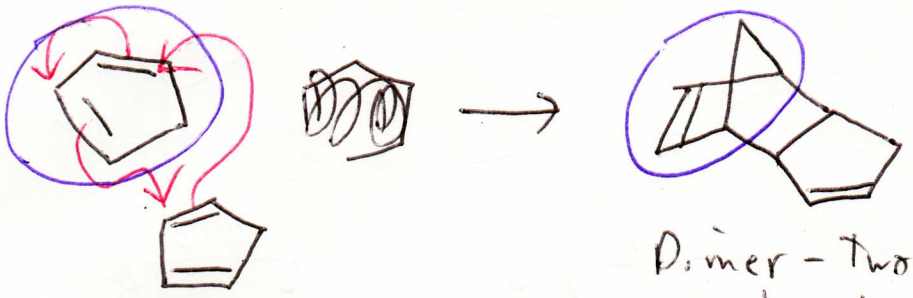
3/19/12 Diels-Alder

Diene + Dienophile → Cyclic product



Dimer - Two of the same atom or molecule combine to form a larger structure.

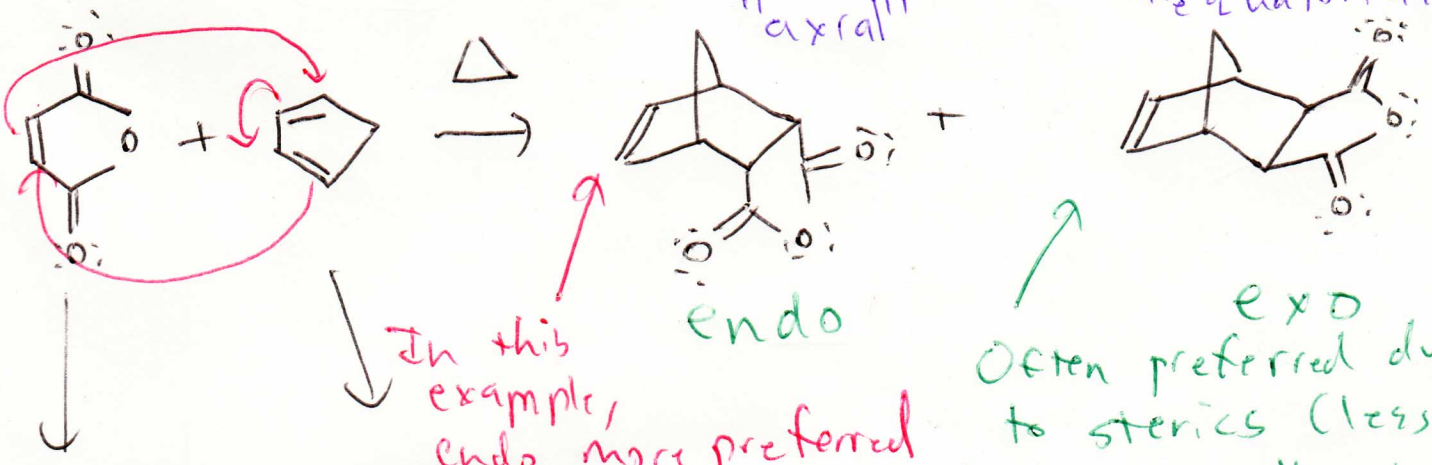
pseudo-trans
s-trans

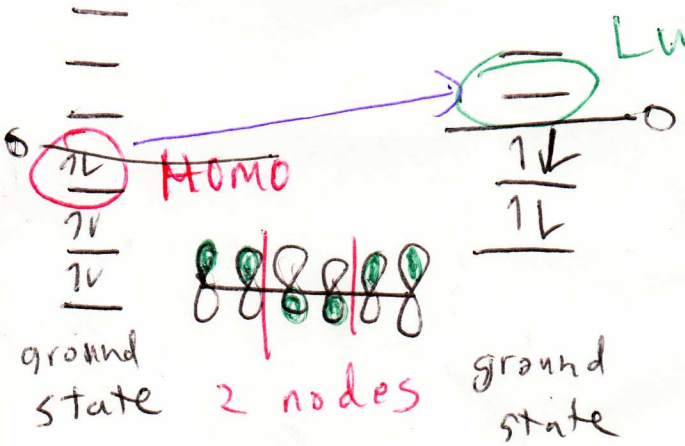
pseudo-cis
s-cis

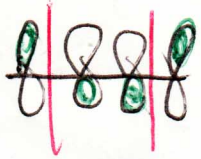
The diene must be in s-cis configuration to be reactive in Diels-Alder rxn.

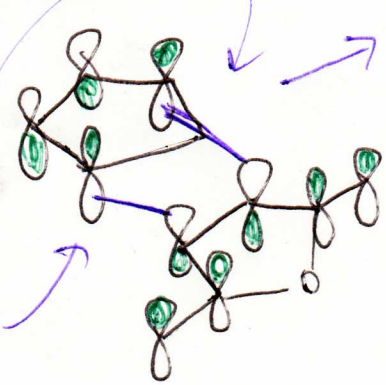
Much more reactive since diene is "locked" into s-cis configuration.

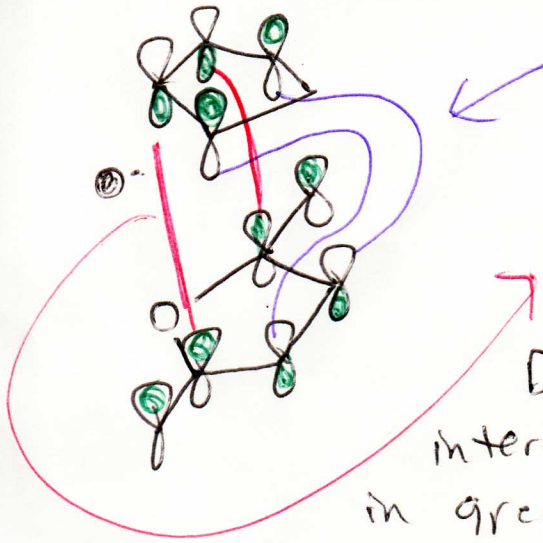
Cannot undergo Diels-Alder since the diene is permanently "locked" into s-trans.











primary orbital overlap (bonding)

secondary orbital overlap

Due to the greater extent of orbital interaction, the endo form is produced in greater quantity, even though the product has more steric ~~hindrance~~ interaction than the exo ~~form~~.