

# General Gap Penalties

AAAGAATTCA  
A-A-A-T-CA

vs.

AAAGAATTCA  
AAA-----TCA

These have the same score, but the second one is often more plausible.

A single insertion of “GAAT” into the first string could change it into the second.

- Now, the cost of a run of  $k$  gaps is  $gap \times k$
- It might be more realistic to support general gap penalty, so that the score of a run of  $k$  gaps is **gap**( $k$ )  $< gap \times k$ .
- Then, the optimization will prefer to group gaps together.