Language and Automata, Assignment 1

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November 17, 2021

1.1 Regular expression

We are given following regular expression:

$$a^* + ba^*b + bba^*$$

1.2 Examples of accepted strings

1. ε
2. a
3. bab
4. bba
5. bb

1.3 Building NFA using Thompson construction algorithm

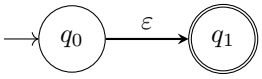

Figure 1.1: Operator 'a'

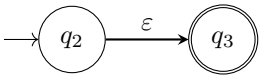

Figure 1.2: Operator 'b'

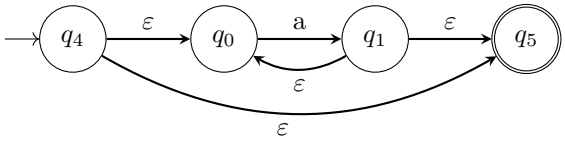

Figure 1.3: Operator 'a^*'

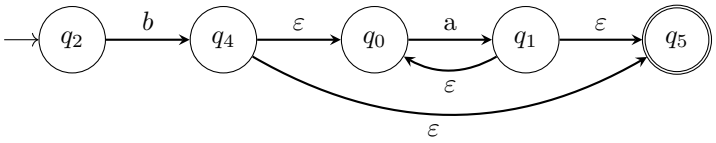

Figure 1.4: Operator 'ba^*'

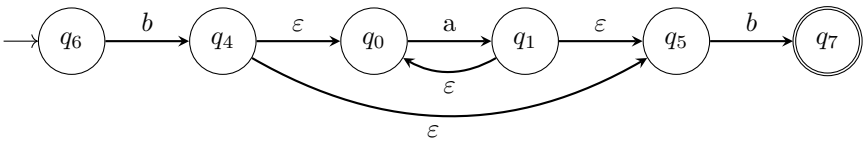

Figure 1.5: Operator 'ba^*b'

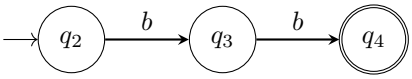

Figure 1.6: Operator 'bb'

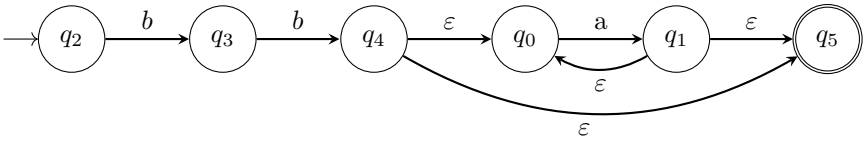

Figure 1.7: Operator 'bba^*'

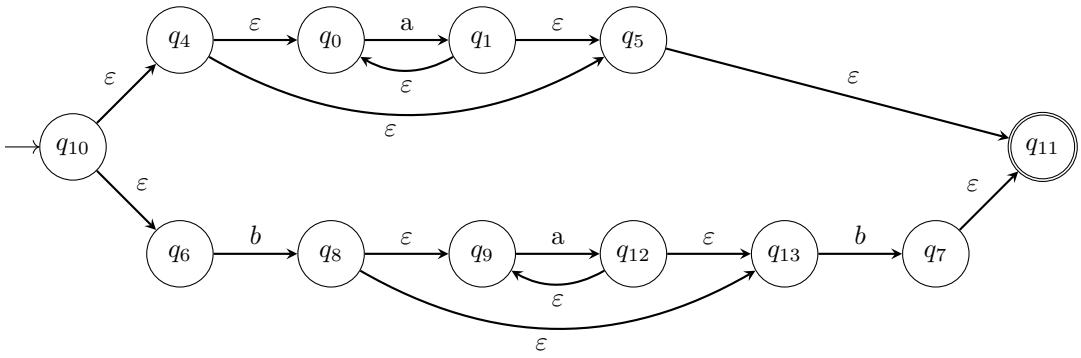

Figure 1.8: Operator '$a^* + ba^*b$'

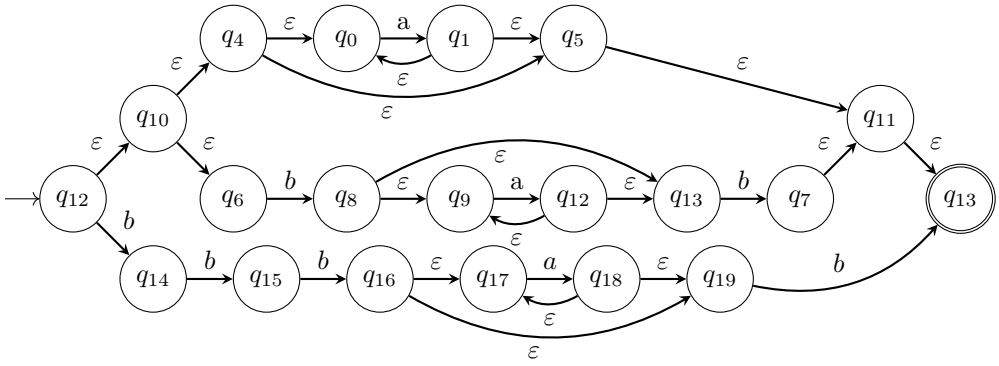

Figure 1.9: Operator '$a^* + ba^*b + bba^*$'

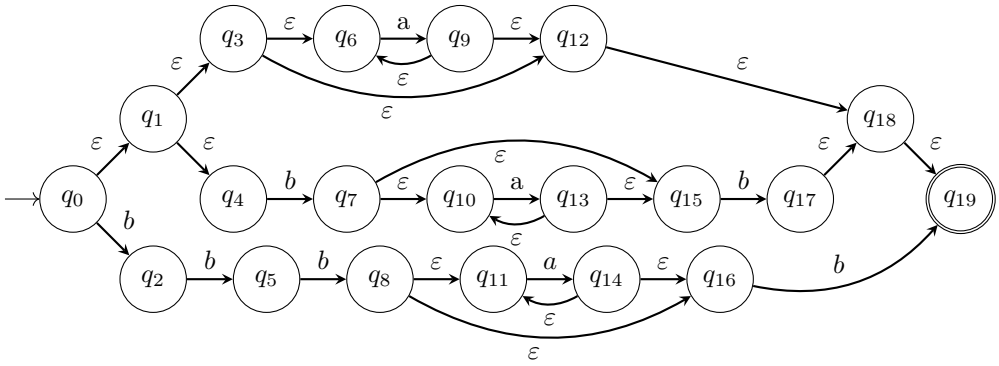

Figure 1.10: Operator '$a^* + ba^*b + bba^*$' - changed names of states

1.4 Transforming NFA into DFA using subset algorithm

1.5 Constructing minimal state DFA