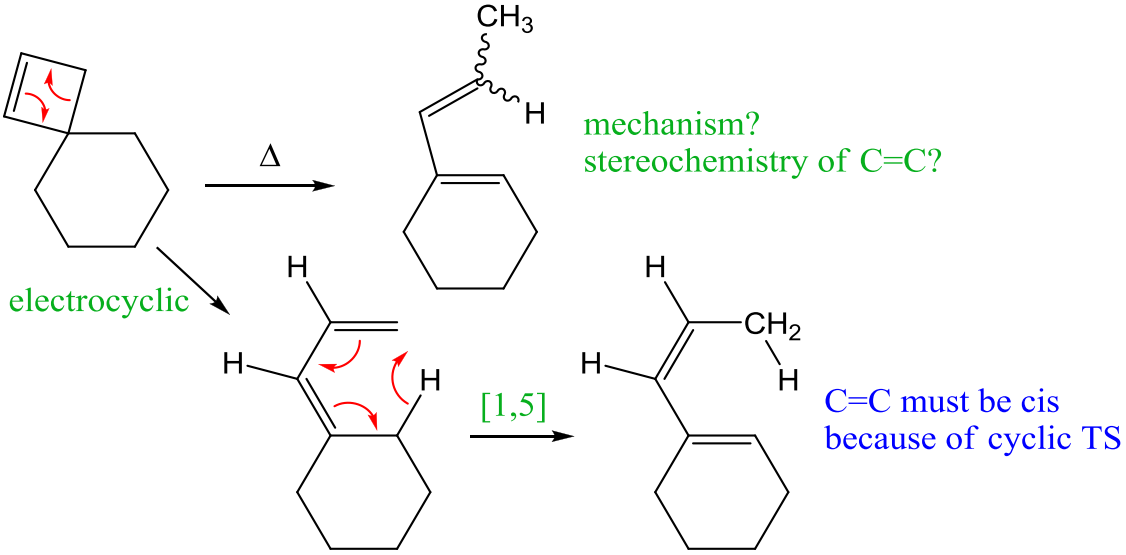
Overheads: - Today's Outline

Recap Pericyclic Reactions:
Electrocyclic: all "allowed" – stereo: even, Δ, con

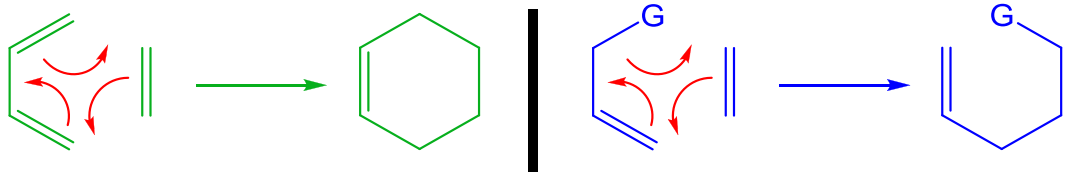
Cycloaddition:
Sigmatropic:
} normally only suprafacial go: odd, Δ, supra



Last Pericyclic Reaction: Group Transfer Reactions

- Similar to cycloaddition, but one bond is σ instead of π

Compare:

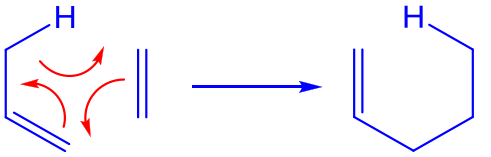


6 π e⁻ = 4n+2

4 π e- + 2 σ e⁻ = 6 total e⁻

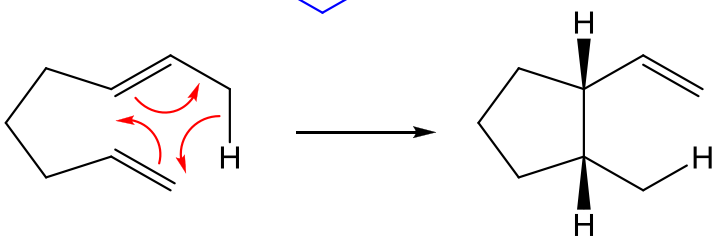
- group G transferred to other component
- G usually H

Ene Reaction – most important example



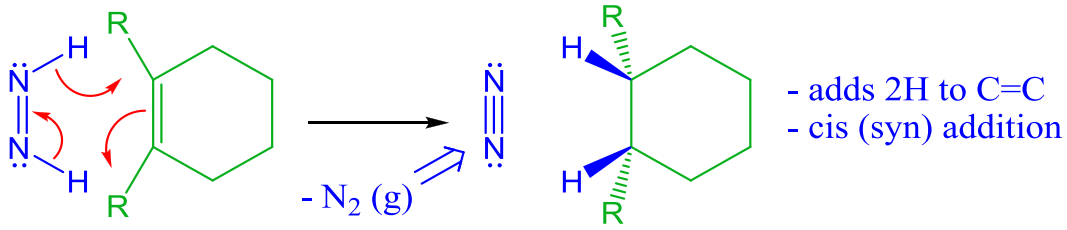
- allylic H gets transferred

e.g.

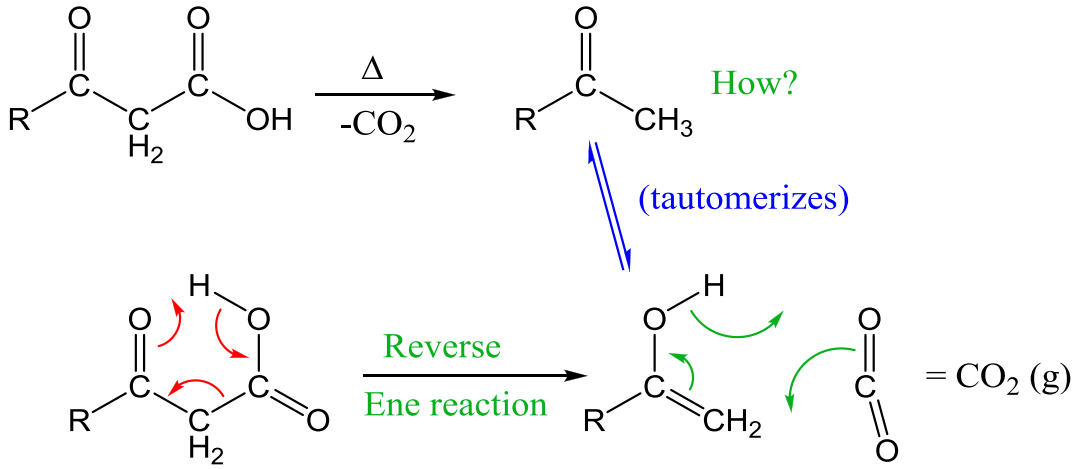


Other Examples:

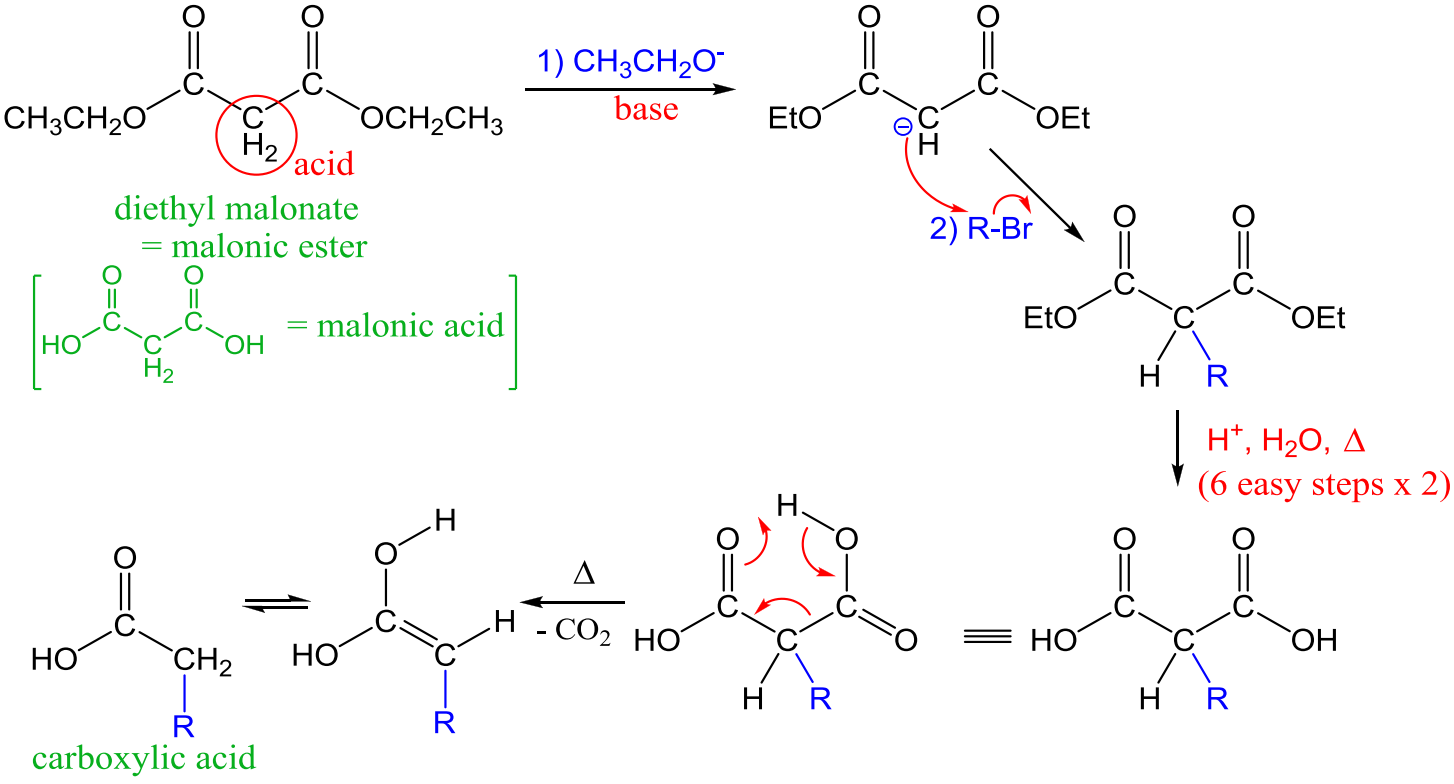
Diimide (source of "H_2" – reducing agent) – 2 groups get transferred



Decarboxylation of β-keto acids



Application: Malonic Ester Synthesis → to make R-CH_2-CO_2H



Similarly: Acetoacetic Ester Synthesis