it), then the concept B can be *divided up* into the concept A and the "rest". It is the consequent of this implication wich represents a problem for the CA and which launches the infinite regress: it is the the *possibility of division* which formally contradicts the

necessary, and it even seems to contradict some of the Leibniz's texts where he seems to treat *being* as a composite concept, as Palkoska himself is well aware (see his discussion of the relevant texts, *op. cit.* part II., chapter 2.2).

[57] The same argument could be made, *mutatis mutandis*, with respect to several other concepts, especially the traditional so-called transcendental attributes of being (*unum*, *bonum*, *verum*), and perhaps several others.

assumed irreducible simplicity of the concept in question, and only if we allow for such a division, we can infer the existence of *another* differentia (namely the "rest" of the comprehension of the concept B that it contains "in addition to" A) – which will start the whole issue anew.

It is very natural to accept this implication: we are used to the fact that when something is contained in or involved by something else, then it is "inside" of that thing, the contained item is a part of the containing item. But this automatism is based only on our experience with material objects extended in space, and our transferring of the characteristics of such spatial part-whole relation to the relation of conceptual containment is quite unjustified. There is no reason why a concept A could not be contained in, or perhaps better said, implied by, a concept B, in the sense of the definition CC, even if B remains *irreducibly simple*, that is, its comprehension cannot be further analysed into some more elementary concepts. In other words, there is no reason why even primitive concepts could not imply other concepts, why there could not be a necessary connection between two primitive concetps, to the effect that wherever the one is truly predicated, the other must be as well. The irreducible simplicity of the concepts, understood in the terms of the Leibnizian argument in favour of the existence of such concepts (that is, irreducible simplicity interpreted as *conceivability in itself*, *without the need to conceive something else*, see Section II), does not preclude such a possibility at all.

In order to set matters terminologically clear, we can distinguish the following kinds of conceptual containment:[58]

1. **Containment *simpliciter*** defined above by CC: i.e. mere conceptual implication;
2. **Formal containment,** i.e. containment in the sense which involves the mereological part-whole relation and implies *divisibility*, that is *non-simplicity* of the containing concept;
3. **Virtual containment**, i.e. any other containment *simpliciter* that is not actual.

[58] The terms, and partly also the notions, are inspired by from Scotus, see e. g. *Ord.* I, d. 3, p. 1, q. 3, n. 137 (ed. Vat. III, p. 85–86), and *Ord.* I, d. 3, p. 1, q. 1-2, n. 59 (ed. Vat. III, p. 40–41). But see note 60.

By means of the quasi-modern notation we could perhaps express the latter two notions in this way:

$\mathbf{CC_F}$ $(A \supset_F B) =_{df} (\exists\Phi(A \equiv [B+\Phi]) \vee \exists\Psi((A \supset_F \Psi) \,\&\, (\exists\Xi(\Psi \equiv [B+\Xi]))))$[59]
$\mathbf{CC_V}$ $(A \supset_V B) =_{df} (\Box\forall x(Ax \Rightarrow Bx) \,\&\, \sim(A \supset_F B))$

Now my thesis amounts to the claim that neither *virtual containment* nor *containment simpliciter* implies *formal containment*. And my solution to the *aporia* consists in concession that the primitive concepts or ultimate differentiae *do* contain the concept of *being* virtually, that is, the concept of being is necessarily implied by them; but they do not contain it *formally*, do not contain it as an *intrinsic part* of their comprehension, as one of their ultimate definitorial notes, or as a concept "by means of which" (in the sense of the Leibnizian argument in favour of CA) they are conceived.[60]

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[59] This is an attempt to capture by modern means the conceptual-atomistic idea of conceptual composition: the predicates (A, B etc.) must be interpreted as *concepts* in the sense of CA; "+" is used to signify conceptual composition or conjunction; the formula "$A \equiv [B+\Phi]$" means that the concept A is defined by means of the operation of conceptual conjunction of B and Φ. This expression cannot be further reduced to any formula of the standard or even modalised predicate calculus. Most notably, it cannot be reduced to $\Box\forall x(Ax \Leftrightarrow (Bx \,\&\, \Phi x))$, because logical equivalence is – and this is just the main point of this paper put in other words – a weaker relation than formal identity. Not every two logically equivalent concepts are also formally identical (i.e. formally contained in each other).

The definition CC_F may resemble the definition of conceptual containment which is ascribed to Leibniz by Poser, *op. cit.* p. 39–40. Poser states the definition in the following way: *"A concept A contains a concept B iff there is a concept X such that the conjunction of B and X equals A"*. But this wording, however clear it seems to be, is ambiguous as to whether it should be interpreted in the strict, formal sense of CC_F, or merely in the liberal sense CC. Suppose two concepts P and Q such that $P \supset_V Q$. Does the conjunction of P and Q equal P (so that the definition of containment is satisfied, for there is a concept X, namely P, such that the conjunction of X and Q equals P)? It certainly is logically equivalent, but it is not clear from the definition whether logical equivalence is enough in this case. Cf. also note 61.

[60] This solution may look similar to the one offered by Scotus. Scotus holds that although *being* is not contained in the ultimate differentiae *quidditatively*, it is predicated of them *denominatively* – cf. e.g. *Collationes*, q. 3 (Harris, *op. cit.*, p. 373); but whereas his notion of quidditative containment or predication is more or less equivalent to our (and his) notion of formal containment, the notion of denominative predication differs from our (and his) notion of virtual containment (cf. the exposition by Wolter, *op. cit.* p. 96–98). To be a being *denominatively* means, in fact, not to be a being, but to be something *of being* or *pertaining to being*: the differentiae thus do not contain the concept *being* at all, according to Scotus, but a quite different concept, viz. *that which pertains to a being*. Virtual containment is something quite different; according to Scotus it obtains between an essence and its *propriae passiones* (i.e. necessary attributes), between *being* and its transcendental attributes, and between of God and His attributes, the pure perfections – but *not* between a differentia and its genus, or a differentia and the concept of *being* – this is something which Scotus explicitly denies: *"…contra rationem 'posterioris essentialiter' est est includere virtualiter suum prius"* (*Ord.* I, d. 3, p. 1, q. 1-2, n. 35, ed. Vat. III p. 24). It is hard to see how Scotus's proposal solves the problem – for the problem is that even the ultimate differentiae can be proved to contain (virtually) the very concept *being*, not some different concept (*something pertaining to being*), even if derived denominatively from the concept of *being*. (Of course,

It is clear that the arguments in favour of P4 can only prove containment of *being* in the differentiae only in the sense of containment simpliciter, as they only make use of the definition CC. On the other hand, the arguments that derive various infinite regresses from the containment of *being* in primitive concepts must assume the strong, "mereological" or "formal" containment (as represented by Figure 2) – once it is given up, the regress is blocked, or rather made innocuous, for as soon as the "contained" concept of *being* is expelled outside the comprehension of the differentia, the "new" differentia (D_{n+1}) simply coincides with the original differentia (D_n) and the entire "regress" becomes a mere imaginary one:

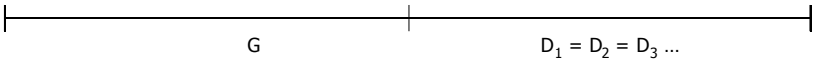

FIGURE 4 – INFINITE REGRESS OF DIFFERENTIAE BLOCKED

In reality, there is no infinite number of differentiae but just the single original one, which can therefore keep its status of an *ultimate* differentia, that is, a primitive concept.

The same holds, *mutatis mutandis*, for the Leibnizian version of the argument, it would just have to be required of Leibniz that he interpreted his intensional theory of predication in terms of the conceptual containment simpliciter, so that the necessarily true predication of *being* of all the primitive con-

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Scotus's proposal is not construed as a solution to the problem presented here, but rather as a reply to the Thomistic claim that the differentiae cannot be "separated" from *being*. To this mere vaguely understood "inseparability" the concession that every differentia is something that *pertains to being* seems to do justice. But the point can been pressed further than that.)

Our solution is however very closely approximated by the position of later Scotists, represented e.g. by John Punch (see note 40), who concedes so much that *being* is predicated of the differentiae *as something connected* with them, although not as something *formally contained* in them. Since his explanation is quite instructive, it is worth quoting in its entirety (*loc. cit.* p. 889b): "*Ut melius hoc intelligatur, adverte, aliud esse quod ratio formalis entis conveniat differentiis; aliud esse quod ista ratio formalis conveniat ipsis ex ratione formali differentiarum, aut quod ista ratio intrinsece, et quidditative includatur in differentiis, et consequenter quando dicitur quod sint, vel non sint entia formaliter, quia illud 'formaliter' potest accipi aequivoce in utroque sensu, valde cavenda est aequivocatio ipsius, et semper explicanda est eius significatio, ut sic de re ipsa et non de nomine disputaretur. Dices: In hac responsione conceditur, quod conveniat omnibus differentiis ratio formalis entis: ergo conveniunt univoce omnes differentiae in una illa ratione praedicabili univoce de ipsis: sed omne praedicatum univocum est formaliter praedicabile de univocis: ergo ratio entis est formaliter praedicabile de differentiis. Respondeo, concedendo primam consequentiam, et distinguendo subsumptum, et ultimum consequens: formaliter praedicabile, id est praedicabile per modum praedicati essentialis intrinseci, nego: formaliter praedicabile per modum praedicati aliquo modo coniuncti cum illis, concedo: et haec distinctio sicut praecedens notanda est non solum in hac, sed etiam in multis aliis materiis.*"

cepts does not require its *formal* containment in them.[61] Given that provision, the fact that some primitive concepts contain virtually other primitive concepts does not lead to a contradiction or any logical problem whatsoever.

Of course, what applies to the relation of the concept of *being* in relation the differentiae, applies in the same way to any generic concept. In other words, there is no difference between the concept of being and the "normal" generic concepts: we see the *aporia generis* evaporate once again, for it is impossible to give to both of its premises – P3 and P4 – such a sense that they are jointly true and the argument is valid. P3 is true only in the sense of *formal* containment, whereas P4 only in the sense of *virtual* containment (or containment *simpliciter*); but in this reading, the argument commits a fallacy of equivocation:

P3^{F}	No genus is contained in the differentiae (formally).	PeM_1
P4^{V}	*Being* is contained in the differentiae (virtually).	SeM_2
AG	*Being* is not a genus. *(does not follow because of equivocation in the middle term)*	SeP

Thus it appears that not just the concept of *being*, but *every genus* is (virtually) contained in its differentiae (supposing that they can differentiate exclusively *this* genus and no else). This seems to be a very un-Aristotelian conclusion, but even Aristotle himself was aware of the fact that "each of the differentiae imports its own genus, e.g. *walking* and *biped* import with them the genus *animal*".[62] It seems therefore that the key to the enigma of *being* was already present even in the mind of the originator of the enigma. And by this observation – not in fact very surprising one – we may conclude our investigations.[63]

[61] On the one hand this may appear plausible for Leibniz, for it seems that he would naturally accept the interpretation of conceptual equality as logical equivalence (which would render his definition of conceptual containment equivalent to the broad notion of CC *simpliciter* – see note 59), on the other hand, however, this would contradict his conception of *proof* based on *definitional* analysis (and therefore involving the *strong, formal* conceptual containment CC_F) – cf. Kauppi, *op. cit.* p. 114ff.

[62] *Top.* Z, 6, 144b16–18: »ἐπιφέρει γὰρ ἑκάστη τῶν διαφορῶν τὸ οἰκεῖον γένος, καθάπερ τὸ πεζὸν καὶ τὸ δίπουν το ζῷον συνεπιφέρει.«

[63] I am greatly indebted to Jan Palkoska, with whom I have had the opportunity to discuss the matters concerning Leibniz's logic and metaphysics for an extended period of time, and from whose knowledge and insight into Leibniz's thought I have profited invaluably. The research behind this paper was supported as part of the grant project "Jsoucno a pojem: raně novověká recepce Suárezovy metafyziky. Vliv Suárezových Metafyzických disputací na racionalistické myslitele do Kanta", KJB 900090701, GAAV ČR.

SUMMARIUM

De modo, quo Leibniz et Aristotelici aporiam generis solvere possunt, sine doctrina de conceptibus simpliciter simplicibus respuenda

Doctrina de conceptibus simpliciter simplicibus, in quos omnes notiones ultimatim possunt resolvi, (a recentioribus "atomismus conceptualis" vocata) firmiter irradicata est in occidentali philosophica traditione. Originem suam quidem ab Aristotele trahens semper apud peripateticos adfuit, purissime tamen expressa in operibus Leibnitii invenitur. Nihilominus, ab initio haec doctrina etiam difficultate quadam patiebatur, quae "aporia generis" vulgo dicitur. Difficillime est enim explicatu, quomodo simplicitas absoluta conceptuum primitivorum (seu differentiarum ultimarum) stet cum conceptuum transcendentium existentia, qui necessario in unoquoque conceptu comprehenduntur. Tractatione nostra haec difficultas examinatur et solutio praebetur. Fundamentum cuius est: datur duplex continentia unius conceptus in altero, scilicet formalis et virtualis. Conceptus transcendentales a conceptibus primitivis seu simpliciter simplicibus non formaliter, id est ut pars ipsorum definitionis, sed virtualiter tantum continentur – quod nihil aliud dicit quam illos ex his necessario sequi. Notabile est, huiusmodi sulutionis originem apud Aristotelem quoque inveniri posse.

SUMMARY

Conceptual Atomism, "Aporia Generis" and the Way Out for Leibniz and the Aristotelians

Conceptual atomism is a doctrine deeply rooted in the tradition of western thought. It originated with Aristotle, was present in the entire Aristotelian tradition and came to its most pure expression in the work of Leibniz. However, ab initio *this doctrine suffered from certain difficulty labelled traditionally "aporia generis", namely the problem of how it is possible to reconcile the absolute simplicity of the primitive concepts (or ultimate differentiae) with the existence of transcendental concepts, that is, concepts necessarily included in every concept. In this paper the entire problem is subject to an analysis and a solution is suggested, based on a distinction between two different kinds of conceptual containment: the primitive concepts do not contain the transcendentals formally, that is, as constituents that can be revealed by means of definitional analysis, but they nevertheless do contain them virtually, that is, they strictly imply them. It is noted that the germ of this solution is already present in Aristotle.*

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