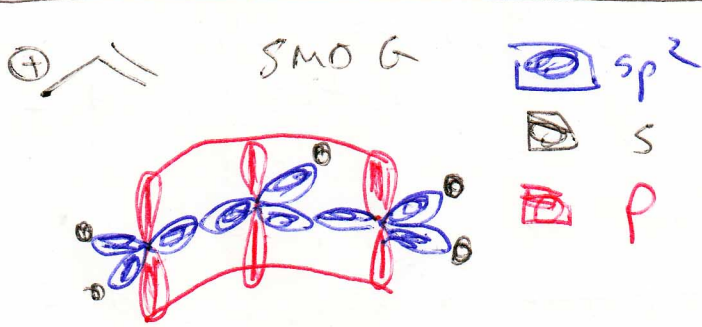
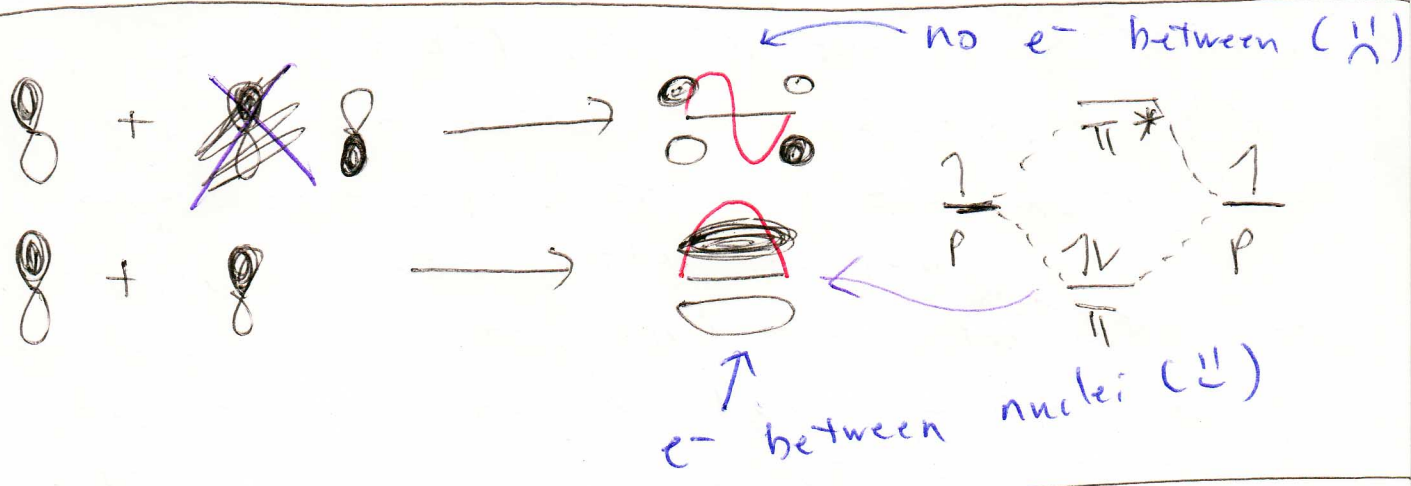
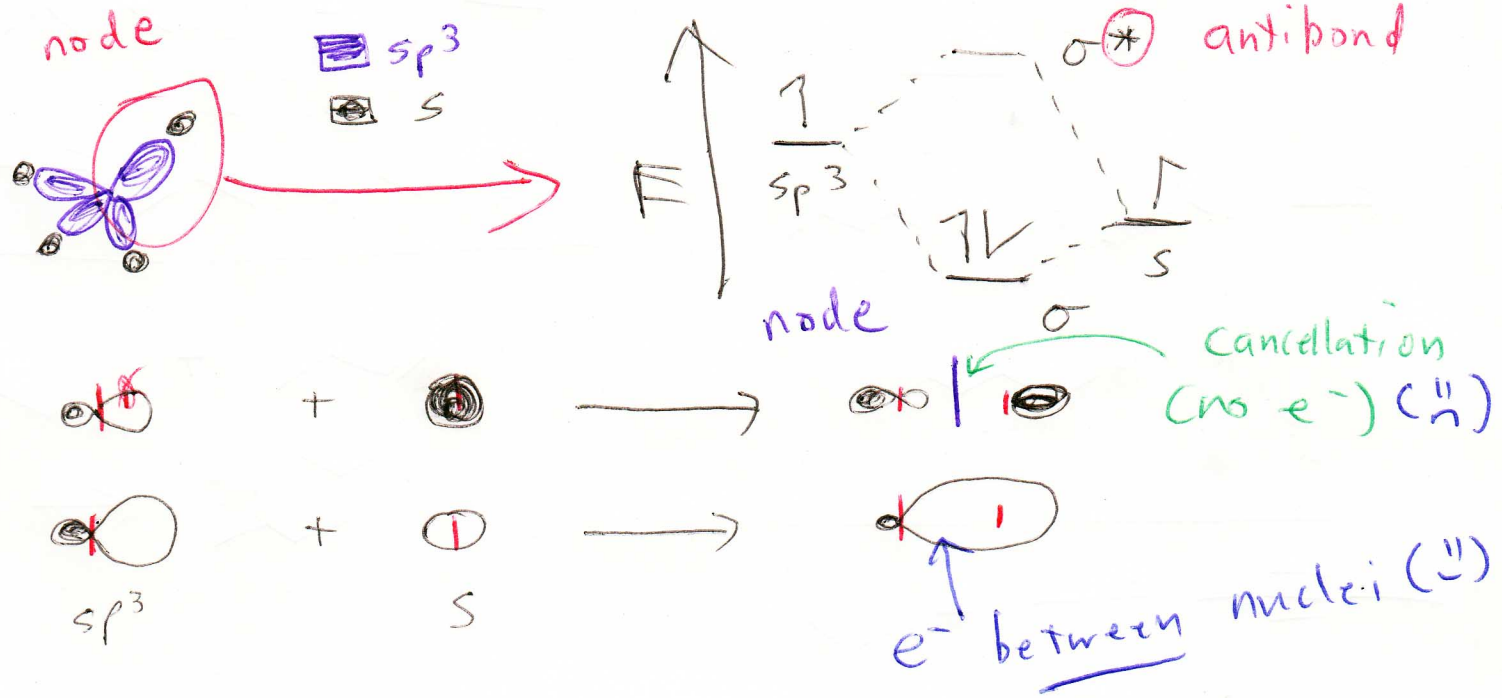
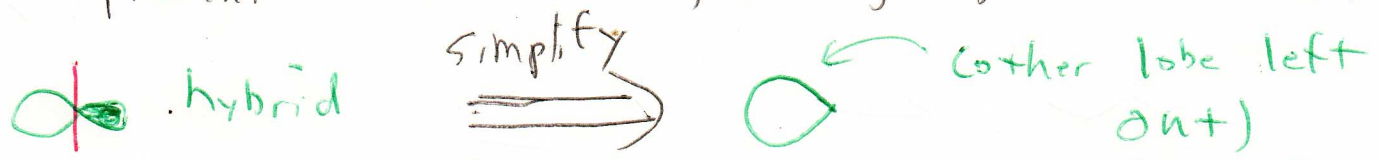


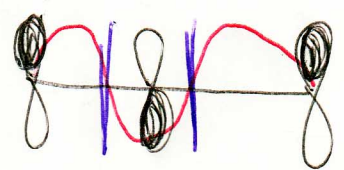
- Atomic orbitals (AO) describe the possible locations of electrons in a mononuclear system. All AOs have shapes that depend on only one nucleus and are symmetric about that nucleus.
- Molecules contain bonds which are the interactions of two or more nuclei. Because multiple nuclei are involved, AOs cannot be directly used to explain molecular structure (methane) on the same atom
- Hybridization involves combining AOs to create new molecular orbitals (MOs) that match the geometry of the system (match VSEPR)
- Bonding can be ~~explained~~ represented by using AOs on different atoms.

CH₄ Structural Molecular Orbital Graphs

- a graphical depiction of the types of orbitals present in a molecule, ignoring sign of the wavefunction



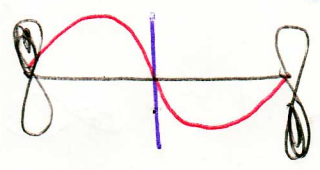
The # of MO generated in a π -system = # of p orbitals used to represent the system



nodes

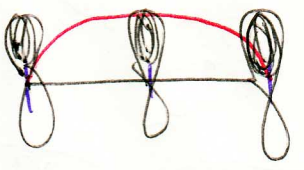
2

antibond



1

non-bond



0

bond