Exercises.

1.0 Study Section 3.1, 3.2 (and all necessary definitions above), recall Section 3.3; study Chapter 4; Appendix A.

1.1 Suppose we additionally require "$t \in \mathcal{V}$ or $f \not\geq \mathsf{root}(t)$" in the first clause of the definition of multiset path order (see transparencies). Does this affect the order?

1.2 Suppose we replace the condition "$\forall j > i \; s >_{\mathsf{lpo}} t_j$" by "$\forall j \; s >_{\mathsf{lpo}} t_j$". Does this affect the order?

1.3 Which of the TRSs in Exercises 4.3, 4.5, 4.9, and 4.19 can be proved terminating by the multiset path order?

1.4 Let s and t be terms and $>$ a precedence. Give an upper bound (in terms of $|s|$ and $|t|$) on the number of comparisons using $\succ$ between function symbols in s and t that are needed to determine whether $s >_{\mathsf{lpo}} t$ holds.

1.5 How does the complexity (in terms of $|s|$ and $|t|$) changes, if $>$ is unknown? (Assuming a finite signature.)

1.6 A. 22–23.

1.7 A. 24.

1.8 A. 26.