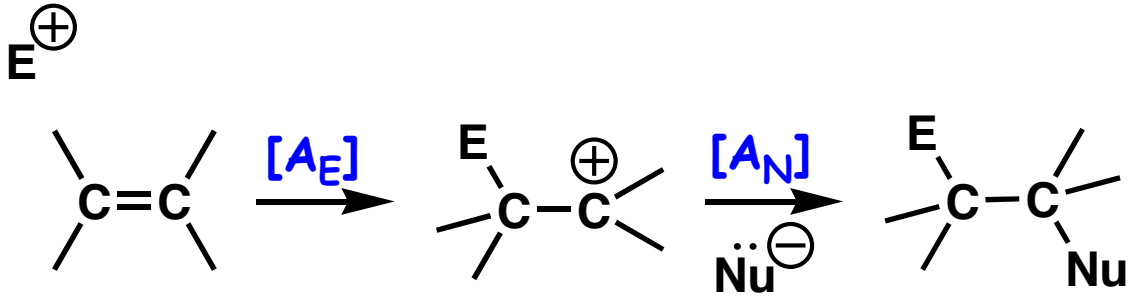
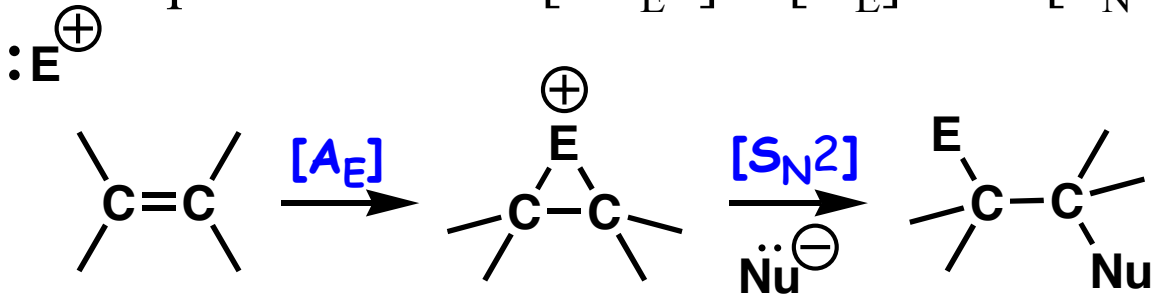
The Electrophilic Pathways for C=C Addition (two variations of [Ad_E2])

Two-step mechanism: [Ad_E2] = [A_E] then [A_N]



When E^+ has no lone pair (e.g., H^+)

Two step mechanism: [Ad_E2] = [A_E] then [S_N2]



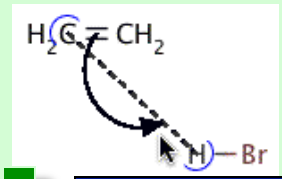
When $:E^+$ has a lone pair (e.g., $:Br^+$)

Depending on whether or not the electrophile has an electron lone pair will determine the nature of the intermediate resulting from the [A_E] step. If the electrophile has a lone pair, then a 3-membered intermediate will form in order to satisfy the octet rule. If no lone pair exists on E^+, then [A_E] results in a carbocation.

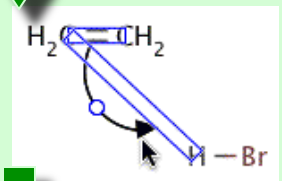
Addition of H-Br

When the Electrophile Has No Lone Pair, [A_E] Gives a Carbocation Intermediate

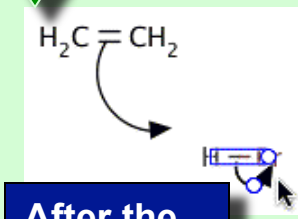
[A_E] Drawn in ACE



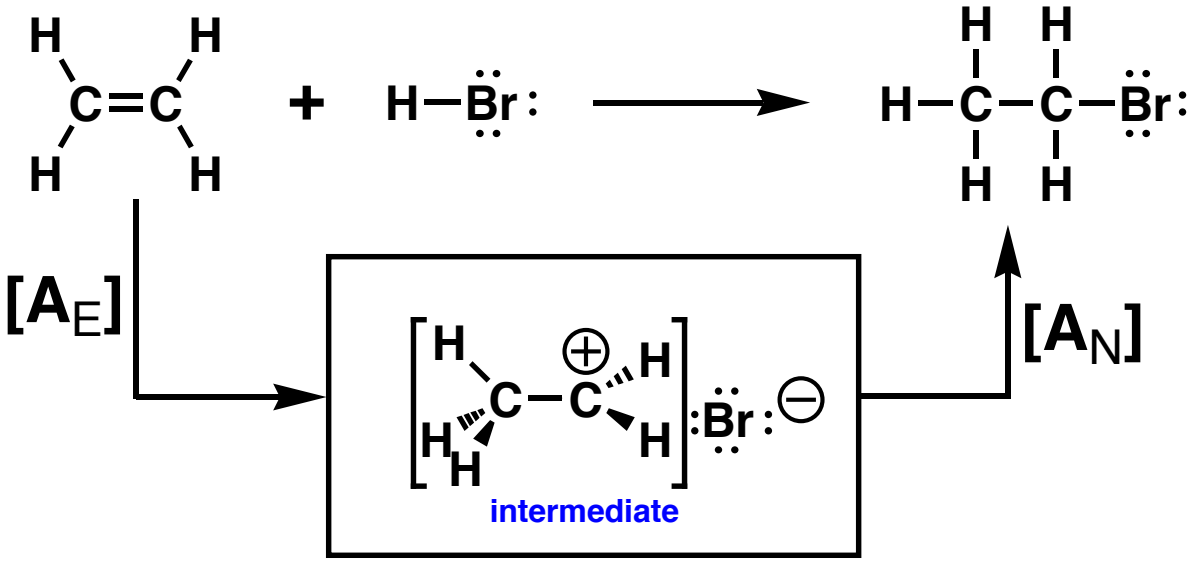
Draw the 1st arrow



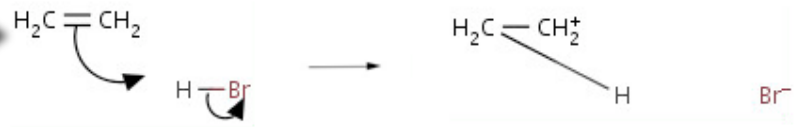
Check the 1st arrow



After the 2nd arrow

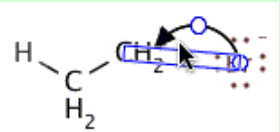


ACE mechanism calculator

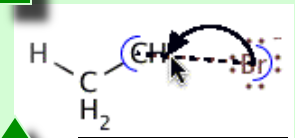


http://aceorganic.pearsoncmg.com/epoch-plugin/public/mechmarvin.jsp

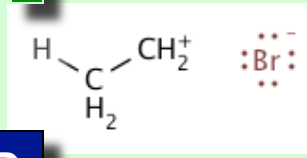
[A_N] Drawn in ACE



Check the arrow



Draw the arrow



Clean in 2D

Electrophilic addition to alkenes	Stereospecific addition
Diels-Alder reactions	Epoxidation peracid
Nucleophilic substitution	Unsymmetrical alkenes HBr
Elimination	Regioselective addition
	Diene bromination

http://www.chemtube3d.com/

Reaction Coordinate Diagram for the [Ad_E2] of HBr to Ethylene