

$$w(1) = 4$$

$$w(2) = 1$$

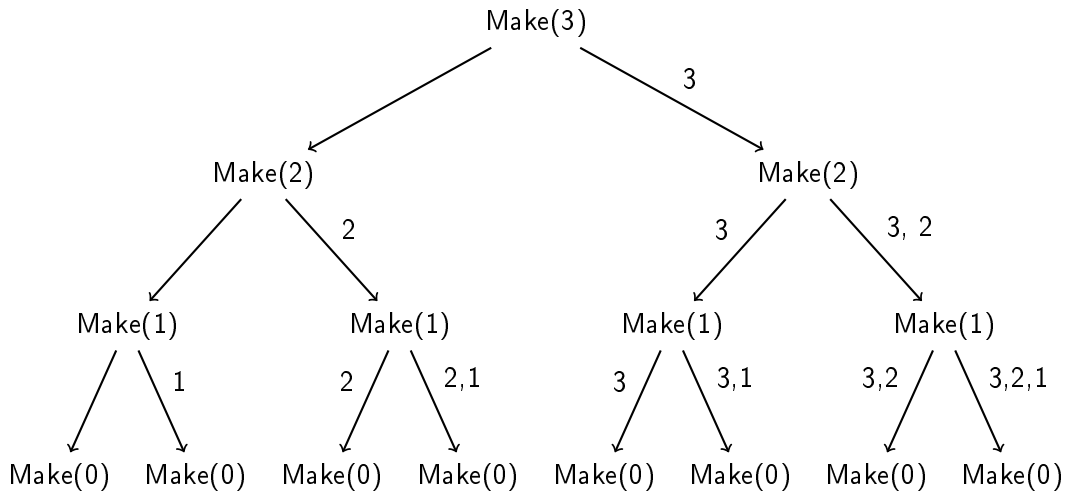
$$w(3) = 1$$

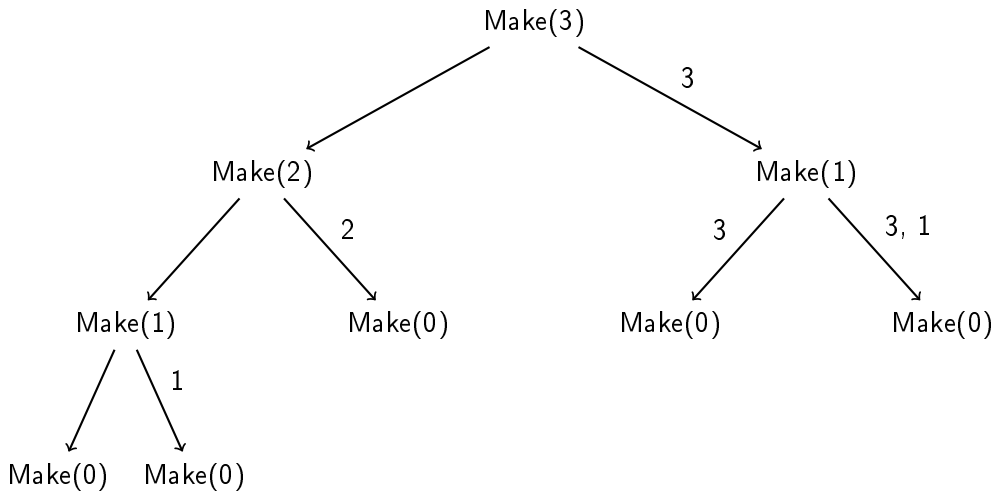
$$w(4) = 1$$

$$\overline{\quad} w(1) = 1$$

$$\overline{\quad} w(2) = 3$$

$$\overline{\quad} w(3) = 1$$






$$w(1) = 4$$

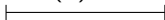
$$w(2) = 3$$


$$w(3) = 1$$

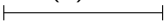
$$w(4) = 4$$


$$w(5) = 1$$

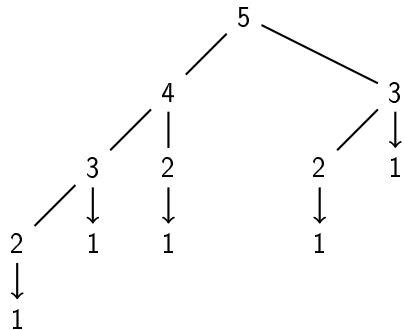
$$w(1) = 4$$


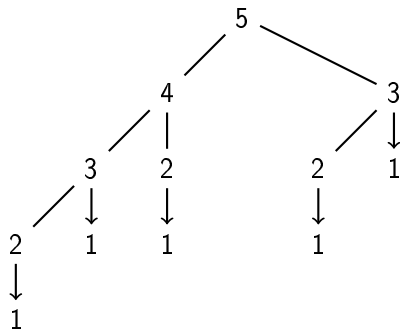
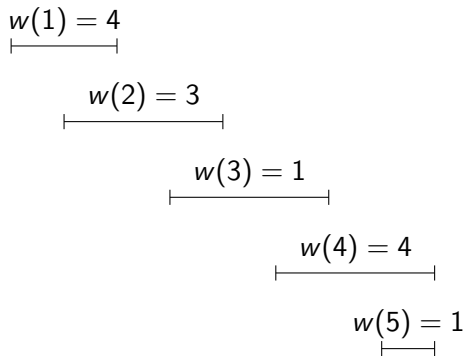
$$w(2) = 3$$


$$w(3) = 1$$


$$w(4) = 4$$


$$w(5) = 1$$






$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

$$w(1) = 4$$

$$w(2) = 3$$

$$w(3) = 1$$

$$w(4) = 4$$

$$w(5) = 1$$

$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

k	1	2	3	4	5
w(k)	4	3	1	5	1
OPT(k)					

$$w(1) = 4$$

$$w(2) = 3$$

$$w(3) = 1$$

$$w(4) = 4$$

$$w(5) = 1$$

$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

k	1	2	3	4	5
w(k)	4	3	1	5	1
OPT(k)	4				

$$w(1) = 4$$

$$w(2) = 3$$

$$w(3) = 1$$

$$w(4) = 4$$

$$w(5) = 1$$

$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

k	1	2	3	4	5
w(k)	4	3	1	5	1
OPT(k)					

\swarrow 4
 $+4$

$$w(1) = 4$$

$$w(2) = 3$$

$$w(3) = 1$$

$$w(4) = 4$$

$$w(5) = 1$$

$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

k	1	2	3	4	5
w(k)	4	3	1	5	1
OPT(k)					

Diagram illustrating the recurrence relation for OPT(k) with arrows and values:

- From OPT(4) to OPT(5): +4
- From OPT(3) to OPT(5): +3

$$w(1) = 4$$

$$w(2) = 3$$

$$w(3) = 1$$

$$w(4) = 4$$

$$w(5) = 1$$

$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

k	1	2	3	4	5
w(k)	4	3	1	5	1
OPT(k)		4		4	

\leftarrow \leftarrow
 $+4$

$$w(1) = 4$$

$$w(2) = 3$$

$$w(3) = 1$$

$$w(4) = 4$$

$$w(5) = 1$$

$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

k	1	2	3	4	5
w(k)	4	3	1	5	1
OPT(k)		4	4		

Diagram illustrating the calculation of OPT(k) for k=2 and k=3:

- For k=2, OPT(2) = 4, which is calculated as w(2) + OPT(1) = 3 + 4.
- For k=3, OPT(3) = 4, which is calculated as w(3) + OPT(1) = 1 + 4.

$$w(1) = 4$$

$$w(2) = 3$$

$$w(3) = 1$$

$$w(4) = 4$$

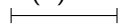
$$w(5) = 1$$

$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

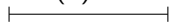
k	1	2	3	4	5
w(k)	4	3	1	5	1
OPT(k)		4	4	5	

+4 (from OPT(1) to OPT(2))
 +1 (from OPT(3) to OPT(4))

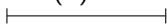
$$w(1) = 4$$



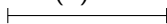
$$w(2) = 3$$



$$w(3) = 1$$



$$w(4) = 4$$



$$w(5) = 1$$



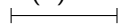
$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

k	1	2	3	4	5
w(k)	4	3	1	5	1
OPT(k)		4	4	5	

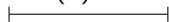
Diagram illustrating the calculation of OPT(k) for k=2, 3, 4, 5. Curved arrows show the recurrence relation:

- From OPT(2) to OPT(1) with a label +4.
- From OPT(3) to OPT(2) with a label +1.
- From OPT(4) to OPT(3) with a label +4.
- From OPT(5) to OPT(4) with a label +1.

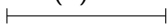
$$w(1) = 4$$



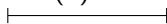
$$w(2) = 3$$



$$w(3) = 1$$



$$w(4) = 4$$



$$w(5) = 1$$



$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

k	1	2	3	4	5
w(k)	4	3	1	5	1
OPT(k)	4	4	5	8	

Diagram illustrating the calculation of OPT(k) for k=1 to 5. The values are shown in the table above. The diagram shows the recurrence relation being applied:

- For k=1, OPT(1) = 4.
- For k=2, OPT(2) = max{OPT(1), w(2) + OPT(p(2))} = max{4, 3 + OPT(1)} = 4. The diagram shows a curved arrow from OPT(1) to the second 4, labeled +3.
- For k=3, OPT(3) = max{OPT(2), w(3) + OPT(p(3))} = max{4, 1 + OPT(2)} = 5. The diagram shows a curved arrow from OPT(2) to the 5, labeled +1.
- For k=4, OPT(4) = max{OPT(3), w(4) + OPT(p(4))} = max{5, 4 + OPT(1)} = 8. The diagram shows a curved arrow from OPT(1) to the 8, labeled +4.

$$w(1) = 4$$

$$w(2) = 3$$

$$w(3) = 1$$

$$w(4) = 4$$

$$w(5) = 1$$

$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

k	1	2	3	4	5
w(k)	4	3	1	5	1
OPT(k)	4	4	5	8	

Diagram illustrating the calculation of OPT(k) for k=1 to 5. The values are shown in the table above. The diagram shows the recurrence relation being applied:

- For k=1, OPT(1) = 4.
- For k=2, OPT(2) = max{OPT(1), w(2) + OPT(p(2))} = max{4, 3 + 4} = 4.
- For k=3, OPT(3) = max{OPT(2), w(3) + OPT(p(3))} = max{4, 1 + 4} = 5.
- For k=4, OPT(4) = max{OPT(3), w(4) + OPT(p(4))} = max{5, 5 + 4} = 8.
- For k=5, OPT(5) = max{OPT(4), w(5) + OPT(p(5))} = max{8, 1 + 8} = 9.

The diagram shows the values of OPT(k) and the weights w(k) for k=1 to 5. The values of OPT(k) are 4, 4, 5, 8, and the weights w(k) are 4, 3, 1, 5, 1. The diagram also shows the recurrence relation being applied, with arrows indicating the flow of the calculation.

$$w(1) = 4$$

$$w(2) = 3$$

$$w(3) = 1$$

$$w(4) = 4$$

$$w(5) = 1$$

$$OPT(k) = \max \begin{cases} OPT(k-1) \\ w(k) + OPT(p(k)) \end{cases}$$

k	1	2	3	4	5
w(k)	4	3	1	5	1
OPT(k)	4	4	5	8	8

+4 (from OPT(1) to OPT(2))
 +1 (from OPT(2) to OPT(3))
 +4 (from OPT(3) to OPT(4))
 (from OPT(4) to OPT(5))