

## Arslan-Eğecioğlu-Pevzner Unit Tests

Hint: Many test values are taken from project Algorithms  
for Bioinformatics of Alexander Mattheis or the lectures.

**Test 1** (used **modified** Smith-Waterman-Implementation (with floating point numbers) for calculation)

### Input

Sequence A: GCATTUGCCUU  
Sequence B: CTTGACCATU

Deletion: -2  
Insertion: -1  
Match: 3  
Mismatch: -1  
Length: 10

### Output (Round 1)

Score: 12  
Alignment Length: 15  
lambda: 0.48

Deletion: -2.48  
Insertion: -2.48  
Match: 2.04  
Mismatch: -1.96

Seq1 CATTUG\_CC  
\* \*\* \* \*\*

Seq2 C TT\_GACC

Seq1 CATTUG\_CC\_UU  
\* \*\* \* \*\* | \*

Seq2 C TT\_GACCATU

		G	C	A	T	T	U	G	C	C	U	U
	0	0	0	0	0	0	0	0	0	0	0	0
C	0	0	3	1	0	0	0	0	3	3	1	0
T	0	0	1	2	4	3	1	0	1	2	2	0
T	0	0	0	0	5	7	5	3	1	0	1	1
G	0	3	1	0	3	5	6	8	6	4	2	0
A	0	1	2	4	2	3	4	6	7	5	3	1
C	0	0	4	2	3	1	2	4	9	10	8	6
C	0	0	3	3	1	2	0	2	7	12	10	8
A	0	0	1	6	4	2	1	0	5	10	11	9
T	0	0	0	4	9	7	5	3	3	8	9	10
U	0	0	0	2	7	8	10	8	6	6	11	12

Seq1 CATTUG\_CCU\_U  
 \* \*\* \* \*\* | \*  
 Seq2 C\_TT\_GACCATU

# **Output (Round 2)**

Score: 9  
 Alignment Length: 6  
 lambda: 0.5625  
  
 Deletion: -2.5625  
 Insertion: -2.5625  
 Match: 1.875  
 Mismatch: -2.125

Seq1 CAT  
 \*\*\*  
 Seq2 CAT

		G	C	A	T	T	U	G	C	C	U	U
	0	0	0	0	0	0	0	0	0	0	0	0
C	0	0	2.04	0	0	0	0	0	2.04	2.04	0	0
T	0	0	0	0.08	2.04	2.04	0	0	0	0.08	0.08	0
T	0	0	0	0	2.12	4.08	1.6	0	0	0	0	0
G	0	2.04	0	0	0	1.6	2.12	3.64	1.16	0	0	0
A	0	0	0.08	2.04	0	0	0	1.16	1.68	0	0	0
C	0	0	2.04	0	0.08	0	0	0	3.2	3.72	1.24	0
C	0	0	2.04	0.08	0	0	0	0	2.04	5.24	2.76	0.28
A	0	0	0	4.08	1.6	0	0	0	0	2.76	3.28	0.8
T	0	0	0	1.6	6.12	3.64	1.16	0	0	0.28	0.8	1.32
U	0	0	0	0	3.64	4.16	5.68	3.2	0.72	0	2.32	2.84

# **Output (Round 3)**

Score: 9  
 Alignment Length: 6  
 lambda: 0.5625  
  
 Deletion: -2.5625  
 Insertion: -2.5625  
 Match: 1.875  
 Mismatch: -2.125

Seq1 CAT  
 \*\*\*  
 Seq2 CAT

		G	C	A	T	T	U	G	C	C	U	U
	0	0	0	0	0	0	0	0	0	0	0	0
C	0	0	1.875	0	0	0	0	0	1.875	1.875	0	0
T	0	0	0	0	1.875	1.875	0	0	0	0	0	0
T	0	0	0	0	1.875	3.75	1.1875	0	0	0	0	0
G	0	1.875	0	0	0	1.1875	1.625	3.0625	0.5	0	0	0
A	0	0	0	1.875	0	0	0	0.5	0.9375	0	0	0
C	0	0	1.875	0	0	0	0	0	2.375	2.8125	0.25	0
C	0	0	1.875	0	0	0	0	0	1.875	4.25	1.6875	0
A	0	0	0	3.75	1.1875	0	0	0	0	1.6875	2.125	0
T	0	0	0	1.1875	5.625	3.0625	0.5	0	0	0	0	0
U	0	0	0	0	3.0625	3.5	4.9375	2.375	0	0	1.875	1.875