

Homework 8

May 2024

```
program ::= definition | term | definition program
definition ::= "let" variable "=" term "\n"
variable ::= letter | variable letter-or-digit
term ::= application | abstraction
application ::= atom | application atom
atom ::= variable | parenthesized-term
abstraction ::= "\" parameters "." term
parameters ::= variable | variable parameters
letter ::= "a" | ... | "z" | "A" | ... | "Z"
digit ::= "0" | ... | "9"
character ::= letter | digit
parenthesized-term ::= "(" term ")"
```

Example:

```
let I = \x.x
```

```
program → definition
→ "let" variable "=" term "\n"
→ "let" "I" "=" term "\n"
→ "let" "I" "=" abstraction "\n"
→ "let" "I" "=" "\" parameters "." term "\n"
→ "let" "I" "=" "\" variable "." term "\n"
→ "let" "I" "=" "\" "x" "." term "\n"
→ "let" "I" "=" "\" "x" "." application "\n"
→ "let" "I" "=" "\" "x" "." atom "\n"
→ "let" "I" "=" "\" "x" "." variable "\n"
→ "let" "I" "=" "\" "x" "." "x" "\n"
```