Ch 18

Note Title 3/20/2006

Synthesis of ketones/aldehydes

alcohol $\xrightarrow{[O]}$ ketone/ald

alkene $\xrightarrow[2)\ DMS]{1)\ O_3}$ ketones/aldehydes

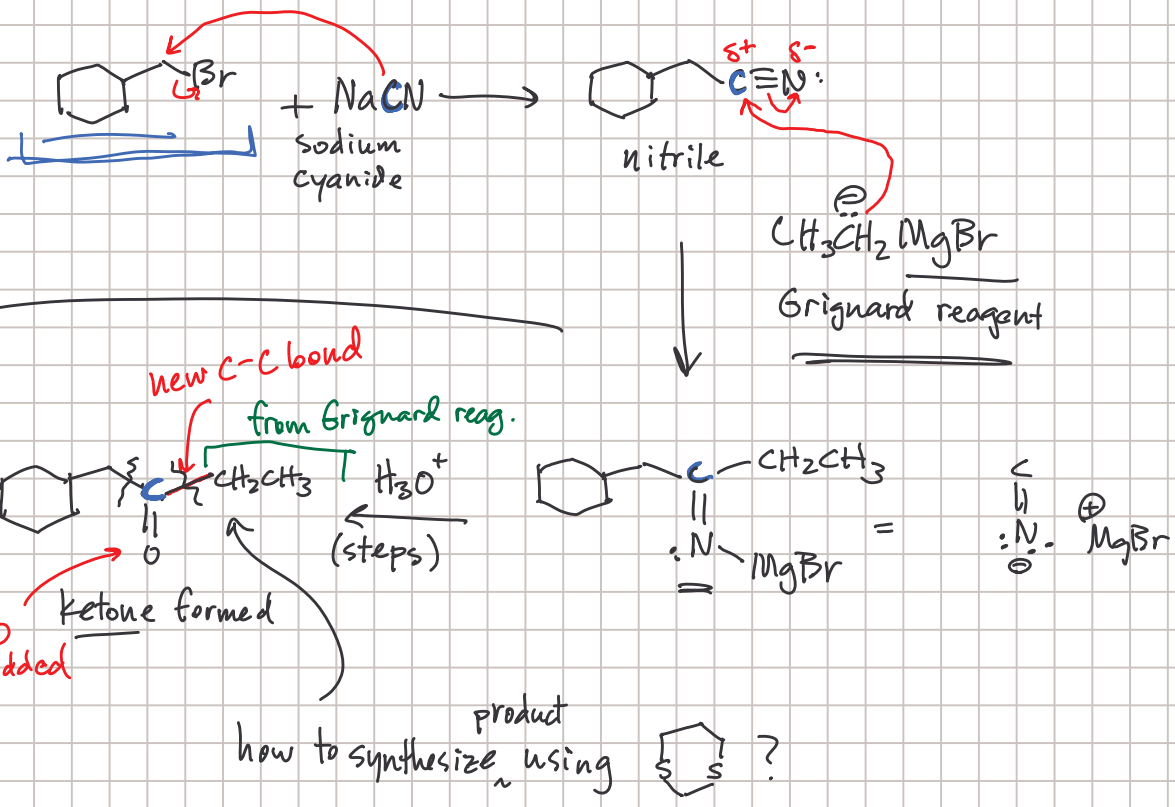
acid chloride + aromatic $\xrightarrow{AlCl_3}$ ketone (FC Acylation)

Alkyne → ketone (Markovnikov hydration) (Hg^{2+})

aldehyde (Anti-markovnikov hydration) (Sia_2BH)

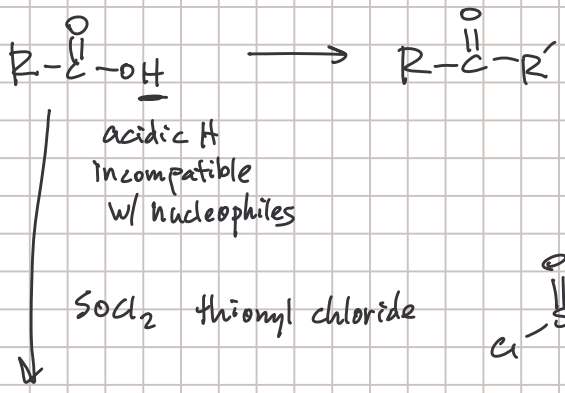
Alkyl halide (s) → ketone/aldehyde (+ 1 C from )

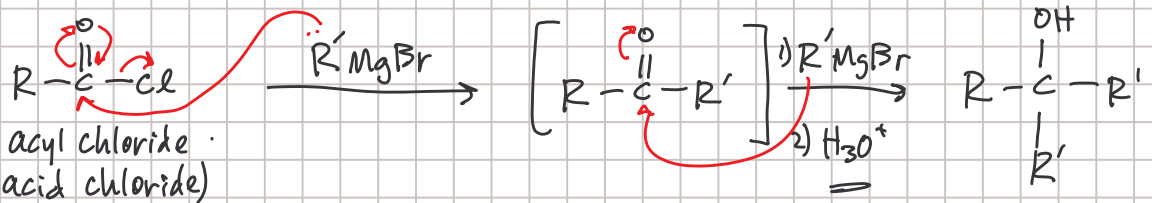
from nitrile = R-C≡N

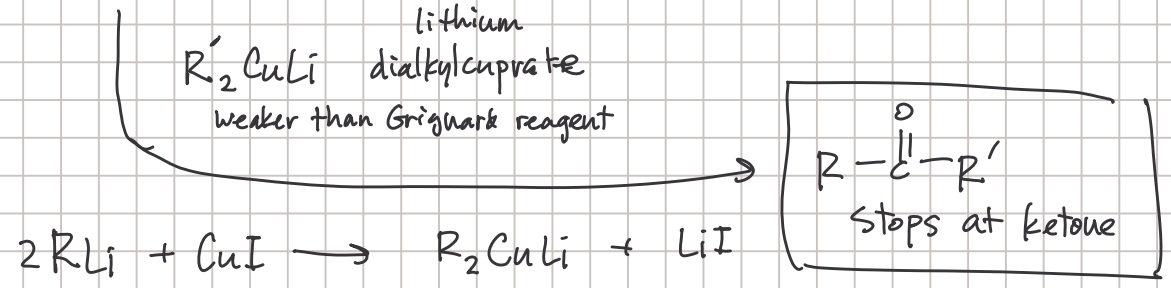


how to synthesize product using ?

Carboxylic acid ⟶ ketone

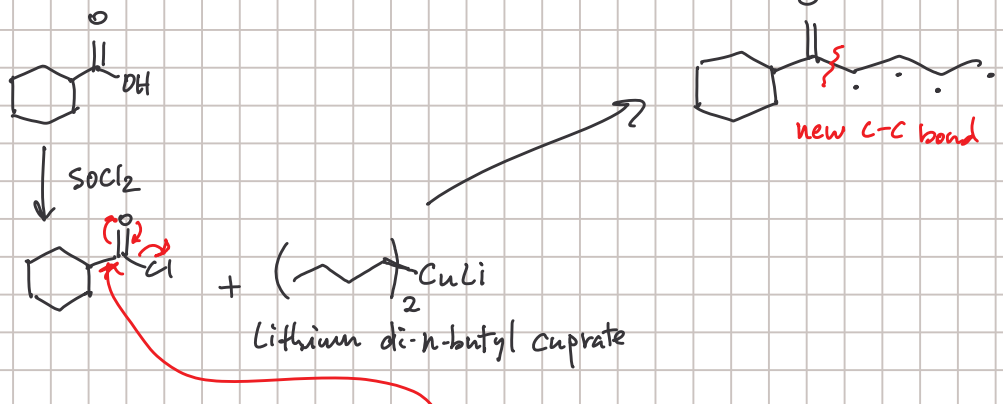


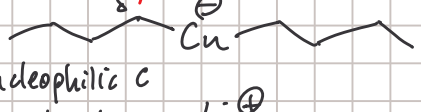




$2\,RLi + CuI \longrightarrow R_2CuLi + LiI$

$= R-Cu^{\ominus}-R \; Li^{\oplus}$



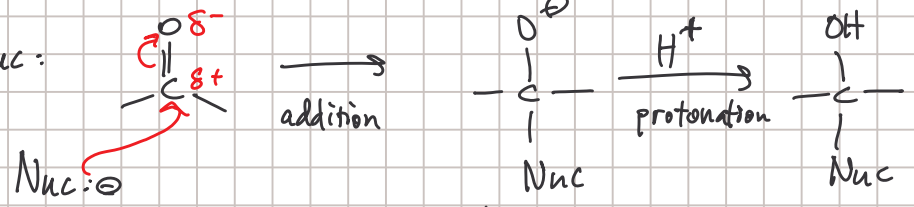


nucleophilic C
(but weaker than
Grignard)

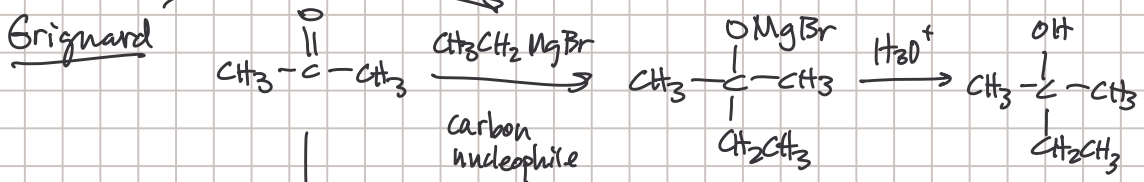
Reactions of ketones/aldehydes

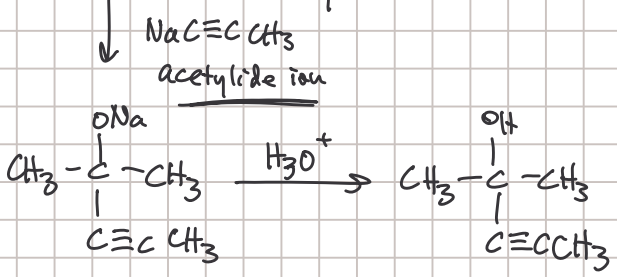
Nucleophilic addition to carbonyl

★ Strong nuc:

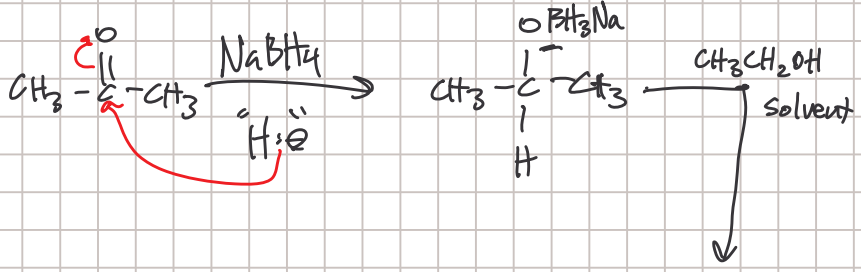


Grignard



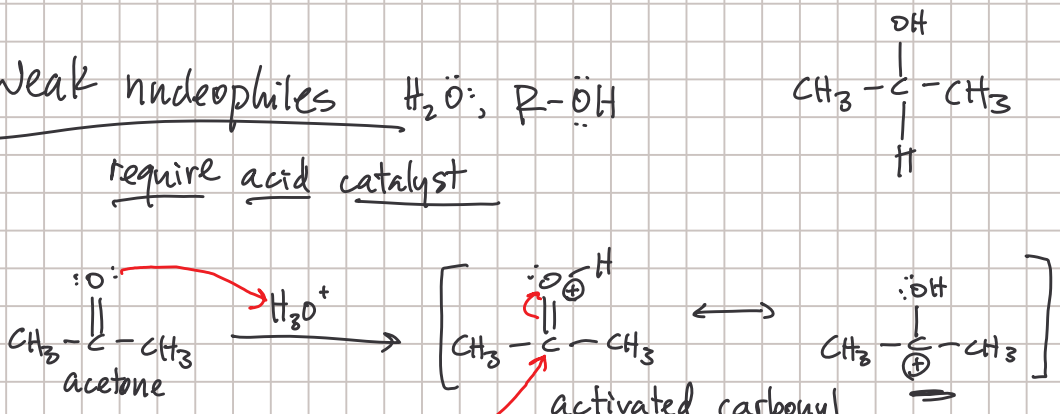


Hydride reduction

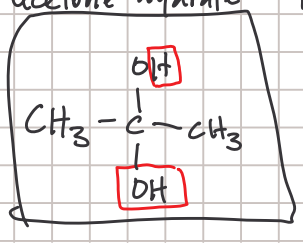


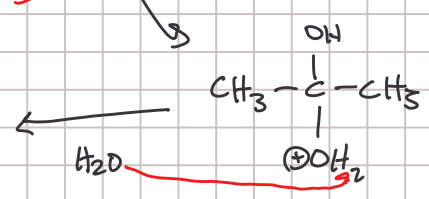
Weak nucleophiles $H_2\ddot{O}:$, $R-\ddot{O}H$

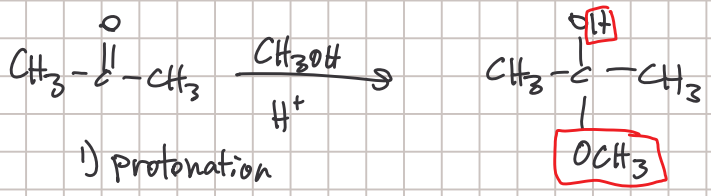
require acid catalyst



acetone hydrate







1) protonation
2) addition
3) deprotonation

Wittig Reaction

"V" pronunciation