AUTOMATA_DESIGN.PDF

SHAZIL REHMAN - 23i-0095
ABDUL MOHAIMIN - 23i-0652

REGULAR EXPRESSIONS:

① Keywords: (start | finish | loop | condition | declare | output | input | function | return | break | continue | else)

② Identifiers: [A-Z][a-z0-9_]{0,30}

③ Intiger Literals: [+-]?[0-9]+

④ Floating-Point Literals: [+-]?[0-9]+\.[0-9]{1,6}([eE][+-]?[0-9]+)?

⑤ String Literals: "([^"\\\n] | \\["\\ntr])*"

⑥ Character Literals: '([^'\\\n] | \\['\\ntr])'

⑦ Boolean Literals: (true | false)

⑧ Operators: • Arithmetic: (** | [+|-*|%])

⑨ • Relational : (==|!=|<=|>=|>|<)

⑩ • Logical : (&& | \| | \|\| | !)

⑪ • Assignment : (\+= | -= | *= | /= | =)

⑫ • Inc/dec : (\+\+ | --)

⑬ Punctuation: [(){}[\],;:]

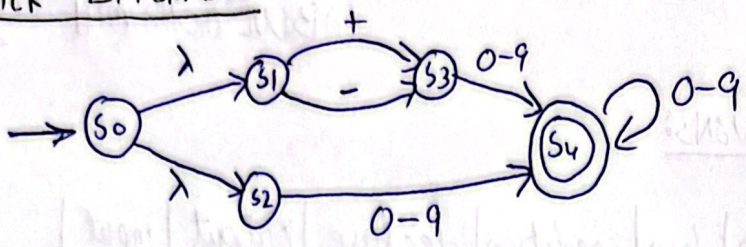
⑭ Single-Line Comment: ## [^\n]*

⑮ Multi-Line Comment: #*([^*] | *+[^*#])*|*+#

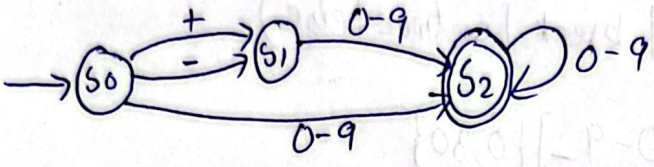
⑯ White Space: [\+\s\n]+

① INTEGER LITERALS:

NFA:



DFA:

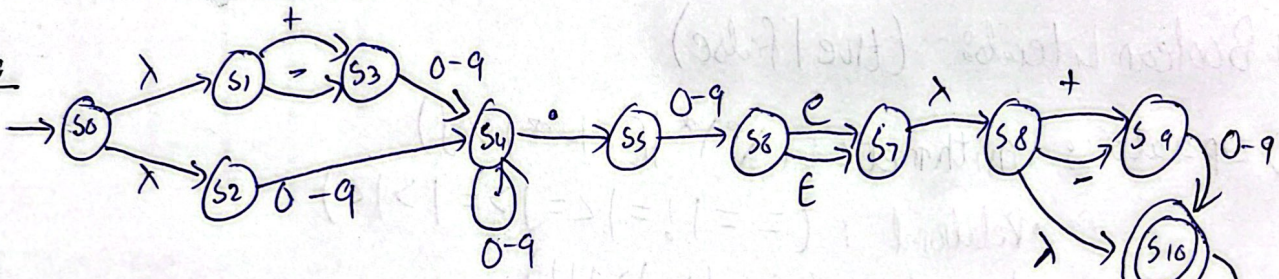


Transition Table:

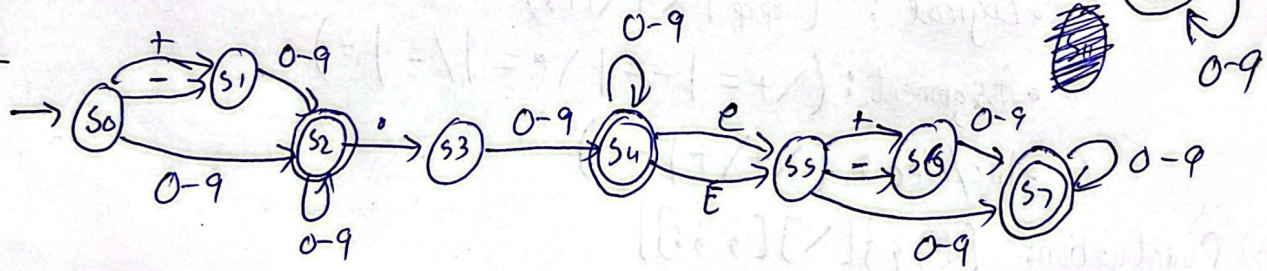
state	+|-	0-9
(-) q_0	S1	S2
q_1	–	S2
(+) q_2	–	S2

② FLOATING POINT LITERALS:

NFA:



DFA:

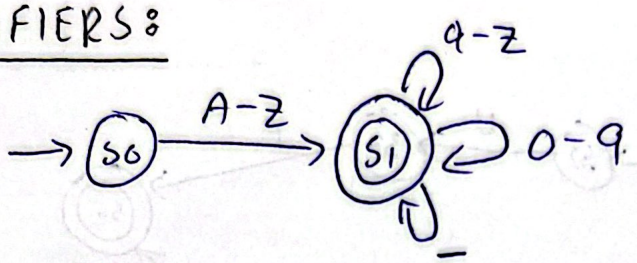


Transition Table:

State	+|-	0-9	.	e|E
(-) q_0	S1	S2	–	–
S1	–	S2	–	–
(+) S2	–	S2	S3	–
S3	–	S4	–	–
(+) S4	–	S4	–	S5
S5	S6	S7	–	–
S6	–	S7	–	–
(+) S7	–	S7	–	–

IDENTIFIERS:

NFA:
DFA:

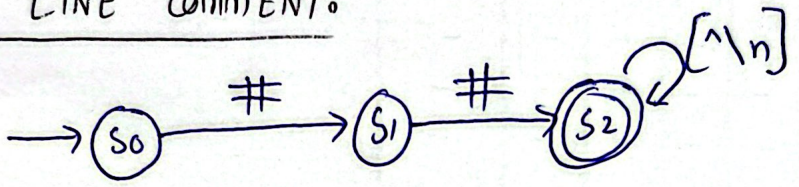


Transition Table:

state	A-Z	a-z | 0-9 | _
(-) S0	S1	-
(+) S1	-	S1

(4) SINGLE LINE COMMENT:

NFA:
DFA

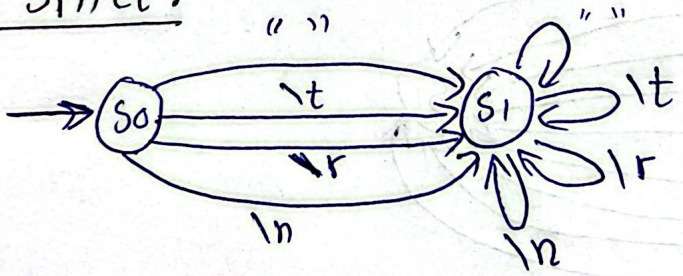


Transition Table:

state	#	[^\n]
(-) S0	S1	-
S1	S2	-
(+) S2	-	S2

(5) WHITE SPACE:

NFA:
DFA

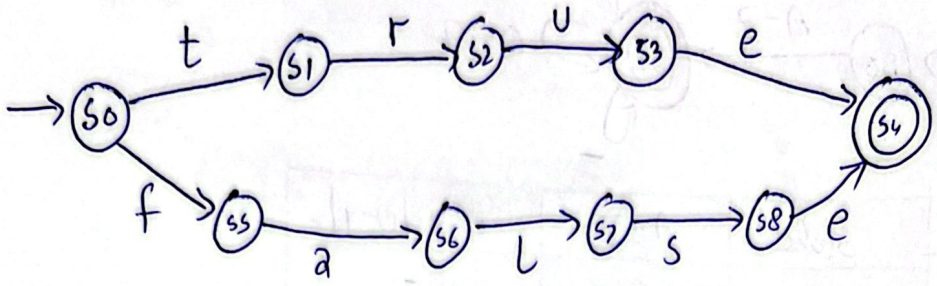


Transition Table:

state	space | \t | \r | \n
(-) S0	S1
(+) S1	S1

⑥ BOOLEAN LITERALS:

NFA:
DFA

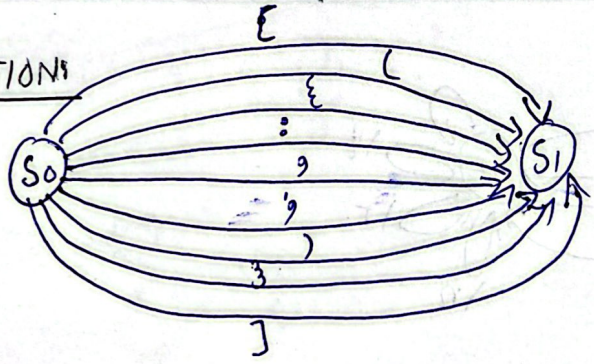


Transition Table:

state	t	r	u	e	f	a	l	s	e
(-) S0	S1	-	-	-	S5	-	-	-	-
S1	-	S2	-	-	-	-	-	-	-
S2	-	-	S3	-	-	-	-	-	-
S3	-	-	-	S4	-	-	-	-	-
(+) S4	-	-	-	-	-	-	-	-	-
S5	-	-	-	-	-	S6	-	-	-
S6	-	-	-	-	-	-	S7	-	-
S7	-	-	-	-	-	-	-	S8	-
S8	-	-	-	-	-	-	-	-	S4

⑦ PUNCTUATION:

NFA:
DFA



Transition Table:

state	[ ] ( ) { } : ; ,
(-) S0	S1
(+) S1	-