LAB 4

S is a finite set of propositional clauses, written in CNF in the format [[w, s, n(p)], [a, n(w), r, t], [q]]. With n(p) the negation of p is noted.

Implement the Davis-Putnam SAT procedure. For the input data S, the procedure will display YES, respectively NOT, as S is satisfiable or not. In the case of YES, the procedure will also display the truth values assigned to the literals (i.e. the solution {w/true; s/false; p/false ...}). Choose two strategies of selection of the atom to perform the • operation and compare the results.

The input data will be read from a file and the results will be displayed on the screen or in a file.

The procedure will be implemented in the version presented at the course (from Ronald Brachman, Hector Levesque. Knowledge representation and reasoning, Morgan Kaufmann 2004).

Suggestion for implementation:

dp([],[]).
dp(L,_):-member([],L),!,fail.
dp(L,[C/A|S]):- … choose the atom C, perform the • operation for C; respectively for n(C) … in
                both cases, for the resulting list of clauses, L1… dp(L1,S).

%the first argument of dp is the KB, given as a list of lists
%the 2nd argument is the solution, represented as a list of elements C/A, where C is an atom and
%A is its truth value