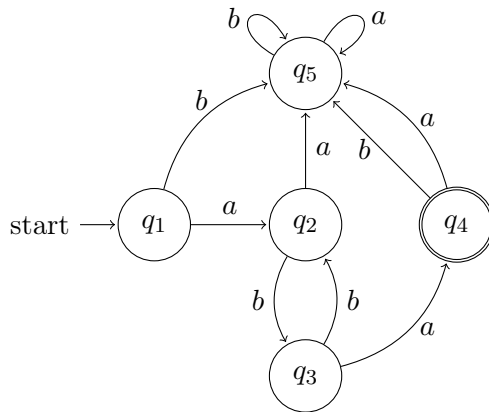


1) *Lösung.* Grammatik:

$$S \rightarrow abB$$
$$B \rightarrow a \mid bbB$$

Automat:



□

2) *Lösung.*

OBJECT \rightarrow '{ WS }' | '{ MEMBERS }'

MEMBERS \rightarrow MEMBER | MEMBER ',' MEMBERS

MEMBER \rightarrow WS STRING ':' ELEMENT WS

ELEMENT \rightarrow WS VALUE WS

VALUE \rightarrow ARRAY | STRING | NUMBER | OBJECT | 'true' | 'false'

ARRAY \rightarrow '[' ELEMENTS ']'

ELEMENTS \rightarrow ELEMENT | ELEMENT, ELEMENTS

NUMBER \rightarrow '0' | PDIGIT | PDIGIT DIGITS

DIGITS \rightarrow DIGIT | DIGIT DIGITS

PDIGIT \rightarrow '1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' | '9'

DIGIT \rightarrow '0' | PDIGIT

STRING \rightarrow LITERAL | LITERAL STRING

LITERAL \rightarrow 'a' | 'b' | ... | 'z'

WS \rightarrow ' '

□

3) *Lösung.*

$NP \rightarrow 1 \mid 2 \mid 3 \mid 4 \mid 5 \mid 6 \mid 7 \mid 8 \mid 9$

$N \rightarrow 0 \mid NP$

$A \rightarrow N + N$

$S \rightarrow N - N$

$M \rightarrow N * N$

$D \rightarrow N / NP$

$E \rightarrow A \mid S \mid M \mid D$

□