1. Enzyme Reaction Nomenclature

- Not all reactions are as simple as \( S \rightarrow P \), so rather than using a circle, we use a line:

\[
E + S \rightarrow ES \rightarrow EP \rightarrow E + P
\]

- Arrows down: substrates \((A, B, C, D)\)
- Arrows up: products \((P, Q, R, S)\)
- If enzyme is changed during cycle \((E, F, G)\)

\[
\text{Defining the number of substrates + products: } \text{uni} = 1 \quad \text{bi} = 2 \quad \text{tri} = 3 \quad \text{quar} = 4 \quad \text{etc.}
\]

2. Defining the order of binding + release

- Ordered: matters who is first
- Random: any order of binding/reaction

\[
\text{Eg: bi bi} \quad \text{or} \quad \text{random bi bi}
\]

3. Define relationship of substrates to products: sequential - 1st S, then P

\[
\text{Eg: all above are sequential} \quad E \quad \text{ping-pong} \quad \text{alternate}
\]

2. Enzyme Helpers - Already seen with heme group

- Any non-protein molecule required for activity is a Cofactor
- Enzyme without cofactor is inactive = Apoenzyme
- Enzyme with cofactor is active = Holoenzyme.

Protein Cofactors are either simple molecules (eg Fe^{2+}) or not (Coenzymes)

Coenzymes are either bound tightly (equivalent) = prosthetic group or not = cosubstrate.