

4. GREEDY ALGORITHMS II

- Dijkstra's algorithm demo
- improved Dijkstra's algorithm demo

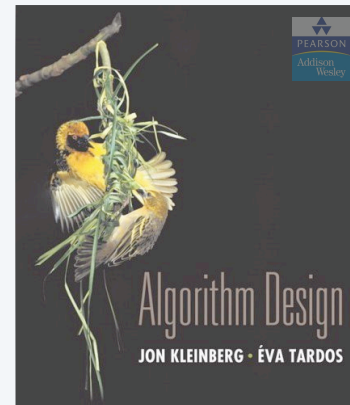
Lecture slides by Kevin Wayne

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<http://www.cs.princeton.edu/~wayne/kleinberg-tardos>

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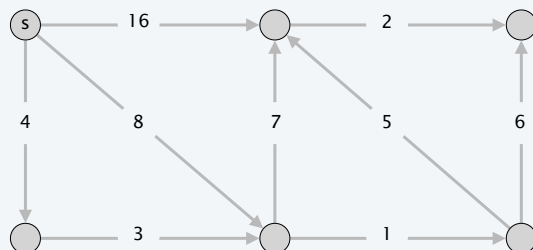
SECTION 4.4

Dijkstra's algorithm demo

- Initialize $S = \{s\}$, $d(s) = 0$.
- Repeatedly choose unexplored node v which minimizes

$$\pi(v) = \min_{e = (u, v) : u \in S} d(u) + \ell_e,$$

add v to S ; set $d(v) = \pi(v)$.

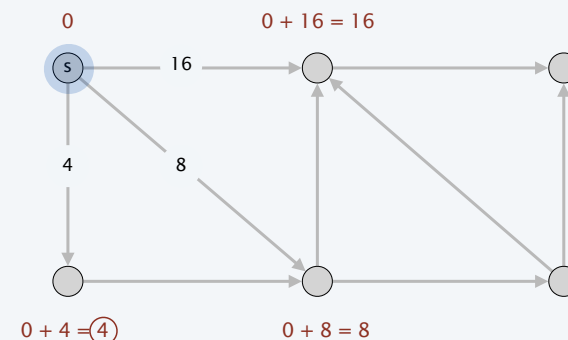


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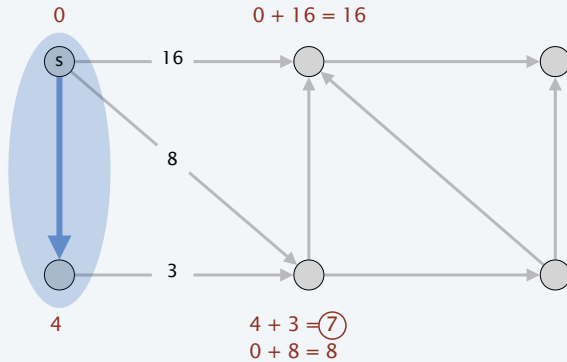


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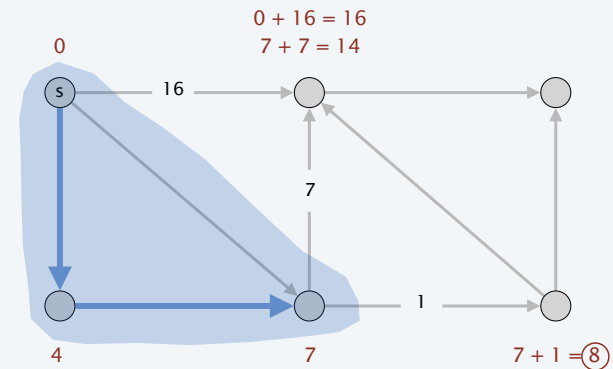
5

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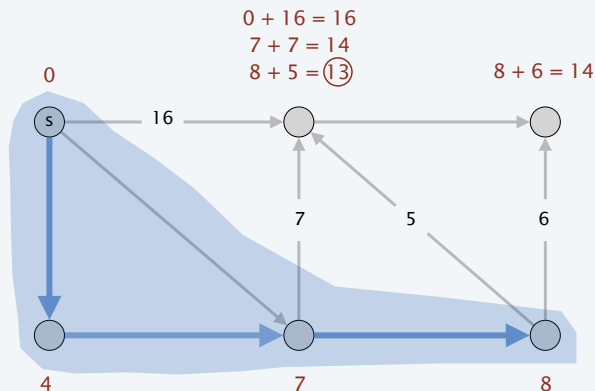
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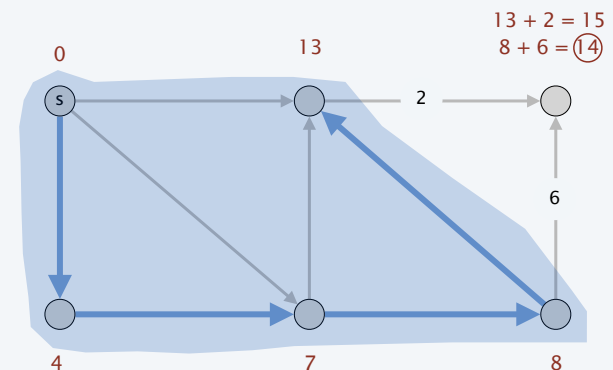
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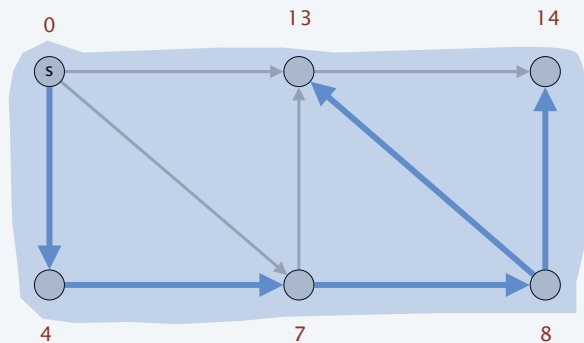
8

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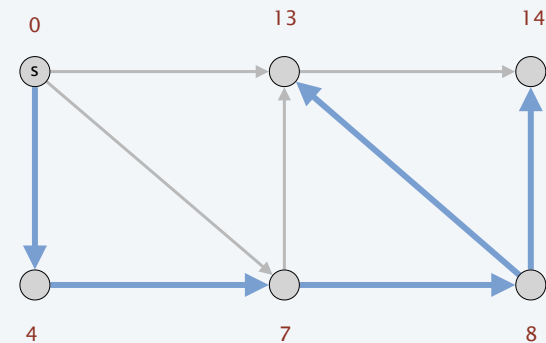
9

Dijkstra's algorithm demo

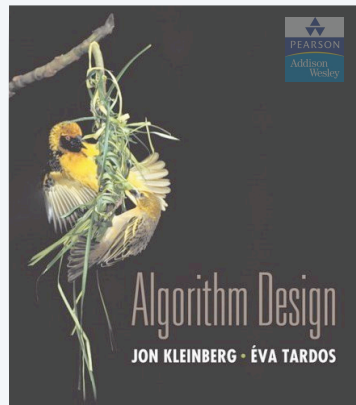
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10



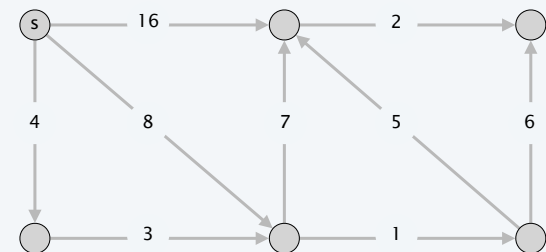
SECTION 4.4

4. GREEDY ALGORITHMS II

- *Dijkstra's algorithm demo*
- *improved Dijkstra's algorithm demo*

Improved Dijkstra's algorithm demo

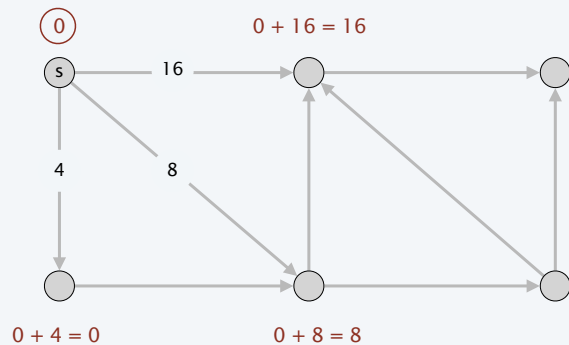
- Initialize $\pi(s) = 0$.
- Repeatedly choose $u \notin S$ with minimum $\pi(u)$.
 - for each edge (u, v) leaving u , set $\pi(v) = \min \{ \pi(v), \pi(u) + \ell(u, v) \}$
 - add u to S



12

Improved Dijkstra's algorithm demo

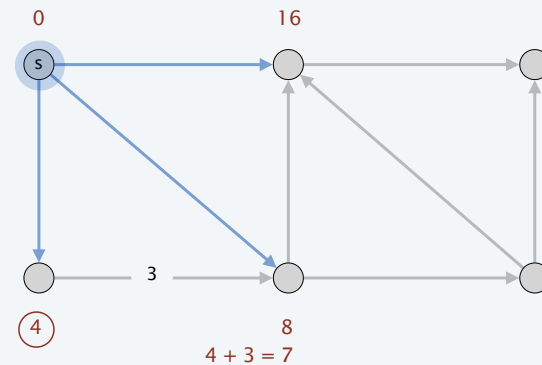
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13

Improved Dijkstra's algorithm demo

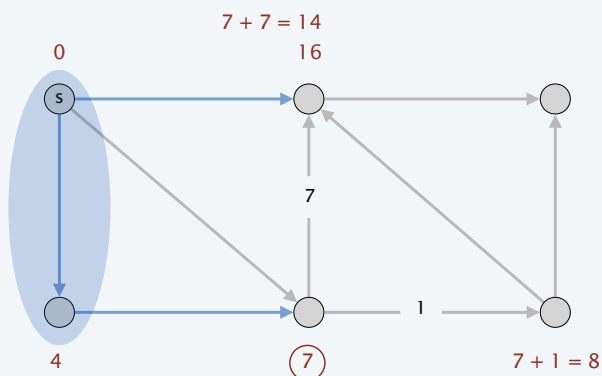
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14

Improved Dijkstra's algorithm demo

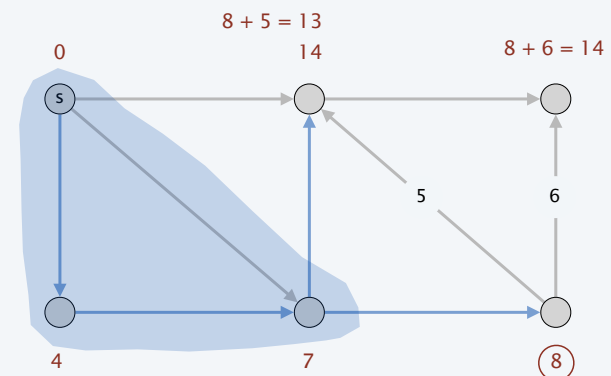
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15

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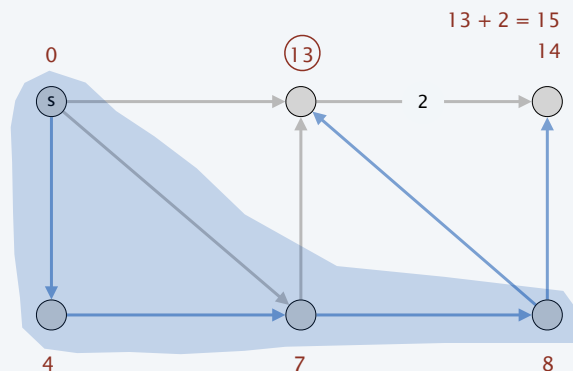
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16

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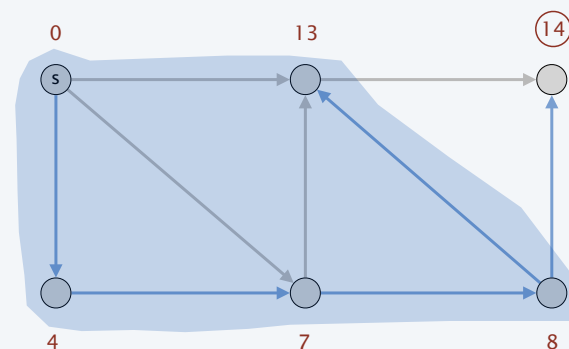
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17

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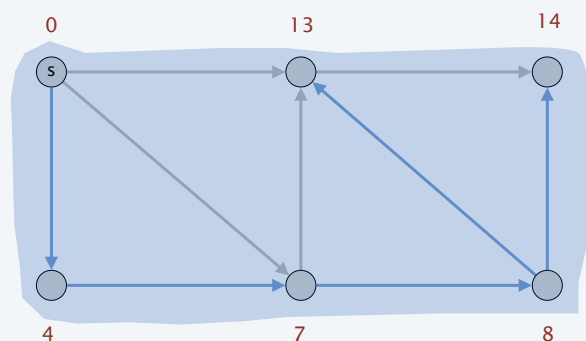
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18

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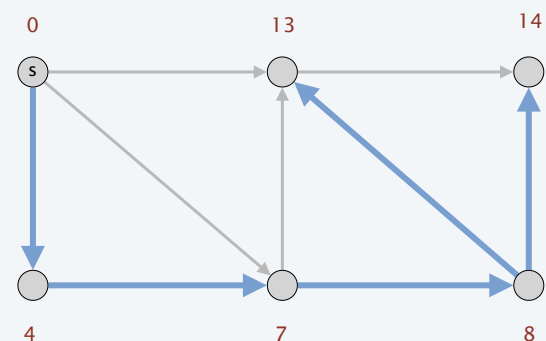
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19

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20