

**Exercises.**

2.0 Study Section 2.2 and Section 7.1

2.1 Exercise 7.1

2.2 Prove termination of the TRS  $\mathcal{R}$

$$f(a, b, x) \rightarrow f(x, x, x) ,$$

by semantic labelling.

2.3 Exercise 7.2

2.4 Give an alternative proof of Lemma 7.1.3 by using basic results on substitutions and interpretations in equational logic.

2.5 Exercise 7.5

2.6 Exercise 7.6

2.7 Is semantic labelling useful to prove termination of the following TRS  $\mathcal{R}$ ?

$$\begin{array}{ll} f(a, b, x) \rightarrow f(x, x, x) & g(x, y) \rightarrow x \\ & g(x, y) \rightarrow y \end{array}$$