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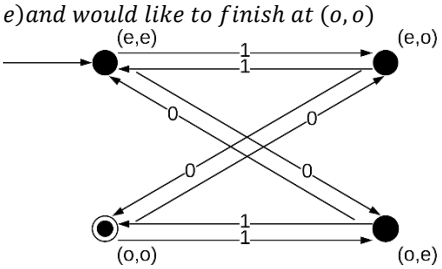
Homework 04

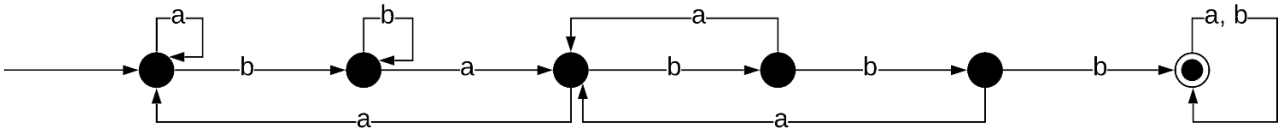
1. *Give a deterinistic, finite – state automaton accepting words over alphabet* $\{0,1\}$*, in which each series of* $0's$ *and each series of* $1's$ *has odd length.*

Let's assume that we have 4 *states, which are the combination of series of even or odd number of* 0 *and* 1. *We would have* $(e,e),(o,o)(e,o)(o,e)$ *where we would start with* (e,e) *and would like to finish at* (o,o)

	0	1
$\rightarrow (e,e)$	(o,e)	(e,o)
$F(o,o)$	(e,o)	(o,e)
(e,o)	(o,o)	(e,e)
(o,e)	(e,e)	(o,o)



2. *Give a deterinistic, finite – state automaton accepting words over alphabet* $\{a,b\}$*, which include a subword babbb.*



3. *Give a deterinistic, finite – state automaton accepting intersection of languages accepted by automata*

	a	b
$\rightarrow F\ 1$	2	3
2	3	1
3	1	2

and

	a	b
$\rightarrow 1$	2	1
$F\ 2$	1	2

	a	b
$\rightarrow (1,1)$	(2,2)	(3,1)
$F(1,2)$	(2,1)	(3,2)
(2,1)	(3,2)	(1,1)
(2,2)	(3,1)	(1,2)
(3,1)	(1,2)	(2,1)
(3,2)	(1,1)	(2,2)