of those terms in which the coefficients are zero. Then we say that

$$X = 0 \ldots\ldots\ldots\ldots\ldots\ldots \quad (15)$$

For, since $Q = 0$, and $f(x)$ is supposed to vanish,

$$A X + A_1 X_1 + \&c. = 0$$

$$\therefore A X^2 + A_1 X X_1 + \&c. = 0$$

But, by (14), $X X_1 = X X_2 = \ldots\ldots = X X_n = 0$. Therefore

$$A X^2 = 0.$$

But A is not zero. Therefore X must be zero.

These principles having been laid down, our best course will probably now be to take a few examples, and to offer in connection with them such explanations as may seem necessary of the mode of procedure which they are intended to illustrate.

Our first example shall be one in which but a single proposition is given: "clean beasts are those which both divide the hoof and chew the cud." Let

x = clean beasts,
y = beasts dividing the hoof,
z = beasts chewing the cud.

Then, the given proposition, symbolically expressed, is,

$$x = y z,$$

or, by transposition,

$$x - y z = 0 \ldots\ldots\ldots\ldots\ldots\ldots (16).$$

This premiss contains a relation between three concepts; and, according to Professor Boole, a properly constructed science of inference should enable us, by some defined process, to show what consequence, as respects any one of these, follows from the premiss. Now, the definite and invariable process which Professor Boole applies, with the design which has been indicated, to an equation such as (16), is to develop the first member of the equation. Writing, then,

$$f(x, y, z) = x - y z,$$

we have, $f(1, 1, 1) = 0$,

$$f(0, 0, 0) = 0,$$

and so on. Hence [see (12)] the developement required is

$$\begin{aligned} x - y z = {} & x y (1 - z) + x z (1 - y) \\ & + x (1 - y)(1 - z) - y z (1 - x) \\ & + 0 x y z + 0 y (1 - x)(1 - z) \\ & + 0 z (1 - x)(1 - y) \\ & + 0 (1 - x)(1 - y)(1 - z). \end{aligned}$$