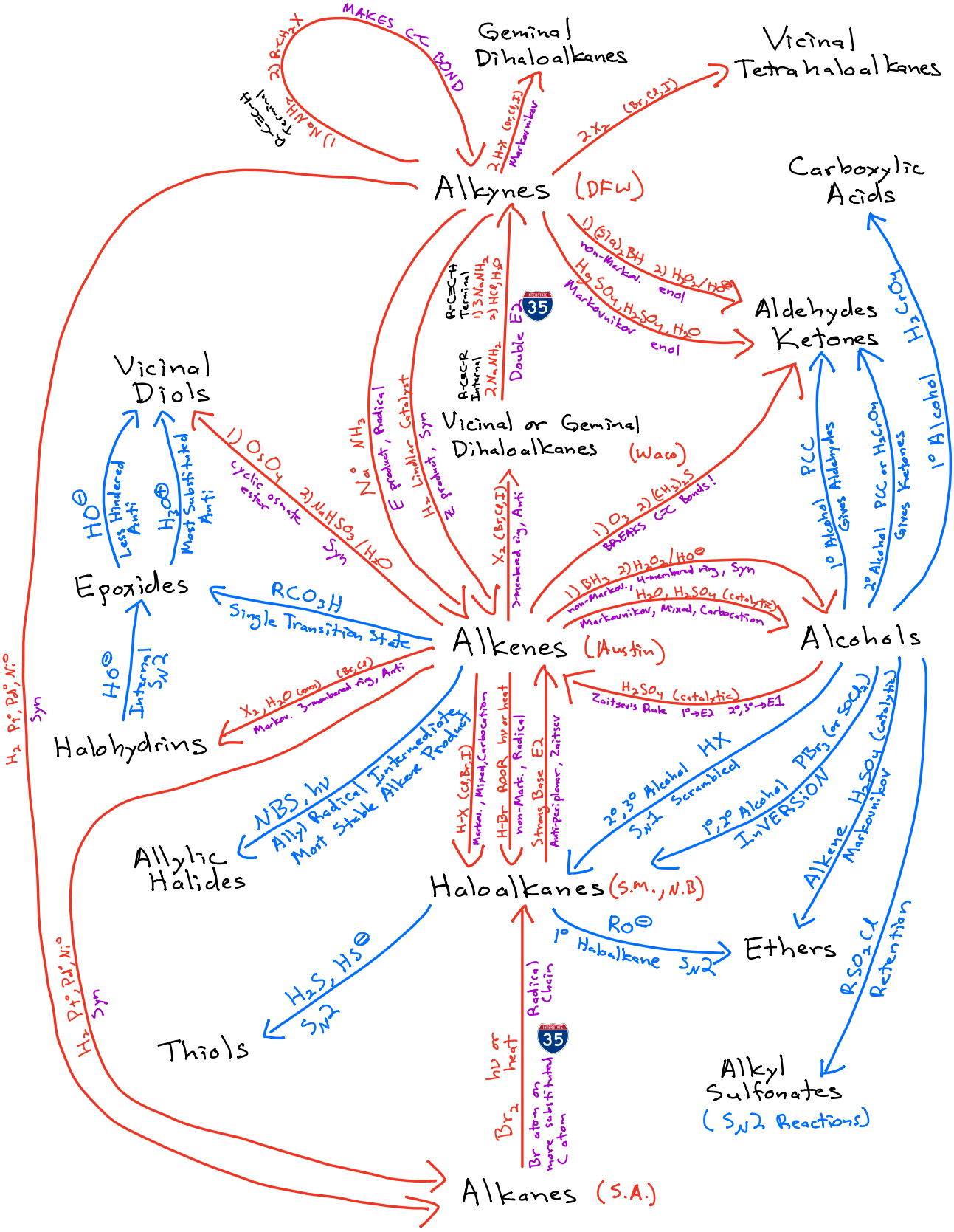

Geminal Dihaloalkanes
Vicinal Tetrahaloalkanes
Alkynes (DFW)
Carboxylic Acids
Aldehydes Ketones
Vicinal Diols
Vicinal or Geminal Dihaloalkanes (Waco)
Epoxides
Alkenes (Austin)
Alcohols
Halohydrins
Allylic Halides
Haloalkanes (S.M., N.B)
Ethers
Thiols
Alkyl Sulfonates
(SN2 Reactions)
Alkanes (S.A.)
MAKES C-C BOND
2) R-CH2X
1) NaNH2
R-C≡C-H Terminal
2 H-X (Br,Cl,I) Markovnikov
2 X2 (Br,Cl,I)
1) (Sia)2BH 2) H2O2/HO⊖ non-Markov. enol
HgSO4, H2SO4, H2O Markovnikov enol
R-C≡C-H Terminal 1) 3 NaNH2 2) HCl, H2O
R-C≡C-R Internal 2 NaNH2
Double E2
Na° NH3 E product, Radical
H2 Lindlar Catalyst Z product, Syn
X2 (Br,Cl,I) 3-membered ring, Anti
1) OsO4 2) NaHSO3/H2O cyclic osmate ester Syn
HO⊖ Less Hindered Anti
H3O⊕ Most Substituted Anti
RCO3H Single Transition State
HO⊖ Internal SN2
X2, H2O (cross) (Br,Cl) Markov. 3-membered ring, Anti
H2 Pt°, Pd°, Ni° Syn
1) O3 2) (CH3)2S BREAKS C-C Bonds!
1) BH3 2) H2O2/HO⊖ non-Markov., 4-membered ring, Syn
H2O, H2SO4 (catalytic) Markovnikov, Mixed, Carbocation
1° Alcohol PCC Gives Aldehydes
2° Alcohol PCC or H2CrO4 Gives Ketones
1° Alcohol H2CrO4
H2SO4 (catalytic) Zaitsev's Rule 1°→E2 2°,3°→E1
NBS, hν Allyl Radical Intermediate Most Stable Alkene Product
H-X (Cl,Br,I) Markov., Mixed, Carbocation
H-Br ROOR hν or heat non-Mark., Radical
Strong Base E2 Anti-periplanar, Zaitsev
2°,3° Alcohol HX SN1 Scrambled
1°,2° Alcohol PBr3 (or SOCl2) InVERSION
Alkene H2SO4 (catalytic) Markovnikov
RSO2Cl Retention
RO⊖ 1° Haloalkane SN2
H2S, HS⊖ SN2
Br2 hν or heat Radical Chain
Br atom on more substituted C atom