

Exercises.

- 10.0 Study the lecture notes on derivational complexity.
- 10.1 Show that the restriction to *finitely branching* TRS is essential for the correctness of Definition 1.1 (in the lecture notes).
- 10.2 Consider the TRS defined in Lemma 2.2. Show that d indeed defines the double function as claimed.
- 10.3 In Exercise 7.4, the termination of the TRS \mathcal{R} was shown.

$$\begin{aligned}(x^{-1})^{-1} &\rightarrow x \\(x + y)^{-1} &\rightarrow x^{-1} \times y^{-1} \\(x \times y)^{-1} &\rightarrow x^{-1} + y^{-1} \\x \times (y + z) &\rightarrow (x \times y) + (x \times z) \\(y + z) \times z &\rightarrow (x \times y) + (x \times z)\end{aligned}$$

Message your termination proof, such that an upper-bound on $dc_{\mathcal{R}}$ can be derived.