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Tutorials for "Automated Reasoning WS18/19"
Exercise sheet 3

Exercise 3.1:
Use CDCL to decide satisfiability of the following clause set.

$$(1) \quad \neg P_1 \vee \neg P_2 \qquad (2) \quad P_3 \vee P_2 \vee P_4 \qquad (3) \quad P_2 \vee \neg P_4$$
$$(4) \quad \neg P_3 \vee P_2 \qquad (5) \quad P_1 \vee P_2 \vee P_4$$

Exercise 3.2:
Use CDCL to decide satisfiability of the following clause set.

$$(1) \quad P_1 \vee P_2 \vee P_3 \vee P_4 \qquad (2) \quad \neg P_1 \vee \neg P_2 \qquad (3) \quad \neg P_2 \vee \neg P_3$$
$$(4) \quad \neg P_1 \vee \neg P_4 \qquad (5) \quad \neg P_4 \vee P_1 \qquad (6) \quad \neg P_4 \vee P_3$$
$$(7) \quad \neg P_3 \vee P_2 \qquad (8) \quad \neg P_2 \vee P_3 \qquad (9) \quad \neg P_1 \vee P_4 \vee P_3$$

Exercise* 3.3:
Prove that any reasonable CDCL run without rules Restart and Forget learns at most 2^n different clauses where n is the number of propositional variables.

Is is not encouraged to prepare joint solutions, because we do not support joint exams.