

# Agglomerative Clustering Unit Tests

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

Hint 2: **Neighbour-Joining** has an own Unit-Test file.

Hint 3: Substeps omitted because algorithm is to easy.

## Test 1 (only for UPGMA and WPGMA)

Input

	a	b	c	d	e
a	0	6	10	10	10
b		0	10	10	10
c			0	2	6
d				0	6
e					0

Output

```
(( (d:1, c:1):2, e:3):2, (b:3, a:3):2);
```

## Test 2 (only for UPGMA)

Input

	a	b	c
a	0	2	3
b		0	3
c			0

Output

```
((b:1, a:1):0.5, c:1.5);
```

**Test 3** (only for UPGMA)

Input

	a	b	c
a	0	3	6
b		0	6
c			0

Output

```
((b:1.5,a:1.5):1.5,c:3);
```

**Test 4** (only for Single Linkage)

	a	b	c	d	e
a	0	5	9	9	8
b		0	10	10	9
c			0	8	7
d				0	3
e					0

Output

```
(( (e:1.5,d:1.5):2.5,c:4):1,(b:2.5,a:2.5):2.5);
```