

Aristotle's *Categories*, why 10?

Abstract: Aristotle's categories are presented as a system, relying on logic and syntax instead of meanings. His square of oppositions is found to be of crucial import.

keywords: Aristotle, history of philosophy, categories

Aristotle's *Categories* is beyond dispute one of the most remarkable books in the Western intellectual tradition and it is hardly necessary to rehearse the historical circumstances of this fact. Observing the incalculable amount of commentaries devoted to it¹, the lack of consensus on the very principles underlying this brief treatise becomes obvious. Incompatibilities or inconsistencies with other passages from the Aristotelian corpus are a source of puzzlings and misunderstandings. Among the various questions inquiries include usually considerations on the state of the transmitted text which is also problematic, to the point that its authorship has been questioned. Scholastics tried in every way to smooth out the problems, but the modern attitude does not allow to ignore them. Not so long ago, a researcher warned that it was "a common mistake to consider the theory from *The Categories* for the Aristotle's theory of categories"², which is a brutal reminder of how inevitable seem the moves to other places from the corpus and from there, imperceptibly, to things said by others. New readings appears to demand a stepping out of the tradition, that is to say, to reject the Neo-Platonic suggestions along with all ontotheology: Aristotle is not overly committed to hierarchizing and he is not obsessed about (non)existence.

It is fairly obvious that in the *Categories* the author has adopted an unambiguously nominalist stance, insisting that the only existing are the "atoms" (3a33-b3), a word that has traditionally been replaced by its calque „individuals“ (Frede 1987: 50). In this sense, ontological issues are foreclosed, with the first category under consideration, essence / ουσία, being taken just as an invariant, a limit beyond which some description - categorization or 'predication' - turns one thing into another while it ceases to be the same. The *givens* of phenomenology, when described, decompose into an individual and its definiteness: the prioritization of one or the other is a conventional choice. One of the few undisputed understandings of *Categories* is that categorization, 'classification', is the subject of the treatise. Inevitably, each category is a kind of definiteness, and if the first one has this general meaning, it will be found again in all others. The Greek word has a latin calque as "essence", while its other traditional substitute, "substance" (which by its morphology would be closer to „hypokeymenon“³) has gained preeminence on grounds that bear a tenuous relation to Aristotle's own work. When Kant refocused metaphysics on epistemology he admitted outside of knowledge no more than some "thing in itself", while existence ceased to be a predicate. Examining propositions and their modalities he established a classification of judgments which lead him to the outline of a new system of categories. His neat 4x3 schema

¹ *Commentaria in Aristotelem Graeca*, Berlin: Reimer, 1882 – 1909; Lloyd N., *Medieval Commentaries on Aristotle's Categories*, Leiden/Boston: Brill, 2008, p.1; listed in Lohr C., 1967 – 73, *Medieval Latin Aristotle Commentaries*, Traditio vols.23 – 29 ; Gorman M. and Sanford J., (eds) (2004) *Categories: Historical and Systematic Essays* Washington, DC: The Catholic University of America Press 2004; *Special Issue on Categories*, *Monist* (v.98. no3) July 2015 (eds.) Javier Cumpa and Peter M. Simons; *Categories: Histories and Perspectives*, (eds.) Giuseppe D'Anna and Lorenzo Fossati 2017; *Catégories de langue, catégories de l'être*, *Les Études philosophiques* 2018/3, (N° 183).

² «cette erreur est fréquente - considérer la théorie du *Traité des Catégories* comme *la* théorie aristotélicienne des catégories» (Aubel 1963:377).

³ A literal back translation is hypostasis, a word that became loaded with other meanings, but nevertheless also semantically close (Kahn 1973).

was both praised and criticised during a discussion about categories which briefly caught the attention of various philosophers in the 19th c., leaving a few barely discernable traces (Mariani 2018).

The Kantian revision took place, of course, in a context in where the correlation of the logical and the ontological is problematicized in a new way, but this also brought the discussions to their starting point: what exactly is the subject of the ancient treatise on the categories. Even if its stays undecided, the question why they are ten could still be considered, and, reversing the priorities, it will serve here as a focus for some conjectures, that, hopefully, might be enlightening. Thus, beyond the question of authenticity⁴, two assumptions are made: the number of categories is indeed ten, and Aristotle is definitely inclined to use quadratomies, i.e. combinations of independent diaireses.

Historical notes

The history of Aristotelianism is known well enough not to be repeated, except to emphasize its central point, namely that the West chose to establish the translations of Aristotle as a source for intellectual authority some 1500 years after his own time. The scholastic rediscovery of Aristotle's various works came along with that of his ancient commentators, notably Simplicius. The access to these texts lead to a discussion *De Numero et Sufficientia Praedicatorum*, (McMahon 2002) and in this rather specific aspect of the reception of the *Categories* some names from late antiquity should be mentioned - Iamblichus, Ammonius, Simplicius, and from scholasticism - Albert the Great, Thomas Aquinas and a few other others. (Gabor 2014; McMahon 2002).

Actually, what Simplicius conveys about his predecessors is mainly evidence that they are restating the content of the book, reaffirming Aristotle's correctness. In his text, as it has been transmitted, the first 4 of the 10 categories are examined in detail while the remaining 6 are deemed more or less trivial ("owing to their obviousness nothing further is said about them" (11b14)). Schemes of such an 4 + 6 type are common even if they do not really offer anything more than an image of the text. Porphyry also does not provide any lights as he just notes that the minimal division is fourfold and the maximal one tenfold (71.20). Ammonius however has tried to show that combining the first category with the next 3 will produce the pairs for the remaining 6. His attempt seems hardly convincing but his pupil, Simplicius, proposed a more elaborate construction, which justifies the existence of the 10 categories as a system. It is worth noting that he chose for his the starting diairesis the pair existence and activity - his construction turns out to be an 8 + 2 scheme - which probably introduced the later view that there might be something superfluous among the 4 final categories (Baumer 1993).

The prototype for such developments is to be found in Plato's *Sophist* and their later reworking in Porphyry's *Isagoge*. Although it does not say directly why the categories are 10, this extremely popular text manages to reach just this number in two key places. The first is the famous arbor Porphyrii, which, besides roots and leaves, has exactly 10 branches. It is offered as an example of structuring a (rather) particular category, while the text explains that for each category there is at least one pure genus, one pure species and an intermediate interconnecting level - a construction obviously invented for the purposes of syllogistics. Much more intriguing is his treatment of the predicables – the 4 genera of the categories mentioned in *Topics* (109b21-3). Appealing to this text, Porphyry replaces one of them, the definition / oros with two others - difference and species, increasing their number to 5. Next, showing combinational skills, he examines all possible combinations in pairs of these 5

⁴ This topic is not popular but summaries are available e.g. (Achard 2000); or earlier (Frede 1987).

elements⁵ and reaches, quite correctly, the number 10. Explaining the completeness of this simple exhaustion, he also quotes the numbers that describe it $4 + 3 + 2 + 1$.

It is difficult to disregard the force of the (neo) Pythagorean suggestion, especially in the early centuries of the common era. Authors with a similar bent, e.g. Eudorus or (pseudo) Architas, manifested their interest in the *Categories* shortly after Andronicus put into circulation the familiar text (Griffin 2015: 99). The naively mystic idea that 10 "encompasses" all numbers is projected on the "decade" of categories. As there has been at that time already a discussion about the order in their enumeration, it may be worthwhile to consider their list just that spirit: as logical trees in graphical representation generate insight by a mix of the intelligible with the sensible, looking at a linear (vertical) list (Baumer 1993:352) earlier might have been rather suggestive, especially if some kind of comment unfolds in parallel with it:

English	Greek	Description	
essence	οὐσία	Naming	1 . 0
quantity	ποσόν	Quantifying	2 . 1
quantity	ποιόν	Qualifying	2 . 2
relative	πρός τι	Circumstances	3 . 0
place	ποῦ	Circumstances	3 . 1
time	πότε	Circumstances	3 . 2
position	κεῖσθαι	Verb	4 . 1
havinge	ἔχειν	Verb	4 . 2
action	ποιεῖν	Verb	4 . 3
passion	πάσχειν	Verb	4 . 4

Reading from the bottom up, it is immediately apparent that the last 4 categories are definitely and unambiguously grouped around the concept of verb (Trendelenburg 1848; Benveniste 1958⁶; Baumer 1986). For the remaining 6 above them, it seems plausible to see them as breaking down into two rather symmetrical triads. In the topmost, the first category clearly stands out while the next two appear as pair. $1+2+3+4=10$. But just as the choice of our usual number system is a kind of facticity, the finding that the first four numbers sum up to 10 is no more than a coincidence (it is not difficult to imagine choices other than 2×5 , e.g. 12 or 15, which is not only 3×5 , but there is also an analogous arithmetic property for the first 5 numbers).

Combinatoric and logic

⁵ Plato, *Soph.* (255c-259e) does more or less the same for his 3+2 highest kinds.

⁶ Benveniste's remarks on the verbal group here are enlightening, and also his more general comments on such grammar peculiarities of Greek, especially on its opposition of inside/outside (Benveniste 1966:168).

Additive decompositions of 10, such as the discussed above, can be exhaustively investigated, but that will not remove the suspicion that the number has been chosen precisely as a 'round' number and arithmetic comes after the fact. Otto Appelt made a summary of all references to categories in Aristotle's texts, and so, ever since the end of the 19th c., it became known that the listing of categories, except in the eponymous treatise, reaches ten only in the *Topics*, where their number is explicitly noted. The thesis that the exact number is irrelevant, or even that two of them have been added, has to overweight somehow the persisting repetitions of the round number in paraphrases or as alternative names of texts, reliably identifiable with the Aristotle's *Categories*. In the light of everything known, one might accept with good certainty that 10 is their number, without relying on some (Pythagorean) arithmetic.

Persuasive arguments are logical by nature, and this is the spirit of derivations produced through logical trees. As can be seen from Porphyry's example, a hierarchical tree for ten elements can be built in five steps, but it is rather clear that such strict subordination of Aristotle's ten categories would never achieve a convincing appearance. Understandably scholastics proposed more balanced solutions, including also non-logical enumeration in trichotomies. A quick glance at the some graphic representations of their constructions (McMahon 2002; 2004) should be enough to leave them all without further comment.

Scholastic investigations have established that divisions in two or four may be logically unrelated, but this is not the case of trichotomies. Strict logic, which observes the tertium non datur, with the help of some predicate divides the universe of discourse into two branches, A and non-A, and only when one of them is further divided, for example into B and non-B, a listing of type A, B, non-B results. In such cases, the second division is seen to be conditioned or depending on the prior non-A. In cases of independence, A and B together with their negatives are combined as four unconditional items. In terms of genera and species, trichotomies are inevitably a mixture of one genus and two species⁷; for quadrotomies, the terminology makes no sense. That all of this has been known at least from the time of Plato is evident in his *Sophist* (266a), just as the taste of later Neo-Platonists for hierarchical one-sided diaireses is fairly obvious.

Aristotle definitely understood the conditionality included in the three-part classifications and, as a logicist and empiricist, apparently preferred quadrotomies. His square of oppositions with its variants is popular enough (Coreira 2014), a particularly well-known example of such construction being the conception about the 4 elements. It is derived from the combination of the two unrelated characteristics temperature and humidity.

In the Aristotelian corpus, such schemes abound and can be repeatedly seen in the *Categories*. The fourfold division found at the beginning of the treatise (1a20-1b9) features the combinations "said of" and "found in" and with some good will it can be recognized at the beginning of Chapter 10, where negatives, deprivations, relatives and contraries are considered (11b15-14a25). Relying on the closeness between *Categories* and *Topics*, it can be assumed that it underlies the four predicables explicitly named there and there is a plausible reconstruction of this logic:

	Singular	Universal
Inside	Ἰδιον (<i>proprium</i>)	Γένος (<i>genus</i>)
Outside	Ὅρος (<i>definitio</i>)	Συμβεβηκός (<i>accidens</i>)

⁷ Analogies can also be the source of trichotomies but either they are a pure factuality or they are as explained.

Unconditional binary logic generates partitions whose number is some power of 2, i.e. 2,4,8, etc. If a quadrotomy is preceded by some condition, it is obvious how 5 items will be obtained. Actually this is the case with the appropriately called quintessence: Aristotle himself never called it so, he just wrote about the first element and the others, which are (of course) 4, but the number 5 has stuck.

Actually his considerations include mutability as preliminary condition: the 4 elements are constitutive of the changing sublunar world while in the realm above there are no such transformations. So the full system is:

<i>Mutable</i>		<i>Immutable</i>
Fire	Air	Aether
Water	Earth	

Following the same scheme a reconstruction his category system is quite easily achieved.

A Tentative reconstruction

Early thinkers seems to have been interested first of all in the problem of the changing and the unchanging and only secondarily did it generate a problem about (non)existence (the topic becoming later a selective bias for the survival of their views). With some confidence it might be assumed to stand behind the major division of the Categories: the opposition between the invariable and the change. Grammatically, it translates into noun and verb and they are indeed the examples given at the very beginning of the tract, "man," "runs," etc. The second independent division appears to be the one found between what the ancients termed „corporeal“ and „incorporeal“. Coincidence or not, it also stands at the top the Arbor Porphyrii. The four resulting cases can be referred to by some indicative names, e.g. noun, place, time, verb. Insofar as the incorporeal "place" and "time" are not to be divided further, a fourfold division is applied to the other two remaining items. A double scheme with $2 \times (4 + 1) = 10$ positions that correspond to the ten categories is reached and this may be presented in a symmetrical table :

<i>actor (noun)</i>			<i>activity (verb)</i>		
<i>corporeal</i>		<i>incorporeal</i>	<i>incorporeal</i>	<i>corporeal</i>	
Essence	Relative	Place	Time	Active	Passive
Quality	Quantity			Position	Having

To avoid trivial misunderstandings one should note that the names used in this attempt are purely functional. The quadrotomies that Aristotle uses are not homogenous with respect to their two principles⁸; here, too, the grammatical noun and verb would stand on par with the physical time and place. Indeed the distinction corporeal/incorporeal is just a nod to the

⁸ Porphyry in his *Commentary* used substance and accident with singular and universal and ran into the problem of singular accidents which are hard to demarcate from the individual itself.

tradition, our contemporary view being rather the inverse: time and space are physical entities, while grammatical categories are notions. Actually this explains where the secondary quadrotomies occur: notion are easily divisible, while realia are not and physical reality at this level does not provide anything suitable except the oddly named ποῦ / *where* and πότε / *when*. Inversely, the grammatical term verb is a kind of 'action', so in realistic terms 'action' should appear at both levels. Modern linguistics, having introduced the concepts of hyponym and hypernym, also finds that there are auto-hypernyms (or auto-hyponyms), and apparently they can be useful in understanding the systematical nature of the categories. "Genera and species" is a concept inappropriate to quadrotomies and it would misleadingly proclaim that the reconstructed category system mixes them up, as this is seen in trichotomies.

Discussion

A derivation like this one shows unambiguously that the category which stands at the head of the eponymous treatise logically has no special place, being just one along the others. The intention behind the *Categories* is not directly philosophical, much less ontological. Put rather simply in modern terms, one could say that it is an attempt at universal semantics.⁹ However it is now clear that the distinction between syntax and semantics is somewhat blurred in natural languages, and also that Aristotle's searches are inevitably influenced by his use of Greek. The quasi-coincidence of grammatical forms and Aristotelian categories, demonstrated by Benveniste, exhibits also how the functioning of the copula¹⁰ is manifested through what came to be known with Greek name "philosophy" (Kahn 1973). The idea of Universal Grammar, currently associated mainly with one school, appears to be even more unpopular than the one about Semantic Universals. But it allows to say more pointedly that Aristotle's search tends to something similar to 'Deep structure', a logical layer below the surface grammatical form.¹¹

As an a priori scheme imposed on the peculiarities of some natural language Aristotle's system of categories unsurprisingly produces discrepancies. The good correlation between possible questions and categories has been already noted and discussed (Ackrill in (Aristotle 1963:78). A game-theoretical approach devised by Hintikka has also confirmed close ties between the functioning of language and the system (Hintikka 1983). When these contemporary treatments fail to match the original number of ten, implicitly or explicitly, they find fault with the author (Studtmann 2012): it seems understood that Aristotle has done some violence to the facts. Actually we see that he might have preferred to be led by logic in a realm where it is difficult to find.

The starting ground chosen by Aristotle are the words – occurring "without connection." In Indo-European languages, the same word can function in rather different ways, which is clarified by drawing on grammatical categories. It is evident that there is a discernible link between "he runs", "his running", "a run" but an attempt to understand the categories in this spirit would lead to the claim that the connection between "running" and "shouting", which are actions, is somehow more important than the one between "runs" and

⁹ "Although one should be cautious about saying that there is a simple list of semantic primitives, it seems reasonable to maintain that Aristotelians had unearthed most of the major ones." (McMahon 2002:20).

¹⁰ Hintikka has been overtly critical of a so called „Fregean trichotomy“, occurring by coincidence (Hintikka 1979) and this point has been thoroughly investigated (Kahn 2003); the existence of such a problem is well known and the *Categories* include an attempt to deal with fallacies of the type “Yellow is a color. The cat is yellow. The Cat is a color“, etc.

¹¹ A dispute about the preeminence of syntax over semantics, the form or the content, led to what was named the linguistic wars, a quarrel about how to conceive „deep structures“ (Harris 1995). Sapir's claim that „No language wholly fails to distinguish noun and verb.. It is different with the other parts of speech“ (Sapir 1921) could be reminded on this occasion.

"run": the first two words are verbs , while the second pair is a verb and a noun. It is definitely clear that categories are not the highest kind of being, which Aristotle indeed never claimed.¹²

When Andronicus placed the *Categories* at the beginning of Aristotle's collected works or when Porphyry commented on them, there was little doubt that this is some form of propedeutics, a concise statement that may even precede the *Topics*. In the 17th century, Jesuit missionaries prepared a Chinese translation of the *Categories*, with the title *Investigation of the Theory of Names* (Wardy 2006). This has been an expression of their understanding achieved in an intercultural discussion. Remarkably the treatise begins by discussing names and without mentioning the appropriate naming ("ortho-nym"), reminds of paronyms, synonyms and homonyms. The whole discussion about species and genera can be seen as a reflection of the fact that language is not uniformly structured. If a proper name, "Plato" or "Socrates", directly refers to the person concerned, a common noun, such as "horse" or "dog", refers to the individual (Bucephalus or Fido) in an indirect way. Linguists repeat Saussure's saying that words connect an acoustic image and a concept, leaving out the further question of the real-world referent. Aristotle has no proper theory of concepts and his referents are the individuals. Logic, whether Saussure's or the nominalists', in order to be uniform would demand the introduction either of things such as the concept-of-Socrates, or sets with just one element ({{Socrates}}). Nominalism turns out to be a rather simple explanation why intelligible entities are virtually absent from the *Categories* - they are just like species and genera and in the same sense (do not) exist. With this stance space and time had to be avoided, allowing only the mentioning of their constitutive „where“ and „when“.

Concluding remarks

Logic is part of the world, and regardless of how the border between nature and culture is drawn, it finds expression in language. Aristotle, thinking logically, arrived at a kind of grammar, a discipline that was rather vague in his time (Frede 1987). Benveniste's recognition of his categories as grammar is a fact that has not been really disputed. Only as it served for a basis to further speculation in the spirit of "linguistic relativity", his paper has become the subject of criticism (Derrida 1972, Reding 1986). His work was noted (and remembered) by a future expert on Aristotelianism (Aubenque 1965), who pointed that the idea has been already expressed by Trendelenburg (1848). This reference to the past has been seen as weighty enough to discredit the whole of it, though his rediscovery appears to have been made independently and rather it is a confirmation, insofar as Benveniste is a linguist, not a philosopher.

The anthropomorphic notion of causality is undoubtedly among the first manifestations of rationality and has inevitably been embodied in natural languages. Actor and action, or noun and verb, immutable and variable, time and place, are conceptions universal enough to be recognized in one form or another practically everywhere. Further detailing, as well as the corresponding naming and translation conventions, may obscure the basic course that led to the creation of the Aristotelian category system.

For instance Chapter 6, discussing what comes under the heading of quantity, is rather disconcerting if a literal reading of it is expected and more generally to think about categories from the words given as their names seems to be a doomed attempt. But the different names given to the first category in the *Topics* and the *Categories* do not produce consternation, actually it is the contrast with 'quality' or 'relative' that really matters and being familiar with the distinction between nouns and adjectives or the genitive case allows to make sense of the system. The natural language in which these reflections are made exploits the ease of

¹² "To my knowledge, Aristotle nowhere uses terminology for categories that translated into Latin or English would be *summa genera* or highest kind. " (Baumer 1993: 350: n.13-4).

transitions through grammatical categories: the quality – adjective correspondance has been noted well before Trendelenburg and Benveniste, despite the weight given to Aristotle's remark about qualities being sometimes stated in paronymic terms (10a27-11a2); the closeness of relatives with the genitive is an other instance mentioned by him (11a27).

Reinterpreted first by its own author and further deformed by Neo-Platonist readings, Latin translations, various cultural forces etc., the Aristotelian categories come to us loaded with history. Their logic appears as the invariant which resisted dissolution and preserved intelligibility. For what the Tradition hides, going beyond it offers new perspectives, whether they be from the Trendelenburg's Kantianism, Benveniste's structuralism, or contemporary linguistic theories.

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