The Cambridge Companion to MEDIEVAL PHILOSOPHY

Edited by

A. S. McGrade

PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE
The Pitt Building, Trumpington Street, Cambridge, United Kingdom

CAMBRIDGE UNIVERSITY PRESS
The Edinburgh Building, Cambridge, CB2 2RU, UK
40 West 20th Street, New York, NY 10011-4211, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
Ruiz de Alarcón 13, 28014 Madrid, Spain
Dock House, The Waterfront, Cape Town 8001, South Africa

http://www.cambridge.org

© Cambridge University Press 2003

This book is in copyright. Subject to statutory exception
and to the provisions of relevant collective licensing agreements,
no reproduction of any part may take place without
the written permission of Cambridge University Press.

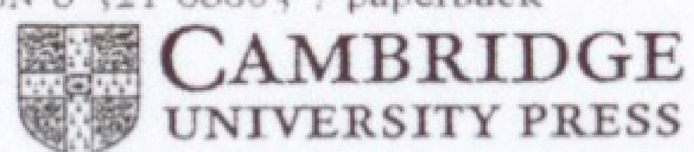
First published 2003
Reprinted 2004

Printed in the United Kingdom at the University Press, Cambridge

Typeface Trump Medieval 10/13 pt. *System* LaTeX 2ε [TB]

A catalogue record for this book is available from the British Library

ISBN 0 521 80603 8 hardback
ISBN 0 521 00063 7 paperback



3 Language and logic

It is impossible to overestimate the importance of the study of language and logic for the understanding of medieval philosophers and theologians. Many of the subjects discussed by grammarians and logicians are of interest in themselves and have an obvious relevance to theological and scientific problems, but at a deeper level, all the writing and thinking of the period is permeated by a technical vocabulary, techniques of analysis, and inferential strategies drawn from the basic training in the liberal arts that every medieval student received. The nature of this training reveals two important features of medieval education. On the one hand, thinkers focused on authoritative texts – the Bible, the works of Aristotle and Augustine, Priscian's *Institutiones grammaticae*, Peter Lombard's *Sentences* – and the attempt to reconcile and reinterpret these authorities lies behind many developments. On the other hand, the method of teaching was largely oral, and this influenced written expression in many ways, from the philosophical dialogues of Augustine and Anselm to the highly structured disputational presentation of Aquinas's *Summa theologiae*.

One cannot capture the richness and complexity of medieval theories of language and logic in a short chapter.[1] In what follows I shall first give a brief overview and then focus on a few principal themes.

SOURCES AND DEVELOPMENTS

The shape of the basic arts faculty curriculum was given by the seven liberal arts: the three linguistic arts of grammar, logic, and rhetoric, and the four quadrivial arts of arithmetic, geometry, astronomy, and music. This structure had first been fully set out by Augustine in his *De ordine*, where the liberal arts are presented as preparing the soul

for its orderly journey upward to the contemplation of intelligible things. The structure was taken up and handed on to later ages by Martianus Capella, in whose poem on the marriage of Mercury and Philology Mercury symbolized the double sense of the *Logos* as word and divine reason and Philology, the lover of *Logos*, personified the seven liberal arts.[2]

The chief text in grammar, Priscian's *Institutiones grammaticae*, was written in Constantinople during the first quarter of the sixth century. It was a lengthy systematic treatise particularly noteworthy for its semantic approach. That is, parts of speech were defined in terms of their meaning rather than by their function in a sentence. Another important text was the fourth-century *Ars maior* of Donatus, whose third book, the *Barbarismus*, was especially used for training in figures of speech, a topic ignored by Priscian. Once Priscian's work had entered the Carolingian curriculum, it became the subject of commentary, and in the twelfth century Peter Helias wrote his influential *Summa super Priscianum*, the first full *summa* on any subject. Helias's work signaled a change in the approach to grammar, since he classified parts of speech not so much in terms of their signification as in terms of the linguistic properties that constitute their *modi significandi* or modes of signification. At the same time, logicians took over the problems of reference and of different types of signification from the grammarians, and the training in grammar became less philosophical and more a training in general linguistics. The university curricula tended to pay most attention to *Priscianus minor*, the last two books of the *Institutiones*, which dealt with syntax, and Donatus was replaced by such newer teaching grammars in verse form as Alexander de Villa Dei's *Doctrinale* (*c.* 1199) and the *Graecismus* of Evrard de Béthune (*c.* 1210), both popular at European universities until the end of the Middle Ages.[3]

The second half of the thirteenth century saw a partial return to philosophical themes in grammar with the appearance of the speculative grammarians or *Modistae*.[4] They tried to present grammar on the model of an Aristotelian science, which meant that it had to deal with what is common to all languages. They found this commonality in the postulated parallelism between the modes of being of things (*modi essendi*), the modes of understanding in the mind (*modi intelligendi*), and the modes of signifying of words (*modi significandi*).

They were not, however, committed to the view that language mirrors the world, because once the intellect has formed modes of signifying, it can make various attributions. *Chimera* is a fictional term, but it is a substance word; *movement* signifies change and impermanence, but the word has the modes of signifying of any noun, namely, stability or permanence. Both the insistence on universality and the focus on modes of understanding led to a clear disassociation of speculative grammar from spoken language in the fourteenth century.

Logic is the linguistic art that underwent the most dramatic changes. In the early period the texts available were limited in number. They include Marius Victorinus on definitions, the *Categoriae decem*, a work wrongly attributed to Augustine, which was the most intensely studied logical work in the ninth and tenth centuries, and Augustine's own *De dialectica*, as well as discussions in such encyclopedists as Isidore of Seville. The works of Boethius are the most important. He seems to have been responsible for translating Aristotle's six works on logic into Latin, and all but the *Posterior Analytics* survive. He also translated Porphyry's *Isagoge*, an introduction to Aristotle's *Categories*. He wrote commentaries on some of Aristotle's logic, on Porphyry, and on the *Topics* of Cicero. In addition he composed monographs of his own on Division, on categorical syllogisms, on Topics, and on hypothetical syllogisms, that is, on conditional propositions and arguments built up from them. The work on Division was particularly influential.[5] By the end of the tenth century Gerbert of Aurillac was teaching Porphyry's *Isagoge*, Aristotle's *Categories* and *On Interpretation*, Cicero's *Topics*, and a good deal of Boethius in the cathedral school at Rheims. Twelfth-century masters used the same basic curriculum, which, with the addition of the *Liber sex principiorum* attributed to Gilbert of Poitiers, was soon to be known as the *logica vetus* or Old Logic.

From 1150 enormous changes took place. The rest of Aristotle's logical works, along with other texts, were recovered; and thinkers began to develop new areas of logic. Aristotle's *Topics* and *Sophistical Refutations* were known by the 1130s, and the entire *logica nova* or New Logic, including the *Prior* and *Posterior Analytics*, was known by 1159, when John of Salisbury referred to all four works in his *Metalogicon*. In the second half of the twelfth century people began to translate Arabic logic, including writings by Avicenna. In the

1230s several logic commentaries by Averroes were translated, though they were less successful than the Arabic works translated earlier. Some Greek commentators were also translated. These texts, given their number and advanced content, provided a full logic curriculum for an organized institution.

While the writings of Aristotle were always central to the logic curriculum and were the subject of numerous commentaries, there were matters that he did not discuss. This left room for a considerable number of new developments, all of which have their roots in the second half of the twelfth century. The most prominent is terminist logic, which includes supposition theory and its ramifications. Treatises on supposition theory deal with the reference of subject and predicate terms in propositions, and they have as a corollary the treatises on syncategoremata, which deal with all the other terms in propositions, including *every*, *not*, *and*, *except*, and so on. Three other important developments are found in treatises on insolubles or semantic paradoxes, on obligations or the rules one is obliged to follow in a certain kind of disputation, and on consequences or valid inferences. Another new form of writing is the comprehensive textbook. At least six survive from the thirteenth century, including those by William of Sherwood, Peter of Spain, and Roger Bacon. In the fourteenth century we find those by William of Ockham, John Buridan, and Albert of Saxony. Some universities, especially Oxford and Cambridge, preferred to use loose collections of brief treatises on various topics; a good example of such a collection is the *Logica parva* of Paul of Venice, who studied at Oxford.

All the new developments had ramifications beyond the treatises particularly devoted to them, but the new technique involving the analysis and solution of sophismata was particularly pervasive in medieval grammar and logic.[6] A sophisma sentence is a puzzle intended to introduce or illustrate a difficulty, a concept, or a general problem. Examples in logic include "Every phoenix exists," given that only one phoenix can exist at a time, and "Socrates is whiter than Plato begins to be white." Examples in grammar include "Love is a verb" and various sentences beginning with "proch dolor" (O the pain!). Here the problem concerns the mixture of an interjection and an ordinary noun, the one expressing pain in a natural way, the other referring to it in a conventional language. By the end of the twelfth century the sophisma was established in different genres of logical

and grammatical writing, which included special treatises devoted to sophismata. Typically, these treatises would start with a sophisma, and, using disputational techniques, show that the very same reasoning which supported a plausible thesis could also establish something implausible. The problem would then either be solved by appealing to grammatical or logical distinctions, or dissolved by showing that different truth-values were possible according to different senses of the sophisma sentence. These disputational techniques were employed in the oral training of students.

Other new developments were never the subject of special treatises. In order to understand medieval reflection on the nature and function of language and logic in general, and on the differences between spoken language and the language of thought, we have to look at a variety of philosophical and theological sources. I shall take up these general topics in the next two sections, before turning to some more specialized topics.

THE PURPOSE AND NATURE OF LANGUAGE AND LOGIC

Both language and logic were seen as having a primarily cognitive orientation, language having been formed to state the truth and logic to lead us from one truth to another. This orientation gave rise to a number of tensions that are particularly obvious in both Augustine and Aquinas. Augustine was skeptical about the human ability to convey truths through speech. As a professional rhetorician, he had a keen appreciation of the multifarious uses of language, as well as its dangers;[7] but he also argued in *The Teacher* that we must turn away from ordinary speech altogether in order to learn from Christ, who is at once the Inner Teacher and the Divine Word.

Aquinas was more sanguine about the role of speech. He noted that the proper function of language is to make known the truth by means of making known our concepts (*ST* IIaIIae, q.110, a. 1).[8] Speech is needed to fulfill the ends of social life, to communicate notions of what is harmful and useful, just and unjust, and society is founded on truth-telling. His primary notion of language, like that of the later *Modistae*, seems to have been of a rational, rule-governed system that could be studied in isolation from context and speaker intention and which concentrates on propositions as linguistic units that convey the information necessary for organized knowledge (*scientia*).

This view implies that significant utterance requires sentences that are neither syntactically nor semantically deviant, whose components are neatly lined up with the speaker's concepts, and whose end is the statement of truth. Other uses of language, such as invoking or summoning, questioning, ordering, and requesting or begging, should be left to rhetoric and poetry. Nonetheless, Aquinas paid some attention to the expressive function of speech. For instance, we praise a man not merely to let him know our good opinion of him but also to provoke him to better things and to induce others to have a good opinion of him, to reverence and imitate him (*ST* IIaIIae, q. 91, a. 1). In his discussion of the sacraments, he also recognized the factive or performative nature of speech ("I baptize you," "I pronounce you man and wife"). Most important of all, he paid close attention to the role of human intentions in compensating for slips of the tongue and other linguistic errors.

So far as logic is concerned, thinkers agreed that logic has to do with truth. As Augustine remarked (*De dialectica* [60] 102), "the business of dialectic is to discern the truth," and later Avicenna insisted that the function of logic is to lead us from the known to the unknown. There was never any suggestion that the study of logic is the study of formal systems, and even though later medieval logicians used a semitechnical language in order to bring out distinctions, it was in order to bring out distinctions of meaning. This had an effect on the notion of formal inference. Since there are no systems, no system-relative definition of formality is possible, and so a formal inference is one that can be justified only as obviously truth-preserving. As Augustine remarked, the truth of valid inference (*ueritas conexionum*) is not invented by men but is "permanently and divinely instituted in the reasonable order of things [*in rerum ratione*]" (*De doctrina Christiana* II 32). Of course, this attitude was compatible with some disagreement about which inferences were acceptable, and also with the belief that some inferences could be justified by reference to others. Moreover, it was recognized both that even the best inference is only useful if its premises are true, and that mistakes are frequently made in inference as a result of confusing and ambiguous premises. The study of fallacies and how to avoid them was the focus of much logical discussion.

It is relevant to note at this point that there is a sense in which logic can aim at the truth without using the method of formal discursive inference at all. While the Stoic and Aristotelian approach to logic certainly focuses on formal inference, Neoplatonic dialectic was more a leading of the soul upwards to the place where it can see intelligible reality directly. This dialectical process is clearly exemplified by Augustine's proof for the existence of God in *On Free Choice of the Will* II. The same process is also found in Anselm, whose so-called ontological argument (which is more about greatness than being) seems to aim at putting the soul in a position where it can go beyond words to grasp intelligible reality itself. However, Anselm's argument, unlike those of Augustine, is formalizable as a valid argument, in this case a classic *reductio ad absurdum* argument. Similarly, his proofs in the *Monologion* are presented as fully-fledged arguments with premises and conclusions. Anselm was a careful logician as well as an Augustinian.

Leaving Neoplatonic dialectic aside, there is still much to be said about uses of the term *dialectica*. In the broad sense, dialectic just is logic, and this name was most prevalent until the thirteenth century, when *logica* gained the upper hand. The word also has three narrower senses: dialectic as the art of debate; dialectic as the art of finding material for arguments; and dialectic as a kind of reasoning that falls between demonstrative and sophistical reasoning. The first sense is found in Cicero, who calls dialectic the correct method of discussion (*disserendi diligens ratio*) and in Augustine, who wrote (*De Dialectica* [60] 82): "Dialectic is the science of disputing well." The second sense is associated with the discussion of Topics, the headings under which the material for arguments can be sorted.[9] Because the study of Topics also included maxims, or self-evidently true generalizations that could provide the warrant for different types of argument, there is a close link between Topics and argumentation. Hence, the third and most usual sense of dialectic had to do with topical or dialectical syllogisms as a subpart of logic. Medieval logicians treated Aristotle's distinction between dialectical and demonstrative syllogisms as an epistemological one concerning the status of their premises, so that while dialectical syllogisms had the same formally valid structure as demonstrative syllogisms, their conclusions lacked certainty.

Just as there were different senses of the word *dialectic*, so there were different senses of *logic*. Isidore of Seville noted that *logica* comes from the Greek word *logos*, which can mean *sermo* (word) or *ratio* (reason). As a result logic could be called either a *scientia*

sermocinalis (linguistic science) or a *scientia rationalis* (rational science). There were considerations supporting both titles. On the one hand, the Stoics had divided philosophy into natural, moral, and rational, and the last was equated with logic, which could then, as Boethius pointed out, be seen as both an instrument and a part of philosophy. On the other hand, logic was one of the liberal arts and belonged to the trivium, along with rhetoric and grammar, which made it seem a linguistic science. This emphasis was intensified by the discovery of Arab logicians who included Aristotle's *Rhetoric* and *Poetics* in his logical works, a classification accepted by Albert the Great and Aquinas, among others. Some logicians, such as William of Sherwood, preferred to call logic just a linguistic science, but many others in the thirteenth century, including Robert Kilwardby and Bonaventure, called it both linguistic and rational.

In the late thirteenth and fourteenth centuries the notion of logic as purely a rational science became predominant. This move was partly associated with the rediscovery of the *Posterior Analytics* and the new emphasis on demonstrative science, and it raised certain problems about the nature of logic. If a science consists of universal necessary propositions, if it proceeds by demonstration, and if it deals with being (*ens*), how can the study of fallacies or of individual arguments count as science? Similar problems were raised about grammar, and as we saw above, the *Modistae* provided a solution in terms of universal principles underlying spoken languages. Similar principles were adopted by logicians who argued that logic did count as science, both because it dealt with the universal, necessary principles governing logical phenomena, including the apparently deviant phenomena of fallacious arguments, and because the notion of being included not only real beings but also beings of reason, which owe their existence to the mind's activity.

Beings of reason included fictional and impossible objects, such as chimeras and golden mountains, but here they can be identified with second intentions, those higher level concepts we use to classify our concepts of things in the world, and they include such notions as genus, species, subject, predicate, and syllogism. Nominalists and realists disagreed over whether second intentions pick out special common objects, including both universals and logical structures, or whether they just are mental constructs reached through reflection on individual things and on actual pieces of discourse or writing, but

this did not prevent such nominalists as Ockham from following Avicenna in saying that logic deals with second intentions and that the syllogism the logician considers is neither a thing in the world nor a piece of writing or speaking. Some people preferred to say that logic was about things in the world as they fall under second intentions. Others preferred to pick out some special second intention, such as argumentation or the syllogism, as the subject of logic, but there was still a strong consensus that the objects of logic are rational objects.

SIGNIFICATION, CONVENTIONAL AND MENTAL LANGUAGE

Signification

The central semantic notion was that of signification. However, we must not confuse signification as "a psychologico-causal property of terms"[10] with meaning. The meaning of a term is not an entity to which the term is related in some way, but one can say that an utterance signifies or makes known an entity, whether conceptual or real, universal or particular. Moreover, meaning is not transitive, but signification is. Lambert of Auxerre (or Lagny) wrote: "An utterance that is a sign of a sign – i.e., of a concept – will be a sign of the thing signified – i.e., of the thing; it is, however, a sign of the concept directly but a sign of the thing indirectly."[11] This is not to deny that medieval thinkers had a notion of meaning. They did talk about sense (*sensus*), about thought or meaning (*sententia*), and about the force of a word (*vis verbi*). Moreover, they often used *significatio* itself along with its cognates quite widely.

There were two not entirely compatible approaches to signification, each based on a sentence from Aristotle. According to the first approach, based on *On Interpretation* 16b9–21, to signify is to generate or establish an understanding. This definition places emphasis not on the speaker but on the hearer. Given this emphasis, it is possible to regard groans and perhaps also animal sounds as significant. So long as the hearer can acquire some understanding through hearing, the utterance is significant even if the speaker is incapable of rational, abstract thought, and even if the speaker has no intention of conveying a message. The second approach tied the significative

power of an utterance to its making known a concept. The crucial text here is *On Interpretation* 16a3–4, read as saying "Spoken words are signs of concepts." This supports the view that it is the speaker's intellectual capacity and intentions that are crucial to significant utterance. Animal noises and groans reveal specific passions and sensory states, such as fear and pain, but they are not linked to concepts and are not properly part of language.

Aristotle, as interpreted by medieval commentators, had gone on to say that concepts were similitudes or signs of things, and this raised the question of what is meant by "thing." In other words, what is it that we understand when an utterance such as "man" or "animal" establishes an understanding? While the usual assumption from Boethius at least until the end of the thirteenth century was that the understanding is of some kind of universal, an essence or common nature, we must bear in mind the impact of different epistemologies.

For Augustine and Anselm, who accepted the doctrine of an intellectual acquaintance with eternal ideas and truths through divine illumination, the distinction between knowing words and knowing the things themselves was all-important (e.g., *The Teacher* 1.2). In *Monologion* 10 Anselm draws a distinction between speaking words, thinking the words spoken, and thinking the thing, the universal essence "rational mortal animal." He employs much the same distinction in *Proslogion* 4 when explaining how the fool said in his heart what cannot be thought, namely, "God does not exist." To grasp the essence "being greater than which none can be conceived" is to grasp a real intelligible, and in grasping it one cannot fail to see that it exists necessarily. The issue is quite other for Aquinas and those who accepted an Aristotelian epistemology which made concept formation dependent upon sense experience, and knowledge of intelligible realities subsequent to knowledge of sensible realities. For them there was no simple (albeit divinely aided) way to move from thinking the words to thinking the things themselves.

The interposition of concepts between words and intelligible things lies behind the late thirteenth-century debate over whether words signify concepts or things. For Lambert of Auxerre (or Lagny) in the 1260s, the intelligible species was the primary significate of words, and the essence or common nature the secondary significate,[12] but Aquinas's development of a distinction between

the intelligible species, as an essential ingredient in the intellective process but not the intellect's object, and the inner word or concept, the thing as thought about, altered the terms of the debate. Does a word signify first the intelligible species, not as a mere accident of the mind but as a representation of the external thing, or does a word signify first the inner word? If the latter is the case, then what is the status of the inner word? Is the thing as thought about a purely mind-dependent construction? If so, concepts are primarily signified. Or is the thing as thought about to be identified with the external object taken as related to the mind in a certain way? If so, the thing as thought about is the same as the external essence, and it is things that are primarily signified. This was the position taken by Siger of Brabant and discussed by Duns Scotus.[13]

The terms of the debate were to change completely in the fourteenth century with the rise of nominalism, the doctrine that all that exists are individual things, and that only concepts can be common. The question now became one of priority: does a word signify an individual thing in the world directly, or does it signify first the general concept which is a necessary condition for signification? Buridan and Ockham differed on this issue. Buridan held that words first signify concepts, because only then can we explain why terms such as *being* and *one* which have the same extension nonetheless differ in signification. Ockham preferred to say that words signified individual things while being subordinated to concepts. Both thinkers are also noteworthy for their new insistence that the concept itself was a representative sign.[14]

Conventional and natural language

There was some discussion of whether language was conventional, as Aristotle and Boethius had clearly held, or in some sense natural. The issue arose in relation to Adam's naming of the animals in Genesis 2:19: "Whatsoever Adam called every living creature, that was the name thereof." Was the language instituted by Adam, or by God through Adam, a natural language in the sense of one that enabled users to grasp essences by virtue of a natural relationship between spoken words and the things named? Here we find a tension between biblical exegesis, which emphasized a natural relationship while recognizing that it could not involve onomatopoeia, and

Aristotelian logic, which emphasized conventionality.[15] In the twelfth century Thierry of Chartres had put forward the theory that the words God spoke when creating gave essence to things, and that through the inspiration of the Holy Spirit Adam used these same words to name created things. He clearly believed that this doctrine was compatible with Boethius's belief in the conventionality of spoken language. Later authors, including Pseudo-Kilwardby and Aquinas, insisted that imposition (the original endowment of words with conventional signification) should be a rational deliberate activity, but Aquinas suggested that this was by virtue of the inner word, which captured the essence of the thing named rather than any correspondence between arbitrary sound and essence.

Mental language

The corollary of conventionally significant spoken language is the natural inner language.[16] By the second century BCE the notion of inner discourse (*logos endiathetos*) had become common to Greek schools of philosophy, and the data suggest that the notion was not that of a silent conventional language but rather that of a genuine inner discourse, albeit not yet one endowed with a compositional structure. Inner discourse played a particularly important role in discussions of how human beings differ from other animals, including those (such as parrots) capable of uttering words. In the early Christian era, there is a bifurcation. On the one hand, the notion of inner discourse is used in Neoplatonic commentaries on Aristotle and, through Boethius, is passed on to Latin logicians and professional philosophers. On the other hand, Christian theologians, most notably Augustine, use the notion of an inner word in their attempts to make intelligible the assimilation of the divine Logos to the incarnate Christ. Augustine presented an articulated psychology of the inner man as a model of spiritual production, and it was the active nature of the inner word, rather than its linguistic analogies, that mattered to him. These two very different traditions encountered each other in the thirteenth-century Latin-speaking universities, and Aquinas played an important role in their assimilation and reshaping. By the end of the thirteenth century and the beginning of the fourteenth century we find lengthy, sophisticated discussions of the nature of conceptual representation, of the question whether

the mental word is an act of mind, a special intentional object, or a thing in the world as thought about, and of the distinction, already present in Augustine, between inner reflection on spoken words and an inner discourse independent of spoken languages.

A rich, sophisticated version of the language of thought hypothesis was developed in the fourteenth century by William of Ockham.[17] Ockham drew a sharp contrast between the terms of conventionally significant spoken languages and the concepts or mental terms to which they were subordinated. These concepts were representative signs, significant by their very nature, and they were the same for all, or, at least, for all with similar sense experiences. Just as the terms of spoken language enter into phrases, propositions, and arguments with a grammatical structure, so mental terms enter into grammatically structured compositions, although mental language does not display all the grammatical features of spoken languages but only those essential for semantic features. Mental nouns need to be singular or plural, for instance, but they do not need to be gendered. At the semantic level, the truth-values of mental propositions are a function of the reference of the subject and predicate concepts, together with the syntactic features of the proposition. Ockham's theory of the language of thought was influential into the first decades of the sixteenth century.[18]

PARONYMY AND ANALOGY

So far the discussion of signification has focused on concrete substantial terms, that is, terms such as *man* and *animal* which constitute an understanding of things within the category of substance. No matter what position was taken on common natures or universals, thinkers agreed that such terms did succeed in picking out types of thing within the actual world and that such terms could be given an essential definition in terms of genus and difference (e.g., "Man is a rational animal"). However, not all significant terms are of this sort. One of the main achievements of later medieval thought was the sophisticated analysis of different types of term. I shall focus on two cases: concrete accidental terms and analogical terms.

Concrete accidental terms are roughly equivalent to Aristotle's paronyms, also called denominatives.[19] They include "literate" (*grammaticus*) and "white" (*album*). The problem with such terms

is that they do not fall within an Aristotelian category. They seem to have a double relation, on the one hand to substantial things, for only substances can be literate or white, and on the other hand to the qualities of literacy or whiteness. Moreover, unlike the English adjective, they can be used as the subject of a Latin sentence. The issue was further complicated by the competing authorities of Priscian, who said that a *nomen* (name or noun) signifies substance with quality, and Aristotle, who said that the two categories are distinct and that white signifies only a quality. Anselm's *De grammatico* is the first important discussion of these problems, though his work is in many respects close to that of an anonymous commentator on Priscian from the same period. Anselm solved the problem by drawing a distinction between signification and naming (appellation), and saying that Aristotle was only concerned with signification. Whereas the word *man* principally signifies and names a substance which is qualified in a certain way, *grammaticus* (literate <thing>) signifies a quality directly (*per se*) and names a man, the subject of the quality, indirectly (*per aliud*). Subsequent discussions of the same problem were heavily influenced by the rival views of Avicenna and Averroes, once these became known, and culminate in Ockham's theory of connotative terms, which involves a complete reversal of Anselm's position. For Ockham, *album* primarily signifies a thing, and it connotes the form whiteness which qualifies the thing.

The questions concerning concrete accidental terms are linked with the question concerning the semantic unity of words with the same root. Here an appeal was made to the distinction between the thing signified and the grammarian's modes of signifying, which allowed one to distinguish between abstract and concrete, or between nouns, verbs, and adjectives (these being essential features), or between various genders and cases (these being accidental features). An early example is found in William of Conches, who remarked that *white* and *whiteness* differed not in the thing signified (*res significata*), namely, whiteness, but in modes of signifying. This distinction was very important in the discussion of religious language. Aquinas argued that such words as *wise* and *good* signify pure perfections but have creaturely modes of signifying. That is, they suggest the inherence of a separable quality. Their abstract counterparts, wisdom and goodness, also have the wrong modes of signifying, since they are not normally said of substances. To speak about God, we

need to cancel out the creaturely modes of both concrete and abstract nouns.[20] However, the central problem of religious language remains, since the thing signified, the pure perfection, will still not be attributed to God in just the sense that it is attributed to human beings.

The reason for this difference of attribution is found in the doctrines of God's simplicity and transcendence, especially as stated by Augustine and Boethius in their works on the Trinity. They insisted that God transcends Aristotle's categories and that God is absolutely simple, so that no distinctions can be made between God's essence and his existence or between one perfection, such as goodness, and another, such as wisdom, or more generally, between God and his properties. As Boethius wrote (*The Trinity* [86] 19), "When we say of him, 'He is just,' we do indeed mention a quality, but not an accidental quality – rather such as is substantial and, in fact, supersubstantial. For God is not one thing because he is, and another thing because he is just; with him to be just and to be God are one and the same." Twelfth-century theologians such as Gilbert of Poitiers and Alan of Lille, partly under the influence of Pseudo-Dionysius and Scottus Eriugena, took the issue further by employing negative theology. We cannot affirm anything positive about God, because no affirmation can be appropriate to a transcendent being. It is better to deny properties of God, saying for instance that he is not good (i.e., in the human sense), and still better to say that God is not existent but superexistent, not substance but supersubstantial, not good but supergood. These theological doctrines raised the general problem of how we can speak meaningfully of God at all, but they also raised a number of particular problems, especially the problem of how we can say that God is just and that Peter is just as well. By the mid-thirteenth century theologians attempted to solve this problem by appealing to analogy.

The discussion of analogical terms was fitted into the framework of the doctrine of equivocal terms found in logic texts.[21] The original focus of discussion was provided by Aristotle's *Categories*, which opens with a brief characterization of terms used equivocally, such as *animal* used of real human beings and pictured human beings, terms used univocally, such as *animal* used of human beings and oxen, and terms used paronymously, such as *strong* and *literate* (the concrete accidental terms we examined above). In the first case, the

spoken term is the same but there are two distinct significates or intellectual conceptions; in the second case, principally that of concrete substantial terms, both the spoken term and the significate are the same. The *Categories* was supplemented by the *Sophistical Refutations*, in which Aristotle discusses three types of equivocation and how these contribute to fallacies in logic.

Another inspiration for doctrines of analogy was metaphysics. One crucial text is found in Aristotle's *Metaphysics* IV 2 (1003a33–35): "There are many senses [*multis modis*] in which being [*ens*] can be said, but they are related to one central point [*ad unum*], one definite kind of thing, and are not equivocal. Everything which is healthy is related to health . . . and everything which is medical to medicine." In this text, Aristotle raises the general problem of the word *being* and its different senses, and he also introduces what is known as *pros hen* equivocation or focal meaning, the idea that different senses may be unified through a relationship to one central sense. Another foundational text is from Avicenna's *Metaphysics*, where he writes that being (*ens*) is neither a genus nor a predicate predicated equally of all its subordinates but is rather a notion (*intentio*) in which they agree according to the prior and the posterior. As we shall see, this reference to the prior and the posterior is particularly important. We should also note that *ens* is one of the so-called transcendental terms, or terms which go beyond Aristotle's categories, in that they can be attributed to things of any category. The other central transcendentals were one (*unum*), good (*bonum*), and true (*verum*), so that the discussion of transcendentals is closely related both to the discussion of pure perfections and to the general problem of concrete accidental terms.[22]

For thirteenth-century authors there were three main types of analogy. In the original Greek sense, analogy involved a comparison of two proportions or relations. Thus *principle* was said to be an analogical term when said of a point and a spring of water because a point is related to a line as a spring is related to a river. This type of analogy came to be called the analogy of proportionality, and was briefly privileged by Aquinas in *Truth*. In the second sense, analogy involved a relation between two things, of which one is primary and the other secondary. Thus *healthy* was said to be an analogical term when said of a dog and its food because while the dog has health in the primary sense, its food is healthy only secondarily as contributing

to or causing the health of the dog. This second type of analogy became known as the analogy of attribution, and its special mark was being said in a prior and a posterior sense (*per prius et posterius*). A third type of analogy, sometimes appealed to by theologians, including Aquinas in his *Sentences* commentary, involved a relation of likeness between God and creatures. Creatures are called good or just because their goodness or justice imitates or reflects the goodness or justice of God. This type of analogy was called the analogy of imitation or participation.[23] Of the three types, it is the analogy of attribution that is central to medieval discussions.

From the fourteenth century on, discussions of analogy focused not so much on linguistic usages as on the nature of the concepts that corresponded to the words used. Is there just one concept that corresponds to an analogical term, or is there a sequence of concepts? If the latter, how are the members of the sequence ordered and related to each other? Moreover, how far should we distinguish between so-called formal concepts (or acts of mind) and objective concepts (whatever it is that is the object of the act of understanding)? There were also those, such as Duns Scotus, who rejected analogy.[24]

Other explorations of ambiguity were less directly related to theology and had to do not with individual terms but with whole propositions. One of the basic tools of propositional analysis was the distinction between compounded and divided senses, which is generally associated with modal logic but originated in Aristotle's discussion of the fallacy of composition and division. The basic point concerns two ways of reading the sentence "A seated man can walk." Interpreted according to its compounded sense, this proposition is *de dicto* (about a dictum or "that" clause) and means "That-a-seated-man-walk (i.e., while seated) is possible." Interpreted according to its divided sense, the proposition is *de re* (about a *res* or thing) and means "A seated man has the power or ability to walk." The proposition is false in the first sense but true in the second. It became standard when considering modal inferences, including modal syllogisms, to distinguish between the compounded and divided senses of premises and conclusion and to work out the logical results of these different readings. William Heytesbury's treatise on the subject[25] shows the variety of problems to which the distinction was applied in the fourteenth century.

REFERENCE: SUPPOSITION THEORY

The most notable new theory that took shape in the twelfth century was supposition theory. Like the theory of analogical terms, it had close links with theological problems, particularly those associated with the doctrine of the Trinity, three Persons in one God. The word *suppositum* had a dual use. In grammar, it meant subject, sometimes syntactic, that is, the noun agreeing with the verb, but more usually semantic, that is, the bearer of the form predicated; in theology, it meant Person, the subject qualified by the divine essence. These senses and those associated with the word *suppositio* (putting as subject) and the verb *supponere* (to put as subject) fed into the new notion of *suppositio pro* or standing for. Thus the word *God* was said to supposit for a person when it stood for a Person of the Trinity, and to supposit for an essence when it stood for the divine essence (Aquinas, *ST* I, q. 39, a. 4). In its developed form, the theory of supposition, along with its ramifications, particularly ampliation and restriction, explored the different types of reference that a subject or predicate term could have in various contexts.[26] The three main types of supposition were material, simple, and personal. A term was said to have material supposition when it stood for itself or for other occurrences of the same term, as in "Man is a noun." Thus material supposition stood in for quotation devices. A term was said to have simple supposition when it stood for a universal, as in "Man is a species." Both material supposition and simple supposition gave rise to controversy, but especially the latter, because of the obvious problem of the ontological status of universals or common natures. Finally, a term has personal supposition when it is taken for its normal referents, as when *man* is taken for Socrates, Plato, and so on.

Some logicians distinguished accidental personal supposition from natural supposition, which allowed a term to have prepropositional reference to all its referents, past, present and future, while others insisted that supposition must be purely propositional and contextual. This debate was linked with the question of how to define supposition: is it a type of signification belonging especially to the subject of a proposition, or is it not a type of signification at all but the acceptance of a term as standing for its referents?[27] It also affects the doctrines of ampliation, whereby the reference of a term

can be extended, and restriction (the opposite of ampliation). Parisian logicians, such as Jean le Page, writing *circa* 1235, tended to accept natural supposition and to say (like Buridan in the fourteenth century) that terms had natural supposition in scientific propositions, that is, universal necessary truths, so that no ampliation was necessary. As a corollary, in nonscientific propositions the supposition of terms was restricted in various ways. For English logicians in the thirteenth century, all supposition was contextual, and the notion of ampliation had to be used when the subject of a proposition was to extend beyond present existent things.

The notion of ampliation was particularly important in the analysis of propositions containing tensed verbs, modal terms, and epistemic terms such as *imagine*. Logicians generally held that affirmative propositions with nonreferring terms are false, yet many of the propositions we wish to take as true have terms that refer to nothing currently existent. The doctrine of ampliation allowed reference to extend over past, future, and possible objects. In the later fourteenth century Marsilius of Inghen argued that one should also allow reference to imaginable objects which were impossible. By allowing this kind of ampliation to occur when such terms as *imagine* were used, he could save the truth of "I imagine a chimera," while still holding that "A chimera is an animal" was false.[28]

The three types of personal supposition most often appealed to are determinate, purely confused (*confuse tantum*), and confused and distributive. These types were normally illustrated by means of the descent to singulars. For instance, to say that the subject of a particular affirmative proposition, "Some A is B," has determinate supposition is to say that one can infer the disjunction of singular propositions, "This A is B, or that A is B, or the other A is B, and so on." To say that the predicate of a universal affirmative proposition, "Every A is B," has purely confused supposition is to say that one can infer a proposition with a disjoint predicate, "Every A is this B or that B or the other B, and so on." To say that the subject of a universal affirmative proposition has confused and distributive supposition is to say that one can infer a conjunction of propositions, "This A is B, and that A is B, and the other A is B, and so on." Some people distinguished between mobile and immobile cases. For instance, no descent is possible from "Only every A is B," and so A has immobile supposition. A fourth type of supposition is collective supposition,

as in "Every man is hauling a boat," given that they are doing it together. Here any descent will involve a conjoint subject, as in "This man and that man and the other man are all hauling a boat."

The theory of personal supposition was used to solve a variety of problems. One standard problem had to do with promising (or "owing" in some authors). If I promise you a horse, is there some horse that I promise you, and if not, how is the original sentence to be construed? A wide variety of answers was proposed. Walter Burley suggested that *horse* has simple supposition; Heytesbury took it that *horse* had purely confused supposition and that it did not imply "There is some horse that I promise you," because the new position of *horse* before the verb gave it determinate supposition. Ockham preferred to replace the sentence by a more complex sentence, "You will have one horse by means of my gift."[29]

TRUTH AND PARADOX

Language and logic are concerned with truth, but what is truth? The question was complicated by the interplay between Aristotle's claim that "it is because the actual thing exists or does not exist that the statement is said to be true or false" (*Categories* 4b8–10), the doctrine of transcendentals according to which one, good, being, and true are not only identical but come in degrees, and Christ's claim in John's Gospel 14:6, "I am the way, the truth and the life." In *On Free Choice of the Will* II 12 Augustine used propositional truth as a stepping-stone to the conclusion that God is Truth. Since propositional truths exist, by the Platonic one-over-many principle there must be a truth in which they participate, and this Truth can only be God. In other places, Augustine appealed to a paradox, formulated by Bonaventure (*Disputed Questions* [213] 113) in these words: "If there is no truth, then it is true to say: 'There is no truth.' But if this is true, then something is true. And if something is true, there is a first truth." Anselm made a similar move in *Monologion* 18. In his *De Veritate* he took up the issue of different senses of the word *truth* and found a solution which allowed him to reconcile the conflicting authorities. Truth is fundamentally rectitude, and this notion applies first to God, but we can also speak of the truth of objects, insofar as they rightly reflect divine Ideas, and of the truth of statements, insofar as they rightly reflect the truth of objects.

Unsurprisingly Aquinas rejected the Platonic moves which allowed a progression from seeing the truth of propositions to seeing the divine Truth (*ST* I, q. 2, a. 1, ad 1); and his discussion of different senses of truth began not with God but with the world around him. He took the claim attributed to Isaac Israeli, according to which truth is "the commensurateness of understanding and thing" (*adaequatio intellectus et rei*), and argued that there were two sorts of conformity, that between mind and object and that between object and mind. When we speak of conformity between object and mind we are speaking of transcendental truth, by virtue of which objects are reflections of divine ideas; when we speak of mind and object, we speak of the human mind's conformity to the objects around it whereby judgments are true (*ST* I, q. 16, a. 1; q. 21, a. 2). These two senses are then used to explain that God can be called Truth because in him there is a double conformity, given that his being (*esse*) and understanding (*intelligere*) are the same.

One of the most notorious problems of truth is associated with insolubles or semantic paradoxes.[30] The simplest version is the Liar Paradox, "What I am saying is false," given the *casus* or initial situation that this is all that is said, but complex versions with hypothetical propositions ("God exists, and some conjunctive proposition is false.") or sequences of mutually referring propositions ("Suppose that Socrates says 'Plato says something false,' and Plato says 'Socrates says something true.'") were also discussed.[31] In the twentieth century such paradoxes have been used to cast doubt on the very foundations of semantic theory and have led to elaborate distinctions between levels of language and metalanguage. Medieval logicians, however, show no signs of such a crisis mentality, and while they did employ certain restrictions on self-reference and make certain distinctions between language and metalanguage, these techniques were generally limited to the problem in hand.

INFERENCE AND PARADOX

The notion of inference, or *consequentia*, was at the heart of logic. The enormous amount of writing devoted to problems of signification and reference was intended to help the reasoner avoid fallacious inference. Similarly the many treatises on obligations (the rules to be followed in a certain type of disputation) were intended to give

23. See B. Montagnes [467].
24. For discussion, see chapter 6 in this volume.
25. *CT* I 413–34.
26. For a rich array of nontheological texts, see L. M. de Rijk [471].
27. See Lambert in *CT* I 106–07.
28. See E. J. Ashworth [455] for this and other problems of reference.
29. See ibid.
30. See P. V. Spade [475].
31. Albert of Saxony in *CT* I 357, 349.
32. See K. Jacobi [462] and M. Yrjönsuuri [51] for discussions of consequences and obligations.
33. For propositions, see G. Nuchelmans [468]; for modal logic, see S. Knuuttila [464].