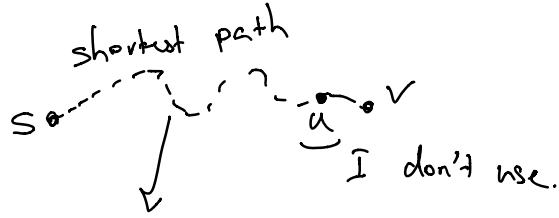


Dijkstra's ALG idea:

Intuition:

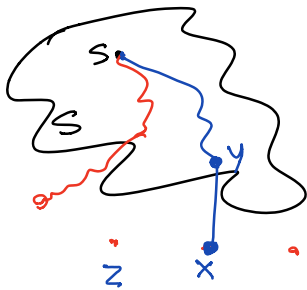


OBS $s \dashrightarrow u$ is also shortest path.

[If not we can get ~~smaller~~ smaller path to v].

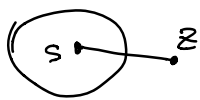
Main Problem: We don't know u.

[If we knew it we could use induction].

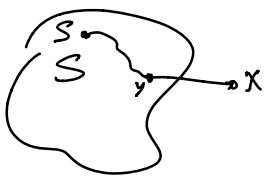


I have found shortest path to all vertices in S.

If I know a vertex x s.t. shortest path to x jumps from S directly to x, I can find the shortest path by brute forcing over $y \in S$.



is closest to S, then shortest path to z is just s, z.



For each x look at $\min_{y \in S} \text{shortest path to } y + c_{y,x}$.

[Each time you look at what is the cheapest way to come out of S. If it goes to x, then I have already found the shortest path to x.]