



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

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Course feedback

Syllabus

## 6. Voluntary problem set: Some small brain teasers

These problems are completely **voluntary** (no bonus points given, either) that may require more time to solve. Try with your own responsibility.

« [6.2 Grammar for a language](#)

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Exercise description

My submissions **5 / 50** ▼

### Grammar for a language

Consider the language  $L = \{xy \mid x, y \in \{a, b\}^*, |x| = |y| \text{ and } x \neq y\}$ .

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!

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[7. Voluntary problem set: Finite automata](#) »

Earned points

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#### Exercise info

**Exercise category**  
Voluntary exercises

**Your submissions**  
5 / 50

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

**Total number of submitters**  
4

Previous activity

◀ 5. Compulsory problem set: Context-free grammars

Next activity

7. Voluntary problem set: Finite automata ▶



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