Transition tables:

	a	b
1	2	3
3	3	3
4	3	3

	a	b
2	4	1

$(1, 3, 4)$ $((2))$

a: split 1 from 3,4

b. No split

(1) $(3,4)$ $((2))$

Repeat

a: no split
b: no split

(1) $(3,4)$ $((2))$

MIN DFA:

REG EXP : $a(ba)^*$

NFA diagram:
- Start → 1
- 1 --a--> 2, 2 --a--> 2 (self loop), 2 --b--> 3 (accepting)
- 1 --b--> 4 (accepting)
- 3 --a,b--> 5
- 4 --a,b--> 5
- 5 --a,b--> 5 (self loop)

Transition table (top right):

	a	b
1	2	4
2	2	3
5	5	5

	a	b
4	5	5
3	5	5

Partition refinement:
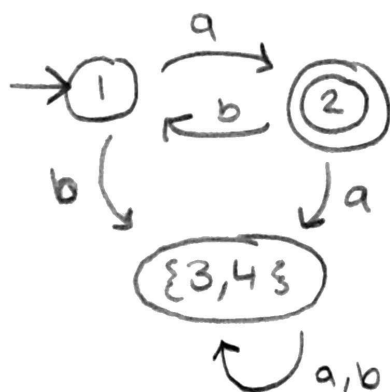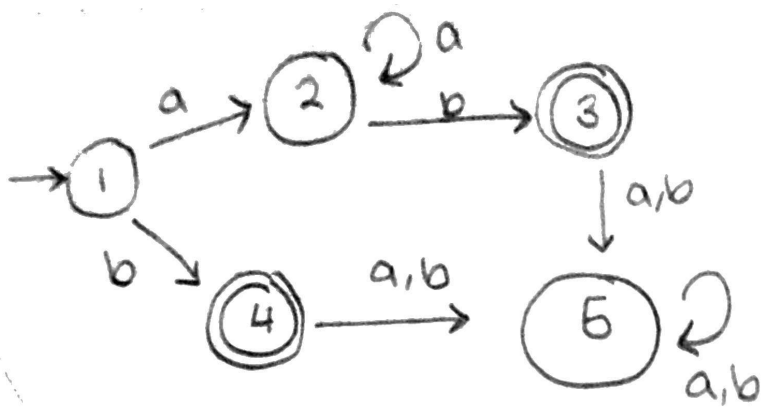
(1, 2, 5)   (4, 3)

a : split 5 from 1,2
b : split 1 from 2

(1) (2) (5)   (4,3)

Repeat

a: no split
b: no split

DFA:

Start → 1
- 1 --a--> 2, 2 --a--> 2 (self loop)
- 1 --b--> {3,4}
- 2 --b--> {3,4}
- {3,4} --a,b--> 5
- 5 --a,b--> 5 (self loop)

REG EXP:

$$b \cup a(a)^*b$$

#	a	b
2	3	1
3	4	2
4	4	4

#	a	b
1	2	4

(2,3,4)   (①)
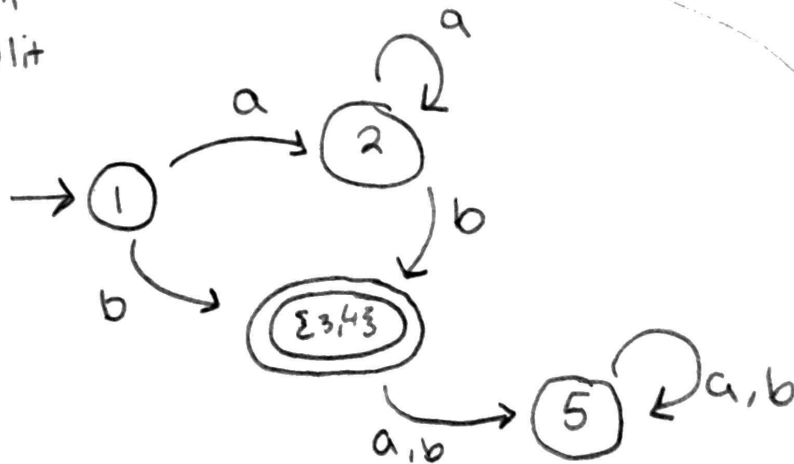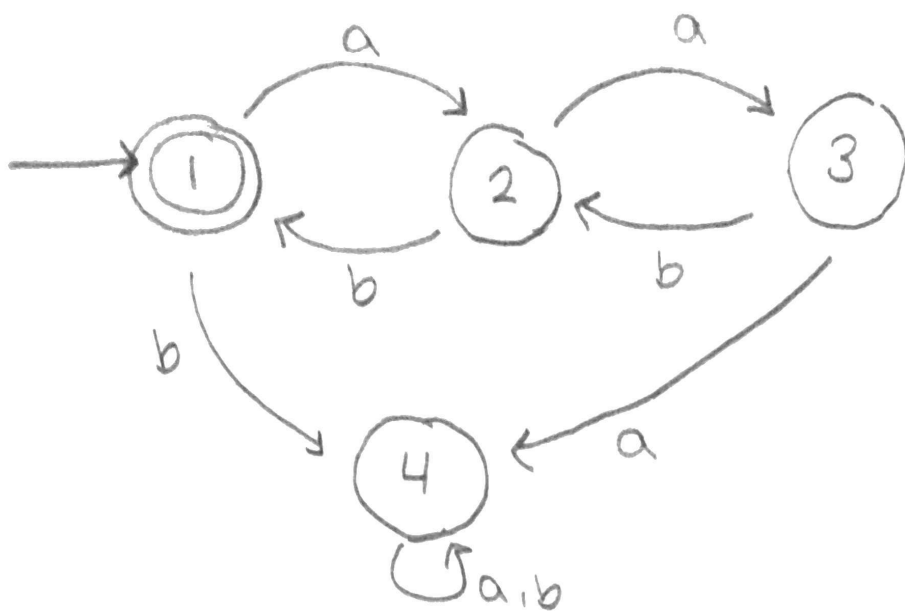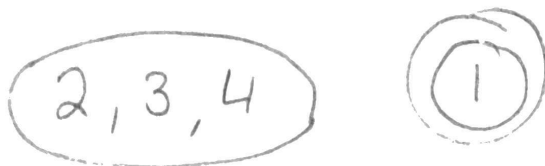
a: split 2 from 3,4
b: split 3 from 4

(2) (3) (4)   ((1))

✶ STATE IS ALREADY MINIMIZED

REG
EXP : $(a(ab)^* b)^*$

1.30) The error lies in the fact the person considered the "*" to be a regular exponent. Just because 0 and 1 have the star, does not mean they will have the same lengh. In this problem it means both 0 and 1 can have any number length; they dont have to ha the same length though.

_____

1.30) The error lies in the fact the person considered the "*" to be a regular exponent.