

Chapter 02 Resonance/Acid Base Rules/Hybridization

Rules for determining Major and Minor resonance contributors (in order of priority)

1. All atoms have an octet.
2. Charges:
 - Negative charge on most electronegative.
 - Positive charges on most electropositive.
3. As little charge separation as possible.

Ways to compare and identify strong acids/bases

Recall:

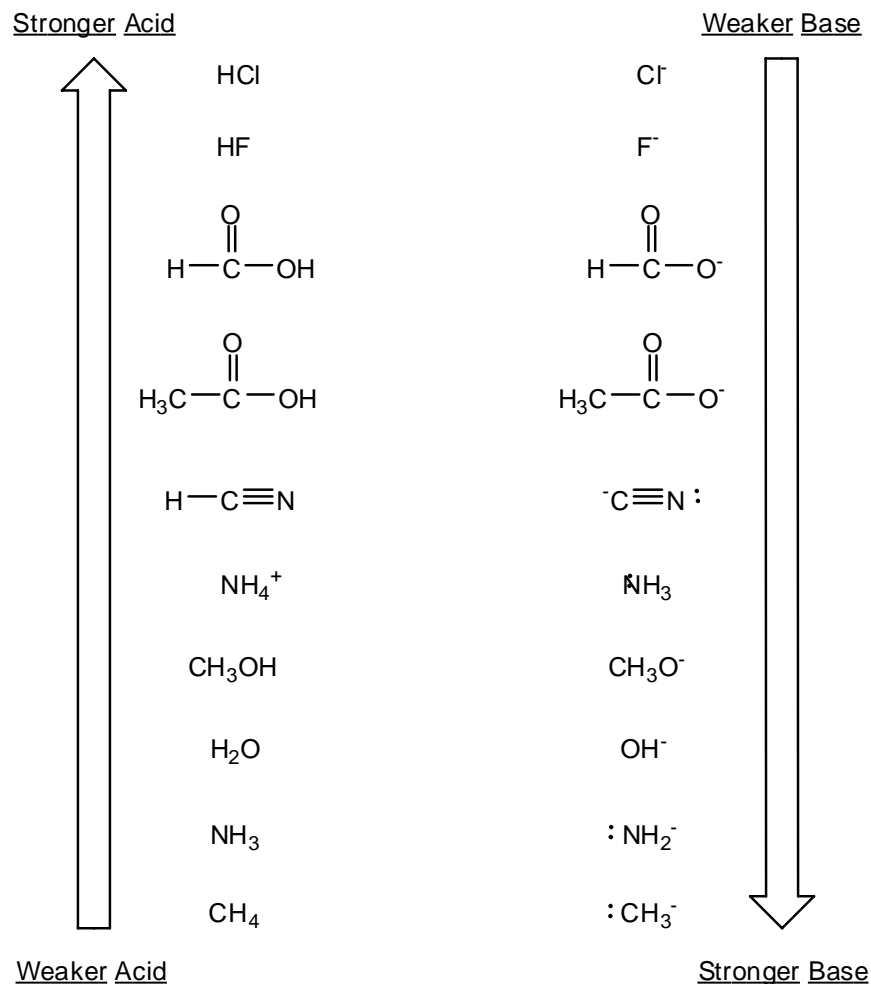
- Acid is a **Proton Donor** (the proton being Hydrogen)
- Base is a Proton Acceptor

- Acid is an Electron Acceptor
- Base is an Electron Donor

- Acid and Base reactions favor weaker acids and bases. Equilibrium will lie towards the weaker.
- The smaller the pKa, the stronger the acid.
- A strong acid has a very stable conjugate base.

Use both of these methods together to make your determination.

1. **Deprotonate** the acid to form its conjugate base and check:
 - **Electronegativity**; more electronegative, the more stable the conj. base, the stronger the acid
 - **Size**; the bigger the atom, the more stable it's conjugate base, the stronger the acid.
 - **Delocalization of charge (Resonance)**; the more resonance or delocalization of charge, the more stable the conjugate base.
2. Recall the chart, also located on pg. 25



Hybridization

- sp : two electron groups: linear (180°)
- sp² : three electron groups: trigonal (120°)
- sp³ : four electron groups: tetrahedral (109.5°)
- **You must** draw resonance structures when they exist because an atom's hybridization may change in one of the resonance structures.