

## Grammar for a Small Programming Language

$T = \{\text{begin, end, ;, =, A, B, C, +, *}\}$

$N = \{\langle \text{program} \rangle, \langle \text{stmt\_list} \rangle, \langle \text{stmt} \rangle, \langle \text{var} \rangle, \langle \text{stmt\_tail} \rangle, \langle \text{expression} \rangle, \langle \text{expr\_tail} \rangle\}$

Start =  $\langle \text{program} \rangle$

P =

{

1.  $\langle \text{program} \rangle \rightarrow \mathbf{\text{begin}} \langle \text{stmt\_list} \rangle \mathbf{\text{end}}$
2.  $\langle \text{stmt\_list} \rangle \rightarrow \langle \text{stmt} \rangle \langle \text{stmt\_tail} \rangle$
3.  $\langle \text{stmt\_tail} \rangle \rightarrow ; \langle \text{stmt\_list} \rangle$
4.  $\langle \text{stmt\_tail} \rangle \rightarrow \lambda$
5.  $\langle \text{stmt} \rangle \rightarrow \langle \text{var} \rangle = \langle \text{expression} \rangle$
6.  $\langle \text{var} \rangle \rightarrow \mathbf{A}$
7.  $\langle \text{var} \rangle \rightarrow \mathbf{B}$
8.  $\langle \text{var} \rangle \rightarrow \mathbf{C}$
9.  $\langle \text{expression} \rangle \rightarrow \langle \text{var} \rangle \langle \text{expr\_tail} \rangle$
10.  $\langle \text{expr\_tail} \rangle \rightarrow + \langle \text{var} \rangle \langle \text{expr\_tail} \rangle$
11.  $\langle \text{expr\_tail} \rangle \rightarrow * \langle \text{var} \rangle \langle \text{expr\_tail} \rangle$
12.  $\langle \text{expr\_tail} \rangle \rightarrow \lambda$

}