

## Exercise 14

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### Problem 1.

*Solution.* (a)  $\text{UnitPro}(\mathcal{J}_1) = [p_1 \mapsto \mathbf{T}, p_2 \mapsto \mathbf{T}, p_3 \mapsto \mathbf{F}, p_4 \mapsto \mathbf{T}, p_5 \mapsto \mathbf{T}, p_6 \mapsto \mathbf{T}]$ .

(b)  $(\mathcal{J}_2) = [p_2 \mapsto \mathbf{T}, p_3 \mapsto \mathbf{F}, p_4 \mapsto \mathbf{T}]$ .

(c)  $\text{UnitPro}(\mathcal{J}_3) = [p_2 \mapsto \mathbf{T}, p_3 \mapsto \mathbf{T}, p_4 \mapsto \mathbf{T}, p_4 \mapsto \mathbf{F}, p_5 \mapsto \mathbf{T}, p_6 \mapsto \mathbf{T}]$ .

*Remark.* There are several possible results for  $\text{UnitPro}(\mathcal{J}_3)$  because it causes a conflict and the sequence of propagations matter.

□

### Problem 2.

*Solution.* (a)  $p_3 \vee p_5$ .

(b) Unpick  $p_5, p_1$ .

(c)  $\text{UnitPro } p_5 \mapsto \mathbf{T}; \text{UnitPro } p_6 \mapsto \mathbf{T}$ .

□

### Problem 3.

*Solution.* (a)  $\text{UnitPro } p_9 \mapsto \mathbf{F}; \text{UnitPro } p_6 \mapsto \mathbf{F}; \text{UnitPro } p_{10} \mapsto \mathbf{T}$ .

(b)  $\text{UnitPro } p_5 \mapsto \mathbf{T}; \text{UnitPro } p_5 \mapsto \mathbf{F}$ .

(c)  $p_4 \vee \neg p_7 \vee p_1$ .

(d) Unpick  $p_1, p_5$ .

(e)  $\text{UnitPro } p_1 \mapsto \mathbf{T}$ .

□