PCS2056 - Linguagens e Compiladores

P2

Alunos:
Renan Martins Zomignani Mendes
Tiago Schelp Lopes

Professor:
Ricardo Luis de Azevedo da Rocha

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PRIMEIRA PARTE DA P2

1. (2,5 pontos) Construa um reconhecedor determinístico, baseado no autômato de pilha estruturado, que aceite como entrada válida um arquivo contendo descrições e comandos em Kipple. Não é necessário colocar toda a descrição da linguagem (incluindo bibliotecas), basta utilizar os elementos descritos explicitamente na sintaxe.

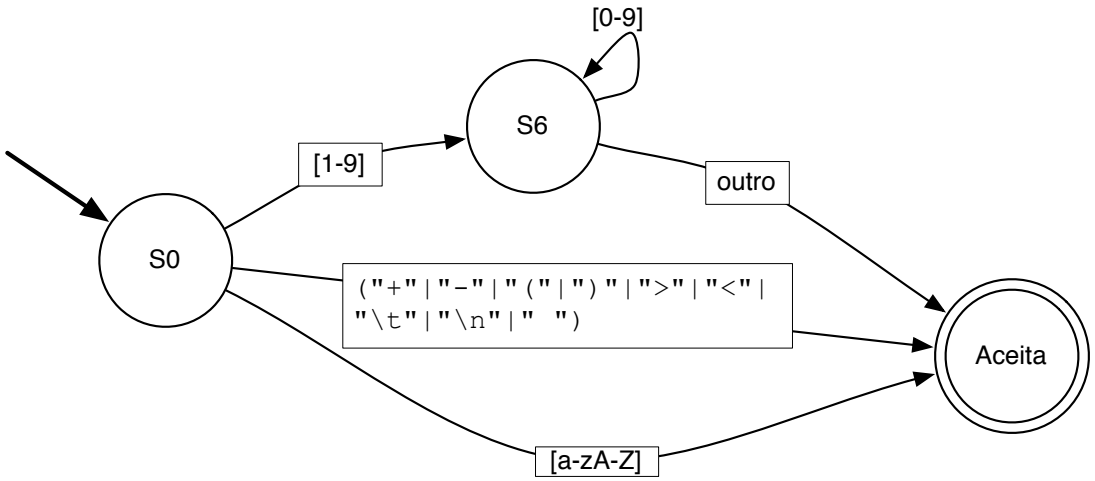
a) Descrição Wirth da linguagem:

```
STACK_ID =
"a"|"b"|"c"|"d"|"e"|"f"|"g"|"h"|"i"|"j"|"k"|"l"|"m"|"n"|
"o"|"p"|"q"|"r"|"s"|"t"|"u"|"v"|"w"|"x"|"y"|"z"|"A"|"B"|
"C"|"D"|"E"|"F"|"G"|"H"|"I"|"J"|"K"|"L"|"M"|"N"|"O"|"P"|
"Q"|"R"|"S"|"T"|"U"|"V"|"W"|"X"|"Y"|"Z"|"@".

NUM = "0"|(("1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9")
          {"0"|"1"|"2"|"3"|"4"|"5"|"6"|"7"|"8"|"9"}).

OPERATION = OP1 | OP2.
OP_UM = NUM [REST_PR].
OP_DOIS = STACK_ID ( [REST_PR | REST_PL | REST_ADD |
                      REST_SUB | REST_CLR] ).
REST_PR  = ">" OP_DOIS.
REST_PL  = "<" (OP_UM | OP_DOIS).
REST_ADD = "+" (OP_UM | OP_DOIS).
REST_SUB = "-" (OP_UM | OP_DOIS).
REST_CLR = "?".

LOOP = "(" OP_DOIS CODE ")".
CODE = {LOOP | OPERATION}.
```

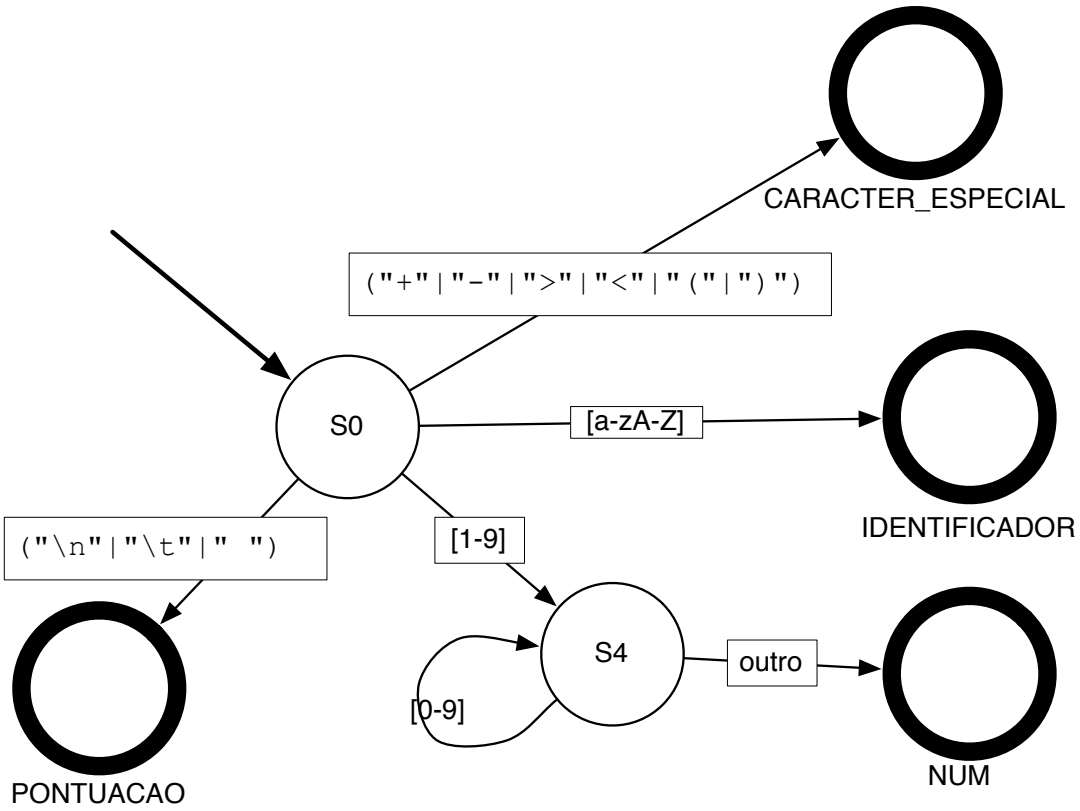
b) Tabela de tokens:

Expressão Regular	Valor	Tipo
["a"|"b"|…|"z"|"A"|"B"|…|"Z")	Lexema Lido	ID
(">"|"<"|"+"|"-"|"("|")")	Lexema Lido	SPECIAL_CARACTER
(0|[1-9][0-9]*)	Lexema lido	NUM
(" "|"\n"|"\t")	-	PONTUACAO

c) Autômato finito que reconhece os lexemas da linguagem:

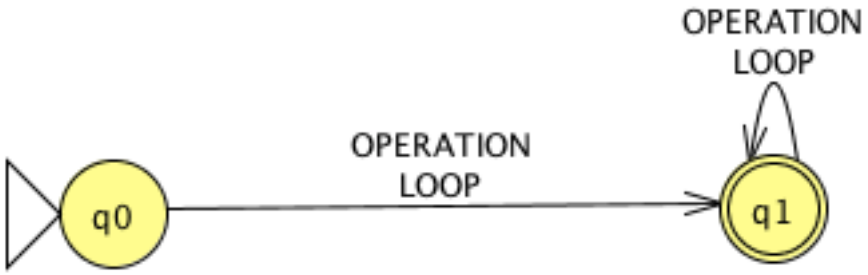


d) Transdutor:



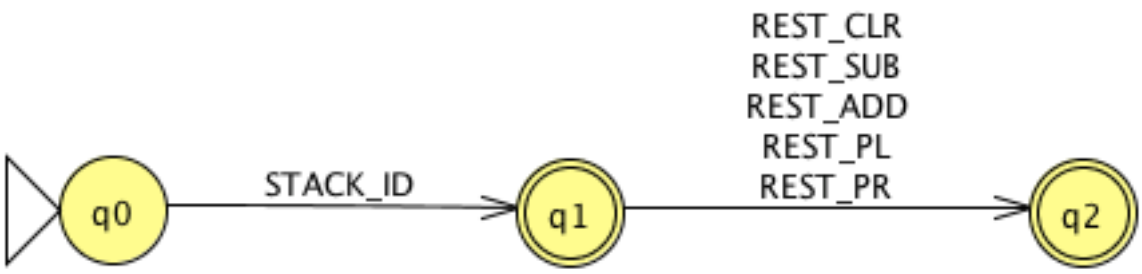
e) Autômato de pilha estruturado para o reconhecimento da linguagem Kipple.

CODE:

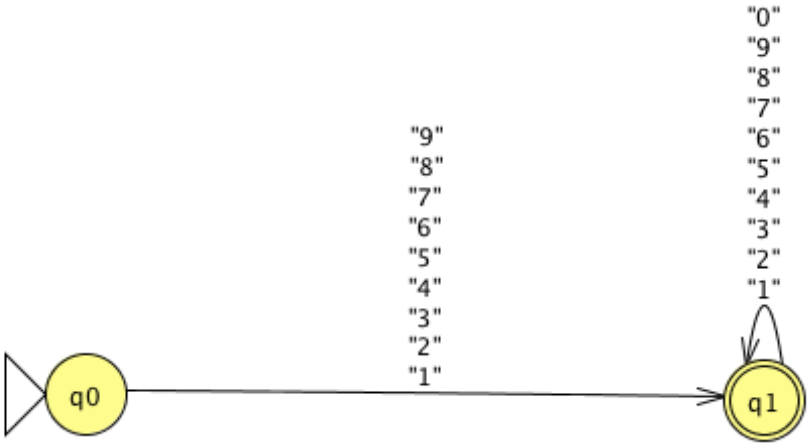


LOOP:

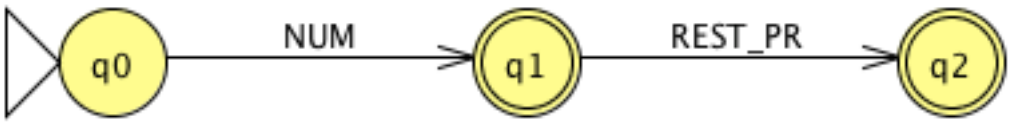
OP_DOIS:



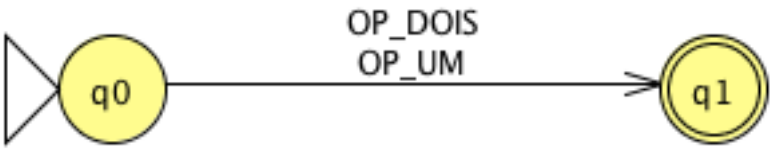
NUM:



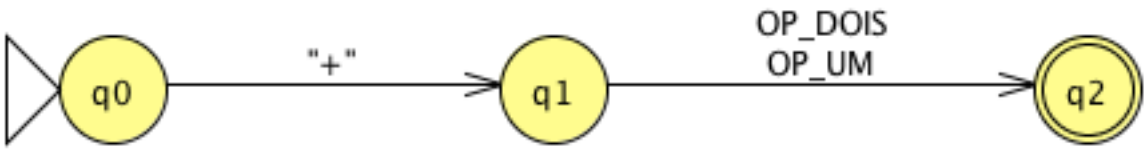
OP_UM:



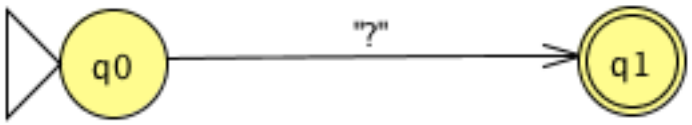
OPERATION:



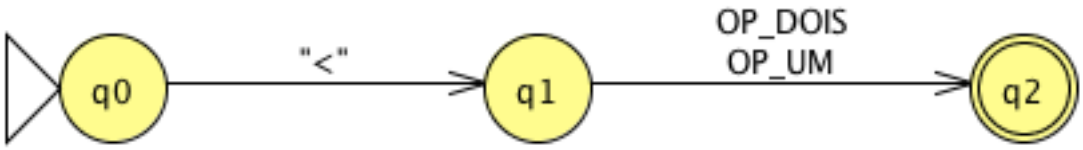
REST_ADD:



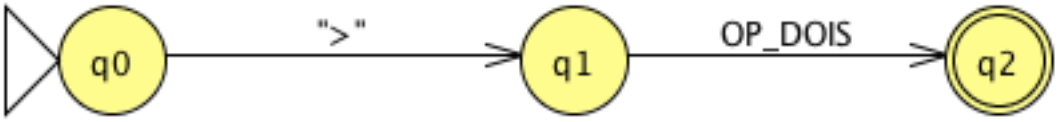
REST_CLR:



REST_PL:



REST_PR:



REST_SUB: