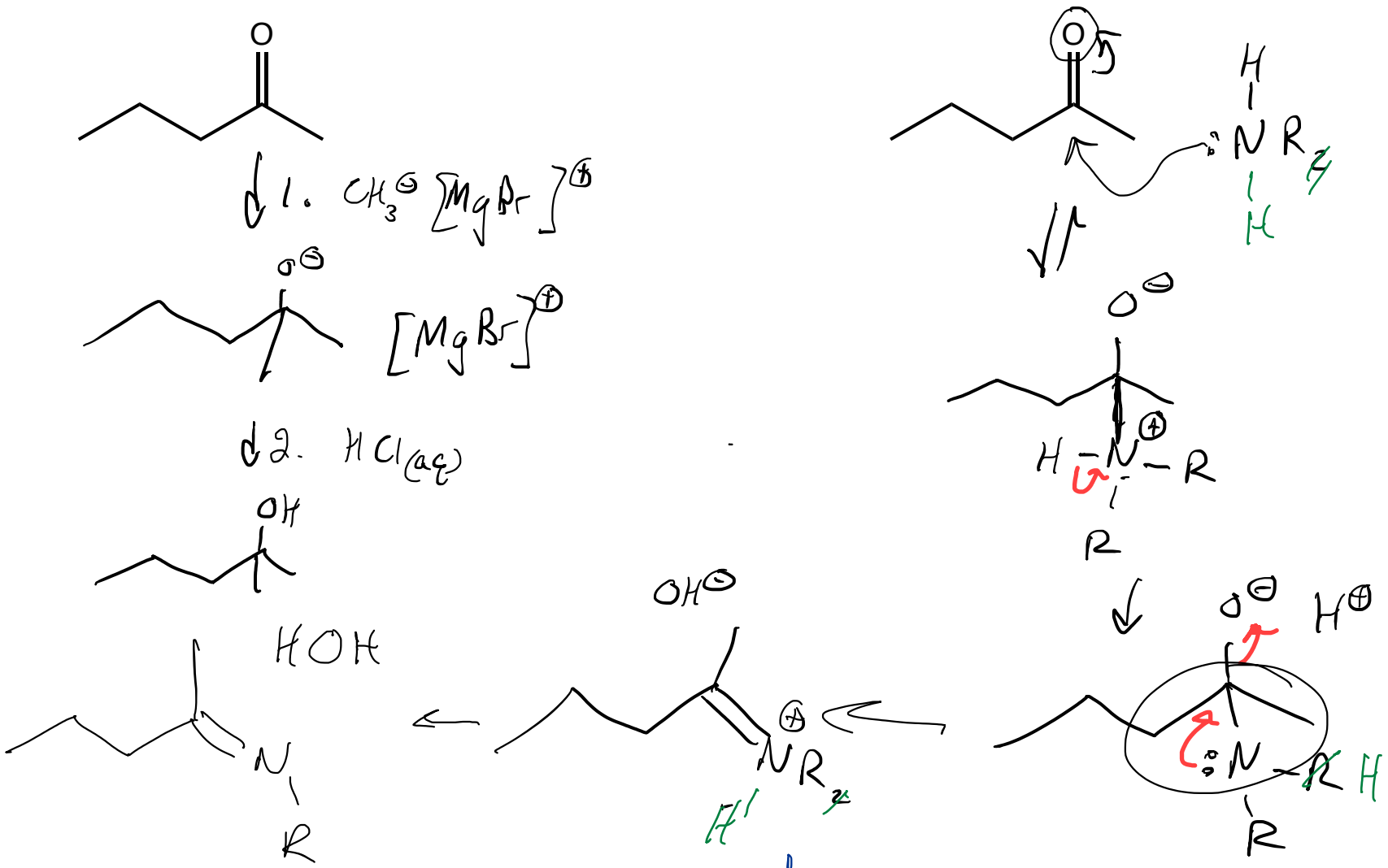
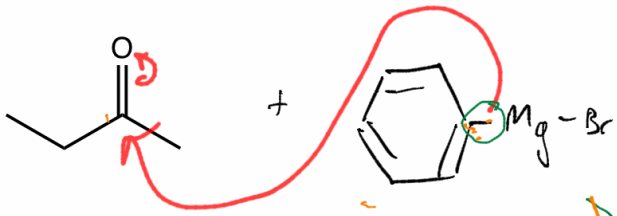
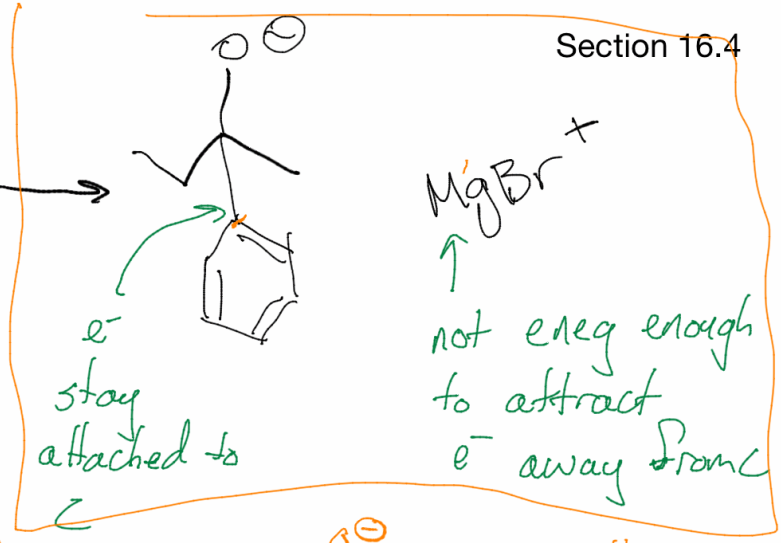
Section 16.9 on Wednesday

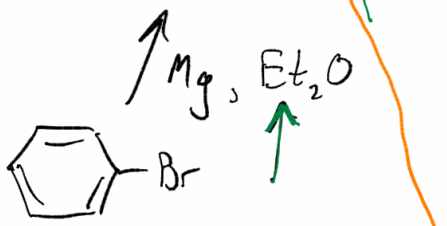
Nucleophiles that can react 1 vs 2

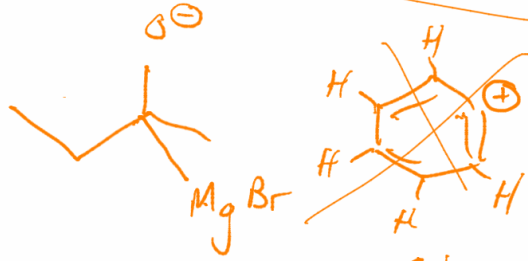


Nucleophiles: $CH_3^{\ominus}[MgBr]^{\oplus}$, NH_2R, NHR_2, $H\ddot{O}-R$, $H^{\ominus}$

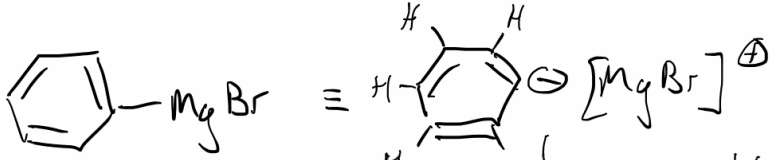








AO C^+ on benzene ring is very unlikely

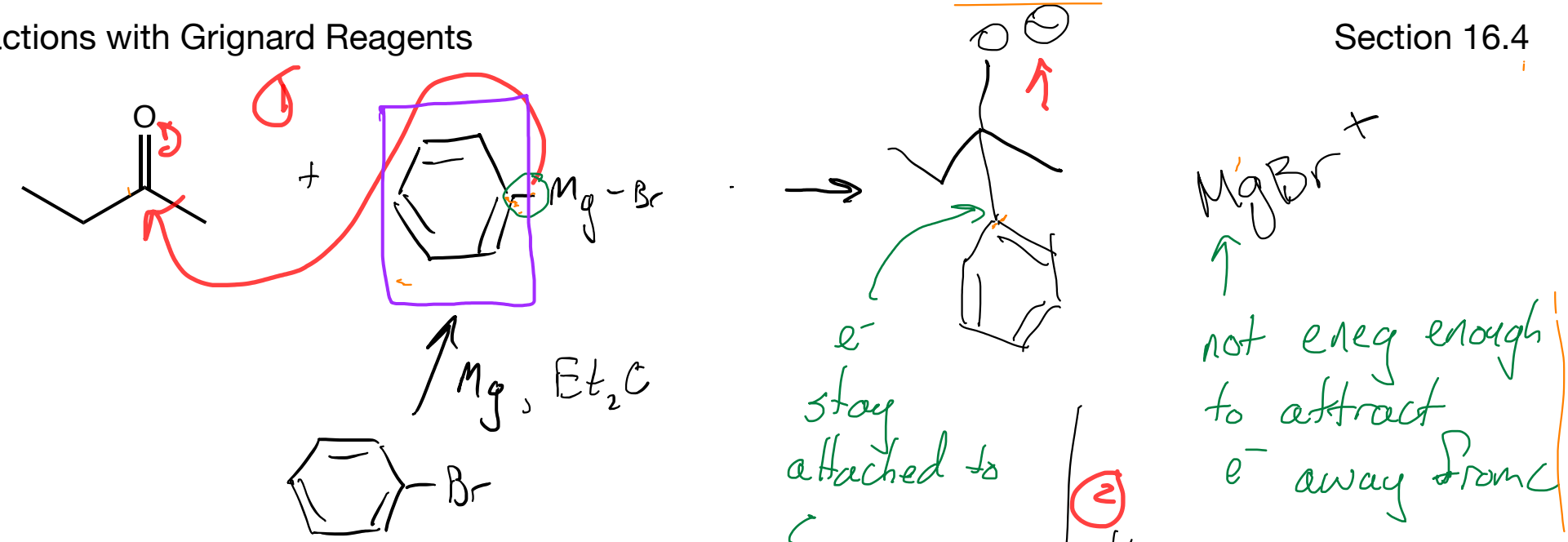


acts like lp e⁻'s ... very nucleophilic

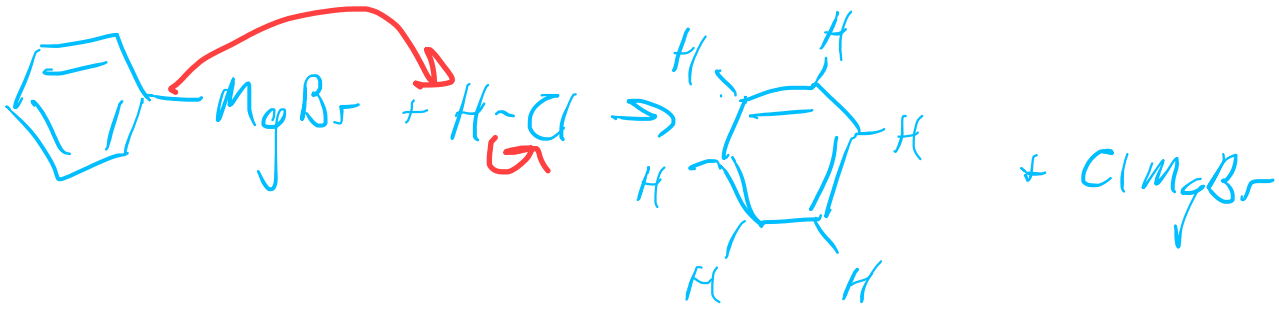
benzene

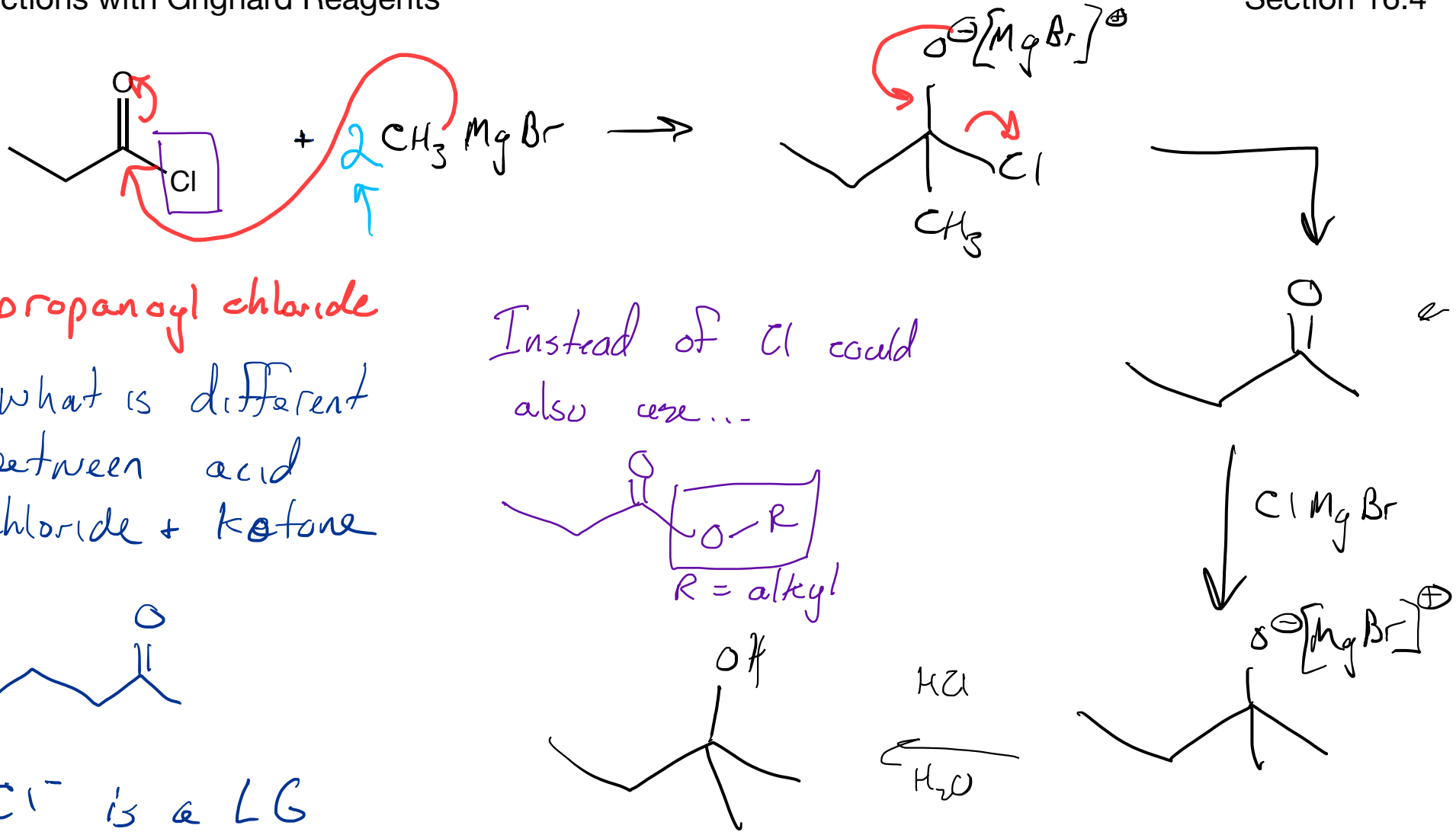
cyclohexane

not benzene



Must be done in 2 separate reactions... or...





propanoyl chloride

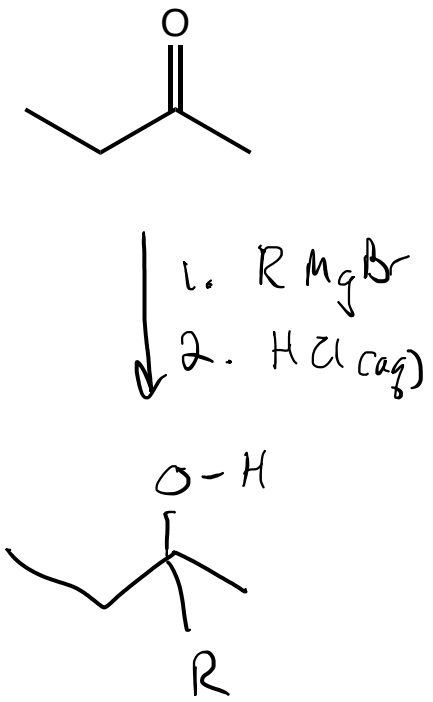
what is different between acid chloride + ketone

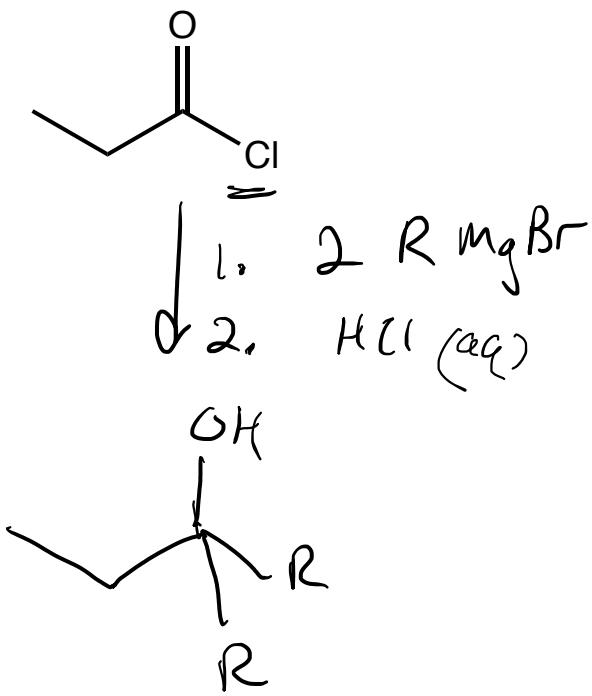
Cl^- is a LG

Instead of Cl could also use...

R = alkyl

Carbonyls that have leaving groups make reactive products, so they react 2x.





no LG on aldehyde or ketone, so 1 Grignard reagent reacts with 1 carbonyl ✓ done

with a LG to leave, there is room for 2 nucleophiles to bond with carbonyl C ✓ done

movement of e^-'s

ionic

$2\,Mg_{(s)} + O_{2(g)} \rightarrow 2\,MgO_{(s)}$

Mg^{2+} O^{2-}

$2\,Mg^0 \rightarrow 2\,Mg^{2+} + 4e^-$ half reaction

$4e^- + O_2 \rightarrow 2O^{2-}$

oxidation = losing e^-

reduction = gaining e^-

OIL RIG

LEO say GER

Combustion

$$CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$$

add O to C oxidize

add H to C reducing