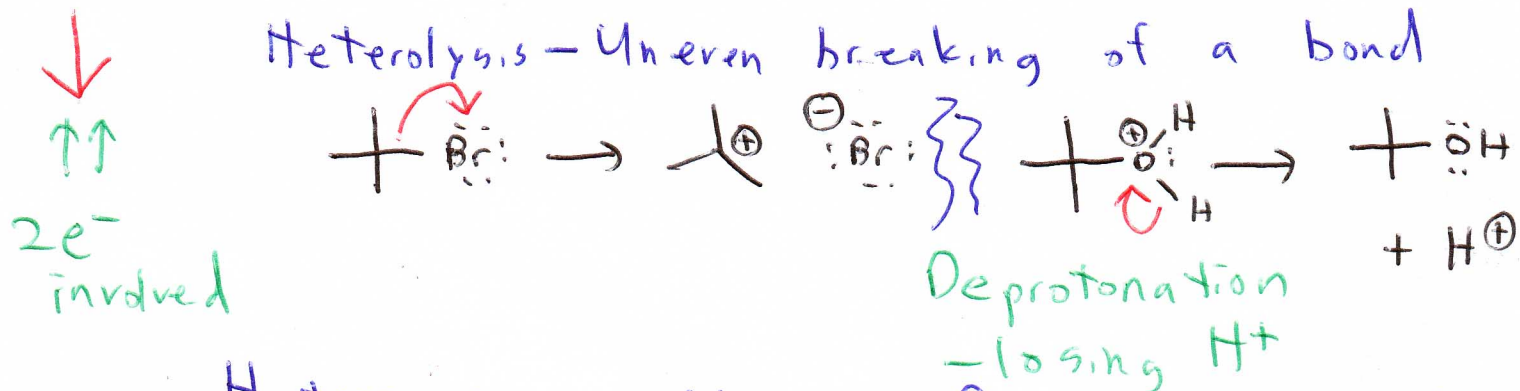
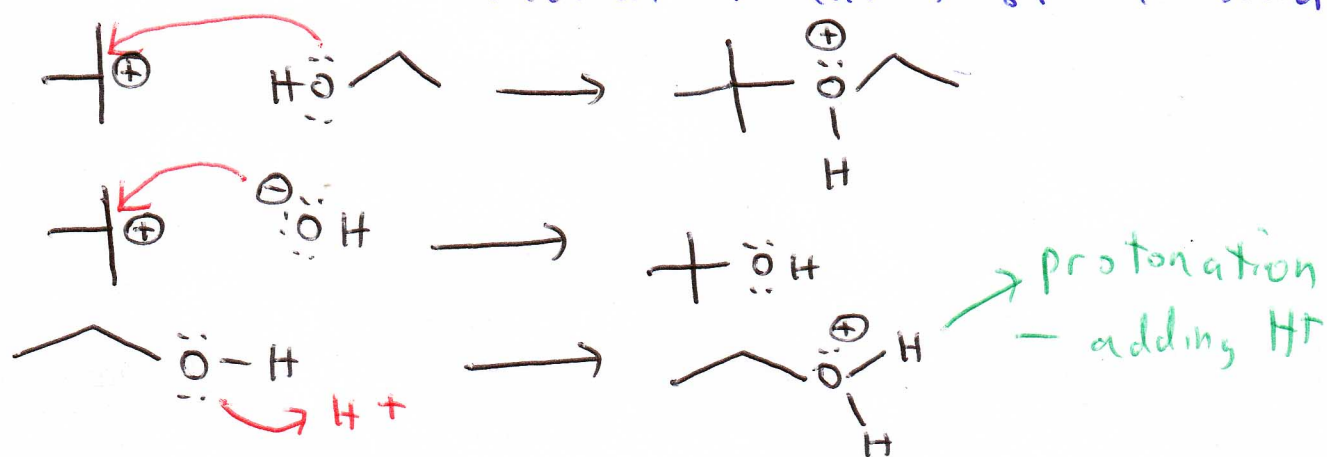


10/21/11 Single versus electron pair mechanisms
 stepwise versus concerted; anionic vs cationic
 stereochemical and regiochemical consequences

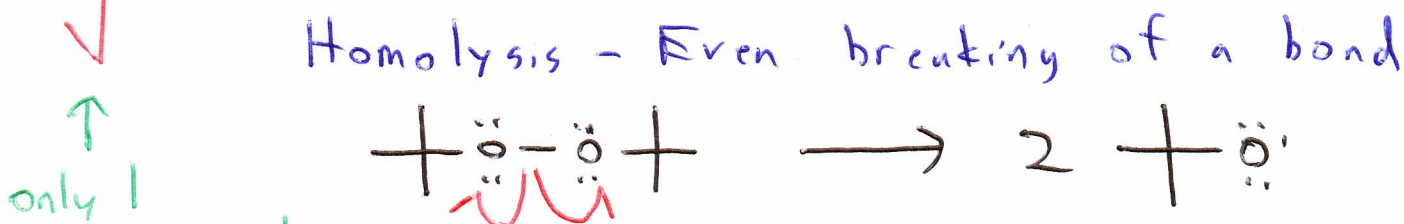
Electron Pair Mechanisms



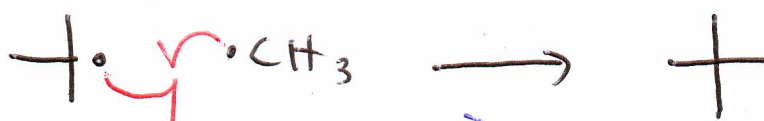
Heterogenesis - Uneven formation of a bond



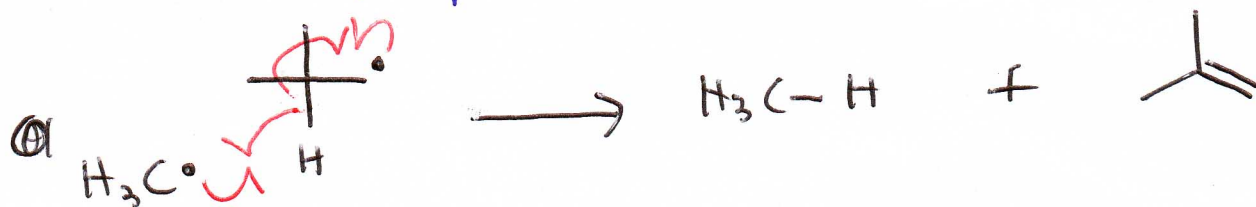
Single electron mechanisms



Homogenesis - Even formation of a bond



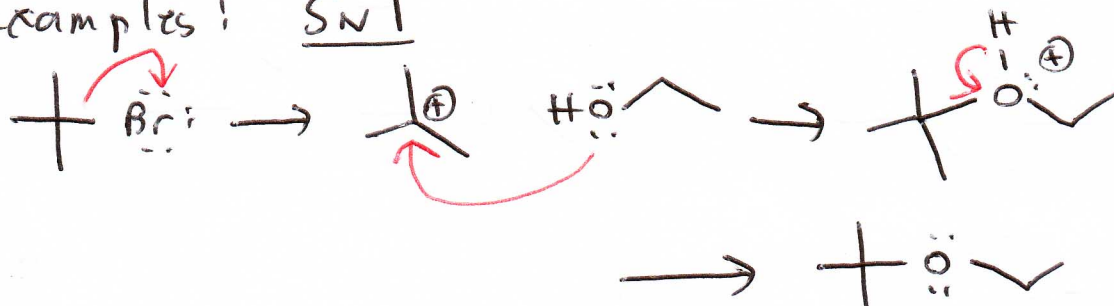
Disproportionation



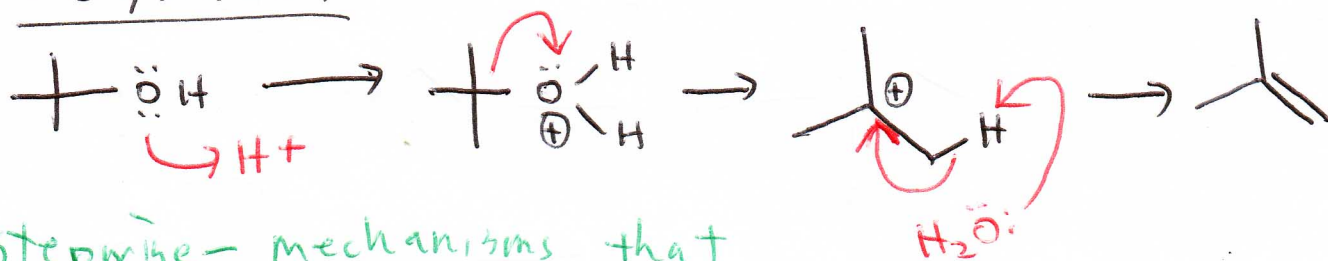
Types of mechanisms

Cationic - Generally involve acids as catalysts and/or the formation of a carbocation as a key rxn step

Examples: SN1



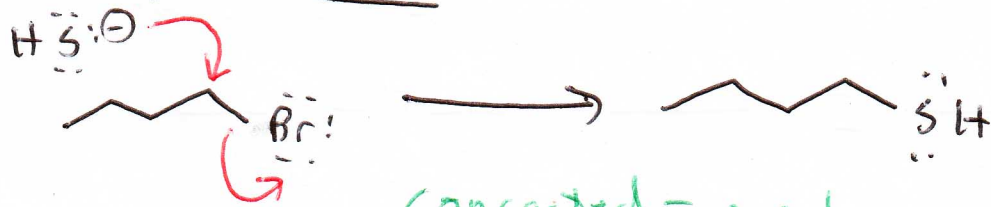
Dehydration



stepwise - mechanisms that contain multiple elementary steps

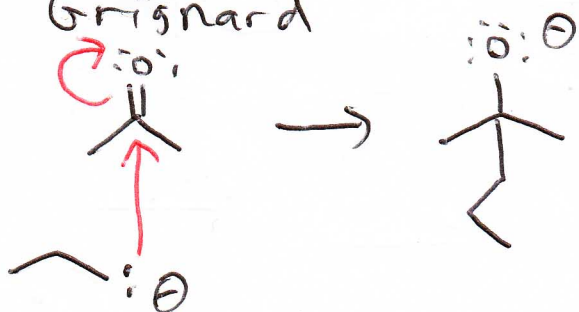
Anionic - usually involve strong bases and occur in a small number of steps

Examples: SN2

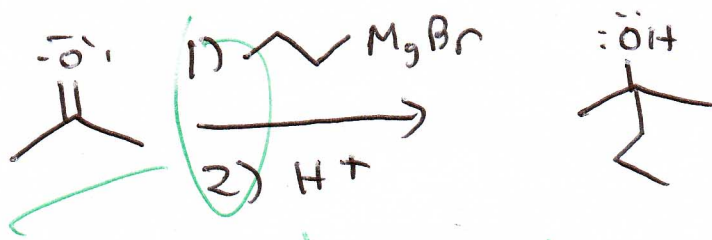


concerted - mechanism with simultaneous steps

Grignard

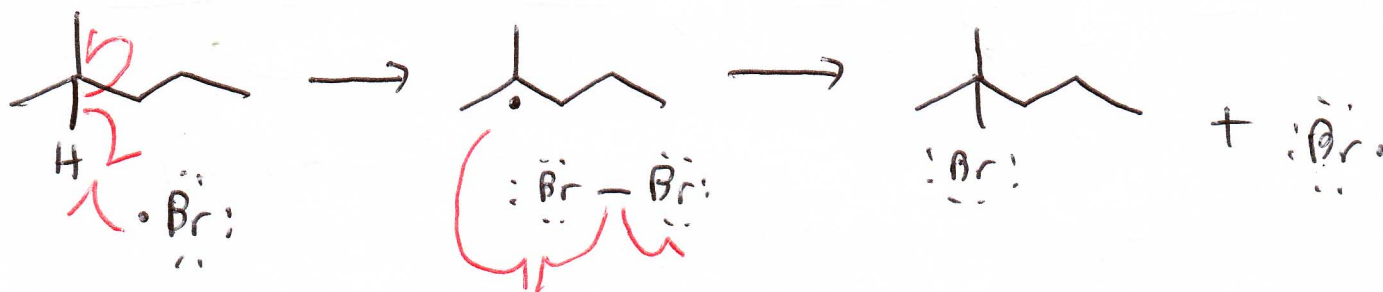


Work-Up - A secondary rxn or sequence of rxns used to isolate a product

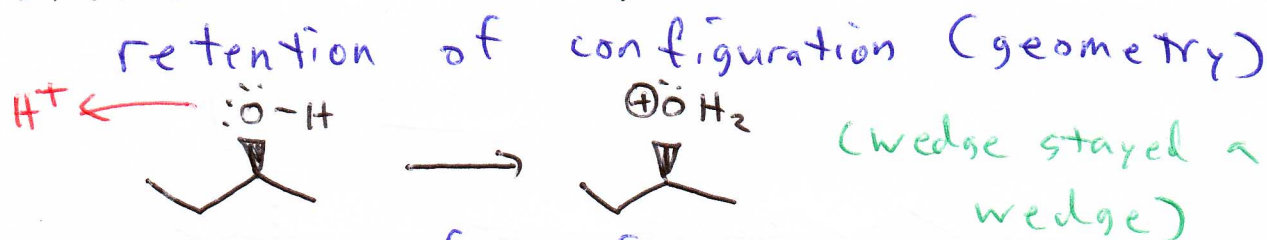


These numbers indicate rxn order. The reagents in step 2 are not introduced until the rxn shown in step 1 is fully completed.

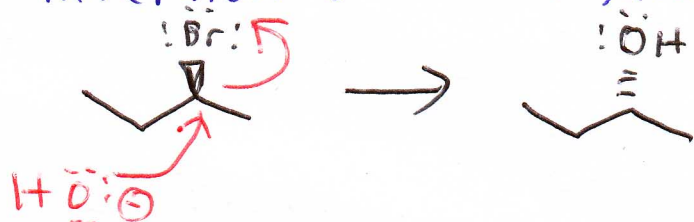
Radical



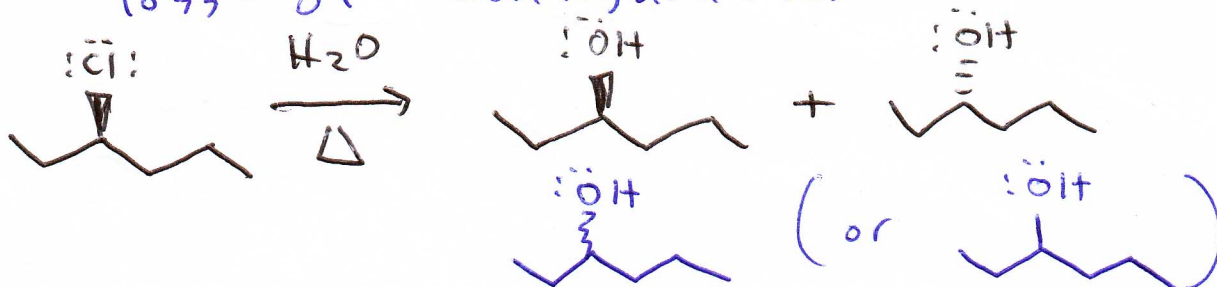
Stereochemical consequences



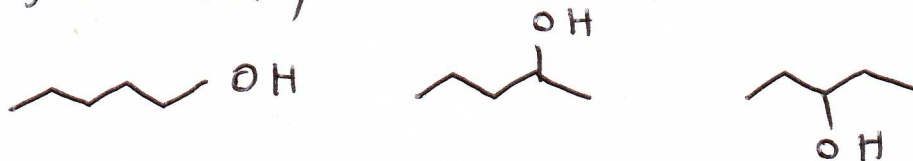
Inversion of configuration



Loss of configuration

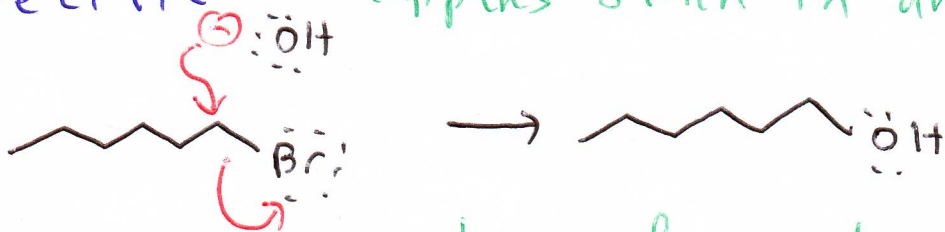


Regiochemistry

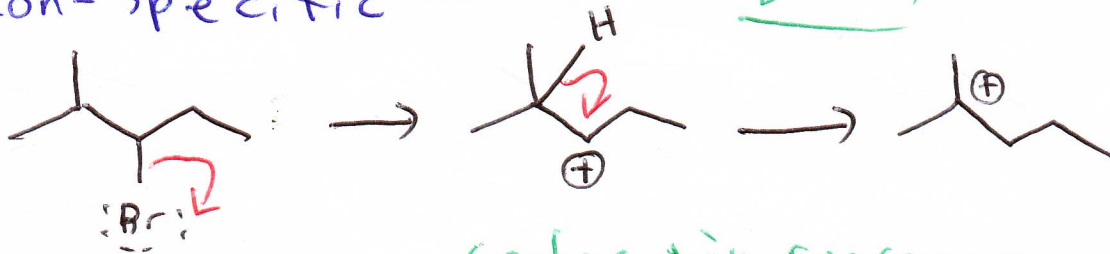


regioisomers - molecules with very similar structure except for the position of a key functional group.

specific - happens often in anionic rxns



non-specific - happens frequently for cationic rxns



Carbocation rearrangement
hydride shift