

match: +3, mismatch: -2, gap: -4

		T	T	A	C	G	T	A	A	G	C
	0	-4	-8	-12	-16	-20	-24	-28	-32	-36	-40
T	-4	3	-1	-5	-9	-13	-17	-21	-25	-29	-33
A	-8	-1	1	2	-2	-6	-10	-14	-18	-22	-26
T	-12	-5	2	-1	0	-4	-3	-7	-11	-15	-19
A	-16	-9	-2	5	1	-2	-6	0	-4	-8	-12
A	-20	-13	-6	1	3	-1	-4	-3	3	-1	-5
T	-24	-17	-10	-3	-1	1	2	-2	-1	1	-3

		T	T	A	C	G	T	A	A	G	C
		L	L	L	L	L	L	L	L	L	L
T	U	D	L/D	L	L	L	L/D	L	L	L	L
A	U	U	D	D	L	L	L	D/L	D/L	L	L
T	U	U/D	D	D	D	D/L	D	L	L	L	L
A	U	U	U	D	L	D	D/L	D	D/L	L	L
A	U	U	U	D/U	D	D/L	D	D	D	D	D/L
T	U	D/U	D/U	U	D/U	D	D	L	U	D	L

Alignments:

T T A C G T A A G C

T - A - - T A A T -
bzw.

T T A C G T A A G C

- T A - - T A A T -

$$\text{Score: } 3-4+3-4-4+3+3+3-2-4 \\ = 15-16-2 = 15-18 = -3 \checkmark$$

$$\text{Score: } 3-4+3-4-4+3+3+3-2-4 \\ = 15-16-2 = 15-18 = -3 \checkmark$$

Recursion:

$$f(l, l) = 0$$

$$f(x, l) = f(l, l) + g$$

$$f(l, x) = f(l, l) + g$$

$$f(px, l) = f(p, l) + g$$

$$f(l, px) = f(l, p) + g$$

$s = \text{score}$

$g = \text{gap}$

$y \in \{A, T, G, C\} \neq x$

$$f(x, x) = \max \begin{cases} f(l, l) + s \\ f(x, l) + g \\ f(l, x) + g \end{cases}$$

$$f(x, p'x) = \max \begin{cases} f(l, p') + s \\ f(l, p'x) + g \\ f(x, p') + g \end{cases}$$

$$f(x, y) = \max \begin{cases} f(l, l) + s \\ f(x, l) + g \\ f(l, y) + g \end{cases}$$

$$f(x, p'y) = \max \begin{cases} f(l, p') + s \\ f(l, p'y) + g \\ f(x, p') + g \end{cases}$$

$$f(px, x) = \max \begin{cases} f(p, l) + s \\ f(px, l) + g \\ f(p, x) + g \end{cases}$$

$$f(px, p'y) = \max \begin{cases} f(p, p') + s \\ f(p, p'y) + g \\ f(px, p') + g \end{cases}$$

$$f(px, y) = \max \begin{cases} f(p, l) + s \\ f(px, l) + g \\ f(p, y) + g \end{cases}$$

$$f(px, p'x) = \max \begin{cases} f(p, p') + s \\ f(p, p'x) + g \\ f(px, p') + g \end{cases}$$

