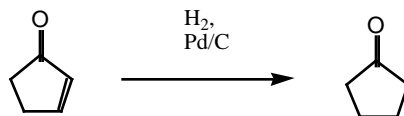


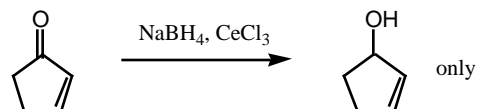
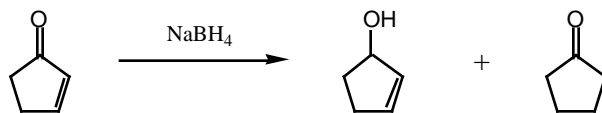
SELECTIVITY*Science* **1983**, 219, 245**Chemoselectivity**

preferential reactivity of one functional group (FG) over another

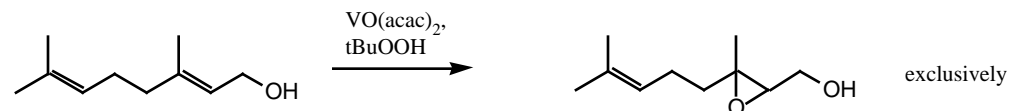
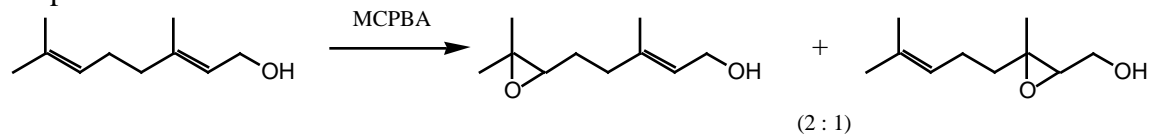
- Chemoselective reduction of C=C over C=O:



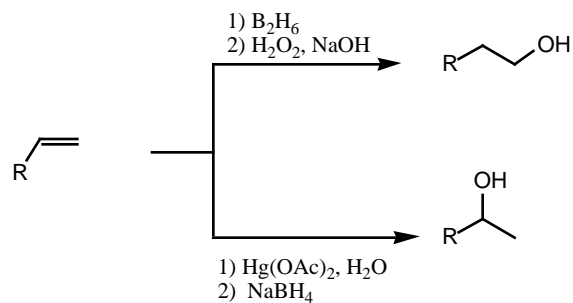
- Chemoselective reduction of C=O over C=C:



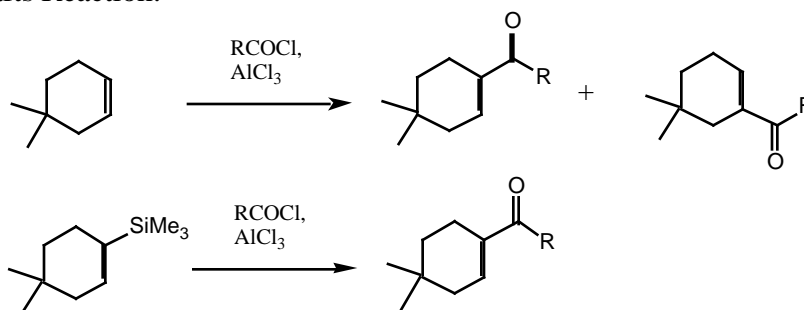
- Epoxidation:

**Regioselectivity**

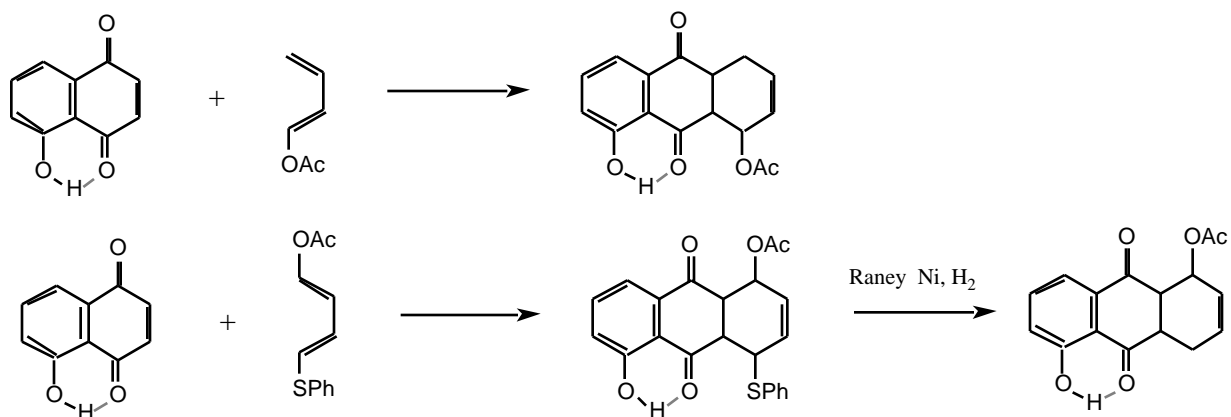
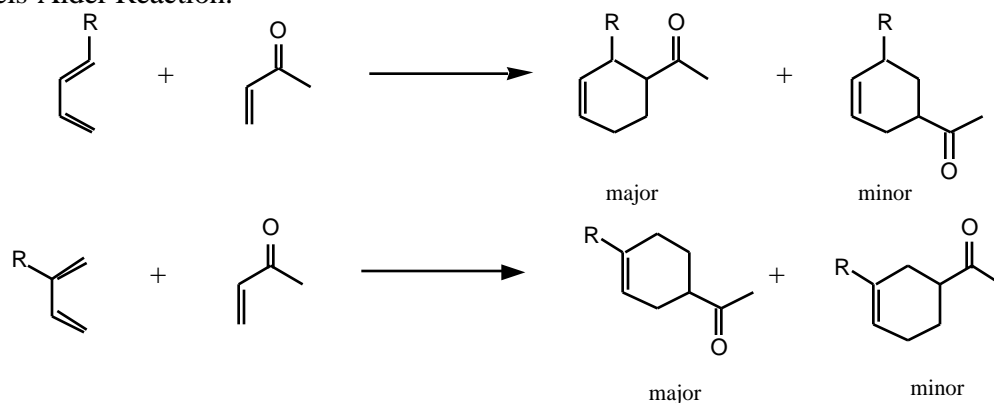
- Hydration of C=C:



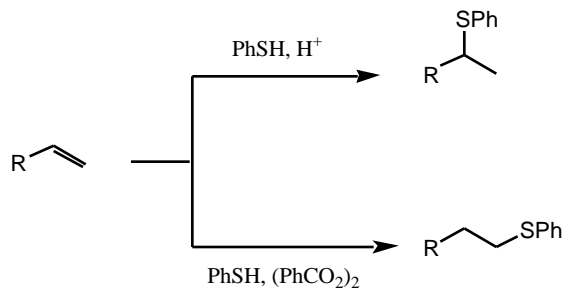
- Friedel-Crafts Reaction:



- Diels-Alder Reaction:

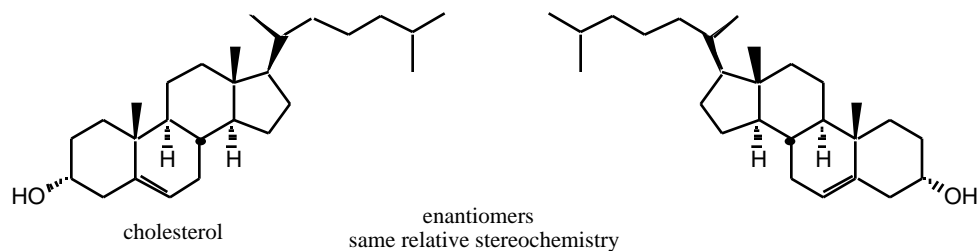


Change in mechanism:



Stereochemistry:

Relative stereochemistry: Stereochemical relationship between two or more stereogenic centers within a molecule



syn: on the same side (cis)

anti: on the opposite side (trans)

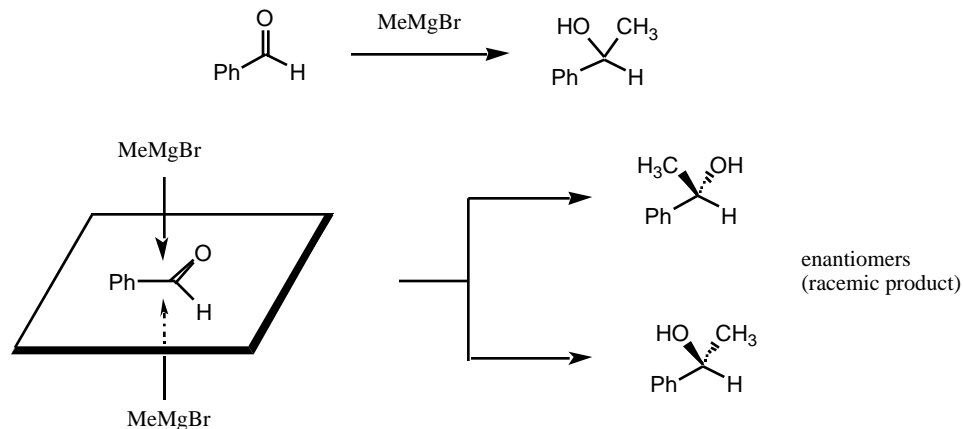
- differences in relative stereochemistry lead to diastereomers.

Diastereomers= stereoisomers which are not mirror images; usually have different physical properties

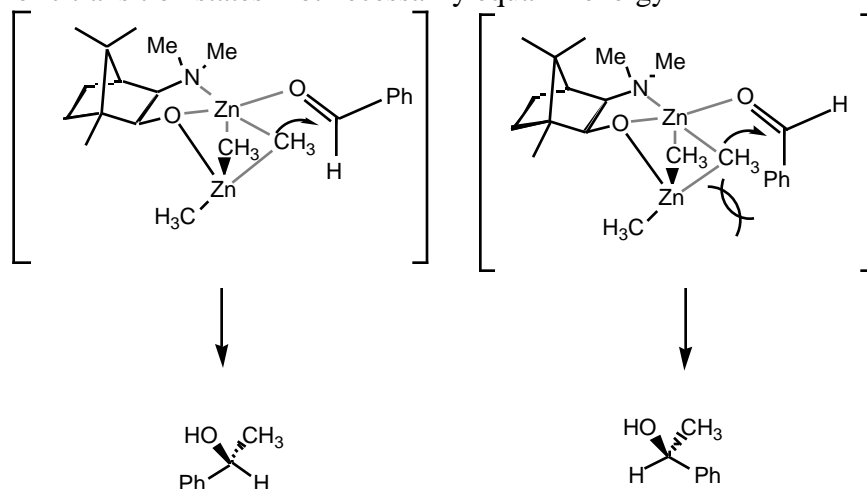
Absolute Stereochemistry: Absolute stereochemical assignment of each stereocenter (R vs S)
Cahn-Ingold-Prelog Convention (sequence rules)

- differences in absolute stereochemistry (of all stereocenters within the molecule) leads to enantiomers.

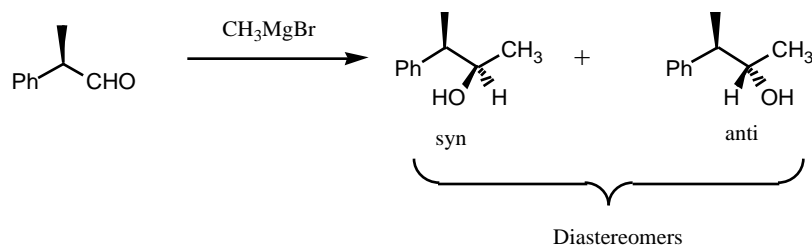
- Reactions can "create" stereocenters



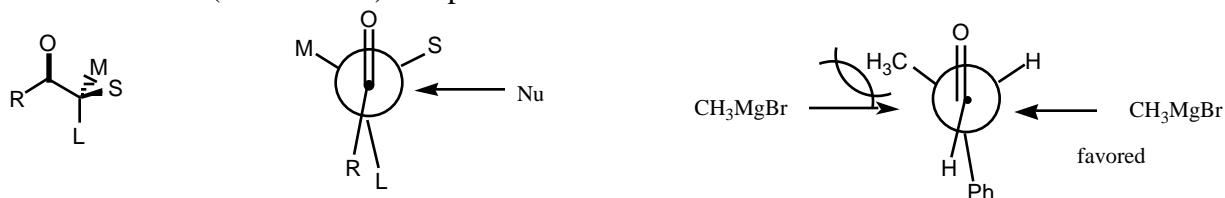
Diastereomeric transition states- not necessarily equal in energy



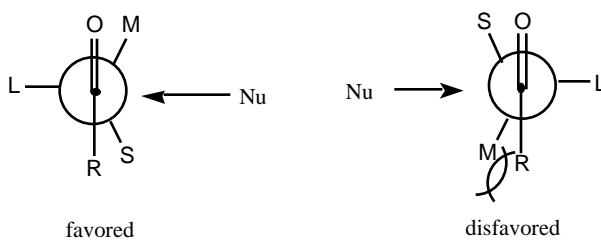
Diastereoselectivity



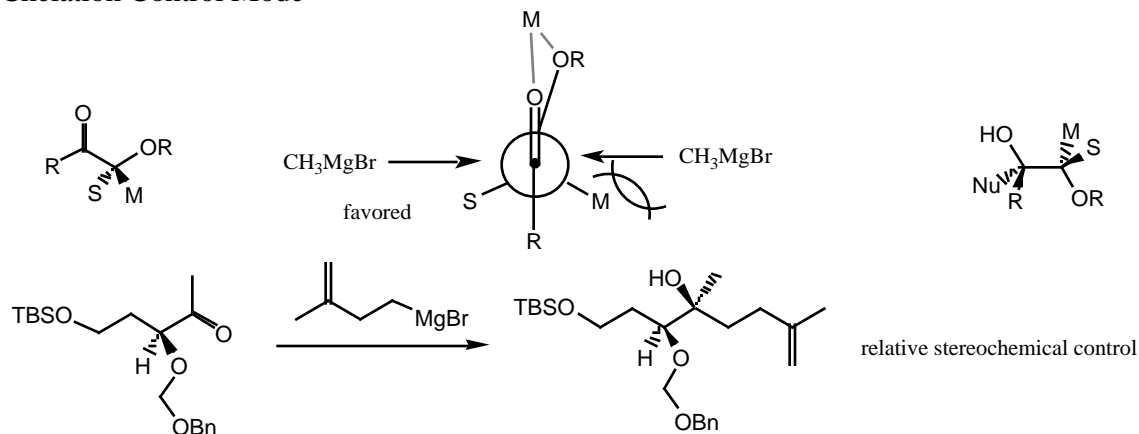
Cram Model (Cram's Rule): empirical



Felkin-Ahn Model

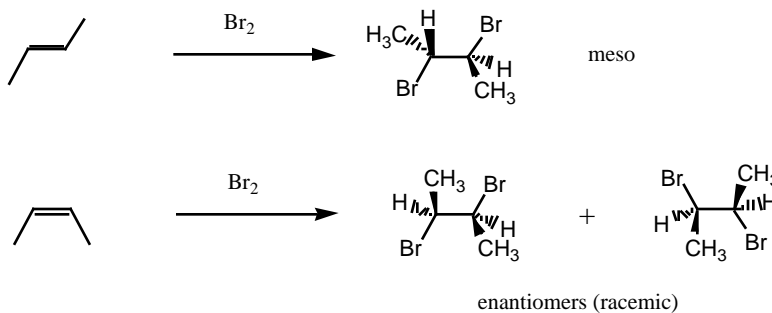


Chelation Control Mode



Stereospecific

Stereochemistry of the product is related to the reactant in a mechanistically defined manner; no other stereochemical outcome is mechanistically possible.
i.e.; S_N2 reaction- inversion of configuration is required



Stereoselective

When more than one stereochemical outcome is possible, but one is formed in excess (even if that excess is 100:0).

