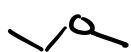


Ethers & Epoxides (Oxirane)

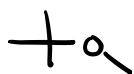


Nomenclature

Common



Ethyl methyl ether

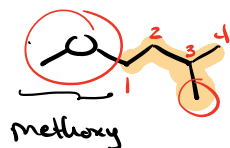


tert-butyl methyl ether



diethyl ether




Systematic



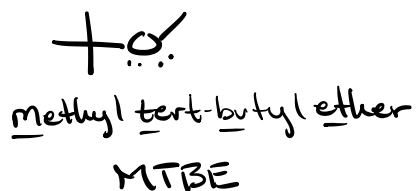
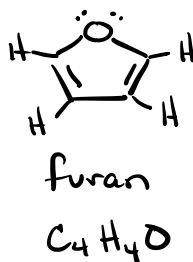
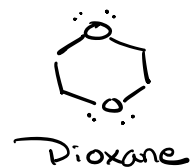
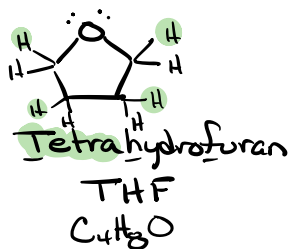
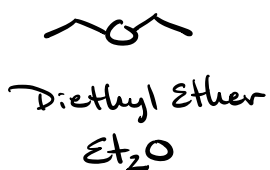
1-methoxy
3-methyl

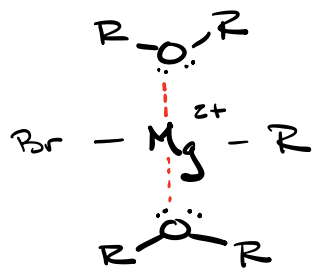
1-methoxy-3-methylbutane

Physical Properties

		
Ethanol	dimethyl ether	propane
BP 78°C	-25°C	-42°C
liquid @ RT	gas @ RT	gas @ RT
Hydrogen bonding	dipole-dipole	London Forces

Common Solvents

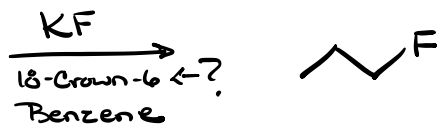
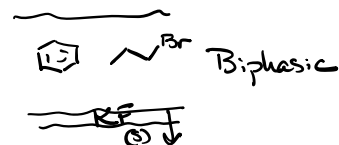
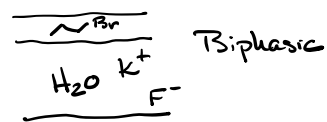
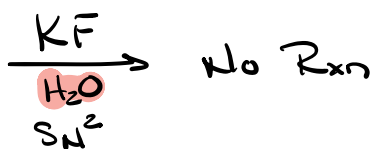




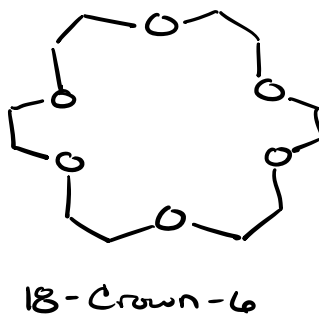
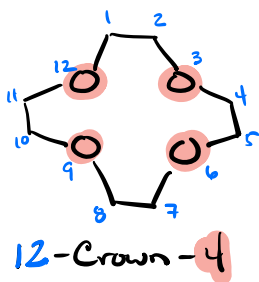
Grignard

e^- donors \rightarrow Ligand

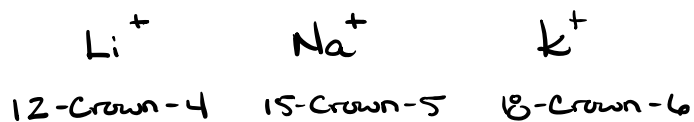
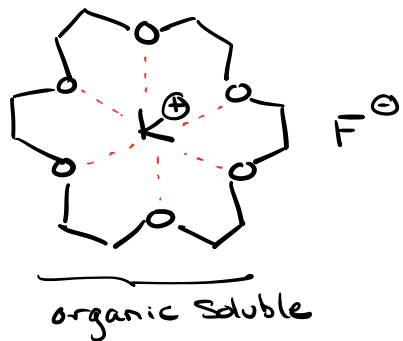
Ligand is a molecule that donates e^- to a metal



Crown Ethers



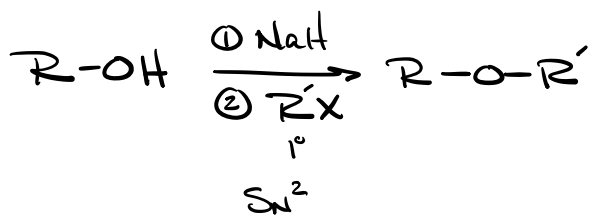
Crown Ethers Chelate Metals



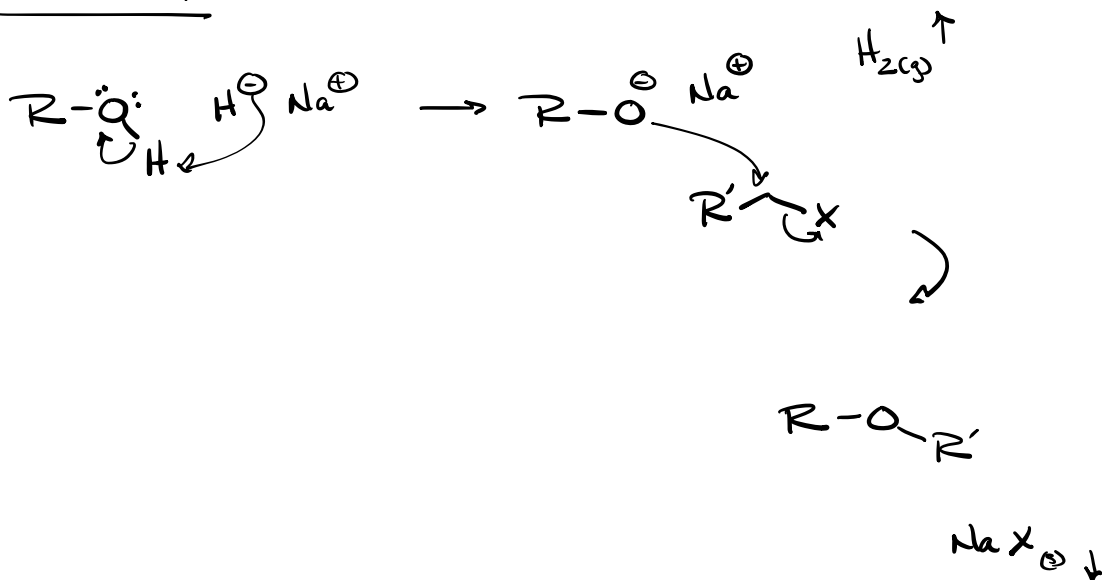
- * Merck Index
- CRC
- * Chemists Companion

Rxns

Williamson Ether Synthesis

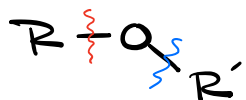


Mechanism

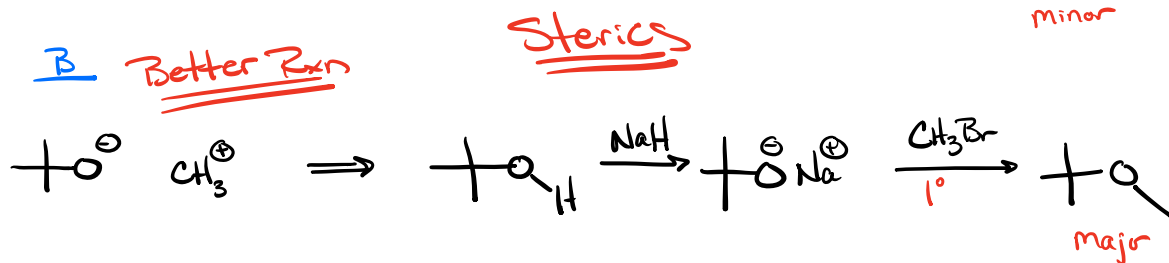
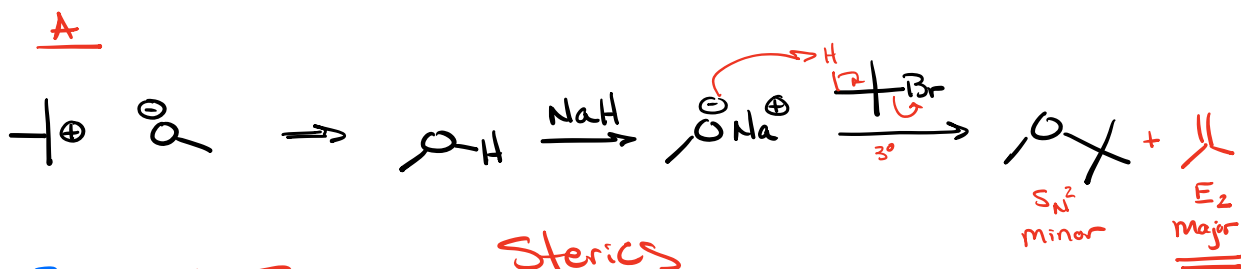


Retro Synthesis

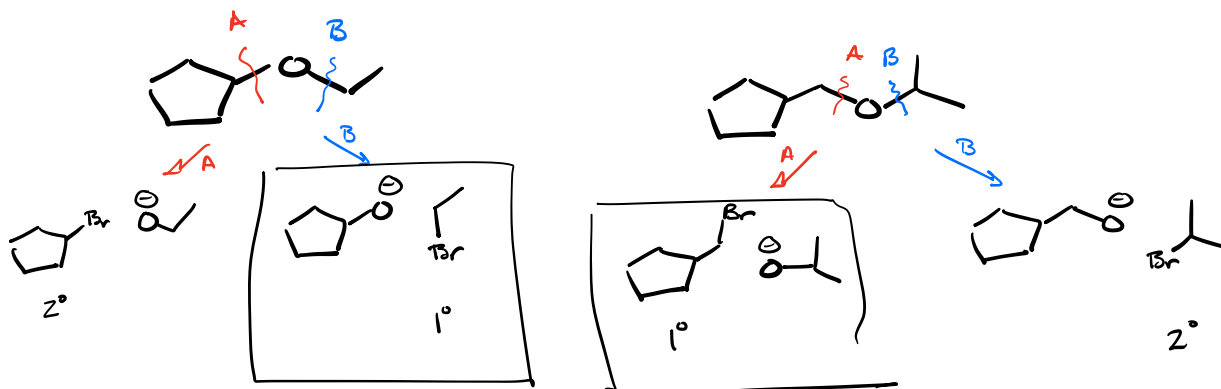
Two ways to disconnect the ether



SN2 step

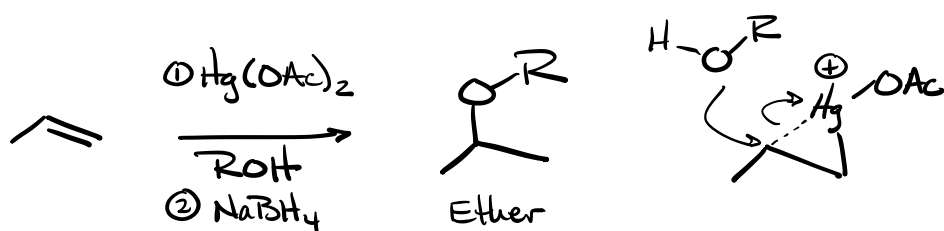
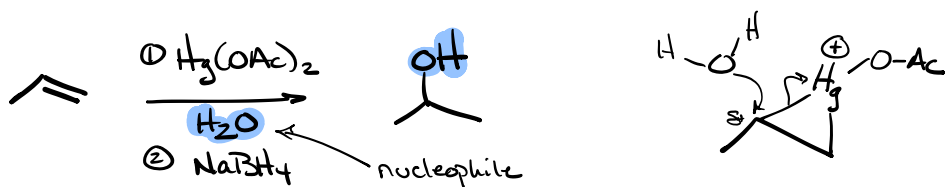


Best Disconnect for Rebuilding Ether?



Look at sterics on alkyl halide \Rightarrow not oxygen

Alkoxymercuration - Demercuration



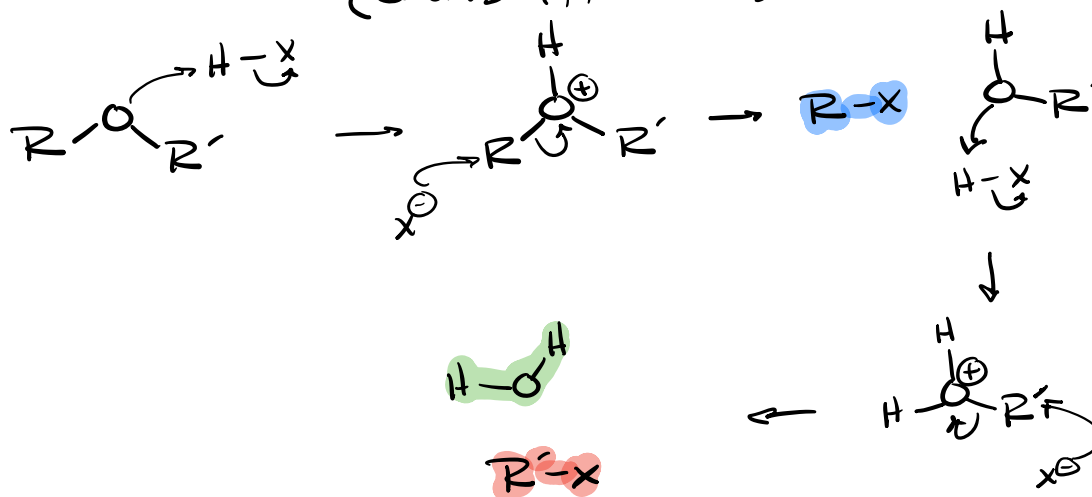
Cleavage Reactions



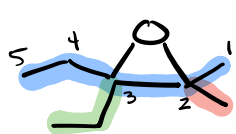
Hard (6M H₂SO₄, 100°C, 4 hrs)

or (Conc. H₂SO₄, few minutes)

mechanism

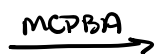
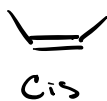
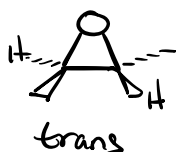
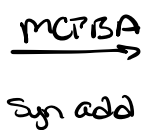
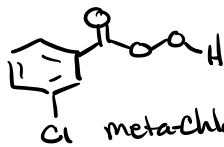
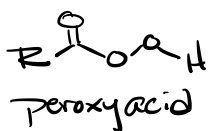


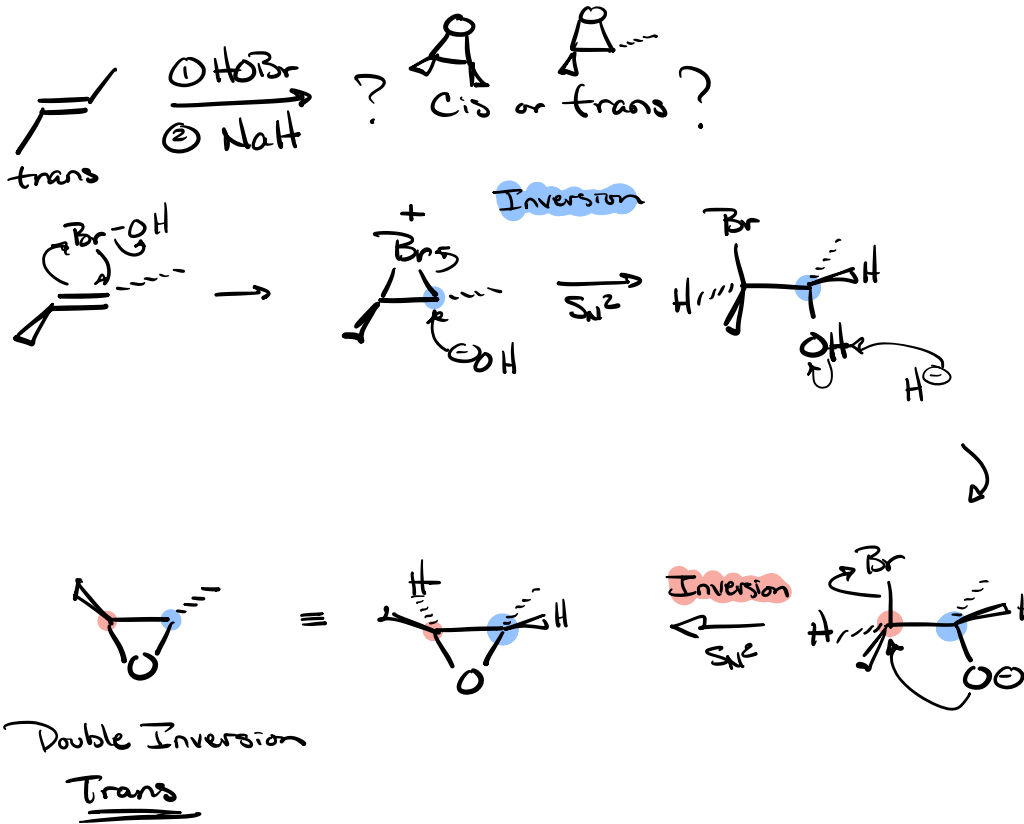
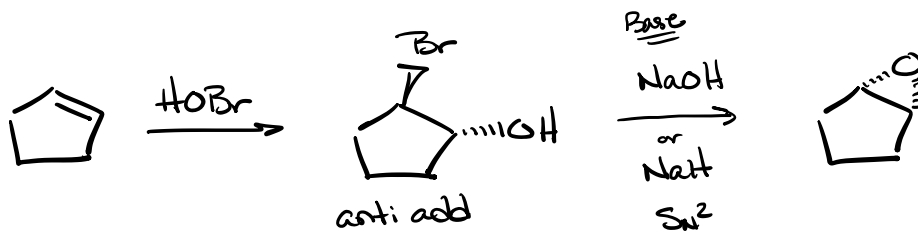
Epoxides (Oxirane)



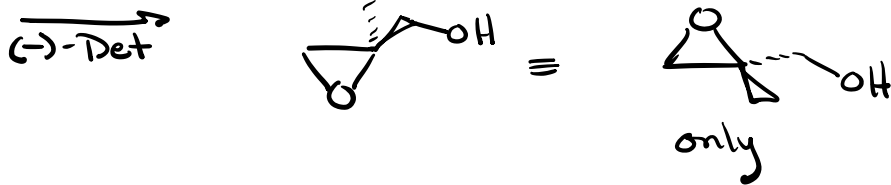
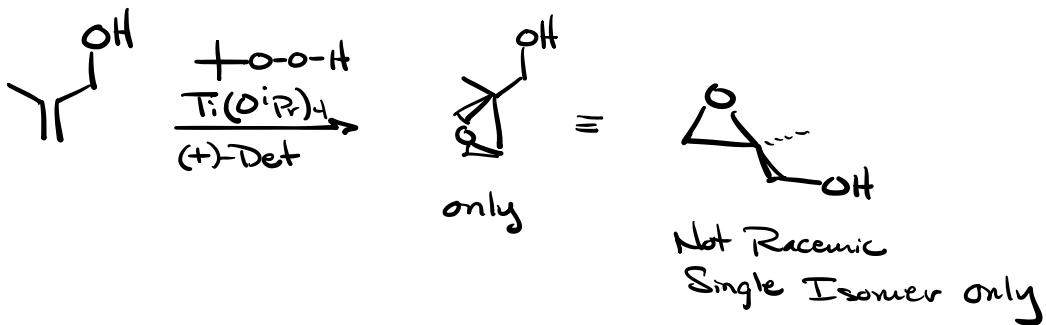
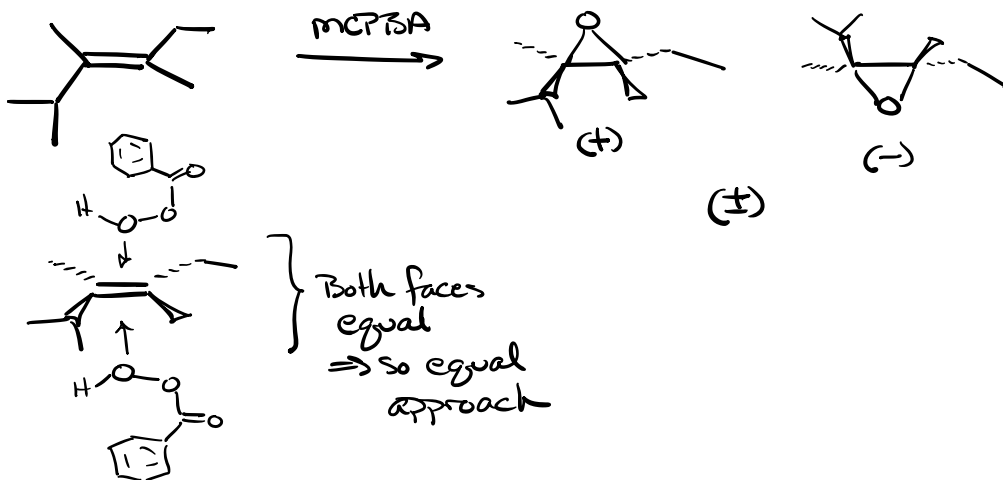
3-ethyl-2-methyl-2,3-epoxypentane

Preparation





Enantioselective Epoxidation



(+) - DET

(-) - DET

