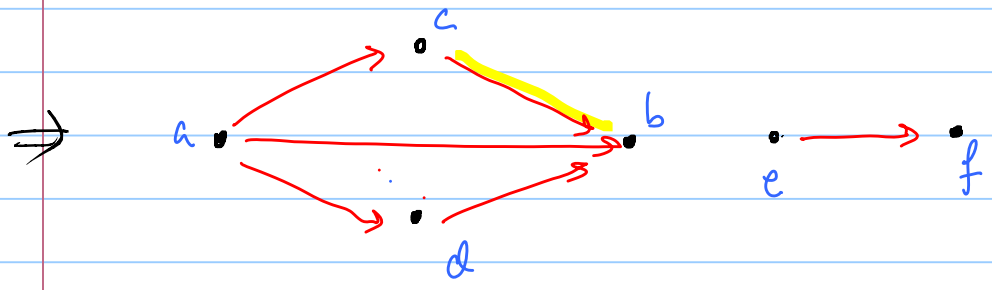
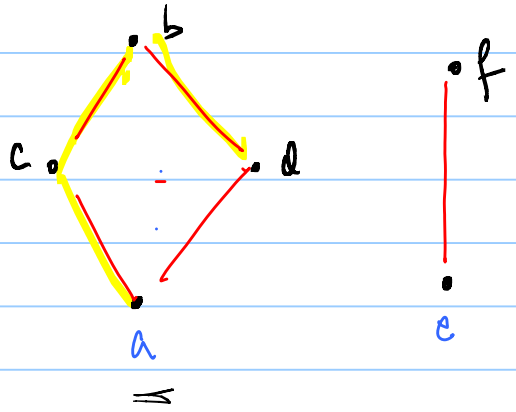
Note Title 3/9/2015

Office Hours Finals Week:
Tuesday (3/17) 2-3
Thursday (3/19) 11-12.
No office hours Friday 3/20.

Hasse Diagrams:

⇒ · If $x \preceq y$ then x appears lower.
⇒ · Segment connecting x to y if
$x \preceq y$
AND $\nexists z$ $x \preceq z \wedge z \preceq y$.



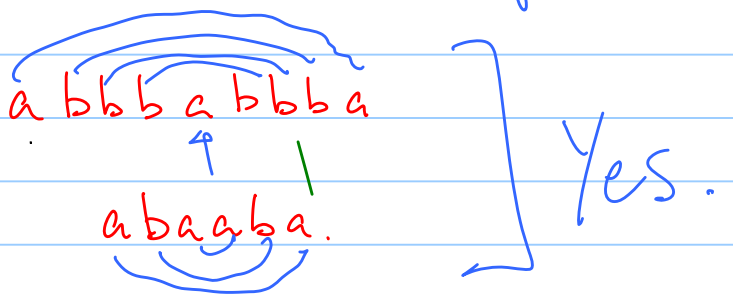


$\preceq$

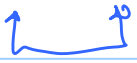
Turing Machine design:

Design a TM that checks whether a string over $\Sigma = \{a, b\}$ is a palindrome.

A palindrome is the same forwards & backwards:

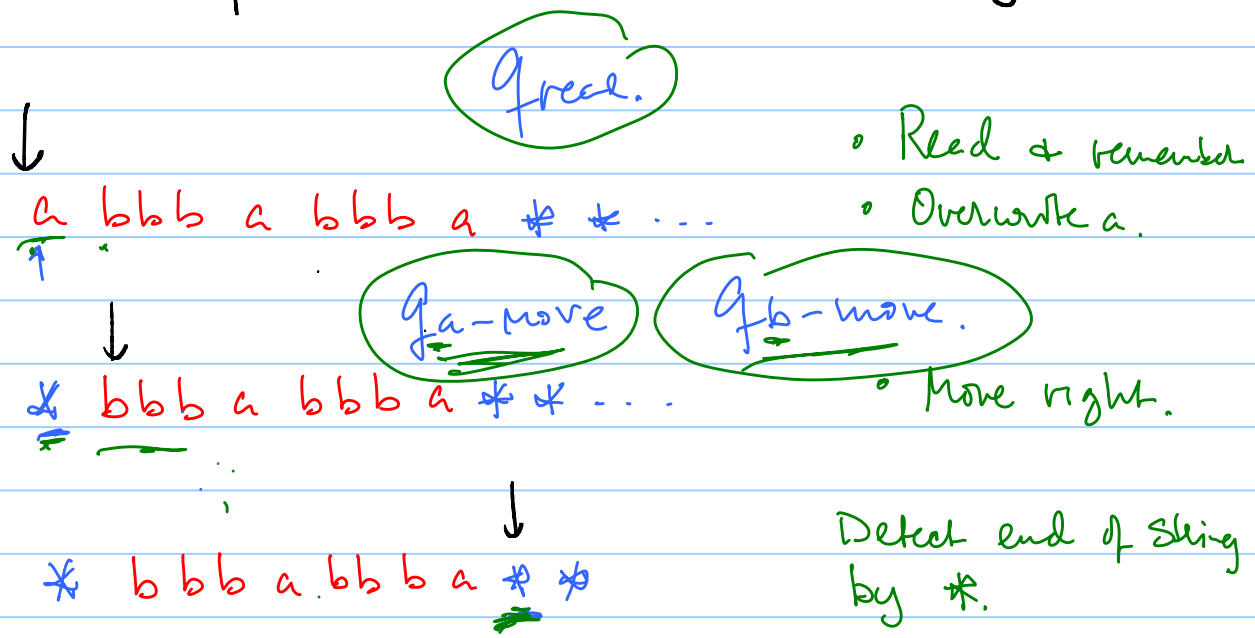


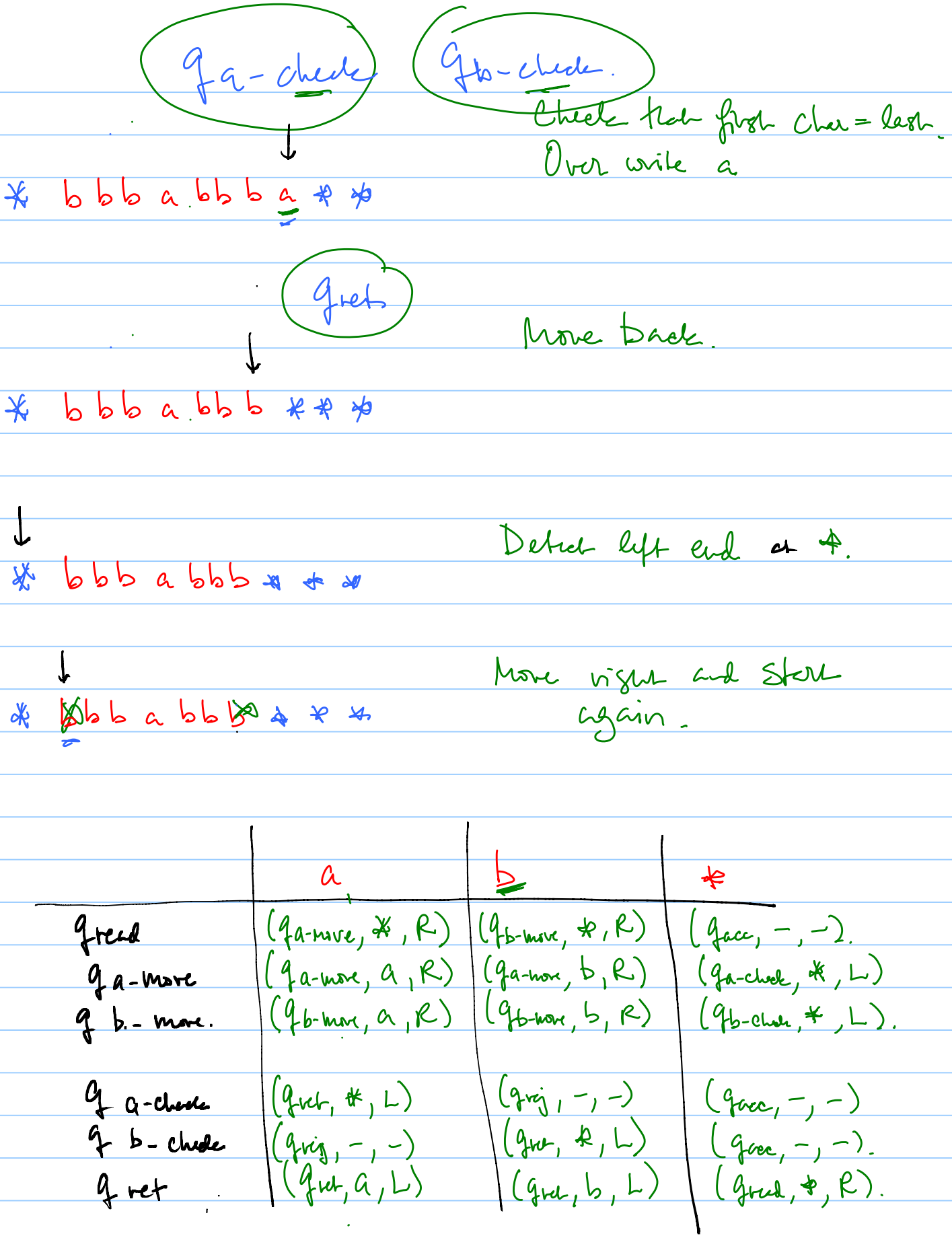
Not: a b a a a



Idea: head shuttles back and forth checking that first & last chars are the same.

As each pair is checked, overwritten by *.





	a	b	*
q_{read}	$(q_{a\text{-move}}, *, R)$	$(q_{b\text{-move}}, *, R)$	$(q_{acc}, -, -)$.
$q_{a\text{-move}}$	$(q_{a\text{-move}}, a, R)$	$(q_{a\text{-move}}, b, R)$	$(q_{a\text{-check}}, *, L)$
$q_{b\text{-move}}$.	$(q_{b\text{-move}}, a, R)$	$(q_{b\text{-move}}, b, R)$	$(q_{b\text{-check}}, *, L)$.
$q_{a\text{-check}}$	$(q_{ret}, *, L)$	$(q_{rej}, -, -)$	$(q_{acc}, -, -)$
$q_{b\text{-check}}$	$(q_{rej}, -, -)$	$(q_{ret}, *, L)$	$(q_{acc}, -, -)$.
q_{ret}	(q_{ret}, a, L)	(q_{ret}, b, L)	$(q_{read}, *, R)$.

How does it end?