#### Notes on Aristotle's De Interpretatione.

#### Chapter 1.

#### a. The programme stated:

First we must define the terms 'noun' and 'verb', then the terms 'denial' and 'affirmation', then 'proposition' and 'sentence.'

Why we settle these matters and why in this way? Aristotle's aim is to characterise fundamental logical relations — what they are relations between and their properties. So he lists some of the important meaningful elements of language. His characterisation is fundamentally semantical — that is to say the differences are differences of meaning — rather than syntactical —- i.e. in terms of the grammatical form of the expression.

#### b. Aristotle's Theory of Meaning



Note that the affection of the soul is something passive - the effect of an active cause, either the presence of the thing or the utterance of the appropriate spoken expression.

What does Aristotle suppose an affection of the soul to be? Is it an image of the thing? How could there be any other kind of likeness? Is this a plausible account of meaning?

Note: this picture is, as now we say, *psychologistic*. According to it meaning is something in the *mind*.

Boethius in his commentary on *de Interpretatione* explains that Aristotle held that what was transferred to the mind was the form that makes the thing outside of the mind the kind of thing that it is. The idea is that when we see a dog, or after seeing lots of dogs, for example, we will extract, or as Boethius says, *abstract*, just what it is that makes dogs to be dogs. This is our concept of a dog. We may not be able to define what a dog is but once we have the concept we will be able to recognise a dog when we see one. We introduce the term 'dog' in order to prompt a listener to summon up the concept of a dog. This theory of the acquisition of concepts is sometimes called the '*formtransference*' theory and something like it was accepted by many mediaeval philosophers.

#### c. Truth or falsity have to do with combination and separation.

The fundamental bearers of truth and falsity are affections of the soul - i.e. thoughts. The example of 'goat-stag' is a combination of words but not the right kind of combination to be true or false. The basic idea then is that of combination and separation of a certain kind i. A ship combined with sinking = a sinking ship. But what I understand when you say 'a sinking ship' is different from what I understand when you say 'a ship is sinking'. The second kind of combination is a *statement*, *proposition*, or *assertion*.

## Chapter 2 Nouns.

A noun, i.e. a name, is a spoken sound significant by convention without time. That is, it is a word which picks out something without containing any indication of the time.

Note that for Aristotle the basic unit of meaning is the word, and in the first place, the name.

## Chapter 3 Verbs

A verb in addition to naming signifies time. So it has a naming function and carries an indication of time. Example: 'runs' = 'is running' signifies running at the present time. A verb in combination with noun (e.g. 'Socrates is running'. ) is a proposition but a verb alone is not. That is to say a verb combined with a noun forms a proposition. The verb in combination indicates that something is said of something.

Some technical terms: In the sentences 'S is P' and 'S is not P' 'P' is the predicate and 'S' the subject. Propositions of the form 'S is P' and 'S is not P' are said to be *predicative* or *categorical*.

#### Chapter 4 Expressions (Sentences)

Spoken expression with significant parts. Aristotle notices that there are different kinds of sentence: prayers, promises etc. This apparently trivial observation will turn out to be of vital importance in determining what logical relations are relations between.

#### Chapter 5 Unitary Expressions

The most basic proposition which says one thing about one thing, is an *affirmation*, next is *negation* 

Propositions, i.e. statement making utterances must contain a verb. So expressions giving definitions like 'mortal rational animal' are not statement making even though they are **unitary** in the sense of picking out a single kind of thing in the world. Aristotle explains the unitary character of propositions by appealing to both semantical and syntactical ideas.

Utterances may be unitary because they reveal one thing about one thing (*se-mantical unity*) or in virtue of a connective (*syntactical unity*). The proposition 'Socrates is human' reveals one thing about one thing — it reveals about Socrates that he is human. 'If Socrates is human, then he is an animal' is a *compound proposition* which is unitary in virtue of a connective — in it two propositions are combined to form a single proposition. Aristotle has practically nothing to say in any of his works about expressions unitary in virtue of a connective, that is compound propositions. It is here that the Stoics will make their great contribution to logic

#### Chapter 6 Basic Logical Relations

An affirmation is a proposition which says something about something, it joins them together. A denial, or negation, is a proposition separating something from something. For any proposition which indicates the joining of two things there is a corresponding proposition which indicates their separation. For example 'John is running' joins running to John, 'John is not running' separates it from him. We say that such pairs of propositions are *contradictory*. Each is the contradictory of the other. Note that Aristotle provides distinct definitions of affirmation and negation rather than defining affirmation first and then negation in terms of it.

#### Chapter 7 Different kinds of Propositions

Note in passing Aristotle's contribution to what will become one of the great debates in the history of philosophy, that over the nature of universals. The puzzle starts here. Aristotle tells us both that a universal is a thing and that it is predicated, something that in the first place seems to be a property of words.

We can divide categorical propositions into affirmations ('S is P') and denials, or negations ('S is not P').

We can make various kinds of affirmations (and denials): **Singular** affirmations, i.e. affirmations about a particular individual, e.g. 'John is running'. **Particular**\* affirmations, about some definite but unspecified individual, e.g. 'some human being is running'. **Universal** affirmations, about all individuals of some kind, e.g. 'every human being is running'. **Indefinite** affirmations, about some indefinitely specified individual or individuals, e.g. 'a human being is running'.

Aristotle characterises **CONTRARY** propositions semantically and does so only for a universal 'stated' universally, for example 'Every human being is white' and 'No human being is white'.

Likewise he defines an affirmation and a negation as **CONTRADICTORY** opposites semantically in the case of universals 'what one signifies universally the other signifies not universally' - a universal affirmation is contradictory to a particular negation. He observes that contrary opposites cannot be true together but they may be false together. Aristotle also characterises singular affirmations and negations as contradictory but notes that an indefinite affirmation and the corresponding negation, claims about universals which are not made universally, are not contradictory.

So usually an affirmation and its contradictory are related in such a way that if the affirmation is true its contradictory negation is false and if the affirmation is false, then its contradictory negation is true. They cannot both be true together or both be false together. For example if 'every man is running' is true, then 'not every man is running' is false and if 'every man is running' is false, then 'not every man is running' is true. The two propositions **divide truth and falsity** in the sense that even though we need not know which of them is true we know that one of them is.

Modern logic in fact defines the contradictory of a given proposition as the proposition which is true if it is false and false if it is true. The contradictory of 'P' is formed with the **negation operator**, a propositional operator, '*it is not the case that* P'. This guarantees that a proposition and its contradictory divide truth and falsity. No matter how things are in the world one of the pair is true and the other false.

<sup>\*</sup>Ackrill's translation refers to singular propositions as 'particular'.

They cannot both be true at the same time and they cannot both be false at the same time.

Aristotle proceeds differently. He claims that it it is evident that for every affirmation there is a corresponding negation, the proposition which denies of the same what the first affirms of it. But affirmation and negation have been characterised as signifying composition and separation and so, as we have seen in the case of indefinite propositions, there is no guarantee in their definition that they will divide truth and falsity. Given that he has a syntactical device with which to indicate the negation of a given affirmation, the negative particle 'not', **Aristotle now has to show that a given affirmation and the corresponding negation divide truth and falsity.** This point is crucial when it comes to solving the puzzle raised in chapter 9.

## Chapter 8 Conditions for Unity

More on unity. In order to guarantee that two apparently contradictory propositions are in fact contradictory Aristotle requires that they are unitary. To use a modern example the proposition 'the man is near the bank' is ambiguous because 'bank' has two quite different meanings. So 'the man is near the bank' and 'the man is not near the bank' may both be true if 'bank' has one meaning in the first and another in the second. The relations that Aristotle are interested in are relations between unitary propositions.

## **Chapter 9 Future Contingent Propositions**

**IMPORTANT** - in what follows it is crucial to distinguish **USING** a proposition from **MENTIONING** it. When I want to mention a proposition in order to talk about it I put it into quotation marks to form a name for the proposition, to say, for example that that proposition is true, e.g. I might say 'Socrates is sitting is true. If I just want to assert that Socrates is sitting, I utter or write in succession the words 'Socrates' 'is' and 'sitting'. <sup>†</sup>.

## 1. The Problem

Aristotle generally appeals to two principles.

(1) The *Principle of Bivalence*:

## 'Every meaningful proposition is either true or else false'.

(2) A principle of division (for truth and falsity), usually called the Law of Excluded Middle<sup>‡</sup>:

# 'A pair of contradictory propositions divide truth and falsity between themselves'.

The Law of Excluded Middle does not hold for indefinite propositions but it does hold, Aristotle thinks, for all singular, particular, and universal propositions about the past and present. 'Socrates is running' and 'Socrates is not running' are such that one is true and the other is false, even though we may not know which is which, they cannot both be true together and they cannot both be false together.

The problem is to say whether the same holds for singular propositions about the future. Aristotle thinks that he can prove that it does not hold.

 $<sup>^\</sup>dagger Note the quotation marks, I'm naming the words that I utter or write.$ 

<sup>&</sup>lt;sup>‡</sup>The formulation of this principle varies from author to author.

#### 2. The Semantical Argument

The argument seems to go as follows:

(a) Let 'S\*' be the contradictory of 'S'.

(b) 'S' is true *if and only if* S. (Semantical Equivalence - if a proposition is true, then the world is as that proposition says it is and if the world as as it says it is, then a proposition is true.

[For example if 'Socrates is running' is true, then Socrates is running, and if Socrates is running, then 'Socrates is running is true'. So

(i) Necessarily ('S' is true or else 'S\*' is true)

[Necessarily ('Socrates is running' is true or else 'Socrates is not running' is true)] and

(ii) If 'S' is true, then necessarily S.

[If 'Socrates is running' is true, then necessarily Socrates is running.]

and

(ii) If 'S<sup>\*</sup>' is true, then necessarily S<sup>\*</sup>.

[If 'Socrates is not running' is true, then necessarily Socrates is not running]

Therefore: necessarily S or necessarily S<sup>\*</sup>.

[Necessarily Socrates is running or necessarily Socrates is not running]

#### 3. The Argument From Past Truth:

Principle: If S is now the case. then it was always true in the past to say 'S will be the case'.

If it has always been true to say 'S will be the case' then it could never have been true that S will not be the case.

If something cannot not happen, then it comes about necessarily.

Therefore S comes about necessarily.

## 4. Negation and Falsity - the affirmation and its contradictory negation cannot both be false.

Here Aristotle argues that if these statements have definite truth values, then one must be true and the other false.

The argument appeals to the logic of negation:

(a) We are supposing that the negation is false and that the affirmation is not true. But this is impossible because when the negation is false the affirmation is true.

(b) An argument from the past. If it is now false that S will be the case and now false that S will not be the case, then it will be false that S is the case and also false that S is not the case.

## 5. These are logical absurdities. There are also metaphysical absurdities.

If what occurs occurs necessarily, **there would be no point in reasoning and planning** Aristotle runs through the argument from the determinateness of the past again - much more clearly this time. 'There is nothing to prevent someone having said said ten thousand years beforehand ...'

#### 6 These consequences are impossible.

Aristotle rejects **logical fatalism**. If the arguments were sound then there would be no freedom with respect to the future and no sense in planning for the future. The argument that the future is determined; therefore there is no point in planning was called by the Greeks **The Lazy Argument**.

They are shown to be false by the existence of open possibilities - we believe that it is possible now, looking at a coat, that it will at some time in the future be cut up even though it will in fact wear out.

Does Aristotle have an argument here?

Surely his argument fails since, no matter what we might believe, his argument shows that if the cloak wears out then it was necessary that it would wears out?

What is the possibility that Aristotle is appealing to?

## 7. Aristotle's First Solution : No Truth About the Future (Reject bivalence.)

For something to be so when it is so, and not to be so when it is not so, is necessary. But not everything that is so is necessarily so, nor is everything that is not so necessarily not so. To say that something is so of necessity when it is so is not the same as saying that it is without qualification necessarily so.

But Aristotle seems confused at this point.

The form of the argument he is rejecting is



Therefore necessarily ('S' is true) or necessarily\*('S' is false)

Aristotle seems to be about to distinguish different senses of 'necessarily' but he doesn't do so.

Rather he argues that division is not allowed and apparently commits himself to the claim **that singular propositions about the future are neither true nor false**.

## 8. Aristotle's Second Solution: Conditioned and Unconditioned necessity.

Alternatively, perhaps, he distinguishes between *qualified* and *unqualified* necessity in explaining how we should understand: 'it is necessary that something is so, when it is so'.

Given that the future will turn out a certain way, it will necessarily turn out that way, but setting aside the fact that it will turn out that way it is not necessary that the future turn out a particular way. The future is *conditionally* necessary but not necessary *without qualification*.

So the future is necessary but **the necessity involved is not fatal**. But this does not seem to deal with the fatalistic argument from the past. And, much more importantly for the middle ages, it does not consider the possibility of an omniscient being.