

Languages and Compiler (DAT4, SW4, KBH-SW4, CS-IT8)

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/ [Topic 5: Context Free Grammars](#) / [Exercise for Lecture 5 + slides + mp4 filer](#)

Exercise for Lecture 5 + slides + mp4 filer

Exercises

Individual Exercises (1 hour)

The following exercises you may prefer to do on your own, e.g. just after you have read the literature, and discuss the outcome with your group:









- 1.(optional but recommended)Follow the studio associated with Crafting a Compiler Chapter 4 <http://www.cs.wustl.edu/~cytron/cacweb/Chapters/4/studio.shtml>
- 2.For each of the grammars below, describe the language associated with the grammar and determine if the grammar is ambiguous. If the grammar is ambiguous show two parse trees for the same string, otherwise explain why the grammar is not ambiguous (exercise 1 on page 168 in GE) – you may want to do this exercise by hand first and then try out the KfG tool in the AtoCC toolset<http://www.atocc.de/> or the web based version <https://flaci.com/kfgedit>
 - a) $S \rightarrow A B$
 $A \rightarrow A A \mid a$
 $B \rightarrow B B \mid b$
 - b) $S \rightarrow A B$
 $A \rightarrow A a \mid a$
 $B \rightarrow B b \mid b$
 - c) $S \rightarrow A B$
 $A \rightarrow A a \mid A b \mid a$
 $B \rightarrow B a \mid B b \mid b$
 - d) $S \rightarrow A B$
 $A \rightarrow A a$
 $B \rightarrow B b$
- 3.Do Fischer et al exercise 3 on page 138 and exercise 10 on page 140 (exercises 5 and 13 on pages 169-171 in GE)
4. (optional) Try the ACLA (Ambiguity Checking with Language Approximations) on the grammars from exercise 2 (exercise 1 on page 168 in GE). You can find the ACLA tool on <http://services2.brics.dk/java/grammar/demo.html>
5. (optional) You may also try Context Free grammar Tool on <http://smlweb.cpsc.ucalgary.ca/start.html> or its newest version on <http://mdaines.github.io/grammophone/>
6. (optional) Browse the Grammar Zoo web site <http://slebok.github.io/zoo/>
7. (optional) Browse the Syntax accross languages web site: <http://rigaux.org/language-study/syntax-across-languages/>
8. (optional) Do Sebesta Review questions 1,2,4,5,8,10,24 on page 216-217

Group Exercises (1 hour)

The following exercises are best done as group discussions:

1. Discuss the outcome of the individual exercises
2. Do Fischer et al exercise 1, 7, 8, 9 on pages 138- 141 (exercises 4, 8, 10, 11 on pages 169-174 in GE)

You should limit the discussion to about 10 minutes per question.

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-  [AABB-Brics.txt](#)
-  [AABB.txt](#)
-  [MicroEnglish.txt](#)
-  [SPOF20-5.mp4](#)
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-  [SuggestedSolutions_Exercises_5.pdf](#)

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◀ Exercises for Lecture 4 + slides + mp4 filer

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Exercises for Lecture 6 + slides + mp4 filer ▶

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