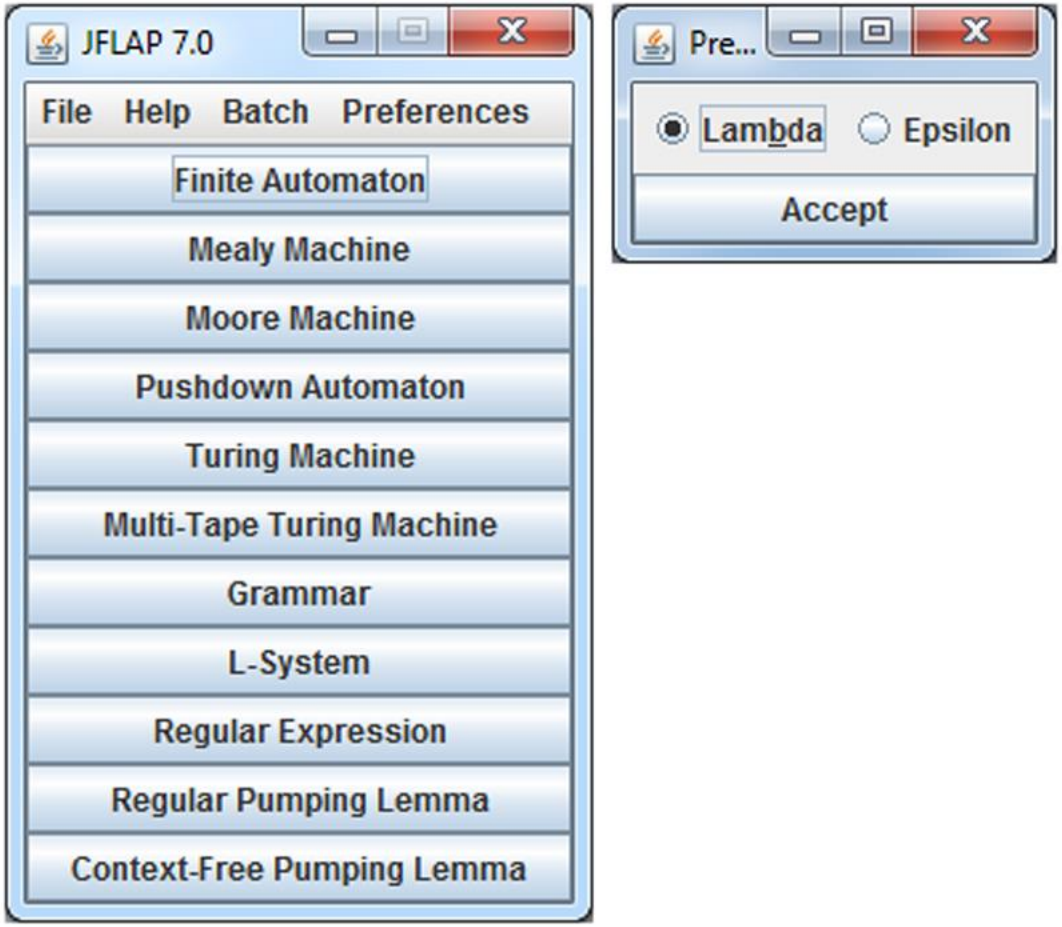
Finite Automata Theory and Formal Languages

(Week 2, Lecture 2)

JFlap


JFLAP 7.0
File Help Batch Preferences
Finite Automaton
Mealy Machine
Moore Machine
Pushdown Automaton
Turing Machine
Multi-Tape Turing Machine
Grammar
L-System
Regular Expression
Regular Pumping Lemma
Context-Free Pumping Lemma
Pre...
Lambda
Epsilon
Accept

Demo

Implementing FA (Scheme 1)

Non-Final State with two alphabets:

IF position=length_of_string THEN
PRINT "String not accepted“ and quit_program

READ current_character from the string and INC counter

IF current_character=alphabet1 THEN CALL proc/funct
ELSE IF current_character=alphabet2 THEN CALL proc/funct
ELSE PRINT "Invalid Alphabets in String“ and quit_program

Implementing FA (Scheme 1)

Final State with two alphabets:

IF position=length_of_string THEN
PRINT "String accepted“ and quit_program

READ current_character from the string and INC counter

IF current_character=alphabet1 THEN CALL proc/funct
ELSE IF current_character=alphabet2 THEN CALL proc/funct
ELSE PRINT "Invalid Alphabets in String“ and quit_program

Implementing FA (Scheme 1)

Runner:

READ string
CALL initial_state_proc/func

- ISSUE?

Implementing FA (Scheme 2)

Non-Final State with two alphabets:

IF position=length_of_string THEN
PRINT "String not accepted“ and quit_program

READ current_character from the string and INC counter

IF current_character=alphabet1 THEN SET state_variable
ELSE IF current_character=alphabet2 THEN SET state_variable
ELSE PRINT "Invalid Alphabets in String“ and quit_program

Implementing FA (Scheme 2)

Final State with two alphabets:

IF position=length_of_string THEN
PRINT "String accepted“ and quit_program

READ current_character from the string and INC counter

IF current_character=alphabet1 THEN SET state_variable
ELSE IF current_character=alphabet2 THEN SET state_variable
ELSE PRINT "Invalid Alphabets in String“ and quit_program

Implementing FA (Scheme 2)

Runner:

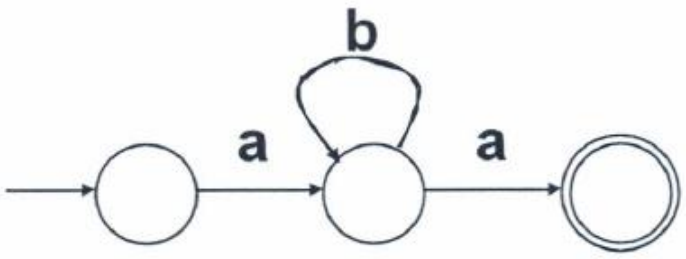
READ string
SET state_variable to initial

LOOP: CALL proc/func on the basis of state_variable

- ISSUE?

Implementing FA (Scheme 3)

- An FA that accepts ab*a defined over Σ={a,b}.



- Transition Table.

	a	b
0	1	err
1	2	1
2	err	err

```
int trans_table[NSTATES][NCHARS];
int accept_states[NSTATES];
int state = INITIAL;
while(state != err){
      c = input.read();
      if(c == EOF ) break;
      state=trans_table[state][c];
}
return accept_states[state];
```

- Options: Logic 1, Logic 2