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CHAPTER 1

Categories and Syllogistic Syntax

Synopsis

In this chapter we study various traditional doctrines of categories: Aristotle's doctrine, the grammatical doctrine of the parts of speech, and Kant's doctrine. The main point of attention is Aristotle's doctrine of categories; the discussions of the parts of speech and of Kant's categories are both set against that background.

In the first section we consider the question of what the items are that fall under Aristotle's categories. We argue that these are terms in the sense of syllogistics. The starting point of the second section is the traditional interpretation of Aristotle's categories as highest genera. This motivates a study of the so-called predicables, of which genus is one. We argue that Aristotle's categories are not highest genera, but rather classes of terms. The nature of items categorized is taken up again in section 3. Terms are linguistic in nature. We report on an ancient thesis that the items categorized are linguistic and argue against a recent contention that the category scheme in chapter 4 of the *Categories* differ from that in chapter I.9 of the *Topics*. The doctrine of parts of speech is introduced in the fourth section. We look at elements of its early history and its relation to Aristotle's categories. In section 5 we suggest a view of the relation of Kant's categories to those of Aristotle in terms of the distinction between categorematic and syncategorematic terms. There we also consider various ways of "deriving" the categories from certain other notions.

1. Items categorized

In order to understand what sorts of items fall under Aristotle's categories it is natural to look to chapter 4 of the *Categories*, where the categories are first introduced (the list can be found in Appendix 1 at the end of this chapter (p. 66)). They are said there to collect "things said without combination" (*ta kata mēdemian symplokēn legōmena*).[1] Section 1.1 investigates this and related notions in Aristotle's work; it is proposed that items categorized are terms in the technical sense of syllogistics. It is sometimes held that items categorized are predicates; this view is scrutinized in section 1.2 and shown when properly understood to be subsumed by the view that items categorized are terms.

1.1. Things said without combination. The examples of things said without combination that Aristotle lists in chapter 4 of the *Categories* include 'man', 'white', 'four-foot', 'double', 'in the Lyceum'; as examples of things said *with* combination he lists in chapter 2 of the same work 'man runs' and 'man wins'. But apart from these examples Aristotle gives only a negative characterization of the notion: being said *with* combination is a prerequisite for being true or false. That truth and falsity presupposes combination is a claim one finds not only in the *Categories* (2^a10, 13^b10), but at several places in Aristotle's works,[2] and it may be regarded as one of the main theses of Plato's *Sophist*. It is in fact reasonable to assume that Aristotle with his notion of thing said without combination alludes to this work of his teacher.[3] Plato there (261d–263d) notes that a *logos* comes to be when certain spoken sounds (*phōnai*) "fit together."[4] A list of verbs such as 'walks runs sleeps' remains a list, as does a list of nouns such as 'lion stag horse', for these words do not fit together. But when a noun and a verb are combined,[5] as in 'Socrates walks', the words fit, and the result is a *logos*. Things said without combination would therefore be the elements combined in a *logos*.

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[1] We follow Ackrill in using 'thing said' as the translation of *legomenon*, a participle of *legō*; thus the 'thing' is supplied by the English.

[2] *Int* 16^a11, *DA* III.6 430^b2, *Met* E.4 1027^b19. Whereas the *Categories* speaks only of *symplokē*, these cited places uses the pair of terms *synthesis* (combination) and *diaresis* (separation). It is clear from the cited *DA* passage that Aristotle sees a close parallel between combination and separation, so for ease of exposition I shall omit separation from the discussion. For the claim that a term by itself is not yet a proposition, see also *Top* 101^b26–28.

[3] As was perhaps first noted by Trendelenburg (1846, pp. 11–12).

[4] Plato was probably reacting to "the problems of predication" raised by Parmenides and Antisthenes: how is false, and how is non-tautological predication possible? (cf. Nuchelmans, 1973, pp. 9–12) The problem of falsity (and non-being) is a main theme throughout the greater part of the *Sophist*. Antisthenes's problem of non-tautological predication is raised at 244c: "Surely it is absurd for someone to agree that there are two names when he maintains that there's only one thing" (cf. 251b–c).

[5] Plato uses both the noun *symplokē* (262c6) and a participle of the corresponding verb *symplekō* (262d4) to describe this combination of noun and verb.

Let us not worry now about the fact that Plato calls these elements noun and verb; as we shall see in the next paragraph Aristotle introduces a different terminology, and as we shall see in section 4.1, he reserves 'noun' and 'verb' for making more purely grammatical distinctions.

The notion of *logos* that Plato describes in the *Sophist* is taken over by Aristotle with his notion of *logos apophantikos*, translated by Ackrill as 'statement-making sentence'. This is a sentence in which there is truth or falsity (*Int* 17ª2); hence it is a thing said with combination. Moreover, it says something of something (*ti kata tinos*, 17ª25). Thus, firstly, a statement-making sentence is a combination, and secondly, it says something of something. It is reasonable therefore to suggest that what is combined in a statement-making sentence are the two "somethings" of the formula 'something of something', namely the something said of something else and the something else of which that something is said. In the context of Aristotle's syllogistics these are both called terms (*APr* 24ᵇ16):

> I call a term that into which a proposition is resolved, that is, what
> is predicated and what it is predicated of, with the addition of to
> be or not to be.

What is here called a proposition (*protasis*) is "a sentence (*logos*) affirming or denying something of something" (*APr* I.1 24ª16), and thus coincides with the notion of a statement-making sentence as defined in the *De Interpretatione*. Instead of "somethings" this definition speaks of 'what is predicated' and 'what it is predicated of', and baptizes these things 'terms'. Since a statement-making sentence was taken to be a combination of the two "somethings" in the formula 'something of something', it can therefore also be said to be a combination of terms: a statement-making sentence is a combination of terms.

The phrase 'with the addition of to be or not to be' in the quoted passage presumably refers to the copula. Thus, there are the terms S and P and the addition of to be or not to be in the shape of the copula. The proposition is therefore assumed to have the form 'S is P', the basic form of the syntax of syllogistics. Not all statement-making sentences are of this form, however: 'man runs', for instance, is not. If a combination of terms has the form 'S is P', it may therefore be asked whether all statement-making sentences are combinations of terms. Aristotle can be viewed as dealing with this question in chapter 10 of the *De Interpretatione*, where he argues that an important class of statement-making sentences is reducible to syllogistic form. Aristotle distinguishes the three forms of simple statement-making sentence illustrated by the following examples.

(1) man is (not)

(2) man is (not) recovering

(3) man recovers/does not recover.

Here (2) is of syllogistic form, and Aristotle holds that (3) is reducible to (2): replacing the finite verb 'recovers' in (3) by a copula and a participle we get 'man is recovering'.[6] Aristotle says little about the first form, and the reason is perhaps that it is difficult to see that it involves any combination at all.[7] In fact, when Brentano in the 19th century suggested a revision of logical syntax, taking the form (1), 'S exists (not)', as basic, he did so partly on the grounds of a conviction that not all judgements involve a combination.[8] However that may be, Aristotle disregards this form in his logic, and his reduction of (3) to (2) allows him to concentrate on the form 'S is P', and that is a combination of terms. But if a thing said with combination is a combination of terms, then a thing said without combination must be a term; hence we propose to identify things said without combination with terms. The proposal is therefore also that items categorized by Aristotle's categories are terms.

In the *Analytics* Aristotle gives many examples of terms, including 'there being a single science' (*to mian einai epistēmēn*, *APr* I.36) and 'there is knowledge of the good, that it is good' (*tou agathou estin epistēmē hoti agathon*, *APr* I.38). Hence one sees that terms need not be of the simple form exhibited by 'man' and 'white', but may have a varying degree of complexity. In *APr* I.35 Aristotle in fact distinguishes between simple and complex terms, calling the former *onomata* and the latter *logoi* (48^{a}29–30). But if a term is a thing said without combination, then we need to understand the complexity of a complex term otherwise than as the sort of combination yielding a thing said with combination. To that end let us first consider the word *logos*, employed by Aristotle for complex terms.[9]

According to the *De Interpretatione* a *logos* is a significant spoken sound that has parts significant in separation, while an *onoma* is a significant spoken sound that does not have parts significant in separation. Ackrill translates *logos* in this context as 'sentence'. Hence, as a sentence is presumably a thing said with combination, one is led to think that having parts significant in separation is just the same as being said with combination. A more thorough examination shows that such an identification

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[6]The same reduction is made at *Met* Δ.7 1017^{a}27ff..

[7]Alexander of Aprhodisias (*in APr* 15,15–15,23) argues that this form as well is reducible to the first form, namely as 'man is being', hence with 'being' as the predicate term. This view is not compatible with our interpretation, since it would force us to assign a category to 'being'.

[8]Brentano first presents his revision of syllogistic syntax in the seventh chapter of *Psychologie vom empirischen Standpunkt* (Brentano, 1874, pp. 271–289).

[9]For the following cf. the similar considerations of Moravcsik (1968, pp. 126–135).

cannot be upheld. The translation of *logos* as 'sentence' is not compatible with Aristotle's terminology in *APr* I.35, where it means complex term; but that may be just another instance of the famous polysemy of this Greek word. There are, however, reasons to think that this is not so. In *Poetics* 20, a chapter that repeats almost verbatim the definition of *logos* given in the *De Interpretatione*, Aristotle on the one hand says that there are *logoi* without verbs, hence sub-sentential units, and on the other hand he calls the *Illiad*, a super-sentential unit, a *logos* (cf. *APo* II.10 93$^{\mathrm{b}}$35). Thus, the word *logos* seems to signify complex sayings quite generally.[10] Nothing in Aristotle's definition of *logos* at *Int* 4 and *Poet* 20 excludes such an interpretation, and even in the *De Interpretatione* (16$^{\mathrm{a}}$21) one finds an example of a sub-sentential unit, namely 'white field', being called a *logos* (cf. *Int* 17$^{\mathrm{a}}$16). That a *logos* need not be a thing said with combination is in fact confirmed by the example 'rational mortal animal'. This phrase, or whatever one takes to be the definition of man, is a *logos* according to *Poet* 1457$^{\mathrm{a}}$25; but it is synonymous to 'man', since a defined term is synonymous to its definition (*Cat* 1$^{\mathrm{a}}$6); but 'man' is a thing said without combination (*Cat* 1$^{\mathrm{a}}$19); hence, on the reasonable assumption that two synonymous phrases are either both said with or both said without combination it follows that 'rational mortal animal' must also be a thing said without combination. We cannot therefore identify the two notions of having parts significant in separation and being said with combination, for there are items having parts significant in separation that are not said with combination.

This is not to say that there are no *logoi* that are things said with combination: statement-making sentences, *logoi apophantikoi*, are precisely that. We thus have a genus of *logos*, defined as a sign having parts significant in separation, with the two species under it of complex terms on the one hand and things said with combination on the other. These are species of *logos*, and so are complex sayings, but they differ in the nature of their complexity: on the one hand we have the complexity pertinent to terms and on the other the complexity pertinent to sentences. A similar distinction has been drawn in more recent times by Jespersen (1924, esp. pp. 96–144) between what he calls *nexus* and *junction*. A junction is a complex term, typically generated by adding one or more qualifiers to a simple term (ibid. pp. 108–114); so it has parts significant in separation in Aristotle's sense. A nexus is a sentence or a sentence-like combination (ibid. esp. pp. 117–122), corresponding to Aristotle's thing said with combination. That a nexus need only be *sentence-like* means that the notion comprehends apart from sentences—be it as main or subordinate clauses—also accusatives with infinitive

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[10]Barnes (2007, p. 180) translates *logos* in this context as 'saying', while the German translation of Weidemann (2002) uses *Wortgefüge*.

and the combination of a verbal or adjectival noun with a genitive, as in 'the doctor's arrival'. Like Aristotle, Jespersen relies on our intuitive grasp of the difference between these two manners of combination, and the only general characterization he offers are elucidations of a junction as "lifeless, stiff, rigid" and as "a single idea," and of a nexus as "having life in it," being "pliable, as it were, animate and articulated" and "always containing two ideas which must necessarily remain separate" (ibid. pp. 115–116). We have maybe reached a point here where crisp descriptions must give in, and elucidations by means of metaphors or otherwise take their place.

In any event we must distinguish complex terms from sentences. Complex terms have parts significant in separation, but are not said with combination; sentences are things said with combination. A simple term must then be a term that has no parts significant in separation. As is seen from a discussion in Porphyry's commentary on the *Categories* (3rd century AD), this definition is problematic. Porphyry maintains that verbs in the first-person as well as certain idiomatic third-person forms are, even when said by themselves, things said *with* combination.[11] Although the subject is not then expressed, it is implicit in the verbs themselves (*in Cat* 87,38ff.).[12] Among these idiomatic third-person forms Porphyry counted 'it rains', in Greek expressed by the one word *huei*.[13] According to Aristotle's definition of the verb (*Int* 16^b6), it is a sign having no parts significant in separation. A verb is therefore a simple term according to the suggested definition. If Porphyry is right, however, some verbs are also things said with combination. Verbs of the kind Porphyry points to would therefore be counterexamples to the identification of simple terms with words having no parts significant in separation.

Until now we have assumed, as Aristotle also did, that a simple term is a simple expression and a complex term a complex expression. We have in effect twice found that simplicity of expression cannot be used as an indicator of saying without combination: there are complex terms, such as 'mortal rational animal', that say things

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[11]Cf. Wittgenstein's remark (TLP 4.032) that the simple sign *ambulo* is composite.

[12]This view was shared by Ammonius in his discussion of the same problem at *in Int* 28,11–28,28.

[13]According to Porphyry *huei* has 'Zeus' as implicit subject. This appears to have been the common construal of the sentence among the Greeks (cf. Miklosich, 1883, p. 7). Brentano held, supported by the work of Miklosich (ibid.), to the contrary that such sentences are truly subjectless (cf. Brentano, 1925, pp. 183–187). Subjectless sentences, as they were sometimes called, were in fact much discussed among 19th century logicians (in lecture notes from 1917 Husserl (1996, p. 172) speaks of "die endlose Literatur" on this topic). Herbart, who was among the first to deal with subjectless judgements in the context of syllogistic syntax did so by construing their subject to have no content (and therefore maximum extension); see Herbart (1837, § 63). See the entry on *Subjektlose Sätze* in *Eisler*'s *Wörterbuch der philosophischen Begriffen* for an overview of what various other authors said on this matter.

without combination as well as simple terms, such as *huei*, that say things with combination. But the notion we are after is perhaps not simplicity of expression, but rather simplicity of meaning. Another commentator, Ammonius (5th century AD), held that a thing said without combination is what has both a simple meaning and a simple expression (*in Cat* 32,26–33,4):

> For (1) we can use a simple expression (*phōnē*) with a compound meaning (*sēmainomenon*), as when I say *trechō* ('I run'), for I refer to myself and to my action; (2) the expression may be compound but its meaning simple, as in 'mortal rational animal', for the expression is compound, but its meaning is man; (3) both may be compound, as when I say 'Socrates runs'; or (4) both may be simple, as the categories themselves.

Ammonius here assumes that we have a means of recognizing a compound meaning in a simple expression and a simple meaning in a compound expression. But what are such means? We seem to have a good grasp of the distinction between what is sentential and what is not, and on that basis we may settle such cases as *trechō* and 'Socrates runs'. Moreover, if we know of an expression that it has simple meaning, then we can infer that its definition will have simple meaning, as in 'mortal rational animal'. These seem to be the means of recognition of compound meaning implicit in Ammonius's examples. It is clear that they leave many cases unsettled. 'White man' is a compound expression, but does it have a compound meaning? Defining 'Whan' to mean 'white man', does 'whan' have a simple meaning?[14] One chapter in the *Organon* that could be taken to deal with such questions is *Int* 11, but it is not clear what it says on the matter; as Barnes (2007, p. 130) notes, it "obscures rather than illuminates." Indeed, no general test for the simplicity or otherwise of the meaning of an expression is forthcoming, it seems to me.

We are primarily seeking instruction on the sort of item that is categorized by Aristotle's categories. Perhaps it is possible to make progress on that matter without first explicating the nature of the complexity of a complex term and the simplicity of a simple term. It seems reasonable to say that if a term t is of category C, then adding a suitable qualifier (e.g. an adjectival, adverbial, or prepositional phrase) to t yields a new term belonging to the same category C, even though the qualifier taken by itself may be of another category C'. For instance, a white man is a man and therefore a substance, even though white is a quality. Ackrill (1963, pp. 73–74) holds that 'white

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[14]This question is in effect raised by Ackrill (1963, p. 73); Barnes (2007, pp. 132–133) discusses it and related questions.

man' does not fall into any category, for it "introduces two items from two categories."
But it seems like an unnecessary restriction on the scope of Aristotle's category theory
if qualified terms could not be said to belong to a category. Man, let us assume, is
defined as rational animal. Hence, if man belongs to the category of substance,
then rational animal does as well. But in 'rational animal' we have two items from
two categories. That a qualified term belongs to a category is thus presupposed by
the practice of definition. More specifically, the doctrine of definition by proximate
genus and differentiae seems to presuppose that a qualified term belongs to the same
category as its head. The proximate genus, namely, must belong to the same category
as the defined term, although the differentiae need not do so.[15] Could there be other
rules apart from qualification for generating categorized terms? Conjunctions such
as 'Plato and Socrates' or 'walking or conversing' could perhaps be called complex
substances and complex actions, but to a conjunction such as 'cuts while being cut'
it is not possible to assign a category since it conjoins an action and an affection.[16]

The foregoing suggests that if we were to supply syllogistics with category spec-
ifications, then we should have to assume a regimented language of some form. The
problems surrounding the notion of simple term suggest that these would have to
be laid down by fiat, and each assigned a category. From the simple terms new
terms would be generated by formation rules formulated such that each term could
be assigned a category in some sense consistent with the category of the terms from
which the new term was generated. These formation rules would include a rule of
qualification that would take, say, a substance term and a quality term and yield a
substance term; more generally, we should need to stipulate which kind of term may
qualify others, and what the category of the qualified term should be. Besides there
could be rules such as intra-categorial conjunction. Assuming, as we do here, that
items categorized are terms, such formation rules would also determine the extension
of the concept of a term: each term belongs to a category; what does not belong to
a category is not a term. It would presumably follow that Aristotle's example of a

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[15] Morrison (1993) argues convincingly that P's being a differentia of S does not determine its category
(e.g. it need not be of the same category as S). An important assumption of Morrison's is a distinction
between categories of predication and ontological categories. I shall argue in section 3.2 below that this
distinction is not Aristotelian; to my mind, the true Aristotelian pendant of Morrison's "categories of
predication" are the predicables (substance as a category of predication corresponds to the predicable of
genus, while quality as a category of predication corresponds to the predicable of differentia (on which
Aristotle was not quite clear, see section 2.1.2 below)). I am grateful to Donald Morrison for sending me
a copy of his paper.

[16] Conjunction of terms was regarded by Porphyry as one of two ways of saying with combination (*in
Cat* 71,5). Simplicius *in Cat* 71,18 holds that a verb in the middle voice will signify both an action and
an affection, and so may not be categorized.

complex term 'there being a single science' is in fact not a term. It is not a term since it cannot be assigned a category. That appears not to raise a problem, however, since the sentence Aristotle wishes to formalize, 'Of contraries there is a single science', is simply not formalizable in syllogistic syntax.

1.2. Subject and predicate. Plato noted that any proposition (*logos*) is about something and says something of that thing (*Sophist* 262e–263d). In effect he thereby drew the now traditional distinction between the subject and the predicate of a proposition. As a definition of this pair of notions there are certainly shortcomings in saying merely that the subject is (that which signifies) what the proposition is about while the predicate is what is said of that thing; for as Ryle (1933) noted, 'about' has many meanings.[17] 'Peter' is the subject of 'Peter loves Mary'; but instead of saying that this sentence is about Peter we may perhaps equally well say that it is about loving Mary; that is, it is about loving Mary and says that this is a characteristic of Peter.[18] To this one could object, rightfully I think, that the original sentence was not 'loving Mary is a characteristic of Peter', but rather 'Peter loves Mary', and it is only the first of these that allows the suggested analysis. So the sentence 'Peter loves Mary' is not about loving Mary; but could we not say that it is about Mary, predicating Peter's loving her of her?[19] As a foolproof definition of the notions of subject and predicate is not needed for our purposes, that is a question I shall not attempt to answer here.[20] That we grasp the distinction seems enough for what follows; and I take it as an unproblematic assumption that at least speakers of English do so. We have practiced that grasp as schoolchildren analyzing sentences, and again when applying the rule $\mathbf{S} \rightarrow \mathbf{N} + \mathbf{VP}$ in exercises of generative syntax.

The tradition is not always clear whether subject and predicate are linguistic or other sorts of items. Aristotle, for instance, vacillates at this point, taking subject and predicate now to belong to the level of *logos* (*APr* 24$^\mathrm{b}$16ff.), now to the level of

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[17]The definition of what a proposition is "absolutely about" defended by Goodman (1961) is of little use in defining the notion subject, since it entails (cf. ibid. pp. 9–10) both that 'Socrates is identical to himself' is not about Socrates and that 'Cows are animals' is about the class of non-cows.

[18]This point was made by Ramsey (1925b, p. 404).

[19]Geach (1962), who defined a subject of a sentence S as "an expression for something that S is about" (p. 23), insisted that 'Mary' in fact is a subject of 'Peter loves Mary'.

[20]Apart from Geach, Strawson has written extensively on the distinction from the point of view of philosophy (cf. esp. his 1959, Part II; 1971; 1974). He regards the case where the subject is singular as basic and the general case as derived from this (1974, esp. pp. 35–36, 125–132), though he never offers anything like a definition of the general case. For a treatment from the point of view of linguistics, see Lyons (1968, ch. 8), who notes, for instance, that case may not be a foolproof indicator of what is the subject of a proposition. In some languages, namely, the case of what is the "goal" of a transitive verb is also the case of the subject of an intransitive verb; hence the subject (or "actor") of a transitive verb will here not be in the same case as the subject of an intransitive verb (ibid., pp. 340–342).

pragma (*Int* 17ᵃ40).[21] According to the Stoics a predicate is a "deficient *lekton*," hence not an expression, but rather something like Fregean sense (*DL* VII.63). Ammonius (*in Int* 7,30), on the other hand, speaks of subject and predicate as vocal sounds (*phōnai*). In the more recent treatments of Geach (1962) and Strawson (1974) subject and predicate are understood to be expressions, and that is the practice we shall follow here. Thus we take 'Peter' and not Peter to be the subject of 'Peter loves her'. Peter himself may rather be said to be the topic of the proposition. Likewise 'loves her' is the predicate of 'Peter loves her', while loving Mary may be called the comment of the proposition, relating to the topic as the predicate relates to the subject.[22]

One might ask whether characterizing subject and predicate is what Plato in fact does at the place in question; might the characteristics he states not just be yet other characteristics of noun and verb? Indeed, in his examples illustrating the distinction it is always a noun that serves the former role and a verb that serves the latter. In that respect the examples are deceptive, for they all consist of only two words. Consider instead the following sentence.

> A young Norwegian mathematician who came from a poor family
> and died at the age of 26 proved that there is no general solution
> by radicals to quintic equations.

Here we should say that the first part 'A young...the age of 26' is the subject, while the rest is the predicate. But then one sees that there is no limit to the complexity of the subject and the predicate of a proposition, in particular, that they do not have to be single nouns and verbs respectively. One sees, moreover, that there may be noun phrases embedded in the predicate and verb phrases embedded in the subject. The fundamental contrast between subject and predicate on the one hand and noun and verb on the other lies, however, not in matters of complexity. The fundamental contrast lies in the fact that subject and predicate, unlike noun and verb, are relative notions. It is only in the context of a proposition that it makes sense to speak of subject and predicate. By contrast, a word is a noun or a verb, and a phrase a

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[21]For more examples, see Barnes (2007, pp. 114–123).

[22]The pair of terms 'topic' and 'comment' seems to stem from Hockett (cf. Lyons 1968, p. 335 and *OED* on 'topic') but 'topic' is found with what must be the same meaning in Jespersen (1924, p. 146). A similar pair of notions is that of psychological subject and predicate, introduced by Von der Gabelentz (1869, p. 378): "ich nenne das, woran, worüber ich den Angeredeten denken lassen will, das psychologische Subject, das, was er darüber denken soll, das psychologische Prädicat."

noun phrase or a verb phrase, independently of its occurring in any given proposition.[23] Thus one speaks of the grammatical or logical roles or functions of subject and predicate in contrast to the parts of speech or word classes of noun and verb.

Our interest here is in propositions of syllogistic syntax, 'S is P'. As instances of this form we should, however, count not only 'Peter loves Mary' (analyzed as 'Peter is loving Mary') or 'man is mortal', but also 'some men are bald' and 'some men are not philosophers'. In general, a proposition of syllogistic syntax is determined not by its terms alone, but by its terms together with what is traditionally called its quantity and quality (and in modal syllogistics, its modality as well).[24] These are aspects of the proposition indicating whether the predicate is said of all or of some S's, and whether it is in fact said or rather denied of these. There is therefore a question whether, in 'some men are bald', one should count 'some men' or only 'men' by itself as the subject. A grammarian would presumably choose the former alternative (and would again realize the problem of defining the subject in terms of what the sentence is about: which men is 'some men is bald' about?). I am inclined towards choosing the latter, that is, towards saying that the term S by itself is the subject. For if the quantifier is counted as part of the subject term, then by symmetry we should also have to count negation as part of the predicate in a negative proposition; that is, we should have to countenance negative terms. It is unclear, however, what for instance a non-man is: whether it is an angel, or any substance whatsoever which is not a man, or something else. Fortunately, whether we say that 'some men' or rather that 'men' is the subject makes no difference to what follows.

A related question is whether P by itself or rather the phrase 'is P' should be viewed as the predicate of a syllogistic proposition. According to the stipulations of Geach (1962, p. 22ff.) it is 'is P' which is the predicate; likewise, the grammarian Jespersen (1924, p. 150) calls P by itself the *predicative* of the proposition and 'is P' its predicate. The view that P alone is the predicate can be found in Alexander of Aphrodisias (*in APr* 15,2ff.) and Ammonius (*in Int* 7,30ff.), in the *Port-Royal* Logic (Part II ch. 3) and in the *Jäsche Logik* (§ 24); let us quote Mill (1843, Bk. I ch. 1 § 2), however, who is conveniently explicit about the matter:

> Every proposition consists of three parts: the Subject, the Predicate, and the Copula. The predicate is the name denoting that which is affirmed or denied. The subject is the name denoting the

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[23]Cf. Chomsky (1965, pp. 68–70), who notes that in one and the same sentence the same word may serve as the subject of one verb phrase and as the object of the other; thus in 'John was persuaded by Bill to leave' 'John' is, according to Chomsky, the object of 'persuade' but the subject of 'leave'.

[24]For this terminology, see section 4.3 below.

person or thing which something is affirmed or denied of. The cop-
ula is the sign denoting that there is an affirmation or denial, and
thereby enabling the hearer or reader to distinguish a proposition
from any other kind of discourse. Thus, in the proposition, The
earth is round, the Predicate is the word *round*...

Mill thus takes the predicate not to include the copula. It seems to be mainly a
matter of convention whether we decide for the one or for the other terminology, but
it is important for our discussion here to have recognized both options.

In Aristotle's Greek *katēgoria* sometimes means 'predicate'. He says at *Cat* 3ª36
that "from a primary substance there is no predicate (*katēgoria*)," and at *Int* 21ª29
he speaks of predicates (*katēgoriai*) "containing no contrariety" (where 'dead' is taken
to contain a contrariety to 'man', since a dead man is not a man). Hence, in light of
Aristotle's introducing the categories in *Topics* I.9 (and at *APo* 83ᵇ15) as *genē tōn
katēgoriōn*, genera of predicates,[25] we should ask whether items categorized are not
terms but rather predicates. A positive answer to this question seems presupposed in
the traditional designation of the categories in Latin as *praedicamenta*, that which is
predicated.[26] Which answer one ought to give depends on how one understands the
notion of predicate in syllogistic syntax.

If such a predicate is taken to be of the form 'is *P*', then it is clear already
on grammatical grounds that items categorized are not predicates. For Aristotle
gives 'man' as an example of the category of substance, where no 'is' is to be found.
To this it may be objected that in a Greek predication the 'is' is optional, thus
one can say, for instance, *ho Sokratēs anthōpos*; hence, whereas 'is man' is not an
Aristotelian substance, what is a substance is 'man' *when said of something*, that is,
when predicated. Thus a predicate is a term *qua* predicated, whether or not an 'is' be
attached to it.[27] At *Cat* 3ª36 Aristotle said that "from a primary substance there is no

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[25]Frede (1981, pp. 32–35) argues that *katēgoria* in the *Topics* generally should be rendered 'predication',
thus taken to signify a full proposition. But at *Top* I.9 Aristotle says that whatever is an accident,
genus, property, or definition belongs to the *genē tōn katēgoriōn*, and whatever is one of these is not a
full proposition, but a predicate as is clear from *Top* I.4 101ᵇ26–27: "none of these [i.e., whatever is an
accident, genus, etc.] said by itself is a proposition or problem [i.e., a predication]." For further criticism
of Frede's argument, see Ebert (1985, p. 130, fn. 29).
[26]Martianus Capella, *The Marriage of Philology and Mercury* IV.362, 383 (early 5th century AD), speaks
of the categories as *praedicationes*, but Boethius translates (early 6th century AD) *katēgoria* in the relevant
sense as *praedicamentum*, hence at *Cat* 10ᵇ19,21 and at Porphyry *Isag* 4.15; 4.21; 6.7 (see e.g. the relevant
volumes of *Aristoteles Latinus*). In fact, Augustine refers to Aristotle's categories as *praedicamenta* at
Confessions IV.16.29 (around 400 AD); on the Latin translation he made use of cf. Minio-Paluello (1945,
pp. 65–68).
[27]This appears to be the position of Apelt (1891), who says, for instance, that the categories are "Arten
der Begriffe, inwiefern und wie sie im Urteil als Prädikate auftreten" (p. 128).

predicate." This I interpret to mean that a primary substance by itself cannot serve as a predicate. That is to say, a primary substance, such as 'Socrates' or 'Bucephalus', cannot by itself be predicated of anything. But primary substances are substances, and therefore items categorized. Hence, 'Socrates' is an item categorized that is not a predicate in the relevant sense. Items categorized can therefore not be identified with predicates as predicated, since primary substances are not such things.[28]

If, however, a predicate is understood simply as the P of 'S is P', then we may well say that items categorized are predicates. For in Aristotle's logical syntax the terms S and P are syntactically similar; that is to say, whatever is an S of one proposition can be the P of another, and vice versa.[29] That principle is presupposed by Aristotle's proof method of conversion, which is fundamental to syllogistics' being more than just a list of valid moods, namely also a system for reducing imperfect moods to perfect ones (APr I.4–6). By the principle of syntactic similarity any term may be a P, and so the class of terms coincides with what may be a P, hence so does the class of items categorized. The syntactic similarity of terms means that the category of a term has no influence on the syntactic properties of a term: terms will in general differ in category, but they are always syntactically similar. As we shall see in the next chapter (esp. section 1.3), this is a point at which syllogistic syntax parts ways with Fregean function–argument syntax. In the latter the category of a term— function of a certain order and kind, or object—determines the kinds of syntactic relations into which it may enter—a first-level unary function, for instance, can never be substituted for an object.

If items categorized are terms, then primary substances are singular terms. Following what we just said, a singular term is syntactically similar with all other terms, although it signifies an individual. It is clear from APr I.33, where Aristotle considers terms such as 'Aristomenes' and 'Mikkalos', that he countenances singular terms in syllogistics. The question then arises how to accommodate this with Cat 3ª36, the statement that there is no predicate from a primary substance. Indeed, independently of the identification of primary substances with singular terms the question arises of how to interpret a proposition whose P is a singular term. One possible answer is to say that the copula in this case must be understood as the 'is' of identity. A better answer to my mind is to say that the singular term P must be understood as a general term satisfied by P alone, namely as an "individual concept." This suggestion also

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[28]Considerations along these lines are the reasons offered by Ryle (1938, pp. 190–191) and De Rijk (2002, 368–374) for preferring to say that items categorized are terms and not predicates.

[29]Geach (1972, p. 47) saw in the acceptance of the syntactic similarity of subject and predicate a change from the logical syntax presupposed in the *De Interpretatione*. He deemed this change "a disaster, comparable only to the Fall of Adam."

supplies an answer to the question of what the quantifier is in a proposition whose subject is singular: it may be particular as well as universal.[30]

2. The generality of the categories

As understood in the philosophical tradition categories are concepts of a very general kind. The commonest way of explaining the generality of Aristotle's categories is to identify them with highest genera. A famous statement of this identification is found in the so-called *Introduction*, or *Isagoge*, of Porphyry (*Isag* 6.7–6.13):

> Let it be supposed, as in the *Categories*, that the first genera are ten—ten first origins, as it were... The highest genera [*ta genikōtata*], then, are ten.

Statements to the same effect are found, among the ancient commentators, in Alexander of Aphrodisias (*in APr* 291,17ff.), Ammonius (*in Cat* 13,15ff.), and Simplicius (*in Cat* 17,19ff.); among modern commentators in Bonitz (1853, pp. 591–623), Trendelenburg (1846, e.g. p. 20), Brentano (1862, p. 100), Ross (1949, p. 25), and Ackrill (1963, pp. 79); the identification is moreover implicit in such recent works on the *Categories* as Wedin (1997) and Studtmann (2008b). This section offers a critical examination of the identification.

2.1. The predicables. In traditional logic a genus is one of the four or five so-called predicables, and it is as such that we must understand highest genera when identified with categories. The doctrine of predicables originates in Aristotle's *Topics*, but has perhaps more often been associated with Porphyry's *Introduction*.

2.1.1. *Aristotle's Topics.* Aristotle's *Topics* is structured around the notions of definition, *idion*, genus, and accident (cf. *Top* I.6 102^{b}35–103^{a}1): roughly, *Top* II–III deal with accident, *Top* IV with genus, *Top* V with *idion* and *Top* VI-VII with definition. Aristotle does not employ a technical term for these notions collectively, but they have come to be called predicables.[31] The predicables characterize the relation of the predicate to the subject in a true categorical proposition. When we make explicit, what Aristotle does not, the reference to such a true categorical proposition '*S*

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[30]For this suggestion, see Barnes (2007, pp. 154–167).

[31]This word in the appropriate sense apparently originated with Abelard (cf. Baumgartner and Kolmer, 1989, p. 1179). Kant uses the name *Prädikabilien* in an altogether different sense, namely for a priori concepts derived from the categories (KrV A82/B108); he might knowingly have gone against the tradition, as his own "Transcendental Topics" was based on a different set of notions, the so-called concepts of reflection (cf. A268–269/B324–435). Geach (1962, p. 25) defines a predicable as "an expression that gives us a proposition about something if we attach it to another expression that stands for what we are forming the proposition about," noting (ibid. p. 24) that "the older use of the noun 'predicable' is too little current in recent philosophical literature to stop me from staking out my own claim to the term."

is P', the definitions read as follows (cf. *Top* I.5). The predicate P is the definition of the subject S if it is a *logos* signifying the essence (*to ti ēn einai*) of S. It is an *idion*, or *proprium*, or (unique) property, of S if it is not a definition of it, yet nevertheless counterpredicates with S, that is, is such that 'P is S' is true. Thus, (neglecting plucked hens) 'featherless biped' is an *idion* of man, since it does not reveal the essence of man, yet is nevertheless such that the converse 'featherless biped is man' is true. The predicate P is a genus of S if "it is predicated in the what it is (*en tōi ti esti katēgoroumenon*) of many items differing in species" (102ª31). A predicate is predicated of S in this manner, Aristotle explains further, if the proposition in question is what would appropriately be given in answer to the question of what something is, as it is appropriate if the subject is man to say that it is an animal. Aristotle gives two definitions of what it is for P to be an accident of S. Firstly, if P is neither the definition, nor an *idion*, nor a genus of S, then P is an accident of S. Secondly, and less trivially, if P is such that it does, but need not, belong to S, then P is an accident of S. According to both criteria, being-seated is an accident of Socrates, assuming that he is sitting.

At *Top* I.8 Aristotle presents what he takes to be a deductive proof (*pistis dia sullogismou*) that his list of predicables constitutes a complete classification of the ways in which a predicate may truly be said of a subject—in other words, that in any true categorical proposition the predicate P is either the definition, an *idion*, a genus, or an accident of the subject S. The proof is by division and runs as follows. We assume that 'S is P' is true. Now, the converse 'P is S' is either true or false. If 'P is S' is true, then P is either the definition or an *idion* of S, depending on whether or not P reveals the essence of S. If 'P is S' is false, then P is either a genus or an accident of S, depending on whether or not P is said in the definition of S (*en tōi horisōi legomenōn*). *QED.* Two remarks on this proof are worth making. Firstly, Aristotle holds that a definition "is composed of genus and differentiae" (e.g. *Top* I.8 103ᵇ14). Hence, if 'P is S' is false and P is said in the definition of S, it would seem to follow that S is *either* a genus *or* a differentia of S. Whence it would seem that Aristotle has forgotten to include differentiae on his list, indeed that his own proof of completeness presupposes differentia to be a predicable. As we shall see in more detail shortly, Aristotle subordinates the notion of differentia to that of genus, and that allows him to infer that P in this case must be a genus of S. Secondly, it is plain that Aristotle in the proof employs the first of his two definitions of accident, namely as the residue of the other three predicables. Hence the result established is rather "unexciting," as Smith (1997, p. 73) remarks: if you classify some P's as A, others as

B, others as C, and then say that every P which is neither an A nor a B nor a C is a D, then it needs no proof that any P is one of A, B, C, or D.

The relational character of the predicables is worth emphasizing: no term is a genus just by itself, but only a genus of another term; no term is an accident just by itself, but only an accident of another term; and likewise for *idion* and definition. This contrasts with the categories, for a category is not relational in this sense: which category a term belongs to is not relative to its occurrence in a true categorical proposition. For this reason the name 'figures of predication', translating Aristotle's *ta schēmata tēs kategorias*, seems to me an unhappy description of the categories. Figures of predication would rather seem to describe the predicables, for they classify ways in which the predicate is predicated of the subject, while the categories classify predicates in isolation. Aristotle employs the name 'figures of predication' for instance at *Met* Δ.7 (1017$^\mathrm{a}$22ff.), in one of his distinctions of the different senses of 'being': "the senses of being are just as many as the figures of predication." Recalling our reading (p. 4 above) of "with the addition of to be or not to be" at *APr* I.1 24$^\mathrm{b}$18 to refer to the copula, it seems natural to interpret this passage from *Metaphysics* Δ as identifying the categories with the different senses of the copula, thus to hold that the being in question here is that expressed by the copula.[32] But, again, it seems more reasonable to say that the copula is said in as many ways as there are, not categories, but predicables, for the predicables classify precisely different ways in which S *is* P. Thus, we could say when P belongs to S as its definition that S is nothing but P; when P belongs to S as a genus that S is essentially or generically P; when P belongs to S as an *idion* that S is properly P; and when P belongs to S as an accident that S is accidentally P. But we would not say that S is substantially P or qualitatively P or quantitatively P or relatively P, etc., but simply that P is a substance or a quality or a quantity or a relative, etc.

A slightly different conception of the relation between categories and figures of predication is defended by Brentano (1862, esp. pp. 108–122). According to him there is no actual identity between these things, but only a one-one correspondence; in particular, each category corresponds to a way of predicating a predicate of a primary substance. If S is a substance, then 'S is P' and 'S is P'' differ in figure of predication if and only if P and P' differ in category. If S is a singular non-substance, namely an "individual accident" such as the particular whiteness of this table,[33] then there is a predication 'S is P' if and only if S and P belong to the same category; but they all share the same figure of predication, namely that found in 'Socrates is

[32]That view is argued for by Apelt (1891).
[33]On individual accidents, see ch. 2 section 1.2.

a man', viz. the figure corresponding to the category of substance. The figure of 'S is P' where S is general is the same as the figure of 'S' is P' where S' is singular. The figures of predication are therefore just as many as the kinds of predicate. There are objections one could raise against this argument, but I shall not do so here. Instead I want to question, once again, the notion of figure of predication, for also on Brentano's reading is it difficult to make sense of the idea that these correspond to the categories. Consider for instance the predication 'Socrates is six feet tall'. Here a quantity is predicated of Socrates. Brentano's view must be that this is a quantitative predication, that the predicate is predicated in the figure of quantity. But then one is forced to say that in this predication 'six feel tall' is predicated *quantitatively* of Socrates, and that seems to me to be either nonsensical or pleonastic. In any event it fails to clarify the notion that categories are, or correspond to, figures of predication.

2.1.2. *Porphyry's Introduction.* In Thomas Blount's *Glossographia* of 1656 one reads that "In Logick there are five Predicables, otherwise called Prophyries five terms." Porphyry had in fact distinguished five rather than four predicables, also known in the tradition as the *quinque voces*: genus, species, differentia, *idion*, accident. He defines genus as "what is predicated in answer to, What is it?, of several items which differ in species" (*Isag* 2.15), which repeats almost verbatim the definition Aristotle gave at *Top* I.5. At *Top* I.4 Aristotle had expressly treated the notion of differentia as a specimen of genus: "the differentia, since it is genus-like should be placed together with the genus" (*Top* $101^{\mathrm{b}}18$). At *Top* IV.6 ($128^{\mathrm{a}}20$–29), however, Aristotle in effect denies that differentiae are to be identified with genera, and he gives three criteria for distinguishing the two. Firstly, "the genus is said of more items than the differentiae";[34] secondly, "in presenting the what it is it is more fitting to say the genus than the differentia"; thirdly, "the differentia always signifies a quality of the genus, but not so the genus of the differentia."[35] It is indeed doubtful whether Aristotle's definition of genus as "what is said in the what it is of several items differing in species" covers the notion of differentia. Thus, in his completeness proof at *Top* I.8 Aristotle operates with a notion of genus simply as what is said in the definition of the subject; the proof would presumably not go through had it relied on the the official definition of genus from *Top* I.5. Given this ambivalence, it is not surprising that Porphyry adds

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[34]Here it is plain that Aristotle has in mind the *divisive*, and not the *constitutive*, differentiae of the genus in question; these notions are, as far as I know, not explicated in Aristotle's work, but Porphyry explains them in his chapter on differentia (*Isag* 9.25–10.21).

[35]This third characteristic is also found at *Top* IV.6 $144^{\mathrm{a}}18$–22 and in the first definition of quality at *Met* Δ.14 ($1020^{\mathrm{a}}33$ff.). It does not imply that all differentiae fall into the *category* of quality: see Morrison (1993) and Barnes (2003, pp. 350–356). On how the Neoplatonic commentators dealt with the categorial status of differentae cf. De Haas 1997, pp. 180–250.

differentia to the list of predicables, and that a latter-day traditional logician such as Joseph (1916, p. 74) has followed him in doing so. Porphyry gives several accounts of the notion. According to one (*Isag* 11.8ff.) "a differentia is what is predicated as a qualification (*en tōi poion ti esti*) of several items which differ in species," where one can recognize Aristotle's second criterion above, that "the differentia always signifies a quality of the genus." Aristotle's two other criteria for distinguishing differentiae from genera can likewise be found in Porphyry's text (cf. *Isag* 11,11 and 14,14).

Even though species (*eidos*) does not occur in Aristotle's list of predicables in *Top* I.5, the notion is presupposed in his definition of genus as what is predicated essentially of several items differing in species. It is therefore natural to ask why Aristotle did not include species on his list of predicables. To say that S is a species of P is usually to say that P is a genus of S; hence the name 'species' indicates in this case not how a predicate relates to the subject, but how a subject relates to the predicate. This is presumably what Ross (1949, p. 33) alludes to when he says that "this is Aristotle's classification of predicables which Porphyry later muddled hopelessly by reckoning species as a fifth predicable." If there is any place for the notion of species in a set of predicables, it would therefore have to be so as to cover singular essential predications; indeed, that seems to be presupposed by Porphyry's characterization that "a species is what is predicated in answer to 'What is it?' of several items differing in number" (*Isag* 4,12). It is, however, clear that none of Aristotle's predicables classify such predications: not accident or *idion*, for these are not predicated essentially; not genus, for it is predicated of "several items differing in species" (*Top* 102ᵃ31), so in particular not of individuals as such; and not definition, for a definition converts with its subject (*Top* I.8 103ᵇ9), but a singular essential judgement does not convert—Socrates is a man, for instance, but man is not Socrates. Since Aristotle thought he had covered all possible predications in his table of predicables, it is natural to conjecture that Aristotle in the *Topics* did not countenance singular essential judgements (he may have countenanced accidental or proper singular judgements);[36] this must therefore be the reason why species is not on his list of predicables.

Porphyry's treatment of *idion* and accident has no relevance for the following, so we omit discussion of them.

2.2. The ordering of genera. Given two terms g and s, let us write $s < g$ to mean that g is a genus of s. Our aim in this section is to investigate this

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[36]According to Smith (1997, p. xxix) there are no singular judgements at all in the *Topics*.

relation.[37] We shall see that it is a strict ordering among general terms with the property that above any g there is at most one greatest element (i.e., a highest genera). If $s < g$, then both s and g are general terms, for a genus is a general term said of another general term. We may therefore take the field of the relation $<$ to consist of general terms. Rohr (1979, p. 383) remarks that Aristotle's discussion of the so-called Third Man argument, reported by Alexander of Aphrodisias (*in Met* 84,27–85,3), suggests that he would deny reflexivity of the $<$-relation; a lesson of the Third Man is precisely that self-predication of a genus leads to an infinite regress. Another reason why Aristotle should deny the reflexivity of $<$ is that it would make definition impossible. A definition, according to Aristotle, states the genus and differentae of its definiendum.[38] Hence if g was its own genus, it would feature in its own definition, whence the definition would be circular, hence not really a definition. That the $<$-relation is asymmetrical seems to be what Aristotle expresses at *Top* IV.1 121ᵃ12: "it is clear that the species partake of the genera, but not the genera of the species." But asymmetry can also, just as irreflexivity, be argued for by appeal to the notion of definition: if g is a genus of s, then g will feature in the definition of s; if s in turn would be a genus of g, then it would feature in the definition of g, hence by unravelling the definition of s (namely by replacing in it g by its own definition)[39] we should find that s features in its own definition, and so again the definition would be circular. Rohr (1979) argues at length, and convincingly to my mind, that the relation $<$ is transitive; indeed, Aristotle seems to say as much at *Cat* 1ᵇ10ff. Hence we conclude that the relation $<$ is a strict ordering.

Aristotle says at *Top* IV.2 121ᵇ29: "for it seems that whenever one species falls under two genera, the one is embraced by the other."[40] In order-theoretic language this means that whenever $s < g_1$ and $s < g_2$, then either $g_1 < g_2$ or $g_2 < g_1$ (that these cases mutually exclude one another follows from the fact that $<$ is asymmetrical). Let us say that an ordering which satisfies this condition is tree-like; this name is motivated by the fact that in such an ordering there is only one way upward along $<$, just as in a tree there is only one way down towards the stem. Aristotle therefore says in the quoted passage that it seems that the ordering $<$ is tree-like; but he is noncommittal about the matter, "for some think that prudence is both virtue and

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[37]We build on the investigations of Rohr (1979) and Berg (1983).

[38]Cf. the already quoted *Top* I.8 103ᵇ15: "definition is composed of a genus and differentiae." See further *Top* 139ᵃ28–29; 141ᵇ25–27; 153ᵇ14.

[39]This notion of unravelling a definition is Aristotelian, cf. *Top* II.2 110ᵃ5: "to replace the words of a definition by (their) definitions, and not to stop until one has reached what is familiar." A technical discussion of this notion is given by Curry (1963, pp. 101–110).

[40]The same principle is mentioned at *Top* VI.2 140ᵃ1, where it seems to be taken as universally vaild.

knowledge and that neither of its genera is embraced by the other" ($121^{\mathrm{b}}31$). Prudence should therefore be a case of an s for which there were two terms g_1 (virtue) and g_2 (knowledge) such that $s < g_1$ and $s < g_2$, but such that neither $g_1 < g_2$ nor $g_2 < g_1$ holds. Aristotle claims, however, that in this case there will be a yet higher genus by which both g_1 and g_2 are embraced, for instance, both knowledge and virtue are states ($121^{\mathrm{b}}33$–38). Order-theoretically this means that whenever $s < g_1$ and $s < g_2$, then there is a g_3 such that $g_1 < g_3$ and $g_2 < g_3$; let us say that an ordering satisfying this condition is diamond-like. A diamond-like ordering need not be tree-like, as witnessed by
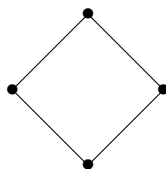
But Aristotle believes that any part of the $<$-ordering is either tree-like or diamond-like ($122^{\mathrm{a}}1$): "for if the genera are subordinate neither the one to the other nor both to the same thing, then what is given is not a genus." Thus, for given genera g_1 and g_2 of s, it holds either that $g_1 \lessgtr g_2$ or else that there is a g_3 such that $g_1 < g_3$ and $g_2 < g_3$. It is readily seen that in an ordering satisfying this property there is at most one highest genus above any term s. Hence, while Aristotle may not admit that the ordering of genera in general is tree-like (though he could insist that some parts of it is), he is committed to the view that above any species there is at most one highest genus. Thus, if it should turn out that the categories coincide with highest genera, what we shall call the principle of the mutual exclusion of the categories would follow: it is not the case that the same term falls into two categories, for that would mean that there were two highest genera above that term[41]

2.2.1. *Trees in Plato and Porphyry.* Before considering the relation between this ordering of genera on the one hand and the categories on the other, it is worth briefly remarking on a well-known historical antecedent and an equally well-known historical succedent to it. Plato's method of division (*diairhesis*) is certainly in the background of Aristotle's account of genera, species, differentiae, and their ordering.[42] Plato's idea seems to have been that by "cutting along natural joints" one should reach the true definition of a given term (*Phaedrus* 266a, cf. *Statesman* 262b-263a). When

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[41]This point was made already by Brentano (1862, p. 128) in commenting on this passage ($122^{\mathrm{a}}1$).

[42]On Platonic division and its role in Plato's philosophy, see e.g. Philip (1966) and Ackrill (1971). On the related method of collection (*sunagōgē*), see Menn (1998).

Plato carries out a division to reach the definition of, for instance, the sophist or the statesman,[43] what gets divided and what a particular division results in are variously called genus and species (these terms seem to be used synonymously by Plato). And a genus is divided by means of differentiae; for instance, at *Sophist* 219e hunting is divided into the hunting of living things and the hunting of lifeless things. Hence the structure that results from a Platonic division is a tree-like ordering $\prec$ such that if $s \prec g$ then g is a genus of s, and such that s may be obtained from g by the addition of one or more differentiae; this is indeed the picture we have just seen in Aristotle. That division should always be dichotomous appears to be dictated by the description of the method at *Phaedrus* 266a,[44] but Plato elsewhere admits that we may not be able to divide a kind into only two subkinds, in which case "we must always cut into the nearest number as far as we can" (*Statesman* 287c). At the place in question Plato in fact makes a sevenfold division of arts that contribute to the caring of citizens; elsewhere he divides spoken sound (*phōnē*) into vowel, stop, and continuant (*Philebus* 18b–d). In such cases of polytomous division the question remains of course whether a sequence of dichotomous divisions is possible that would end in the polytomous one; that indeed happens in the case of spoken sound: whereas both Plato and Aristotle (in *Poetics* 20) divides spoken sound directly into three, the *Tekhne grammatikē* first divides it into vowel and consonant, and thereafter divides consonant further into stop and continuant.[45] To the best of my knowledge Aristotle says nothing in the *Topics* that commits him one or the other way regarding dichotomy. In *Cat* 8 he speaks about four genera of quality (one of them is in fact called a species), suggesting a division of the genus of quality into four; but it is not obvious that Aristotle thinks of quality as a genus in the technical sense (more on this below).

What is known as The Tree of Porphyry[46] most likely derives from a creative reading of the following passage in Porphyry's *Introduction* (4,21–4,25):

> Substance is itself a genus. Under it is body, and under body
> animate body, under which is animal; under animal is rational

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[43]For an overview of the divisions in the *Sophist* and the *Statesman*, see Gill (2010).

[44]Boole (1854, pp. 50–51), having shown that the equation $x(1 - x) = 0$, which for him is the expression of the law of non-contradiction, is derivable from the second degree equation $x^2 = x$ remarks:

> it is a consequence of the fact that the fundamental equation of thought is of the second degree that we perform the operation of analysis and classification by division into pairs of opposites, or, as it is technically said, by *dichotomy*.

[45]This observation is due to Menn (1998, p. 295, fn. 5).

[46]The terms *arbor Porphyriana*, *arbor Porphyrii* are not recorded before the Middle Ages; an early occurrence is in Peter of Spain's *Summulae Logicales*, Tractatus II cap 11 (Dinneen, 1990, p. 19).

animal, under which is man; and under man are Socrates and Plato
and particular men.

In mediaeval logic textbooks, but not in Porphyry's *Introduction* itself, one finds a drawing as in Figure 1, a tree in the literal sense whose trunk is made up by genera, and whose leaves are differentiae.[47] This, however, is not an ordering of genera of the kind we have seen in Aristotle; it is indeed a tree-like ordering, but it contains a chain such as the following

$$\text{substance} > \text{corporeal} > \text{body} > \text{animate} > \dots$$

That is, it contains a chain that places differentiae under genera, while in Aristotle's ordering it is only species that get placed under genera.
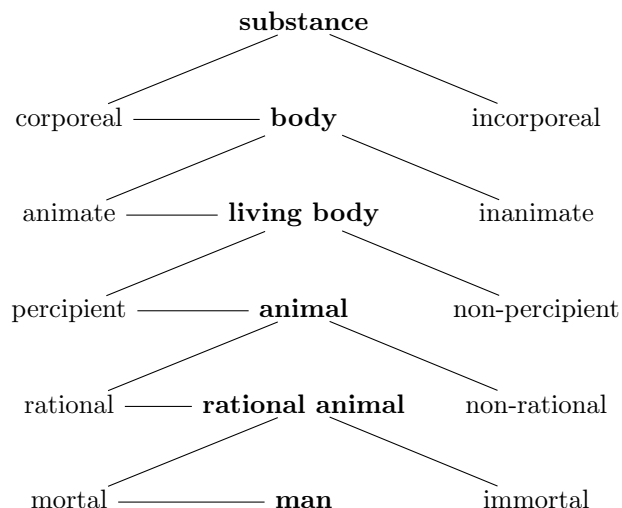

FIGURE 1. Porphyry's tree

2.3. Categories and the ordering of genera. In *APo* I.19 Aristotle asks whether, given a term g, it is possible (1) to form an infinitely ascending sequence $g < g' < g'' < g''' < \dots$ or (2) to form an infinitely descending sequence $\dots < g''' < g'' < g' < g$. He moreover asks (3) whether, given two terms $g < g'$ it is possible to form an infinite sequence $g < h < h' < h'' < \dots < g'$ or $g < \dots < h'' < h' < h < g$. He deals with question (3) in *APo* I.20, assuming negative answers to questions (1) and (2); and indeed assuming that there are no infinitely ascending or descending

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[47]This drawing derives from the one given in Barnes (2003, p. 110); for a more embellished tree, see for instance Kretzmann (1966, p. 54).

sequences it is plain that we cannot find infinitely many $h, h', h'', h''', \ldots$ such that either $g < h < h' < h'' < \ldots < g'$ or $g < \ldots < h'' < h' < h < g$, since in both of these cases we should produce an infinitely ascending or descending sequence. Question (1) is dealt with in *APo* I.22 (82^b37–83^a1). Aristotle there offers the following argument, the virtues of which need not be assessed here. Its first premise is the claim that knowledge of a term g presupposes knowledge of all $g' > g$. Knowledge of g is knowledge of the definition of g; that definition contains another genus $g' > g$, which itself must be known if the definition is to be known; but knowing g' means knowing its definition, appealing to a yet higher genus. Whence all $g' > g$ are involved in the knowledge of g. The second premise says that an item of knowledge is finite: "you cannot survey infinitely many items in thought" (83^b6). The third premise says that knowledge of terms is indeed possible. From this we are invited to draw the conclusion that any $<$-sequence above g must be finite: all terms above g are genera found when unravelling the definition of g, and these must all be known if g is to be known; since knowledge of g is possible and an item of knowledge is finite, there can be only finitely many terms above g. In particular, above any g, if it is not already a highest genus, there is a highest genus. We saw in section 2.2 that above any g there is at most one highest genus. Hence we may conclude that if g is not already a highest genus, there is a unique highest genus $g' > g$.

Aristotle takes up question (2) in *APr* I.27. The argument amounts essentially to the claim that individuals are not predicated of anything else. One may ask why singular predication should be relevant to the order of genera, which, as we have seen, has only general terms in its field. Anyhow, even if we did extend the field of $<$ to individual terms, it would not follow from Aristotle's claim that we can have no infinitely descending sequence in $<$. Man is said of Callias, and Callias is an individual; but that does not exclude the possibility of there being a species below man which in its turn is predicated of Callias—male could be such a species.

So this last argument is not valid;[48] but our interest here is in highest genera. As we have now seen there is, according to Aristotle, a diamond-like ordering (some sections of which may be tree-like) of genera with a unique maximal point above any genus; that is, if g is not itself already a highest genus, then there is a unique highest genus above it. It is remarkable that Aristotle, in contrast to modern and ancient commentators, nowhere identifies these highest genera with the categories. There are even suggestions in Aristotle's text that highest genera have a relatively low degree of generality (*Cat* 14^a24): "good and bad are not in a genus (*en genei*) but are themselves

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[48]It is then interesting to note that the *Jäsche Logik* § 11 denies that there are lowest species (and also that there is a next highest genus.

actually genera of certain things (*genē tinōn ontōn*)." Thus, good and bad appear to be regarded as highest genera, not "being in" any other genus.[49] At several places Aristotle calls the categories 'genera', either simply (*Cat* 11ª37, *DA* 402ª23),[50] or in the combinations 'genera of predicates' (*APo* 83ᵇ13–17, *Top* 103ᵇ22–23, 152ª38, *SE* 178ª5) or 'genera of beings' (*APo* 88ᵇ, *DA* 412ª6). 'Genus' thus employed does, however, not have the technical sense given to it in *Top* I.5, pertaining to the relation of the predicate to the subject in a true categorical proposition, but rather a non-technical sense, meaning 'class' or 'type' or something along those lines. For instance, when Aristotle at *Top* 103ᵇ22–23 calls the categories 'genera of predicates' it is obvious that 'genus' is used in a non-technical sense, for the genera in this sense are said to contain the genera in the technical sense.[51]

The view that a category is a class of terms (or predicates) seems to be presupposed in the following instructive passage on the relation of the categories to the ordering of genera (*Top* 120ᵇ26–121ª9).

> Moreover, see whether the genus and the species are not found in the same division, but the one is a substance while the other is a quality, or the one is a relative while the other is a quality, as snow and swan are each a substance, while white is not a substance but a quality, so that white is not a genus either of snow or of swan. ... To speak generally, the genus ought to fall under the same division as the species; for if the species is a substance, so too should be the genus, and if the species is a quality, so too the genus should be a quality; for instance, if white is a quality, so too should colour be; likewise in other cases.

Categories are here spoken of as "divisions" (*diairheseis*) within which genera and species fall,[52] and a division is to my mind more like a class than like a highest genus. In this passage Aristotle presents a *topos* by means of which one can attack a dialectical proposition claiming that g is the genus of s: see whether s and g fall within the same division—if they do not, then g cannot be a genus of s. Let us write $g : C$ to mean that g falls under the category C. The general principle Aristotle appeals to in justifying this *topos* says that if $s : C$ and $s < g$, then $g : C$. We may

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[49]Cf. *Phys* V.4 227ᵇ11 "where it happens that the genus is at the same time a species," suggesting that this is not the rule.

[50]The Oxford translation has *summa genera* at *DA* 402ª23, but there is nothing in the Greek corresponding to *summa*.

[51]Kapp (1920, pp. 226–228) makes the same point referring to *Top* 107ª3–30; 152ª38–152ᵇ2.

[52]Cf. *Cat* 10ª19, where the category of quality is spoken of as a division (*he peri to poion diairhesis*); and *SE* 166ᵇ14, which refers to the categories as "the divisions previously made."

call this the principle of upward categorial closure. The corresponding principle of downward categorial closure says that if $g : C$ and $s < g$, then $s : C$. Contrary to what one would expect, Aristotle denies the latter principle (*Top* 124^{b}15–24):

> if the species is a relative, so too is the genus, as is the case with
> double and multiple; for each is a relative. If, on the other hand,
> the genus is a relative, there is no necessity that the species should
> be so as well; for knowledge is a relative, but not so grammar.

Here Aristotle first restates the principle of upward categorial closure (for the category of relatives); but he goes on to deny the principle of downward categorial closure. Knowledge apparently provides a counterexample, for while knowledge itself is a relative, its species grammar is not a relative, but a state, and therefore a quality. The categorization of knowledge must have presented a problem for Aristotle. Since knowledge is knowledge of an object, it is a relative according to him (e.g. *Cat* 6^{b}5, 11^{b}26); but the various species of knowledge, such as grammar,[53] are said to be states, and therefore qualities (*Cat* 8^{b}28, 9^{a}6–7). Indeed, grammar is not a relative since grammar is not grammar of something, rather grammar is knowledge of something, so it is only in virtue of the genus that it is a relative; but what we possess when we possess grammar is a quality (*Cat* 11^{a}20–38).

The most troubling aspect of Aristotle's denial of downward closure is not the lack of symmetry it entails when compared to the acceptance of upward closure. The most troubling aspect is rather the fact that acceptance of upward categorial closure together with the denial of downward closure entails the denial of the principle of mutual exclusion—the principle that the same term cannot fall under two categories. Namely, the species of knowledge are qualities, so by upward closure knowledge is itself a quality; but knowledge is also a relative; hence knowledge is both a quality and a relative, contrary to the principle of mutual exclusion. Aristotle draws the consequence at *Cat* 11^{a}38–39:

> Moreover, if the same thing really is a quality and a relative there
> is nothing absurd in its being counted in both the genera.

Aristotle never states the principle of mutual exclusion explicitly, so he does not contradict himself outright when he here rejects it; but it is implicit in his introducing the categories at *Cat* 4 by saying "of things said without combination each signifies

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[53]Grammar (*grammatikē*) is here understood quite literally as the knowledge of letters (*grammata*); cf. *Top* VI.5 142^{b}31: "for instance, if he defines grammar as the knowledge of writing from dictation; for he ought also to say that it is knowledge of reading." Similarly at Plato *Sophist* 253a–b the expert in grammar is said to be one who knows which letters blend and which do not, so presumably someone who knows how to read and write.

either substance *or* quantity *or* quality *or*...” as well as in his calling the categories *divisions* at *Top* 120^{b}26: one and the same term cannot belong to two divisions, so if a category is a division, neither can one and the same term belong to two categories. Porphyry argues that denial of mutual exclusion is quite unproblematic (*in Cat* 140,27–141,5):[54]

> Socrates, for instance, can be shown to be subject to a number of affections: insofar as he is a man, he is a substance; insofar as he is three cubits tall, let us suppose, he is a quantity; insofar as he is a father or a son, he belongs to the relatives; insofar as he is temperate, he is qualified; and in this way he is brought under the different categories in virtue of various differentiae. If, then, Socrates, who is a single thing, is found to fall under different categories when he is considered in different respects, what is absurd about a state being in one respect a relative, and in another a quality?

But this is not a way out. We can of course predicate terms of all categories of Socrates, but it does not follow that he, Socrates the substance, therefore is a categorial chameleon. Each term has its category independently of what is said of it and what it is said of; the fact that one term t falling under a category C can be truly predicated of a term t' falling under a different category C' does not entail that t and t' nevertheless both belong to the same category. Indeed, if a substance were also all the things that can be truly said of it, it would belong to all categories, whence one could ask why categorial distinctions had been made in the first place.[55]

Frede (1987b, p. 13) speculates that *Cat* 11^{a}38–39, the passage recently quoted where mutual exclusion is denied, might be spurious. But this seems unlikely, since, as we have noted, Aristotle there simply draws the consequence of views explicitly stated elsewhere in the *Categories* and in the *Topics*. Concentrating on Aristotle's treatment of knowledge seems to me more promising. One could ask whether the proposed counterexample of knowledge—the only one Aristotle offers—instead of showing that the principle of mutual exclusion is false rather reveals confusion in Aristotle's conception of the notion of a relative? Aristotle's criteria for calling a term a relative are indeed rather unclear. Knowledge is a relative since knowledge is always knowledge of something (6^{b}5); and a state is a relative because a state is always the state

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[54]Cf. the similar considerations of De Rijk (2002, p. 133–134).

[55]I would raise similar objections to one of the main arguments of Morrison (1992) against what he aptly calls the taxonomical interpretation of the categories. Morrison holds (pp. 26–28) that when Aristotle says of white that it is not properly called large, but only accidentally (*Cat* 5^{a}38–5^{b}2), then he assumes a notion of "accidental categorials"; so white belongs to the category of quantity accidentally. But even if large is predicated accidentally of white, it does not follow that 'white' itself is a quantity.

of someone or something (ibid.)—but the sense in which an instance of knowledge is the knowledge of the Pythagorean Theorem is altogether different from the sense in which a given state of virtue is the state of Socrates. Large is a relative because something is large only relative to a certain comparison class (5^b16–21); and lying, standing, and sitting are called relatives (6^b11–12) presumably because a particular lying, standing, or sitting is always someone's lying, standing, or sitting. Aristotle insists that a wing is a relative, since "a wing is a wing of a winged" (6^b38–7^a5), while he is willing to revise his definition of relatives in order to avoid having to say that an arm—which one would think was in the same category as a wing—is a relative (8^a18–8^b21). And why, according to *Cat* 4, is cutting a doing (*poiein*) rather than a relative, for a cutting is always the cutting of something; and why is being-cut an affection (*paschein*) rather than a relative, for a being-cut is always the being-cut by someone; and indeed why is four-foot, or any other quantity, a quantity rather than a relative, for a four-foot is always someone's or something's measure? It is difficult to see how such questions can be settled on the basis of Aristotle's definition of relatives (cf. Ackrill, 1963, p. 99); but instead of improving this rather imprecise definition, Aristotle chose to reject the principle of mutual exclusion.

Let us nevertheless suppose with Aristotle that downward closure (and with it, mutual exclusion) fails. Rohr (1979, pp. 384–385) observes that in this case categories cannot be highest genera: the transitivity of the $<$-ordering together with the assumption that the categories themselves are genera entail the principle of downward categorial closure—if $g : C$ and C is itself a genus, then $g < C$, hence by transitivity it follows that $s : C$ for all $s < g$, which is just the principle of downward categorial closure. (More precisely, the category of relatives cannot be a highest genus, but this conclusion should generalize to all the categories.) To my mind Aristotle should have revised his conception of relatives and refined his analysis of knowledge so that it would not provide a counterexample to downward closure. That principle, as well as mutual exclusion, would therefore remain intact. This revised Aristotle would thus not accept one of the premises of Rohr's argument. But the revised Aristotle would still have good reasons to reject the identification of categories with highest genera. This identification presupposes that categories are themselves terms, namely the maximal elements of the $<$-ordering. A category C is then predicated of terms falling under it in precisely the same way that for instance 'animal' is predicated of 'man' or 'horse'. A category can itself, without further ado, be the predicate of an 'S is P' proposition. But as we shall see in more detail in the next chapter (section 4), such categorial predications are of an altogether different kind from ordinary predications.

3. The skopos of the Categories

In the opening of the *De Interpretatione* Aristotle introduces a version of what is sometimes called "the semantic triangle"[56] and distinguishes thereby between the word as an acoustic or graphic entity, the thought (*noēma*) corresponding to the word,[57] and the thing signified (*pragma*). In our discussion in section 1 above we neglected the fact that in the *Categories* Aristotle appears to confuse these various levels, and leaves one with the question of which compartment items categorized belong to.[58] The aim in what follows will not be to neutralize all passages that may go against our interpretation of items categorized as terms, hence as linguistic in some sense, but rather, in section 3.1, to report on an ancient discussion of this question, whose conclusion agrees quite well with our interpretation; and in section 3.2 to criticize a reading more recently put forward by several commentators according to which in the *Categories* the items categorized are ontological in nature, while in the *Topics* they are linguistic in nature.

3.1. The commentators. The list of categories is introduced in chapter 4 of the *Categories* as what is *signified* by "things said without combination," which could be taken to mean that items categorized are things signified.[59] But later in the same chapter Aristotle declares that none of the "items mentioned is said just by itself in any affirmation, but from a combination of these with each other an affirmation is produced" (2ᵃ5–7), where the "items mentioned" must refer to the categories, which suggests that the items categorized are things said, since only things said combine to form affirmations. In chapter 2 of the *Categories* Aristotle sets out to divide *ta onta*, what there is; at the opening of his discussion of substance in chapter 5 (*Cat* 2ᵃ14–16) he then classes primary substances into one of these divisions, suggesting that the category of substance is made up of things; but a few columns later he speaks of primary substances *signifying* "a certain this" (*tode ti sēmainein*, 3ᵇ10–12), thus apparently assuming that they are things said.

Aristotle's vacillation at this point appears to have prompted already the Peripatetics who in the 1st century BC were the first to write commentaries on the

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[56]In fact it is a quadrangle, cf. Kretzmann (1974). On its relation to the triangle of Ogden and Richards, see Lieb (1981). On the semantic triangle of the Stoics, see section 4.2 below.

[57]Aristotle initially calls this "affections of the soul" (*ta pathemata tēs psuchēs*), but at 16ᵃ10 they are identified with thoughts (*noēmata*). The acoustic entity is said to be a a symbol of these affections at *Int* 16ᵃ2, but to follow the thought (*to en tēi dianoiai*) at *Int* 23ᵃ33.

[58]A well-known complaint; see e.g. Kneale and Kneale (1962, pp. 25–27, 196–197).

[59]Though, as suggested by Malink (2007, p. 277) on the basis of numerous relevant passages, we may have to do here with a more or less technical sense of *sēmainei*, signify, used simply to indicate membership in a category.

Categories to ask the question, into which compartment the items categorized fall.[60] The Neoplatonic commentators, starting with Porphyry in the 3rd century AD, paid particular attention to this question and called it the question of the *skopos*, or aim, of the *Categories*. The reason why it was thus called is not clear to me,[61] but the idea seems to have been that the answer to this question would provide a principle to be appealed to in dealing with various *aporiai*. We find for instance the commentator Simplicius (6th century AD) referring to the *skopos* again and again in his commentary.[62]

The question of the *skopos* was as a rule taken up in the preamble of a commentary.[63] Three positions held by nameless precursors were first distinguished:

> Let us now examine the questions raised a little way back; the first concerns the aim (*skopos*). Notice that commentators have differed on this, some saying that the Philosopher is discussing words (*phōnai*), some, things (*pragmata*), and some, concepts (*noēmata*).[64]

Those arguing[65] that the work is about words had pointed to Aristotle's key term *legomena*, 'things said', or 'what is said'. Those arguing that the work is about things had pointed to Aristotle's phrase 'of things there are' (*tōn ontōn*, 1ª20), and to the judgement that it is not for the philosopher to study mere words. Those arguing that the work concerns itself with concepts may have insisted that things said are in fact conceptual in nature, on a par with the Stoic notion of *lekton*. Instead, the Neoplatonic commentators held that the *skopos* of the work is a synthesis of all these three views:

> The Philosopher's aim here, therefore, is to treat words that mean things through mediating concepts.[66]

To distinguish this reading from the one holding that items categorized are words (and perhaps for other reasons besides) Porphyry introduced the notions of the primary and secondary imposition (*prōtē, deutera thesis*), presented by him and the

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[60]Cf. Gottschalk (1990, esp. p. 70) and Sharples (2008, esp. pp. 279–281). From the discussions of Porphyry (*in Cat* 59,16) and Simplicius (*in Cat* 11,22ff.; 13,16) it appears that the question had been discussed by Boethus of Sidon, a student of Andronicus of Rhodes (1st century BC).

[61]Ammonius explains the terminology thus (*in Cat* 7,18-20): "for just as an archer, for example, has a mark toward which he shoots and which he wants to hit, so also a writer has some end in view, which he is eager to attain."

[62]See e.g. *in Cat* 16,15; 21,7; 24,22; 40,18; 69,1ff.; 73,30.

[63]These preambles had quite a regimented form; see Praechter (1909, pp. 523–531) and Hadot (1987, esp. pp. 99–106, 120–121).

[64]Ammonius *in Cat* 8,20–9,3.

[65]For the following arguments, cf. Ammonius *in Cat* 9,3–9,11 and Simplicius *in Cat* 9,4–10,2.

[66]Ammonius *in Cat* 9,17.

later commentators as an ontogeny of language,[67] but in fact being a valuable semantical distinction, closely related to the mediaeval distinction of first and second intentions.[68] In the primary imposition man gave names to the things around him. In the secondary imposition he "reflected upon the expressions from another point of view" (*in Cat* 57,30) and invented words such as 'noun' and 'verb'; thus he gave names to words themselves.[69] Items categorized are words instituted by the first imposition; indeed the (names of the) categories themselves are words of this kind, whereas names relevant to an investigation of words *qua* words are instituted by the second imposition.

According to the Neoplatonic commentators, therefore, items categorized are words insofar as they signify things. This view is in line with the interpretation pursued here, according to which items categorized are terms, which of course are linguistic in some sense. There is also the dual view, that items categorized are things insofar as they are signified by words. That seems to be the view of Ackrill (1963). At several places in his commentary Ackrill insists that items categorized are things, but he admits that (p. 78):

> Though the items in categories are not expressions but 'things', the
> identification and classification of these things could, of course, be
> achieved only by attention to what we say.

In a categorization, or "identification and classification" of things, one needs to attend to what we say; so the view presupposed by Ackrill must be that items categorized are things insofar as they are signified by words, since it is only through this signification that we can effect the categorization. Hence, both Ackrill and the Neoplatonic commentators recognize the central place that the meaning relation plays in categorization, but they emphasize different nodes in it. De Rijk (2002, p. 134), who has forcefully argued that categories are "classes of names,"[70] summarizes his view as follows:

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[67] For a reconstruction of Porphyry's doctrine of imposition and the concomitant ontogeny of language, see Ebbesen (1990, pp. 146–162); for the doctrine of imposition in Simplicius and other later commentators, see Hoffmann (1987, pp. 78–90). Use of the word *thesis* in the sense of name giving can be found already in Plato's *Cratylus* 390d (*he tou onomatos thesis*); on *thesis* in ancient thought about language, in particular in relation to *physis*, see Fehling (1965, pp. 218–229). The exact phrase *prōte thesis* is used in the *Tekhnē grammatikē* § 12 to characterize primitive, in contrast to derivative, nouns.

[68] See Knudsen (1982) for an account of the doctrine of first and second intention also discussing the relation to the doctrine of imposition (ibid. 484–485); Ockham draws both distinctions at *Summa Logicae* I.11–12 (Loux, 1974, pp. 72–75).

[69] And presumably also to other things, as has been emphasized by Lloyd (1990, p. 36–43): Dexippus *in Cat* 15.24ff. classifies 'whole' and 'part' as words of the second imposition; and it seems that 'genus' and 'species' were also thus classified.

[70] See especially De Rijk (1980) and De Rijk (2002, pp. 358–471).

> what is classified is not *things* by themselves, not *names* by themselves, but *things according to their mode of being* expressed by a categorial designation,

That is, it seems, items categorized are things as signified by words. I take it, then, that the view of Ackrill and others following him, on the one hand, and the view of the Neoplatonic commentators and De Rijk, on the other, are basically in agreement with each other, in that they both defend a semantic conception of the categories: items categorized are meaning entities, be they words as signifying things or things as signified by words.

Is there any alternative to this semantic conception of the categories? Porphyry contrasts the categories with what he calls the genera of being, maintaining that the latter are in some unspecified sense prior to the former, indeed that the categories simply reproduce the catalogue of being (*in Cat* 58,12ff.):[71]

> Since beings are comprehended by ten generic differentiae, the words that indicate them have also come to be ten in genus and are themselves also so classified. Thus the predicates (*katēgoriai*) are said to be ten in genus, just as beings themselves are ten in genus.
>
> [...] Words are like messengers that report to us about things, and they get their generic differentiae from the things about which they report.

In Porphyry's picture there are thus ten genera of being, and to each such genus γ there corresponds a unique category C_γ such that, (1) every category is equal to some C_γ, and (2) a term t falls under C_γ if and only if the signification of t (the thing about which t reports) falls under the genus γ. The genera of being would thus seem to present an alternative to semantically conceived categories: pure being divided into genera altogether independently of language, and indeed providing the blueprint for the categorization of language. It is not uncommon today to conceive of category schemes independently of language;[72] but it is doubtful whether one can conceive of Aristotle's categories that way: according to Aristotle's doctrine, 'man' is a substance, while 'slave' is a relative, hence if the genera of being would mirror the categories—which they do in Porphyry's picture—then a man and a slave would

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[71]Cf. Simplicius *in Cat* 11,1–11,22, reporting Porphyry's view.
[72]E.g. Chisholm (1996).

belong to different genera, and that is an idea I for one find it difficult to make sense of.[73]

That the items categorized are words fitted well into the view of the commentators on the order of Aristotle's works and their place in the Neoplatonic curriculum. Already Aristotle's compiler Andronicus of Rhodes had classified the *Categories* as a logical work, and had apparently held that logic should be studied before all other subjects.[74] This view was shared by the Neoplatonic commentators, who regarded logic as a tool for studying other subjects,[75] which should therefore be studied before ethics, physics, mathematics, and theology (metaphysics).[76] Among logical works the *Categories* is the first to be studied. The argument for this, presented by Ammonius (*in Cat* 4,28–5,30) and Simplicius (*in Cat* 14,21–15,25), may be familiar.[77] The aim of logic is to teach the method of demonstration;[78] but a demonstration is a syllogism productive of knowledge,[79] hence one must know what a syllogism is before one can know what a demonstration is. A syllogism consists of propositions,[80] and a proposition is made up from terms; hence, before teaching what a syllogism is logic should teach what propositions are, and before teaching what a proposition is logic should teach what terms are. This order of things was recognized in Aristotle's writings: the *Categories* deals with terms, the *De Interpretatione* with propositions, the *Prior*

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[73]Cf. the remark on the category of relatives of De Rijk (2002, p. 135). According to Apelt (1891, p. 107), a relative is "lediglich eine Geburt unseres Verstandes, ohne ein entsprechendes Ding in der Wirklichkeit."

[74]Gottschalk (Cf. 1990, p. 66).

[75]There was an ancient discussion whether logic is a separate part of philosophy, as the Stoics held (*DL* VII.39–40), or an instrument (*organon*) for philosophy, as the Peripatetics as well as the Neoplatonist commentators held (e.g. Alexander of Aphrodisias *in APr* 1,1–6,13); see e.g. Lee (1984, pp. 44–54) or Kneale and Kneale (1962, p. 139). Ammonius *in Cat* 4,28 and Simplicius *in Cat* 4,23 describe Aristotle's logical works as *organika*, but the name *Organon* apparently has no ancient authority (Gottschalk, 1990, p. 66, fn. 58).

[76]On whether ethics should be taught before logic, see Ammonius *in Cat* 5,30–6,5 and Simplicius *in Cat* 5,17–6,5.

[77]For a critical reading of Simplicius's argument, see Morrison (2005). On the later mediaeval treatment of the *Categories* as a treatise of logic and of the question of the subject matter of the *Categories* more generally, see Pini (2002, esp. pp. 19–44, 138–170).

[78]"...so that one may be able to distinguish the true from the false and the good from the bad" (Ammonius *in Cat* 4,29–5,4, Simplicius *in Cat* 14,21–25). The moral benefit of logic is not often emphasized today, but was not lost on Hawes in his *Pastime of Pleasure* (ch. 5, verse 2): "You shall, quod she [sc. Logyke], my scyence wel lerne,/ in tyme and space, to your gret utilite;/ So that in lokynge you shal than decerne/ A frende from fo, and good from iniqyte:/ Ryght from wronge ye shall know in certainte./ My scyence is all the yll to eschewe,/ and for to knowe the false from the trewe."

[79]*syllogismos epistemonikos* is Aristotle's definition of demonstration (*apodeixis*) at *APo* I.2 71$^{\rm b}$18; adopted by Ammonius *in Cat* 5,9; Simplicius *in Cat* 14,33 gives the less informative definition 'demonstrative syllogism' (*syllogismos apodeiktikos*).

[80]Ammonius *in Cat* 5,11, Simplicius 14,29: a syllogism is a certain aggregate (*syllogē*) of propositions (*logoi*).

Analytics with syllogism, and the *Posterior Analytics* with demonstration.[81] Hence, since the teaching of philosophy must begin with logic, and the teaching of logic must begin with the doctrine of terms, the *Categories* is the first work the student of philosophy must study: it is "the prologue to the whole of philosophy," as Simplicius remarks in the opening of his commentary (*in Cat* 1,3–1,7).

3.2. A recent contention. Apart from chapter 4 in the *Categories*, the only other place in Aristotle's works where one finds a list of ten categories is in chapter I.9 of the *Topics.* Traditionally these two lists are taken to coincide.[82] Malcom (1981), Frede (1981), Ebert (1985), and Malink (2007) have argued that the two lists do not coincide, and—as far as the *skopos* is concerned—that the category scheme of *Cat* 4 is ontological, a division of things, while the category scheme of *Top* I.9 is linguistic or logical, a division of terms or predicates. For the purposes of this section let us, following Malink, call the categories as presented at *Cat* 4 C-categories, and those presented at *Top* I.9 T-categories; and let us call the reading of *Top* I.9 offered by these interpreters the novel reading.

The main (and perhaps only) reason offered by the authors cited for preferring the novel reading is that the first C-category is called substance (*ousia*), while the first T-category is called essence (*ti esti*). The term *ti esti* recurs several times in the rest of *Top* I.9, where in general it cannot be taken to mean substance. Hence we have the choice either of charging Aristotle with equivocation or else to say that T-categories differ from C-categories.[83] Choosing the latter, and basing itself on what Aristotle says here and elsewhere in the *Topics*, the novel reading says the following about the relation between C- and T-categories. In *Top* I.9 Aristotle assumes as already understood the C-categories, since these are listed at $103^{b}27$–29 and referred to in the following.[84] The T-categories are then explained in terms of the C-categories. To the T-category of essence belong all substances as well as all genera of non-substance C-categories; examples of the latter are colour and magnitude: colour is the genus of white, while magnitude is the genus of two-cubit. To the other T-categories belong the non-generic terms of the corresponding C-category; for instance, to the T-category

[81]Thomas Aquinas in his commentary on the *De Interpretatione* (cf. *Intro* nn. 1–2) relates these works further to the three operations of the mind (*operationes intellectus, rationis*), viz. the operations traditionally known as simple apprehension, judgement, and reasoning. That correspondence is, as far as I know, not found in the Neoplatonic commentators.

[82]So for instance by Alexander of Aphrodisias *in Top* 65,14 and Trendelenburg (1846, p. 34).

[83]For this formulation, see esp. Frede (1981, pp. 36–37).

[84]As admitted by Malcom (1981, p. 665), Ebert (1985, p. 132) and Malink (2007, p. 273). Frede (1981, p. 38) admits that the categories listed at $103^{b}27$–29 are not T-categories, though he seems to want to deny any involvement of C-categories in the *Topics* (e.g. ibid. p. 31).

of quality belongs white, but also coloured (in contrast to colour).[85] Hence we get two altogether different category schemes. Not only does the T-category of essence not coincide with the C-category of substance, but no T-category coincides with the corresponding C-category. Having thus argued for the distinction between T- and C-categories, the novel reading is free to go on to claim that while C-categories are ontological, T-categories are linguistic or logical.

We have already seen that Aristotle is simply not clear on the matter whether C-categories are linguistic or ontological; hence, even if the argument offered for preferring the novel reading was successful, it would not follow that C-categories are ontological. There are, however, good reasons to have reservations about the novel reading. Firstly, it seems to trade one ambiguity for another. For since both T- and C-categories are mentioned and discussed in *Top* I.9, and since for instance 'quality' means different things whether one has in mind T-categories or C-categories, it follows that the names of the non-substance categories are used ambiguously in this chapter: 'quality' sometimes mean the T-category of quality and sometimes the C-category of quality. The disambiguation of *ti esti* in this chapter is therefore bought at the cost of introducing ambiguity of the names of all the other T-categories. With this exchange of ambiguities the novel reading seems to me to loose its force, since it was proposed precisely in order to avoid equivocation. Secondly, according to the novel reading, 'white' is a T-quality and 'cubit' a T-quantity; but this seems to be contradicted by what Aristotle says at 103^b29 ff. He there says that in predicating white of a white colour or cubit of a cubit magnitude one "says the essence"; this technical phrase is taken by the novel readers to imply membership in the T-category of essence; but that contradicts their classification of 'white' and 'cubit' as a T-quality and T-quantity respectively. Indeed, if such terms as 'white' and 'cubit' do not count as non-essences, then it is difficult to see which terms do. Thus, Malink (2007, p. 289) admits that 'white' is ambiguous: it may signify the T-category of essence or the T-category of quality. Again the disambiguation of *ti esti* therefore comes at the cost of introducing other ambiguities. Thirdly, at several places of *Topics* VI Aristotle uses the word 'substance' (*ousia*) where he evidently means essence (*to ti ēn einai, to ti esti*). In a general discussion of definition at *Top* 139^a29–31 he says "of the elements of a definition the genus is what primarily signifies the substance (*ousia*) of what is defined," where what is meant, presumably, is that the genus, in contrast to the differentiae, is what primarily indicates the essence (*ti esti*) of the

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[85]See especially the list given by Malink (2007, p. 291) and the definition he offers at pp. 280–281. See also Malcom (1981, pp. 666–668) and Ebert (1985, p. 125, 137–138). Frede's article is mainly destructive, and offers few constructive remarks on what T-categories should look like.

definiendum. Likewise, at *Top* 143ª18 Aristotle discusses the definition of justice, saying "the substance (*ousia*) of a thing involves the genus," where it is implied that justice has a substance, but where it is meant that justice has an essence (*ti esti*).[86] If we regiment Aristotle's language in the *Topics* as the novel reading proposes—taking *ousia* always to mean the C-category of substance, and *ti esti* always to mean the T-category of essence—then we cannot make sense of these passages.

4. The parts of speech

Items categorized are terms, and these are linguistic in nature; but the classification of linguistic items effected by the categories differs of course from the classification into parts of speech. Section 4.1 gives a brief historical introduction to the topic, while section 4.2 examines, on the basis of historical examples, the relation between parts of speech and categories. Section 4.3 surveys various characterizations of syncategorems; as we shall see in section 5 the notion of syncategorem provides a way of understanding the relation between Aristotle's and Kant's categories. The reader may prefer to ignore the many footnotes with which the text in section 4.1 are equipped; most of them are of a philological character.

4.1. Introduction. The little manual known as the *Technē grammatikē*, traditionally attributed to Dionysius Thrax (2nd century BC), is the canonical reference for the parts of speech of Greek grammar.[87] The Greek phrase in the *Technē* translated by 'part of speech', *meros tou logou* (*GG* I.1 23,1), literally means part of the sentence, since *logos* is there defined as "a combination of words in prose conveying a meaning that is complete in itself" (*GG* I.1 22,5), and that is a description of the sentence.[88] We shall, however, follow the tradition (in English going back at least to the early 16th century, cf. *OED*) of calling these parts 'parts of speech', employing as well the more recent term 'word classes' (probably deriving from German *Wortklasse*, recorded 1817 in Grimm). The parts of speech, then, or word classes recognized in

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[86]See also *Top* 150ᵇ24.

[87]On the work of Dionysius Thrax, see Pfeiffer (1968, pp. 266–267), and see the whole of Pfeiffer's book for the historical context. Already in ancient times doubts were raised as to the authenticity of the *Technē* (cf. e.g. Lallot, 1989, pp. 20–21). On account of the work of Di Benedetto (1958, 1959) it appears to be generally assumed among historians of linguistics today that the *Technē* as we know it is spurious, although opinions vary as to the precise genealogy of the text and its proper place in the history of grammar (cf. e.g. Taylor 1987, Law and Sluiter 1995, Robins 1995). A summary of Di Benedetto's arguments may be found in Pinborg (1975, pp. 103–106).

[88]This description may be of Stoic origin (cf. *DL* VII.63), as may be the phrase *meros tou logou* (*DL* VII.57, cf. *Stoicorum veterum fragmenta* 2.131, translated by Frede 1978, p. 327, a fragment apparently from Chrysippus employing *ta tou logou moria* in the relevant sense). Aristotle *Poet* 1456ᵇ20 uses *merē tēs lexeōs*, to which belong not only the parts of speech, but also letters and syllables as well as the sentence itself (*logos*).

the *Technē* are: noun, verb, participle, article, pronoun, preposition, adverb, and conjunction.[89] Adjectives are missing from this list, but they are included under the class of nouns as one of its 24 "species." Articles were omitted when the list was adapted by Latin grammarians to their language,[90] there being no article in Latin, but the interjection was added as an eighth *pars orationis*. Noun, verb, participle, pronoun, preposition, adverb, conjunction, and interjection are therefore the eight parts of speech recognized in the very influential Latin grammars of Donatus (4th century AD) and Priscian (6th century AD); so influential in fact were these works that, for instance, *The Royal English Grammar* of Greenwood (1737) follows them in omitting the article as a separate part of speech, considering it instead an adjective, and therefore a noun (cf. ibid. pp. 27, 41).[91]

The *Technē* employs in its descriptions of the various word classes three kinds of characteristics. One kind of characteristic is morphological, pertaining to the acoustic or graphical shape of the words in the respective class; another kind of characteristic is semantic, pertaining to their signification; a third kind of characteristic is syntactic or functional, pertaining to the role a word of the class plays in grammatical constructions. The classes of noun, verb, participle, article, and pronoun are all characterized in part by their so-called accidents (*parepomena*),[92] which are typically manifest in the morphology of the language, namely in the patterns of inflection characteristic of the given part of speech. In particular, the accidents of the noun include gender,[93] number, and case; the accidents of the verb include tense, number, person, mood, and voice; and the accidents of the pronoun include person, gender, number, and case. But nouns are in addition said to signify "a body or a thing" (*sōma ē pragma sēmainon*,

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[89]According to Quintilian, *Institutio Oratoria* I.4,20, Aristarchus, the teacher of Dionysius Thrax (on the life and work of Aristarchus, cf. Pfeiffer, 1968, pp. 210–233), recognized eight parts of speech, where it is clear from the context that these are the eight parts distinguished in the *Technē*. The reliability of Quintilian's testimony has been defended (convincingly to my mind) by Ax (1991) and Matthaios (1999) against doubts raised by, e.g., Pinborg (1975, p. 107) and Frede (1977, p. 341).

[90]Apparently this was done already in the 1st century BC by Remmius Palaemon (cf. Quintilian *Institutio Oratoria* I.4,20).

[91]On the various systems of parts of speech adopted by tradtional English grammars, see Michael (1970, pp. 201–280); on the treatment of articles in particular, see ibid. pp. 350–360, and especially 354–356.

[92]The Stoics apparently spoke instead of *symbebēkota* (cf. Barwick, 1922, p. 107 ff.), which is the word *accident* typically translates in a philosophical setting (cf. *OED* on *accident*). The term 'accident' in this grammatical sense can still be found in a grammar such as Sweet (1900). In some authors, such as Jespersen (1924, p. 53), accidents are called 'syntactic categories'.

[93]The gender distinction of nouns (and under this name) appears to have been recognized already by Protagoras (cf. the witness of Aristotle *SE* 173[b]19ff., *Rhet* 1407[b]7).

GG I.1 24,3);[94] the verb to "express activity or passivity" (*energeian ē pathos paris-tasa*, *GG* I.1 46,5);[95] and the pronoun to be "indicative of definite persons" (*prosōpōn hōrismenōn dēlōtikē*, *GG* I.1 63,2). Noun, verb, and pronoun are therefore charac-terized not only morphologically by their accidents, but also by means of semantic criteria. The article, apart from being described by its accidents of gender, num-ber, and case is in addition said to be "placed before or after[96] the inflection of the noun" (*GG* I.1 61,2), thus syntactically characterized. Likewise the adverb is char-acterized functionally by its relation to the verb, namely as being "said of the verb" (*GG* I.1 72,4), and morphologically as being uninflected. Finally, the preposition and the conjunction are purely syntactically characterized: "the preposition is a word placed before all parts of speech, in compounds as well as in grammatical construc-tions" (*GG* I.1 70,2) and "the conjunction is a word conjoining thoughts in order and revealing gaps in the expression" (*GG* I.1 86,3).[97]

A similar mixture of criteria is found in the remarks of Plato and Aristotle on what in the *Technē* are called the parts of speech.[98] In the *Sophist* Plato describes the noun and the verb by semantic as well as by syntactic or functional criteria. Thus, by appeal to semantics the verb is said to be "the sort of indication that is applied to an action" and the noun to be "the kind of spoken sign that is applied to a thing that performs the actions" (262a); but Plato moreover says that any *logos* is about something and says something about that thing (262e–263d), where it is clear from the context that the noun serves to pick out what the *logos* is about and the verb to say something about that thing. Thus the noun and the verb are syntactically characterized, corollated, in effect, with the roles of subject and predicate of a sentence, as already noted in section 1.2 above.

According to Aristotle's definitions of the noun and the verb in the *De Interpre-tatione* 2–3 their genus is "significant spoken sound no part of which is significant

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[94]The 'or' here is not merely expletive: stone is given as an example of a *sōma* and education as an example of a *pragma*; perhaps on the basis of these examples Kemp (1987, p. 176) translates the former by 'something corporeal' and the latter by 'something non-corporeal'. Lallot (1989) translates the former by '*corps*' and the latter by '*action*'.

[95]According to a scholium (*GG* I.3 161,7) Apollonius Dyscolus said in his work on the verb (now lost) that Dionysius Thrax defined the verb as a word signifying a predicate (*rhēma esti lexis katēgorema sēmainousa*); as we shall see below the Stoics defined the verb by the very same formulation.

[96]The article placed after the noun is the relative pronoun.

[97]The second part of this definition "revealing the gaps in the expression" (*to tēs hermēneias kechēnos dēlousa*) has bothered editors and commentators; see Barnes (2007, pp. 183–184) and especially Lallot (1989, pp. 227–236) for more discussion. When Kemp (1987, p. 185) translates "*fills up* gaps in the expression" he must be relying on an alternative reading which substitutes *plērousa* for *delousa*; for reasons not accept this reading see Barnes (ibid. p. 184) and Lallot (ibid. p. 228).

[98]For a concise overview of the doctrine of parts of speech in Plato, Aristotle, and the Stoics, see Robins (1966).

in separation," familiar from our discussion in section 1.1 above, while the verb is distinguished from the noun by "additionally signifying time" (16^b6). The genus of being a significant spoken sound having no part significant in separation has both a semantic and a morphological component, for it refers both to signification and to the notion of a part of a word. The differentia of additionally signifying time may at first seem to provide a morphological criterion, met by the verb in its showing variation in tense. Aristotle holds, however, that a verb in the past or the future tense is in fact not a verb (16^b16–17), hence variation in tense cannot be a characteristic of verbs; moreover, Aristotle explains that 'recovers' (*hugiainei*) is a verb, for unlike the word 'recovery' (*hugieia*) "it additionally signifies something's holding now" (16^b9). Additionally signifying time thus seems to furnish a semantic criterion. To these partly morphological and partly semantic descriptions Aristotle adds functional descriptions. In effect, like Plato, he identifies the verb with the predicate of the sentence (16^b6, 16^b10) and the noun with the subject (19^b5). Thus, at *Int* 20^b1 'white' is called a verb, but 'white' does not additionally signify time, so it is a verb only because it functions as a predicate. In *Poetics* 20 two parts of speech in addition to noun and verb are identified, called *syndesmos* and *arthron*. It is unclear from the text which words are to be counted as *arthra*,[99] but *syndesmoi* are most likely conjunctions (cf. *Rhet* 1407^a21–31; *Int* $17^a9,16$). Whichever word classes they be, they are defined by means of functional criteria: their genus is non-significant sound (which thus excludes semantic criteria in their differentiae); but where the *syndesmos* "produces out of several significant sounds one significant sound" (1457^a4–6), the *arthron* "reveals the beginning, end or middle of the *logos*" (1457^a6–7).

The Stoics are generally held to have played an important role in the development of grammar.[100] They distinguished at least five parts of speech: in addition to verb, article, and conjunction they divided the class of nouns into two separate parts,

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[99]Lucas (1968, p. 202): "It is impossible to say what kinds of non-significant word A. here intends." Likewise, Van Bennekom (1975, p. 406): "The definitions themselves [the text gives two definitions] hardly give a clue as to what sort of words may be meant." Adding to the difficulties are the facts 1) that according to the witness of Dionysius of Halicarnassus *De compositione verborum* 2 Aristotle distinguished only three parts of speech, namely noun, verb, and *syndesmos*; and 2) that *arthron* is nowhere else in the Aristotelean corpus (apart from the spurious *Rhetoric to Alexander* 1435^b13–16) employed as a term of grammar (cf. Pinborg 1975, pp. 72–75 or Schramm 2005, esp. pp. 187–193 for a fuller overview of the difficulties and of solutions proposed in the literature). Van Bennekom and Schramm (ibid.) argue that the class of *arthra* comprises articles and prepositions; articles (including relative pronouns) are indeed what the *Technē* terms as *arthra*, whereas the only certain example of an *arthron* in the text of the *Poetics* is the preposition *peri*. I am grateful to Michael Schramm for sending me an offprint of his paper.
[100]So, e.g., Pinborg (1975, pp. 77–103).

common nouns (*prosēgoria*) and proper nouns (*onoma/kyrion onoma*).[101] Judging from the testimony of Diogenes Laertius (*DL* VII.58) purely semantic criteria were employed in defining the common noun, the proper noun, and the verb. A common noun was said to signify a common quality (*koinē poiotēs*), a proper noun a peculiar quality (*idia poiotēs*), and a verb was said to signify what the Stoics called a predicate (*katēgorēma*), which is explained as an incomplete *lekton* (*DL* VII.64). According to the same testimony, the article and the conjunction were defined by reference to their function as well as their morphology. An article is "a declinable element of speech distinguishing gender and number," while a conjunction is "an indeclinable part of speech conjoining the parts of speech."[102] It has, however, been argued by Pinborg (1975, p. 99–100) and others[103] that the Stoics gave purely semantic definitions also of the article and the conjunction. The Stoic Posidonius is reported by Apollonius Dyscolus (2nd century AD) to have written a work "on conjunctions" where he opposes those (including Aristotle) who held that the conjunction does not signify anything (cf. *GG* II.1 214,4ff.). The same Apollonius characterized the article (or at least the demonstrative and indefinite pronouns, considered articles by the Stoics)[104] as signifying existence (*ousia*) without quality (*GG* II.1 9,9–10), and Pinborg argues that this definition is in fact of Stoic origin.

4.2. Categories and the parts of speech. The question seems to have occurred already to the ancient commentators on Aristotle what the relation is between the parts of speech and the categories. Some recent commentators hold that the relation was a tight one in Stoic doctrine (4.2.1). Some have also seen a relation between Aristotle's categories and the parts of speech, though we shall follow the ancient commentators in emphasizing the contrast between the two (4.2.2)

4.2.1. *In the Stoics.* The presumably Stoic definition of the article as signifying existence without quality, together with the definitions of the two kinds of noun, have led scholars to see a connection between the Stoic parts of speech and what is known

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[101]According to the scholium referred to in fn. 95 above (*GG* I.3 160,26) Dionysius Thrax treated common noun and proper noun as separate parts of speech. Matthaios (1999, pp. 214–244) argues that Aristarchus classed them as one part of speech, as indeed reported by Quintillian (cf. fn. 89 above).

[102]The Stoics are said to have conceived of prepositions as "preposed conjunctions" (so e.g. Priscian, *GL* II 54,20–22; for more passages, see Schmidt 1979, p. 136–137, and for a discussion Barnes 2007, pp.190–192). Cf. the view of Jespersen (1924, p. 89): "The so-called conjunction is really, therefore, a sentence preposition."

[103]E.g. Lloyd (1971, pp. 67–69) and Frede (1978, pp. 330–332).

[104]Apollonius (*GG* II.1 5,13–9,6) also criticizes the Stoics for their treating pronouns in general as belonging to the same part of speech as articles.

as their categories. The Stoics are said to have assumed four categories:[105] substrate (*hypokeimenon*), qualified (*poion*), somehow disposed (*pōs echon*), and somehow disposed in relation to something (*pros ti pōs echon*). Since the two kinds of noun are both said to signify quality, and the article presumably substrate, the following correspondence between parts of speech and the categories has been suggested.[106]

Part of speech	article	common and proper noun	intransitive verb	transitive verb
Category	substrate	qualified	somehow disposed	somehow relatively disposed

There is, however, an obvious problem with this table, for at *DL* VII.58 nouns are said to signify a quality (*poiotēs*) and not a qualified (*poion*), while a verb is said to signify what the Stoics called a predicate, i.e. an incomplete *lekton* (*DL* VII.64), and not something's disposition. An elegant solution is offered by Christensen (1962, pp. 43–52): one must take account of all vertices in the Stoic "semantic triangle"— the sign, the sense (let us adopt that word here for what resides at the level of the *lekton*), and the reference. This "triangle" is sketched by Sextus Empiricus in *Adversos Mathematicos* 8.11–12 (text 33B in Long and Sedley 1987):[107]

> three things are connected with one another, the sense (*sēmai-nomenon*), the signifier (*sēmainon*), and the reference (*tygchanon*). Of these the signifier is a vocal sound, for instance 'Dion', the sense is the very thing (*pragma*) revealed by it, and which we apprehend as it subsists in our thought, and which foreigners do not understand even though they hear the utterance; and the reference is the external substrate, for instance Dion himself.

The parts of speech obviously belong at the level of the signifier. And for the Stoics, items categorized reside at the level of reference. The level of reference is not free of language, according to Christensen: the Stoic categories are "reference classes" (p. 51), that is, "classes of objects in so far as these are denotata of meanings of the basic types" (p. 48). The Stoic conception of the categories is, accordingly, a semantic

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[105]For this, see especially Menn (1999), but also Christensen (1962, pp. 48–52), Rist (1969, pp. 152–172), and Lloyd (1971). The status of the whole doctrine is uncertain; Barnes (2005, p. 26) concludes a general discussion of the sources that "Bref, la théorie stoïcienne des catégories est un mythe."

[106]The first to have done so appears to be Schmidt (1839, p. 37), who, however, placed conjunction instead of transitive verb as corresponding to relative disposition. For the table below, see Lloyd (1971, p. 69), and Pinborg (1975, p. 101).

[107] Its relation to Aristotle's semantic triangle is discussed by, for instance, Christensen (1962, pp. 44–47) and Barnes (1993).

conception (cf. section 3.1 above), where the categories cannot be thought apart from the meaning relation.

The solution to the problem is then to point out that what *DL* VII.58 describes the various parts of speech as signifying resides not at the level of reference, but at the level of sense. In particular, quality is now taken to reside at the level sense, together with the predicate. Common nouns as well as proper nouns have as their sense a quality (*poiotēs*), and as their reference a qualified (*poion*).[108] Corresponding to the distinction between intransitive and transitive verbs the Stoics distinguished between unary and binary predicates (the latter were called direct predicates, *ortha katēgorēmata*, *DL* VII.64). An intransitive verb has as its sense a unary predicate, and as its reference a disposition, while a transitive verb has as its sense a binary predicate, and as its reference a relative disposition. It remains to account for the article. Here we have Apollonius's characterization, reported above, that the article reveals (*dēlein*) only existence (*ousia*), and is as such contrasted with the noun, which reveals (*epangellesthai*) a quality; hence, assuming that this was also the Stoic characterization, the mark of existence is taken to be the sense of the article, while its reference is substrate. The following table results (cf. Christensen, 1962, p. 50).[109]

Part of speech	article	common and proper noun	intransitive verb	transitive verb
Sense	existence	quality	unary predicate	binary predicate
Category (reference)	substrate	qualified	somehow disposed	somehow relatively disposed

4.2.2. *In Aristotle.* In light of this apparent correspondence between categories and parts of speech in Stoic doctrine it is natural to ask how Aristotle's categories relate to the parts of speech. In traditional grammar it was common to appeal to Aristotelian categories in the definitions of noun and verb. Priscian, for instance, defined the verb by appeal to the categories of action and affection, and the noun by appeal to the categories of substance and quality:

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[108]The Stoic notion of *ptōsis* appears to have satisfied the following relation: a verb stands to a noun as a predicate stands to a *ptōsis* (cf. esp. Plutarch, *Questiones Platonicae* 1009c). The question therefore arises how this notion of *ptōsis* relates to that of quality. Pinborg (1975, p. 81) insists that they are in fact one and the same, "with quality implying the physical reality behind language, *ptōsis* the logical structure as seen in itself." Frede (1994, p. 20) appears to make the same identification.

[109]Menn (1999, pp. 226–227) argues that it is participles which have as their denotation the somehow disposed and the somehow relatively disposed. According to Priscian (*GL* II 54,9ff.) the Stoics counted participles among the verbs (cf. Schmidt, 1979, p. 135, for more examples), so Menn's view may be reconcilable with that presented above.

> The characteristic of the verb is to signify action or affection or both…[110]

> The characteristic of the noun is to signify substance and quality.[111]

A similar definition of the verb was given by Donatus in his *Ars Minor*,[112] and there is reference to action and affection also in the definition of the verb in the *Technē* (*GG* I.1 46,5), although there *energeia* and not the Aristotelian *poiein* or any of its derivatives is used as the name for the category of action. However, I know of no attempt in traditional grammar at defining all the various parts of speech solely in terms of Aristotle's categories. Indeed, as we have just seen, more often than not both morphological and syntactic characteristics played a role in that definition besides semantical ones. The only attempt I am aware of at defining all parts of speech purely in terms of Aristotle's categories was carried out by the Danish linguist Viggo Brøndal in his work *Ordklasserne* (1928).[113] Brøndal there defined a system of 15 word classes, many of them with subclasses, from the Aristotelian categories of substance, relation, quantity, and quality. The system purported to be universal in the sense that all word classes of all languages are among these 15. It lies outside the scope of this dissertation to go further into Brøndal's work.

Robert Kilwardby (13th century) denied that there could be any correspondence between the parts of speech and Aristotle's categories:

> The parts of speech are not distinguished after the distinctions of things, but after the distinctions of modes of signifying [...] Things of all categories can be signified by the noun, e.g., quantity and quality and the rest. For that reason there are not ten parts of speech as there are ten categories of things.[114]

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[110]*GL* II 55,8–9: "Proprium est verbi actionem sive passionem sive utrumque cum modis et formis et temporibus sine casu significare."

[111]*GL* II 55,6: "Proprium est nominis substiantiam et qualitatem significare."

[112]*GL* IV 359,4–5: "uerbum quid est? pars orationis cum tempore et persona sine casu aut agere aliquid aut pati aut neutrum significans"

[113]See also his *Morfologi og Syntax* (1932), where the Aristotelian categories of substance, relation, quantity, and quality are used in defining various functional categories, such as subject, predicate, and object. The class of prepositions is studied in Brøndal (1940).

[114]Kilwardby, *in Priscianus minorem*, (cited by Pinborg 1967, p. 48): "Non distinguuntur partes orationis secundum distinctionem rerum, sed secundum distinctionem modorum significandi. Possunt autem omnes res eodem modo significari, scilicet permodum habitus; ideo res omnium predicamentorum possunt per nomen significari, ut quantitas et qualitas et sic de aliis. Et hac de ratione non sunt decem partes orationis, sicut sunt x predicamenta rerum."

A similar sentiment is expressed in Kilwardby's commentary on the *Categories* (cited by Ebbesen 2005, p. 259): "Est igitur, ut dicit Boethius, scientia Praedicamentorum de X vocibus X prima rerum genera significantibus. Non enim est de vocibus penes diversas figurationes vocum, quae sunt inflectio casuum aut temporum, sed de vocibus in quantum sunt significativae."

According to Kilwardby, the noun provides a counterexample, for it may signify elements of any category. In fact, the modistae, of which Kilwardby may be counted a member, held that, in general any thing may be the signification of all the various parts of speech (cf. Pinborg, 1967, p. 81). One and the same *dictio*, which is a sound (*vox*) furnished with reference, can be formed into any part of speech so long as the reference is compatible with the relevant form, the relevant "mode of signifying" (*modus significandi*),[115] that determines the part of speech. The words *dolor*, *doleo*, *dolens*, *dolenter*, and *heu!*, for instance, all signify pain, but differ in their mode of signifying it, namely as a noun, a verb, a participle, an adverb, and an interjection respectively (cf. Pinborg, 1982, pp. 257). So according to the modistae the correspondence between the parts of speech and the categories fails in both directions: neither is the category of the thing signified determined by the part of speech of the signifier, nor is the part of speech of the signifier determined by the category of the thing signified.

Aristotle's own language in *Categories* 4 indicates that he had not conceived of any correspondence between parts of speech and the categories: the examples of each of the four categories of action, affection, position, and having are all equally verbs. One could, however, argue that these are different kinds of verb, and in the extension of this set up a correspondence between the categories and a finer grouping of the parts of speech. That was indeed done by Trendelenburg (1846, pp. 23–24), who suggested the correspondence of substance to the noun, quantity and quality each to a kind of adjective, when and where to adverbs of place and time respectively, relative, at least its prototypical cases, to the comparative form of the adjective, and the four other categories to four kinds of verbs—action to verbs in the active voice, affection to verbs in the passive voice, position to "at least a part of the intransitives," and having to verbs in the perfect tense.[116] Trendelenburg was certainly well aware that no such correspondence is indicated in Aristotle's works, and indeed that Aristotle had not made the necessary grammatical distinctions; but he nevertheless thought that grammatical reflection was instrumental to Aristotle's conceiving of the categories (cf. section 5.2 below).

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[115]See Pinborg (1967, pp. 30–46) for the genealogy of this notion.

[116]Benveniste (1966, pp. 66–70), without citing Trendelenburg, argues for the same correspondence except that he lets position correspond to verbs in the middle voice. For some discussion of Benveniste and Trendelenburg, see Kahn (1978, pp. 233–237). More recently Baumer (1993) has suggested the correspondence of substance to noun (and other "nominal forms"), quality to adjective, relative to oblique cases of the noun, quantity to grammatical number, when to tense, doing to the active voice, affection to the passive voice, and where to preposition (cf. ibid. page 428). It is not clear to me how one should understand this, since a noun always has number and may well be in an oblique case (does it then signify substance, quantity, and relative?) and a verb has tense as well as voice (so it signifies a when as well as an activity or a passivity?).

It is in any event clear that the division of linguistic items into categories differs in character from its division into parts of speech; let us try to specify some of the differentiae. According to Kilwardby, the parts of speech do not follow "the distinctions of things." We saw (p. 32) that according to Porphyry the division of language into *categories* does indeed follow the distinctions of things, namely into genera of beings; but Porphyry introduced the notions of primary and secondary imposition precisely so as to be able to differentiate the division into categories from the division into parts of speech (*in Cat* 58,30–59,14; cf. 57,29–58,6). Ammonius, in his commentary on the *De Interpretatione*, raised the question (9,28–10,1) "why, when he has treated of simple vocal sounds [=things said without combination][117] at book length in the *Categories*, he here again undertakes to speak about name and verb, each of which is obviously a simple vocal sound." His response (10,4–10,12) nicely spells out Porphyry's point:[118]

> For when we consider that simple vocal sounds are significative of the things to which they have been assigned, this is all we call them—simple vocal sounds—since we do not here distinguish names from verbs; but when we have seen some lack of correspondence among these and find that some of them are combined with articles while others are not, or also that some additionally signify a certain time, while others do not, then we distinguish them from one another and we call those which are combined with articles and do not additionally signify time 'nouns'; and those which cannot be combined with articles but are said according to a certain time we call 'verbs'.

Given our identification of the notion of term with that of thing said without combination, and so with Ammonius's "simple vocal sounds," and generalizing Ammonius's response to all parts of speech, Porphyry's point is the following. Terms are divided into categories by considering them primarily as signifying things (and, according to Porphyry, by letting them inherit the generic differences of the things they signify). Words are divided into parts of speech by considering them not only according to their signification, but also according to their grammatical properties; the latter requires a reflection on the words themselves (secondary imposition) and not only on their signification (primary imposition). Hence the criterion of classification in the two cases concern different aspects of the linguistic items classified. Moreover, the two divisions divide different items. Items categorized are terms; but not all words

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[117]For this identification, cf. e.g. Ammonius *in Cat* 11,19.

[118]See the similar passage of Ammonius *in Cat* 11,7–11,17, where he employs the terminology of primary and secondary imposition.

of a given language are terms. In fact, if we adhere strictly to the 'S is P'–form, then only noun, participle, and pronoun are grammatically suited as terms (a verb we may perhaps think of as a "proto-term," namely proto to its various participial forms). On the other hand, any word belongs to a part of speech. And, as we argued above, terms may be of arbitrary complexity; but the members of the parts of speech are single words.

4.3. Syncategorems. In his commentary on the *De Interpretatione* Ammonius divided the parts of speech into three classes: noun, verb, pronoun, and participle are "significant of certain natures or simply of persons or activities or some combination of these" (11,9); the main function of the adverb is "to make clear some relation of the predicate to the subject" (11,15);[119] while article, preposition, and conjunction are "absolutely without significance by themselves" (12,14). What occasioned this distinction in Ammonius was the question, just quoted, why Aristotle in the *De Interpretatione* had discussed only noun and verb among the eight parts of speech. About 400 years earlier Plutarch (1st century AD), in his tenth Platonic question, had asked the same question with regard to Plato and as a response drawn, albeit somewhat less perspicuously, distinctions along similar lines.[120] It is in the context of a discussion of such distinctions, moreover, that we first meet the word 'syncategoremata'. Priscian reports that "according to the dialecticians" there are only two parts of speech, namely noun and verb, while all other words are called syncategorems (*GL* II 54,5–7). Since this division was suggested by dialecticians, it is presumably meant to separate the words that can function as terms from those that cannot; hence 'noun' and 'verb' must here be understood, not in the manner of the grammarian, but rather so as to include both pronoun and participle.[121] Ammonius may have been among the dialecticians Priscian had in mind, for at one place in his commentary Ammonius says that only noun and verb are parts of speech (*logos*), while adverb, conjunction, article, and preposition are merely parts of diction (*lexis*) (*in Int* 12,16– 13,6). Here a part of diction is any articulate sound, hence unlike a part of speech it need not be significant.[122]

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[119]On Ammonius on adverbs and his related treatment of modality, see Barnes (1991).

[120]Plutarch's *Platonic Questions* are found in Book XIII of his *Moralia*. Luhtala (2005, pp. 129–137) collects parts of this as well as several of the other texts discussed in this paragraph.

[121] Hence the following statement by Apuleius (2nd century AD), grouping pronouns and participles together with adverbs and conjunctions, is odd: "Indeed, adverbs, pronouns, participles, conjunctions and other such things which grammarians list are no more parts of speech than ornamented curved sterns are parts of ships and hair of men; or at least they are fit to be classed in the general structure of speech like nails, pitch, and glue" (Londrey and Johansen, 1987, p. 85).

[122]According to Aristotle *Poet* 1456^{b}20, where the roots of Ammonius' terminology presumably lie, the parts of *lexis* are letter (*stoicheion*), syllable, *arthron*, *syndesmos*, noun, verb, case, and *logos* itself.

Ammonius was, however, not of the opinion that articles, prepositions, and conjunctions are altogether void of significance. They are "absolutely without significance by themselves" (ibid. 12,14); but that is probably to say that they are significant only in conjunction with other expressions. Such a view was held already by Apollonius Dyscolus, who compared articles, prepositions, and conjunctions to consonants, and the other parts of speech to vowels (*GG* II.2 13,1–14,2): vowels can be pronounced by themselves, but consonants need for their pronunciation the company of one or more vowels, as do for instance /biː/ and /keɪ/. Such, in fact, is the main characteristic of syncategorems according to Priscian. He glosses this apparently Greek word[123] as "*consignificantia*" (*GL* II 54,7), which he in turn glosses as "signifying when conjoined with other items, but not in itself" (*GL* III 114,19–20). The Latin verb *consignificat* was Boethius's translation of *prossēmainei*, a word Aristotle had employed in the *De Interpretatione* for three not obviously related modes of signification:

- the verb's signifying time in addition to whatever else it signifies ($16^{\mathrm{b}}6$);
- the mode of signification of the copula 'is': "by itself it is nothing, but it *prossēmainei* some combination, which cannot be thought of without the components" ($16^{\mathrm{b}}24$);
- the mode of signification of the quantifiers 'every' and 'no', which *prossēmainousi* that the subject is "taken universally."

If any of these senses survive in Priscian's characterization of syncategorems as "signifying when conjoined with other items, but not in itself" it must be the second: the copula signifies nothing by itself but joined to two terms it comes to signify a combination.

That the meaning of a symbol is to be explained within a larger context is characteristic of what Russell and Whitehead in the *Principia Mathematica* (p. 66) called incomplete symbols; such symbols have only a "definition in use," or what is sometimes called a contextual definition. A syncategorem is, however, not an incomplete symbol in Russell's sense. If, as seems reasonable, we take definite descriptions as paradigms of such incomplete symbols, then their incompleteness is one which is not apparent in the surface grammar, but which is seen only after logical analysis. This is unlike syncategorems, which already on the surface is seen to require the company of other expressions in order to have any use at all. Definite descriptions could seem on the surface to be of use in naming entities, though according to Russell's analysis that is not the case—although the definite description appears as a subject term in a

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[123]The components *syn-* and *katēgorēma* are Greek, but *synkatēgorēma* has apparently not been found in any Greek sources (cf. Meier-Oeser, 1998, p. 787). The form of the word listed in the *OED* is 'syncategorem', which will therefore be used here.

proposition, there is no subject in the defining expression which the definite description abbreviates; rather, this is split up into an existential quantifier, a uniqueness stipulation, and a predication. Syncategorems, by contrast, do not, not even on the surface, seem to be of use in naming entities, or of any other use that does not involve other expressions.

This could be taken to suggest that syncategorems have another sort of incompleteness appealed to in modern logic, namely the incompleteness that according to Frege is characteristic of function, predicate, and relation symbols (see section 1 of chapter 2 below). Their incompleteness, or unsaturation, is evident on the surface, hence in that regard they are closer to syncategorems than are Russellian incomplete symbols. One should, however, not identify syncategorems with functions in Frege's sense. As we shall in section 1.3 of chapter 2, function symbols, just as all other symbols of Frege's logic, must be regarded as categorems of that logic, for they are all assigned a type. The general point is that the notion of syncategorem can only be understood in the context of traditional logic and grammar, where a distinction is made between form and matter, and syncategorems are taken to be form elements (more on this a few paragraphs below); in function–argument syntax, by contrast, no distinction is made between form and matter. Notions of incompleteness found in modern logic and grammar can therefore not be used in elucidating the incompleteness of syncategorems. Thus, if following Barnes (2007, pp. 246–250) one seeks to clarify the incompleteness of a syncategorem a by saying that its meaning can only be explained in a context Xa, then this must be understood against the background of traditional logic and grammar; for in modern logic and grammar that clarification will apply to Fregean function symbols and Russellian incomplete symbols, neither of which are syncategorematic.

Owing most likely to the problems that syncategorems caused in the logical analysis of various propositions there developed in the late 12th and early 13th century a separate literature entirely devoted to their study.[124] In this literature the notion of consignification is never described along Priscianic lines. In what appears to be one of the earliest instances of this literature consignification is rather glossed as "signifying nothing that is complete and limited in itself (*in se ipsis terminatum vel finitum*),

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[124]See Braakhuis (1979) for a study of this literature. The historical background in the logical analysis of problematic propositions is treated extensively there (pp. 27–90), and is emphasized in the overview article of Kretzmann (1982). One can find treatises on syncategorems published as late as the early 16th century (cf. Meier-Oeser, 1998, p. 788).

but signifying the dispositions and circumstances of things (*dispositiones et circumstantias rerum*)" (Braakhuis, 1979, p. 117).[125] It is not clear to me in which sense this characterizes a notion of consignification, but be that as it may; there is namely another, more syntactic, characterization of syncategorems that appears to have been dominant in this literature. It is found, if not expressly in the description of what in general characterizes a syncategorem, so at least implicitly in the treatment of the individual syncategorems (cf. ibid. p. 385). William of Sherwood, for instance, in his *Syncategoremata* treatise describes syncategorems as "determinations of principal parts [=categorems] insofar as they are subjects or predicates" (Kretzmann, 1968, p. 15). Syncategorems are thus not characterized in terms of any notion of consignification, but rather by their role as specifying how the predicate is to be predicated of the subject or the subject subjected to the predicate. Thus, the quantifier 'every' specifies how the subject is to be taken as subject of the predicate, namely that it is "universally subjected to the predicate" (ibid. p. 17); and the modal adverb 'necessarily' specifies how the predicate is to be taken as predicate of the subject, namely that its composition with the subject is necessary (ibid. p. 101). William moreover distinguishes between categorematic and syncategorematic uses of the same word, and at least in some cases (such as 'all' and the numerical quantifiers) this distinction comes down to whether the word is to be considered as part of the subject or predicate, or whether it modifies them along the lines indicated for 'all' and 'necessarily'. But it was not part of William's characterization that those words are syncategorems which cannot function by themselves as subject or predicate. This characterization, which is implicit in the earlier tradition from Plutarch to Priscian, seems to appear again only in the 14th century; it is found expressly in Albert of Saxony's *Logic* I.3:

> a categorem is said to be what, taken significatively, can be a subject or a predicate. . . a syncategorem is said to be what, taken significatively, cannot be the subject or the predicate[126]

Buridan (14th century) in his *Treatise on Consequences* I.7 connects syncategorems with the notion of form of the proposition. Having explained the notions of formal and material consequence, Buridan remarks that he must add "what we take to be the form of a consequence or proposition and what matter." He continues

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[125]Similar glosses are given in the logic of William of Sherwood (Kretzmann, 1966, p. 24) and in the *Syncategoremata* treatise of Henry of Ghent (Braakhuis, 1979, p. 351).

[126]Albert von Sachsen (2010, p. 23): "Terminus categorematicus dicitur, qui significative acceptus postest esse subiectum vel praedicatum vel pars subiecti vel pars praedicati propositionis categoricae. . . Sed terminus syncategorematicus dicitur, qui significative acceptus non posse esse subiectum vel praedicatum vel pars subiecti vel pars praedicati propositionis categoricae. . ."

> by the matter of a proposition or consequence we understand the
> purely categorematic terms, namely the subjects and predicates, as
> distinguished from the syncategorematic terms adjoined to them,
> by which they are connected or negated or distributed or deter-
> mined to some particular manner of supposition; but we say that
> everything else pertains to form.[127]

Thus Buridan identifies the matter of a proposition with "the purely categorematic
terms," and holds that the syncategorematic words "pertain" to form. From the
ensuing discussion it appears that what he means by this pertaining is that the syn-
categorems contribute to determining the form of the proposition.[128] From the same
discussion it is also clear that more factors contribute to determining this form, in
particular, the order of the syncategorems and the possible relation of the categorems
to each other (e.g. repetition of a term). Similar notions of the form and matter
of a proposition are found in Alexander of Aphrodisias's commentary on the *Prior
Analytics* (2nd–3rd century AD).[129] At the opening of *APr* I.2 Aristotle had said
(25^{a}1–5):

> every proposition states either that something belongs or that it
> belongs of necessity or that it may belong, and of these some are
> affirmative, others negative,..., and again of the affirmative and
> negative propositions some are universal, others particular, and
> others indeterminate...

Alexander calls the property of being affirmative or negative the proposition's quality
and its property of being universal, particular, or indeterminate its quantity (*in APr*
11,29–34);[130] the property of stating that something belongs, or belongs of necessity,
or that it may belong, Alexander calls the mode of the proposition (*in APr* 26,25–
28,30). Commenting on the quoted passage Alexander notes that "there will be in
all three times six propositions differing from one another in form" (*in APr* 27,20–
21). Thus he holds that the proposition's quantity, quality, and mode all contribute
to the form of a proposition, in the sense that a difference in one of these yields a
difference in form. Alexander moreover speaks quite freely of terms as the matter of a

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[127]Buridan (1976, p. 30): "Per materiam propositionis aut consequentiae intelligimus terminos pure cate-
gorematicos, scilicet subiecta et praedicata, circumscriptis syncategorematicis sibi appositis, per quae ipsa
coniunguntur aut negantur aut distribuuntur vel ad certum modum suppositionis trahuntur; sed ad formam
pertinere dicimus totum residuum."

[128]For a helpful discussion, see Moody (1953, pp. 16–18).

[129]See Lee (1984, pp. 37–44) and Barnes (1990, esp. pp. 39–55).

[130]This terminology is also found in Apuleius (Londrey and Johansen, 1987, p. 82/83–84/85).

proposition. For instance, Aristotle is said to use "letters in his exposition in order to indicate to us that the conclusions do not depend on the matter" (*in APr* 53,29).[131]

A final characteristic of syncategorems that will be relevant for the following is their role as connectors. It was of course part of the definition of the conjunction that it conjoins other parts of speech, but, discussing the relation of categorems to syncategorems, Ammonius suggests that all syncategorems—not only conjunctions— conjoin other parts of speech; conjunctions, articles, prepositions, "and even adverbs" (*in Int* 13,1–3)

> are useful for combining and constructing the parts of speech with
> one another, just as a bond is useful for adding unity to things
> bound and glue to the things held together by it.

This view, and especially the comparison of the syncategorems with glue, is used or mentioned by several philosophers and grammarians in Antiquity.[132] But the characteristic of having as their main function the binding of other parts of speech was, as far as I know, never taken to define syncategorems, neither in Antiquity nor in the Middle Ages. It, or something very close to it, was, however, used by Locke in defining what he called particles. This group of words corresponds more or less to the syncategorems, for it includes the copula as well as prepositions and conjunctions. Locke introduced the notion thus (*Essay* III.vii.1):

> Besides Words, which are names of *Ideas* in the Mind, there are a
> great many others that are made use of, to signify the *connexion*
> that the Mind gives to *Ideas, or Propositions, one with another.*

So the distinction here is between words that signify ideas[133] and words that signify connections established by the mind of ideas or propositions. It is then worth mentioning that in the *Port-Royal* grammar of Arnauld and Lancelot (1676) a similar

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[131]From many, perhaps most, of the relevant passages it appears that for Alexander hylomorphism applies not at the level of the proposition, but at the level of the syllogism; so for instance at the often quoted *in APr* 6,26–28: "The figures are like a sort of common matrix (*tupos tis koinos*)—by fitting matter into them, it is possible to mould the same form in different sorts of matter." But we have seen that Alexander also talks of the form of a proposition; and from *in APr* 36,2–9 it is likewise clear that terms may be thought of as the matter of a proposition.

[132]Besides Ammonius *in Int* 12,25–13,6, see Dexippus *in Cat* 32,17–33,8 and the corresponding passage in Simplicius *in Cat* 64,18–65,2. See moreover the passage from Apuleius quoted in footnote 121 above. Plutarch used a different simile, saying that syncategorems contribute to speech "as salt does to a dish of food and water to a barley-cake" (1010C). For grammatical references, see *GG* I.3 515,19ff. and *GL* II 551,18.

[133]E.g. *Essay* III.ii.2: "*Words in their primary or immediate Signification, stand for nothing, but the* Ideas *in the Mind of him that uses them.*"

distinction led to quite another division of the parts of speech. There, words signifying "objects of thought" are distinguished from words signifying the "form and manner of thought" (p. 30). The former class is associated with the first operation of the mind in traditional logic, the act of conceiving, while the latter class is associated with the second operation, the act of judging (pp. 26–30). Since the verb is seen as primarily signifying affirmation (p. 101), it is placed in the latter class together with conjunction, which signifies the operation of the mind that joins or disjoins or negates propositions, considering them absolutely or conditionally (p. 151);[134] to this group interjections belong as well, for an interjection is a word signifying (naturally rather than by convention) "the movements of our soul"(p. 153). The preposition, on the other hand, is not placed together with the conjunction, for it signifies an objective relation which itself is an object of thought (p. 88),[135] and so belongs to the former group together with the noun, pronoun, and participle. In this group Arnauld and Lancelot also include the adverb, which apparently is merely an abbreviation of a prepositional phrase, as in the equation X-ly $=$ with X-ness (p. 93); as well as the article, for it merely specifies the meaning of the noun (p. 52). In other words, for Arnauld and Lancelot the categorematic parts of speech, those that are "names of ideas in the mind," are noun, pronoun, participle, article, preposition, and adverb; while the syncategorematic parts of speech, those that "signify connexion," are verb, conjunction, and interjection.

5. Kantian themes

The discussion of syncategorems in the previous section may shed light on the relation of Aristotle's to Kant's categories. One can say that Kant's categories stand to syncategorems as Aristotle's categories stand to categorems. Like syncategorems, Kant's categories are associated with the form of a proposition and with the notion of connection; like categorems, Aristotle's categories are associated with the matter of a proposition and what is connected by the syncategorems. In a formula: Kant's categories synthesize what are categorized by Aristotle's categories.

5.1. Kant's table of categories. According to Kant, his table of judgement provides "the clue to the discovery" of the table of categories (the latter can be found in Appendix 2 on page 66 below). The elements of the table of judgement are first

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[134]This is a slight distortion of the truth, since conjunctions at the cited place are said to signify "l'operation mesme de nostre esprit, qui joint, ou disjoint les choses, qui les nie, qui les considere absolument, ou avec condition"; so it is not propositions, but things, which are joined or disjoined, etc. by conjunctions.

[135]"les Cas & les Propositions avoient esté inventez pour le mesme usage, qui est de marquer les rapports que les choses ont les unes aux autres."

introduced as "functions of the understanding (in judging)" and "moments of thinking (in judging)" (A70/B95ff.), though Kant also speaks of these items as forms of judgement.[136] These functions or moments or forms, of which there are twelve in total, are placed in four groups of three under the headings of 'quantity', 'quality', 'relation', and 'modality'.[137] Under the heading of 'quality', for instance, one finds the forms of general, particular, and singular, and under the heading of 'relation' the forms of categorical, hypothetical, and disjunctive. As the study of Tonelli (1966) shows, all of Kant's twelve forms of judgement were recognized in logic books of the time, indeed most of them are part of Aristotelian syllogistics; but the precise combination assumed by Kant is apparently original, as is the idea of listing them in a table.[138]

The argument that the table of judgement can serve to uncover the table of categories is roughly as follows. The categories are primitive pure concepts; concepts are the business of the understanding; being pure, the categories must therefore somehow lie in the understanding in advance of all experience, and being primitive, they are not derived from other concepts; the categories are *Stammbegriffe* (A81/B107) or *Elementarbegriffe* (A64/B89, *Prolegomena*, § 39, p. 323). According to Kant, the exercise of the understanding is exhausted by its exercise in judgement,[139] hence we can discover the categories only by paying attention to the notion of judgement itself; not by paying attention to the possible terms of a judgement since these in general have an empirical origin, but to the forms of judgement, or to the "functions of the understanding" by means of which the terms of the judgement are unified.[140] In fact,

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[136]See, for instance, *Prolegomena* § 22 (p. 304). In another context (A266/B322) Kant reports that, according to logicians, the form of a judgement is the relation in it by means of the copula of the "given concepts."

[137]As we have seen above, the use of 'quantity' and 'quality' for forms of judgement can be traced back at least to the 2nd century AD, being present in both Alexander of Aphrodisias and Apuleis; Alexander also speaks of the *tropos* of a proposition as its stating that "something belongs or that it belongs of necessity or that it may belong," and 'mode' is just the translation of *tropos* in this sense. What Kant calls the relation of a judgement (which name is not found before Kant, cf. Tonelli 1966, p. 151) was called its "substance" by William of Sherwood (Kretzmann, 1966, pp. 27–29).

[138]Tonelli (1966, p. 140) reprints a table found in a logic of a certain Boehm, published in 1749, but this has a very different structure from Kant's table. As Kneale and Kneale (1962, p. 356) point out, Kant's tabulation is confusing. In syllogistics each proposition has a quantity, a quality, and a modality, but that is no longer so when one includes conditional and other complex judgements: what, for instance, is a negative hypothetical judgement?

[139]A69/B94: "Wir können aber alle Handlungen des Verstandes auf Urteile zurückführen, so daß der Verstand überhaupt als ein Vermögen zu Urteilen vorgestellt werden kann." These acts of the understanding include apart from judging itself what is traditionally known as simple apprehension, and reasoning (cf. footnote 81 above). For a detailed explication of Kant's argument as set out in the surrounding text, see Wolff (1995, esp. pp. 87–110).

[140]Cf. A78/B104: "Aber nicht die Vorstellungen [∼terms], sondern die reine Synthesis der Vorstellungen auf Begriffe zu bringen, lehrt die transz. Logik."

the categories are the concepts derived from the unity that these functions of the understanding bring to a manifold of intuition.[141]

Kant famously concludes (A79/B105) that

> In this manner there arise just as many pure concepts of the understanding, which relate *a priori* to objects of intuition, as there in the previous table were logical functions in all possible judgements.[142]

Not only do the categories and the forms of judgement have the same number, as Kant states here, but their tables have a similar construction: the categories are divided into the same four headings with three items under each standing in a one-one correlation with items of the table of judgements. Precisely how the forms of judgement and the categories relate is, however, a complicated question. On the one hand there is the statement of the complete coincidence of the categories with the "logical functions of thinking," that is, the forms of judgement (B159). On the other hand there is the statement that the categories require apart from these logical functions of thinking some aspect of sensibility (the so-called "schemata"), for without that we do not yet have concepts (A245). But to get into the details of all of this would only take us off track.[143]

Following the table of categories Kant glosses 'category' as "original pure concept of synthesis" (A80/B106); a few pages earlier he had described a category as a "pure synthesis generally represented" (A78/B104). This hints at the fundamental role played by the categories in Kant's critical epistemology: from the Transcendental Deduction (especially in the B-edition) and the System of Principles it emerges that the categories are what primarily bring about connection and unity among our representations, thereby making experience (*Erfahrung*) possible. Such a conception of the categories, as "conditions for the possibility of experience" (e.g. A94/B126), indeed as the "originator" (*Urheber*) of experience (B127), is of course not to be found in Aristotle, nor in any other doctrine of categories that we shall deal with in this dissertation, but is a peculiarity of Kant's doctrine.

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[141]A79/B104–105: "Dieselbe Funktion, welche den verschiedenen Vorstellungen in einem Urteile Einheit gibt, die gibt auch der bloßen Synthesis verschiedener Vorstellungen in einer Anschauung Einheit, welche, allgemein ausgedruck, der reine Verstandesbegriff heißt." For a helpful discussion of this passage, see Allison (2004, pp. 152–156).

[142]"Auf solche Weise entspringen gerade so viel reine Verstandesbegriffe, welche a priori auf Gegenstände der Anschauung überhaupt gehen, als es in der vorigen Tafel logische Funktionen in allen möglichen Urteilen gab: denn der Verstand ist durch gedachte Funktionen völlig erschöpft, und sein Vermögen dadurch gänzlich ausgemessen."

[143]One relevant distinction worth mentioning, in effect made by Kant at A245, is that between pure and schematized category, for which see, for instance, Paton (1936, vol. 1, pp. 260–261).

Above we saw that syncategorems are described both as pertaining to form in contrast to the matter of a proposition, and as signifying a connection by the mind of ideas signified by categorems. The foregoing shows that these two characteristics also fit Kant's categories: they stand in an intimate relationship with the forms of judgement and are indeed themselves described as "forms of thought" (*Gedankenformen*, B150, B305); and they serve to connect and unify our representations. Both of these characteristics, being the form of thought and what unifies it, are alluded to when Kant calls the categories "the mere form of connection as it were" of experience (*Prolegomena* § 39, p. 323). A syncategorem was, however, also described as what cannot by itself be the term of a syllogistic proposition. Hence, according to our interpretation of what falls under Aristotle's categories, syncategorems are precisely those elements of a syllogistic proposition that are not categorized. But then we see that Kant and Aristotle must have been led by quite different motives. For if we consider a propositional schema of modal syllogistics, such as 'all A are possibly B', and ask which elements of this proposition are of relevance to the doctrine of categories, then we shall get directly opposite answers according as to whether we assume Aristotle's or Kant's doctrine. According to Aristotle's doctrine it is the terms A and B that are of relevance to category theory, for these are then the items categorized. According to Kant's doctrine, however, it is all the other elements that are of relevance, namely the universal quantity, the affirmative quality, the categorical relation, and the problematic modality, for these correspond to the categories. Thus the locus of the proposition from the point of view of Kant's doctrine is the complement of its locus from the point of view of Aristotle's doctrine.

This complementarity of the two doctrines may help to explain the difficulty in answering in the case of Kant the questions we posed in sections 1 and 2 regarding Aristotle's categories. What are the items categorized by Kant's categories? They are said to be concepts of objects *überhaupt* (B128, A242, A290/346), so one could perhaps say, quite straightforwardly, that it is objects which fall under the categories. But the main role of the categories is to bring synthetic unity to a manifold of intuition, and that happens when such a manifold is brought under one or more of the categories. Hence it seems that one could equally well say that it is manifolds of intuition that fall under the categories; but a manifold of intuition in the relevant sense is not yet an object, indeed it is an object only when subsumed under one or more categories (cf. A104–105, B137). Matters do not get more tractable when considering the individual categories. I would not know what to say to the question of which items fall under the category of plurality (*Vielheit*); or under this category rather than under the category of totality (*Allheit*); or under the category of negation? Under each of

Kant's categories of relation there would seem to fall not single items, but rather pairs or even greater pluralities of items. That is clear enough for the categories of cause and effect, and of community, but even the category of substance is not one under which single items fall, since Kant's category is in fact that of *substance and accident*, corresponding to the subject and predicate of a categorical judgement (cf. B128–129). The categories of modality are said to express the relation of a concept to the capacity for knowledge (*Erkenntnisvermögen*), and not help determining the object itself (A219/B266); so these would seem to be modifications of concepts rather than concepts themselves.

With no clear answer to the question of what the items categorized are according to Kant's doctrine, it is not easy either to characterize the generality of Kant's categories. They are conditions for the possibility of thought of objects—that may be taken to entail high generality, since the categories must then be involved somehow in *all* thought of objects; but it is not a description of the kind of generality that pertains to them as concepts. We should probably want to say that this is a formal kind of generality, for the categories are called the intellectual form of experience (A310/B367) and contrasted with its matter (cf. A86/B118). In section 6.2 of chapter 2 below we shall consider a notion of generality, or rather formality, that may seem pertinent to Kant's categories. But that, as we shall see, is a kind of generality to be explained by analogy with the relation of a constant term to a variable, an explanation which hardly is adequate in the case of Kant's categories: what would be a variable corresponding to the category of negation, or to the category of existence and non-existence?

On the basis of Kant's logical doctrine of concepts—in particular the doctrine of the "extension and intension" of concepts[144]—and some remarks at the end of the Amphiboly of Concepts of Reflection (A290–291/B346–348), Tolley (2012, pp. 433–440) has suggested that we understand the generality of the categories in terms of extension and intension. Being of high generality, the categories are concepts of minor intension but vast extension. In particular, the categories are conceived to have only the concept of an object *überhaupt* and a very few other concepts in their intension. Indeed, the suggestion is that the categories are reached by a number of divisions

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[144]The doctrine is found in the Port-Royal *Logique* (I.vii): "J'appelle *comprehension* de l'idée, les attributs qu'elle enferme en soi, & qu'on ne lui peut ôter sans la détruire...J'appelle *étendue* de l'idée, les sujets à qui cette idée convenient." Kant employs *Inhalt* for the former and *Umfang* or *Sphäre* for the latter (cf. *Jäsche Logik* § 8). Hamilton in his *Lectures on Logic* introduced 'intension' instead of 'comprehension' (cf. Kneale and Kneale 1962, p. 318; *OED*), a word that after Carnap (1947) has taken on a different significance in logic. For the doctrine of the extension and intension of concepts in Kant, see De Jong (1995, pp. 622–627).

from the concept of an object *überhaupt*, where a division must consist in adding marks to the intension of a concept so as to obtain a more specific concept.[145] As there are $12 = 2 \cdot 2 \cdot 3$ categories, they should be reached after three such divisions, and one of these divisions would need to be trichotomous; that would presumably be the division of each of the four headings of quantity, quality, relation, and modality into the three categories under each. Kant calls the categories of quantity and quality 'mathematical' and those of relation and modality 'dynamical' (B110), and that could perhaps be taken to correspond to the first division (cf. Tolley ibid. fn. 47).

I am rather sceptical of this suggestion. Firstly, it owes us an an account of the subsumption of items under the categories. As long as it is unclear what it means for an item to fall under a category—and whether this means the same for all the categories—it is also unclear what it means to talk of the extension of a category. One could insist that the extension of a concept, according to Kant, consists of the concepts contained under it, while the complications discussed above concern what it means for an individual to fall under a category; these are two quite different things for Kant, as he did not accept individual concepts. If, however, an individual is subsumed under the concept 'man', then it is presumably also subsumed under all the concepts in the intension of 'man', and the suggestion was that in the intension of any concept there will be one or more categories. Hence, if one or more categories belong to the intension of any concept, then we should need an account of the subsumption of individuals under the categories. Secondly, a question Duns Scotus had asked concerning attempts to derive Aristotle's categories by division (a topic to be discussed in the next section) now arises with regards to Kant's categories: when the categories have several other concepts above them in the hierarchy of extension and intension, why is it that they are of such special interest; why are precisely the concepts reached after three divisions of such importance?

Another token of the complementarity of Aristotle's and Kant's notions of category lies in their relation to the principle of mutual exclusion discussed above, namely the principle that the same item does not fall under two categories. We saw that, although Aristotle denies this principle, it is nevertheless natural to assume it for his

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[145]Both De Jong (1995, p. 624) and Tolley (2012, p. 434) connect the doctrine of extension and intension of concepts to the Tree of Porphyry. Indeed, according to the *Jäsche Logik* §§8–10, a concept A in the intension of another concept B, is called a genus of B. Since Porphyrian differentiae as well as genera belong to the intension of a concept, this conception of genus breaks with the Porphyrian doctrine, for it requires us to identify genera and differentiae. It is not clear to me that concepts ordered according to their extension and intension will in fact form a tree: directly above any concept apart from a highest there will be more than one concept; for instance directly above man there will be animal and rational; hence there is no unique way upwards in the ordering; but that is what characterizes a tree.

categories. In the case of Kant's categories, however, it is more natural to deny than to accept the principle. Already the table of categories suggests that an object is determined with respect to one category under each of the four headings of quantity, quality, relation, and modality. That is also the picture emerging from the System of Principles, where each trio of principles deals with a determination of the object not settled by any of the other trios. Paton (1936, vol. 1, pp. 226, 303), in fact, insists that the categories are universal concepts, that is, concepts under which all objects fall, hence conversely, that each object falls under all the categories.

5.2. Generating the categories. Kant famously objected that Aristotle in his conception of the categories followed no principle, but "amassed them as he stumbled upon them."[146] Without such a principle the list of categories remains a mere "rhapsody" and not a system on which one can build philosophical theory.[147] In Kant this demand for a principle of generation is coupled with a demand for a proof of completeness of the list of categories, a proof that the list contains all and only the categories. As we saw in section 2.1.1, Aristotle did offer a proof of completeness for his list or predicables, but we do not find anything similar in his writings for his list of categories.

5.2.1. *Completeness.* Kant, by contrast, held that his own derivation of the categories from the forms of judgement showed the former to be complete. The parallelism between the forms of judgement and the categories "provides a rule according to which the place of each concept of the understanding and the completeness of all of them together can be determined *a priori*" (A67/B92). Kant thus bases the assertion of the completeness of his table of categories on the assumption that his table of judgement is complete. The question then arises whether this assumption is correct. Since it is difficult to find in Kant's text any principle governing the construction of the table of judgement, it is natural to think that it was simply assembled by Kant from what he had found in logic textbooks of the time, with no guarantee that the outcome should be complete. This thought has been challenged in the classic work of Reich (1948) and in a more recent study of Wolff (1995). Reich argued that a principle for the construction of the table of judgement can be found in the "synthetic unity of apperception" and the definition of judgement following in its wake in the Transcendental Deduction of the B edition (B141). For Wolff the key to completeness is Kant's notion of function, defined in the section of the *Critique* where the table of judgement

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[146]:A81/B107): "Es war ein eines scharfsinnigen Mannes würdiger Anschlag des Aristoteles, diese Grundbegriffe aufzusuchen. Da er aber kein Principium hatte, so raffte er sie auf, wie sie ihm aufstießen, und trieb deren zuerst zehn auf, die er Kategorien (Prädikamente) nannte."

[147]This point is emphasized in the *Prolegomena* § 39 (pp. 322–326).

is given, namely as "the unity of the action of ordering different representations under a common one" (A68/B93). Kant does, after all, say that the four headings in the table of judgement correspond to four "functions of the understanding" (A70/B95). A more detailed account of the arguments of Reich and Wolff lies outside the scope of this dissertation.

It is perhaps not so well known that Kant's criticism of Aristotle had ancient forerunners. Porphyry remarks in his commentary on the *Categories* that not everyone had accepted Aristotle's list as the list of categories or highest genera (*in Cat* 86,31):

> There are three sorts of objections: some object that his list contains too many items, some that it contains too few, and others that he has included some genera instead of others.

No attempt is found in Porphyry's text to refute these objections,[148] but Simplicius in his more extensive discussion of the problem of completeness suggests that one may derive the categories by a division (*diairesis*) in the sense of Plato (cf. section 2.2.1). Simplicius starts with the notion of beings (*ta onta*) and obtains the ten categories by successively adding differentiae (*in Cat* 67,26ff.). A similar idea is found in Olympiodorus (*in Cat* 54,4ff.) and Elias (*in Cat* 159,9ff.), although their division yields only the four categories of substance, quantity, quality, and relation, while the other six categories are obtained from these four by composition.[149]

Simplicius introduces his division in a dubitative tone, and it can indeed be questioned how Aristotelian it is, for it seems to render being, namely the top node of the division, a genus. Aristotle had, however, argued that being is not a genus (*Met* B.3 998^{b}21): the divisive differentiae of a genus do not fall under it as species (cf. *Top* 122^{b}20–23); hence if being were a genus its divisive differentiae, not falling under the genus of being, would not have being, which Aristotle assumes cannot be the case.[150] In the High Middle Ages the question of the completeness of Aristotle's list of categories became known as the question of *sufficientia praedicamentorum*, and was commented on by a number of authors.[151] Among these was Thomas Aquinas, who

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[148]The editor Busse suggests that there may be a lacuna at the place in the text (namely after the quoted passage) where such a refutation could have been found.

[149]Brentano (1862, p. 179) cites a passage of Ammonius where one also finds this idea of obtaining the six latter categories by composition, but I have not been able to locate this passage in the *CAG* edition of Ammonius's commentary on the *Categories*.

[150]At *Top* IV.1 *passim*; IV.6 127^{a}26–38 Aristotle considers both being (*to on*), unity (*to hen*), and object of belief (*to doxaston*, 121^{a}22) as candidate genera and species, but he does so in the context of examples, and these need not reflect Aristotelian doctrine (cf. *SE* 178^{a}19 where 'to see' is called a passivity, while according to *DA* II.5 seeing is precisely not a passivity (esp. 418^{a}2)).

[151]For an overview, see e.g. Bos and van der Helm, A. C. (1998) and Pini (2003), as well as Pini (2002, pp. 185–189).

before responding to the question in his commentary on *Met* Δ.7 (*in Met* Δ lect. 9 nn. 889–894) repeats Aristotle's argument that being is not a genus. This may well have been an implicit criticism of Simplicius's suggested derivation;[152] his own division, in any event, is not one of being, but rather one of kinds of predication.[153]

What is perhaps the most sophisticated derivation of Aristotle's categories by division, hence the most sophisticated derivation in the tradition going back at least to Simplicius, is that offered by Brentano (1862, esp. 144–178). Brentano gives a division terminating in Aristotle's categories which not only can be reconciled with the doctrine that being is not a genus, but which also purports to be through and through Aristotelian, each branching being justified by reference to Aristotelian texts and doctrines (mainly taken from the *Metaphysics*).[154] An idea of considerable importance to Brentano's division is that of analogical unity. The unity of a notion may be of different sorts. In particular, a notion may have a weaker sort of unity than that possessed by a genus, namely what Brentano, following Aristotle *Met* Δ.6 1016[b]31ff., calls analogical unity. According to Brentano, this is the sort of unity that the notion of healthiness has in its application to men as well as to their appearance, their diet, and their habits. A healthy appearance is indicative of a man's good health, while a healthy diet and healthy habits are productive and preservative of it. In each case 'healthy' means something else, so the word is homonymous, but all of its various senses are related to the idea of a man's good health, and this relation furnishes the notion of healthiness with unity, namely analogical unity, which it preserves through all of its applications. Aristotle famously argues that the same holds for 'being' (e.g. *Met* Γ.2): this term is homonymous across the categories, but all of its senses are in some way related to the notion of substance. Being is not a genus, but it has

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[152]Simplicius's commentary on the *Categories* was translated into Latin by William of Moerbeke in 1266; it is reasonable to assume that Thomas read this work, since he apparently refers to it in the *Summa Theologica* (cf. McMahon, 1981, p. 86); he might have done so by 1268, when he begun writing the commentary on the *Metaphysics* (cf. Bos and van der Helm, A. C., 1998, p. 187). Radulphus Brito, writing around 1300, claims that his division agrees with that of Simplicius ("ista sufficientia concordat cum sufficienta Simplicii," McMahon, 1981, p. 91); this is not quite right, for the two divisions disagree already in their first branching: where Simplicius divides *ta onta* into "existences" (*hyparxeis*) and activities (*energeiai*), Radulphus divides *ens* into *ens per se substistens* and *ens in alio*; the latter corresponds rather to Simplicius's division of existences into those that have their being *per se* (*kath heautos echousi to einai*) and those that come to be in others (*en allois hyphestēkasin*).

[153]Cf. Wippel (1987) for more details.

[154]See Brentano (1862, p. 177) for an overview of passages justifying each branching. Brentano (ibid. pp. 147–148) even suggests that Aristotle himself would have known of the possibility of this division. If one accepts the reconstruction of the development of Aristotle's conception of the homonymy of 'being' offered by Owen (1960), or indeed simply that the *Categories* or the *Topics* were written before most of the *Metaphysics*, then the most one can say is that Aristotle saw the possibility of this division only after he had conceived of the categories.

analogical unity, and according to Brentano, so do all the various notions that feature in his division above the categories, such as the notions of accidence (*symbebēkota*) and passive state (*pathē*).

Brentano's division is therefore compatible with the doctrine that being is not a genus. The division is not one from a notion enjoying generic unity, but one from a notion enjoying analogical unity. We reach genera in the division only when we reach the categories. Brentano therefore has a response to the objection of Duns Scotus, already mentioned, that no derivation of the categories by division is possible, since any such division shows that the categories are not the most general terms, the elements higher up in the tree being more general:[155] according to Brentano these higher nodes are not themselves genera; it is only with the categories that the division yields genera. Brentano's division is, moreover, not affected by an objection raised by Bonitz (1853, p. 645): according to *APo* I.7 a demonstration presupposes an underlying genus, and in the case of a derivation of the categories that genus will have to be being; but being is not a genus; hence no derivation of the categories, be it by division or otherwise, can be Aristotelian. However, it is sufficient for Aristotle that the underlying domain has analogical unity: the case of ontology shows this, for its domain is being *qua* being, and that is a notion having only analogical unity (cf. Brentano, 1862, pp. 145–147).

A few remarks may be made here on the recent work of Studtmann (2008b), who purports to show by means of division that "Aristotle's categorial scheme is derivable from his hylomorphic ontology" (p. 15, repeated at p. 141).[156] As far as derivations

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[155]This is one of Duns Scotus's arguments in the following passage from the *Questions on Metaphysics* V q. 5–6, quoted by Pini (2002, p. 188): "Notae: variae sunt viae divisivae ostendendi sufficientiam praedicamentorum, quae videntur dupliciter peccare. Primo, quia ostendunt oppositum propositi, scilicet quod divisio entis in haec decem non sit prima. Si enim prius fiat in ens per se et in ens non per se, et ultra unum membrum subdividatur vel ambo: aut quaelibet divisio erit tantum nominis aequivoci, in aequivocata, quod nihil est probare – quia nomina sunt ad placitum; aut aliquo istorum decem erit conceptus communior immediatior enti, et ita ens non immediate dividitur in decem. Exemplum patet: ponendo quod per divisiones multas subordinatas in genere substantiae tandem devenitur ad decem species specialissimas, illae non primo dividerent substantiam. Secundo, quia omnes illae viae divisivae non probant. Oportet enim probare quod divisum sic dividitur, et praecise sic, et hoc ad propositum, scilicet quod dividentia constituant generalissima."

[156]Shields (2007, p. 168) writes that "an older tradition sought… to show how the theory of categories could in fact be derived from hylomorphism," and (p. 170) that "no genuine attempt has been made since the Middle Ages" at doing so, but he provides no references. The section in question, *Generating the categories* (pp. 159–172), seems, however, to rely heavily on the useful presentation of this topic in Studtmann (2008a), to which Shields does refer. Studtmann there cites a passage from Thomas' derivation (*in Met* Δ lect. 9 n. 892) where it is said that if a predicate is taken as being in a subject essentially and absolutely and as flowing from its matter (*ut consequens materiam*), then it is a predicate of quantity; and likewise for form and quality. This is part of Thomas' division, but only a part of it, namely that part yielding the categories of quantity and quality. There is no indication in Thomas' text that all of the categories can be derived

are concerned, however, what this work actually accomplishes is at most to show how the two categories of quality and quantity each may be divided into various species and subspecies by means of a certain understanding of the notions of form and matter developed by Studtmann in the first part of his book. That is, instead of deriving the categories of quantity and quality by division from some other notions, Studtmann derives by means of a certain understanding of hylomorphism various species falling under the categories of quantity and quality. But such a derivation of the various species of a category is not a derivation of the category in the relevant sense. We want to be shown a path taking us from certain notions—which in this case would be form and matter—to the categories, not a path taking us from the categories to various terms falling under this category. And even if Studtmann had given a derivation of the categories of quantity and quality from the notions of form and matter, one could still not talk of a derivation of the categories, for the whole point of such a derivation is to show that Aristotle's ten categories are *all* and only the categories. A derivation only of quantity and quality suggests that there are no other categories than these two, and so jeopardizes the whole project of showing the completeness of Aristotle's list.

5.2.2. *Derivation without completeness.* A derivation of the list of categories by means of division will, to the extent that it succeeds, also show the completeness of the list: being the result of a division from a universal concept or quasi-concept, they exhaust conceptual space. Kant's primary objection to Aristotle's list was, however, not that it came with no proof of completeness, but rather that it was not the outcome of an underlying principle. That proposing such a principle need not mean providing a proof of completeness is clear from two ways of accounting for how Aristotle may first have conceived his categories. One account is associated with Trendelenburg, the other with several interpreters from Ockham to Ackrill.

Trendelenburg (1846, pp. 23–34) was perhaps the first to attempt to defend Aristotle against Kant's criticism.[157] Although Trendelenburg does nothing to show the completeness of Aristotle's list, he argues that it is an outcome of an analysis of grammar.[158] The categories are thus taken to correspond to various grammatical distinctions. Apart from pointing to the relevant grammatical distinctions and the

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from the notions of form and matter, and as far as I know, there is no older tradition of attempting such a derivation. (There is a tradition, manifest e.g. in Porphyry *Isag* 11.12–11.17, and perhaps going back to Aristotle (*Met* 1045^{a}14–^{b}7; cf. 1024^{b}8), of likening genus to matter and differentia to form, but that is something else.)

[157]Brentano (1862, p. 144) associates the problem of the "deduction" of the categories with Simplicius; as far as I can see, he never mentions Kant.

[158]Trendelenburg (1846, p. 33): "...dass die logischen Kategorien zunächst einen grammatischen Ursprung haben und dass sich der grammatische Leitfaden durch ihre Anwendung durchzieht."

correspondence reported in section 4.2 above, Trendelenburg supports his account by adducing a number of passages from the *Sophistical Refutations* (*SE* 166^{b}10ff.; ch. 22) that touch on the relation between the surface grammar of a word and its category. The point of several of these passages, however, is that the category of a term is not always indicated by surface grammar; hence, they cannot support the claim that the categories were conceived by reflection on surface grammar. Trendelenburg's more considered claim is therefore that only in the early stages of uncovering the categories did grammatical consideration play an important role, while "the content of the concept" led the way thereafter.[159] Trendelenburg offers two further lines of support for his interpretation.[160] Firstly (ibid. pp. 27–30), he argues that there is a close correspondence between the grammatical notion of *ptōsis* and that of a category.[161] Secondly (ibid. pp. 30–33), he refers to the role that grammatical case plays in Aristotle's definition of the category of relation: a relative term always requires a genitive or dative for its completion.[162] It is difficult to find in these considerations any support for the grammatical origin of Aristotle's doctrine of categories; but we may indeed take them to support the more moderate contention that reflection on grammar played an important role at the initial stage of its conception.

According to Ockham (*Summa Logicae* I.41) and Ackrill (1963, pp. 78–79) and others[163] the categories correspond to questions that may be asked about a given primary substance, typically a man. To the question of *where* a man is, only a term from the category of where is appropriate; to the question of *when* a man is, only a term from the category of when is appropriate; to the question of *what* a man is, only a term from the category of substance—sometimes called 'what it is' (*ti esti*) by Aristotle—is appropriate.[164] This thesis thus gains support from the fact that

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[159]Cf. ibid. p. 25: "dass sich die Kategorien zunächst nach der Gestalt des Ausdrucks zurecht gefunden, sodann aber über diese hinaus den Inhalt des Begriffs verfolgen."

[160]For a critical discussion, see Bonitz (1853, pp. 626–640).

[161]Aristotle seems to have thought of all words derived from another (so-called "paronyms") as *ptōseis* of the parent word (*Cat* 1^{a}12–15). Thus a noun in an oblique case (*Int* 16^{b}1, *Poet* 1456^{b}19–21), verbs not in the present tense (*Int* 16^{b}7), as well as adverbs derived from adjectives, as 'justly' from 'just' (*Top* 106^{b}29–107^{a}2, 114^{a}33–36, 136^{b}15–32), are all *ptōseis*.

[162]Cf. *Cat* 6^{a}37: "We call relatives all such things as are said to be just what they are, of or than other things..." Here the "of or than other things" translates a genitive (*heterōn*), but Aristotle goes on to give examples where a dative complement is used (e.g. at 6^{b}9).

[163]For instance Gomperz (1909, p. 29), Gillespie (1925), and Ryle (1938).

[164]Thus in Ockham *Summa Logicae* I.41 (translated by Loux, 1974, p. 130):

> the distinction among the categories is taken from the distinction among interrogatives appropriate to substance or an individual substance. The different questions which can be asked about a substance can be answered by different simple terms, and a simple term falls under a category accordingly as it can be used to answer this or that question about substance.

the category names 'where' and 'when' (or the Greek words they translate) may serve as interrogatives, and that one of Aristotle's names for substance, *ti esti*, in the appropriate context means, What is it? It gains further support from the fact that the Greek, unlike the English, names for the categories of quantity and quality, and likewise the Greek name for the category of relatives, may serve as interrogatives. The names of the four last categories are all verbs in the infinitive; but they correspond naturally to questions one may ask of a substance, or at least of a man: what is he doing; what is he undergoing; what is his position; what does he wear (what is his habit)?

The suggestion is thus that Aristotle had, perhaps while developing the method for dialectic presented in the *Topics*, found occasion to distinguish these various questions, and thence ordered the appropriate answers into "classes of predicates" (*genē tōn katēgoriōn*).[165] A proof of completeness for the list of categories cannot be derived from this account, since there are interrogatives in Greek, such as 'how' (*pōs*), that do not correspond to any categories;[166] and, as we just saw, there are categories whose names do not correspond to interrogatives. But the account may perhaps support the claim that Aristotle followed a principle in constructing the list, hence that he did not merely "amass the categories as he stumbled upon them."

The category of relatives, however, shows that simply considering the questions that may be asked of a substance cannot quite have been Aristotle's procedure. For the question *pros ti;*, which we may translate as 'relative to what?', asked of Socrates cannot be answered with a relative term such as 'father' or 'husband'.[167] Terms in the category of relatives are not in general felicitous answers to the question, Relative to what? On the contrary, the predication of a relative term of a subject is a predication that prompts the question, Relative to what? To ask, Relative to what?, of Socrates makes little sense, but if we say that he is a husband, we may ask, Relative to what is he that, who is his wife? Socrates is a father; relative to what is he that, who is his son? The possibility of asking this question is characteristic of relatives. To the predications 'Socrates is a man' and 'Socrates is white', for instance, it does not make sense to ask, Relative to what is he that? But it does make sense if we predicate a relative of Socrates; indeed, it is then often called for. Hence, while the category of relatives may be taken to correspond to the question derived from its name, *pros ti*,

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[165]For this reading, see Gillespie (1925, esp. pp. 81 ff.). For a detailed argument that the *Categories* is to be read as a manual of dialectic, see Menn (1995).

[166]Recall from section 4.2 above that two of the Stoic categories were called *pōs echon* and *pros ti pōs echon*, employing precisely this interrogative/adverb.

[167]The same holds for the question *tinos;*, or *cuius?*, suggested by Ockham (ibid.).

the nature of this correspondence is not as that between, for instance, the categories of where and when and the questions derived from their names. In the latter case the categories may be viewed as the classes of possible answers to the question associated with the category, while the category of relatives has to be viewed as the class of predicates to the predication of which it makes sense to ask the question, Relative to what? The conjecture of Kahn (1978, p. 243) is therefore plausible, that reflection on interrogatives was only a part of what led Aristotle to distinguish ten categories, the sort of linguistic considerations emphasized by Trendelenburg perhaps being another motivation, and logical or ontological "intuition" a third.

Appendix 1: Aristotle's categories

English	Greek	Latin
substance	*ousia*	*substantia*
quantity	*poson*	*quantitas*
quality	*poion*	*qualitas*
relative	*pros ti*	*relatio*
when	*pou*	*quando*
where	*pote*	*ubi*
position	*keisthai*	*situs*
having	*echein*	*habitus*
doing	*poiein*	*actio*
affection	*paschein*	*passio*

Appendix 2: Kant's table of categories

Quantität

Einheit

Vielheit

Allheit

Qualität

Realität

Negation

Limitation

Relation

Inhärenz und Subsistenz

Kausalität und Dependenz

Gemeinschaft

Modalität

Möglichkeit – Unmöglichkeit

Dasein – Nichtsein

Notwendigkeit – Zufälligkeit