**КС-грамматика**

G = {N,T,P,S}

N- множество нетерминальных символов (S, NV, IF, SWITCH, FOR, TYPE, OPERATION, OPERAND, LOS, OS, CONDITION, CASE)

T – множество терминальных символов (id, const, if, for, break, else, int, +,-,++,--,==,!=,<=,>=,+=,-=,\*=,!,[,],{,],;,)

P – множество правил порождений

S – целевой символ грамматики

Правила:

S->NV;S S|IF;S|ELSE;S| SWITCH;S|FOR;S|OPERATION;S|{S}|

NV->TYPE id; TYPE id=id;|TYPE id=const;|TYPE id[id];

TYPE->int

IF->if(CONDITION)S

ELSE->else

CONDITION-> OPERAND LOS OPERAND

OPERAND->id|const|id[id]|id[const]|id[OPERATION]

LOS-> >|>=|<|<=|!=|==

OPERATION-> OPERAND OS OPERAND| OPERAND OS OPERATION| OS OPERAND| OPERAND OS

OS-> +|++|-|--|\*|=|+=

FOR-> for (NV; CONDITION, OPERATION) S;

for (int i = 0; i < str.length(); i++) {

if (str[i] == ' ') {

if (i > 0) {

newStr += toupper(str[++i]);

}

}

else {

newStr += str[i];

}

for (int j = 0; j < vowels.length(); j++) {

if (str[i] == vowels[j]) {

vowelCount++;

break;

}

}

}

Цепочка порождения(правостороннее)

S->**FOR;S**->FOR;**IF;S**->FOR;IF;**IF;S**->FOR;IF;IF;**OPERATION;S**->FOR;IF;IF;OPERATION;**ELSE;S**->FOR;IF;IF;OPERATION;ELSE;**OPERATION;S**->FOR;IF;IF;OPERATION;ELSE;OPERATION;**FOR;S->** FOR;IF;IF;OPERATION;ELSE;OPERATION;FOR;**IF;S->** FOR;IF;IF;OPERATION;ELSE;OPERATION;FOR;IF;**OPERATION;S->** FOR;IF;IF;OPERATION;ELSE;OPERATION;FOR;IF;OPERATION;**BREAK;S->**FOR;IF;IF;OPERATION;ELSE;OPERATION;FOR;IF;OPERATION;BREAK;