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AG Genominformatik

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Advanced Sequence Analysis
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Exercises

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1. Run a determinization algorithm on the following two non-deterministic automata:

(a)

	a	b	ε
> 1	$-$	1,2	1
②	2	$-$	1,2

(b)

	a	b
> 1	2	$-$
2	2	2,3
③	$-$	$-$

2. Create minimal deterministic automata accepting the following two sets of words:

   (a) $(ab)^*(ba)^*$
   (b) $(a+b)^i b^i$, for $0 \leq i \leq 5$

3. Which modification should be done in the following deterministic finite automaton, so that Hopcroft's algorithm can be used to minimize it:

	a	b
> 1	1	8
2	3	5
③	$-$	4
④	$-$	$-$
5	6	7
⑥	$-$	$-$
⑦	$-$	$-$
8	9	$-$
9	10	11
⑩	$-$	$-$
⑪	$-$	$-$

4. Build a pattern matching automaton recognizing the pattern $(a+b)^* ba^* bab^*$.