

Script generated by TTT

Title: Petter: Compiler Construction (28.05.2020)
-19: Admissible Items

Date: Fri May 08 13:50:09 CEST 2020

Duration: 15:37 min

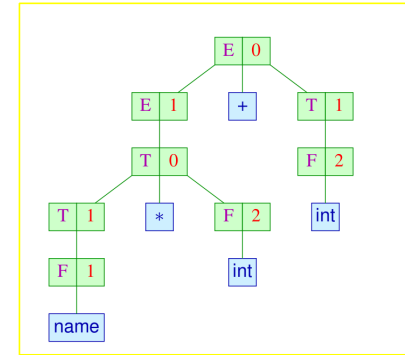
Pages: 8

The Pushdown During an RR-Derivation

Idea: Observe a successful run of M_G^R !

Input:
counter * 2 + 40

Pushdown:
(q0)



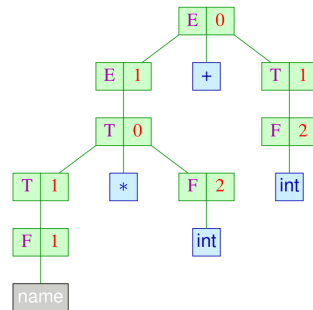
$E \rightarrow E+T^0$	T^1
$T \rightarrow T*F^0$	F^1
$F \rightarrow (E)^0$	$name^1 \mid int^2$

The Pushdown During an RR-Derivation

Idea: Observe a successful run of M_G^R !

Input:
* 2 + 40

Pushdown:
(q0 name)



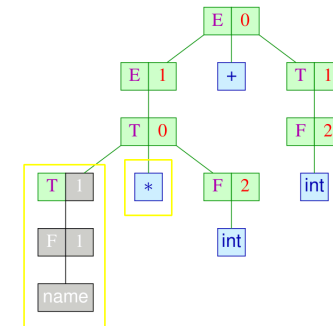
$E \rightarrow E+T^0$	T^1
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The Pushdown During an RR-Derivation

Idea: Observe a successful run of M_G^R !

Input:
* 2 + 40

Pushdown:
(q0 T)



$E \rightarrow E+T^0$	T^1
$T \rightarrow T*F^0$	F^1
$F \rightarrow (E)^0$	$name^1 \mid int^2$

The Pushdown During an RR-Derivation

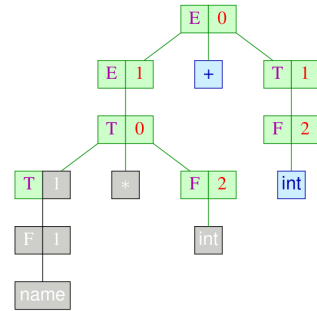
Idea: Observe a successful run of M_G^R !

Input:

+ 40

Pushdown:

($q_0 T * int$)



$$\begin{array}{l} E \rightarrow E+T^0 \mid T^1 \\ T \rightarrow T*F^0 \mid F^1 \\ F \rightarrow (E)^0 \mid name^1 \mid int^2 \end{array}$$

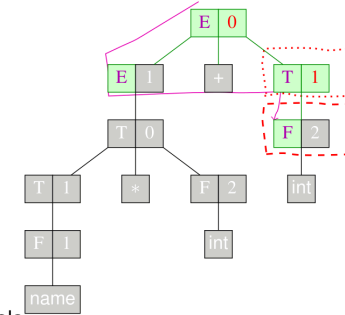
7/54

The Pushdown During an RR-Derivation

Idea: Observe a successful run of M_G^R !

Input:

Pushdown:
($q_0 E + F$)



Result:

- the pushdown contains sequences of symbols, which are already processed *prefixes of righthandsides of productions* leading to the topmost few states. \rightarrow documentation of the *processing history*

7/54

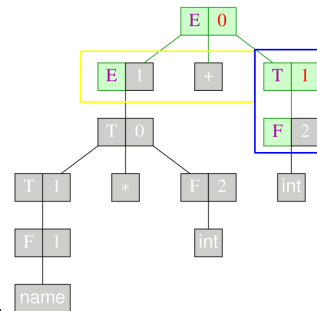
The Pushdown During an RR-Derivation

Idea: Observe a successful run of M_G^R !

Input:

Pushdown:

($q_0 E + F$)



Result:

- the pushdown contains sequences of symbols, which are already processed *prefixes of righthandsides of productions* leading to the topmost few states. \rightarrow documentation of the *processing history*
- \rightarrow a righthandside on top of the pushdown is only a handle in the correct historical context

7/54

Viable Prefixes and Admissible Items

$A \rightarrow \alpha \bullet \beta$

Formalism: use *Items* as representations of *prefixes of righthandsides*

Generic Agreement

In a sequence of configurations of M_G^R

$$(q_0 \alpha \gamma, v) \vdash (q_0 \alpha B, v) \vdash^* (q_0 S, \epsilon)$$

we call $\alpha \gamma$ a *viable prefix* for the complete item $[B \rightarrow \gamma \bullet]$.

Reformulating the Shift-Reduce-Parsers main problem:

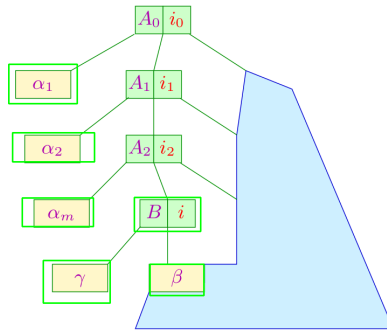
Find the items, for which the content of M_G^R 's stack is the *viable prefix*...

\rightarrow *Admissible Items*

8/54

Admissible Items

The item $[B \rightarrow \gamma \bullet \beta]$ is called **admissible** for $\alpha\gamma$ iff $S \xrightarrow{*}_R \alpha B v :$



... with $\alpha = \alpha_1 \dots \alpha_m$