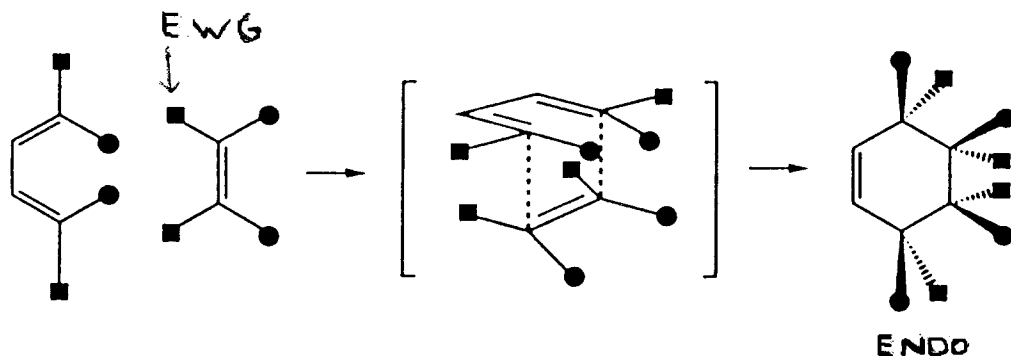


Name	Type	Reagents, Catalysts, Solvents, etc.	Product(s)	Regiochemistry	Stereochemistry	Other
1. Allylic Bromination of Alkenes	Free Radical Substitution	NBS/hv/CCl <sub>4</sub>	Allylic Bromide	Allylic Substitution	NA	more than one product possible with asymmetric alkene
2. Allylic Grignard Reagents	Organometallic Compound Formation	Mg/ether	Allylic Grignard Reagent	NA	NA	may be added to carbonyl compounds to form unsaturated alcohols or to haloalkanes to form alkenes via S <sub>N</sub> 2
3. Hydrohalogenation of Conjugated Dienes	Electrophilic Addition	HX/ether (X=Cl, Br, I)	Allylic Halide	both 1,2 and 1,4 adducts possible	NA	kinetic <u>vs</u> thermodynamic products sometimes observed
4. Halogenation of Conjugated Dienes	Electrophilic Addition	X <sub>2</sub> /CCl <sub>4</sub> (X=Cl or Br)	Allylic Dihalide	both 1,2 and 1,4 adducts possible	NA	kinetic <u>vs</u> thermodynamic products sometimes observed
5. Diels-Alder Reaction	Pericyclic Cycloaddition	Conjugated Diene + Dienophile (Alkene or Alkyne with Electron-Withdrawing Group Attached)	Diels-Alder Adduct	Determined by HOMO/LUMO considerations (or use resonance structure charges)	stereochemistry of both diene & dienophile retained; endo rule observed	endo rule: if adduct has bridge (from diene), bulky substituents from dienophile will be <u>trans</u> to it

- Diels-Alder reaction is a concerted reaction with a high stereospecificity



- Kinetically controlled addition favors endo products while thermodynamically controlled addition favors exo products