Therefore, by (16),

$$x\,y\,(1-z) + x\,z\,(1-y) + x\,(1-y)\,(1-z) - y\,z\,(1-x) = 0:$$

and therefore, by (15),

$$\left.\begin{aligned} x\,y\,(1-z) &= 0. \\ x\,z\,(1-y) &= 0, \\ x\,(1-y)\,(1-z) &= 0, \\ y\,z\,(1-x) &= 0. \end{aligned}\right\}\text{..................} \quad (17)$$

Still farther, since, by (13), the sum of the constitutents of an expansion is unity; and since four of the constituents in the expansion of $x - y\,z$ have been shewn to be zero; it follows that the sum of the remaining constituents in the expansion of $x - y\,z$ is unity. That is,

$$x\,y\,z + y\,(1-x)\,(1-z) + z\,(1-x)\,(1-y) + (1-x)\,(1-y)\,(1-z) = 1. \text{......} \quad (18)$$

It is obvious that this method can be applied in every case. To what then does it lead? First of all, in the group of equations (17), we have brought before us all the different classes (if the expression may be permitted) to which the given proposition warrants us in saying that nothing can belong; and next, in equation (18) we have brought before us those different classes to one or other of which the given proposition warrants us in asserting that everything must belong. For instance, the first of equations (17) denies the existence of beasts which are clean (x) and divide the hoof (y) but do not chew the cud ($1-z$); the second denies the existence of beasts which are clean (x) and chew the cud (z) but do not divide the hoof ($1-y$); and so on. Equation (18), again, informs us that the universe, which is represented by 1, is made up of four classes, in one or other of which therefore every thing must rank; the first denoted by $x\,y\,z$, the second by $y\,(1-x)\,(1-z)$; and so on. As an example of the interpretation of the expressions by which these classes are denoted, we may take the last, $(1-x)\,(1-y)\,(1-z)$. This represents things which are neither clean beasts, nor beasts chewing the cud, nor beasts dividing the hoof.

By the method employed, we have been able to indicate certain classes which do not exist, and also to indicate certain classes in one or other of which every thing existing is found. But this, it may be said, is not a solution of the most general problem of inference. The most general problem is: to express (speaking mathematically) any one of the symbols entering into the given premiss, or any func-