

# SATcheck - Exercise#6

**Topic:** Conflict Resolution, DPLL+CDCL

RWTH AACHEN UNIVERSITY – JULY 3, 2022

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## Exercise Timer

Starting Time	End Time	Duration
		... min

(How long did the exercise take you?)

## Task

Consider the following propositional logic formula in CNF:

$c_0 : (A \vee \neg B) \wedge c_1 : (C \vee \neg D \vee \neg A) \wedge c_2 : (C \vee D) \wedge c_3 : (B \vee \neg C \vee A) \wedge c_4 : (A \vee \neg D)$

Furthermore assume the following trail:

$DL0 : -$

$DL1 : \neg A : nil, \neg B : c_0, \neg C : c_3, D : c_2$

We have encountered a conflict at the current decision level. Apply conflict resolution to  $c_4$  *till the first unique implication point*. How many new clauses (i.e. clauses that are not already contained in the original formula), are generated during the whole resolution process? Write down the clauses in a row separated by a comma e.g.: clause1, clause2, ..., clauseN.

## Hint(s)

- Read the task carefully.
- Recall the definitions of the terms *conflicting clause*, *conflict clause*, *first unique implication point*.

Your solution goes here:

**Place for scratchwork:**

*(hopefully this is sufficient for you.)*