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Complexity of Boolean functions
SS 2019
Homework 8
19.06.2019

Exercise 1:

Prove Theorem 5.2 of the lecture.

Exercise 2:

Disprove that $C^* \setminus C = \{W \notin C \mid C \vdash W\}$.

Exercise 3:

a) Develop an algorithm for the computation of all prime clauses for a given monotone function $f \in \mathcal{B}_n$.

b) Is it possible that a prime clause contains more than one variable of a prime implicant? Prove your answer.

Exercise 4:

The disjunction of all prime implicants of a function $f \in M_n$ is the *P-DNF representation* of f. The conjunction of all prime clauses is the *P-CNF representation* of f.

a) Develop an algorithm which given the P-CNF representation of $f \in M_n$ computes the P-DNF representation of f.

b) For $f \in M_n$ show that the P-DNF- and also the P-CNF representations are unique.