Introduction to symbolic CL (684.01) OSU Linguistics
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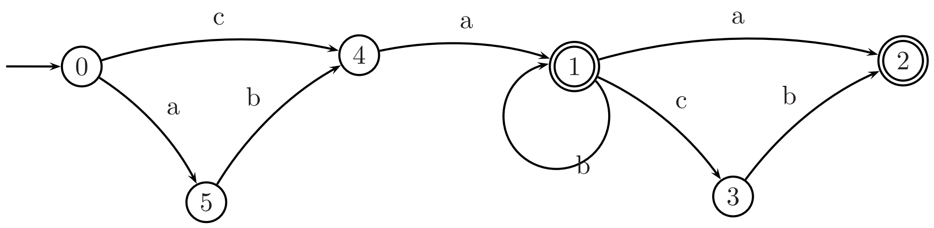
Exercise sheet 1

(Due: Wednesday, 11. January at noon in my mailbox)

1. Consider the following finite-state machine:



   (a) Which of the following sequences does it accept? (1) *ab* (2) *ca* (3) *cb* (4) *cabbb* (5) *ababa* (6) *bacb* (7) *cabcb* (8) *ababcbc*

   (b) Write a regular expression which characterises the same language as this network.

2. Draw an FSTN that will recognize well-formed English number names – for example, *five hundred*, *four thousand seven hundred and one*, etc.

3. Devise an FSM which characterises the same language as the regular expression:

$$(a|(bab)) * (b|a)$$

4. Consider the following transition table, where "ϵ" denotes an empty transition):

	a	b	c	d	e	ϵ
S0.	S1					
S1		S2		S1		S3
S2			S3			
S3					S4:	
S4:						

   (a) Draw it as an FSTN.

   (b) Draw an equivalent FSTN without any empty transitions.

   (c) If the ϵ-free FSTN you obtained in (b) is non-deterministic, draw an equivalent deterministic one.