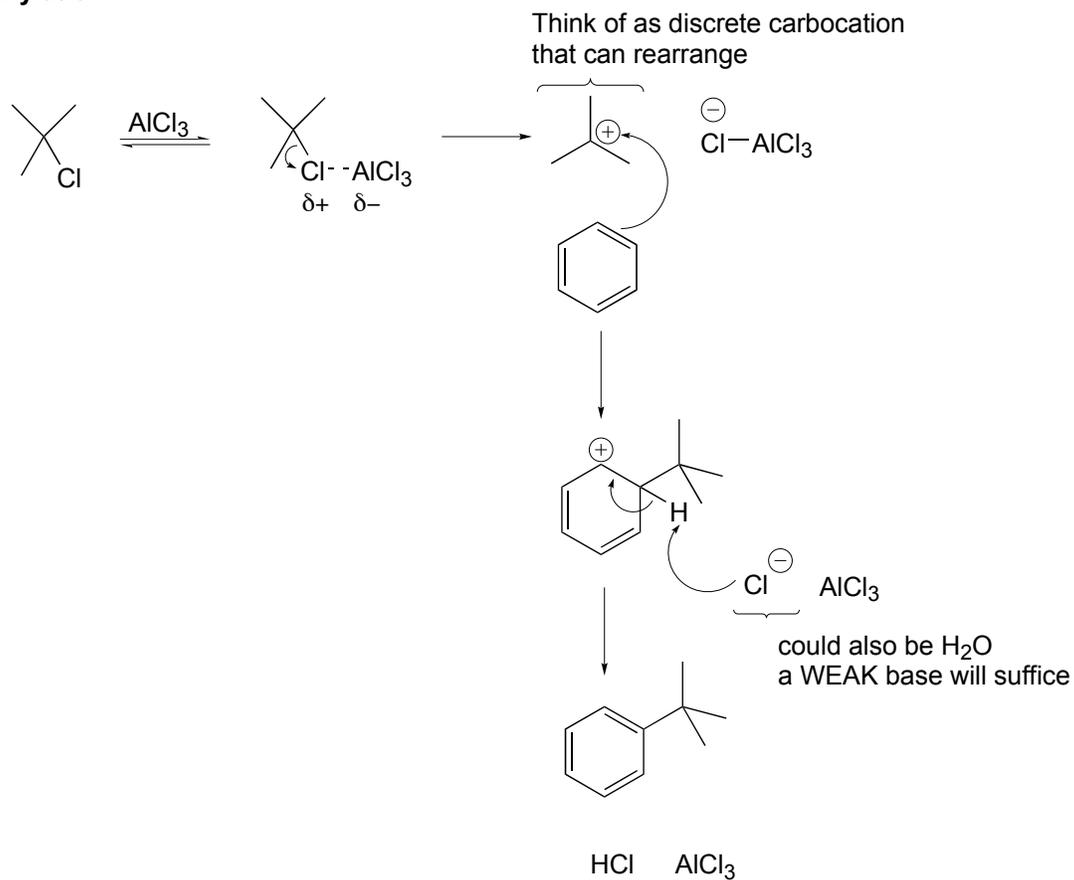
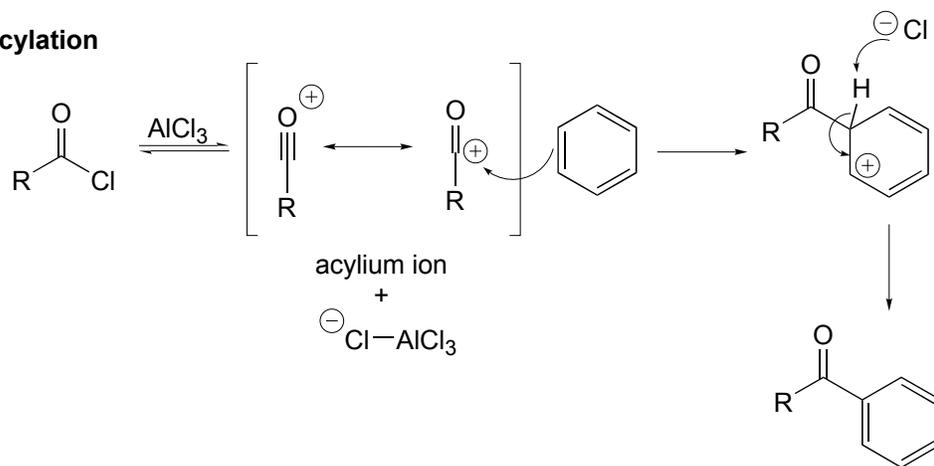


Friedel-Crafts

A) Alkylation



B) Acylation



Comparison of Acylation vs. Alkylation

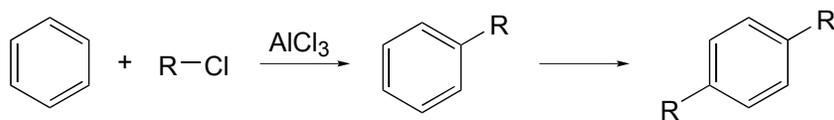
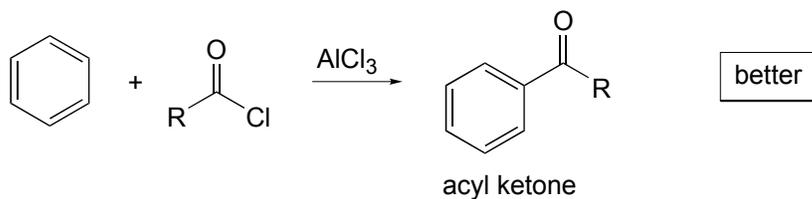
Acyl Group

- ~ deactivating: will only react once
- ~ no rearrangements

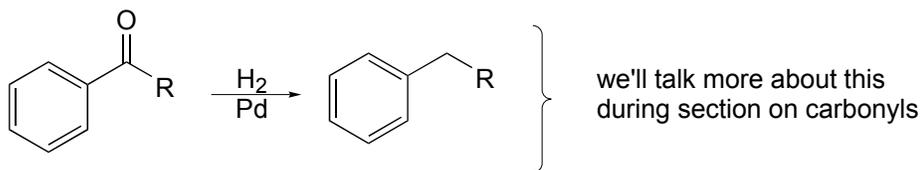
Alkyl Group

- ~ activating: may react more than once to give disubstituted benzene
- ~ will rearrange to form most stable carbocation

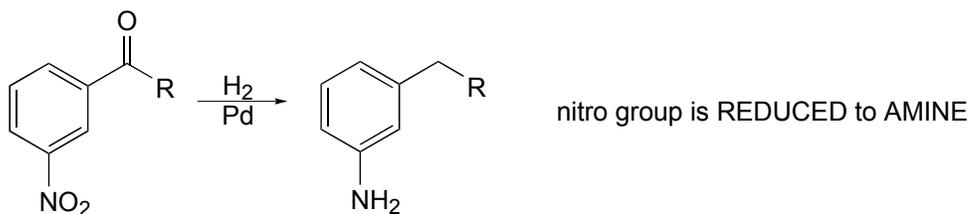
Acylation is more reliable in synthesis



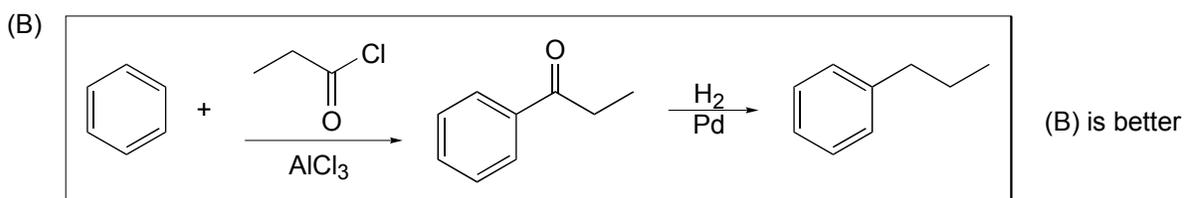
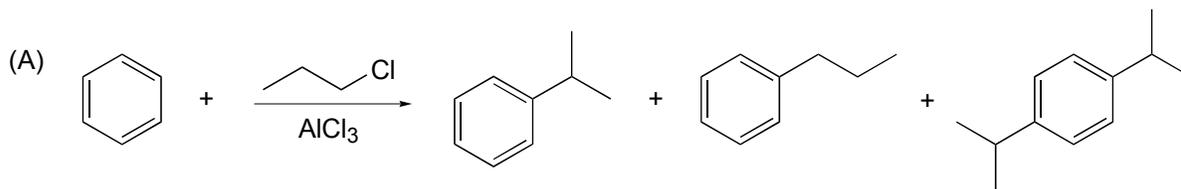
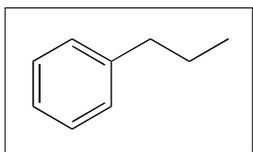
Note that acyl ketone can be reduced to alkyl benzene



note:

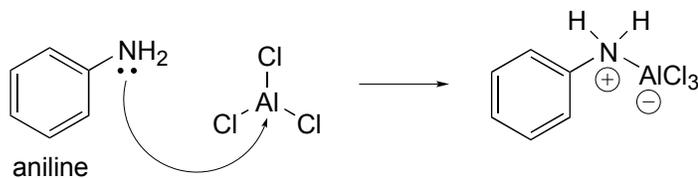


Synthesis Examples

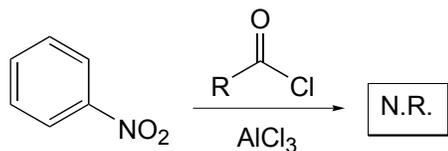


Keep in Mind

Note that the Lewis acid AlCl_3 can complex with certain functional groups and kill the reaction.



Strongly e- withdrawing substituents on benzene will deactivate ring and prevent Friedel-Crafts



Alkylation may yield unexpected products (and mixtures of products) by rearrangement

