



Christoph Weidenbach

June 27, 2017

Tutorials for “Automated Reasoning II”
Exercise sheet 10

Exercise 10.1: (*P*)

Construct two equational clauses and select an ordering \succ such that all conditions of the inference rule Superposition Right except the ordering conditions $t\sigma \not\prec t'\sigma$, $s\sigma \not\prec s'\sigma$ are met, and, $t \not\prec t'$, $s \not\prec s'$.

Exercise 10.2: (*P*)

Construct $N_{\mathcal{I}}$ for the ground clause set

$$N = \{f(a) \approx b \vee f(b) \approx a, f(f(b)) \approx a, f(f(b)) \not\approx a \vee a \approx b\}$$

with respect to a KBO where all function symbols have weight one and $f \succ b \succ a$ and nothing is selected. Find the minimal false clause, perform the respective superposition inference and recompute the partial model with respect to the extended clause set.

Exercise 10.3: (*P*)

Prove that Factoring is in an instance of Equality Factoring with respect to the translation of literals to equations and the elimination of redundant literals.