S-Grammars

S-Grammars have the following properties:

- Every production starts with a terminal symbol
- All productions for the same nonterminal start with different terminal symbols

A one-state pushdown machine for an S-Grammar is specified as follows:

- The input set is the terminal set of the grammar augmented with an endmarker symbol
- The stack symbol set consists of the bottom marker, the nonterminal symbols from the grammar, and those terminal symbols that appear in the righthand side of productions in positions other than at the extreme left
- The starting stack consists of the bottom marker and the starting nonterminal symbol
- The control is described by a one-state control table having rows labelled with stack symbols, columns with input symbols, and entries as described below
- A table entry is made for each production in the grammar. The productions have the form

  <A> -> b α

  where <A> is a nonterminal, 'b' is a terminal, and α is a string of terminal and nonterminal symbols. Corresponding to this production, the table entry for row <A> and column 'b' is

  REPLACE(α^r), ADVANCE

  where α^r is the sequence α reversed

  Note: If α is the null string the table entry is simply

  POP, ADVANCE
- If terminal 'b' is a stack symbol, the table entry for row 'b' and column 'b' is

  POP, ADVANCE
- The table entry for the bottom marker row and the endmarker column is

  ACCEPT
- All other table entries are

  REJECT