standard form to which functions of every kind may be reduced. This form is not an arbitrary one, but is determined by the circumstance that every conceivable object must rank under one or other of the two contradictory classes x and $1 - x$. Hence every conceivable object is included in the expression,

$$ux + v(1 - x); \ldots\ldots\ldots\ldots (8)$$

proper values being given to u and v. For, if a given concept belong to the class x, then, by making $v = 0$, the expression (8) becomes ux, which, by (1), means *some* x; and if the given concept belong to the class $1 - x$, then, by making $u = 0$, the expression (8) becomes $v(1 - x)$, which, by (1) and (6), means *some not* x. Therefore, $f(x)$ being any concept depending on x, we may put

$$f(x) = ux + v(1 - x) \ldots\ldots\ldots\ldots (9)$$

It has been shown that one of the coefficients, u, v, must always be zero; but the forms of these coefficients may be determined more definitely. For, by making $x = 0$ in (9), the result is $v = f(0)$; and by making $x = 1$, there results $u = f(1)$; by substituting which values of u and v in (9), we get

$$f(x) = f(1)\,x + f(0)\,(1 - x) \ldots\ldots\ldots\ldots (10)$$

This is the expansion or development of the function x. The expressions x, $1 - x$, are called the constituents of the expansion; and $f(1)$ and $f(0)$ are termed the coefficients. The same phraseology is employed when a function of two or more symbols is developed.

Any one in the least degree acquainted with mathematical processes will understand how the development of functions of two or more symbols can be derived from equation (10). In fact, by (10), we have

$$f(x, y) = f(1, y)\,x + f(0, y)\,(1 - x).$$

But again, by (10),

$$f(1, y) = f(1, 1)\,y + f(1, 0)\,(1 - y),$$

and

$$f(0, y) = f(0, 1)\,y + f(0, 0)\,(1 - y).$$

$$\therefore f(x, y) = f(1, 1)\,xy + f(1, 0)\,x(1 - y)$$
$$+ f(0, 1)\,y(1 - x) + f(0, 0)(1 - x)(1 - y) \ldots\ldots (11)$$

The development of a function ` three symbols may be written down, as we shall have occasion in the sequel to refer to it: