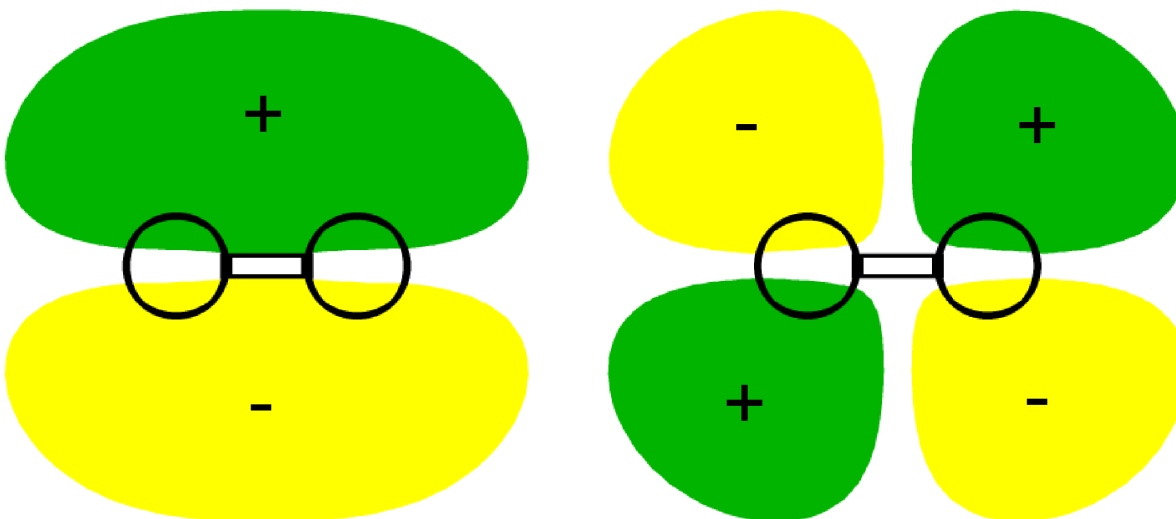


Result: The orbital diagrams look like this:



Bonding MO, π_{2py}

Antibonding MO, π^*_{2py}

Solution: When the orbitals overlap so that the phases match between the nuclei, there is bonding. When the orbitals are out of phase there is antibonding. The orbitals are oriented side-by-side (perpendicular to the internuclear axis); therefore, the orbitals are not cylindrically symmetric. Because each MO has one node that contains the internuclear axis, the orbitals are labeled π . (A MO with two nodes containing the internuclear axis is labeled δ .)