the sign of identity, $=$. The sign $+$ is used to express the mental operation by which parts (of extensive quantity) are collected into a whole. For instance, if x represent *animals*, and y *vegetables*, $x + y$ will represent the class made up of *animals and vegetables together*. On the other hand, the sign $-$ is used to express the mental operation of separating a whole (of extensive quantity) into its parts. Thus x representing *human beings*, and y representing *negroes*, $x - y$ will represent *all human beings except negroes*. With regard to the sign $\times$, $x \times y$ or $x\,y$ (as it may be written) is used to denote those objects which belong at once to the class x and to the class y; just as, in common language, the expression *dark waters* denotes those objects which are at once *dark* and *waters*. Hence we obtain a method of representing a concept taken particularly. For, if x denote *men*, then, since *some men* may be viewed as those who besides belonging to the class x belong also to some other class v, *some men* will be denoted by $v\,x$. In general,

$$v\,x = \text{some } x. \quad \text{.........................(1)}$$

It can easily be shown, that, as in Algebra, so in the logical system which we are describing, the literal symbols, x, y, &c., are commutative; that is,

$$x\,y = y\,x; \quad \text{.............................(2)}$$

and that they are also distributive; that is,

$$z\,(x \pm y) = z\,x \pm z\,y \quad \text{.................(3)}$$

Another relation between Algebra and the Logical System under consideration is, that, in the latter as well as in the former, a literal symbol may be transposed from one side of an equation to the other by changing the sign of operation, $+$ or $-$. But there is an important relation which subsists in the science of Thought, and not generally in Algebra, namely,

$$x^2 = x \quad \text{...................................(4)}$$

That this is true in the Logical system, is plain; for x^2, which is another form of $x\,x$, denotes (by definition) those things which belong at once to the class x and to the class x; that is, it denotes simply those things which belong to the class x; and it is therefore identical with x. But though the equation (4) does not generally subsist in Algebra, it subsists when x is unity or zero. If, therefore, we take the science of Algebra with the limitation that its unknown