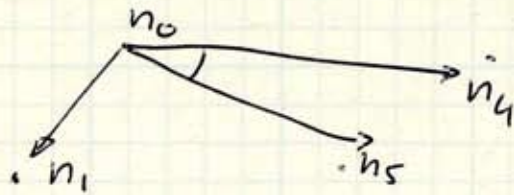


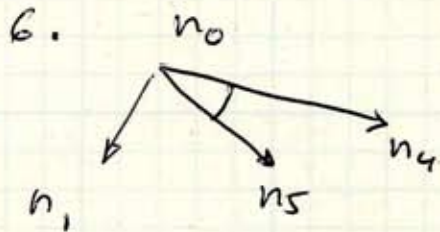
1. $G = \{n_0\}$, $q(n_0) = h(n_0) = 3$

2. not solved (n_0)

4. no marked connectors to trace



5. $n = n_0$



Expand n_0 , no previous cost estimate; use $h(n)$

$$q(n_1) = h(n_1) = 2$$

$$q(n_5) = h(n_5) = 1$$

$$q(n_4) = h(n_4) = 1$$

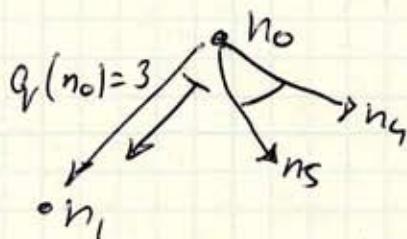
7. $S = \{n_0\}$

10. $S = \{\}$, $n_0 = n$

11. revise cost $q_1(n_0) = C_1 + q(n_1) = 1 + 2 = 3$

$$q_2(n_0) = C_2 + q(n_4) + q(n_5) = 2 + 1 + 1 = 4$$

$$\text{set } q(n_0) = \min \{q_1(n_0), q_2(n_0)\} = 3$$

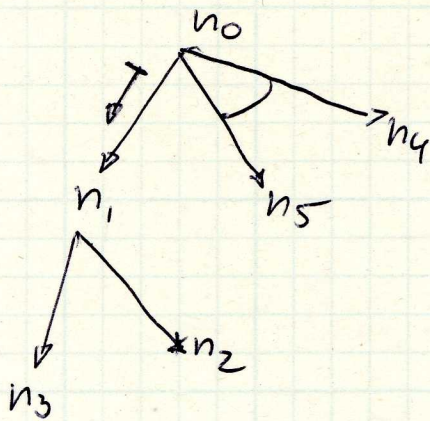


mark the connector \rightarrow
erase previous (none)
no solved node

12. n_0 is not solved, cost not changed
back to step 2

2. $S = n_0$ not solved yet.

4. force down \rightarrow



5. Select $n = n_1$ as
a non-terminal node

6. expand n_1 as
successors

$$g(n_3) = h(n_3) = 4$$

$$g(n_2) = h(n_2) = 4$$

n_2/n_3 not solved

7. $S = \{n_1, 3\}$

10. $S = \{3\}$, $m = n_1$

11. revise cost

$$g(n_1) = \min \begin{cases} g_3(n_1) = c_3 + g(n_3) = 1 + 4 = 5 \\ g_2(n_1) = c_2 + g(n_2) = 1 + 4 = 5 \end{cases}$$

pick one - $g(n_1) = 5$

12. $m = n_1$ not solved but revised cost is
different (5 instead of 2)

$$S = \{n_0, 3\}$$

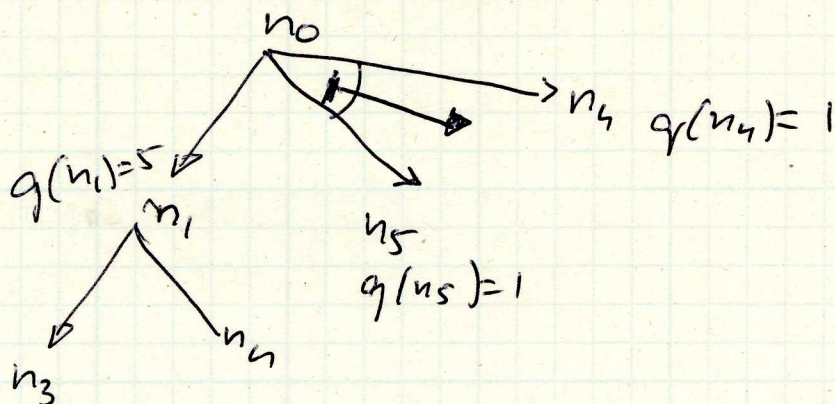
10. $S = \{3\}$, $m = n_0$

11. revise cost for $q(m) = q(n_0)$

$$q_1(n_0) = c_1 + q(n_1) = 1 + 5 = 6$$

$$q_2(n_0) = 2 + 1 + 1 = 4 \text{ choose } \underline{q(n_0) = 4}$$

erase previous marking.

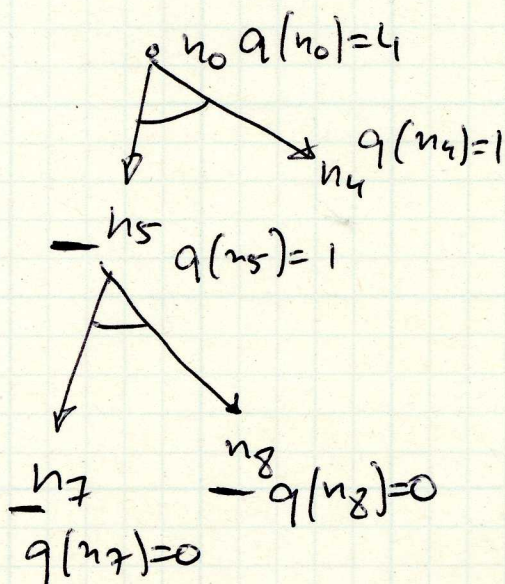


12. $n_0 = m$ - not solved

cost of $m = n_0$ changed

but $S = \{ \}$ jump to 3

4. trace the marked \rightarrow connector



5. select any leaf
choose n_5

6. expand n_5 to n_7, n_8
mark n_7, n_8 solved

7. $S = \{ n_5 \}$

10. $S = \{ \}$, $m = n_5$

- solved.

11. revise cost? $q(n_5) = ?$

$$q_3(n_5) = c_3 + q(n_7) + q(n_8) = 2 + 0 + 0 = 2$$

$\overline{q(n_5)} = q_3(n_5) = 2$ instead of the old $q(n_5) = 1$

mark n_5 solved

12. $n_5 = m$ is solved $S = \{n_0\}$

10. $S = \{ \}$ $m = n_0$

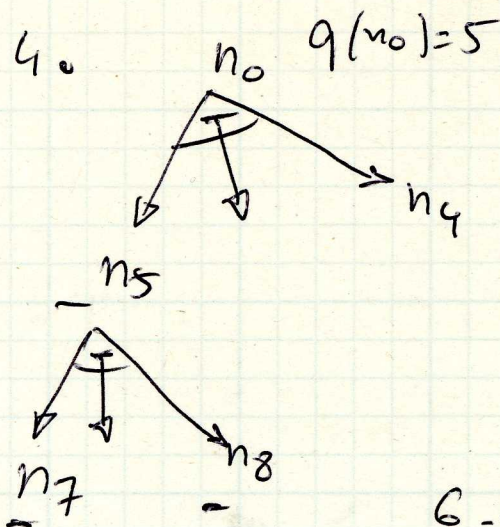
11. revise cost of n_0

$$q(n_0) = c_1 + (\overline{q(n_5)}) + q(n_4) = 2 + 2 + 1 = 5$$

not all successors are solved, no solved mark.

12. $m = n_0$ - not solved, revised cost changed (from 4 \rightarrow 5) but no parents

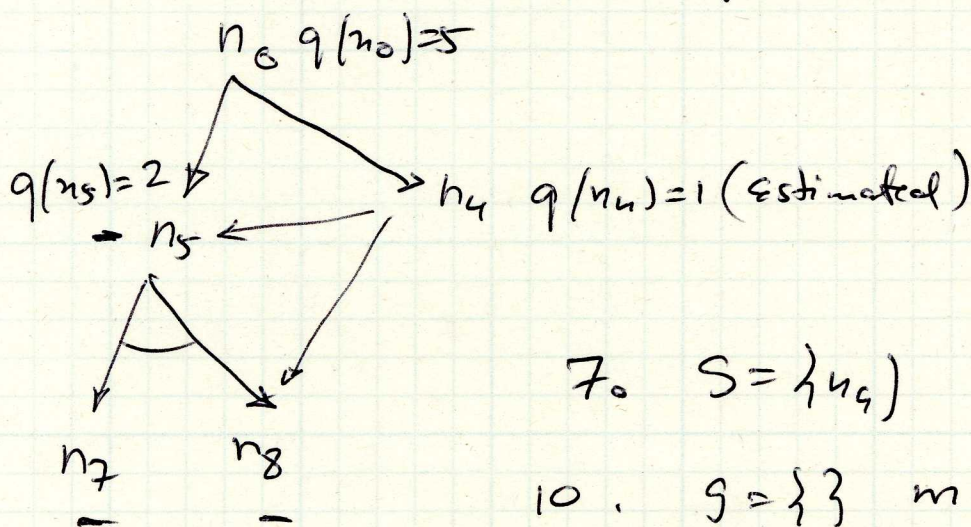
$S = \{ \}$ back to 4.



5. $n = n_4$

6. expand n_4 to n_5 and n_8
 n_5 already in \mathcal{Q}'

$n_8 \rightarrow g(n_8) = h(n_8) = 0$
 already solved.



7. $S = \{n_4\}$

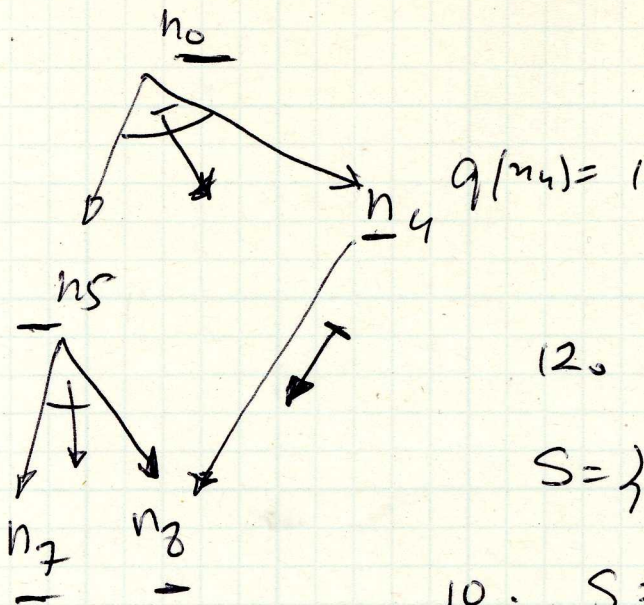
10. $S = \{ \}$ $m = n_4$

11. revise cost $g(n_4)$

$$g(n_4) = 1 + g(n_8) = 1 + 0 = 1$$

now real cost.

n_8 is solved, n_4 is
 solved



12. n_4 is solved

$$S = \{n_0\}$$

10. $S = \{ \}$ $m = n_0$

11. sense cost of n_0 (child is $q(n_0) = 5$)

$$q(n_0) = q(n_5) + 2 + q(n_4) = 2 + 2 + 1 = 5$$

no change.

make n_0 solved

12. n_0 is solved but no parents

$$S = \{ \}$$

2. n_0 is solved, stop