

Exercises 2: Software language theory

- 1) Use the turing machine from the lecture for adding 1 to a given bit representation and write the complete path when 101 is the starting input on the tape.
- 2) Write a simple grammar with production rules to check the correctness of a given German postal address like:
<first name> <family name>
<street> <number>
<country code>-<postal code> <town>
(<country>)
e.g.
Andrew Exampleman
Examplestreet 5
D-80585 Example Town
(Germany)
- 3) Which type of Chomsky language is needed for those checks?
- 4) Adapt the given ETF-grammar for logical expressions (and,or,not).
- 5) Write a simple grammar which produces
if (condition) then
{
 block
}
else
{
 block
}
Where block can be an encapsulated if-then-else and the else-part is not necessarily needed.