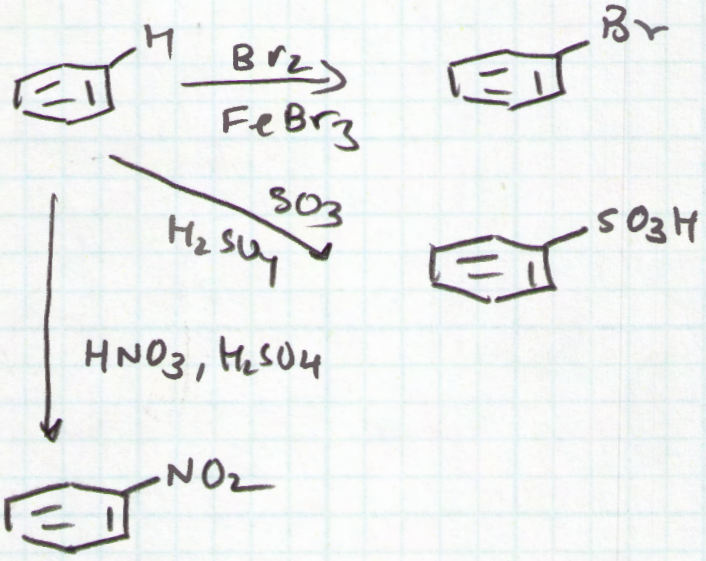
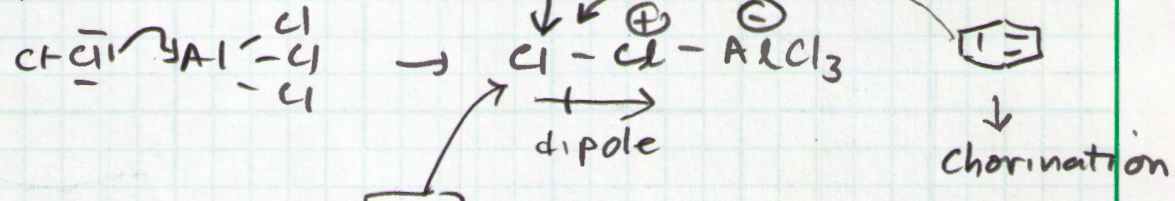
Electrophilic Aromatic Substitution

H $\xrightarrow{\text{for}}$ $E^{\oplus}$

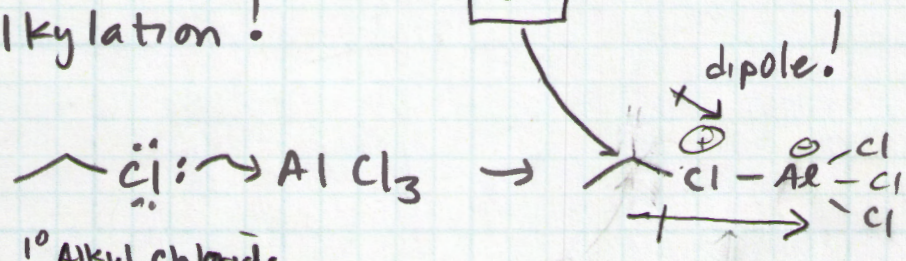


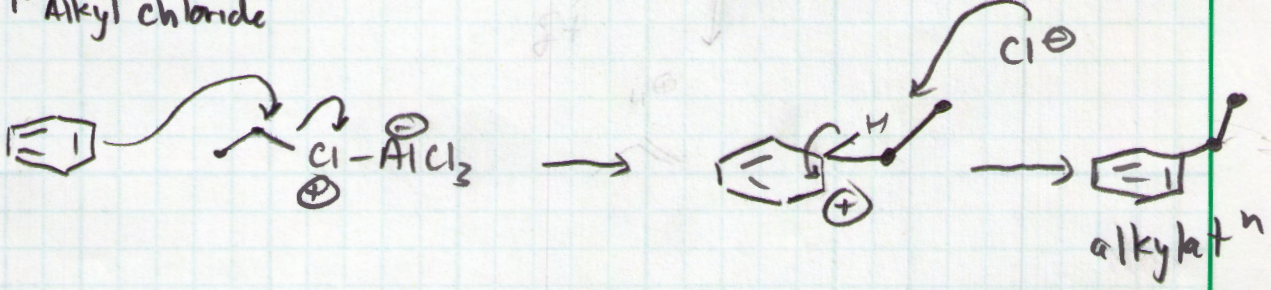
The Theme continues

Recall

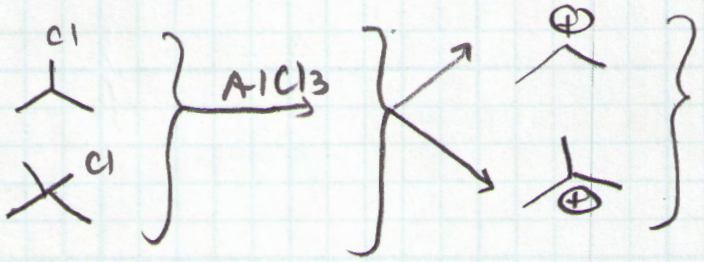


Alkylation!



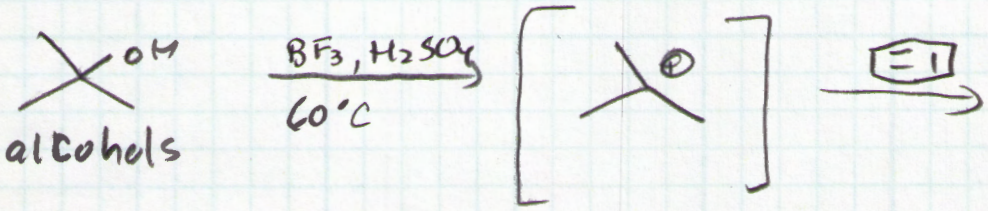


2° and 3° Alkyl Chlorides w/ $AlCl_3$ for $2^{\oplus}$ $3^{\oplus}$ $C^{\oplus}$ intermediates



Very reactive $E^{\oplus}$ rxn w/ ⬡ (like $O=N^{\oplus}=O$)

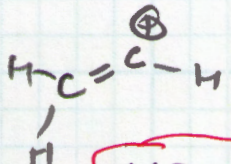
Other reactants that can yield 2°/3° $C^{\oplus}$



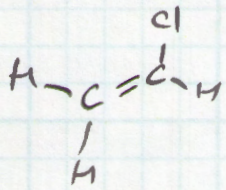
alcohols

$E^{\oplus}$ Aromatic Substitut^{n}

S_{AR}

NOTE  NO RXN

$AlCl_3$



and NO RXN

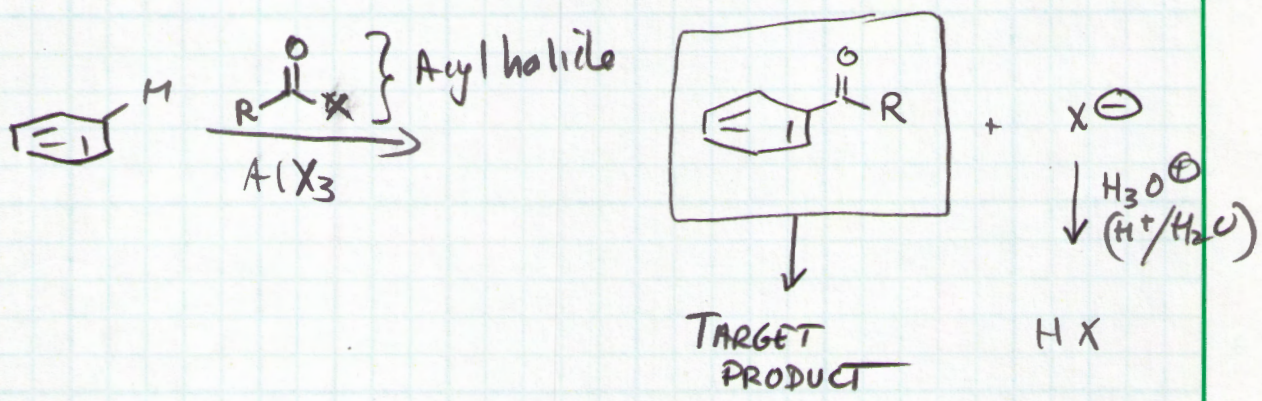
$AlCl_3$

and

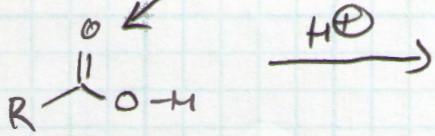
are extremely high E cations ∴ these are NOT formed from

Friedel-Crafts Acylation

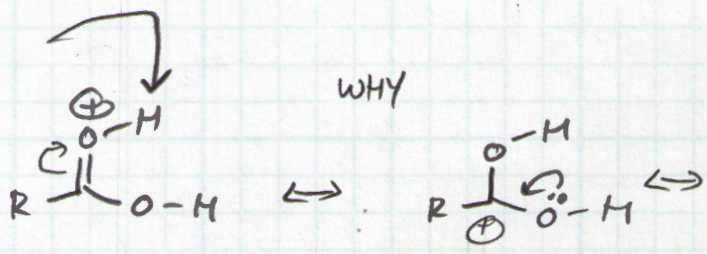
"Ain't" no stretch of the imagination.



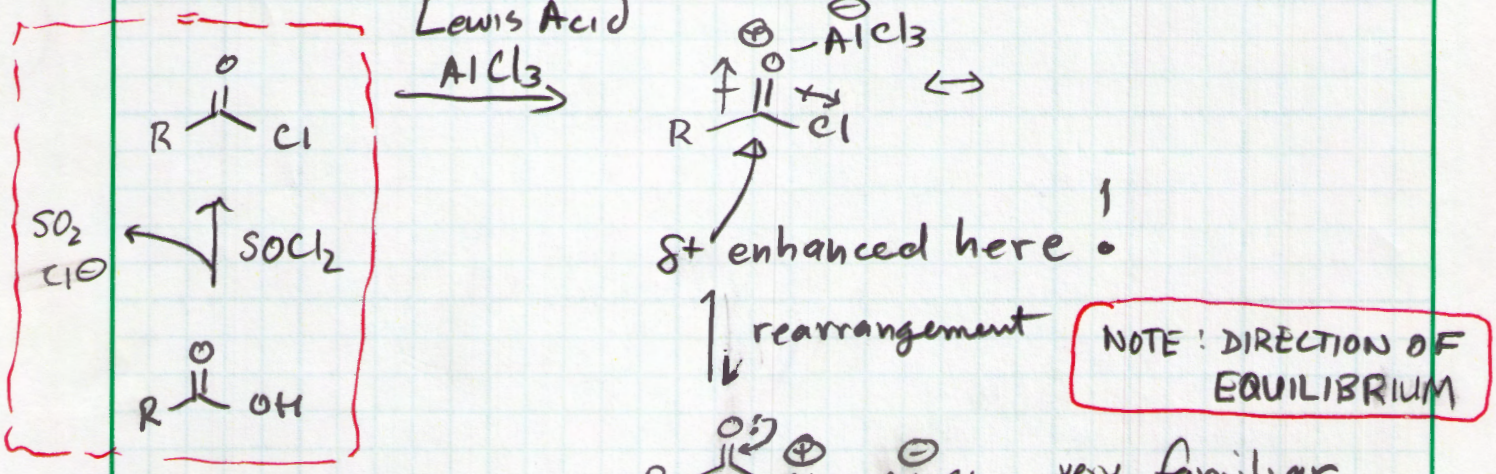
Recall



WHY

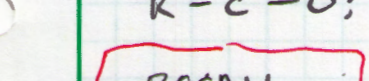


Resonance Stabilized $C^{\oplus}$

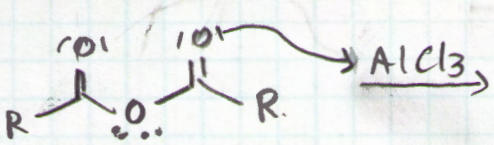


NOTE: DIRECTION OF EQUILIBRIUM

RECALL

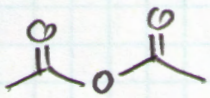


KEY Reactant

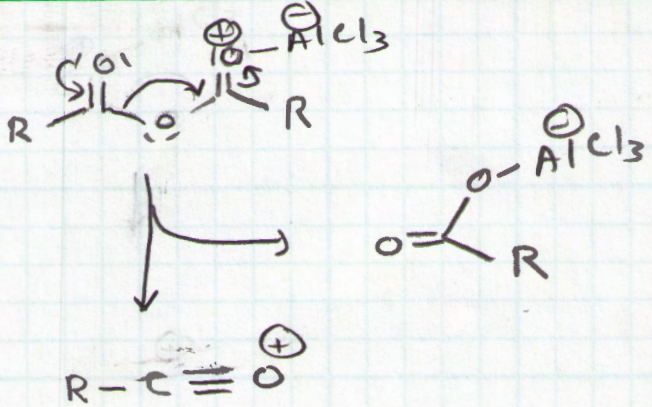


Carboxylic Anhydride

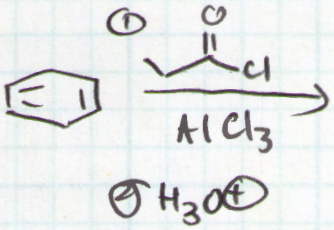
Example

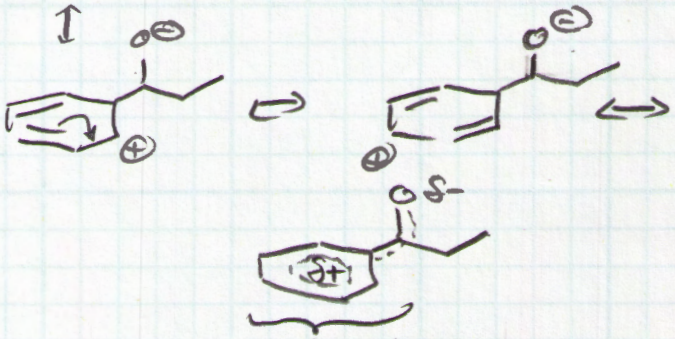


acetic anhydride

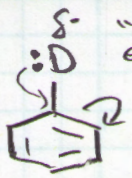


KEY Reactant

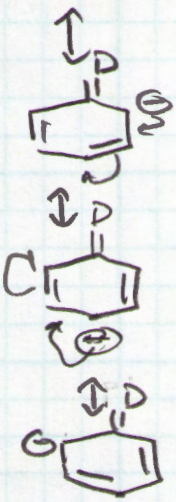




δ+ ring deactivated against attacking another E⊕

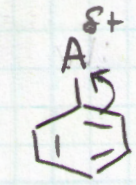


"electron" donor



Electrophile $E^{\oplus}$ will prefer to add at o/p positions

NOT meta



"electron" acceptor

Electrophile will NOT add at o/p when electron acceptor is attached. WILL prefer meta