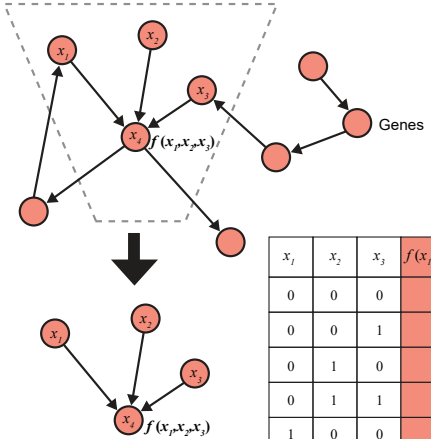
(a) **Unipartite Boolean network model based on genes**

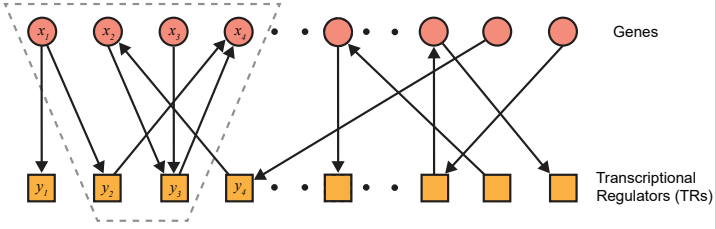


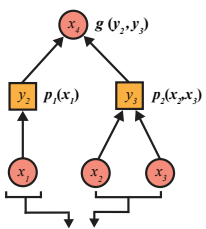
x_1	x_2	x_3	$f(x_1,x_2,x_3)$
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

Boolean expression : $f(x_1,x_2,x_3) = \bar{x}_1 x_2 \bar{x}_3 + \bar{x}_2 x_3$

Number of allowed BFs : $2^{2^3} = 256$

(b) **Bipartite Boolean network model based on genes and transcriptional regulators**





x_1	x_2	x_3	$p_1(x_1)$	$p_2(x_2,x_3)$	$h(x_1,x_2,x_3)$
0	0	0	0	0	0
0	0	1	0	0	0
0	1	0	0	0	0
0	1	1	0	1	1
1	0	0	1	0	1
1	0	1	1	0	1
1	1	0	1	0	1
1	1	1	1	1	1

Composition structure : $\{1\ ,\ 2\}$

Boolean expressions : $p_1(x_1) = x_1 \mid p_2(x_2,x_3) = x_2 x_3 \mid g(y_2,y_3) = y_2 + y_3$

Composed BF : $h(x_1,x_2,x_3) = g(p_1(x_1), p_2(x_2,x_3)) = x_1 + x_2 x_3$

Number of allowed BFs : **152**