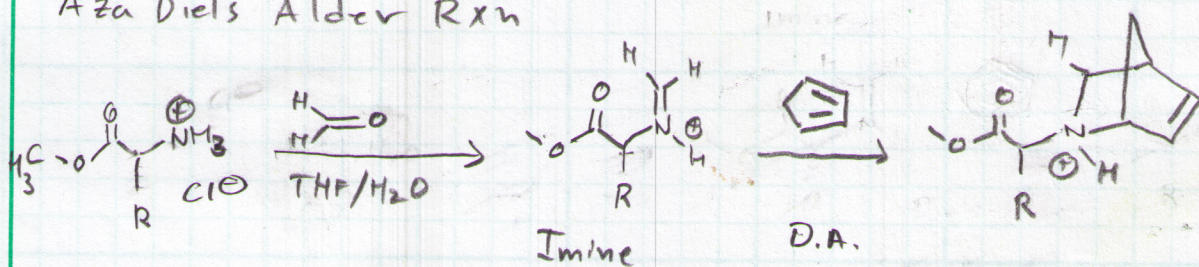


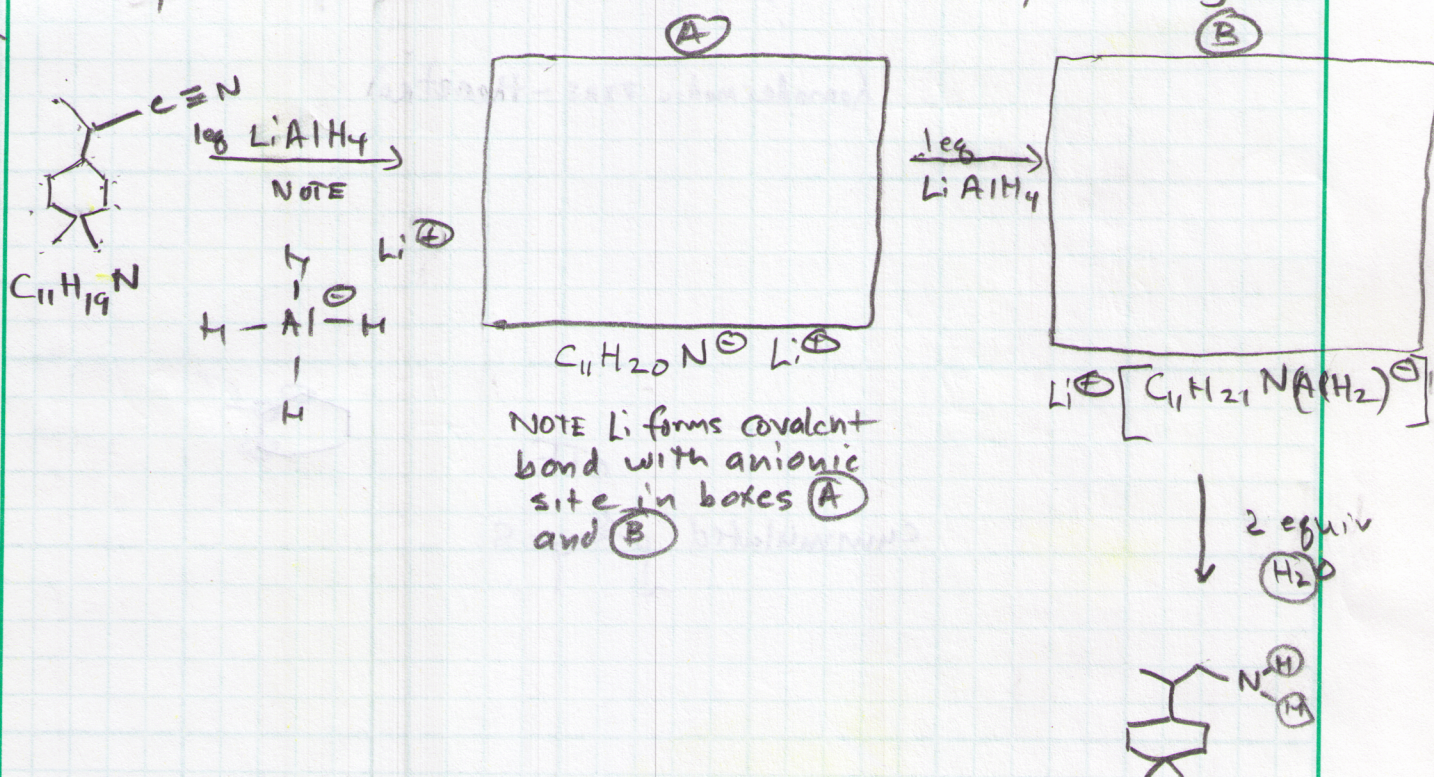
Application of an Imine

Aza Diels Alder Rxn



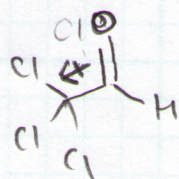
Example of converting $R-C\equiv N$ to $R-NH_2$

Complete the mechanism, used curved arrows in your drawings

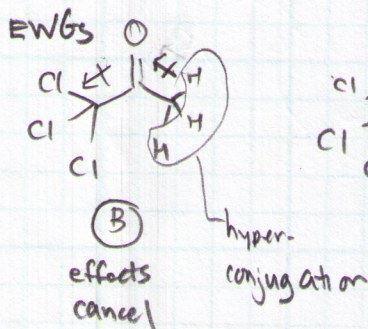


Friday
Discussion
1/24

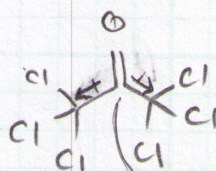
Which of the following has the faster rate of hydration by H_2O



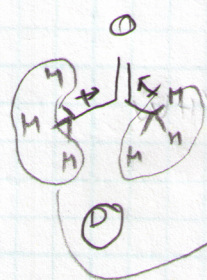
(A)



(B)

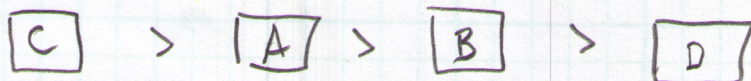


(C)



(D)

Rank them

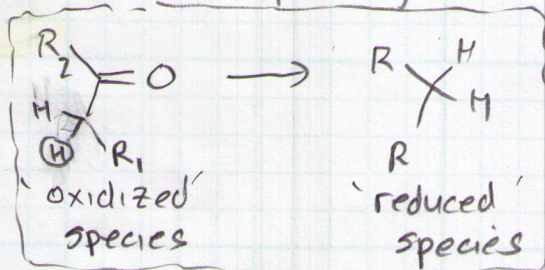
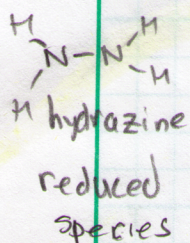


fastest

slowest

Synthetic chemist often need to insert a functional group at a certain position on the scaffold to execute a specific chemical transformation and then later remove it to access a target molecule.

Sometimes the following is desired

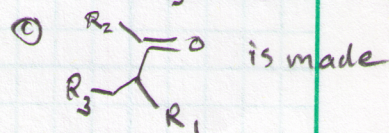


+ N_2

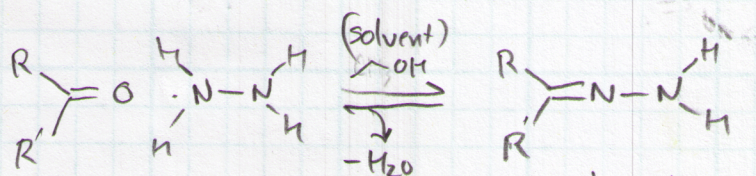
oxidized species

circled

(a) α of ketone is acidic
(b) it can be removed
an attached C can rxn with R_3-CH_2-Br e.g.



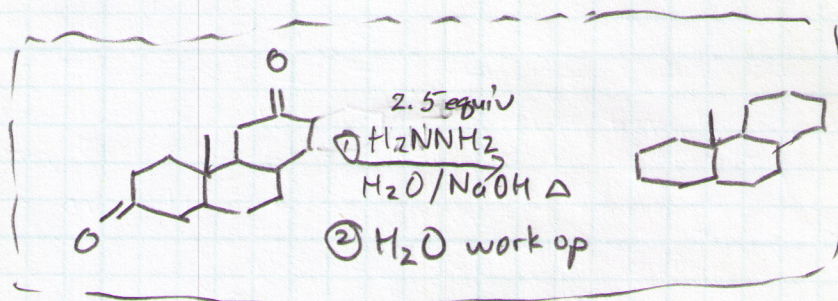
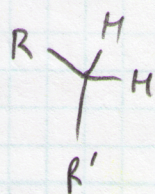
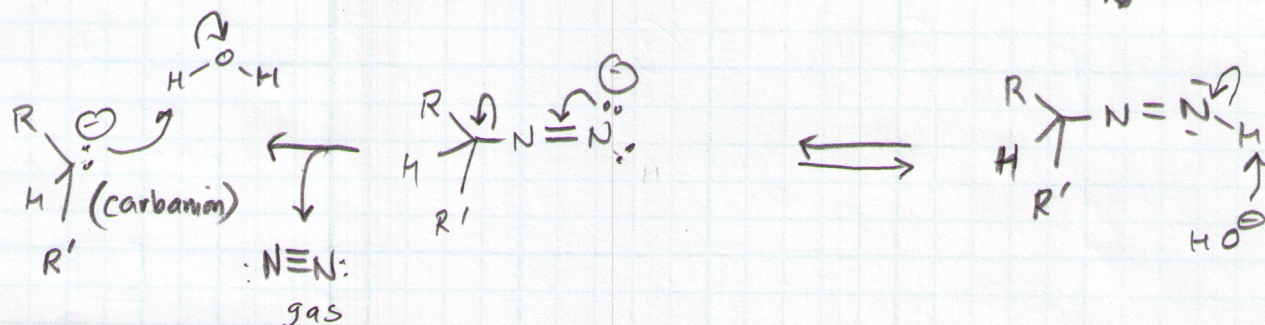
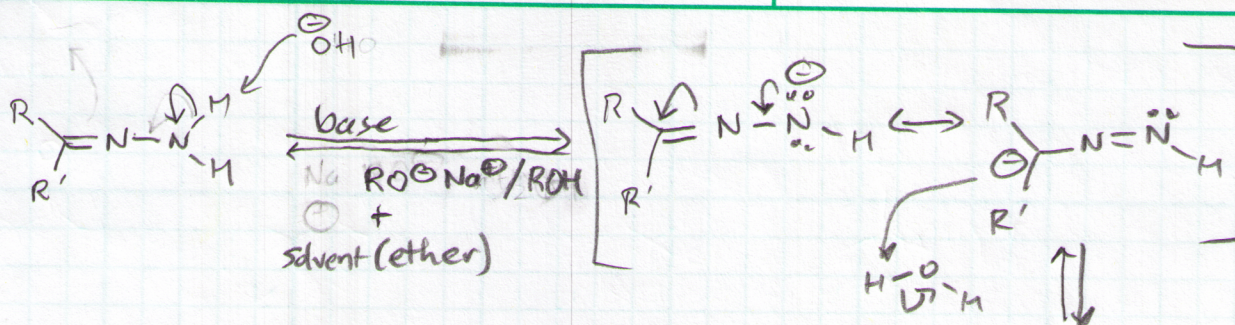
Wolff-Kishner Reduction



we know how to get here

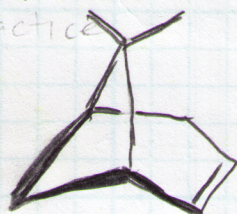
'IMINE CHEMISTRY'

HYDRAZONE (Lab CEM355)

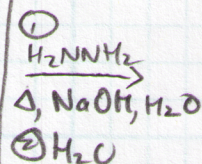
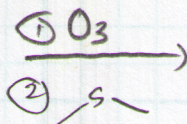


PRACTICE

Practice

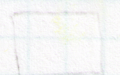


α -pinene
a terpene isolated
from cedar wood



Is this a
molecule chiral?

HINT: use the following
scaffold

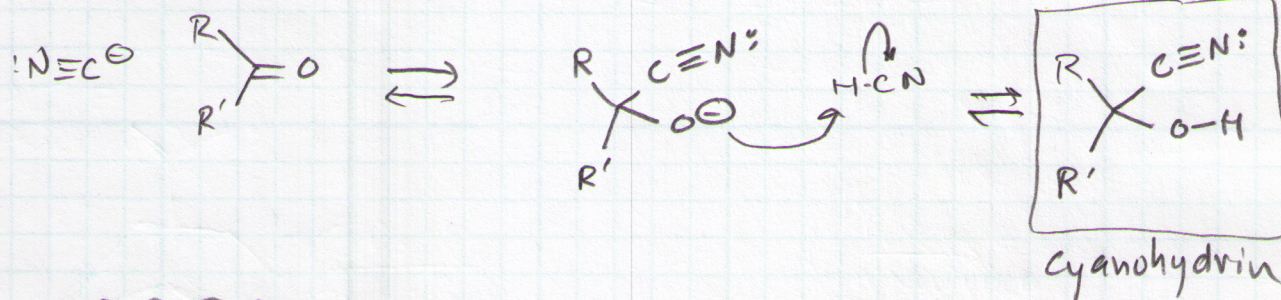


Sometimes chemists want to convert a carbonyl to a compound where a nitrogen can be converted to an amine group in subsequent steps. If they start with an alkyl amine, the N of the amine will attack the carbonyl C. $\therefore$ CN^- (cyanide) is used strategically to attack the C of CN^- to the $\text{C}=\text{O}$ and the N can be modified later.

CN^- is added as $\text{HCN}(\text{gas})$ via $\text{Na}^+ \text{CN}^- + (\text{conc HCl})$
moderately basic $\text{pK}_a \sim 9.2$

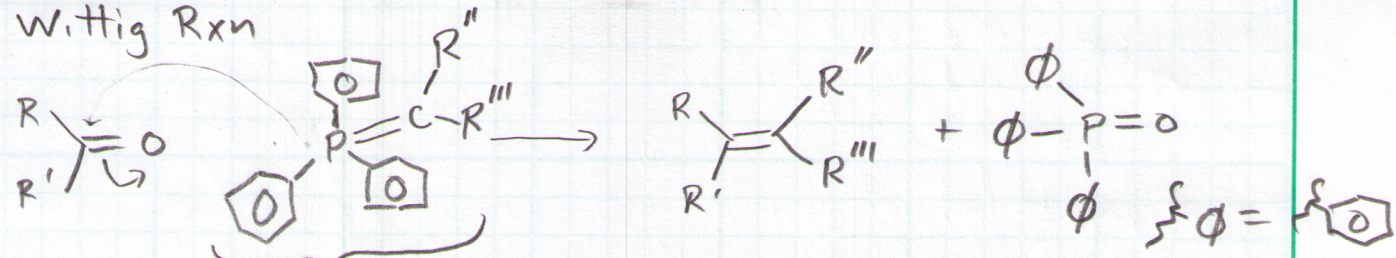
not as acidic as $\text{HCl}(\text{g}) -6.3$

H^+ $\text{CN}^- \rightleftharpoons \text{HCN}$
Present! at equilibrium

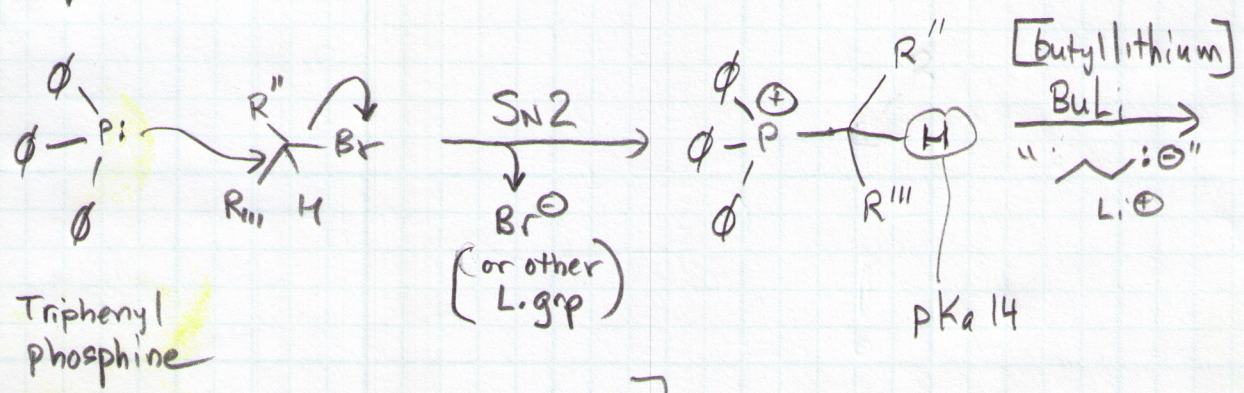


We saw in earlier chapters how to make alkenes via E1 and E2 reactions on alkyl chains harboring a good leaving group and a base. The rxns were driven by the proper stereoisomers in the E2 rxn (anti periplanar H and Leaving group) and by double bond stability in the E1 rxn. Carbonyl compounds provide access to $\text{C}=\text{C}$ products with great specificity via ylide ('ill-lid') rxns.

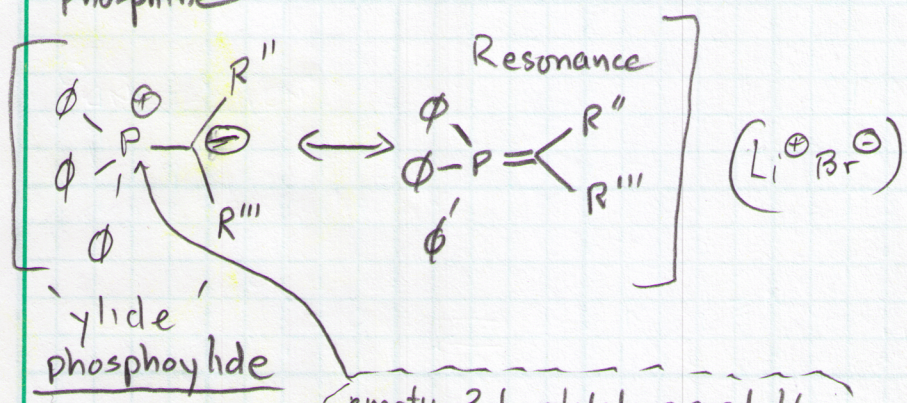
Wittig Rxn



(a)

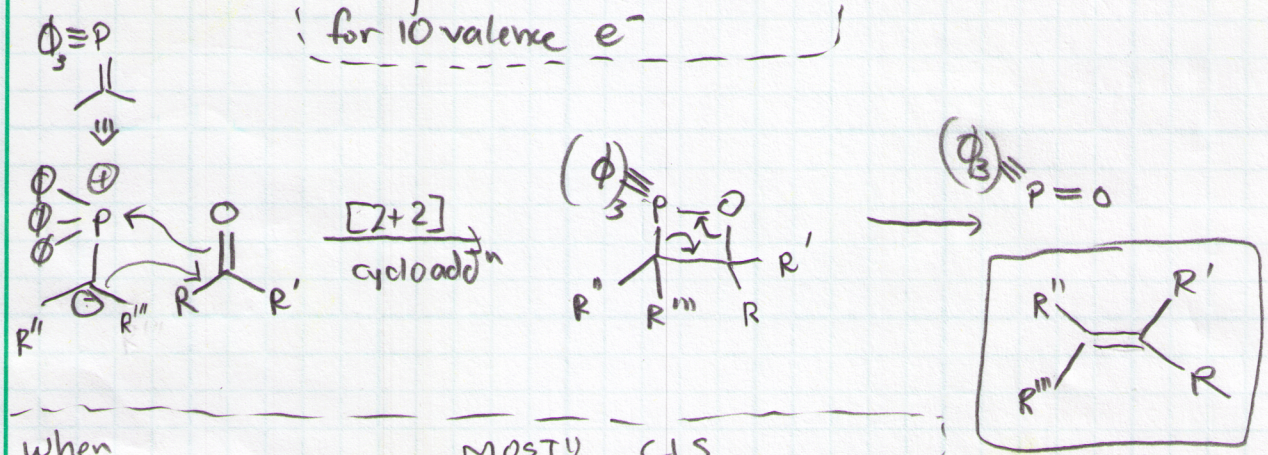


(b)



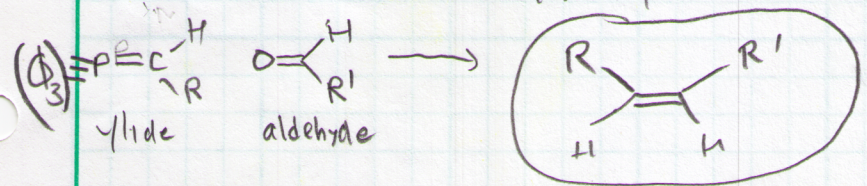
empty 3d orbital is available for 10 valence e^-

(c)



When

MOSTLY CIS



Alkene

EXCEPT FOR CONJUGATED C=C all-TRANS IS PREFERRED

