

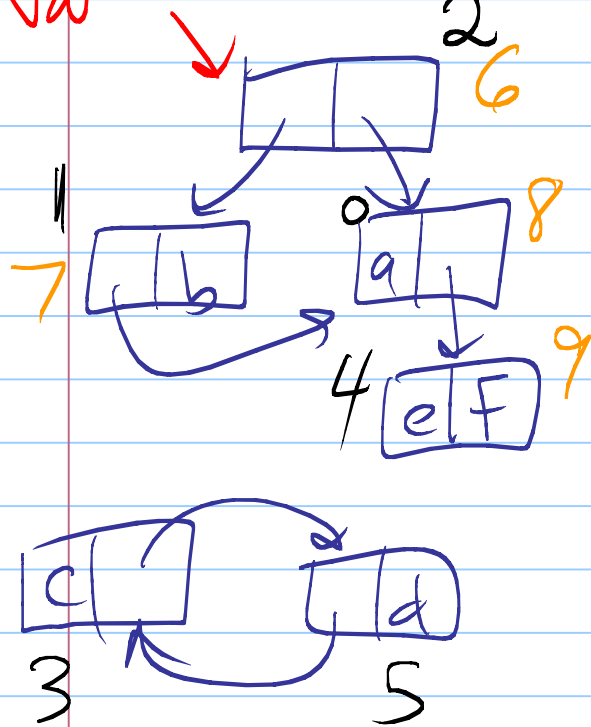
Can we avoid sweep phase?

Can we design an $O(A)$ garbage collection algorithm.

Move all accessible cells somewhere else & what remains is garbage.

Copying collection

var



in use to

From

0	8x	4
1	7x	b
2	x6	0
3	5	c
4	9x	f
5	3	d

free

6	7x	8x
7	8x	b
8	a	4x9
9	e	F
10		
11		

Use in-place
dfs

divide memory in half

Phase 1: Move reachable cells
to other half

"from" in use

"to" other half

+ leave forwarding address

Phase 2: update all reference in to
half using forwarding address

Then switch
to from

Time Complexity

$$O(A)$$

For
copying
collection

$$\frac{\text{Cost of garbage collection}}{\# \text{ cells freed}} =$$

$$O\left(\frac{A}{M/2 - A}\right)$$

Mark & Sweep

$$O\left(\frac{A+M}{M-A}\right)$$