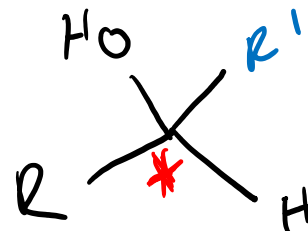
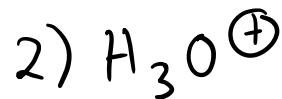
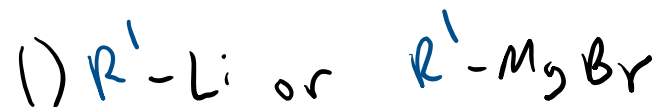
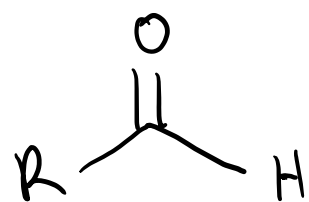


Carbon Nucleophiles

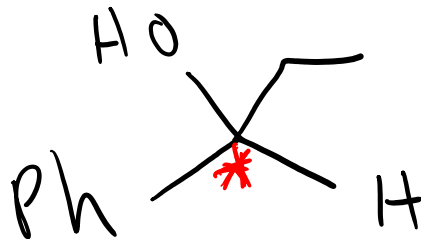
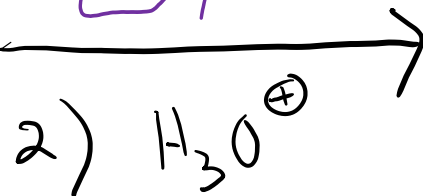
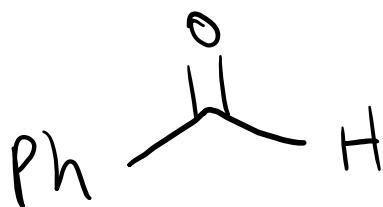
Wittig Reaction ← not on
Exam 1

2/13/2023

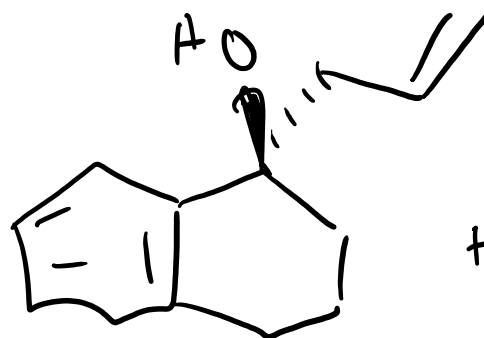
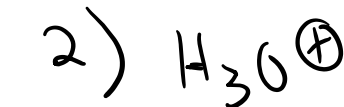
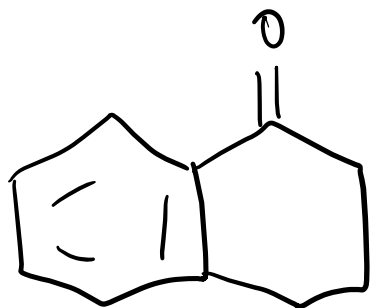
Carbon Nucleophiles



(racemic)

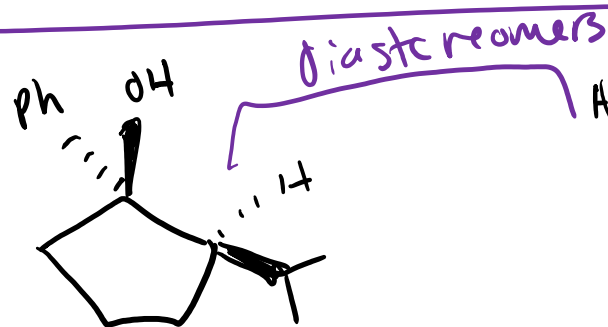
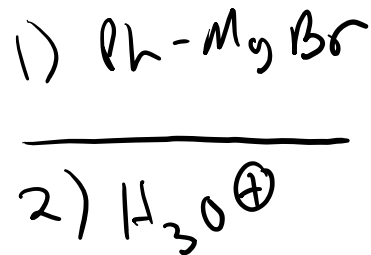
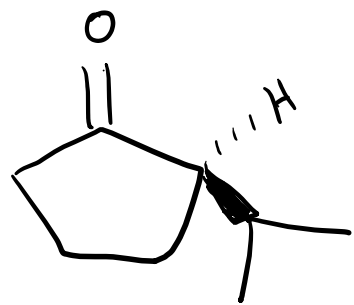
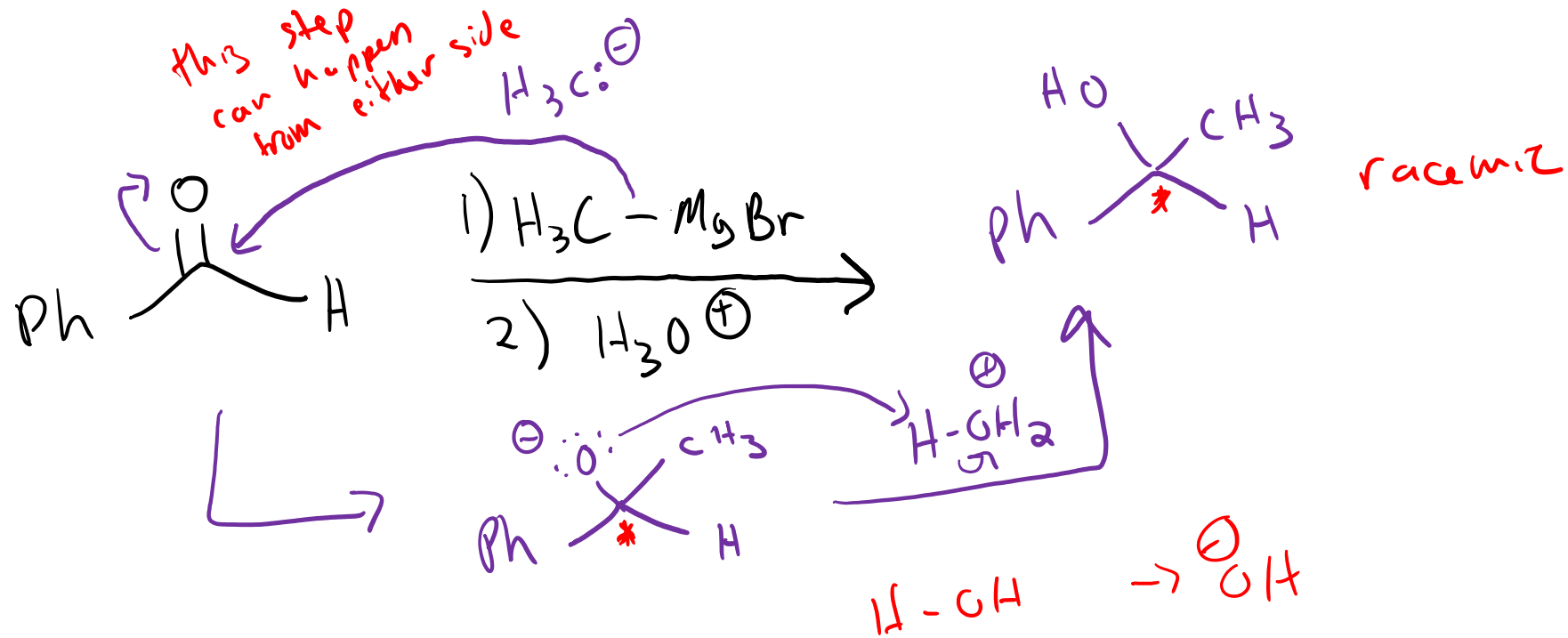


you must indicate
stereochem in
some way when
new chiral center
forms!

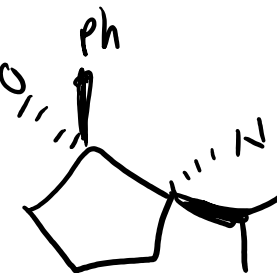


+ enantiomer

Carbon Nucleophiles: Mechanism and Stereochemistry

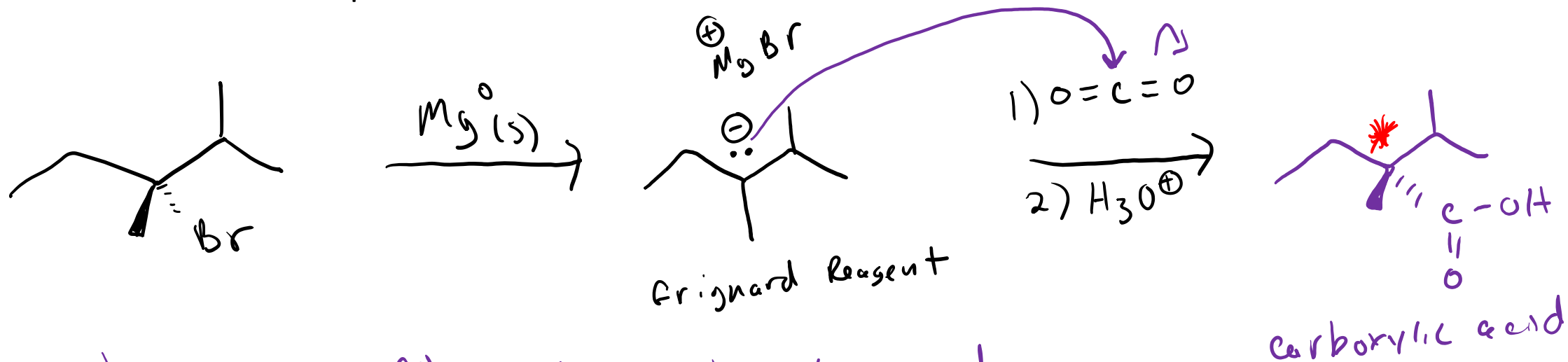


major (less hindered)

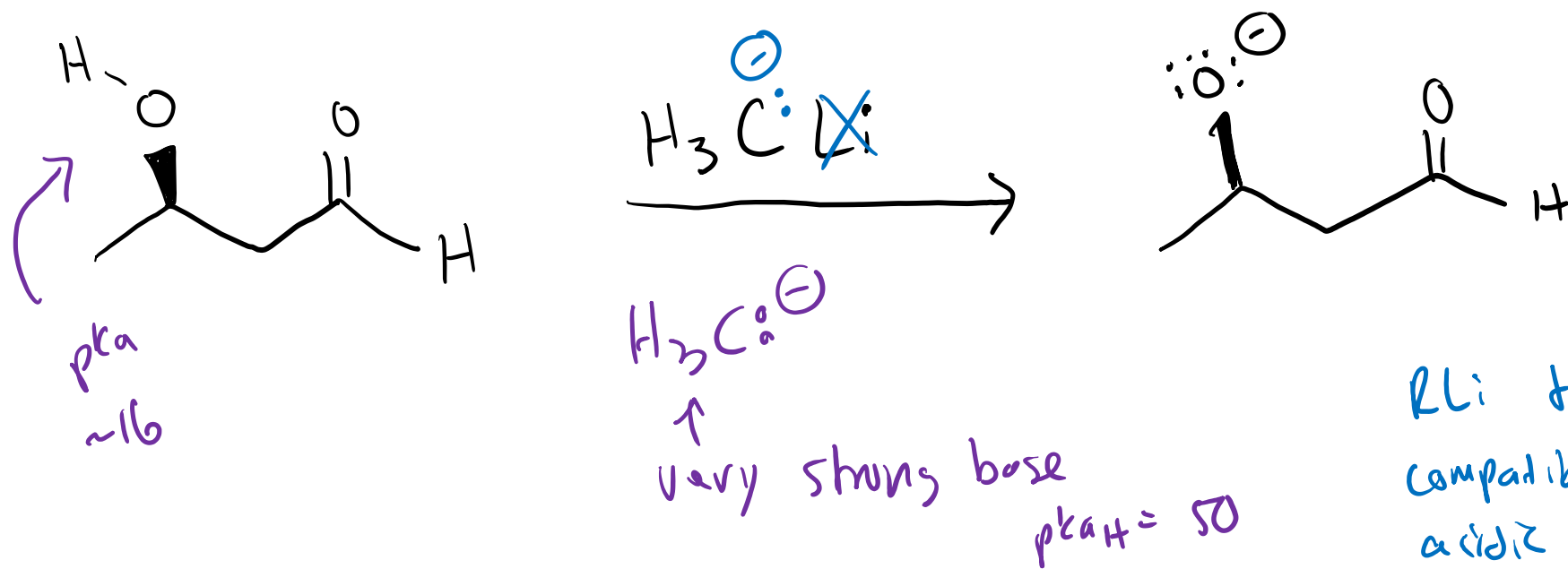


minor (bulkiest groups eclipsing each other)

Carbon Nucleophiles: Other Notes



Carbanion + $\text{CO}_2 \rightarrow$ carboxylic acid



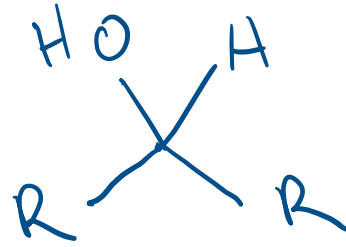
acid-base rxn
happens before
attack on
 $\text{C}=\text{O}$ can.

RLi & RMgBr are not
compatible w/ any even slightly
acidic functional groups

Ch 19: Recap

Ch. 12

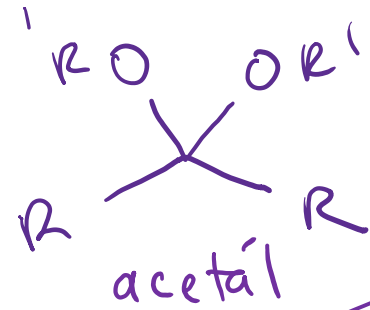
alcohol oxidation
(R, etc.)



1) NaBH_4
or
 LiAlH_4

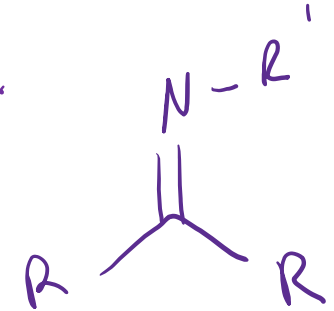
2) H_3O^+

at least
2 eq. $\text{R}'\text{OH}$
 H_2SO_4 cat.



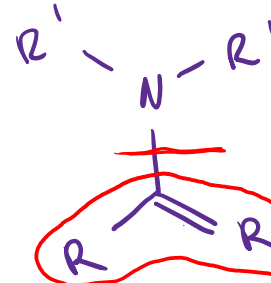
H_2SO_4 cat.
 H_2O

$\text{R}'\text{NH}_2$ cat.
 H_2O



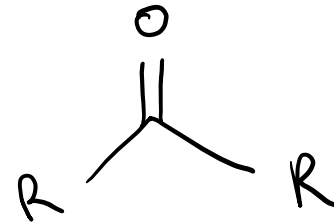
(depends on R')

HNR'_2 cat.
 H_2O



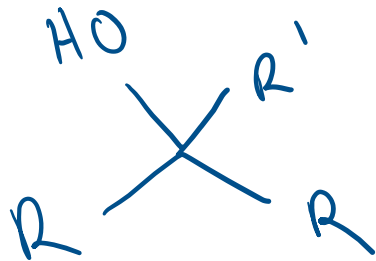
enamine

Weak nucleophiles:
Reversible (equilibrium)
reactions



ketone or
aldehyde

1) $\text{R}'\text{MgBr}$
or
 $\text{R}'\text{Li}$
2) H_3O^+

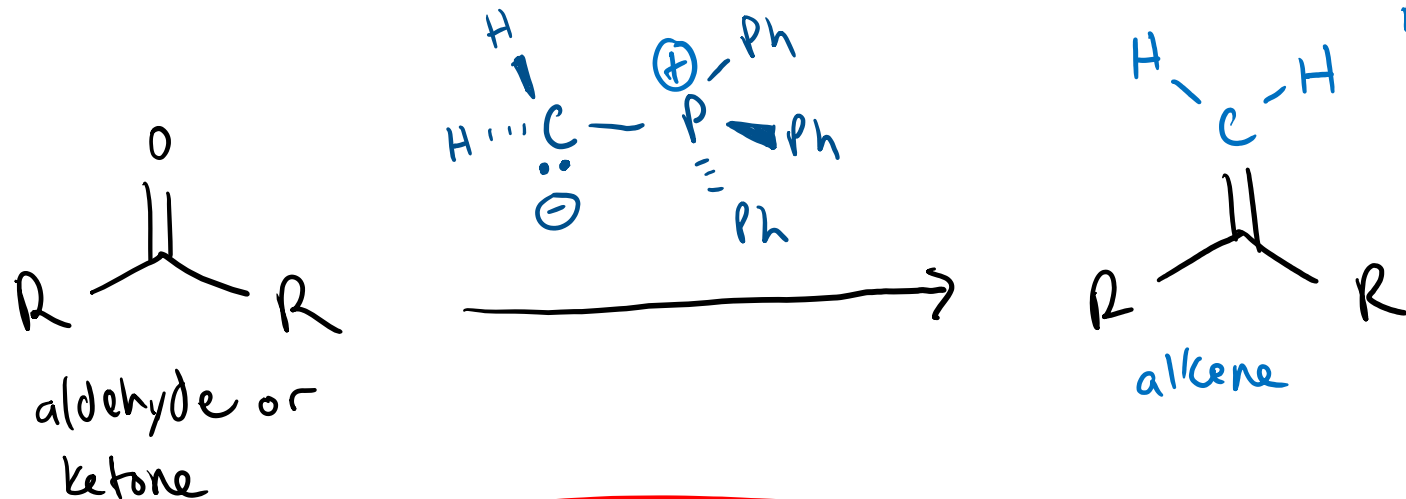


Strong nucleophiles:
irreversible

Wittig Reaction

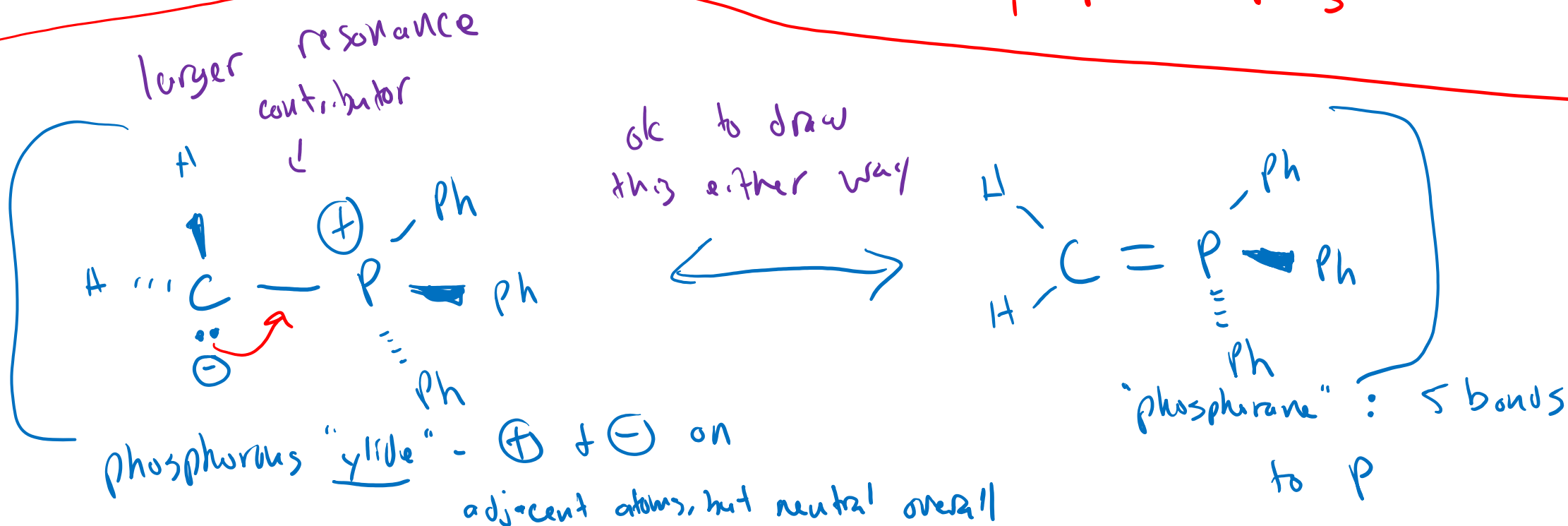
(Not on Exam 1)

(19.10)

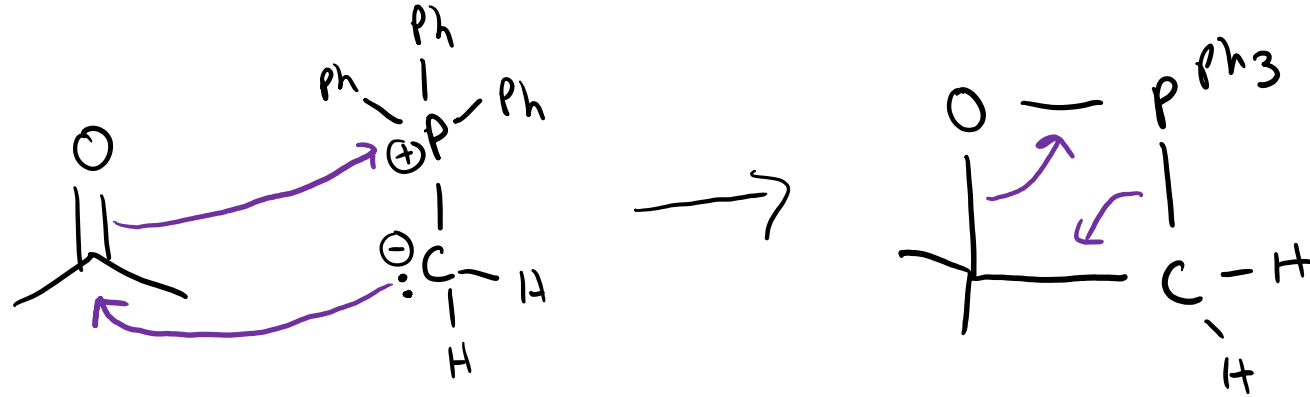


$O=PPh_3$
 triphenyl phosphine oxide

phosphine: $:PR_3$



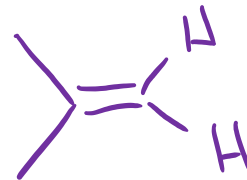
Wittig Reaction: Mechanism



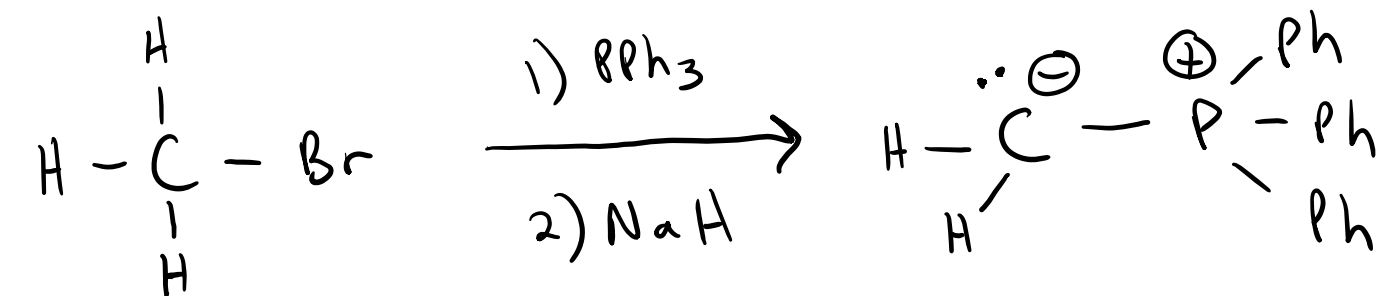
oxaphosphetane

much. geometry is more complicated when reactants are asymmetrical.

I will only ask for this mech. without stereochem



Synthesizing the Ylide Reagent



Wittig Reaction: Stereoselectivity

