

Pairwise global sequence alignment solution

The solution below shows a completed dynamic programming (DP) table for global alignment (Needleman-Wunsch) on the strings ($x = \text{GAGTAC}$ and $y = \text{GTAGCA}$), with $g = -1$. Use back tracing to find the optimal alignment(s).

	-	G	T	A	G	C	A
-	0	-1	-2	-3	-4	-5	-6
G	-1	1 ←	0 ←	-1 ←	-2 ←	-3 ←	-4 ←
A	-2	0 ↑	0 ↑	1 ←	0 ←	-1 ←	-2 ←
G	-3	-1 ↑	-1 ↑	0 ↑	2 ←	1 ←	0 ←
T	-4	-2 ↑	0 ←	-1 ↑	1 ↑	1 ↑	0 ←
A	-5	-3 ↑	-1 ↑	1 ←	0 ↑	0 ↑	2 ↑
C	-6	-4 ↑	-2 ↑	0 ↑	0 ↑	1 ↑	1 ↑