Example of matrix-chain multiplication:

c[i,j] = min $\{c[i,k] + c[k+1,j] + d_{i-1} * d_k * d_j\}$

$i \leq k < j$

A_1 x A_2 x A_3 x A_4

(3 2) (2 4) (4 2) (2 5)

(d_0 d_1) (d_1 d_2) (d_2 d_3) (d_3 d_4)

		j 1	2	3	4
Cost(c)	1	0	24	28	58
	2		0	16	36
	3			0	40
i	4				0

		1	2	3	4
k value	1		1	1	3
	2			2	3
	3				3
	4				

c [1,1] = 0

c [1,2] = min $1 \leq k < 2$ {c [1,1] + c [2,2] + $d_0 * d_1 * d_2$ = 3 * 2 * 4 = 24 }

c [2,3] = min $2 \leq k < 3$ {c [2,2] + c [3,3] + $d_1 * d_2 * d_3$ = 2 * 4 * 2 = 16 }

c [3,4] = min $3 \leq k < 4$ {c [3,3] + c [4,4] + $d_2 * d_3 * d_4$ = 4 * 2 * 5 = 40 }

c [1,3] = min $1 \le k < 3$ { k=1 : c [1,1] + c [2,3] + $d_0 * d_1 * d_3$ = 16 + (3 * 2 * 2) = 28
k=2: c [1,2] + c [3,3] + $d_0 * d_2 * d_3$ = 24 + (3 * 4 * 2) = 48 }

→ min = 28 for k = 1

c[2,4] = min $2 \le k < 4$ { k=2: c[2,2] + c[3,4] + $d_1 * d_2 * d_4$ = 40 + (2 * 4 * 5) = 80
k=3: c[2,3] + c[4,4] + $d_1 * d_3 * d_4$ = 16 + (2 * 2 * 5) = 36 }

→ min = 36 for k = 3

c[1,4] = min $1 \le k < 4$ { k=1: c[1,1] + c[2,4] + $d_0 * d_1 * d_4$ = 36 + (3 * 2 * 5) = 66
k=2: c[1,2] + c[3,4] + $d_0 * d_2 * d_4$ = 64 + (3 * 4 * 5) = 124
k=3: c[1,3] + c[4,4] + $d_0 * d_3 * d_4$ = 28 + (3 * 2 * 5) = 58 }

→ min = 58 for k = 3

→ Now find parentheses $((A_1).(A_2 . A_3)) . A_4$

From tables: c[1,4] → k=3
c[1,3] → k=1