		T	G	G	A	T	C	G	A
	0	-2	-4	-6	-8	-10	-12	-14	-16
T	-2	2							
G	-4								
A	-6								
A	-8								
T	-10								
T	-12								
C	-14								
A	-16								
G	-18								
T	-20								
T	-22								
A	-24								

$$m_{22} = max \begin{cases} 0 + (+2) \\ -2 + (-2) \\ -2 + (-2) \end{cases}$$

(c)

		T	G	G	A	T	C	G	A
	0	-2	-4	-6	-8	-10	-12	-14	-16
T	-2	2							
G	-4								
A	-6								
A	-8								
T	-10								
T	-12								
C	-14								
A	-16								
G	-18								
T	-20								
T	-22								
A	-24								

$$m_{22} = max \begin{cases} 0 + (+2) \\ -2 + (-2) \\ -2 + (-2) \\ 0 \end{cases}$$

(g)

(a)

Match: +2
Mismatch: -1
Gap: -2

Global

$$m_{ij} = max \begin{cases} m_{i-1,j-1} + f(s0_i, s1_j) \\ m_{i-1,j} + gap \\ m_{i,j-1} + gap \end{cases}$$

(b)

		T	G	G	A	T	C	G	A
	0	-2	-4	-6	-8	-10	-12	-14	-16
T	-2	2	0						
G	-4								
A	-6								
A	-8								
T	-10								
T	-12								
C	-14								
A	-16								
G	-18								
T	-20								
T	-22								
A	-24								

$$m_{32} = max \begin{cases} -2 + (-1) \\ +2 + (-2) \\ -4 + (-2) \end{cases}$$

(d)

		T	G	G	A	T	C	G	A
	0	-2	-4	-6	-8	-10	-12	-14	-16
T	-2	2	0						
G	-4								
A	-6								
A	-8								
T	-10								
T	-12								
C	-14								
A	-16								
G	-18								
T	-20								
T	-22								
A	-24								

$$m_{32} = max \begin{cases} -2 + (+1) \\ +2 + (-2) \\ -4 + (-2) \\ 0 \end{cases}$$

(h)

Local

$$m_{ij} = max \begin{cases} m_{i-1,j-1} + f(s0_i, s1_j) \\ m_{i-1,j} + gap \\ m_{i,j-1} + gap \\ 0 \end{cases}$$

(f)

		T	G	G	A	T	C	G	A
	0	-2	-4	-6	-8	-10	-12	-14	-16
T	-2	2	0	-2					
G	-4								
A	-6								
A	-8								
T	-10								
T	-12								
C	-14								
A	-16								
G	-18								
T	-20								
T	-22								
A	-24								

$$m_{42} = max \begin{cases} -4 + (-1) \\ 0 + (-2) \\ -6 + (-2) \end{cases}$$

(e)

		T	G	G	A	T	C	G	A
	0	-2	-4	-6	-8	-10	-12	-14	-16
T	-2	2	0	0					
G	-4								
A	-6								
A	-8								
T	-10								
T	-12								
C	-14								
A	-16								
G	-18								
T	-20								
T	-22								
A	-24								

$$m_{42} = max \begin{cases} -4 + (+1) \\ 0 + (-2) \\ -6 + (-2) \\ 0 \end{cases}$$

(i)

Two nested loops

Nested loop

```
for(var i=0; i<=n_0; i++) {
outer loop
    for(var j=0; j<=n_1; j++) {
     inner loop
    }
}
```

Nested loop

```
for(var i=0; i<=n_0; i++) {
    for(var j=0; j<=n_1; j++) {


    }
}
```

(j)

Initialization of the score matrix

Initialization of the score matrix. (**a**) Shows the values of the parameters used in the experiments from this chapter. (**b**) Shows the main expressions that compete in the maximization function in the case of global alignment. (**c**, **d**, **e**) Shows the first three steps in the score matrix initialisation for global alignment. (**f**) Show the expressions that compete in the maximization function in case of local alignment. (**g**, **h**, **i**) Shows the first three steps in the score matrix initialisation for local alignment. (**j**) Shows what a nested loop means.

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