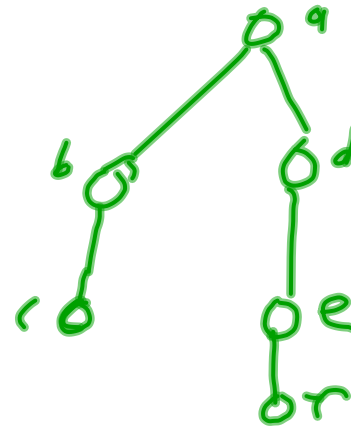
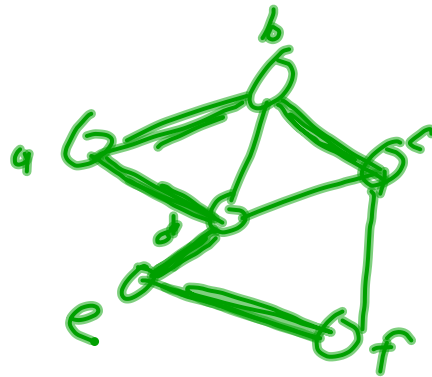


- BFS
- Dijkstra (also with
equal weights)
- Reverse-Delete.

BFS



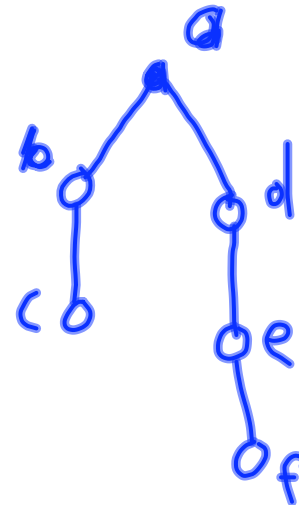
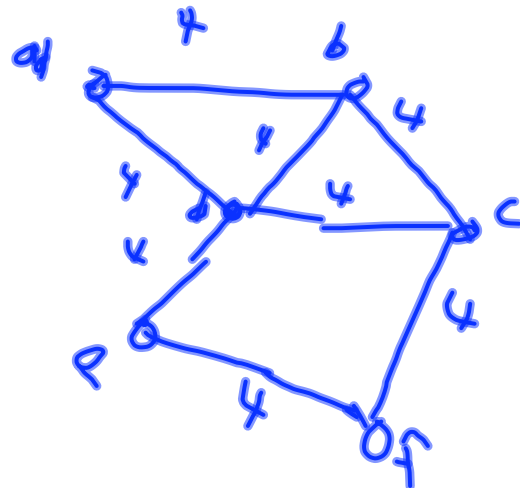
layer

0

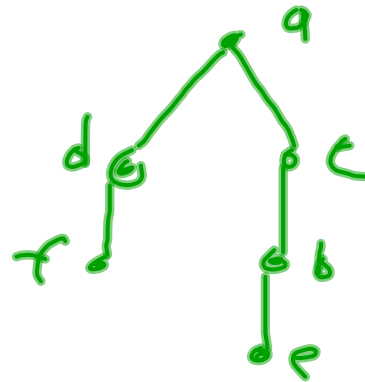
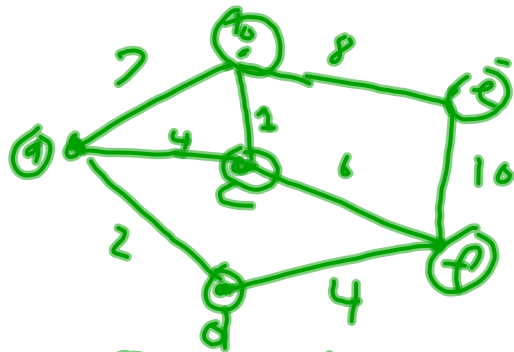
1

2

3



Dijkstra's Algo



	a	b	c	d	e	f
d'	0	5	4	2	13	6
prev	-	c	a	a	b	d

Dijkstra correctness

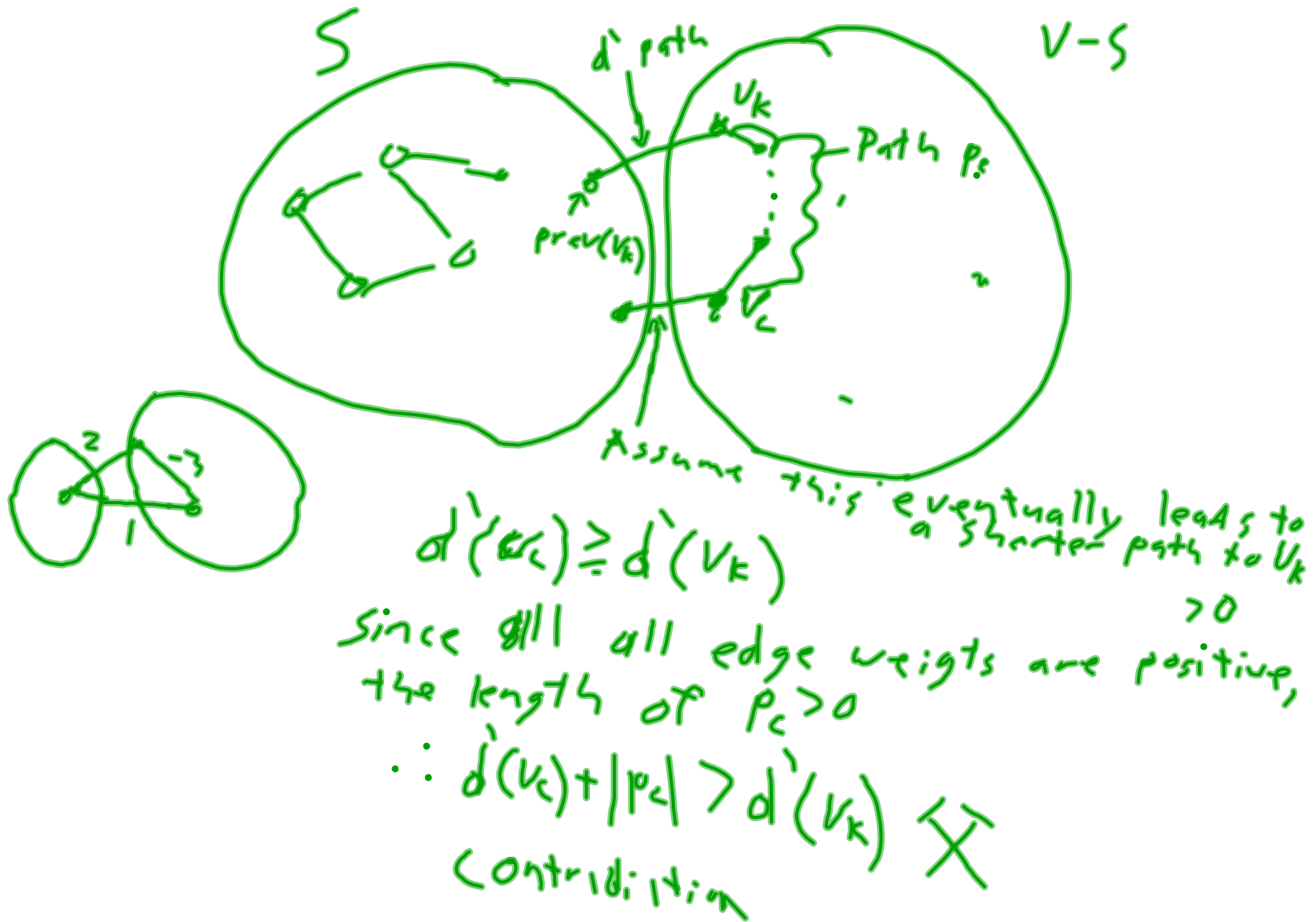
Proof by induction over the nodes,
in the order they are added to S

Specifically, $d'(v_i) = d(v_i)$ when v_i is added
to S

Base case: $d'(a) = 0 = d(a) \checkmark$

Induction: assume true for all $i < K$; show for K
So $d(v)$ is known for all $v \in S$ or tied

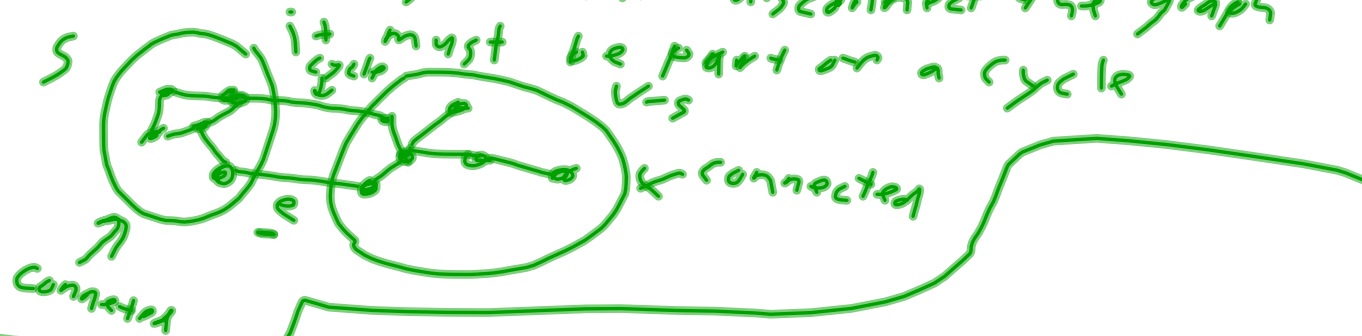
v_K will be the node with smallest d' value not in S
Show this by contradiction: Assume there is a
shorter path from a to v_K .



Reverse-Delete: Remove edges in decreasing weight if it doesn't disconnect the graph.

Direct Proof

If an edge doesn't disconnect the graph



In a cycle, one edge can be removed and the graph stays connected.

Remove largest for MST

This is what the algo does

quick due to time.

