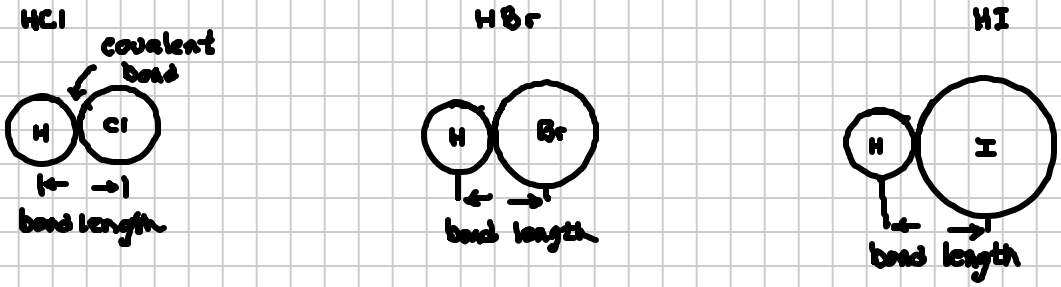
Note Title 1/23/2012

Lecture 13.1 Acid Strength. ① bond length ② Electronegativity.

Strong Acid: Loosely held H^+ ... found w/o H^+ attached

Weak Acid Tightly held H^+ ... found w/ H^+ attached.



Long bonds ⇒ weak bond ⇒ Strong Acid

Acid Strength

weak HCl < HBr < HI strong.

conj. base Strength

strong Cl^- > Br^- > I^- weak

Solvent H_2O

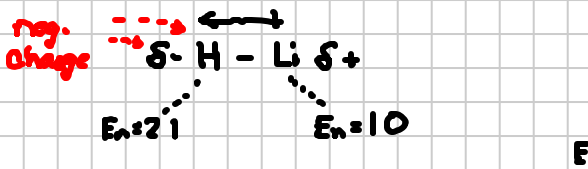
Strength $HCl_{(aq)} = HBr_{(aq)} = HI_{(aq)}$ Same strength Strong.

H_2O strong base · makes all three acids behave as strong acids.

Leveling Effect of H_2O · H_2O makes weak acids appear strong.

• Acid Strength & Bond polarity · Release H^+ ... ▽ positive charge

neg. charge

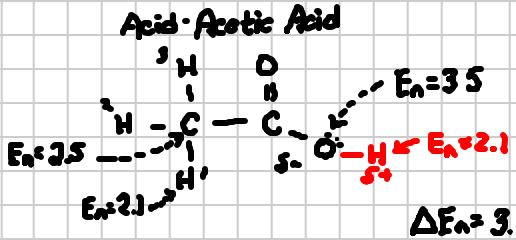


$\Delta E_n = 2.1 - 1.0 = 1.1$

polar bond

H has δ- charge .. Li H Not acidic.

Acid · Acetic Acid



$\Delta E_n = 2.5 - 2.1 = 0.4$

C-H bond

Non Polar.

Non Acidic hydrogen.

$\Delta E_n = 3.5 - 2.1 = 1.4$

Polar bond

O - H acidic hydrogen

Monoprotic acid