SATcheck - Solution#6

Topic: Conflict Resolution, DPLL+CDCL

RWTH Aachen University – July 3, 2022

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:

3 new clause(s) were produced during the whole resolution process. The clause(s) is/are given by:
$(A \vee C), (B \vee A), (A)$