$$0 \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$



$$0 \parallel \overline{1} \lor 2, \overline{3} \lor 4, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} \implies (Decide)$$



$$0 \parallel \overline{1} \lor 2, \overline{3} \lor 4, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} \implies (Decide)$$

$$1^{\mathsf{d}} \parallel 1 \lor 2, 3 \lor 4, 5 \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} \implies$$



$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 =$$

$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies \text{(Decide)}$$

 $1^{\mathsf{d}} \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies \text{(UnitProp)}$



$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies$$

1^d
$$\parallel$$
 $1 \lor 2$, $3 \lor 4$, $5 \lor \overline{6}$, $6 \lor \overline{5} \lor \overline{2} \implies$ (UnitProp)
1^d $2 \parallel$ $1 \lor 2$, $3 \lor 4$, $5 \lor \overline{6}$, $6 \lor \overline{5} \lor \overline{2} \implies$



$$0 \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

$$d = 1 \times 2, 3 \times 4, 5 \times 6, 6 \times 5 \times 2$$



$$0 \parallel 1 \vee 2, 3 \vee 4, 5 \vee 6, 6 \vee 5 \vee 2 \implies$$

$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 7, 6 \lor 6, 6 \lor 5 \lor 7, 6 \lor 6, 6 \lor 5 \lor 7, 6 \lor 6, 6 \lor 6, 6 \lor 7, 7 \lor 7$$

 $(\mathsf{UnitProp})$

(Decide)

$$1^{d} \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2$$

$$1^{d} 2 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies$$

$$1^{d} 2 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies$$

$$1^{d} 2 3^{d} \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies$$

$$0 \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 = 1^d \parallel \overline{1} \lor 2, \overline{3} \lor 4, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} = 1^d \parallel 1 \lor 2, \overline{3} \lor 4, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} = 1^d \parallel 1 \lor 2, \overline{3} \lor 4, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} = 1^d \parallel 1 \lor 2, \overline{3} \lor 4, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor \overline{5} \lor \overline{5} = 1^d \parallel 1 \lor 2, \overline{3} \lor 4, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor \overline{5} \lor \overline{5} = 1^d \parallel 1 \lor 2, \overline{3} \lor 4, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor \overline{5} \lor \overline{5} = 1^d \parallel 1 \lor 2, \overline{3} \lor 4, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor \overline{5} \lor \overline{5} = 1^d \Vert 1 \lor 2, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor$$

$$1^d \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies (UnitProp)$$
 $1^d 2 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies (Decide)$

$$1^{d} 2 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies \text{(Decide)}$$

 $1^{d} 23^{d} \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies \text{(UnitProp)}$



$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies$$

$$0 \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor 6, \ 6 \lor 5 \lor 2 = 1 \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor 6, \ 6 \lor 5 \lor 7 = 1$$

$$1^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies 1^{d} 2 \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies 0$$

$$1^{2} \angle \parallel 1 \lor 2, \ 3 \lor 4, \ 3 \lor 6, \ 6 \lor 3 \lor 2 \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{5} \lor \overline{2} \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{5} \lor \overline{2} \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{5} \lor \overline{2} \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{5} \lor \overline{2} \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{5} \lor \overline{2} \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{5} \lor \overline{2} \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{5} \lor \overline{2} \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{5} \lor \overline{2} \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{5} \lor \overline{2} \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{5} \lor \overline{2} \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{5} \lor \overline{2} \implies 1^{d} 23^{d} \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor \overline{6}, \ 6 \lor \overline{6} \lor$$

$$1^{d} 23^{d} 4 \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$



$$0 \parallel 1 \vee 2, 3 \vee 4, 5 \vee 6, 6 \vee 5 \vee 2 \implies$$

$$0 \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor 6, \ 6 \lor 5 \lor 2 = 1^d \parallel 1 \lor 2, \ 3 \lor 4, \ 5 \lor 6, \ 6 \lor 5 \lor 2 = 6$$

 $(\mathsf{UnitProp})$

(Decide)

$$1^{d} 2 \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

$$1^{d}2 \parallel 1 \vee 2, 3 \vee 4, 5 \vee 6, 6 \vee 5 \vee 2 \implies 1^{d}23^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies 1^{d}23^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies 1^{d}23^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies 1^{d}23^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies 1^{d}23^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies 1^{d}23^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies 1^{d}23^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies 1^{d}23^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \vee \overline{2} \implies 1^{d}23^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, \overline{6} \vee \overline{6} \vee$$

(UnitProp)

$$1^{d} 23^{d} 4 \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies \text{(Decide)}$$

$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies (E$$

$$1^{\mathsf{d}} \parallel 1 \lor 2, 3 \lor 4, 5 \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} \implies$$

$$1^{4} = 1 \lor 2, 3 \lor 4, 3 \lor 6, 6 \lor 3 \lor 2$$

$$1^{d} 23^{d} 4 \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

$$1^{d} 23^{d} 45^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

$$\uparrow$$



$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies$$

$$1^{d}2 \parallel 1 \vee 2, 3 \vee 4, 5 \vee 6, 6 \vee 5 \vee 2$$

$$1^{d} 23^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

$$1^{d} 23^{d} 4 \parallel 1 \vee 2, 3 \vee 4, 5 \vee 6, 6 \vee 5 \vee 2 =$$

$$1^{d} 23^{d} 45^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \Longrightarrow ($$

$$(\mathsf{UnitProp})$$



$$0 \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies (Decide)$$

$$1^{d} \parallel 1 \lor 2, 3 \lor 4, 5 \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} =$$

$$1^{d} 23^{d} \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2$$

$$1^{d} 23^{d} 4 \parallel 1 \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

1d 2 3d 4 5d
$$\| 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2$$

$$1^{d} 23^{d} 45^{d} \overline{6} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2}$$



$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies (D)$$

$$1^{d} \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 =$$

$$1^{d} 2 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 =$$

$$1^{d} 23^{d} \parallel 1 \lor 2, \overline{3} \lor 4, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} =$$

$$1^{d} 23^{d} 4 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 =$$

$$1^{d} 23^{d} 45^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

$$1^{\mathsf{d}} 23^{\mathsf{d}} 45^{\mathsf{d}} \overline{6} \parallel 1 \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \Longrightarrow (\mathsf{E}$$



$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies (Decide)$$

$$1^{\mathsf{d}} \parallel 1 \lor 2, 3 \lor 4, 5 \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} \implies$$

UnitProp

$$1^{d} 2 \parallel 1 \lor 2, \overline{3} \lor 4, \overline{5} \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} =$$

$$1^{d} 23^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

(UnitProp)

(Decide)

(Decide)

$$1^{1}$$
 2 3 1^{1} 1 \times 2, 3 \times 4, 5 \times 0, 0 \times 5 \times 7 1^{1} 2 3 1^{1} 4, 1^{1} 5 1^{1} 5 1^{1} 6, 1^{1} 6, 1^{1} 7 1^{1} 7 1^{1} 8 1^{1} 8 1^{1} 8 1^{1} 9

$$1^{d} 23^{d} 45^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

$$1^{d} 23^{d} 45^{d} \overline{6} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

(Backtrack)

 $(\mathsf{UnitProp})$

$$1^{d} 23^{d} 4\overline{5} \parallel 1 \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \Longrightarrow$$





$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies (De$$

$$1^{d} \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 =$$

$$1^{d} 2 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 =$$

$$1^{d} 23^{d} \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2$$

$$1^{\mathsf{d}} 23^{\mathsf{d}} 4 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 = -1$$

$$1^{d} 23^{d} 45^{d} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

$$1^{d} 23^{d} 45^{d} \overline{6} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

$$1^{d} 23^{d} 4\overline{5} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \Longrightarrow (Decide)$$



$$0 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2 \implies (Decide)$$

$$1^{\mathsf{d}} \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2$$

(UnitProp

$$1^{d} 2 \parallel 1 \lor 2, 3 \lor 4, 5 \lor 6, 6 \lor 5 \lor 2$$

$$1^{\circ}$$
 2° 1° 2° 2°

$$1^{d} 23^{d} 4 \parallel 1 \lor 2, 3 \lor 4, 5 \lor \overline{6}, 6 \lor \overline{5} \lor \overline{2} =$$

$$1^{d} 23^{d} 45^{d} \parallel 1 \vee 2, 3 \vee 4, 5 \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} =$$

$$1^{d} 23^{d} 45^{d} \overline{6} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

(Backtrack)

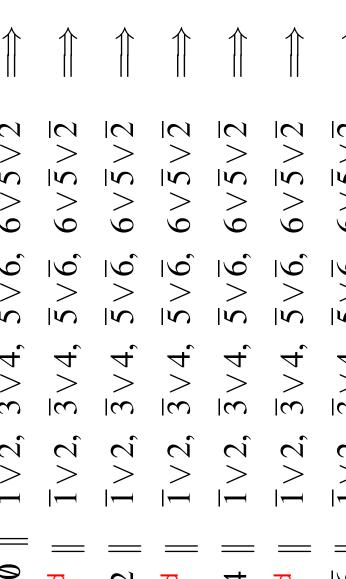
(Decide)

 $(\mathsf{UnitProp})$

(Decide)

$$1^{d} 23^{d} 4\overline{5} \parallel \overline{1} \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2} \implies$$

$$1^{d} 23^{d} 4\overline{5}6^{d} \parallel 1 \vee 2, \overline{3} \vee 4, \overline{5} \vee \overline{6}, 6 \vee \overline{5} \vee \overline{2}$$



(UnitProp)



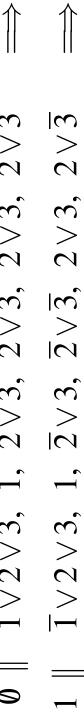
$$0 \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3$$



$$0 \parallel \overline{1} \lor 2 \lor 3$$
, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3} \implies (UnitProp)$



$$0 \parallel \overline{1} \lor 2 \lor 3, 1, \overline{2} \lor 3, \overline{2} \lor \overline{3}, 2 \lor 3, 2 \lor \overline{3} \Longrightarrow ($$





$$0 \parallel \overline{1} \lor 2 \lor 3, 1, \overline{2} \lor 3, \overline{2} \lor \overline{3}, 2 \lor 3, 2 \lor \overline{3} \Longrightarrow$$

0 ||
$$\overline{1} \lor 2 \lor 3$$
, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3}$ \Longrightarrow (UnitProp)
1 || $\overline{1} \lor 2 \lor 3$, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3}$ \Longrightarrow (Decide)

 $0 \parallel 1 \lor 2 \lor 3, 1, \overline{2} \lor 3, \overline{2} \lor \overline{3}, 2 \lor 3, 2 \lor \overline{3}$

(UnitProp)

 $\overline{1} \lor 2 \lor 3$, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3}$

(Decide)

 $12^d \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3$

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$$0 \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3$$

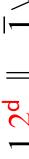
$$\uparrow$$

$$1 \parallel 1 \lor 2 \lor 3, 1, \overline{2} \lor 3, \overline{2} \lor \overline{3}, 2 \lor 3, 2 \lor \overline{3}$$

$$\uparrow$$

$$/3, 2 \vee 3, 2 \vee$$

$$\uparrow$$



$$12^d \parallel 1 \lor 2 \lor 3, 1, \overline{2} \lor 3, \overline{2} \lor \overline{3}, 2 \lor 3, 2 \lor \overline{3}$$



$$0 \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3 =$$

$$2 \times 3, \ 2 \times 3, \ 2 \times 3 = = \frac{2 \times 3}{2 \times 2}$$

(UnitProp)

(Decide)

(UnitProp)

$$1 \parallel 1 \vee 2 \vee 3, \ 1, \ 2 \vee 3, \ 2 \vee 3, \ 2 \vee 3, \ 2 \vee 3 = 2 \vee$$

$$12^{\mathsf{d}}3 \parallel \overline{1} \vee 2 \vee 3, 1, \overline{2} \vee 3, \overline{2} \vee \overline{3}, 2 \vee 3, 2 \vee \overline{3} \Longrightarrow$$



$$0 \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3$$

$$\uparrow$$

$$1 \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3$$

$$\uparrow$$

$$12^{d} \parallel 1 \vee 2 \vee 3, 1, \overline{2} \vee 3, \overline{2} \vee \overline{3}, 2 \vee 3, 2 \vee \overline{3}$$

$$12^{d}3 \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3$$

$$\uparrow$$



$$0 \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3$$

$$\parallel 1 \lor 2 \lor 3$$
, 1, 2 $\lor 3$, 2 $\lor 3$, 2 $\lor 3$, $2 \lor 3$
 $\parallel \overline{1} \lor 2 \lor 3$, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, 2 $\lor 3$, 2 $\lor 3$

$$12^d \parallel \overline{1} \lor 2 \lor 3, \ 1, \ \overline{2} \lor 3, \ \overline{2} \lor \overline{3}, \ 2 \lor 3, \ 2 \lor \overline{3}$$

$$1.2^{d}$$
 \parallel $1 \lor 2 \lor 3$, 1 , $2 \lor 3$, $2 \lor 3$, $2 \lor 3$, $2 \lor 3$ $= 1.2^{d}$ $3 \parallel 1 \lor 2 \lor 3$, 1 , $2 \lor 3$, $2 \lor 3$, $2 \lor 3$, $2 \lor 3$ $= 2$

$$1\overline{2} \parallel \overline{1} \vee 2 \vee 3, 1, \overline{2} \vee 3, \overline{2} \vee \overline{3}, 2 \vee 3, 2 \vee \overline{3} =$$

$$\uparrow$$



$$0 \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3$$

$$\uparrow$$

$$1 \parallel 1 \lor 2 \lor 3, 1, \overline{2} \lor 3, \overline{2} \lor \overline{3}, 2 \lor 3, 2 \lor \overline{3}$$

$$\uparrow$$

$$12^d \parallel \overline{1} \vee 2 \vee \overline{2}$$

$$\uparrow$$

$$\| 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3$$

$$\prod$$

$$\uparrow$$

$$\uparrow$$

$$1\overline{2} \parallel \overline{1} \vee 2$$

 $12^{\mathsf{d}}3$

$$\overline{1} \lor 2 \lor 3$$
, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3}$

 $\overline{1} \lor 2 \lor 3$, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3}$

$$\uparrow$$



$$0 \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3 =$$

$$1 \parallel 1 \vee 2 \vee 3, 1, \overline{2} \vee 3, \overline{2} \vee \overline{3}, 2 \vee 3, 2 \vee \overline{3}$$

$$12^d \parallel \overline{1} \vee 2$$

$$\overline{1} \lor 2 \lor 3$$
, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3}$

$$\uparrow$$

$$\uparrow$$

 $\overline{1} \lor 2 \lor 3$, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3}$

1 2^d 3 ||

$$\uparrow$$

$$1\overline{2} \parallel \overline{1} \vee 2 \vee 3, 1, \overline{2} \vee 3, \overline{2} \vee \overline{3}, 1 \overline{2} \otimes 1, \overline{2}$$

$$\overline{1} \lor 2 \lor 3$$
, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3}$
 $\overline{1} \lor 2 \lor 3$, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3}$





$$0 \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3, 2 \lor 3$$

$$1 \lor 2 \lor 3$$
, 1, $2 \lor 3$, $2 \lor 3$, $2 \lor 3$, $2 \lor 3$
 $\overline{1} \lor 2 \lor 3$, 1, $\overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3}$

$$12^d \parallel 1 \lor 2 \lor 3, 1, 2 \lor 3, 2 \lor 3, 2 \lor 3$$

$$12^{\mathsf{d}} \parallel 1 \lor 2 \lor 3, \ 1, \ 2 \lor 3, \ 2 \lor 3, \ 2 \lor 3$$

 $12^{\mathsf{d}} 3 \parallel \overline{1} \lor 2 \lor 3, \ 1, \ \overline{2} \lor 3, \ \overline{2} \lor \overline{3}, \ 2 \lor 3, \ 2 \lor \overline{3}$

$$1\overline{2} \parallel \overline{1} \vee 2 \vee 3, 1, \overline{2} \vee 3, \overline{2} \vee \overline{3}, 2 \vee 3, 2 \vee \overline{3}$$

$$1\overline{2}3 \parallel \overline{1} \vee 2 \vee 3, 1, \overline{2} \vee 3, \overline{2} \vee \overline{3}, 2 \vee 3, 2 \vee \overline{3} =$$

$$\uparrow$$



$$0 \parallel \overline{1} \lor 2 \lor 3, 1, \overline{2} \lor 3, \overline{2} \lor \overline{3}, 2 \lor 3, 2 \lor \overline{3} \implies (UnitProp)$$

$$12^{d} \parallel \overline{1} \lor 2 \lor 3, 1, \overline{2} \lor 3, \overline{2} \lor \overline{3}, 2 \lor 3, 2 \lor \overline{3}$$

$$1.2^{d} \parallel 1 \lor 2 \lor 3$$
, $1, 2 \lor 3$, $2 \lor 3$, $2 \lor 3$
 $1.2^{d} 3 \parallel \overline{1} \lor 2 \lor 3$, $1, \overline{2} \lor 3$, $\overline{2} \lor \overline{3}$, $2 \lor 3$, $2 \lor \overline{3}$

(Backtrack)

(UnitProp)

(Fail)

(UnitProp)

(Decide)

$$1\overline{2} \parallel \overline{1} \vee 2 \vee 3, 1, \overline{2} \vee 3, \overline{2} \vee \overline{3}, 2 \vee 3, 2 \vee \overline{3}$$

$$1\overline{2}3 \parallel \overline{1} \vee 2 \vee 3, 1, \overline{2} \vee 3, \overline{2} \vee \overline{3}, 2 \vee 3, 2 \vee \overline{3} \implies$$

fail

