Q1 $\quad f = a\bar{b}\bar{c} + \bar{a}b\bar{c} + \bar{a}bc + ab\bar{c}$

(1)

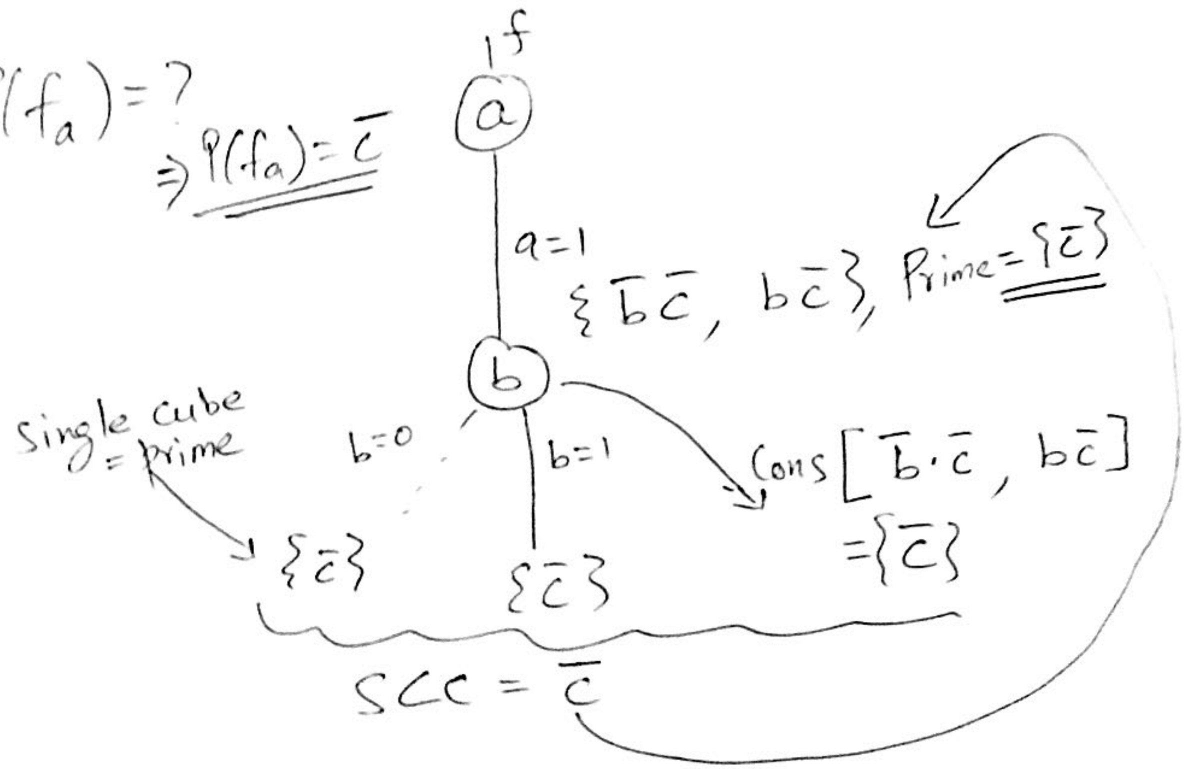
Order $a \prec b \prec c$

$$P(f) = SCC\left[\ \bar{x}\cdot P(f_{\bar{x}}) \ \cup \ x\cdot P(f_x) \ \cup \ Con\left(x P(f_x),\ \bar{x}\, P(f_{\bar{x}})\right)\right]$$

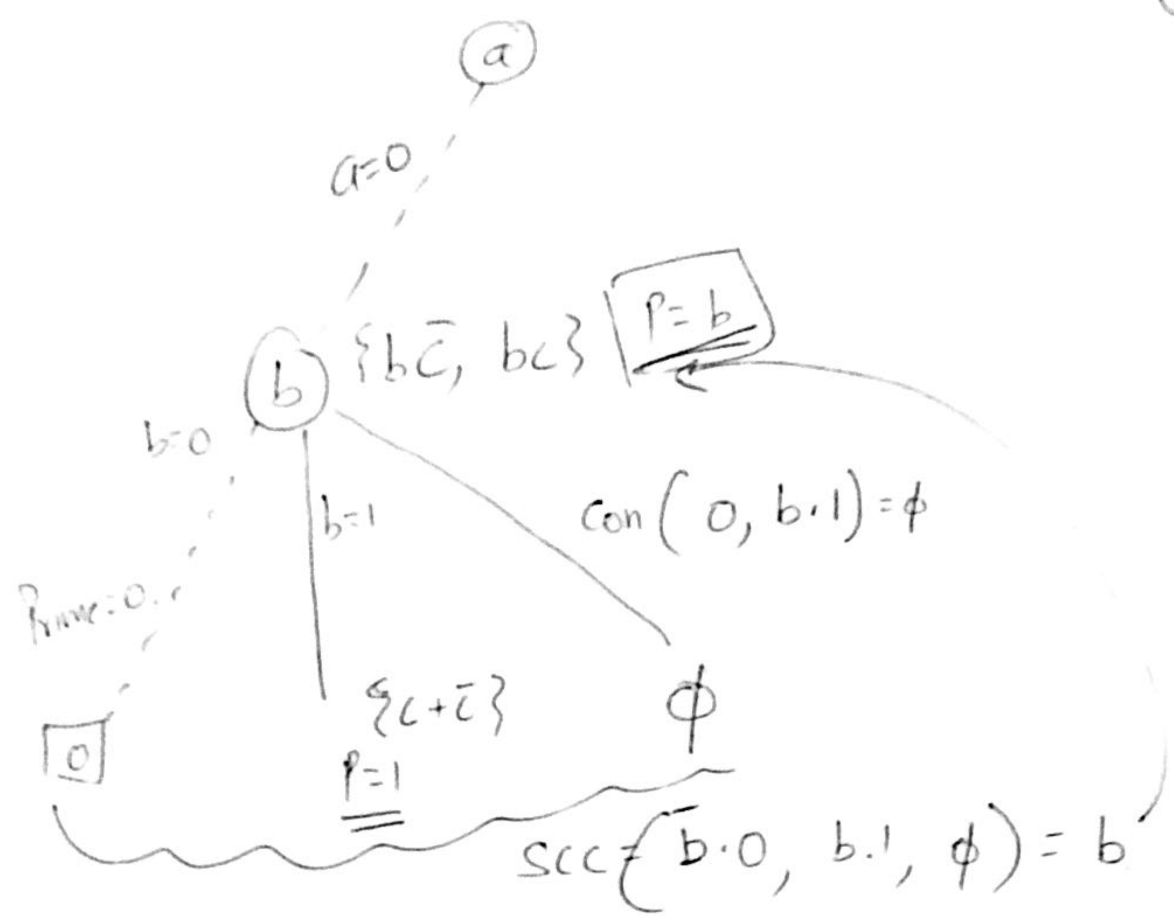
1. $x = a \qquad f_a = \bar{b}\bar{c} + b\bar{c} = \{\bar{b}\bar{c},\ b\bar{c}\}$

$P(f_a) = ?$

$\Rightarrow P(f_a) = \bar{c}$



2. $x = \bar{a} \qquad f_{\bar{a}} = \{b\bar{c},\ bc\}$



So $P(f_{\bar a}) = b$.

$$P(f) = scc\left[a \cdot P(f_a),\ \bar a\, P(f_{\bar a}),\ con(\bar a\, P(f_{\bar a}),\ a\, P(f_a))\right]$$

$$= scc\left[a \cdot \bar c,\ \bar a \cdot b,\ con(a\bar c,\ \bar a b)\right]$$

$$= scc\left[a\bar c,\ \bar a b,\ b\bar c\right]$$

$$= \{a\bar c,\ \bar a b,\ b\bar c\}$$

c \ ab	00	01	11	10
0		1	1	1
1		1		

Terminal cases for recursion for prime computation:

1. When the cover of F is strongly unate, i.e. unate in all variables
   $P(F) = SCC(F)$
2. When F = single implicant cover then $P(F) = F$.

In this example, Case 1 did not apply, but case 2 was used.

If $F = \{ab, abc, xy, x\}$

then there is no need for expansion
$P(F) = SCC(F)$.