

Softwareprojekt Übersetzerbau:

Quellsprache

Sommersemester 2012

1 Programmstruktur

$$program \rightarrow funcs$$
$$funcs \rightarrow func\ funcs \mid \varepsilon$$
$$func \rightarrow \mathbf{def\ type\ id\ (}\ optparams \mathbf{)\ block}$$
$$\mid \mathbf{def\ type\ id\ (}\ optparams \mathbf{);\ [Optional: Funktionsprototypen]}$$
$$optparams \rightarrow params \mid \varepsilon$$
$$params \rightarrow type\ \mathbf{id}, params \mid type\ \mathbf{id}$$
$$block \rightarrow \{decls\ stmts\}$$
$$decls \rightarrow decls\ decl \mid \varepsilon$$
$$decl \rightarrow type\ \mathbf{id};$$
$$type \rightarrow type\ [\mathbf{num}] \mid \mathbf{basic} \mid \mathbf{record}\ \{decls\}$$
$$stmts \rightarrow stmts\ stmt \mid \varepsilon$$

2 Anweisungen

$$\begin{aligned} stmt &\rightarrow assign ; \\ &| \text{if} (assign) stmt \\ &| \text{if} (assign) stmt \text{ else } stmt \\ &| \text{while} (assign) stmt \\ &| \text{do } stmt \text{ while} (assign) ; \\ &| \text{break} ; \\ &| \text{return} ; \\ &| \text{return } loc ; \\ &| \text{print } loc ; \\ &| block \\ loc &\rightarrow loc [assign] \mid \text{id} \mid loc.\text{id} \end{aligned}$$

3 Ausdrücke

$assign \rightarrow loc = assign \mid bool$

$bool \rightarrow bool \mid \mid join \mid join$

$join \rightarrow join \ \&\& \ equality \mid equality$

$equality \rightarrow equality \ == \ rel \mid equality \ != \ rel \mid rel$

$rel \rightarrow expr < expr \mid expr <= expr \mid expr >= expr \mid expr > expr \mid expr$

$expr \rightarrow expr + term \mid expr - term \mid term$

$term \rightarrow term * unary \mid term / unary \mid unary$

$unary \rightarrow ! unary \mid - unary \mid factor$

$factor \rightarrow (assign) \mid loc \mid \mathbf{num} \mid \mathbf{real} \mid \mathbf{true} \mid \mathbf{false} \mid \mathbf{string} \mid funccall$

$funccall \rightarrow \mathbf{id}(optargs)$

$optargs \rightarrow args \mid \varepsilon$

$args \rightarrow assign, args \mid assign$