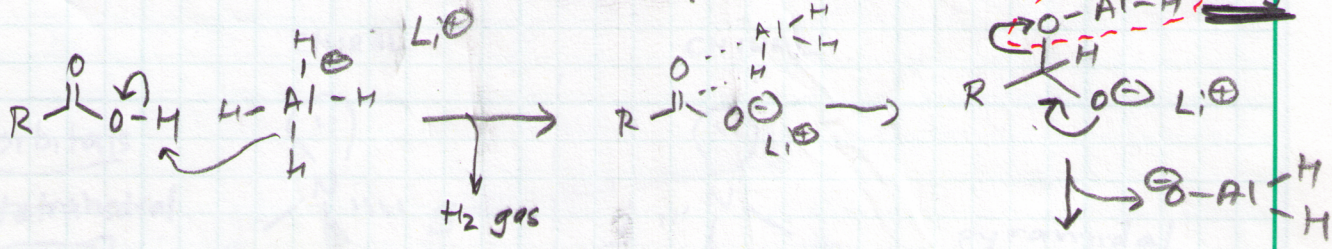
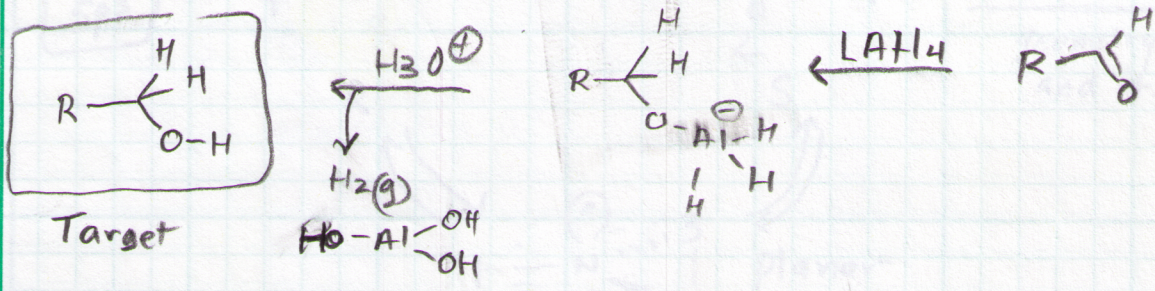


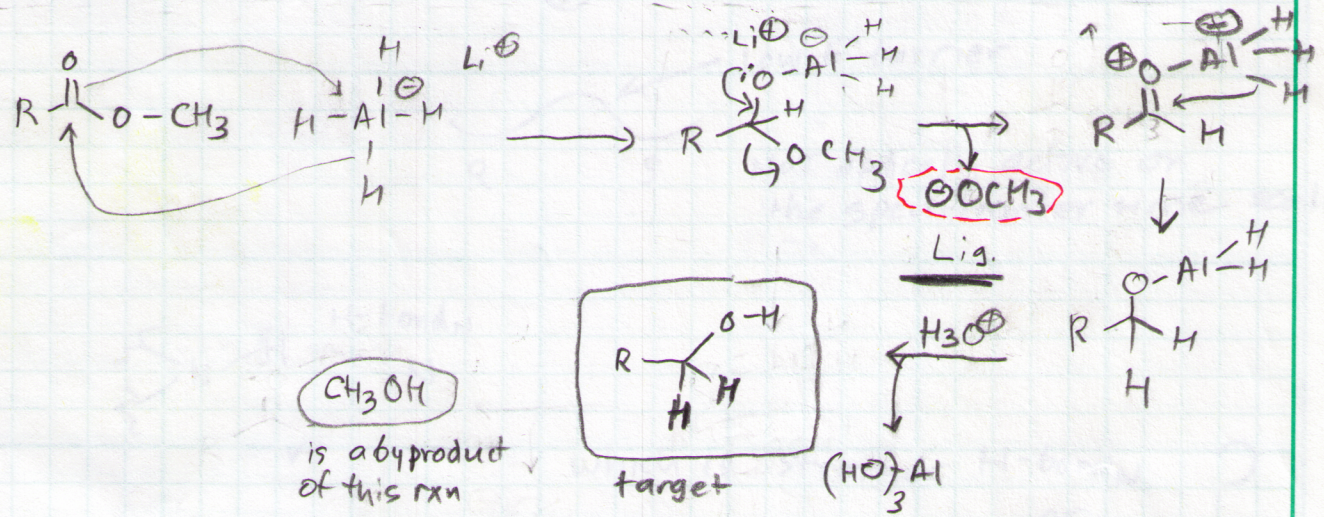
Reduction of $\text{C}=\text{O}$ AND $\text{C}=\text{O}$ with LiAlH_4



ACID

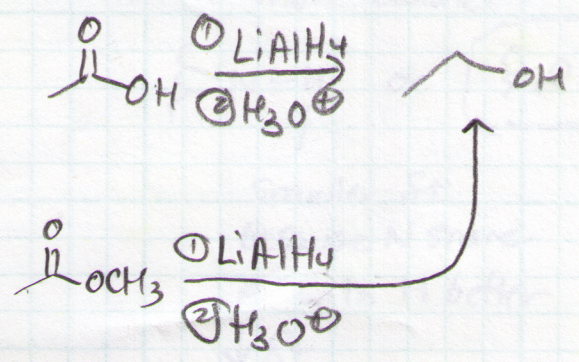


ESTER



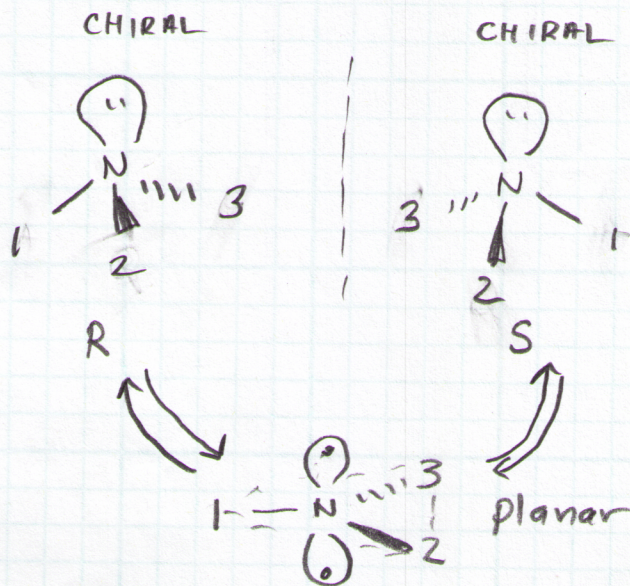
Notice the different L.g. (leaving group) in each case that dictates the outcome of the reaction sequence

OVERALL

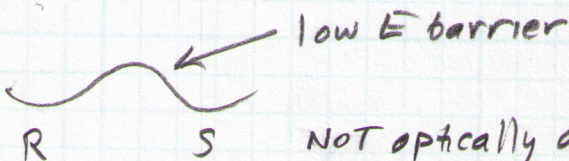
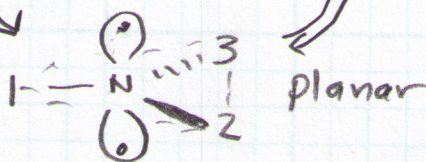


Amines

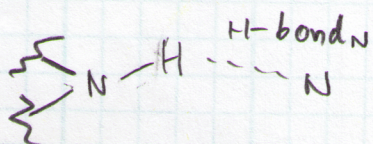
orbitals
tetrahedral
sp³



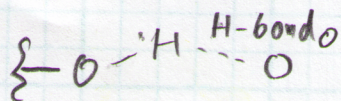
pyramidal
geometry of N
and its 3 substituents



NOT optically active on
the spectrometer time scale

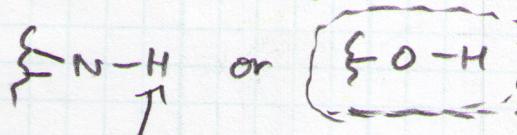


vs

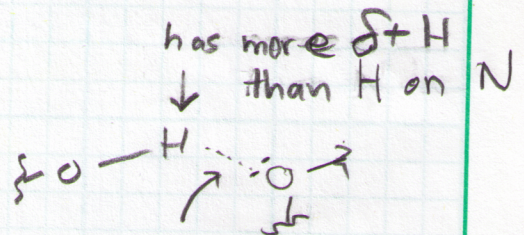


which is stronger H-bond_N
or
H-bond_O ?

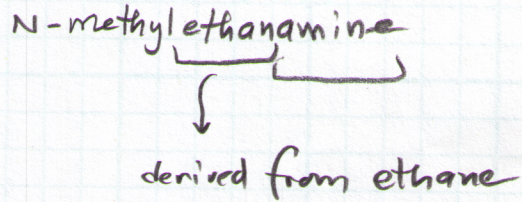
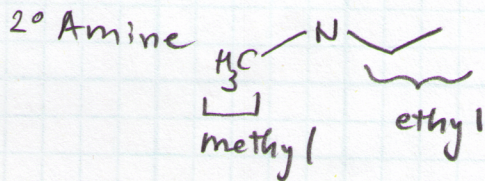
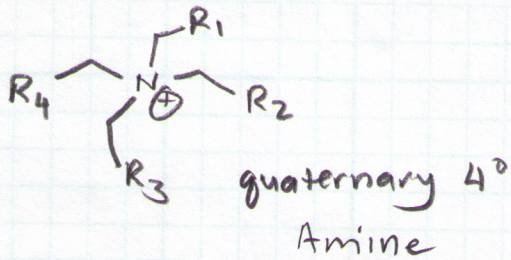
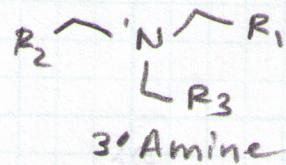
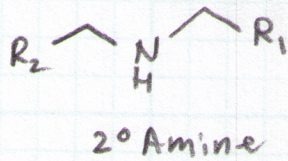
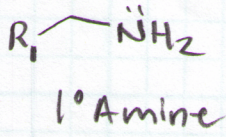
Think in terms of acidity
which is more acidic?



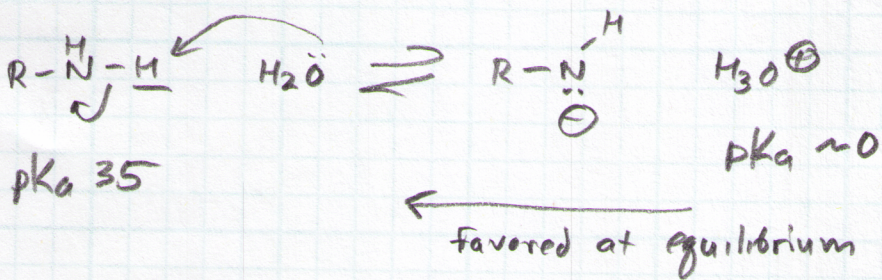
Smaller δ⁺
because N share
e⁻ with H better
↓ δ⁺



THIS
H-BOND IS STRONGER

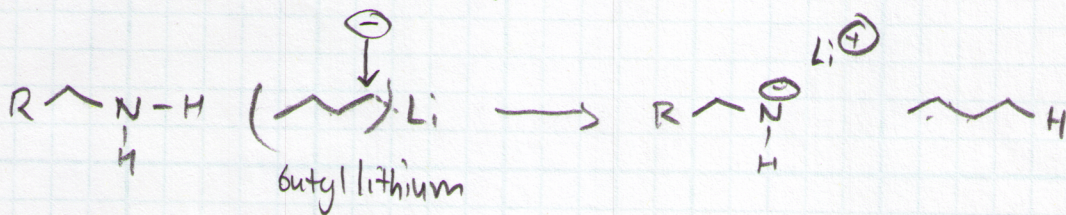


Amine pKa ~35

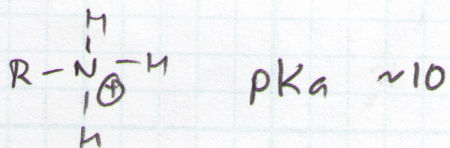
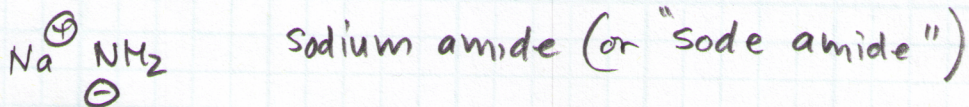
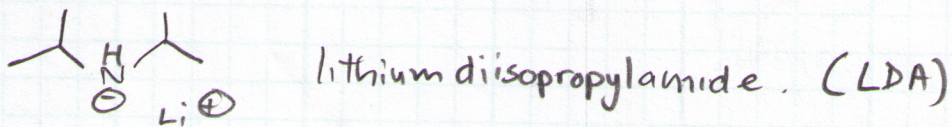
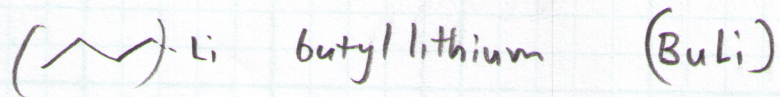


< Amines as Acids >

Need Strong bases to deprotonate!

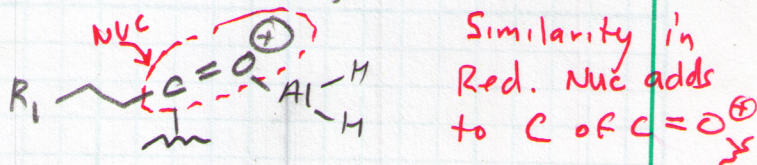
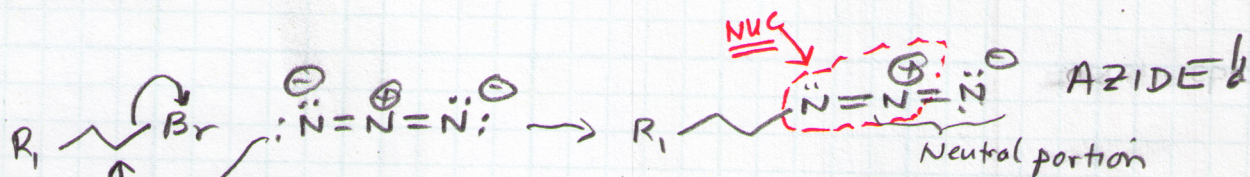
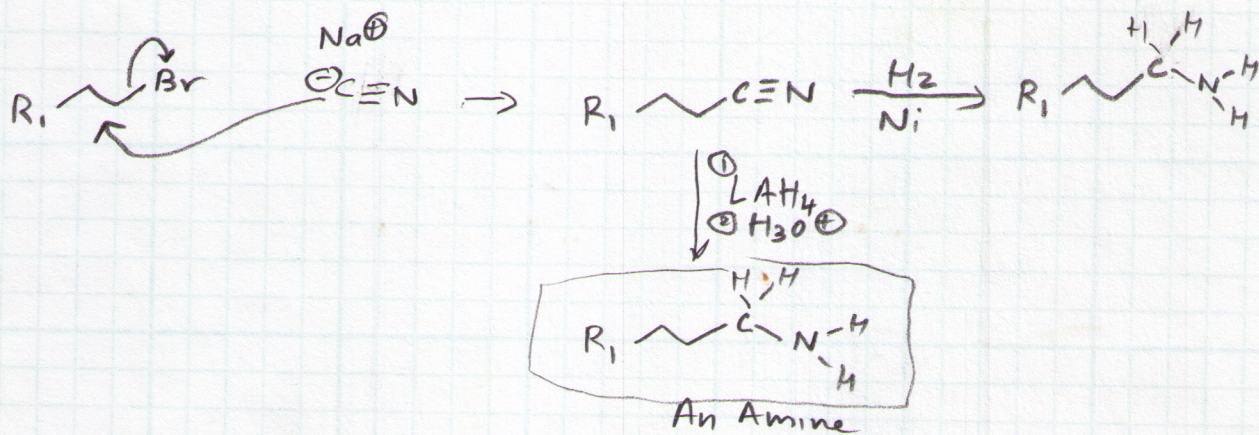
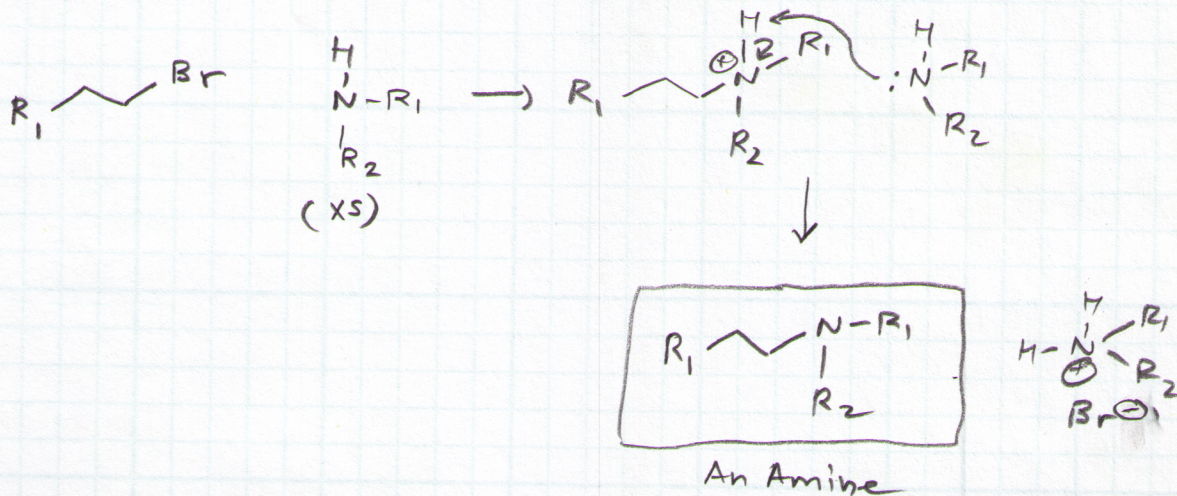


Examples of strong bases used to deprotonate amines.



Preparation of Amines from Alkyl Halides

It should not come as a surprise that alkyl halides with their good halide leaving group are ideal for making amines, using H_2N-R as a nucleophile in an S_N2 rxn.



So, when " H^+ " from LAH_4 adds to the azido comp above it attacks electrophilic N

