

Today

Next Class

Reactions of Carboxylic Acids
Section 15.10

SKIPPING Nitriles, and Acid Anhydrides
Sections 15.10 – 15.13, 15.15 - 15.16

Reaction of Amides
Section 15.11 -15.13

Start Chap 16
Aldehyde and Ketone Nomenclature
Section 16.1

Nitriles, and Acid Anhydrides
Sections 15.15 - 15.16

The Reactivity of Aldehydes and Ketones
Section 16.2 and 16.3

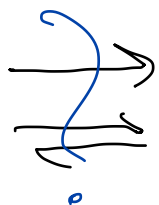
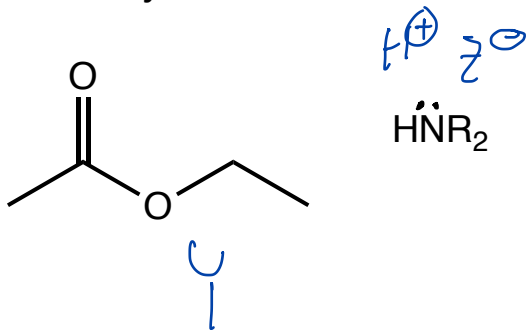
Test on 15.1 – 15.9 on Friday

Former test questions:
Spring 19, Test 2: q1 q2b, q5c

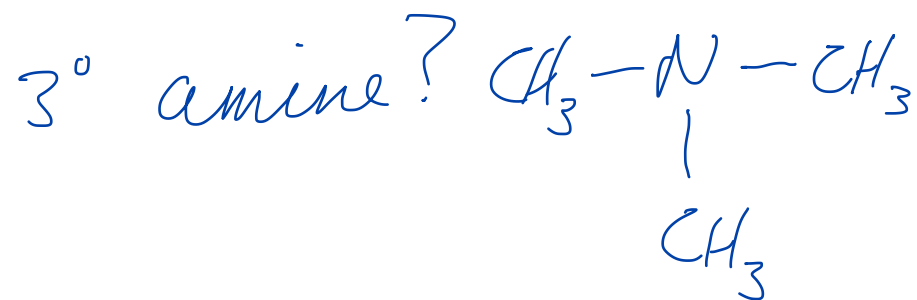
Spring 2008, Test 4: q7, q8, q9

Many questions that start with carboxylic acids are similar to the ester reactions, but section 15.10 will not be on the test.

Aminolysis: Net Reaction



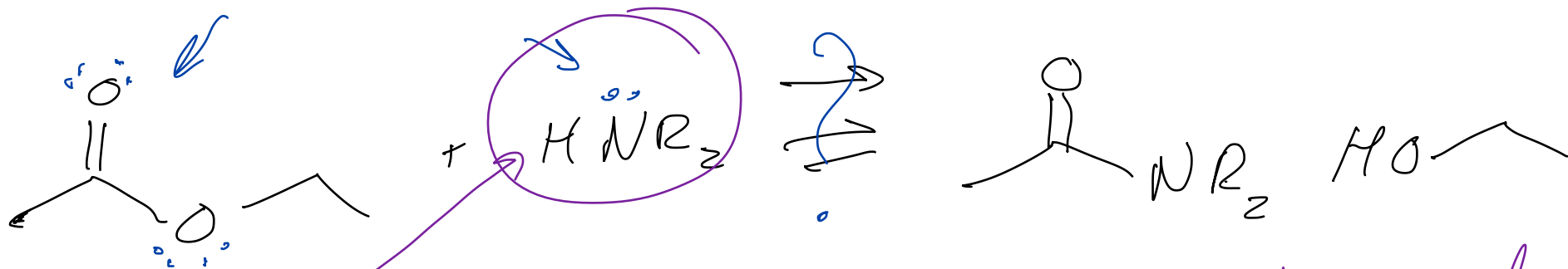
will this work with 3° amines?



H^+ is transferred from Z^- to Y^-

Nope... it doesn't

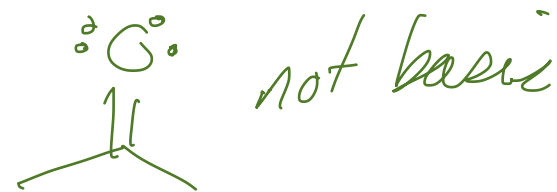
work because the rxn needs to transfer an H to the ^-O or the N would remain \oplus .



added H^+ would stick to the amine and it would not be nucleophilic any more

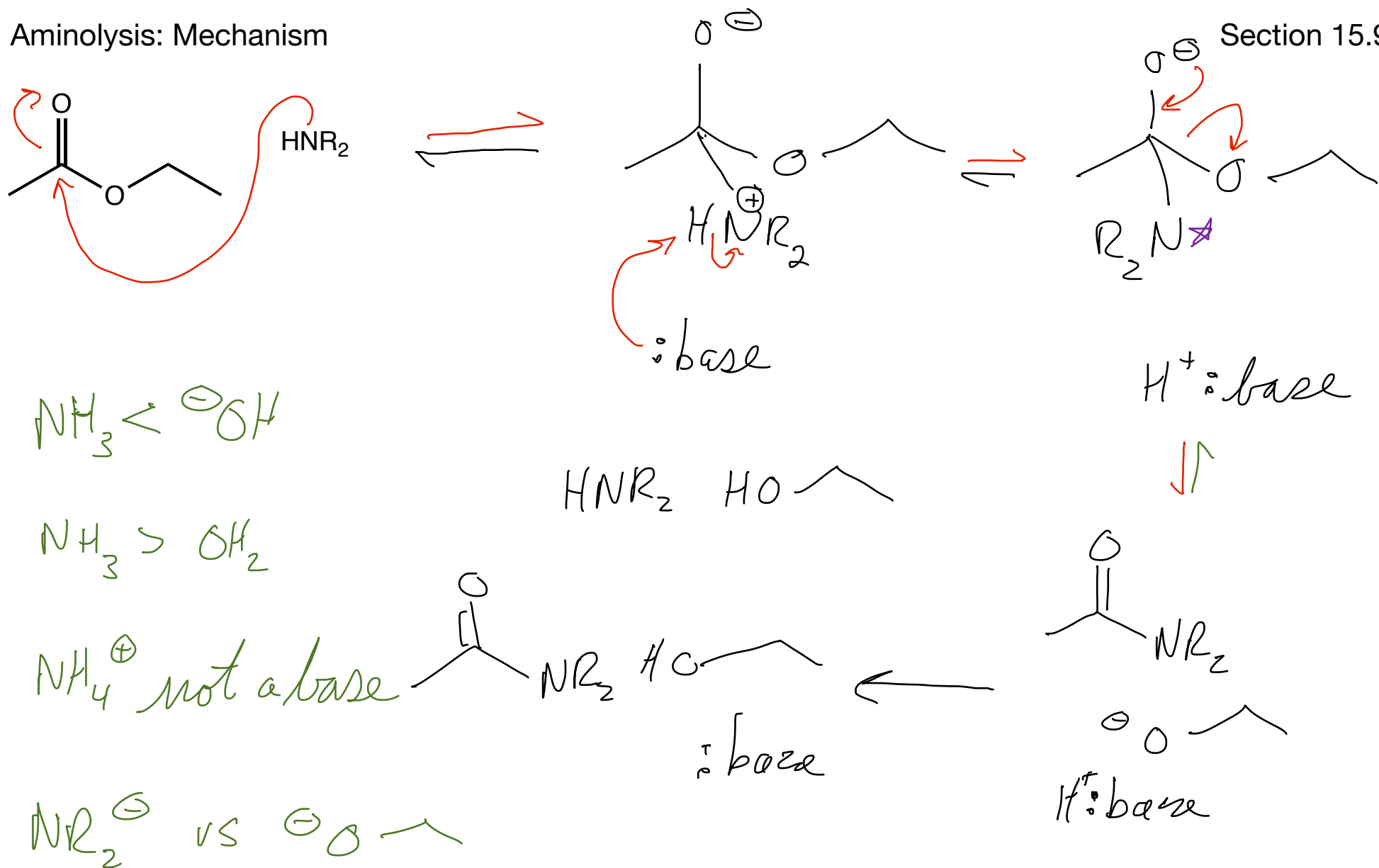
Can we use an H^+ catalyst like we did with the hydrolysis?

When H^+ is added where will it go? To the molecule that is more basic



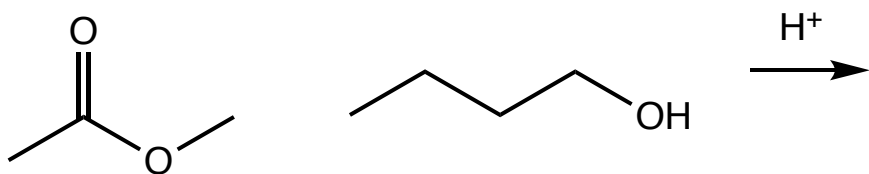
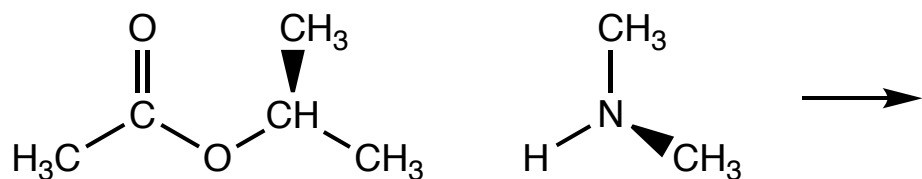
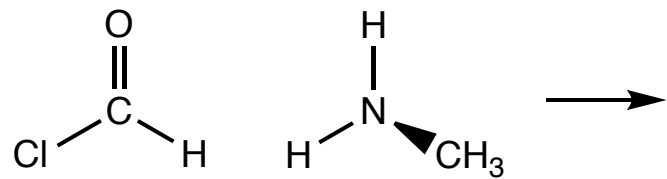
Aminolysis: Mechanism

Section 15.9



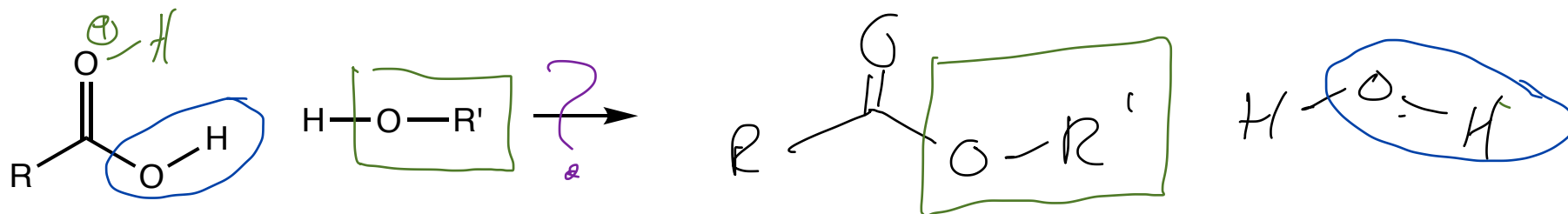
After the O^- loses the H^+ it would have to leave at NR_2^- , which is too basic

Practice



Reaction of Carboxylic Acids with Alcohols: Net Reaction

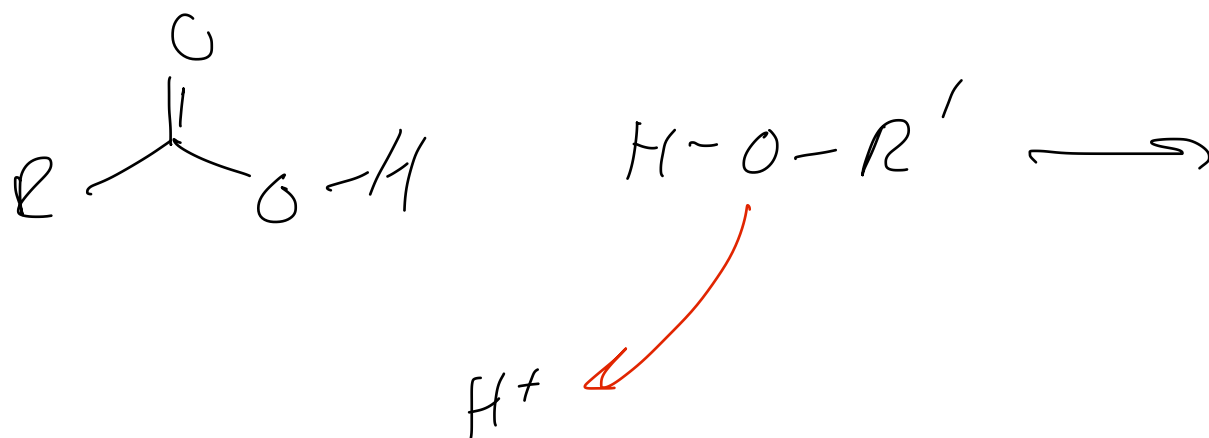
Section 15.10



R = H, CH₃, CH₂CH₃, etc.

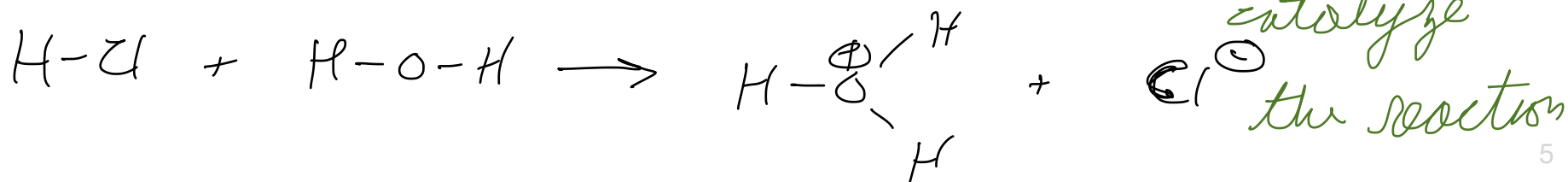
R' ≠ H, R' = CH₃, CH₂CH₃, etc.

Can we use H⁺ to catalyze the reaction?



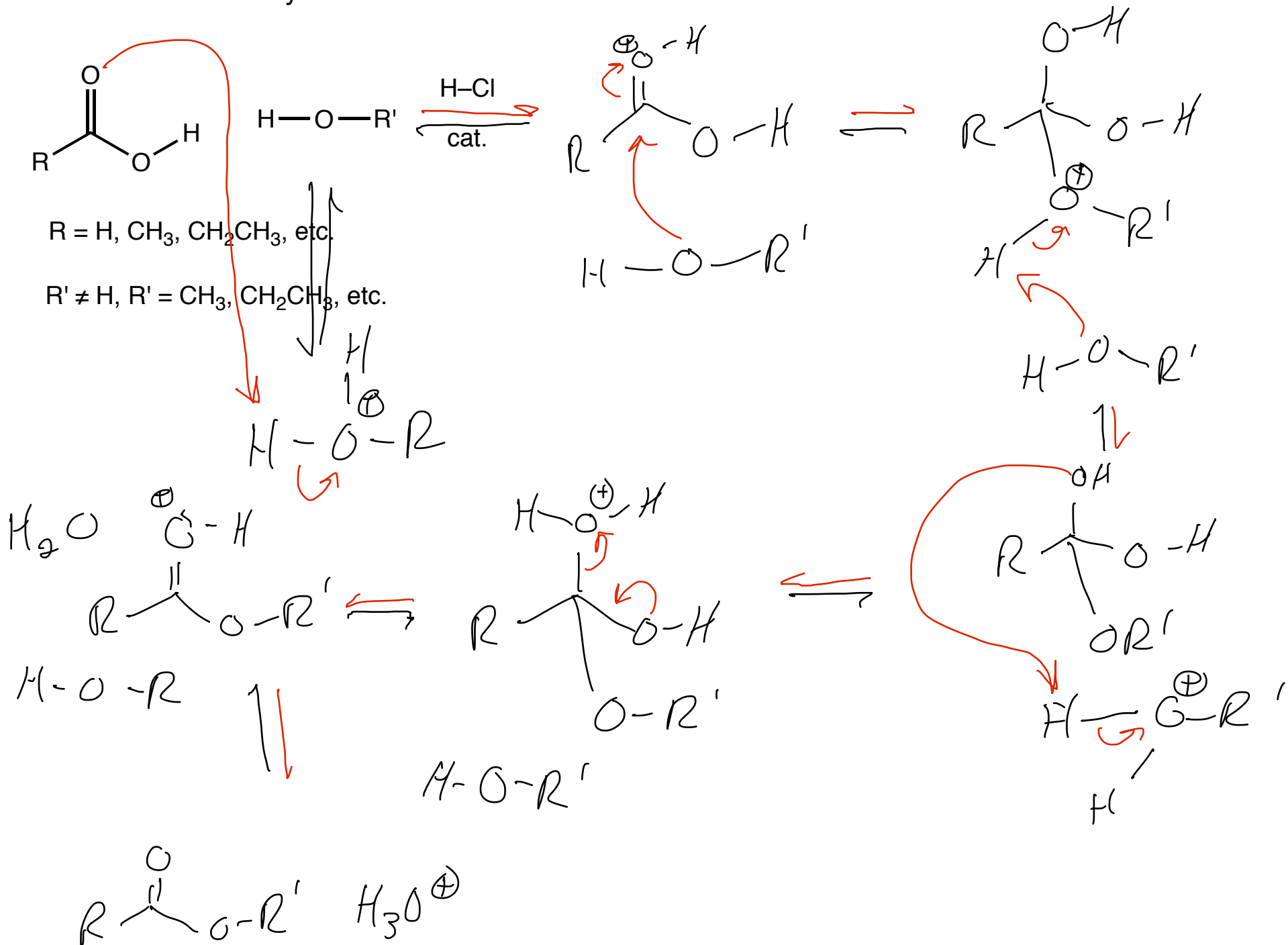
this is a strong acid and it can donate H⁺

to CA to catalyze



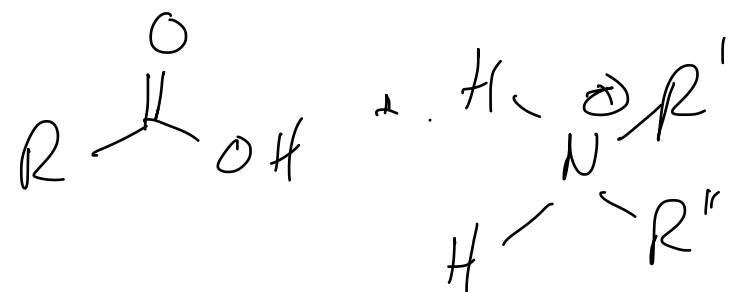
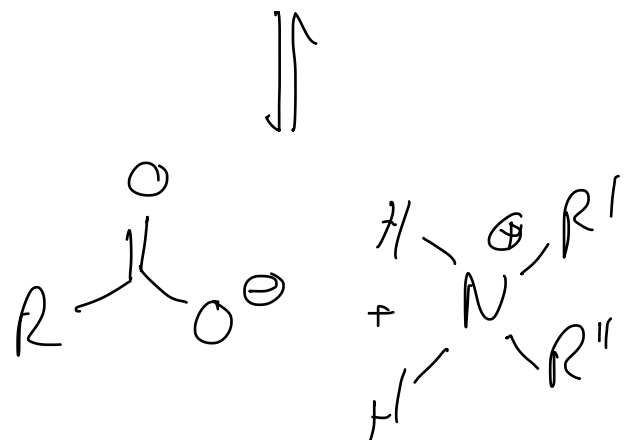
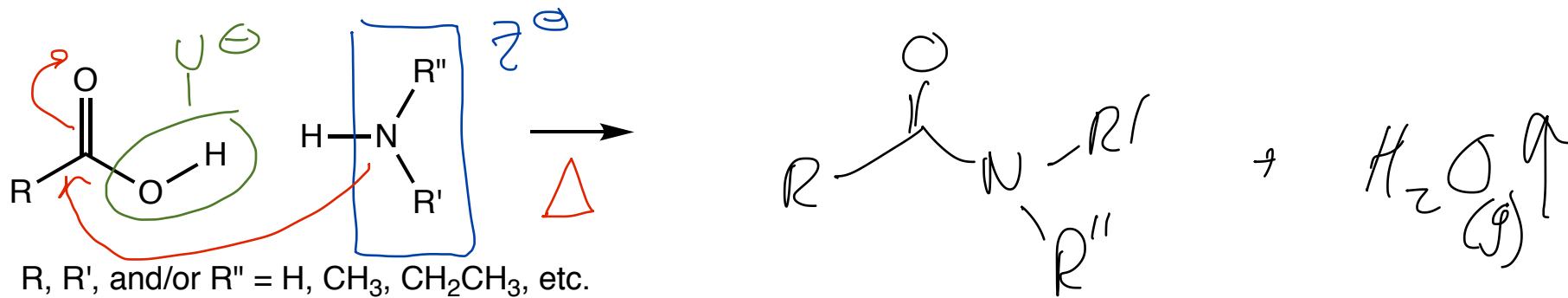
Reaction of Carboxylic Acids with Alcohols: Mechanism

Section 15.10



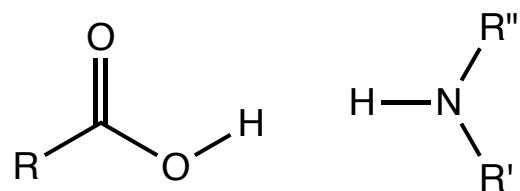
Reaction of Carboxylic Acids with Amines: Net Reaction

Section 15.10



Reaction of Carboxylic Acids with Amines: Mechanism

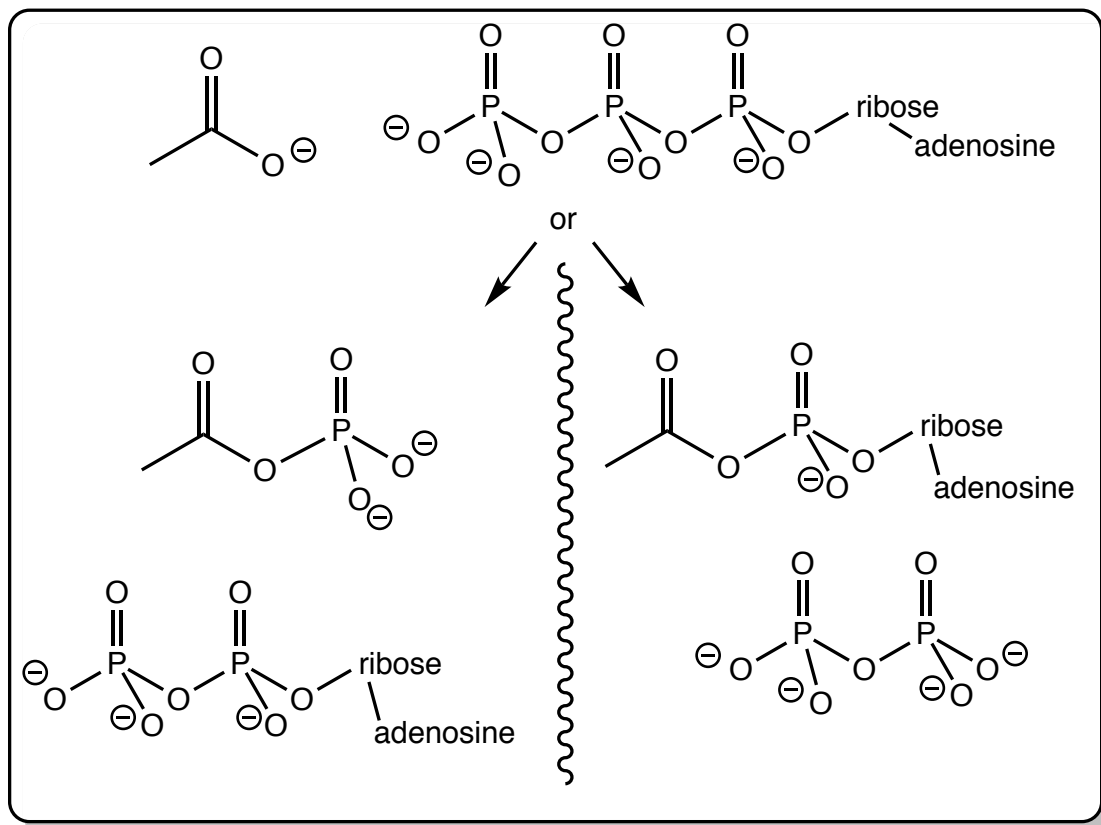
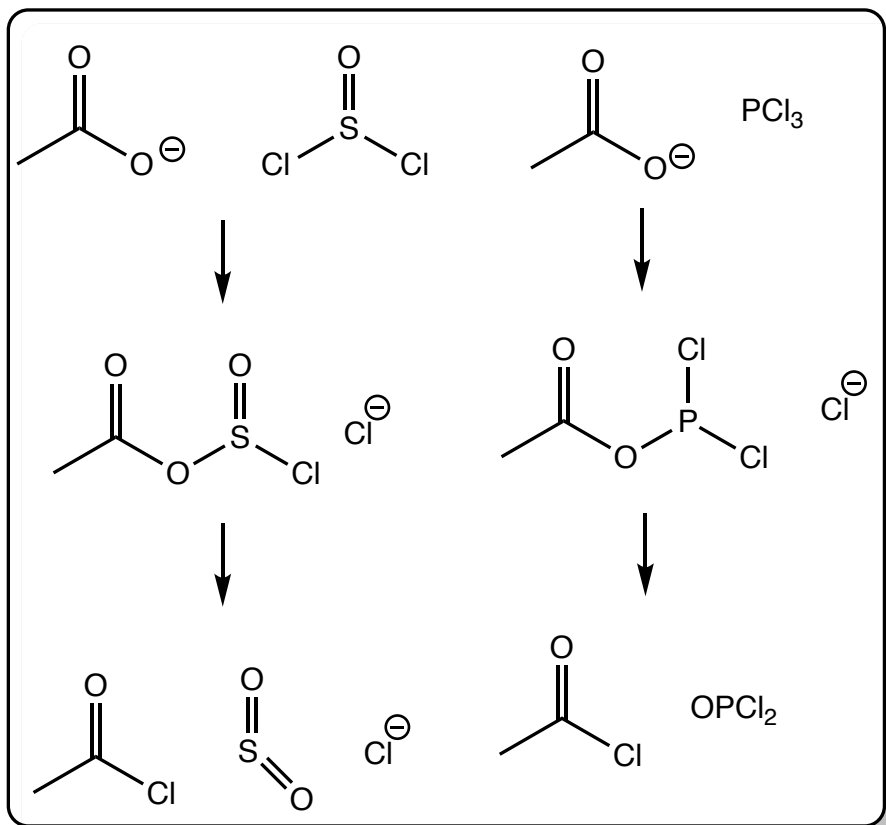
Section 15.10



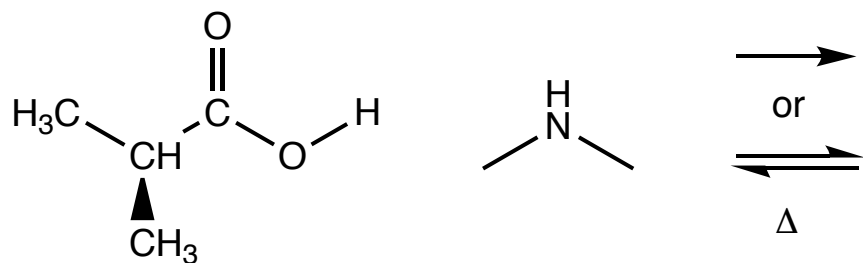
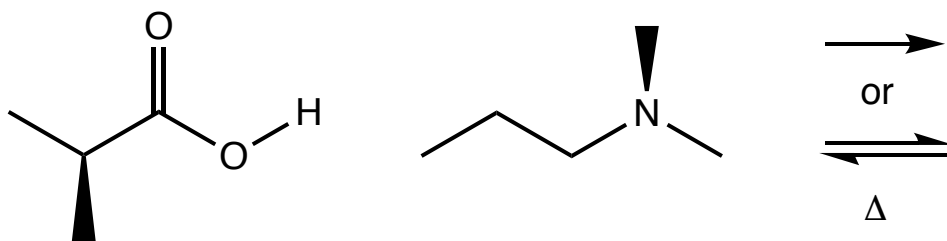
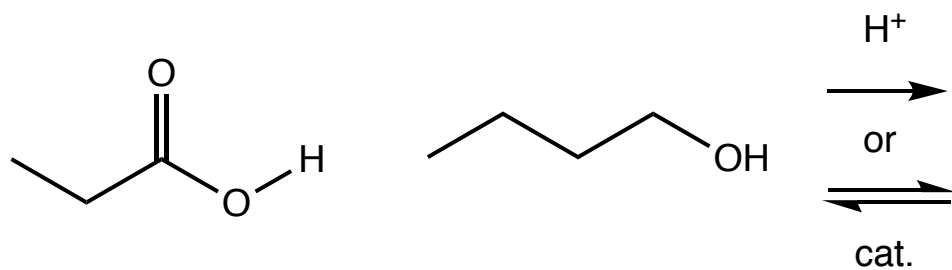
R, R', and/or R'' = H, CH₃, CH₂CH₃, etc.

Activating Carboxylic Acids

Section 15.18 and 15.19



Practice



Topic

Section

Topic

Section

Topic

Section

