The General form of the full connected learning network

The general form of the full connected learning network is defined in the integer space Z as follows:

- There are N_x possible values of the input x which are denoted as $x_i = i, i = \{0, 1, 2...N_x - 1\}$;
- There are N_y possible values of the output $y \in \{0, 1, 2...N_y - 1\}$;
- The target function is $F(x) = y_x$, where y_x is random number of $\{0, 1, 2...N_y - 1\}$;
- The learning network is $f(x) = W(Max\{0, Ix + B\})$, where $W, I, B \in Z^{N_x - 1}$;
- $B = [b_0, b_1, b_1...b_{N_x - 2}], b_i = -i$;
- $W = [w_0, w_1, w_2...w_{N_x - 2}]$, $w_0 = y_1$, $w_1 = y_2 - 2w_0$, $w_2 = y_3 - 2w_1 - 3w_0$ ... $w_{N_x - 2} = y_{N_x - 1} - 2w_{N_x - 3} - 3w_{N_x - 4}... - (N_x - 1)w_0$