

Esters

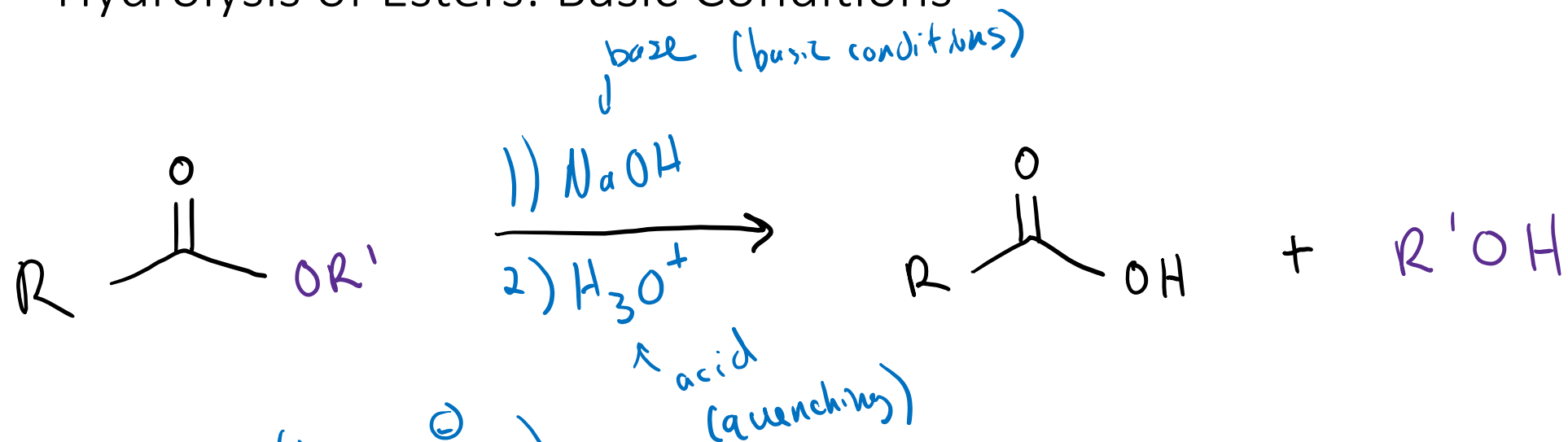
Amides

respond
today!

Jacqueline OH poll on Moodle!!

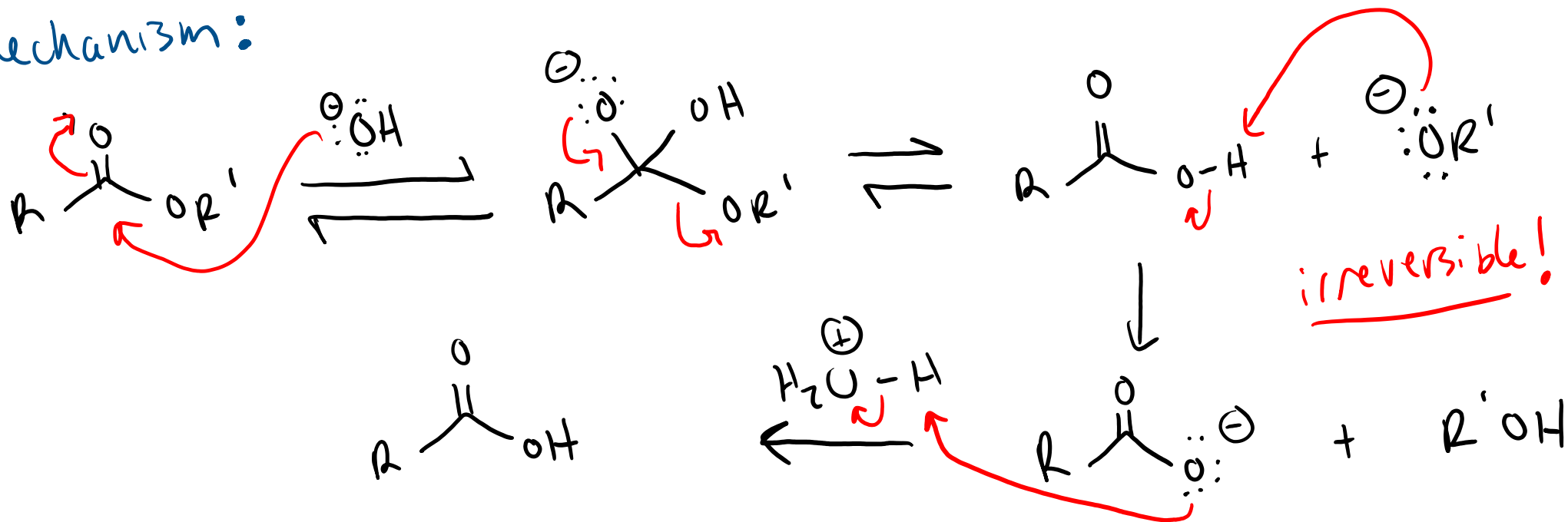
3/1/2023

Hydrolysis of Esters: Basic Conditions



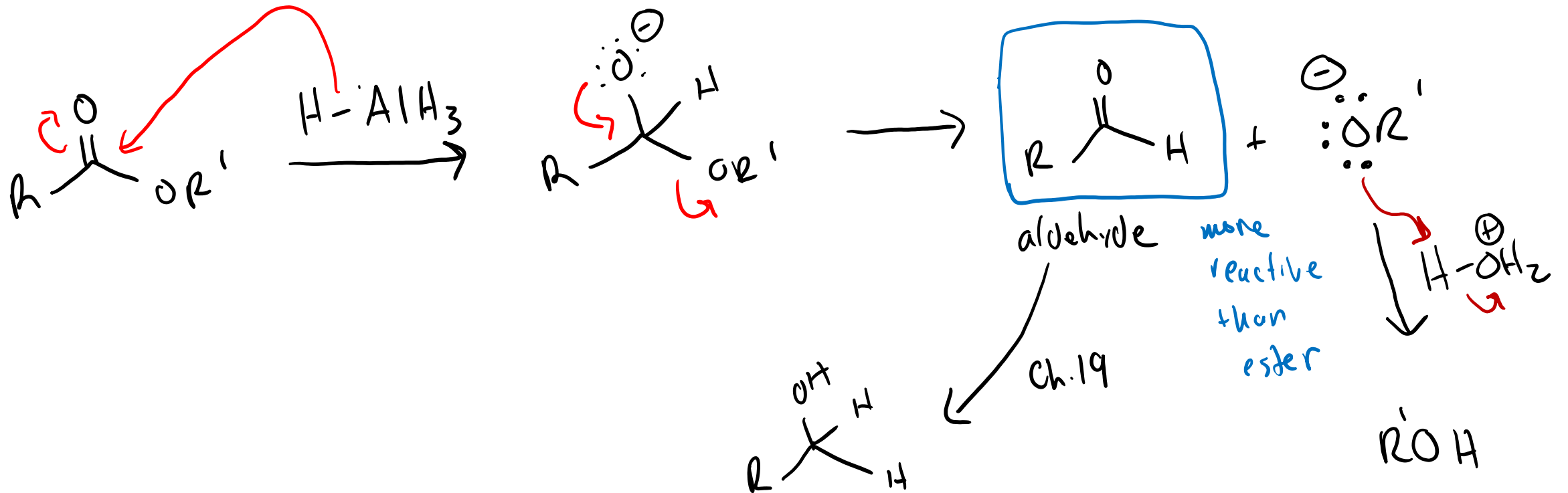
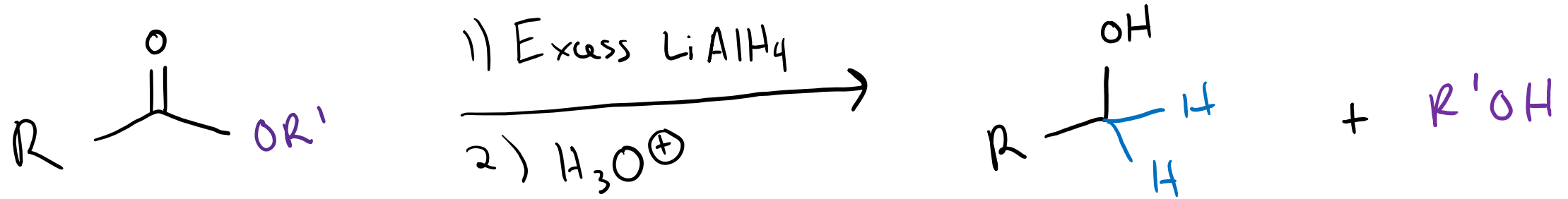
acyl transfer (basic, nuc)

Mechanism:

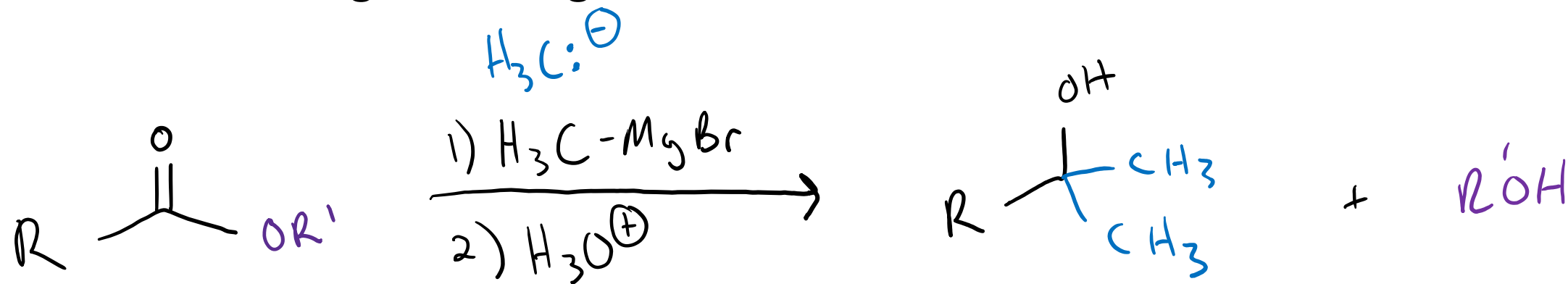


Reduction of Esters

Nabhty is not strong enough for ester



Esters and Grignard Reagents



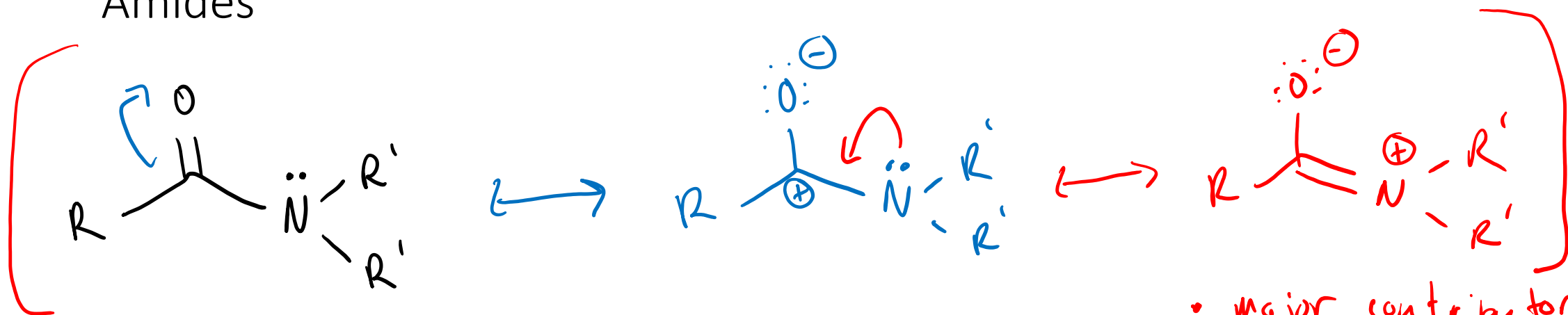
2 CH₃'s
added

mechⁿ. essentially same

as previous (strong, basic nuc[⊖])

Amides

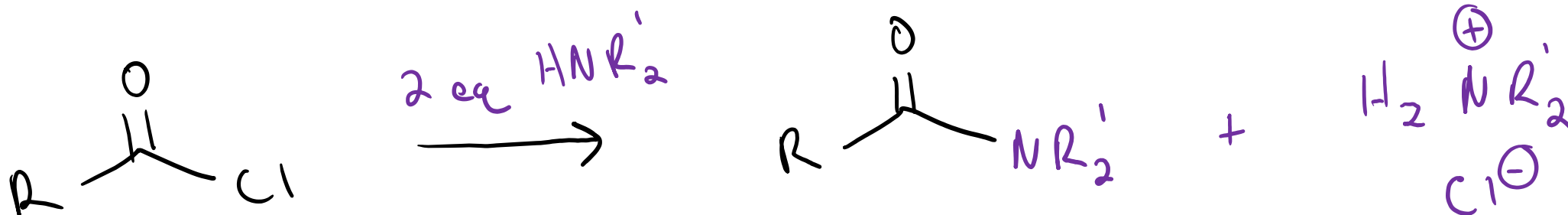
(20.12)



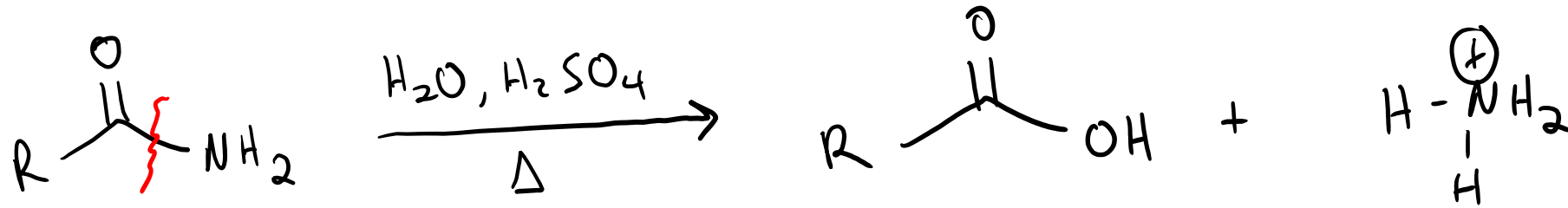
- pKa is about 20. Stronger acid than amines (HNR_2)
- lone pair is not basic!

- major contributor
- N is planar & sp^2
- amide N is not basic

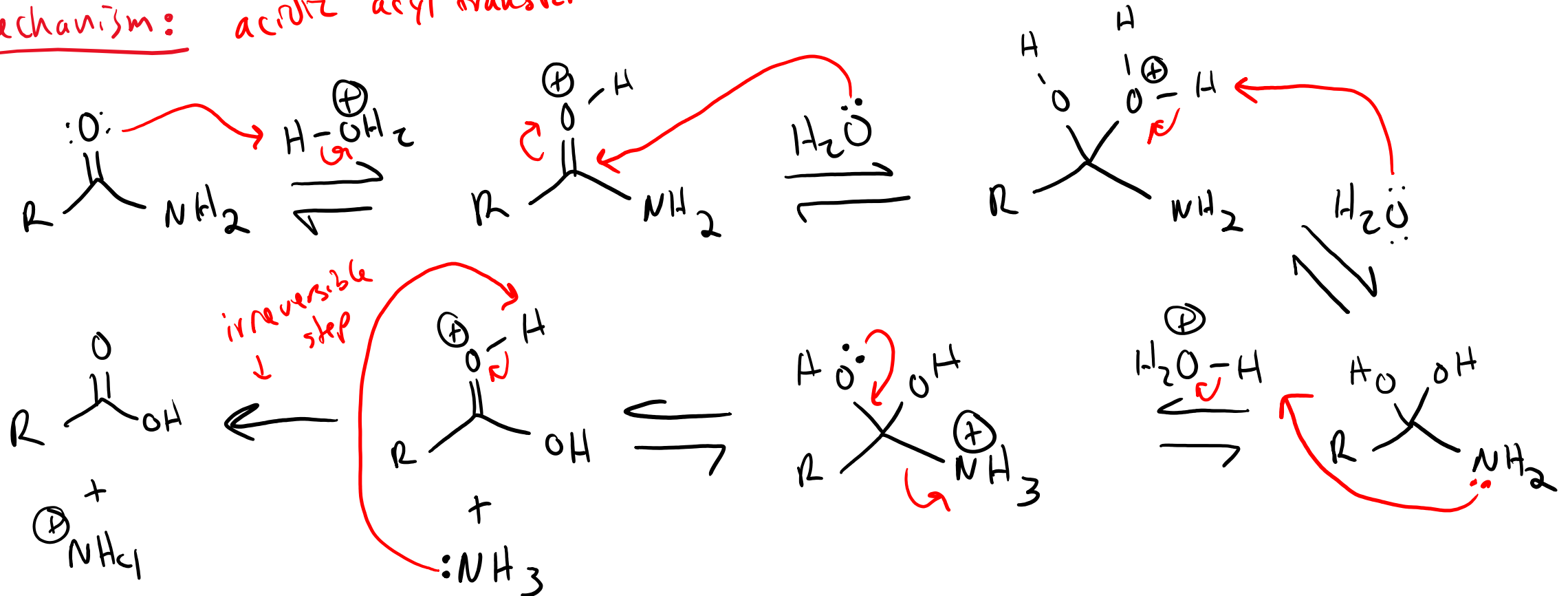
Synthesis of amides:



Hydrolysis of Amides ^{→ loosen or dissolve} using elements of water $H-OH$ to break up a bond or F.G.

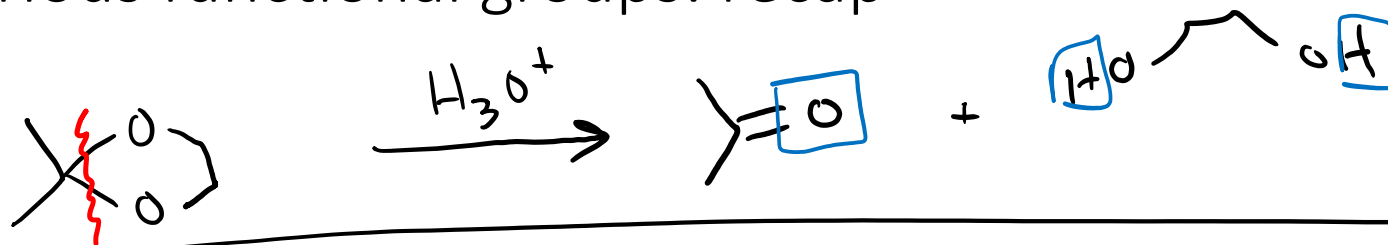


mechanism: ^{acidic acyl transfer}

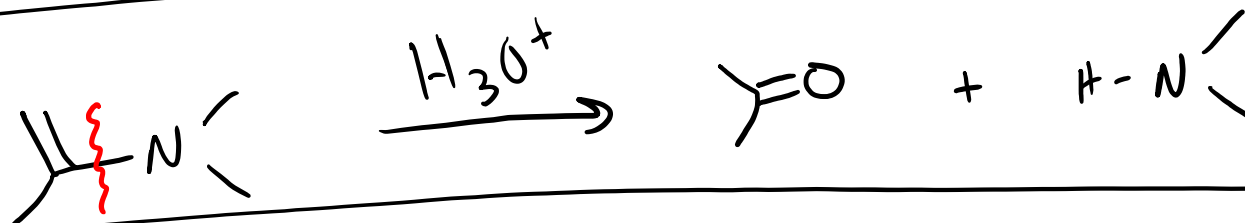


Hydrolysis of various functional groups: recap

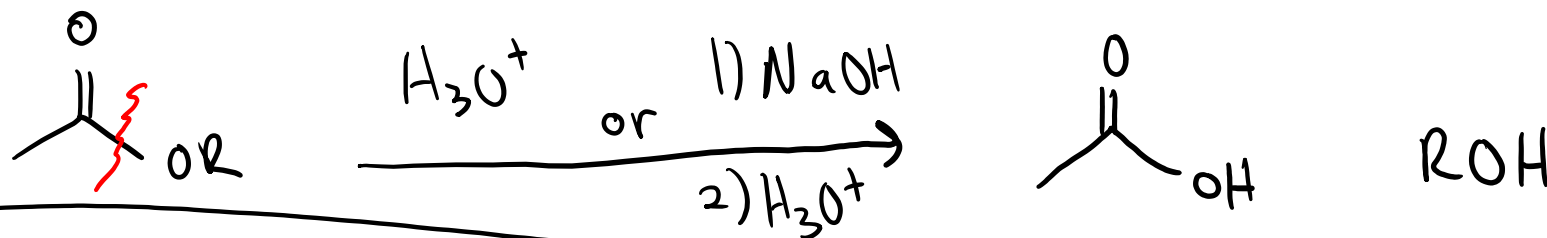
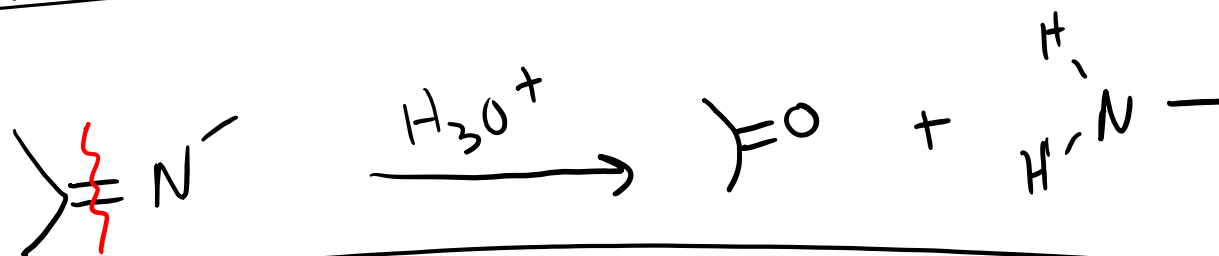
Ch. 19 { acetal



enamine



imine (etc.)

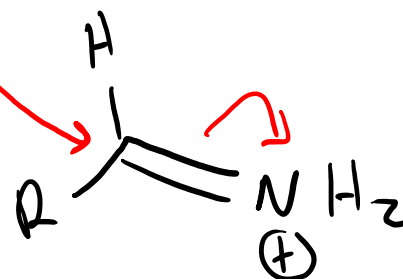
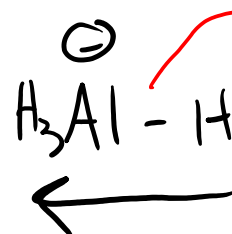
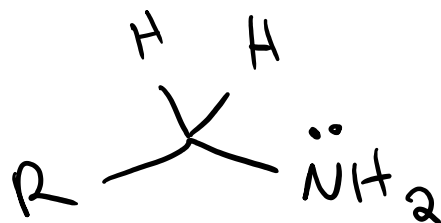
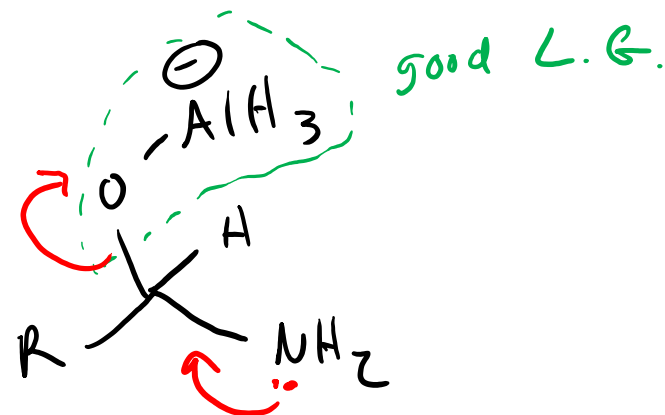
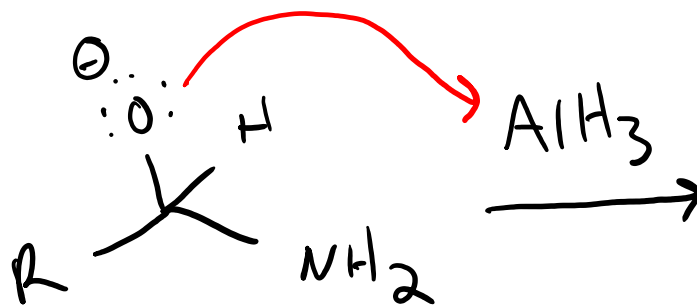
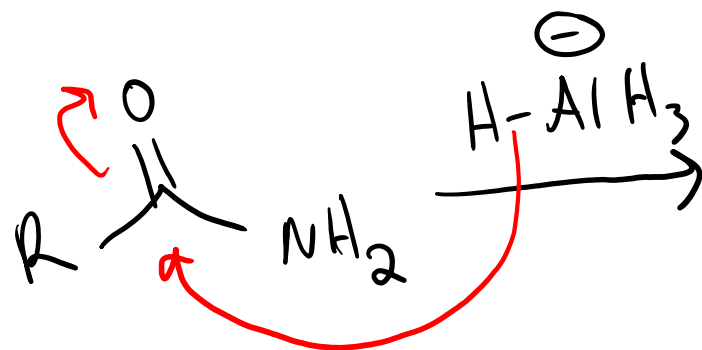
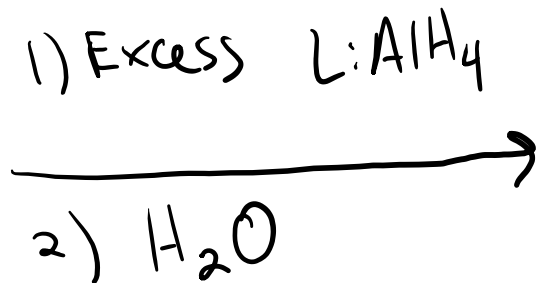
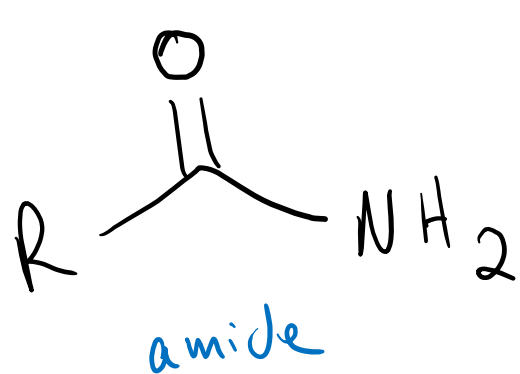


Reduction of Amides

NaBH_4 too weak for amide

• 2 H's added

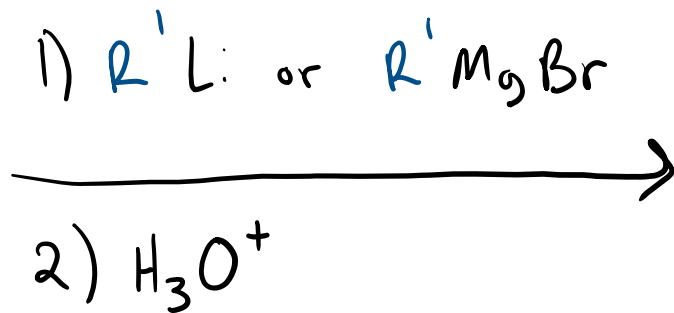
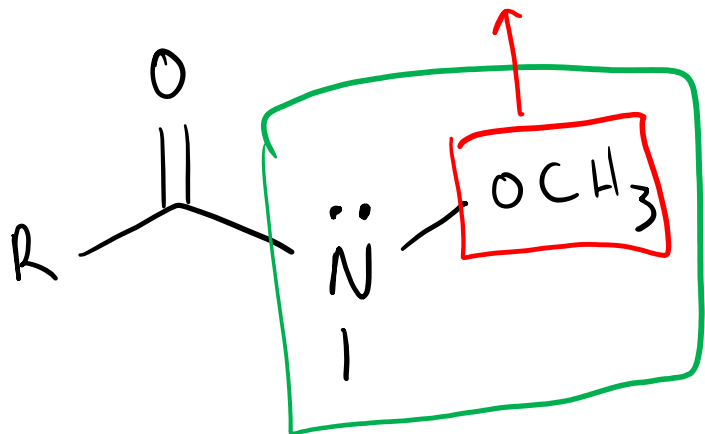
• oxygen from C=O is gone!



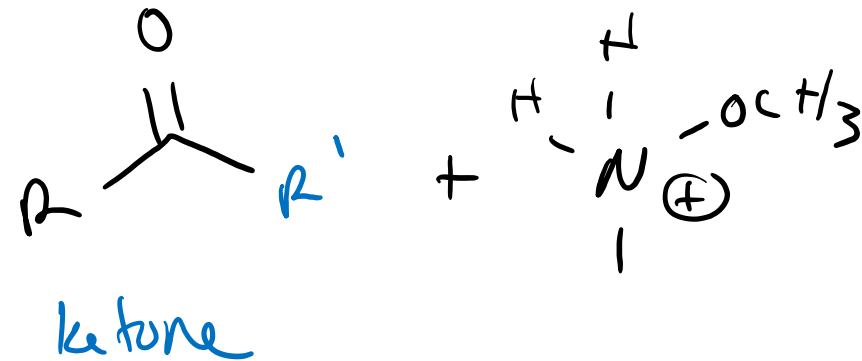
iminium

Weinreb Amides (not in the book)

must be present

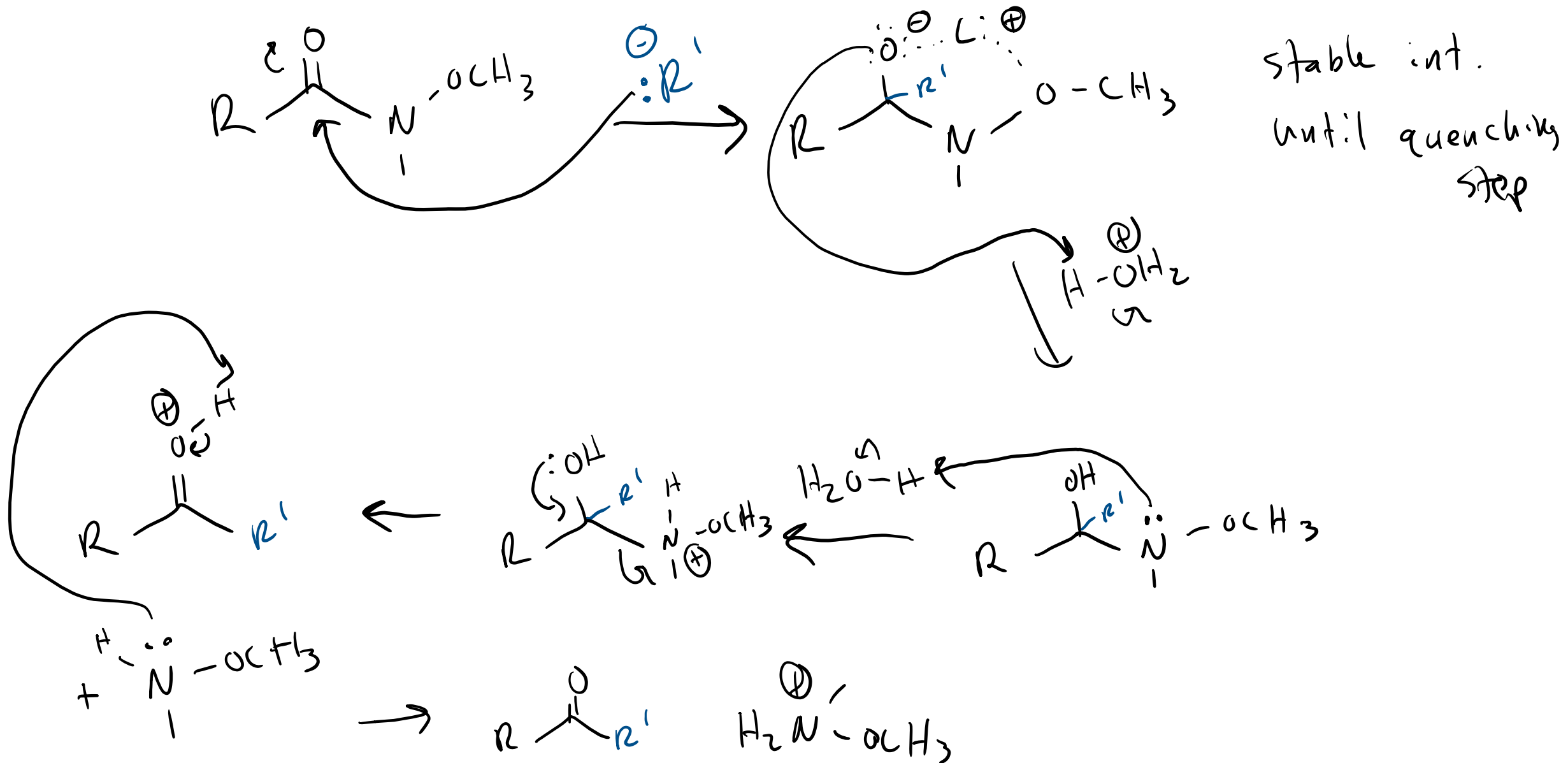


only 1 R' added

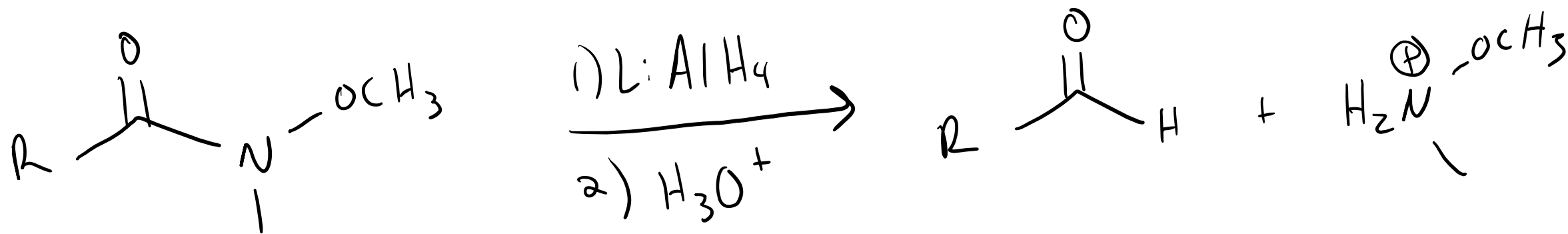


Weinreb's
Amide

Reduction of Weinreb Amides: Mechanism



Reduction of Weinreb Amides



Weinreb
amide

aldehyde

Grignards roughly follow same trend

Reduction (hydride transfer) of various functional groups: recap

