

CHAPTER V.

Of the Quantification of the Predicate.

Section 295. The rules that have been given for the distribution of terms, together with the fourfold division of propositions into A, E, I, O, are based on the assumption that it is the distribution or non-distribution of the subject only that needs to be taken into account in estimating the quantity of a proposition.

Section 296. But some logicians have maintained that the predicate, though seldom quantified in expression, must always be quantified in thought--in other words, that when we say, for instance, 'All A is B,' we must mean either that 'All A is all B' or only that 'All A is some B.'

Section 297. If this were so, it is plain that the number of possible propositions would be exactly doubled, and that, instead of four forms, we should now have to recognise eight, which may be expressed as follows--

1. All A is all B. ([upsilon]).
2. All A is some B. ([Lambda]).
3. No A is any B. ([Epsilon]).
4. No A is some B. ([eta]).
5. Some A is all B. ([Upsilon]).
6. Some A is some B. ([Iota]).
7. Some A is not any B. ([Omega]).
8. Some A is not some B. ([omega]).

Section 298. It is evident that it is the second of the above propositions which represents the original A, in accordance with the rule that 'No affirmative propositions distribute their predicate' (Section 293).

Section 299. The third represents the original E, in accordance with the rule that 'All negative propositions distribute their predicate.'

Section 300. The sixth represents the original I, in accordance with the

rule that 'No affirmative propositions distribute their predicate.'

Section 301. The seventh represents the original O, in accordance with the rule that 'All negative propositions distribute their predicate.'

Section 302. Four new symbols are required, if the quantity of the predicate as well as that of the subject be taken into account in the classification of propositions. These have been supplied, somewhat fancifully, as follows--

Section 303. The first, 'All A is all B,' which distributes both subject and predicate, has been called [ϵ], to mark its extreme universality.

Section 304. The fourth, 'No A is some B,' is contained in E, and has therefore been denoted by the symbol [η], to show its connection with E.

Section 305. The fifth, 'Some A is all B,' is the exact converse of the second, 'All A is some B,' and has therefore been denoted by the symbol [Υ], which resembles an inverted A.

Section 306. The eighth is contained in O, as part in whole, and has therefore had assigned to it the symbol [ω],

Section 307. The attempt to take the predicate in extension, instead of, as it should naturally be taken, in intension, leads to some curious results. Let us take, for instance, the u proposition. Either the sign of quantity 'all' must be understood as forming part of the predicate or not. If it is not, then the u proposition 'All A is all B' seems to contain within itself, not one proposition, but two, namely, 'All A is B' and 'All B is A.' But if on the other hand 'all' is understood to form part of the predicate, then u is not really a general but a singular proposition. When we say, 'All men are rational animals,' we have a true general proposition, because the predicate applies to the subject distributively, and not collectively. What we mean is that 'rational animal' may be affirmed of every individual in the class, man. But when we say 'All men are all rational animals,' the predicate no longer applies to the subject distributively, but only collectively. For it is obvious that 'all rational animals' cannot be affirmed of every individual in the class, man. What the proposition means is that the class, man, is co-extensive with the class, rational animal. The same meaning may be expressed intensively by saying that the one class has the attribute of co-extension with the other.

Section 308. Under the head o u come all propositions in which both subject

and predicate are singular terms, e.g. 'Homer was the author of the Iliad,' 'Virtue is the way to happiness.'

Section 309. The proposition [eta] conveys very little information to the mind. 'No A is some B' is compatible with the A proposition in the same matter. 'No men are some animals' may be true, while at the same time it is true that 'All men are animals.' No men, for instance, are the particular animals known as kangaroos.

Section 310. The [omega] proposition conveys still less information than the [eta]. For [omega] is compatible, not only with A, but with [upsilon]. Even though 'All men are all rational animals,' it is still true that 'Some men are not some rational animals': for no given human being is the same rational animal as any other.

Section 311. Nay, even when the [upsilon] is an identical proposition, [omega] will still hold in the same matter. 'All rational animals are all rational animals': but, for all that, 'Some rational animals are not some others.' This last form of proposition therefore is almost wholly devoid of meaning.

Section 312. The chief advantage claimed for the quantification of the predicate is that it reduces every affirmative proposition to an exact equation between its subject and predicate. As a consequence every proposition would admit of simple conversion, that is to say, of having the subject and predicate transposed without any further change in the proposition. The forms also of Reduction (a term which will be explained later on) would be simplified; and generally the introduction of the quantified predicate into logic might be attended with certain mechanical advantages. The object of the logician, however, is not to invent an ingenious system, but to arrive at a true analysis of thought. Now, if it be admitted that in the ordinary form of proposition the subject is used in extension and the predicate in intension, the ground for the doctrine is at once cut away. For, if the predicate be not used in its extensive capacity at all, we plainly cannot be called upon to determine whether it is used in its whole extent or not.