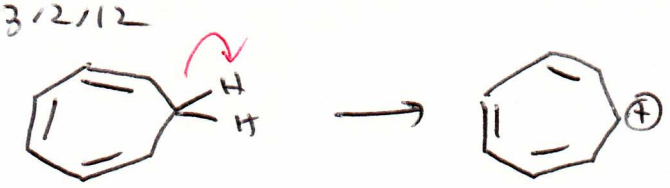
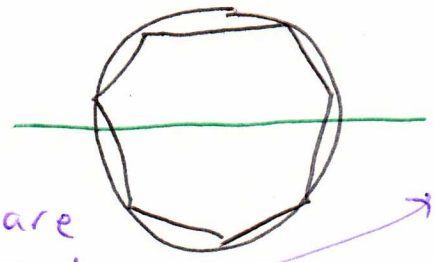
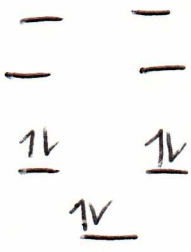
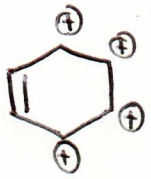
3/2/12





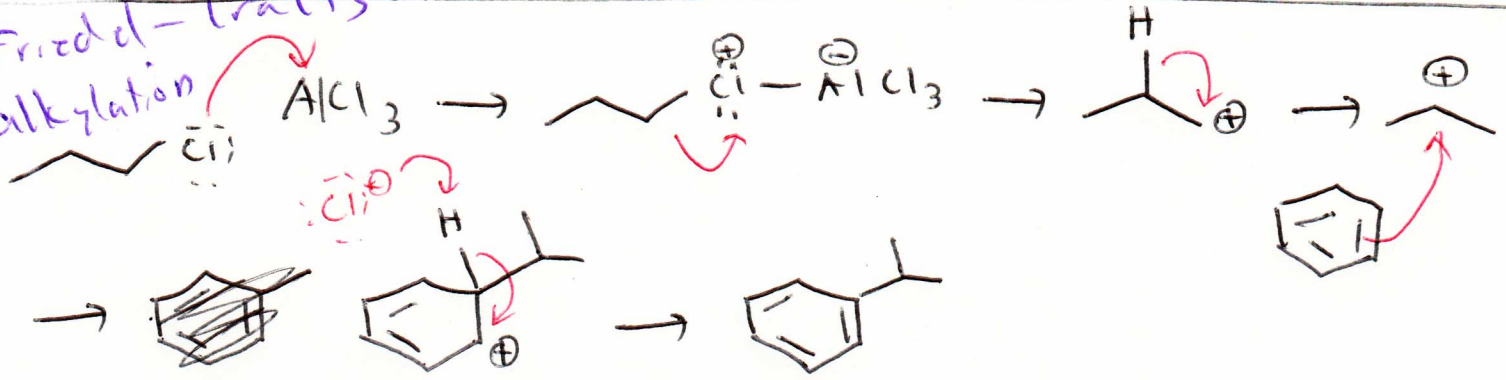


Bonding MO's are exactly filled

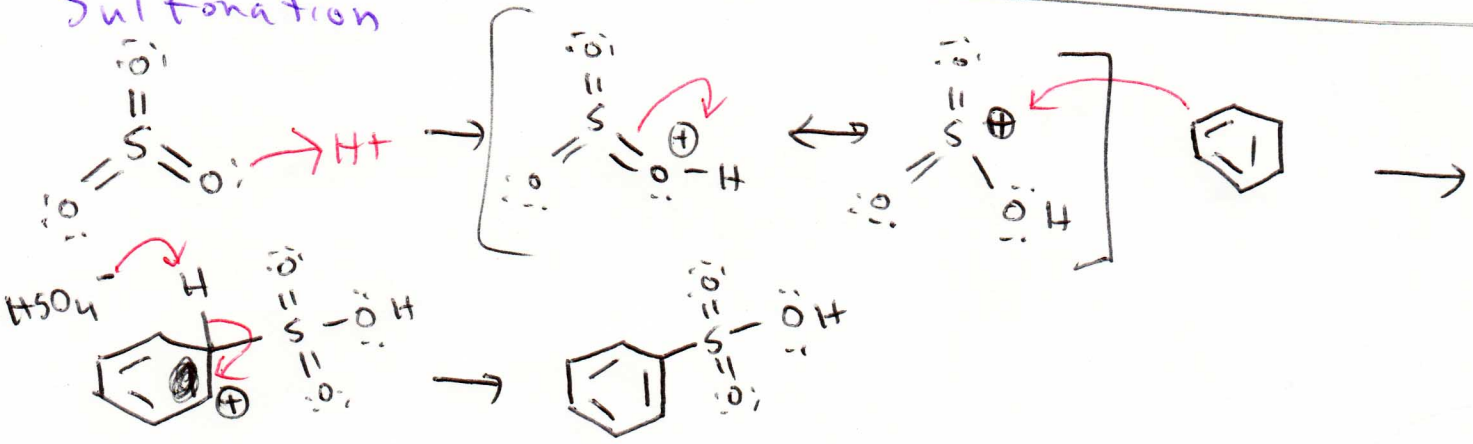


Although this cation is delocalized and has $4n+2$ π e⁻, it is not aromatic since not all bonding orbitals are filled.

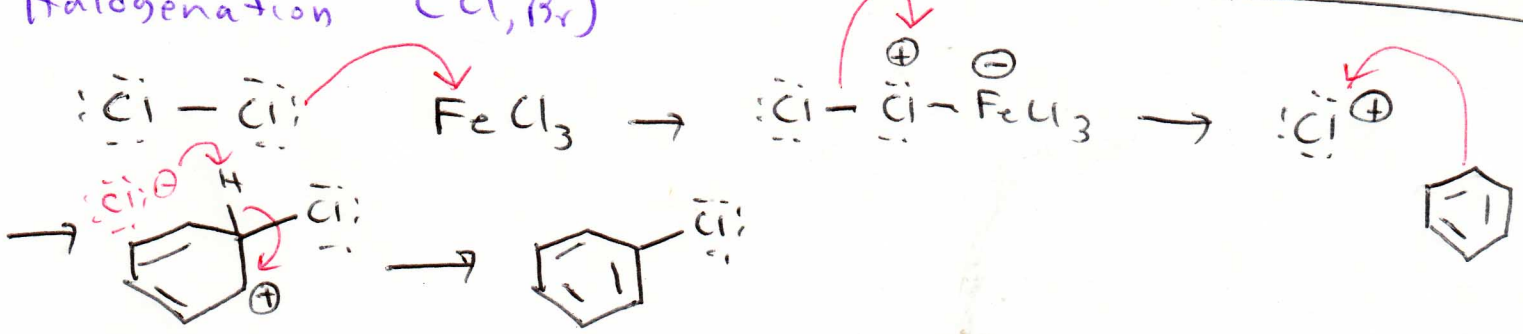
Friedel-Crafts alkylation

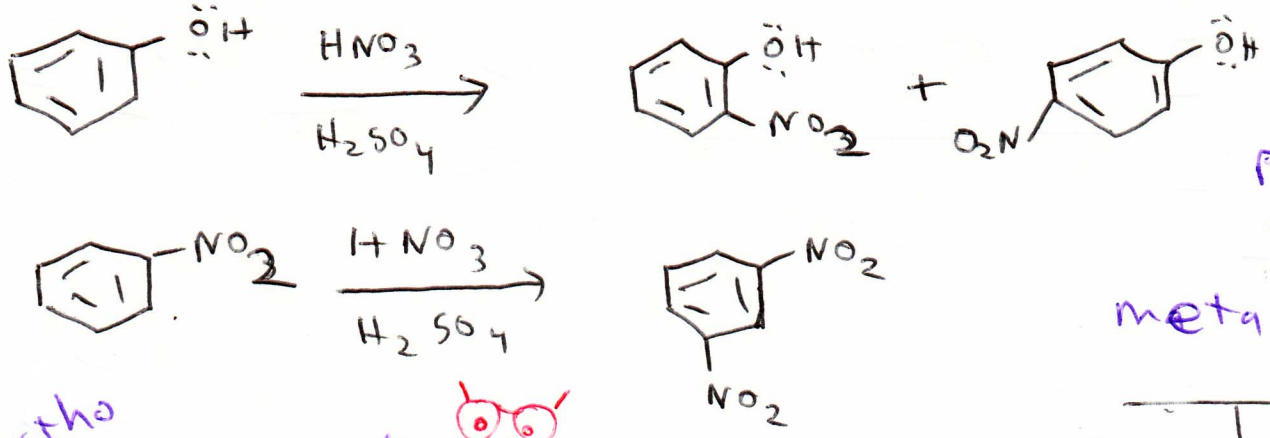


Sulfonation



Halogenation (Cl, Br)

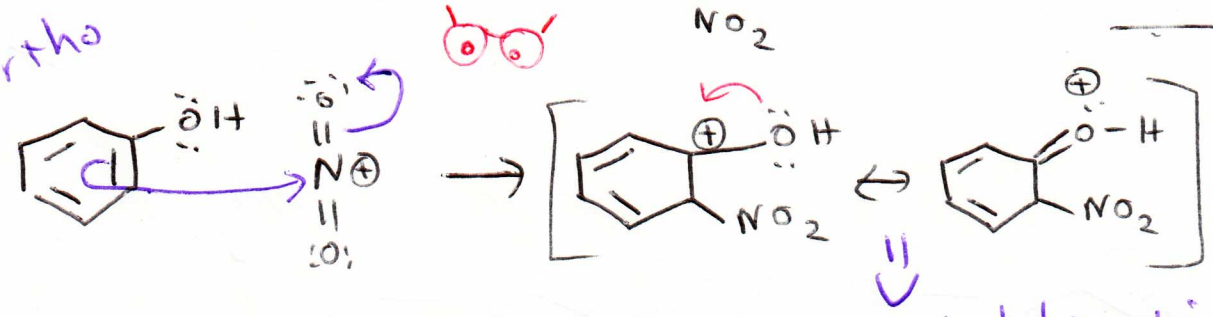




ortho + para (fast)

meta (slow)

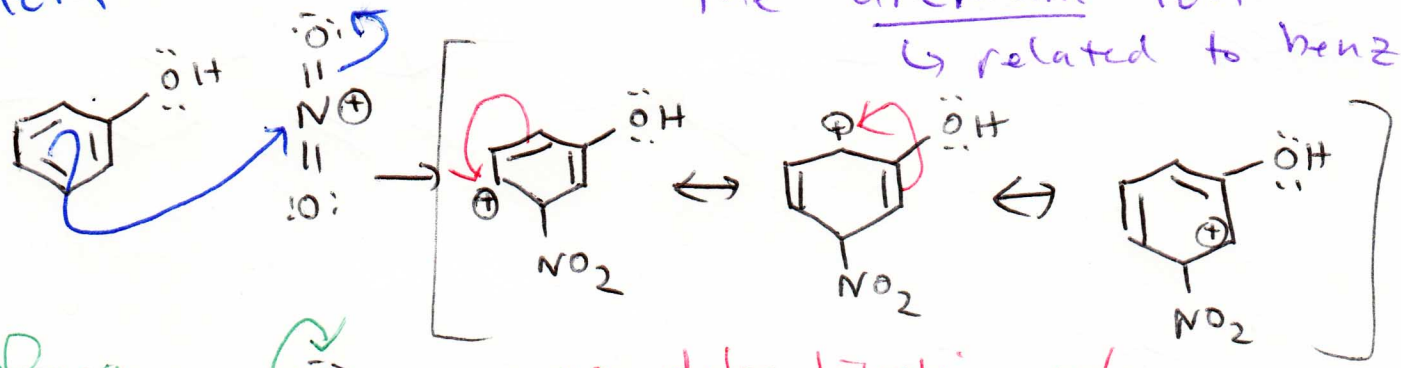
Ortho



aniline

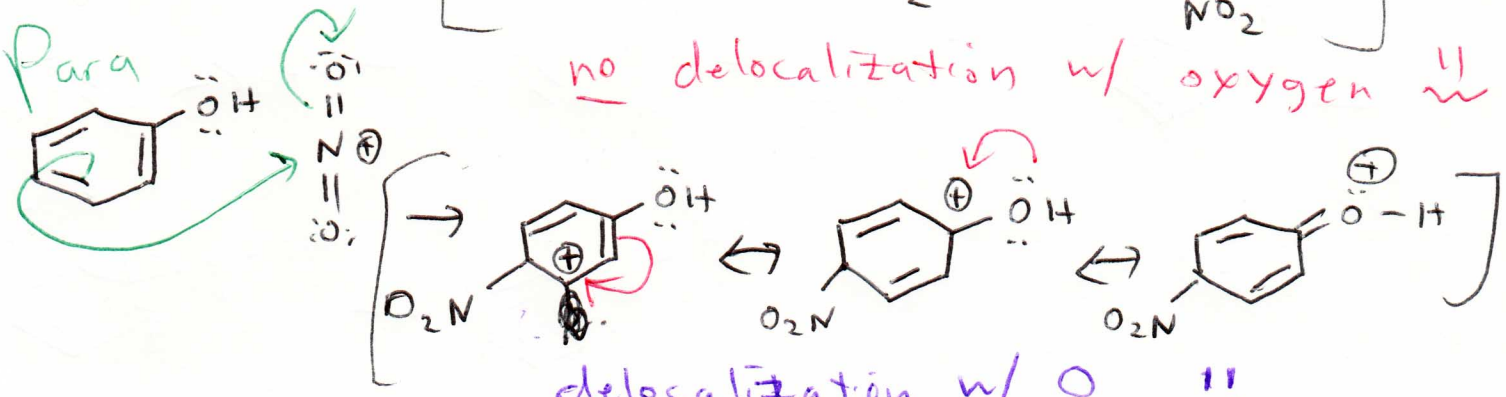
resonance stabilization of the arenium ion
↳ related to benzene

Meta



no delocalization w/ oxygen !!

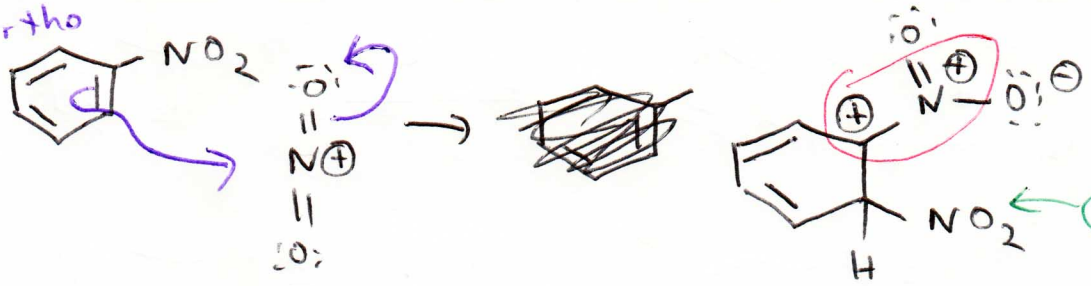
Para



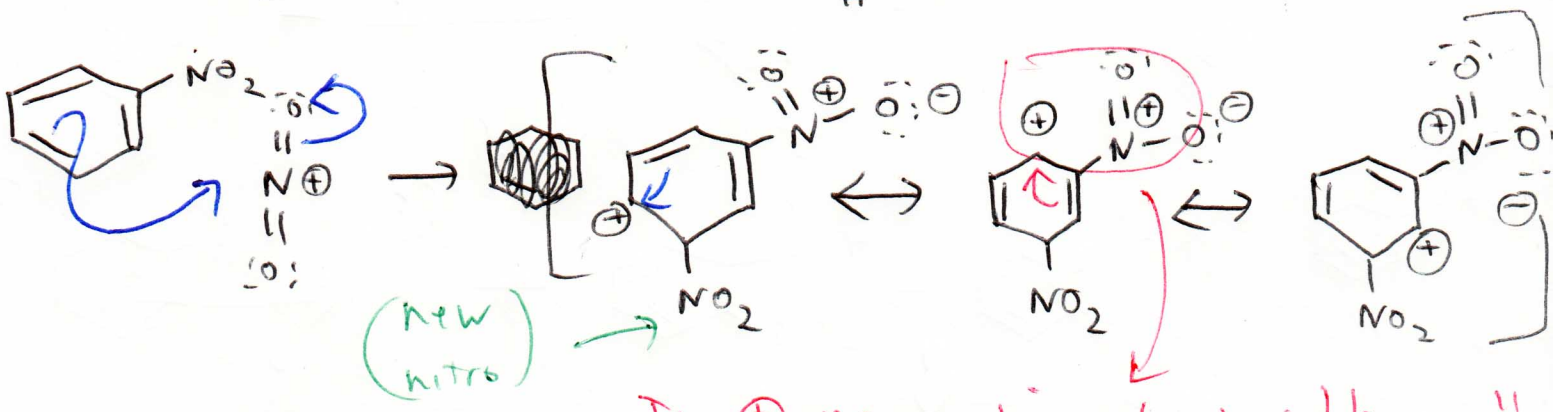
delocalization w/ O !!

Phenol is an example of an ortho-para director, meaning that substitution is likely to occur almostly exclusively at the ortho + para positions due to the stability of the intermediate that forms, as opposed to the meta position, which is not stabilized.

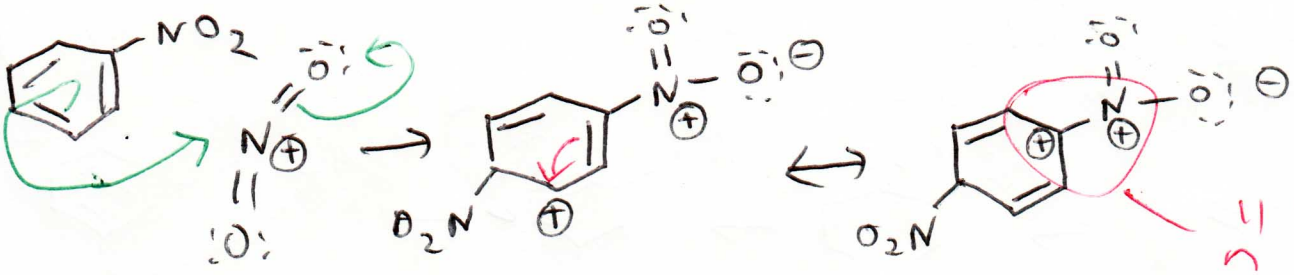
Ortho



!! !! Two ⊕ charges neighboring.



Two ⊕ never directly neighbors !!



!! ! !!

Nitrobenzene is an example of a meta director, meaning that substitution is likely to occur only @ the meta position, since the intermediates formed ~~but~~ substitution @ the ortho or para positions would be highly unfavorable.