

Course Chem 345 Lecturer Gellman
 Day Friday Date 4-22-18
 Notes Taken By Li Lin Total # of Pages 4

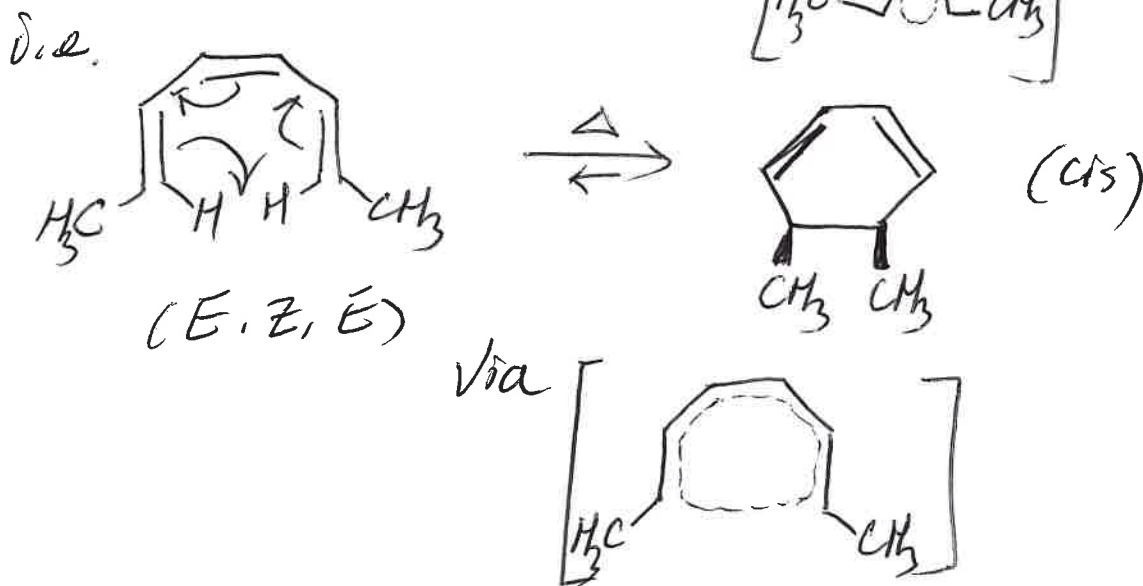
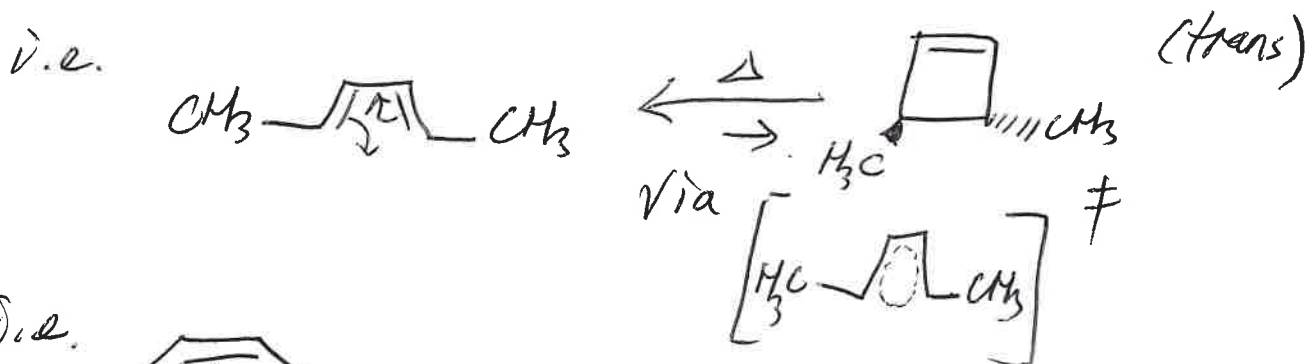
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"Pericyclic Rxns" i.e. Diels Alder



Start w/ electrocyclic Rxns

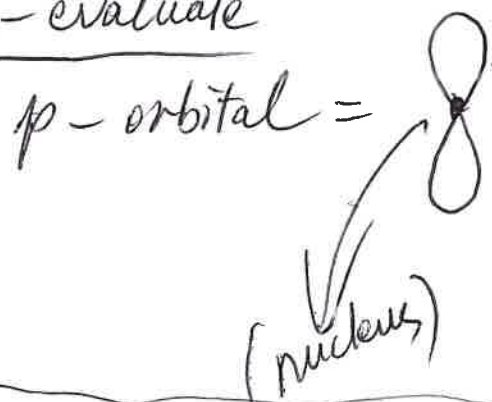
Def. Unimolecular rxns that result in "fracting"
 a. π bond for a σ bond.




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~~Problem~~ Problem: The curved arrows cannot explain the stereospecificity of these arrangements.
Must Consider molecular orbitals (MO symmetry)

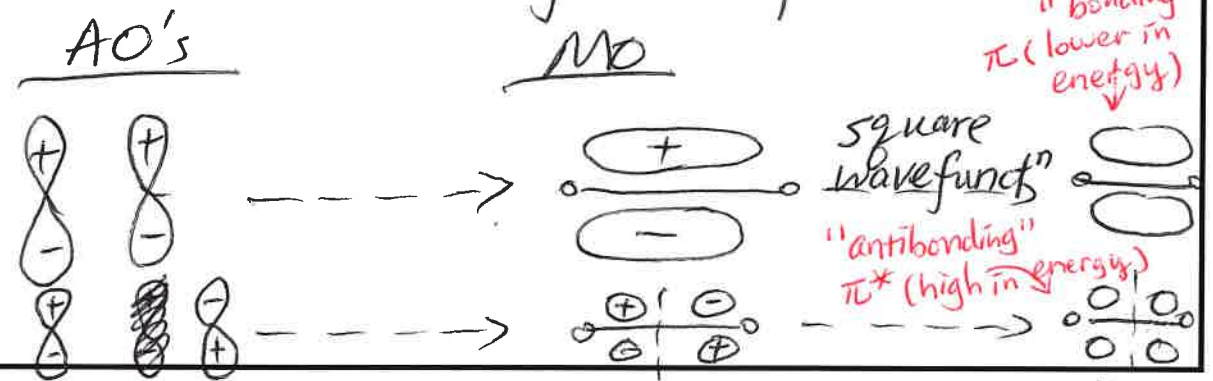
Re-evaluate



The region of space is described by a wave function (probability of finding an e^- within this

However:  (p wavefunction itself has \oplus and \ominus signs (regions, 2 phases). region is the square of the wavefunction.) i.e. (all positive values)

2 ways to combine p orbitals from adjacent atoms



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upper \oplus combination can be designated "symmetric"
 and lower is "anti-symmetric".

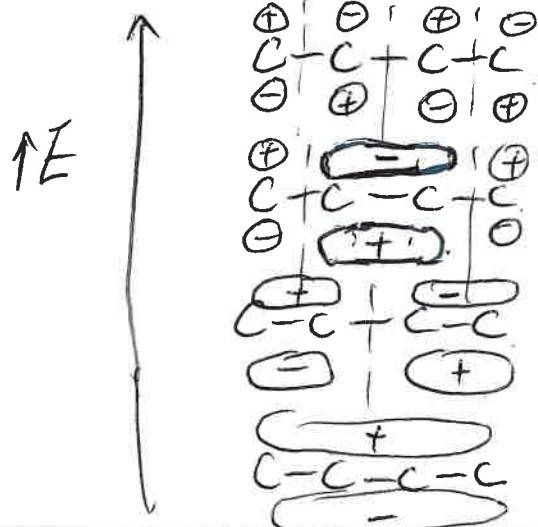
Apply to larger systems:



Energies by vertical organization



Combine AO's to form MO's



All of this allows us to assign a feature that was previously invisible.

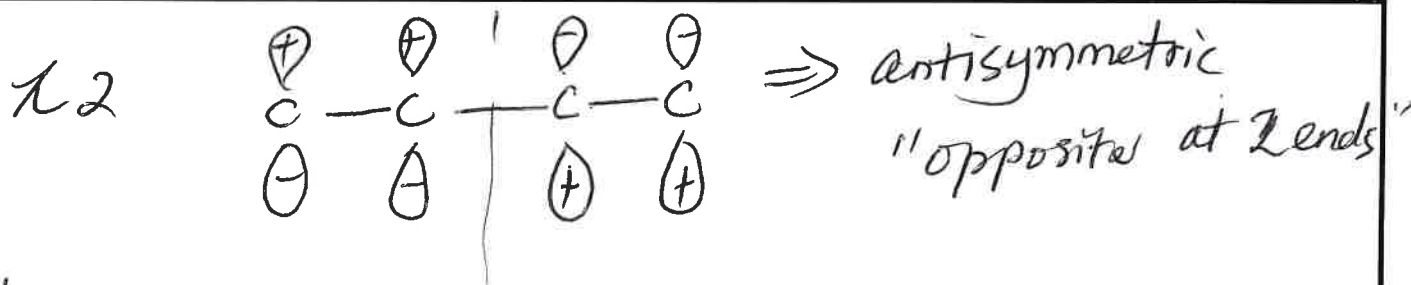
MO symmetry

π_1

Symmetric
 "identical at the two ends"

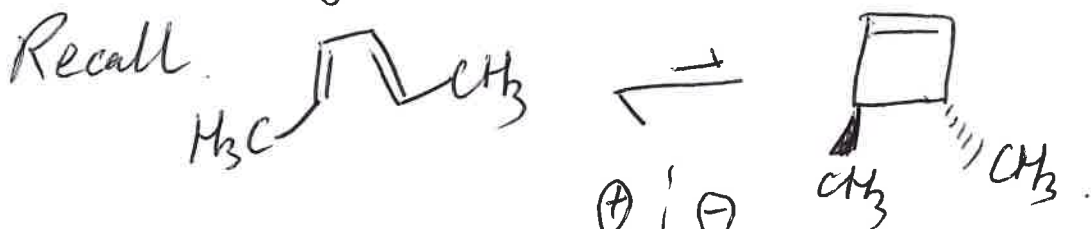
Course Chem 345 Lecturer Gellman
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NOTES

- ① Every MO (π) in any organic molecule is either symmetric or anti.
- ② For a given conjugated set, S vs A will alternate as you move up and down.



Draw.

