FILIP PLATA fp371335

PROBLEM 3

We will assume for now that we can obtain in polynomial time an overlapping set of size $O(\log n)$ given the formula.

So let's assume we have $\{p_1, \dots p_k\}$, literals which altogether with their negation

The algorithm will proceed as follows:

- for every p_i from overlapping set, we choose some valuation. total number of valuations is of the size $O(a(n))$, for some polynomial n.
- We perform substitution in the formula, simplify, propagate units.
- We arrive at 2-CNF formula, thanks to definition of set. This is in P

So, polynomially many times we run a polynomial algorithm, thus it is polynomial.