CS-M16, Logic and Semantics **Coursework Assignment M**
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In this course work you are supposed to write a report on star-free languages. It should be a single document, not a collection of individual answers. The document should include an abstract, an introduction, conclusions, and citations according to the usual scientific standard. The main part of the document should contain answers the following questions.

- What are star-free regular expressions and which languages do they denote?
- What are star-free languages? Give some examples that are not "obviously presented as star-free".
- Why is every star-free language first-order definable?
- Why is every first-order definable language star-free?
- What do these observations say about the relation between star-free regular languages and regular languages?
- What other observations can you make about star-free regular languages?

A good starting point for your work is Chapter 7.5 of Leonid Libkin's "Elements of Finite Model Theory" (Springer Verlag, 2004). This book is available in the library. Note that this chapter requires some knowledge that is contained in previous chapters, but was also taught in the lecture.