CMPS 10 12-1-08

- LAB 5 : EXTEND TO WED 12/3 10:00 PM
- EVALS : 1:20 - 1:40 TODAY

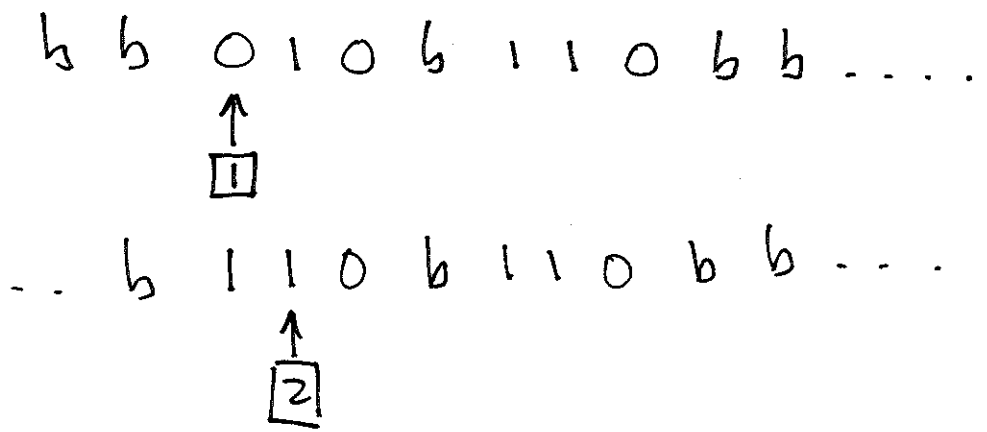
Turing machines

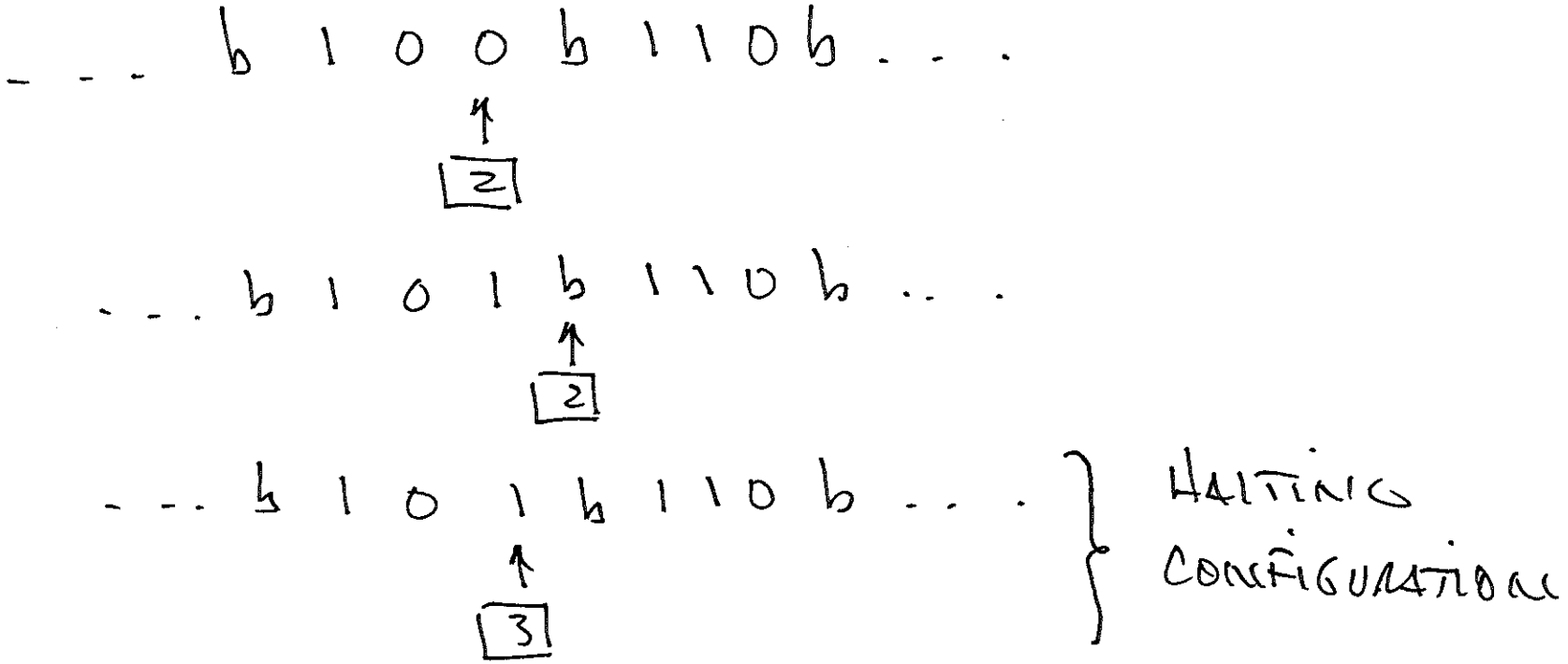
Ex. (1, 0, 1, 2, R)
(1, 1, 0, 2, R)
(2, 0, 1, 2, R)
(2, 1, 0, 2, R)
(2, b, b, 3, L)

STATES: {1, 2, 3}

ALPHABET: {b, 0, 1}

TAPE:





Ex. A SIMPLER BIT INVERTER:

$(1, 0, 1, 1, R)$ STATES: $\{1\}$

$(1, 1, 0, 1, R)$ ALPHABET: $\{b, 0, 1\}$

TAPE: ... b b 0 1 0 b ...

.. b 1 1 0 b ..

... b 1 0 0 b ...

... b 1 0 1 b ...

} HALTING CONFIGURATION

CORRESPONDENCE:

Algorithm to solve some Problem $\}\leftrightarrow\{$ Turing machine

An instance of the problem that the algorithm solves $\}\leftrightarrow\{$ tape

Ex. ODD PARITY MACHINE (ADD 0 OR 1 TO THE END OF BIT STRING SO AS TO CAUSE THE # OF 1's TO BE ODD.)

1	1	1	2	R
1	0	0	1	R
2	1	1	1	R
2	0	0	2	R
1	b	1	3	R
2	b	0	3	R

STATES: $\{1, 2, 3\}$

ALPHABET: $\{b, 0, 1\}$

TAPE:

b	1	0	1	1	b	
	①					
b	1	0	1	1	b	
		②				

..b 1 0 1 1 b..
      ②

...b 1 0 1 1 b..
      ①

..b 1 0 1 1 b..
      ②

...b 1 0 1 1 0 b....
      ③

} HALT

TAPE: b 0 1 1 0 b
      ①

0 1 1 0
  ①

0 1 1 0
    ②

0 1 1 0
      ①

..boiioh...

(1)

...boiioih---

(3)