



CS-C2160 - Theory of Computation, Lecture, 11.1.2022-11.4.2022

This course space end date is set to 16.12.2022 [Search Courses: CS-C2160](#)

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Course feedback

Syllabus

9. Voluntary problem set: Context-free grammars

These problems are completely **voluntary** (no bonus points given, either) that one may solve, for instance, before the exam to practise the constructions.

[« 9.3 Grammar for a language](#)

[Course overview](#)

Exercise description

My submissions **3 / 50** ▾

Grammar for a language

Consider the language $L = \{w \in \{a,b\}^* \mid w \text{ contains at least as many } a\text{'s as } b\text{'s}\}$.

Give a context-free grammar that generates the language.

Enter the grammar in the space below, one production on each line. Use this syntax:

- production: variable -> string1 | string2 ... | stringn
- variables: capital letters A,B,...,Z
- terminals: lower case letters a,b,...,z and numbers 0,1,...,9
- empty string: _ (the underscore symbol)
- start symbol: the first variable in the grammar

For instance, the grammar

```
A -> aAa | B
B -> bB | _
```

generates the language $\{a^n b^k a^n \mid n \geq 0 \text{ and } k \geq 0\}$.

Your solution:

Submit!

[9.5 Showing that a grammar is ambiguous »](#)

Earned points

1 / 1



Exercise info

Exercise category
Voluntary exercises

Your submissions
3 / 50

Deadline
Sat, 31 Dec 2022 23:59:00 +0200

Total number of submitters
11

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[9.5 Showing that a grammar is ambiguous »](#)

Previous activity

◀ 8. Voluntary problem set: Regular expressions

Next activity

Earlier lecture slides (2021) ▶



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