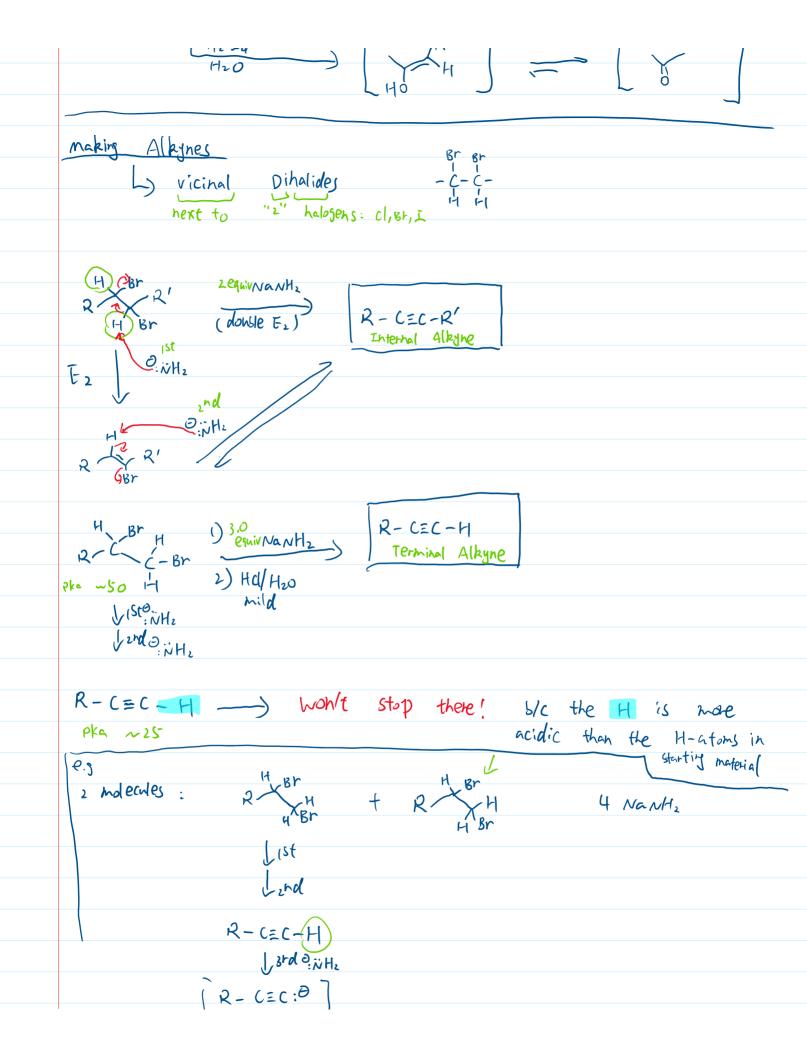
MTW10 10-31

Monday, October 31, 2022 3:39 PM 2 or bonds A (kynes Alkynes - C=C- SP hybridized of (10 bond, 2x 2P-hybridized orbitals Linear 27 bonds. U 2 x 2P-unhybridized orbitals 2 x 2P-unhybridized orbitals 2 x 2P-unhybridized orbitals T-bonds (overlapping 29-orbitals) Lynucleophile \rightarrow isolated $\pi - e^{\Theta}$ density is reactive ho resonance 2-types of Alkynes: Terminal Alkynes Internal Alkynes R-C=C-IH U Can be deprotonated R-CEC-R R=CorH R+H, R= Carbon-Containing Stuff ReCall; the T S-character, the more stasle the anion. so -> the terminal alkyne is relatively acidic. (Albyne for (ManH2 _ 1 equiv R-(=C-H NAD NH2) R-C=C.D + H-NH2 $Pka \sim 2S^{-}$ pka~ 38 Because $pKa = 38 > pKa \simeq 25$, the e.q. will favor the right side $10^{13} = 10^{10}$ Terminal Alkyne anion: R-C=C: Nuc/Base Electrophile A New C-C bond The ONLY reaction to make a new C-C bond (yet)

H₃C-C=C-H
$$\longrightarrow$$
 NO RXN1
We need a base
to make R-C=C: θ , the bonds along Contont make a c-c bond!
R-C=C+H $\frac{10}{2}$ R⁻ C=C $= R'$
New C-c bond!
Brider of addition matters!
Hydroboration - OXidation of alkgnes
Recall:
 $(Sia)_2 BH = H - B = t ''Antler" \Rightarrow Stericolly kindered.
H₃C-C=C-H $\frac{10}{2}$ Hard for $H = t^{-1}$ (Sia)_2 BH $H = H - B$ $t = t''Antler" \Rightarrow Stericolly kindered.
H₃C-C=C-H $\frac{10}{2}$ Hard for $H = t^{-1}$ H_3 H_3 H_4 H_3 H_5 H_6 H_5 H_6 $H = t^{-1}$ H_4 H_5 H_6 $H_$$$

Time out:

Time out:
Ends are not stable
$$\rightarrow$$
 they'' react "further
through a protess called "tautomerization"
When we september the end form, it will
spatiaheandy "tautomerize" to september the mode stable
heto form
 $c=0$ is stronger than $c=c$ d
 $H_{2}C-C=C-H$
 $H_{3}C-C=C-H$
 $H_{4}C-H_{4}$
 $H_{3}C-C=C-H$
 $H_{4}C-H_{4}$
 $H_{3}C-C=C-H$
 $H_{4}C-H_{4}$
 $H_{3}C-C=C-H$
 $H_{4}C-H_{4}$
 $H_{4}C-C=C$
 $H_{4}C-C=C-H$
 $H_{4}C-C=C=C-H$
 $H_{4}C-C=C-H$
 $H_{4}C-C=C=C-H$
 $H_{4}C-C=C-H$
 $H_{4}C-C=C=C-H$
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 $\left[\begin{array}{c} \mathcal{L}^{\mathcal{D}^{\mathcal{D}^{\mathcal{D}}}} \stackrel{\mathcal{D}^{\mathcal{D}}}{\longrightarrow} \stackrel{\mathcal{D}^{\mathcal{D}}}{\longrightarrow} \mathcal{D}^{\mathcal{D}} \\ \mathcal{L}^{\mathcal{D}^{\mathcal{D}}} \mathcal{L}^{\mathcal{D}^{\mathcal{D}}} \stackrel{\mathcal{D}^{\mathcal{D}}}{\longrightarrow} \mathcal{D}^{\mathcal{D}^{\mathcal{D}}} \right]$ H-CEC-H Note: you Cawf make :CEC: "biahian" V MaMI2 H-CEC:0 Hosoy, Hosoy -=-4 <u>Hosoy</u> D C=O on the more substituted Catom. keto-form "SI-1" reaction Radicals R-0. ·Br• -7 valence $e^{\Theta}s$ - Partialy filled 2p orbital -> unpaired eo - Neutral formal charse Sp2 hybridized - Reactive making Radicals: break a weak bond w/ heat (D) or light (hv) Radial reactions start (initiate) when a radial forms E.Ĵ.: These radiculs Halosen: Br Br: hv Br. Br. will reart further 1 (Br_2, C_2) They Can: D Extract on H-Gtom Peroxide R-0-0-R hv 2/2-0.

Perokide R-0-0-R how 2x R-0. 1) Extract on H-Atom 2 Add to a double bond NBS in hr in. :Br. Radial stability -> Think stability of Carbolation, but no inductive effect -> ItyperConjugation -> Resonance (P.S. (arbolation: DCH3 DC-CH3 H, CCCH3 (-3, C-C-CH3) 20 nethy (30 more substituted More stable HyperConjugation: overlop of nearby o-bonds and the empty/partialy filled zp orbital