

Office Hours Finals Week:

Tuesday (3/17) 2-3

Thursday (3/19) 11-12.

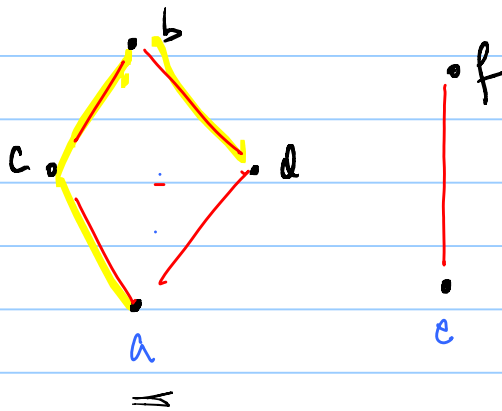
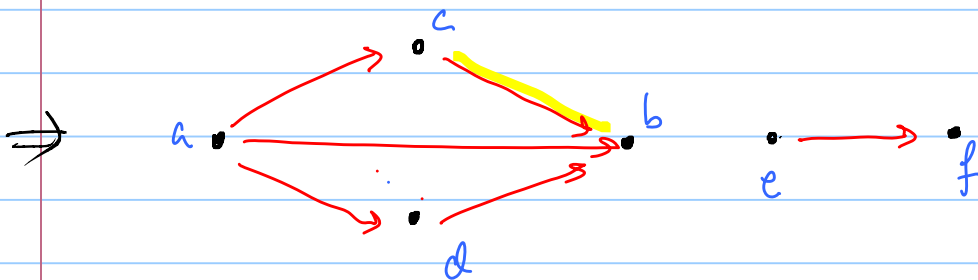
No office hours Friday 3/20.

Hasse Diagrams:

⇒ • If $x \leq y$ then x appears lower.

→ • Segment connecting x to y if

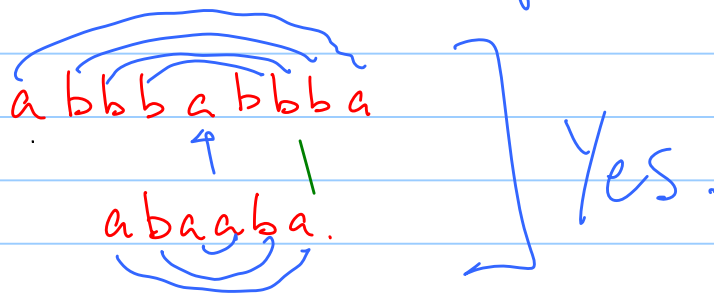
$x \leq y$
AND $\nexists z \quad x \leq z \wedge z \leq y.$



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:

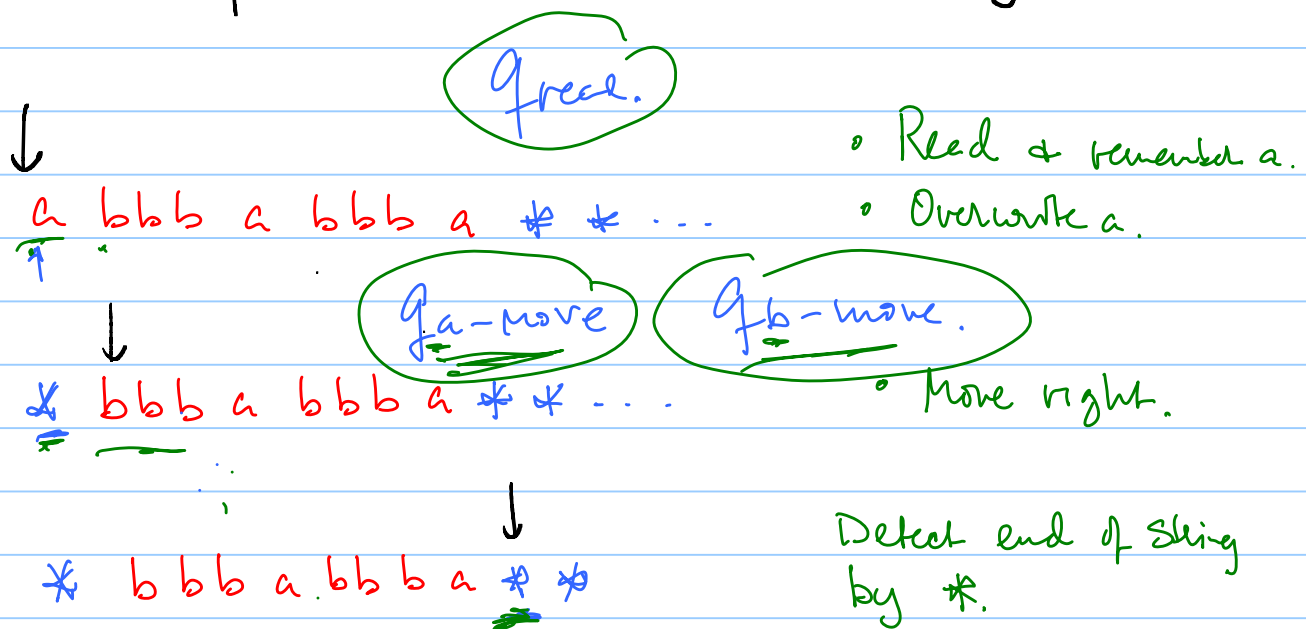


NOT: $abaaa$

Diagram illustrating a non-palindrome. The string $abaaa$ is shown with arrows pointing from the first 'b' to the last 'a', indicating a mismatch.

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

As each pair is checked, overwritten by $*$.



qa-check

qb-check

Check that first char = last.
Over write a

* b b b a b b b a * *

qret

Move back.

* b b b a b b b * * *

↓

Detach left end at *

* b b b a b b b * * *

↓

Move right and start again.

* b b a b b ~~b~~ * * *

	a	<u>b</u>	*
q read	(qa-move, *, R)	(qb-move, *, R)	(qacc, -, -)
qa-move	(qa-move, a, R)	(qa-move, b, R)	(qa-check, *, L)
qb-move	(qb-move, a, R)	(qb-move, b, R)	(qb-check, *, L)
qa-check	(qret, *, L)	(qrej, -, -)	(qacc, -, -)
qb-check	(qrej, -, -)	(qret, *, L)	(qacc, -, -)
qret	(qret, a, L)	(qret, b, L)	(qread, *, R)

How does it end?

