2012/01/19

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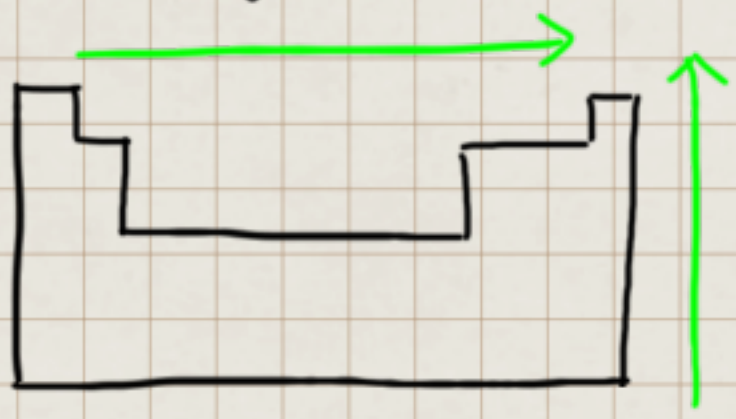
Electronegativity



1. The more protons an atoms has, the more pull it will have an negative e^-.
2. The more e^- the atom has, the more the nucleus will be sheilded

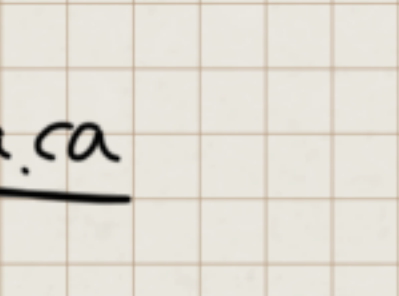
* Important for understanding of polarities

Lewis Structure

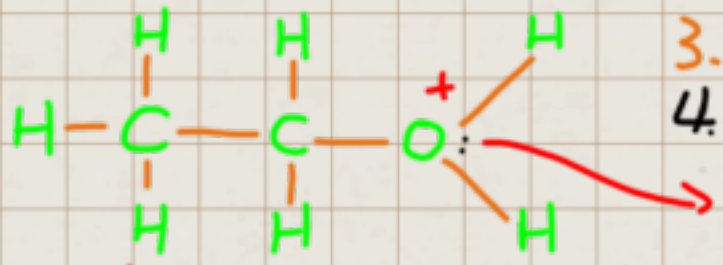
* C only has a max of 4 bonds (but can have 3 or 2)

Eg. CH_3NH_2

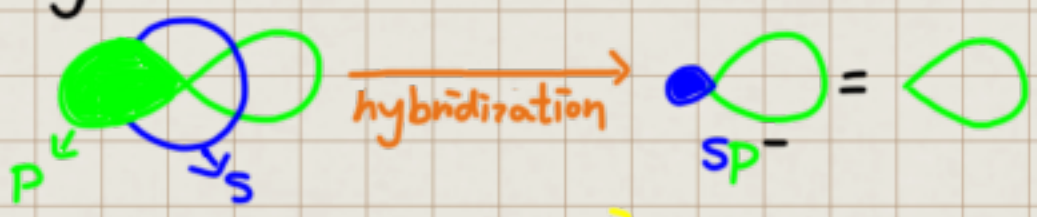
1. Count electrons
   H: $5 \times 1 = 5$
   C: $1 \times 4 = 4$
   N: $1 \times 5 = 5$
   14
2. Draw
3. Count e^-s made
   $6 \times 2e^- = 12e^-$
4. Add lone pairs
   $(14e^- - 12e^-)/2 = 1$

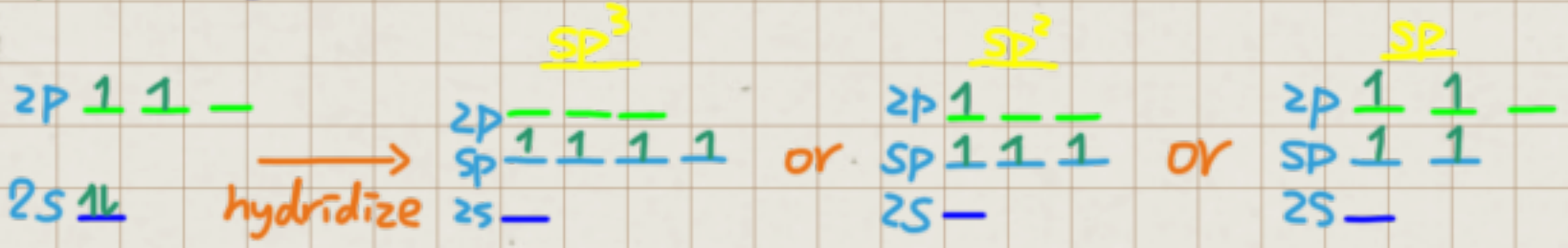


Eg. $CH_3CH_2OH_2^+$

1. H: $7 \times 1 = 7$
   C: $2 \times 4 = 8$
   O: $1 \times 5 = 5$
   20
2. 
3. $9 \times 2 = 18$
4. $(20 - 18)/2 = 1$
   Fc: $6 - 3 - 2 = 1$
5. Formal charge = (# of valence e^-) − (# of bonds) − (# of lone e^-)

Hybridization





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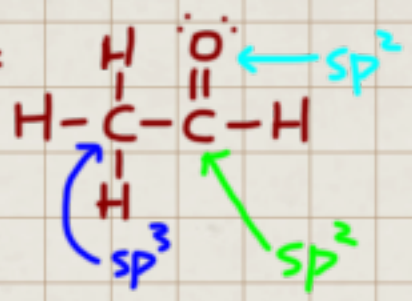
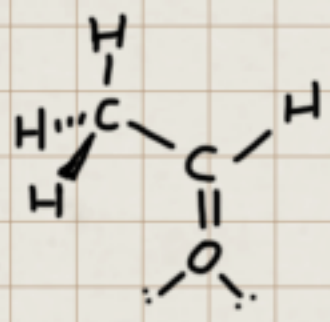
Hydridization Table

	# of orbital	P	Shape	Example
Sp^3	4 sp^3	0	Tetrahedrial	-C-C-
sp^2	3 sp^2	1	Trigonal Planer	>C=C<
SP	2 sp	2	Linear	-C≡C-

* Note: all orbitals adds up to 4
* sp^3 → 3+1 = 4 sp^3 orbitals
  sp^1 → 1+1 = 2 sp orbitals

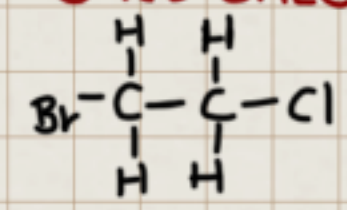
Ex:

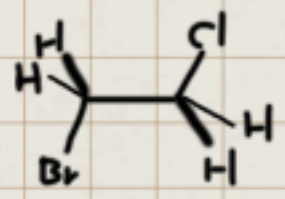


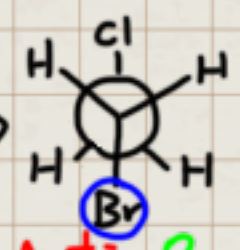


Conformation

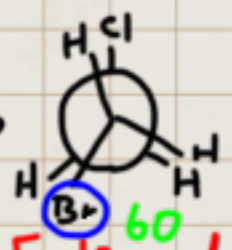
Ex: CH_2BrCH_2Cl



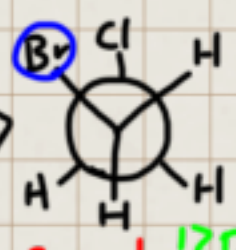




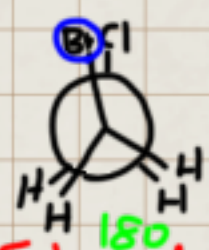
Anti 0
Staggered



Eclipsed 60



Gauch 120
Staggered

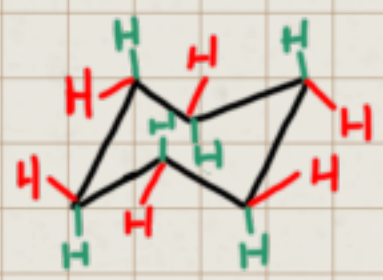


Eclipsed 180

Chairs

+

→



Axial
- High E.
- Lots of static
- _,_ diaxial interaction

Equitorial
- Low E.

* Flip a chair:
  ↳ Aixal → equitorial
  ↳ Position changes