

Transformacija gramatike

1. $Statements \rightarrow Statements ; Statement \mid Statement$
2. $Statement \rightarrow Assignment \mid IfStatement$
3. $IfStatement \rightarrow \text{if} (RelExpression) : \{ Statements \}$
4. $RelExpression \rightarrow Expression \text{eq} Expression$
5. $Assignment \rightarrow ID = Expression$
6. $Expression \rightarrow ID \mid CONST$

1. $Statements \rightarrow Statement Statements'$
2. $Statements' \rightarrow ; Statement Statements'$
3. $Statements' \rightarrow \epsilon$
4. $Statement \rightarrow Assignment$
5. $Statement \rightarrow IfStatement$
6. $IfStatement \rightarrow \text{if} (RelExpression) : \{ Statements \}$
7. $RelExpression \rightarrow Expression \text{eq} Expression$
8. $Assignment \rightarrow ID = Expression$
9. $Expression \rightarrow ID$
10. $Expression \rightarrow CONST$

Primenom postupka za eliminaciju levo-rekurzivnih smena eliminisana je direktno leva rekurzija u skupu smena:

$Statements \rightarrow Statements ; Statement \mid Statement$

Dobijen je sledeći skup smena:

- $Statements \rightarrow Statement Statements'$
- $Statements' \rightarrow ; Statement Statements'$
- $Statements' \rightarrow \epsilon$

Odredjivanje first i follow skupova

	Smena	FIRST(SMENA)
1.	$Statements \rightarrow Statement Statements'$	$FIRST(Statement Statements') = \{ ID, \text{if} \}$
2.	$Statements' \rightarrow ; Statement Statements'$	$FIRST(; Statement Statements') = \{ ; \}$
3.	$Statements' \rightarrow \epsilon$	$FIRST(\epsilon) = \{ \epsilon \}$
4.	$Statement \rightarrow Assignment$	$FIRST(Assignment) = \{ ID \}$
5.	$Statement \rightarrow IfStatement$	$FIRST(IfStatement) = \{ \text{if} \}$
6.	$IfStatement \rightarrow \text{if} (RelExpression) : \{ Statements \}$	$FIRST(\text{if} (RelExpression) : \{ Statements \}) = \{ \text{if} \}$
7.	$RelExpression \rightarrow Expression \text{eq} Expression$	$FIRST(Expression \text{eq} Expression) = \{ ID, CONST \}$
8.	$Assignment \rightarrow ID = Expression$	$FIRST(ID = Expression) = \{ ID \}$
9.	$Expression \rightarrow ID$	$FIRST(ID) = \{ ID \}$
10.	$Expression \rightarrow CONST$	$FIRST(CONST) = \{ CONST \}$

1. *Statements*
 $\} \in \text{FOLLOW}(\text{Statements})$
 $\# \in \text{FOLLOW}(\text{Statements})$
2. *Statements'*
 $\text{FOLLOW}(\text{Statements}) \subset \text{FOLLOW}(\text{Statements}')$
3. *Statement*
 $\text{FIRST}(\text{Statements}') \subset \text{FOLLOW}(\text{Statement})$
 $\text{FOLLOW}(\text{Statements}) \subset \text{FOLLOW}(\text{Statements})$
 $\text{FOLLOW}(\text{Statements}') \subset \text{FOLLOW}(\text{Statement})$
4. *IfStatement*
 $\text{FOLLOW}(\text{Statement}) \subset \text{FOLLOW}(\text{IfStatement})$
5. *RelExpression*
 $) \in \text{FOLLOW}(\text{RelExpression})$
6. *Assignment*
 $\text{FOLLOW}(\text{Statement}) \subset \text{FOLLOW}(\text{Assignment})$
7. *Expression*
 $\mathbf{eq} \in \text{FOLLOW}(\text{Expression})$
 $\text{FOLLOW}(\text{RelExpression}) \subset \text{FOLLOW}(\text{Expression})$
 $\text{FOLLOW}(\text{Assignment}) \subset \text{FOLLOW}(\text{Expression})$

	Simbol	FOLLOW(Simbol)
1.	<i>Statements</i>	$\text{FOLLOW}(\text{Statements}) = \{ \}, \# \}$
2.	<i>Statements'</i>	$\text{FOLLOW}(\text{Statements}') = \{ \}, \# \}$
3.	<i>Statement</i>	$\text{FOLLOW}(\text{Statement}) = \{ ;, \}, \# \}$
4.	<i>IfStatement</i>	$\text{FOLLOW}(\text{IfStatement}) = \{ ;, \}, \# \}$
5.	<i>RelExpression</i>	$\text{FOLLOW}(\text{RelExpression}) = \{) \}$
6.	<i>Assignment</i>	$\text{FOLLOW}(\text{Assignment}) = \{ ;, \}, \# \}$
7.	<i>Expression</i>	$\text{FOLLOW}(\text{Expression}) = \{ \mathbf{eq},), ;, \}, \# \}$

Analiza skupova smena

Skupovi smena $\{ \text{Statements}' \rightarrow ; \text{Statement Statements}', \text{Statements}' \rightarrow \epsilon \}, \{ \text{Expression} \rightarrow \text{ID}, \text{Expression} \rightarrow \text{CONST} \}, \{ \text{Statement} \rightarrow \text{Assignment}, \text{Statement} \rightarrow \text{IfStatement} \}$ imaju na levoj strani smene iste terminalne simbole. Za prvi skup važi:

- 1) $\text{FIRST}(; \text{Statement Statements}') \cap \text{FIRST}(\epsilon) = \emptyset$
- 2) Samo jedna od navedenih smena se slika u prazan niz
- 3) $\text{FIRST}(; \text{Statement Statements}') \cap \text{FOLLOW}(\text{Statements}') = \emptyset$

Za drugi skup važi:

- 1) $\text{FIRST}(\text{ID}) \cap \text{FIRST}(\text{CONST}) = \emptyset$
- 2) Nijedna od smena se ne slika u prazan niz

Za treci skup važi:

- 1) $\text{FIRST}(\text{Assignment}) \cap \text{FIRST}(\text{IfStatement}) = \emptyset$
- 2) Nijedna od smena se ne slika u prazan niz

Za sve skupove smena važe uslovi formalne definicije LL(1) gramatike.

Sintaksna tabela

1. $SS \rightarrow S SS'$
2. $SS' \rightarrow ; S SS'$
3. $SS' \rightarrow \epsilon$
4. $S \rightarrow A$
5. $S \rightarrow \text{If}S$
6. $\text{If}S \rightarrow \text{if} (\text{Rel}E) : \{ SS \}$
7. $\text{Rel}E \rightarrow E \text{ eq } E$
8. $A \rightarrow \text{ID} = E$
9. $E \rightarrow \text{ID}$
10. $E \rightarrow \text{CONST}$

[illegible]