

Consider a formula F that is being checked for satisfiability in CNF using the following set of clauses:

$$c_1 = \neg x_2 \vee \neg x_4 \vee x_7$$

$$c_2 = \neg x_2 \vee \neg x_7 \vee x_8$$

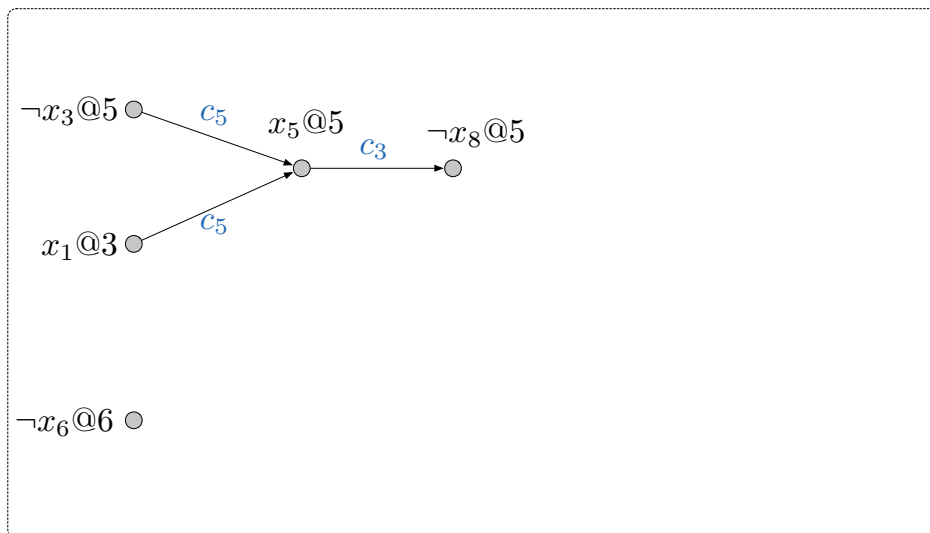
$$c_3 = \neg x_5 \vee \neg x_8$$

$$c_4 = x_4 \vee x_6$$

$$c_5 = \neg x_1 \vee x_3 \vee x_5$$

$$c_6 = x_2 \vee \neg x_5 \vee x_6$$

Here is a hypothetical implication graph from decisions previously made at levels 3 and 5 of a run of the DPLL algorithm, and we add a current decision node at the current level 6.



$\neg x_{21} @ 2 \bullet$

$\neg x_1 @ 5 \bullet$

$\neg x_{31} @ 3 \bullet$

$$c_1 = x_1 \vee x_{31} \vee \neg x_2$$

$$c_3 = x_2 \vee x_3 \vee x_4$$

$$c_5 = x_{21} \vee \neg x_4 \vee \neg x_6$$

$$c_2 = x_1 \vee \neg x_3$$

$$c_4 = \neg x_4 \vee \neg x_5$$

$$c_6 = x_5 \vee x_6$$

Clause Learning