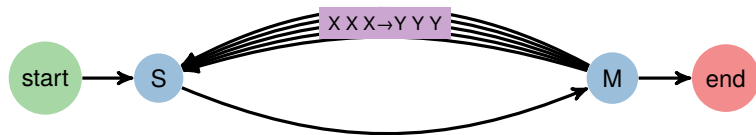


### a) Substitution



#### Sequences

X: input nucleotides  
Y: intermediate nucleotides  
Z: output nucleotides  
 $\emptyset$ : nothing/empty sequence

#### Parameters

$g$ : gap open weight  
 $e$ : gap extension weight

### b) Insertion-Deletion

