

Selections from the  
SUMMA LOGICA of ALBERTUS DE SAXONIA

Prefatory Note

Albert of Saxony was a leading teacher of the Faculty of Arts at the University of Paris, from about 1350 to 1380. He was a pupil of Jean Buridan, and was very much influenced by Buridan's teachings in physics and in logic. Albert's work in logic also shows strong influence by William of Ockham, whose commentaries on the logica vetus (on Porphyry, and Aristotle's Catagoriae and De interpretatione) were made the subject of a series of Quaestiones by Albert.

Albert's Summa logicae, while not as rich in philosophical interest as the work of that name by Ockham, is a systematic statement of the logical system of the 14<sup>th</sup> century scholastics, having a concision and clarity which make it especially useful as a text for modern study of this logical tradition. The portions selected for translation, from the edition of Venice 1522, present the chief definitions, distinctions, and rules which exhibit the structure of the logic as a formal treatment of truth conditions and of the relation of logical consequence. The Treatise is in Six Parts, each part being divided into chapters.

Part One

Preface

It is our plan to treat, first, of terms of both first and second intention; second, of the properties of terms, namely their supposition, ampliation, and appellation; third, of propositions both assertoric and modal; fourth, of consequences, both formal and material..; fifth, of sophistical arguments; and sixth, of the insolubilia (paradoxes) and of the obligatoria (= the rules binding disputants).

With regard to the first topic, we must first deal with certain terms such as are predicable of terms of both first and of second intention or imposition, such as these terms 'term', 'sign', 'predicate', 'subject', 'noun', 'verb.' Secondly, we will deal with terms of second intention, such as are predicable of terms of first intention taken in material supposition---such as the five predicables, namely 'genus', 'species', etc. Third, we must treat of terms of first intention such as are truly predicable of demonstrative pronouns referring to things (but not to things insofar as they may themselves be used as signs), such as the terms included in the ten categories.

## Chapter 1: Concerning the term 'sign'.

First we must treat of this term 'sign', which is more general than this term 'term'. First it should be known that this noun 'sign' is understood in two senses: in one sense, as referring to anything which, when apprehended, makes something else enter into the cognition of some person. And in this sense we say that the barrel hoop hanging in front of the tavern is a sign of wine. But it is not in this broad sense that we use the word 'sign' when we say that terms of first intention, taken significatively, are verifiable of pronouns denoting things which are not signs; nor do I wish to use this term 'sign' in this broad sense, in what follows. In a second sense, this word 'sign' is understood as that which, when apprehended, makes something else come into the cognition of someone, and which, in addition, is naturally fitted to stand for that thing in a proposition, or to be added to such a sign in a proposition, or which is composed of such signs. An example of the first is, any categorematic term. The second is exemplified by the syncategorematic terms. The third is exemplified by sentences. And it is in this way that I wish to use this word 'sign'; and taking the word 'sign' in this sense, it is true that terms of first intention, interpreted significatively, are verifiable of pronouns denoting things insofar as these things are objects of signification and not themselves signs.

## Chapter 2: Concerning the term 'term'.

Having spoken of this term 'sign', which is more general than this term 'term', we shall now discuss the term 'term'. It should then be known, that one kind of term is a natural sign of that which it signifies, while there is another kind of term which is a conventional sign. The term which is a natural sign is called a mental term, or a term which exists in the mind and which is naturally fitted to function as part of a mental proposition---as for instance the natural mental image of a man, or of a stone. And such terms are similar for all men; thus the mental term which is naturally representative of a man, or of a stone, in the mind of a Greek, is similar to the natural image of that man or of that stone arising in the mind of one who speaks Latin. On this account such a term, or natural sign, is never equivocal.

But the terms which are conventional signs are those which signify, by reason of arbitrary imposition, the things which mental terms, such as are natural signs, signify by nature. Such are the terms which are spoken or written, like this spoken word 'man', or this written word 'man'. And this term which signifies by convention that which the other mental term signifies by nature, is said to be subordinate in signification to that mental term---not because it signifies that mental term, but because it signifies, by its imposition, that which the mental term signifies naturally. And these conventionally instituted terms are not the same for all men, because Greeks do not have vocal terms similar to those used by the Latins, nor do they have similar written terms. Thus the

Latins use the word homo for what the Greeks call anthropos. In the same way the spoken terms are not the same for French and Germans.....

### Chapter 3: On the second division of terms.

Of terms, both naturally and conventionally significant, some are categorematic, and others are syncategorematic. A term is called categorematic which, when taken in its meaningful usage, can function as a subject or a predicate, or as a part of the subject or part of the predicate, in a categorical proposition. For example, these words 'man', 'animal', 'stone', are called categorematic terms, because they have a definite signification.

But a term is said to be syncategorematic if, when taken significatively, it cannot function as subject or predicate, or as part of the subject or part of a distributed predicate, in a categorical proposition. Such are these terms 'every', 'none', 'some', etc., which are called signs of universality or particularity. Similarly, such are signs of negation like this word 'not', and connectives like the copula 'is', and signs of disconnection like the disjunctive 'or', and likewise exclusive and exceptive prepositions like the words 'besides' (praeter), 'as much as' (tantum), and so forth. For example, if we say "Every man runs", the word 'man' is subject, and the word 'every' is not the subject nor the predicate, nor is it a part of the subject or predicate; but it is a modifier of the subject which indicates the way in which the subject has supposition. For if it were taken as a part of the subject, then these propositions would not be of the same subject, namely 'Every man runs' and 'Some man does not run', and thus they would not be contradictories, which is false.

And I say expressly, "when taken significatively", because these terms 'every', 'none', etc., if taken materially, may very well be subjects or predicates of propositions--as in saying "'Every' is a sign of universality" or "'Or' is a conjunction", "'Not' is an adverb", "'And' is a conjunction." For in such sentences, the terms mentioned are not used significatively, because they do not exercise the functions for which they were instituted. Thus in the sentence "'Every' is a sign of universality", the word 'every' does not distribute; and in the sentence "'Not' is an adverb", the word 'not' does not negate anything; and likewise in the sentence "'And' is a conjunction" the word 'and' does not conjoin anything. Hence, in these sentences, the terms in question do not function syncategorematically, but categorematically. ...

#### Chapter 4: The third division of terms.

In still another way this word 'term' has three senses. In one sense it is taken for whatever can be a subject or predicate of a proposition, whether it be compound or simple; and in this sense it can be said that a proposition is a term. For example, "Every man is an animal' is a true proposition"; we call this sentence as a whole categorical, and we say that this proposition 'Every man is an animal' is its subject, and this word 'is' a copula, and this word 'true' is the predicate.

In a second sense the word 'term' is taken as that which is not a complex expression such as is true or false, but which can be a subject or predicate of a proposition, whether it be interpreted in material supposition or in personal supposition. And in this way syncategorematic signs can be called terms. For example, when we say "'Every' is a universal quantifier", the subject of this proposition is the term 'every' taken in material supposition, as standing for itself or for the class of signs similar to itself. And taking the word 'term' in this manner, this word 'term' does not designate complex expressions such as are true or false.

In a third sense the word 'term' is taken as that which, interpreted significantly, can be a subject or predicate of a proposition. And taking 'term' in this sense, no true or false expression, and not every incomplex expression, is a term. In this sense of the word 'term', nouns and verbs are called terms. Yet not all nouns and verbs---for nouns which are syncategorematic, are not terms in this sense.

And I say expressly 'no true or false expression', because if there is some complex expression which is neither true nor false, such as an expression compounded of a substantive and an adjective, or of a determinable and determinant, or of a preposition and the word it determines, or any expression of this type, it may well be said to be a term, or to be a subject or predicate of a proposition. Thus, if we say "A white man is running", in this proposition neither the word 'white' nor the word 'man' is subject, but rather this whole 'white man' is subject. Similarly, if we say "Socrates is disputing well", neither the word 'disputing' nor the word 'well' is predicate, but the whole expression 'disputing well'. Likewise, if we say "Socrates is in the house", the word 'in' is not the predicate, nor is the word 'house', but the whole expression 'in the house'. Whether, however, an expression compounded from a word in the nominative case, and one in an oblique case, can be subject of a proposition, will be discussed later in a question.<sup>1</sup>

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<sup>1</sup>A sentence such as "The horse's tail is long" has 'horse's tail' as grammatical subject; but does this also constitute its logical subject? Sentences of this sort were held to be "exponible", or analyzable, into a conjunction of several sentences; the expression 'horse's tail' does not occur as subject of any atomic sentence in the conjunctive set to which the original exponible sentence is reduced.

## Chapter 5: On the Noun

Because it is nouns and verbs which occur as subjects and predicates of propositions, we will now speak of them, and first of the noun. A noun, then, is a term significative without connotation of time, no part of which is separately significant of anything, and which is of finite meaning, and in the nominative case. This definition of 'noun' applies not only to the spoken noun, but also to the mental and written noun; for any of these is a term which signifies without connotation of time. And thus it is better to say 'a significant term' than 'a significant sound', because the mental or the written noun is not a significant sound...although the spoken noun is.

In this description the expression 'significant term' occurs as the genus, the rest functioning as differentia. Insofar as the noun is a significant term, it shares this character with the verb, which is also a significant term; and indeed it shares this with the sentence, which, if we take the word 'term' in the first sense given previously, is also a significant term. But as being significant without connotation of time, the noun differs from the verb, which signifies with time. And insofar as the noun is that of which no part is separately significant, it differs from the sentence whose parts are separately significant. As finite, it differs from the infinite noun (e.g., not-man) which is not considered a noun in the logical sense. And as being in the nominative case, it differs from nouns in oblique cases, which are not treated as nouns in the logical sense. Thus logicians only posit two parts of speech, namely nouns and verbs, the nouns being in the nominative case, and the verbs being in the indicative mood.

In this connection it should be noted that logicians are said to recognize only two parts of speech---namely the noun and the verb---in the sense that these two parts of speech are sufficient for forming a true or false sentence, as in saying 'Socrates runs.' But the logician certainly does often use other parts of speech, such as the syncategorematic terms. It should also be noted that the logician does not care about the distinction between noun and pronoun, because he does not distinguish the parts of speech according to the grammatical modes of signifying, but only insofar as he treats of the sentence as true or false. For him, then, there are certain principal parts of the sentence, and others which are secondary or accessory. The principal parts of a sentence are its subject and predicate and copula; the secondary or accessory parts are various words or terms which modify or determine the subject or predicate or copula. Now the copula is always a verb, and sometimes the verb includes both copula and predicate, as when we say 'Socrates runs'. Then the logician distinguishes another part of speech, namely the noun; and since, by conversion, the subject can become predicate, and conversely, the logician on this account treats subject and predicate as similar parts of speech. This is why the logician conceives that only the noun and the verb are the principal parts of speech; and under the noun he includes the pronoun, since a pronoun can be subject of a proposition just like a noun, as in saying 'I am a man.' And the participle is also treated as a noun, and not as a verb, because the

participle is never a copula in the logical sense, but it can very well be a subject or a predicate. Likewise, the participle in a certain manner signifies without time, because this term 'sitting' can refer to what is past or future just as well as to what is present....and so the participle does not signify with determinate temporal reference. ....

#### Chapter 6: On the verb.

A verb is a term which signifies with connotation of time, no part of which is separately significant, and which is of finite meaning and of direct form. The expression 'term which signifies' occurs in this definition as the genus; but the expression 'with connotation of time', and the other qualifications, function as differentiae. Thus it is by 'connotation of time' that the verb differs from the noun, which signifies without temporal connotation; insofar as 'no part is separately significant' it differs from the sentence; and as 'finite' it differs from the infinitive verb; and as direct it differs from verbs of oblique inflection.

With regard to this verb 'is', it should be known that this verb is the root of all verbs; and according to Aristotle, in the first book of the De interpretatione (c. 3, 16b 25), this verb 'is' consignifies a certain composition which is not intelligible apart from the terms conjoined. To make this clearer, it should be known that there are two kinds of juncture of terms: one is according to composition, the other according to division. And both of these are twofold: for one is called mediate juncture (copulatio distans), and the other immediate juncture (copulatio indistans). Mediate juncture is of two terms, functioning as subject and predicate, by means of the verb 'is'; as in the expression 'Man is animal'; and this composition yields a proposition. Immediate juncture is of determinant to determinable, by an immediate composition, as in the expressions 'white man' or 'humble man'; and this juncture does not constitute a proposition. From this it follows that not every complex term is a proposition.

To this twofold composition there corresponds a two-fold division---i.e., mediate and immediate. And both are indicated by the addition of the negation sign 'not'. Mediate division is indicated when the negation applies to this word 'is' which binds the subject and the predicate; as when we say 'A man is not white.' But mediate division is indicated by the application of the sign of negation to the determinant which is joined to the determinable, as when we say 'a man not-white' (homo non albus). And just as, in the case of mediate composition, the copulation signifies that the terms stand for the same thing, while the division signifies that they do not stand for the same thing---so in the case of immediate composition, the copulation signifies the qualification of the determinable by the determinant immediately conjoined with it, while the division indicates the non-qualification of determinable by determinant.

But because the negation sign, apart from determining the verb or from determining the adjectival determinant, may also determine the term which is subject, or the determinable---as in saying 'Not-man is running'---we may raise the question of

how the negation sign, in such cases, operates. We reply that it makes the substantive term, or the determinable, stand for that of which that term is negatively verifiable. Thus this proposition, "not-man runs", is equivalent to this proposition 'Something which is not a man, is running'. And this proposition 'Every not-man runs' is equivalent to this sentence 'Everything which is not a man is running'. For a negation of this sort divides the supposition (of the term) from its signification; it prevents the term from standing for the things which it signifies, and makes it stand for the things it does not signify.

This question having been resolved, it now should be known that this verb 'is', when predicated of a subject secundo adiacens (= without being followed by a predicate), as in the sentence 'This man is', indicates by its principal signification the existence of that for which the subject term stands. But when this verb 'is' occurs tertio adiacens (= as copula between subject and predicate), it indicates a certain composition of the predicate with the subject---i.e., that the subject and predicate stand for the same, and that what is signified by the subject term exists in the same time as that which is signified by the predicate term. And when this is in fact the case, the proposition is true (if it is not a self-falsifying proposition); and when this is not the case, the proposition is false. An example of the first is the sentence 'Man is an animal'; of the second, 'Man is an ass.' And when the negation sign is applied, it signifies that subject and predicate do not stand for the same. And if this is in fact the case, the sentence is true---as when we say 'Man is not an ass.' But if the case is otherwise, the sentence is false---as in saying 'Man is not an animal.'

And I say expressly, that the negation sign indicates that subject and predicate do not stand for the same; and I do not say, that it indicates that subject and predicate stand for diverse things. For in this sentence, 'A chimaera is not a chimaera,' which is a true sentence, the subject and predicate do not stand for different things, since they do not stand for anything at all. Yet it is true that they do not stand for the same; for terms which do not stand for anything, do not stand for the same thing.

From this it follows that every affirmative proposition signifies that its subject and predicate stand for the same. And every negative proposition signifies that its subject and predicate do not stand for the same.

Secondly, I say that when, in an affirmative proposition such as does not falsify itself, the subject and predicate stand for the same, that proposition is true; and when they do not stand for the same, it is false. And I say expressly, 'in a proposition such as does not falsify itself,' because in this proposition 'What I am saying is false', assuming that I say nothing else, the subject and predicate stand for the same, and yet this proposition is false, and not true, because it falsifies itself, or signifies itself to be false.

Third, I say that in every negative proposition, when the subject and predicate do not stand for the same, the proposition is true; and when they do stand for the same, the proposition is false.

Fourth, I say that when the subject and predicate of an affirmative proposition do not stand for anything at all, such a proposition is always false; for example, if I say 'A chimaera is a chimaera', 'A chimaera can be thought of', or 'A chimaera can be understood.' This is evident, for since the proposition is affirmative, and not self-falsifying, and since it is required for the truth of such a proposition that its subject and predicate stand for the same, it follows that this proposition, which is affirmative and whose subject does not stand for anything, is false. For in this proposition the subject and predicate do not stand for the same thing, because they do not stand for anything; yet this is required for the truth of any affirmative proposition such as is not self-falsifying.

Fifth, I say that a negative proposition, whose subject stands for nothing, is true. From this it follows that this sentence is true, 'A chimaera is not a chimaera'; similarly this, 'A vacuum is not a vacuum', or this, 'A chimaera is not intelligible.'

But against this it is argued that this proposition, 'A chimaera is a chimaera', is true, because the same thing is here predicated of itself. Now according to Boethius, in his commentary on the Categories, there is no truer predication than that in which something is predicated of itself. And that this occurs here is evident. In the second place, Aristotle in the 7<sup>th</sup> book of the Metaphysics concedes the truth of this proposition 'Not being is not being' (Non ens eat non ens), and yet this is an affirmative proposition whose subject stands for nothing.

To the first argument we respond that when it is said that Boethius says that nothing is truer than the predication of the same thing of itself, this is to be conceded if in that proposition the terms stand for something. But if the terms do not stand for anything, the proposition can be false; and this is so in the case of the sentence 'A chimaera is a chimaera.' To the second argument I say that in this proposition 'Not being is not being', the first negative may be construed as determining the term to which it is joined, in such manner that the copula remains affirmative; and in such a case the proposition is affirmative, and is false. But it is not in this sense that Aristotle concedes it to be true. In another sense it can be understood so that the first negative determines the proposition as a whole, such that the sense is 'It is not the case that a being is not a being' (non:ens est non ens)---i.e., meaning that it is not true that a being is a non-being. And in this sense the proposition is true, but it is negative and not affirmative. In a similar manner one can distinguish two senses of this proposition 'No thing is no thing' (nihil est nihil).



Sixth, I say that every proposition signifies that it is true. This is evident, because every proposition is either affirmative or negative. If it is affirmative, then according to what has been said, it signifies that its subject and predicate stand for the same; and this is the truth condition of an affirmative proposition. But if it is negative, it signifies that what its subject and predicate stand for are not the same thing---and this is the truth condition of a negative proposition.

Seventh, I say that every proposition which signifies itself to be false, is false. This is evident, because such a proposition signifies itself to be both true and false. For by its direct signification, it signifies itself to be false---for example, this sentence 'The proposition I am stating is false', supposing that I am not stating any other proposition. But by its implied (consecutiva) signification, it signifies itself to be true. And this is false---namely, that the same proposition is both true and false. From this, as from a basic principle, the paradoxes called insolubilia can be resolved. For example, if someone states this sentence 'The statement I am making is false', this sentence is to be called false. For by its direct signification it signifies that it is false, just as this sentence 'Man is an ass', by its direct signification, signifies that man is an ass. But because it is affirmative, it signifies that it is true. So this proposition 'The statement I am making is false', by its direct signification signifies that it is false; for, being affirmative, it signifies that its subject and predicate stand for the same; but since it is an affirmative proposition it signifies itself to be true. And it signifies itself to be true and false at the same time, on which account it is false.

But you may say, if it is false, and if it signifies itself to be false, then the case is as the proposition signifies it to be; therefore it is true. But I reply, when it is said 'If it is false, and signifies itself to be false, the case is as the proposition signifies it to be', I concede this; but when it is further said, 'therefore it is true', I deny the consequence. For if the consequence is to be valid, it is necessary that the aforesaid proposition signify what is the case, insofar as it signifies itself to be true. But it at the same time signifies otherwise, insofar as it signifies itself to be false. Therefore, because it signifies itself to be true and also to be false, it signifies not only what is the case, but also what is not the case; therefore etc. Of this more will be said in the treatise on the Insolubles.

#### Chapter 9: Concerning Terms of First or Second Intention, and Imposition.

Having treated of those terms which are verifiable of both terms of first intention or imposition, and of terms of second intention or imposition, we must now discuss

terms of second intention or imposition. But first let us define 'term of first intention', and 'term of second intention.'

A term of first intention is any concept which is significative of things insofar as they are not signs; as for example this concept 'man' or this concept 'being', or this concept 'quality', or this concept 'sound.' For this concept 'man' signifies Socrates or Plato, but not because Socrates or Plato are signs of other things. Likewise, although this concept 'being' (ens) is naturally significative of any being whatsoever, it does not signify such beings in the sense in which they may happen to be signs of other things. Thus, if the term 'man' were not a sign of anything, and had never been instituted to signify anything, it would still be signified by the term 'being', just as it now is---for this term 'being', though it does signify things which are signs, is not on this account called a term of second intention, because it does not signify them in the sense in which they are signs. The same holds for this term 'quality', or this term 'sound', which, though they can very well signify things which are signs, do not signify them in the sense in which they are signs; hence those terms are said to be of first intention, and not of second intention---and this is because they are signs of things not insofar as these things are in turn significative of other things, but only insofar as they are things signified (by these terms 'quality' or 'sound').

A term of second intention, however, is a concept or mental term which is naturally significative of things insofar as they are signs. For if those things were not themselves signs, they would no longer be signified (by terms of second intention). Thus the concepts 'genus', 'species', 'noun', 'verb', 'case', or 'number' (case and number are here meant in the grammatical sense). This concept 'universal' is a natural sign of this term 'genus', and of this term 'species', and so forth, insofar as these terms 'genus' and 'species' are themselves signs. Consequently, if this term 'genus' were not a sign, it would not be signified by the term 'universal'. Likewise this concept 'genus' is a natural sign of these terms 'substance', 'quality', 'quantity', etc., in the sense in which they themselves are signs. So if this term 'quality', or this term 'substance', or this term 'quantity', etc., were not themselves signs, they would not be signified by this term 'genus'. Again, if this term 'man' were not a sign of something, then it would not be signified by this term 'noun', nor would the word 'man's' (hominis) be of the genitive case rather than the nominative case. Terms of second intention, then, are mental terms, or concepts, which are naturally significative of things insofar as those things are themselves signs.

Terms of first imposition are vocal or written terms which are conventional signs of things insofar as those things are not themselves signs of other things. Such are the spoken or written terms 'substance' and 'quality.'

Terms of second imposition are spoken or written terms, instituted by convention to be significative of things which are themselves signs of other things, and in just the sense in which they are signs of other things. Such are these spoken or written terms

'genus', 'species', 'case', 'number', 'noun', 'verb', etc. These are terms conventionally significative of other terms such as are signs of something other than themselves. And if they were not signs of other things, they would not be signified by the aforementioned terms. Thus, if this term 'man' were not significative of anything, it would not be signified by these spoken or written terms 'noun', 'species'.

The division of terms into terms of first intention and of second intention, applies to concepts or mental terms. But the other division of terms, into terms of first imposition and of second imposition, applies only to spoken and written terms which are conventionally instituted to signify, and which signify things that they do not signify by nature.

The above explains what a first intention is, and what a second intention is. For a first intention is a certain likeness existing in the mind, which is naturally representative of some thing or things in the sense in which they are not signs---as for instance the likeness, in the mind, of all men. A second intention is a certain likeness existing in the mind, which is naturally representative of some thing or things insofar as these are themselves signs of other things---e.g., the natural likeness, in the soul, of all terms predicable of many things differing in species or in number, (is the second intention expressed by the term of second intention 'genus').

[N.B.: The remainder of Part I of Albert's Logica deals with the chief terms of second intention of concern to the logician---such as the so-called "five predicables", and such terms as 'definition', 'description', 'attribute', etc.; and in a final part it takes up the categories of terms of first intention---namely substance, quantity, quality, relation, etc. The treatment is similar to that given in Ockham's Summa logicae, but less developed, and less interesting philosophically, than the treatment found in Ockham. We shall therefore omit these chapters, and pass to Part II of Albert's work, dealing with the theory of supposition of terms, through which the truth condition of propositions is determined.]

Part II

Chapter One: On the suppositions of terms.

Having treated of incomplex terms, we must now discuss the suppositions, and properties, of such terms. And first we will deal with the suppositions of terms.

Supposition, in the sense here intended, is the interpretation, or usage, of a categorematic term, for some thing or things, in a proposition. And I say that a term of a proposition is interpreted for something, in this sense: that the predicate of that proposition is indicated to be verified affirmatively or negatively of a demonstrative pronoun denoting that thing. For example, if we say 'A man is an animal'...this term 'man' stands for Socrates or Plato, etc., because the term 'animal', which is the predicate of the proposition, is indicated to be affirmatively verified of a demonstrative pronoun denoting Socrates or Plato. And in this same way, in the proposition in question, the term 'animal' is interpreted for those same things, because it is indicated by the proposition that the term 'animal' is affirmatively verified of a demonstrative pronoun denoting Socrates or Plato, etc. ....

From this it follows that a term, as occurring in a proposition, does not always stand for all the things it signifies, because it may not be used or be interpreted for all these things. I say this, because in this proposition 'The white is running' (album currit), the term 'white' does not stand for whiteness, but for that which has whiteness.

One type of supposition is called simple (suppositio simplex), another type material (suppositio materialis), and another type personal (suppositio personalis). Personal supposition is subdivided into discrete supposition and general supposition (suppositio communis); general supposition in turn is divided into determinate and confused supposition; and confused supposition is itself divided into merely confused (confusa tantum) and confused and distributive supposition (confusa et distributiva). Finally, confused and distributive supposition is either movably (mobiliter) or immovably (immobiliter) confused and distributed.

Chapter Two: Concerning Simple Supposition.

Simple supposition is the interpretation, or the "standing for", of a spoken or written term, in a proposition, whereby it is taken for the mental intention which it does not signify by its imposition. And I say expressly, 'a spoken or written term', to indicate that a mental term cannot have simple supposition, but only material or personal supposition. And I say expressly, 'a spoken or written term', to indicate that a mental term cannot have simple supposition, but only material or personal supposition. For if it

stands for the things outside the mind, of which it is a natural sign, and which are conventionally signified by the (spoken or written) term subordinated to it, then the mental term has personal supposition. I also say expressly, 'which it does not signify by its imposition', because if the term stood for a mental intention which it was instituted to signify, then it would not have simple supposition for this intention, but personal supposition. Such would be the case if I said 'Some quality is a mental intention.'

Simple supposition ought not to be construed as the interpretation of a term for a "universal nature", as some people used to hold; for such a universal nature is not be posited, unless indeed we choose to mean by the expression 'universal nature' the concept representative of many, or which is a natural likeness of many, and to which the spoken and written term is subordinated in signification.

Simple supposition is had by the subject terms of these (spoken or written) propositions: ' "man" is a species', ' "Animal" is a genus'. And this is the case wherever a term of second imposition is verifiable of a term of first imposition such as is not itself instituted to be a sign of a mental intention. ....

### Chapter Three: On Material Supposition.

Material supposition is the interpretation of a term for itself or for any sign similar to itself....and which it was not instituted to signify. To illustrate the first point, take the sentence ' "man" is a one-syllable word'; here the term 'man' stands for itself. As an example of how the term may stand for others like it, and also having the same type of supposition, let us suppose that Socrates says ' "man" is a one-syllable word', and that Plato says ' "Man" is a spoken word'----then the subject of Plato's proposition stands materially for the subject of Socrates' proposition, which is similar to it, and which also has material supposition. ....

And I say expressly, 'which it was not instituted to signify', for if a term is instituted to signify that for which it stands, then it does not have material supposition, but personal supposition. For instance, if I say 'This word is monosyllabic' (Vox est monosyllaba), the subject of this proposition does not have material supposition; but because it is instituted to signify itself, it stands for itself with personal, and not material, supposition. ....

#### Chapter Four: On Personal Supposition.

Personal supposition is the interpretation of a spoken or written word for what it was instituted to signify; or, it is the use of a mental term for what it naturally signifies. ....

General personal supposition is the interpretation of a term for any of the things it signifies----along with the conditions already stated for personal supposition.

Discrete personal supposition is the interpretation of a singular term, or of a general term conjoined with a demonstrative pronoun, for one thing only---the other conditions of personal supposition being understood. This kind of supposition belongs to singular terms, and also to general terms joined to a demonstrative pronoun, when taken significantly. ....

Determinate supposition is the use of a general term for each of the things it signifies by its imposition, or which it signifies naturally (if it is a mental term), in such manner that a descent to its singulars can be effected by a disjunctive proposition. In this sentence, 'A man runs', the term 'man' has determinate supposition, because the term 'man' in this sentence stands, disjunctively, for everything which it signifies by its imposition. For it is sufficient, for the truth of the proposition 'A man runs', that this disjunctive proposition be true: 'This man runs, or that man runs', and so on for all singulars.

Merely confused personal supposition is the interpretation of a term for each thing it signifies by its imposition, or which it signifies naturally (if it is a mental term), in such manner that a descent to its singulars can be made by a proposition of disjunct predicate, but not by a disjunctive or conjunctive proposition. .... This kind of supposition is had by the term 'animal' in the sentence, 'Every man is an animal'; for this is a valid consequence, 'Every man is an animal, therefore every man is either this animal or that animal, etc.', so that this disjunct predicate 'this or that animal' is verifiable of the term 'man' taken significantly. ....

#### Chapter Five: On Confused and Distributive Supposition.

Confused and distributive supposition is the interpretation of a spoken or written term, in conjunctive manner, for each thing...which it is instituted to signify; or it is the interpretation of a mental term for each thing...which it signifies naturally----such that a descent to the singulars, for which it stands, can be made in conjunctive manner, by reason of that supposition. ....

#### Chapter Six: The Rules of Supposition of Terms.

Now we set forth rules for the supposition of terms, of which the first is this:

I. The subject term of any singular proposition has discrete supposition. For example, 'Socrates runs', 'This man runs.'

II. The second rule: In an indefinite proposition, the subject has determinate supposition. For example, in 'Man is an animal', or 'Man is not an animal' .....

III. The third rule: The subject of a particular proposition has determinate supposition, just as does the subject of an indefinite proposition. Such is the case when we say 'Some man is an animal', or 'Some man is not an animal.'

IV. The fourth rule: Every general term which follows immediately on a sign of universality, without a preceding negation, has confused and distributive supposition. For example, if we say 'Every man runs', the term 'man' has confused and distributive supposition. And I say expressly, 'without a preceding negation', because if it is said 'Not every man runs', the term 'man' does not have confused and distributive supposition, even though it does follow immediately on the sign of universality.

V. The fifth rule: A negative preceding a general term, whether immediately or mediately, makes it have confused and distributive supposition. Hence in every negative proposition, regardless of its quantity---whether universal or singular or particular---, the predicate has confused and distributive supposition, unless the predicate is a singular term, or unless some other syncategorematic terms prevents such supposition. For example, in the sentence 'No man is an ass', both the term 'man' and the term 'ass' have confused and distributive supposition. And I say expressly that the predicate of a negative proposition has confused and distributive supposition unless it be a singular term---for in the sentence 'Socrates is not Plato', even though this is a negative proposition, its predicate does not have confused and distributive supposition, because it is a singular term and hence cannot be distributed. Likewise, I said expressly 'unless some other syncategorematic sign prevents'; for although in this sentence 'Socrates is not a man', the term 'man' has confused and distributive supposition, this is not the case in the sentence 'Socrates is not every man'; because this syncategorematic sign 'every' prevents the term 'man' from standing for its values movably (mobilitate), and makes it stand immovably (immobilitate). .....

VI. The sixth rule: A term which is made infinite, by a preceding negative, is given confused and distributive supposition. For this is a valid consequence: 'An ass is a not-man, therefore an ass is not Socrates and it is not Plato,' and so on for all singulars.

VII. The seventh rule: A relative pronoun of diversity makes the term following it have confused and distributive supposition. An example is the sentence 'An ass is other than a man'; for it follows validly, 'therefore an ass is other than Plato and it is other than Socrates', and so on for each singular. The reason for this is, that a relative pronoun of diversity includes in itself a negation. ....

VIII. The eighth rule: A term including in itself a negation, makes the term following it have confused and distributive supposition. ....

IX. The ninth rule: A syncategorematic term which makes a comparison of equality, such as these terms 'such as', 'in the same manner as', etc., makes the term following it have confused and distributive supposition.....

### Chapter Ten: On Ampliation.

Having treated of supposition, it remains to discuss ampliation. Ampliation is the interpretation of a term for some thing or things other than those which actually exist, and for which it is indicated to stand in the proposition in which it occurs. Certain rules are given for this, of which the first is this:

I. Every term, having supposition with respect to a verb of past tense, is amplified to stand for that which has existed. For example, in the sentence 'The white was black', the term 'white' is taken not only for that which is white, but also for that which was white; hence this sentence 'The white was black' signifies that what either is or was white, was black. Similarly this sentence 'Every animal was in Noah's ark' signifies that everything which is an animal or which was an animal, was in Noah's ark. ....

II. The second rule: A term having supposition with respect to a verb of future time is amplified to stand for that which exists or which will exist. Thus, 'A man will be born', or 'the white will be black', etc. ....For when it is said, 'A man will be born', the meaning is that one who is now a man, or one who will be a man, will be born; and this is true....

III. The third rule: Every term having supposition with respect to this verb 'can' (potest) is amplified to stand for that which can exist. So in this sentence, 'the white can be black', it is signified that what is now white or what can be white, can be black. ....

IV. The fourth rule: A term having supposition with respect to this verb 'may be' (contingit) is amplified to stand for that which exists or for what may exist. This is



evident, for in saying 'A may exist' (A contingit esse), ...it is indicated that what is now A, or what may be A, may exist.

V. The fifth rule: A term which occurs as subject, in any proposition, with respect to a past participle (occurring as predicate), even though the proposition has a copula of present time, is amplified to stand for that which has existed. ....For example, 'Some man is dead'; in this sentence the subject term stands for that which exists or which has existed.

VI. Rule Six: In a proposition which has a copula of present time, but a predicate of future time, the subject is amplified to stand for that which exists or which will exist. For example, 'Some man is to be born' (aliquis homo est generandus).

VII. Rule Seven: In a proposition with copula of present time, but with a predicate which includes this verb 'can' in its meaning---such as those verbal nouns terminating in '-ble'---, the subject is amplified to stand for that which exists or which can exist. For example, this sentence 'Some man is generable' is equivalent to 'Some man can be generated', in which the term 'man', by our third rule, is amplified to stand for that which exists or which can exist. And on this account, because this word 'risible' terminates in '-ble', and is equivalent to the expression 'that which can laugh', this sentence 'Every risible thing is a man' is to be denied; for this is equivalent to the sentence 'Everything which is laughing or which can be laughing is a man.' But this is false, because the Antichrist either is or can be laughing, but nevertheless the Antichrist is not (now) a man....

VIII. Rule Eight: All verbs, even though of present tense, which have the property of being transitive with respect to future or past or possible objects, as well as present objects, are ampliative of terms to all time---present, past, and future. Such are these verbs, 'understand', 'know', 'be acquainted with' (cognoscere), 'signify', and so forth. The reason of this is, that a thing can be understood without temporal determination, or in abstraction from any particular place or time. And when a thing is thus understood, it can just as well be something which was or will be or can be, as a thing now existing. Hence, if I have in my mind the common concept from which this term 'man' is derived, I understand indifferently every man---present, past, and future. And because these verbs have the property of being transitive with respect to past and future objects as well as present objects, it follows that such verbs are ampliative of the terms in the accusative, which they take as objects, and make these terms stand for past or future things as well as for the present ones.

Now this is not the case with other verbs signifying an action transitive only with respect to a present object, such as these verbs 'drink', 'eat', and so forth. Thus, because the action of eating determines its object as present, this consequence is valid: 'I am now eating bread, therefore bread now exists;' similarly, 'I am drinking wine,

therefore wine now exists.’ But since the action signified by the verb ‘understand’ is not determined merely to a present object, but can take as object a thing which is past or which is future, this consequence is not valid: ‘I now understand a rose, therefore a rose now exists.’ For in the antecedent the term ‘rose’ does not merely stand for what presently exists, but also for what has existed or will exist, or for what can exist.

It should be noted also that just as verbs of this type, in the active voice, have this ampliative property with respect to the accusatives taken as their objects, so these verbs, in the passive voice, are ampliative with respect to the terms in the nominative case which are their grammatical subjects. So just as, in the sentence ‘I understand a rose’, the term ‘rose’ occurring as accusative object, is amplified, so in this sentence ‘A rose is understood’, the term ‘rose’ which is here in the nominative, occurring as grammatical subject of the verb, is amplified.

This verb ‘stands for’ (supponere) also has this same ampliative property. So when we say, ‘The term T stands for something’, the word ‘something’ is amplified to stand for that which exists or which has existed or which will exist or which can exist, or which can be understood. And therefore this consequence is not valid, ‘The term T stands for something, therefore it stands for what now exists.’

IX. Rule Nine: In any proposition of necessity (in the “divided sense”), the subject is amplified to stand for that which exists or which can exist. For example, the sentence ‘Every B is necessarily an A’ is equivalent to this sentence ‘Everything which is or can be a B, is necessarily an A’. And similarly this sentence ‘Every creating thing is necessarily God’ is equivalent to ‘Everything which is creating or which can be creating, is necessarily God.’ And the reason is, that the sentence ‘Every creating thing is necessarily God’ is equivalent to this sentence ‘No creating thing can not be God’ (Nullum creans potest non esse Deus)---as will be explained later. But in the second sentence the subject is amplified, as is evident by the rule which said that in any proposition in which the verb ‘can’ occurs, the subject is amplified to stand for what exists or for what can exist. ....

#### Chapter Eleven: On the Appellations of Terms.

It remains to discuss appellation. Appellation is a property of the predicate. It is customarily said that the predicate of a proposition has appellation according to its form, with respect to the verb which is the copula of the proposition. For a predicate to have appellation according to its form (predicatum appellare suam formam) is for that predicate, under the same form...under which it is predicated in the proposition in which it occurs, to be verifiable, in a proposition of present time, of a demonstrative pronoun pointing to that for which the subject of the original proposition stands. With respect to such appellation the following rules are given:

I. Rule One: In a proposition of present time, the predicate has appellation according to its form---i.e., for the truth of that proposition of present time, it is required that the predicate, in the form in which it occurs, be verifiable of a demonstrative pronoun denoting that for which the subject of the original proposition stands. For instance, for the truth of this proposition 'Man is an animal', it is required that this sentence, if stated, be true---namely, 'This is an animal', in which the pronoun 'this' points at that for which the subject term stands in the original proposition 'Man is an animal.'

II. In a proposition of past time, the predicate following on the verb has appellation according to its form---i.e., for the truth of the proposition it is required that its predicate was (or would have been) verifiable, in its same form, in a proposition of present time, of a demonstrative pronoun pointing at that for which the subject of the original proposition stands. For instance, for the truth of this sentence 'The white was black', it is required that if, at some past time, there had been stated this sentence 'The white was black', where the pronoun 'this' pointed at that for which the subject of the original proposition stands, the sentence would have been true.

And let it be known that the subject term does not have appellation according to its form. For it is not required, for the truth of the sentence 'The white was black', that this term 'white' should have been subject of a true proposition of present time with respect to this predicate black---for it never was true to say 'The white is black.' But it suffices that a demonstrative pronoun take the place of that term 'white', so that it suffices is at some past time this sentence was true, 'This is black', where the pronoun 'this' pointed at the thing for which the subject of the other proposition, 'The white was black', stands.

III. Rule Three: In every proposition of future time, the predicate following on the verb has appellation according to its form---i.e., in the same form it will be verifiable, in a proposition of present time, of a demonstrative pronoun pointing at that for which the subject of that proposition of future time stands.

IV. Rule Four: A predicate following on this verb 'can' (potest) has appellation according to its form. For example, for the truth of this sentence 'the white can be black', it is required that this modal term 'possible' be truly predicable of a proposition in which the predicate of the original proposition is predicated, in the same form, of a demonstrative pronoun pointing at that for which the subject term stands. For example, for this proposition to be true, 'the white can be black', it is required that this sentence, 'This is black', be possible---with the demonstrative pronoun 'this' pointing to what is denoted by the subject term of the proposition 'The white can be black' .....

## NOTES

For further materials, and explications, of the mediaeval doctrine of the “properties of terms”---primarily supposition---, see the following works:

E.A. Moody: “Truth and Consequence in Medieval Logic,” Amsterdam 1953, chapters II and III.

Philotheus Boehner: “Medieval Logic”, Chicago 1952, pp. 27-51, and 103-114.

J. P. Mullally: “The Summulae Logicales of Peter of Spain,” Notre Dame, 1945, pp. 1-129

J. M. Bochenski, “Formale Logik” Freiburg-Munchen, 1956, pp. 186-208.

Ockham: Philosophical Writings, edited and translated by Ph. Boehner, pp. 47-78

Selections from Albert of Saxony's Summa Logicae  
(continued)

Part III: (On Propositions)

Chapter One: On the proposition.

Having treated of terms, and of the properties of terms of second intention and of first intention, it remains to speak of propositions, which are composed of terms. Of propositions, some are categorical, some hypothetical, and some are grammatically categorical but logically hypothetical, such as exclusive, exceptive, reduplicative, and other such propositions.

Of categorical propositions such as are not logically equivalent to hypotheticals, some are called assertoric, or propositions of "simple inherence," while others are called modal. ...An example of the first type is the sentence 'Man is an animal;' this is a proposition of simple inherence, because by its form it indicates simply that the predicate belongs to the subject, without indicating whether it belongs to it necessarily or contingently or in any other modal sense. And by this criterion, the sentence 'That man is an animal is necessary' ought properly to be called assertoric, because its predicate—the term 'necessary'—is indicated to belong to the subject without any further qualification, or without indication of whether it belongs to the subject necessarily or contingently or in any other such manner. An example of a modal proposition is, 'Man is necessarily an animal' (hominem necesse est esse animal); here the predicate is indicated to belong to the subject in a special manner, namely, to belong necessarily to the subject. ....

Of assertoric categorical propositions, some are of amplified subjects---such as 'A man is dead', 'Antichrist is to be'; others are of non-ampliated subjects, such as 'A man is an animal', 'A stone is a substance', etc. Again, of assertoric categoricals with amplified subjects, some are of present time, some of past time, some of future time.

Of categorical propositions of present time, some are de secundo adiacente (= where the verbal copula is not followed by a predicate term), and others are de tertio adiacente (where the copula is a third element linking subject and predicate). An example of the first is, 'A man is.' An example of the second is, 'A man is an animal.'

Also, some categorical propositions are composed of incomplex terms, such as 'A man is an animal', while others have compound terms, such as 'A man or an ass is a man or an ass', 'A white man runs', 'A son of Socrates runs', 'He who is running fast is actually arguing' (Velociter currens est actualiter disputans), or 'Three and two are five', etc. ....

Having indicated these general distinctions of kinds of propositions, we will first discuss categorical propositions, then hypotheticals, and then categoricals which are logically equivalent to hypotheticals. As concerns categorical propositions, we will first treat of assertoric categoricals, and then of modals.

It should be known, first, that a categorical proposition is one which has a subject and predicate and copula as its principal components. Against this it might be objected that there are many propositions which have only a subject and predicate, and no copula, such as the sentence 'Man runs'. It seems therefore that not every categorical proposition has a subject and predicate and copula. To this we reply that although they do not have an explicit copula, they do have it implicitly. Thus the verb 'runs', and in general any active verb, includes in it a participle of present time along with a copula---as is seen when we analyze this sentence 'Man runs' into this 'Man is running.' ....

Of categorical propositions, some are universal, others particular, others indefinite, and others singular. A universal proposition is one whose subject term is determined by a sign of universality (= a universal quantifier). ... A particular proposition is one whose subject term is determined by a sign of particularity (= existential quantifier). ... An indefinite proposition is one having a general term as subject, without this being determined by a sign of universality or of particularity. ... A singular proposition is one whose subject term is a singular term, or a general term combined with a demonstrative pronoun---as when we say 'This man is an animal', or 'Socrates is running.'

Again, some propositions are affirmative, and some negative. An affirmative proposition is said to be that in which the formale (formula?) is affirmative, while a negative proposition is one in which the formale is negated. And by 'formale', of a categorical proposition, I mean the verbal copula. By the 'formale' of a hypothetical proposition, I mean the propositional connective (nota hypotheticae). And thus these propositions are called affirmative: 'Socrates is not running and Plato is not arguing', 'If Socrates is not running, then Socrates is not moving'; but these are called negative, 'It is not the case that Socrates is running and that Plato is arguing' (Non: Socrates currit et Plato disputat), or 'It is not the case that if Socrates moves, Socrates runs' (Non: si Sortes movetur, Sortes currit). ....

Chapter Two: On the universal and particular signs.

We next treat of the signs which determine universality or particularity. Such a sign is a syncategorematic term which expressly indicates the way in which the term following it stands for its values (supposita). Of such signs, some are of universality, others of particularity.

A sign of universality is one which indicates that the general term, to which it is joined, stands conjunctively for each of its values---either in the unqualified sense, as in saying 'Every man runs', or with some stated restriction as when we say 'Every man other than Socrates runs', or 'Each of these two men is running.'

A sign of particularity is that by which it is indicated that a general term stands disjunctively for each of its values, as when we say 'Some man is running.' And concerning the sign of universality, I said expressly that it makes the general term stand 'conjunctively'; for in saying 'Every man runs', it follows by a formal consequence, 'therefore this man runs and that man runs, etc.' But in the case of the sign of particularity I said that it indicates that the general term to which it is joined stands disjunctively for each of its values. And this is evident, because if I say 'Some man runs', it follows, 'therefore Socrates runs, or Plato runs, or Cicero runs', and so on for each singular. And this would not be the case unless the term 'man' stood for every one of these singulars, though in disjunction. Consequently, for the truth of this proposition 'Some man runs' it is necessary and sufficient that it be true to say, of any man whatsoever, that he is running---or, that one of the singular sentences of which the disjunctive is composed, be true. And this is because it suffices, for the truth of a disjunctive, that one of its component propositions be true. This had led some people to believe that in a particular proposition the subject term stands for only one value, but this is false.

#### Chapter Four: On Modal Propositions.

We next treat of modal propositions. Of these, some are held by everybody to be modal, while others are not considered by everybody to be modal. The first kind comprises propositions in which the verbal copula is determined by one of these modal terms, 'possible', 'impossible', 'contingent', 'necessary', 'true', and 'false'; as when we say 'Socrates is possibly running' (Sortem possibile est currere), 'Socrates is not possibly an ass' (Sortem non est possibile esse asinum), etc. ....

Propositions not regarded by everybody as modal, are those in which the verbal copula is determined by one of these modal terms---'known', 'believed', 'conjectured', etc.---as in saying 'Every man is known by me to be an animal', or 'Every man is believed by me to be white.'

Thus, in order that a proposition be correctly called modal, it is required that the verbal copula be determined by one of these modal signs having the power of determining the copula with respect to its copulative function. And the propositions whose verbs are not thus determined or specified, are called assertoric, or "of simple inherence", and they are not called modal.

A question might be raised, with regard to propositions such as 'It is necessary that man be an animal' (hominem esse animal est necesse), 'It is impossible that a man

be an ass' (impossibile est hominem esse asinum), etc. ...whether these are modal or assertoric. I respond briefly that they are assertoric and not modal, for in these sentences the predicate is indicated to belong to the subject without any further modification of that inherence. For it is clear that no determination of the copula of these propositions is made, and consequently they are to be called assertoric. If, however, we were to say 'That a man is an animal is necessarily true', the proposition would be modal, because here a mode of inherence of the predicate in the subject is specified by the addition of the modal term 'necessarily' to the verbal copula.

Propositions of this kind, in which a modal term occurs, are commonly distinguished as "divided" or as "composite"---or, as being stated "in the divided sense" or "in the composite sense". Composite modal propositions are those in which the dictum occurs as subject, and the mode as predicate. ... By mode I mean these terms 'possible', 'impossible', etc.; and by dictum I mean all that occurs in the proposition other than the mode, and the copula, and the negation sign, and quantifying signs, or other signs determining the mode or the copula. In this proposition, for example, 'That Socrates is running is possible' (Sortem currere est possibile), the expression 'That Socrates is running' (Sortem currere) is the subject and is the dictum, whereas the term 'possible' is the predicate, and is the mode. .... Briefly, when the modal term occurs either before the dictum as a whole, or after it, the proposition is called "composite", or is said to be "in the composite sense."

Divided modal propositions, however, are those in which one part of the dictum is subject, and the other part predicate, while the mode determines the copula. For example, in the sentence 'A man is possibly running' (hominem possibile est currere), you can see how the mode intervenes between the parts of the dictum, and divides them from each other. So propositions of this kind are called "divided", because the mode divides the parts of the dictum. Note that modal terms, in this usage, are sometimes in the form of nouns, and sometimes in the form of verbs. Thus, 'For a man it is possible to be running' (hominem possibile est currere); 'A man can be running' (Homo potest currere); sometimes it occurs adverbially, as in saying 'A man possibly runs.'

For the truth of composite modal propositions, it is required that the mode be verifiable of a sentence corresponding to the dictum. For example, in saying 'That a man is running is possible' (hominem currere est possibilile), the truth of this proposition requires that this proposition 'A man is running' be possible, this proposition 'A man is running' being the sentence corresponding to the dictum.

For the truth of divided modals, or of modals in the divided sense, this is not required. Rather, it is required that the mode of such a proposition be verifiable of a proposition composed of a demonstrative pronoun denoting that for which the subject of the sentence corresponding to the dictum stands, and of the predicate of the original



proposition taken in its same form. Consider, for example, this proposition: ‘Something white is possibly black’ (album possibile est esse nigrum). For the truth of this proposition it is not required that this sentence ‘Something white is black’ be possible; but it is required that this proposition be possible, ‘This is white’, in which the demonstrative pronoun ‘this’ ostensibly indicates that which is denoted by the subject of the sentence (i.e., ‘Something white is black’) which corresponds to the dictum of the original proposition ‘Something white is possibly black’. From this it follows that although it is impossible that I am looking at every star, nevertheless every star is possibly looked at by me. For if any star is pointed to, it is true to say ‘It is possible that I look at this star’. From this it is evident that the sentence ‘Every star is possibly looked at by me’ should not be reduced to assertoric form (non debet poni in esse) through this sentence ‘I am looking at every star’---for this is impossible---; but it should be reduced to assertoric form by a conjunctive proposition having many singular components, each of which is possible---i.e., ‘This star I look at, and this star I look at,’ and so on for each single star. For of this conjunctive proposition, each component is possible, or can be true. ....

What about the quantity of modal propositions? On this question I say that modal propositions of the divided type are of the same quantity as are the propositions corresponding to their dicta. ....But this does not hold for propositions of the composite type; for this sentence ‘That every man is an animal is possible’ is not a universal proposition, although the sentence corresponding to its dictum is universal. Rather, this is an indefinite proposition. The reason is that this whole expression ‘That every man is an animal’ is the subject, and this subject is not distributed, and hence is not universal; and because this dictum has material supposition for the sentence ‘Every man is an animal’ and for every sentence of similar design whether spoken, written, or mental, so that the dictum stands disjunctively for all these sentences, the proposition is indefinite. Since this proposition signifies that the sentence ‘Every man is an animal’ is possible, the corresponding universal would be this: ‘Every sentence similar to this sentence “Every man is an animal” is possible.’ Or it could be expressed by ‘Everything which is for every man to be an animal, is possible’ (Omne quod est omnem hominem esse animal est possibile). ...

We now consider the question of the quality of modal propositions. On this we say briefly that composite modals are subject to the same rules as assertoric propositions. .... For this is an assertoric statement, ‘That Socrates runs is possible’, and likewise ‘That no man is an animal is impossible’---for here the term ‘impossible’, which is the predicate, is affirmed of the whole expression ‘That no man is an animal’; and although this expression contains in itself a negated subject, the proposition in which it occurs is affirmative. ....

But with respect to modal propositions of the divided type, some are purely affirmative----such are those in which no negation occurs, as when we say 'A man is possibly an ass.' But others are negative, and these are of two kinds: in some, the negation determines the mode, when it precedes it---as when we say 'No man is possibly an ass'; but in others the negation does not determine the mode, but follows after it, as when we say 'A man is possibly not white.' Now some people raise the question of whether those propositions in which the negation follows the mode ought to be called purely affirmative, or purely negative----as in the sentence 'For a man it is possible that he is not white' (hominem possibile est non esse album). I say to this that such propositions are negative. Thus I call this sentence purely negative, 'For a man it is possible that he is not white', because it is equivalent to one which is obviously negative, namely this, 'A man is not necessarily white' (hominem non necesse est esse album). And from another case I argue; for this is a true sentence, 'A chimaera is possibly not an ass'; but if it were affirmative it would not be true, because any affirmative whose subject term stands for nothing is false. ;.....

#### Chapter Five: On hypothetical propositions.

A proposition is called hypothetical, if it is composed of several categorical propositions and of one or more sentential connectives (notae hypotheticae) as its principal parts. Thus a hypothetical proposition may be composed of more than two categoricals; indeed it may be composed of three, or of four, and of any number you please. So what is written in a big book could be considered as one hypothetical proposition. ....

Some hypothetical propositions are called conjunctive (copulativae), some disjunctive, some conditional, some local, some temporal, and some causal. Conjunctives are those composed of several categoricals connected by the conjunction 'and' .... Disjunctives are composed of several categoricals connected by the conjunction 'or' .... Conditionals are composed of several categoricals connected by the conjunction 'if' .... Causal hypotheticals are composed of several categoricals connected by the adverb 'because' .... Temporal hypotheticals are composed of several categoricals connected by the adverb 'when' ... Local hypotheticals are composed of several categoricals connected by the adverb 'where'. ....

For the truth of the conjunctive it is required that each component proposition be true. Thus this conjunctive 'God exists and man is an ass' is false, because it signifies differently than its categoricals taken separately---i.e., it signifies that the case is, conjunctively, as its categoricals signify separately. Thus, to the conjunctive there corresponds a meaning and a conception which is distinct from the separate meanings of its categoricals. This is why the statement 'God exists and man is an ass' is false in the unqualified sense, because the mental proposition corresponding to it is unqualifiedly false.

For the falsity of the conjunctive, it suffices if one of its components is false.

In order that a conjunctive be possible, it is required that its components be compossible, and it is not sufficient that each component be possible. For each component of this conjunctive, 'The king is seated and the king is not seated' is possible, but the conjunctive is impossible because it is composed of contradictory propositions.

For a conjunctive to be impossible, it is not required that each component be impossible, nor even that one component be impossible; but it suffices if the components are not compossible, or that they are contradictory. It does however suffice, for its impossibility, that one of its components is impossible.

In order that a conjunctive be known, it is required that each component be known. And for a conjunctive to be doubted or doubtful (dubia), it suffices that one component be such.....

For the truth of an affirmative disjunctive, it suffices that one part be true. This is evident, because from any component of an affirmative disjunctive, to the affirmative disjunctive of which it is a component, there is a valid consequence; for this is valid, 'A exists, therefore A exists or B exists.' But this would not be so unless it sufficed, for the truth of the affirmative disjunctive, that one of its parts is true. ... And I say expressly, 'for the truth of an affirmative disjunctive,' because for the truth of a negative disjunctive it is not sufficient that one part be true; for example, for the truth of this sentence 'It is not the case that you run or that you do not run' (Non: tu curris vel tu non curris), it is not sufficient that one part be true. This is evident, because a negative disjunction is equivalent to a conjunctive, and for the conjunctive it is required that both parts be true, if the conjunctive is to be true. Thus a negative disjunctive contradicts an affirmative disjunctive; but the contradictory of an affirmative disjunctive is a conjunctive composed of the contradictories of the parts of the disjunctive; therefore the proposition contradicting an affirmative disjunctive is equivalent to a conjunctive.<sup>2</sup> So the sentence 'It is not the case, that you run or that you do not run', is equivalent to this sentence 'You do not run and you do run'; and this is false, because it is a conjunctive composed of contradictories.

Similarly, there is not a valid consequence from either part of a negative disjunctive, to the negative disjunctive; for it does not follow, 'You do not run, therefore it is not the case that you either run or do not run'. For these sentences are

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<sup>2</sup>Albert here states the so-called "De Morgan theorem", some five hundred years before De Morgan reputedly discovered it.

contradictory: 'You run or you do not run', and 'It is not the case that you run or do not run.'

For the necessity of the affirmative disjunctive (and from here on I only speak of the affirmative disjunctive), it is required that one of its parts be necessary; as in the sentence, 'Socrates runs or God exists.' Or it can be necessary when neither part is necessary, and when both parts are contingent, if these parts are mutually contradictory----as in this sentence 'A king is seated or no king is seated.'

For the possibility of the affirmative disjunctive it suffices that one of its parts be possible. .... For its impossibility, however, it is required that both parts be impossible, because a disjunctive (if affirmative) follows as a consequent on any one of its parts. But if a consequent is impossible, its antecedent is impossible; hence if the disjunctive is impossible, each of its parts must be impossible. ....

For the truth of a conditional, some people say that it is required that the antecedent cannot be true unless its consequent is true. But this is not correct, for the antecedent can be true, the consequent being false. Others, wishing to correct this formulation, say that for the truth of the conditional it is required that the antecedent cannot be true unless the consequent is true, if both are stated. But this is not correct either; if it were, it would follow that this conditional is true, 'If no proposition is negative, no ass exists.' But this is false, because the contradictory of the consequent is not incompatible with the antecedent. This is evident, because it is impossible that the antecedent be true when the consequent is false; and this is proved in this way: if the antecedent could be true, while the consequent is false, this would be the case either when it (the antecedent) exists, or when it does not exist. Not the second, for when it does not exist, it is not true or false. But neither is it true when it does exist; for whenever it exists, there exists a negative proposition, since this antecedent itself is a negative proposition. Yet it signifies that no proposition is negative. Therefore, when it exists, it is false.

So it should be stated in a different way: that for the truth of the conditional it is required that it be impossible for the case to be as it is signified to be by the antecedent, unless the case is as it is signified to be by the consequent----on the assumption that the proposition is stated.

For the falsity of the conditional, the opposite of what is required for its truth, is sufficient----namely, that the case can be such as it is signified to be by the antecedent, with what is signified to be the case by the consequent not being the case.

For the necessity of the conditional, the requirement is the same as for its truth; and for its impossibility, the requirement is the same as for its falsity. This is because every true conditional is necessary, and every false conditional is impossible. ....

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Chapter Ten: On the properties of propositions.

Having treated of terms and of the properties of terms, and having treated of propositions, it remains to discuss the properties of propositions, and such relations between them as those of opposition, conversion, and equivalence. But first we will take up the properties of propositions. And because conversions and equivalences are consequential relations, they will be treated later on in the treatise on consequences.

I now suppose that, of propositions having the same terms in the same order--- i.e., propositions of similar subject and similar predicate---some are said to be of natural matter, and some of remote matter. Here the word 'matter' refers to the terms which make up the content; thus the subject and the predicate constitute the matter of the proposition. And those propositions are said to be of natural matter, which are such that the predicate signifies the same things as the subject, and cannot be truly negated of the subject; or, it may be a proposition in which a more universal term is predicated of its inferior, or a definition of its definiendum, or the same term of itself.

Other propositions are said to be of contingent matter, whose predicate can be (truly) predicated, affirmatively or negatively, in contingent manner, of the subject. But propositions are said to be in remote matter, whose predicate can in no way be (truly) predicated of the subject. An example of the first (natural matter) is, 'Man is an animal'; of the second (contingent matter), 'A man runs'; of the third (remote matter), 'Man is an ass.'

The first rule is: that every necessary affirmative categorical proposition is in natural matter. ....

Rule two: Every impossible negative categorical proposition is in natural matter. For every such proposition contradicts a necessary affirmative categorical, which, by Rule One, is in natural matter.....

Rule three: Every impossible affirmative proposition is in remote matter ... and likewise its contradictory, which is a necessary negative proposition....

Rule four: Every contingent proposition is in contingent matter, as is its contradictory.

Rule five: Every negative proposition is of the same matter as the affirmative, and every convertible proposition is of the same matter as it converse.

Note that the truth or falsity of the propositions has no bearing on whether they are in natural matter or some other matter. Thus a necessary proposition can be in remote matter----as 'Man is not an ass', and this is of the same matter as the affirmative 'Every man is an ass'; but 'Man is not an ass' is necessary because its contradictory 'Every man is an ass' is impossible. This shows that the rule which some people lay down is false---namely, that every proposition in remote matter is impossible. On the contrary, a necessary proposition can be of remote matter, though only if it is negative and not affirmative.

Of propositions sharing the same terms, some are contraries, some contradictories, some subcontraries, and some subalternate. Contraries are the universal affirmative and the universal negative. Subcontraries are the particular negative and the particular affirmative. Subalternate are the universal affirmative and particular affirmative, and also the universal negative and particular negative. Contradictories are the universal affirmative and particular negative, and also the universal negative and particular affirmative.

Note that although the universal affirmative and the universal negative are contraries, it is not always necessary that contrary propositions be such that both are universal. Thus these are contrary propositions, 'Every man runs' and 'Man does not run', and yet not both are universal. Nor are all contradictories such that one is universal and the other particular---for a conjunctive is contradictory to a disjunctive composed of the contradictories of the parts of the conjunctive, and yet neither of these hypotheticals is of any[!!Moody has "an" here!!] quantity. ...

Concerning contradictories there is this rule: that if one is true, the other is false, and conversely. Thus they cannot both be true, nor can both be false, in any matter. And this is a principle common to every science.

A second rule concerns contraries, and it is that if one is true, the other is false, but not conversely. Thus they cannot both be true, but they may both be false, if in contingent matter. E.g., 'Every man runs' and 'No man runs', supposing that Socrates is running and that all other men are standing still. But you may ask, Cannot both contraries be false in natural matter? I say that they can; for these are both false, and are contraries in natural matter, namely 'Every animal is a man' and 'No animal is a man' ....

Rule three: In the case of subcontraries, if one is false the other is true, but not conversely. For in contingent matter they can both be true, as in saying 'Some man is white' and 'Some man is not white.' Thus, when contraries are both false, the subcontraries are both true; but two subcontraries cannot both be true in natural matter and remote matter, where there is direct predication.

Rule four: Concerning subalternation, if the universal is true, its particular is true, but not conversely. However, in natural matter, if the particular is true, the universal is true. Thus, if this is true, 'Some man is an animal,' then this is true 'Every man is an animal.'

From the first of the above rules, as from a single principle, the other rules can be proved. For if contraries were both true, then the negative contrary rules can be proved. For if contraries were both true, then the negative contrary would imply the negative subalternate, and in that case two contradictories would both be true, which is against the first rule. Likewise, if subcontraries were both false, then if the affirmative were false, its affirmative subalternant, [!!sic!!] which contradicts the other subcontrary, would be false, and thus contradictories would be both false.

It may be asked how these propositions are related---namely, 'Every man runs' and 'This man does not run.' We reply that they are contrary, because they share the same terms, and cannot be both true, though they can perfectly well be both false. The assumption is evident, because if we suppose that Socrates is running, and that all other men are standing still, then this would be false, 'This man is not running', pointing to Socrates, and at the same time the proposition 'Every man is running' would be false. From this it is clear that it is not necessary for both of two propositions to be universal, in order to be contrary----as is shown in this case, where one is universal and the other particular (singular?).

The rule determining contradiction is, that the term which in the affirmative proposition has confused and distributive supposition, has determinate supposition in the negative proposition; and the term which, in the affirmative, has merely confused supposition, has confused and distributive supposition in the negative. An example is provided by these propositions, 'Every man is an animal' and 'Some man is not an animal.'