INF1626 - Formal Languages and Automata

2014.1

Project for the Formal Languages and Automata course at PUC-Rio.

Project

Build an Universal Turing Machine (https://en.wikipedia.org/wiki/Universal_Turing_machine) on JFLAP (http://www.jflap.org/).

Encoding

Note: + indicates **one or more**, and | indicates **OR**.

```
symbolA: a1+
symbolB: b1+
symbolC: c1+
state: q1+
stateI: <state> | q
stateF: <state> | F
direction: R | L
rule: $<stateI><symbolA><symbolC><directio><stateF>
rules: <rule>+
word: #<symbolB>+

turingMachine: <rules><word>
```

a1^n, b1^n and c1^n, with equal n, all denote the same symbol. The difference is that a is used on the "read" part of a rule, "b" is used on the virtual tape (word), and c is used on the "write" part of a rule. They are only different to make it easier to read and parse.

IMPORTANT: a1, b1 and c1 denote the EMPTY symbol.

Examples

Primeiro

- shift para esquerda
- shift para esquerda
- encontrar transição com q < k
- encontrar transição com q > k
- encontrar transição com a < b
- encontrar transição com a > b
- encontrar transição correta e aplicar, indo para estado final
- aceita

```
$qa111c1Rq11$q1a1c1Lq$q111a1c1Lq$q11a1c1Lq$q11a111c1Lq$q11a11c11111LF#b111b11
```

Segundo

- não aceita

```
$qa1c1RF$qa111c111RF#b11b11
```

Terceiro

- lê símbolo vazio (a1)

```
$qa11c11Rq1$q1a1c111LF#a11
```