



# Evolution of Coding Sequences

• Proper unit evolution is a trip let of nuclei des – a condon

• **Mutations happen at the DNA level**

Selection happens (by and large) at the protein level

- **Synonymous** (protein sequence **unchanged**) and **non-synonymous** (protein sequence **changed**) substitutions are fundamentally different

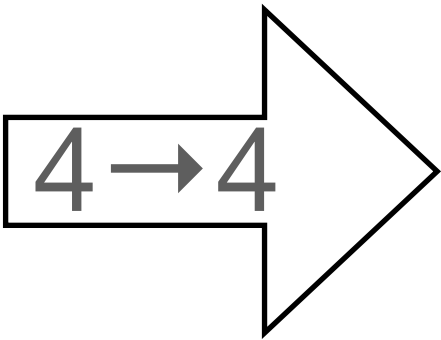
Coding DNA  
sequence

RNA

Transcription/  
Assembly

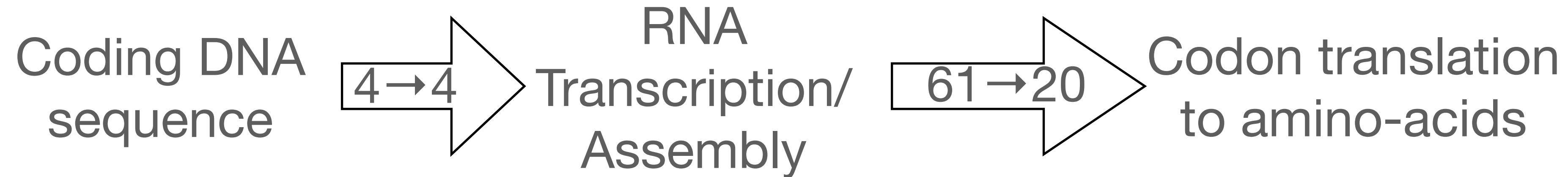


Codon translation  
to amino-acids



61 → 20

# Evolution of Coding Sequences



- Proper unit of evolution is a triplet of nucleotides — a **codon**
- **Mutation** happens at the **DNA level**
- **Selection** happens (by and large) at the **protein level**
- **Synonymous** (protein sequence **unchanged**) and **non-synonymous** (protein sequence **changed**) substitutions are fundamentally different

**Conservation:**  
measles, rinderpest, and peste-de-petite ruminant viruses nucleoprotein.

