

Algorithm

i Input: $M, C_1, \dots, C_k, x_1, \dots, x_n$

ii Init: let A be the assignment where each $a_i \in [0, 1]$ is x_i 's assignment

1 if $\neg M(C_1, \dots, C_k)$

2 return "not satisfiable"

3 for $i \in [1, 2, \dots, n]$

4 let X be the clause $(x_i)^*$

5 if $M(C_1, \dots, C_k, X)$

6 $A[i] = 1$

7 else, $A[i] = 0$

8 replace all x_i in $\{C_1, \dots, C_k\}$ with $A[i]$

9 end for

10 return A

* if unary clauses are allowed. if binary or greater clauses are required, let X be $(x_i \vee 0)$.

$O(n+1)$ calls to $M \rightarrow$ linear! (polynomial)