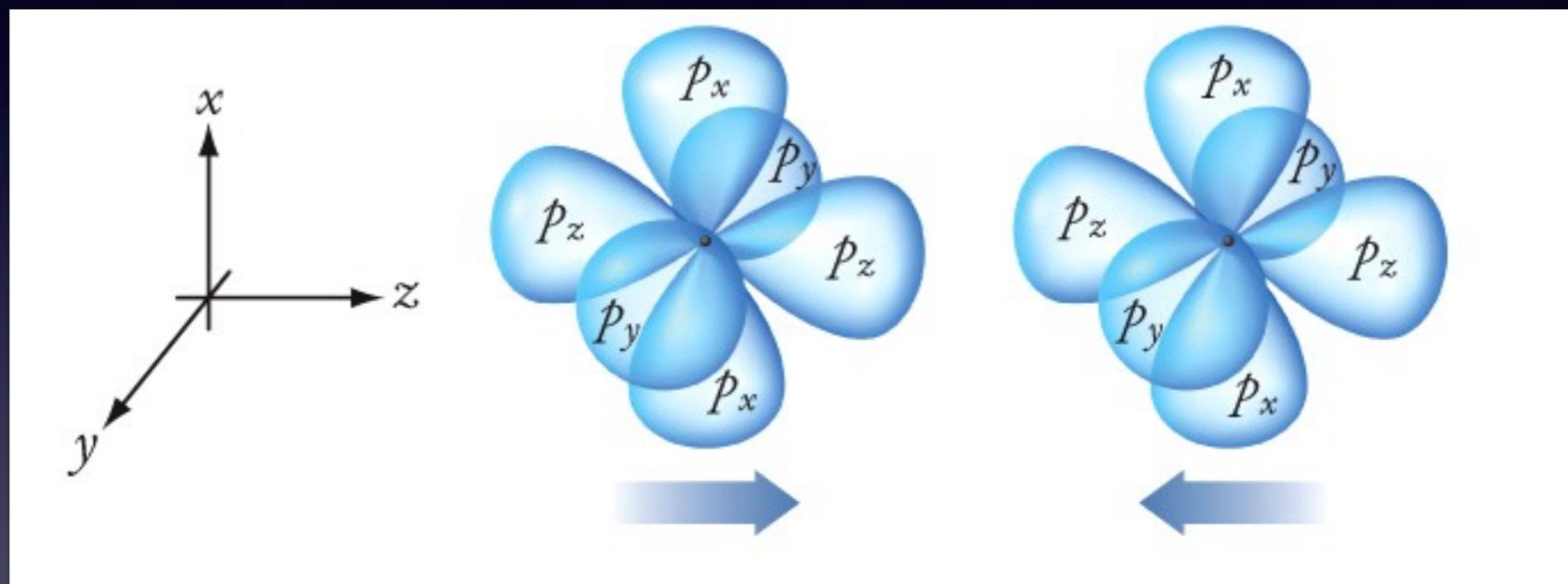


Previously in Molecularity...

Bonding among the 2p elements

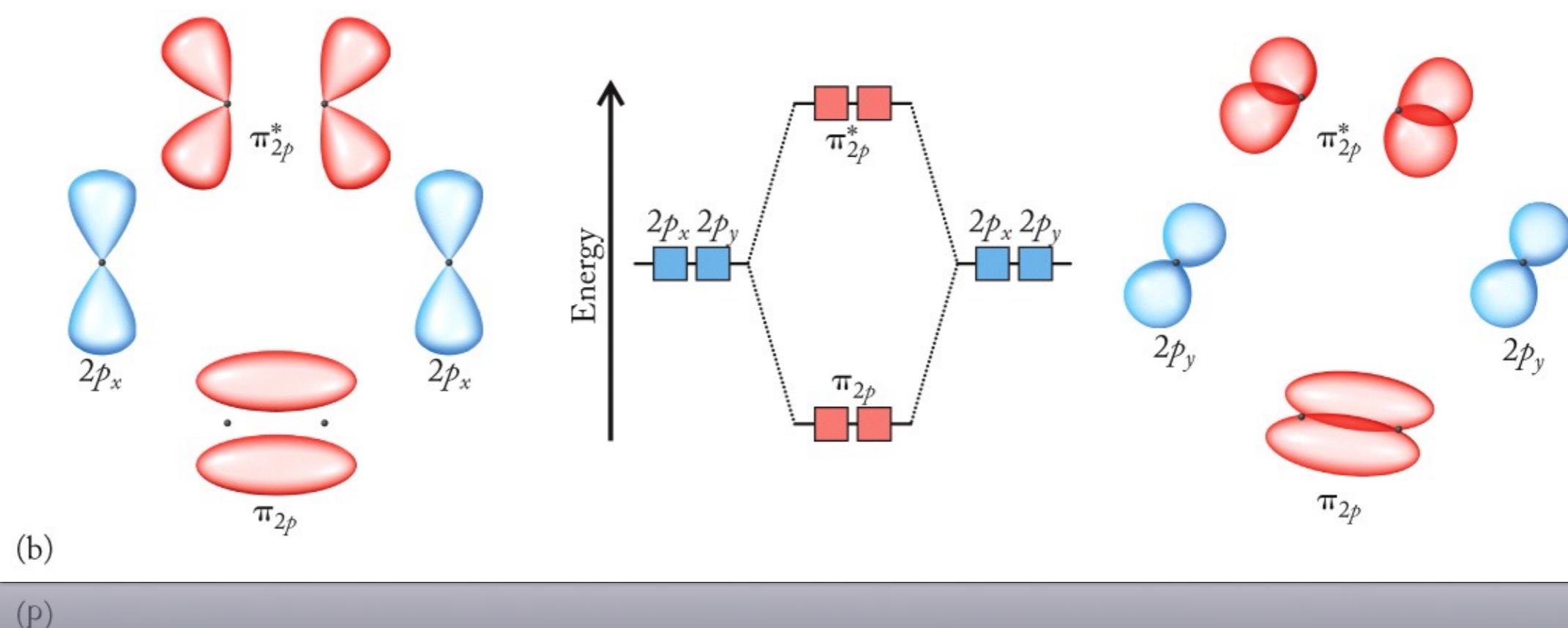
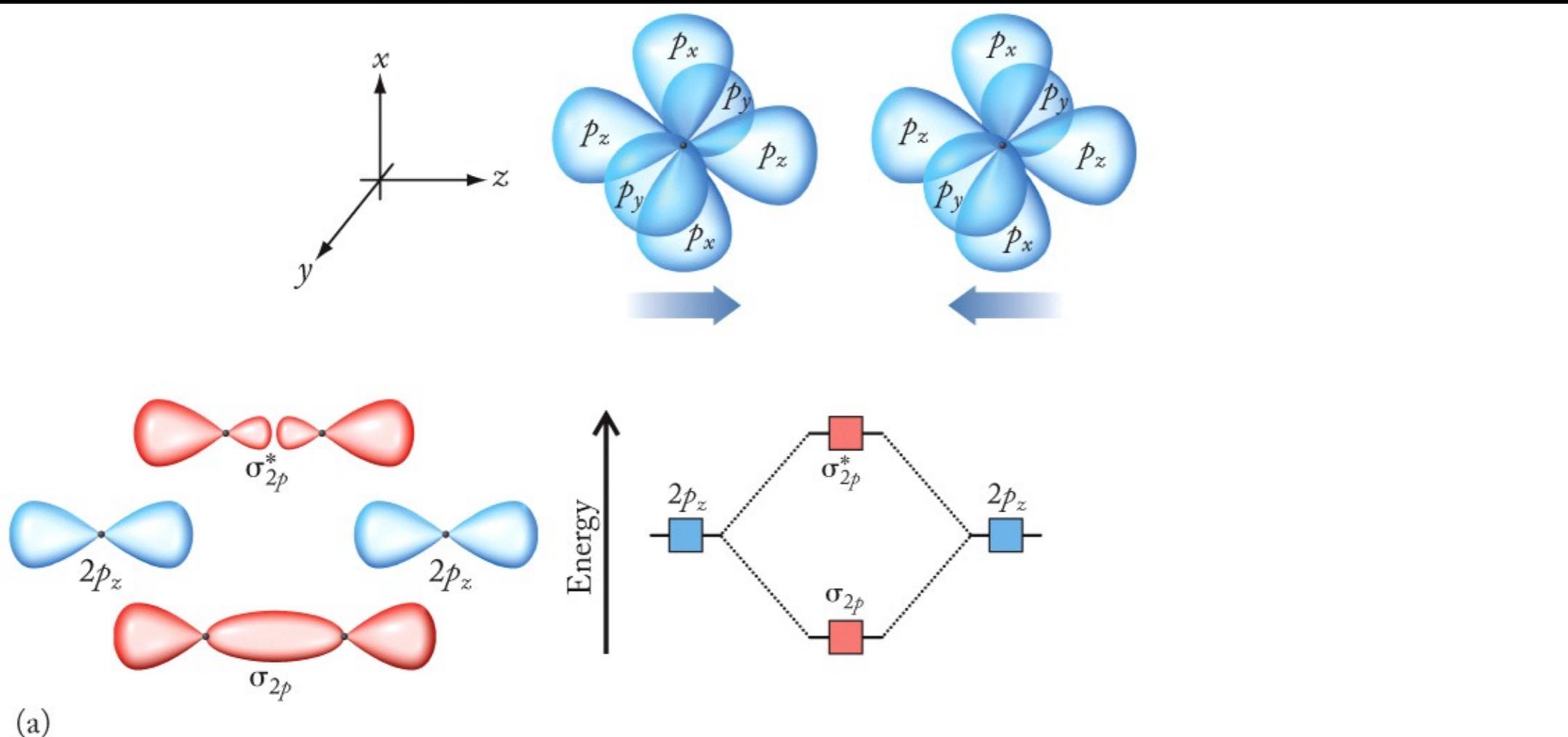


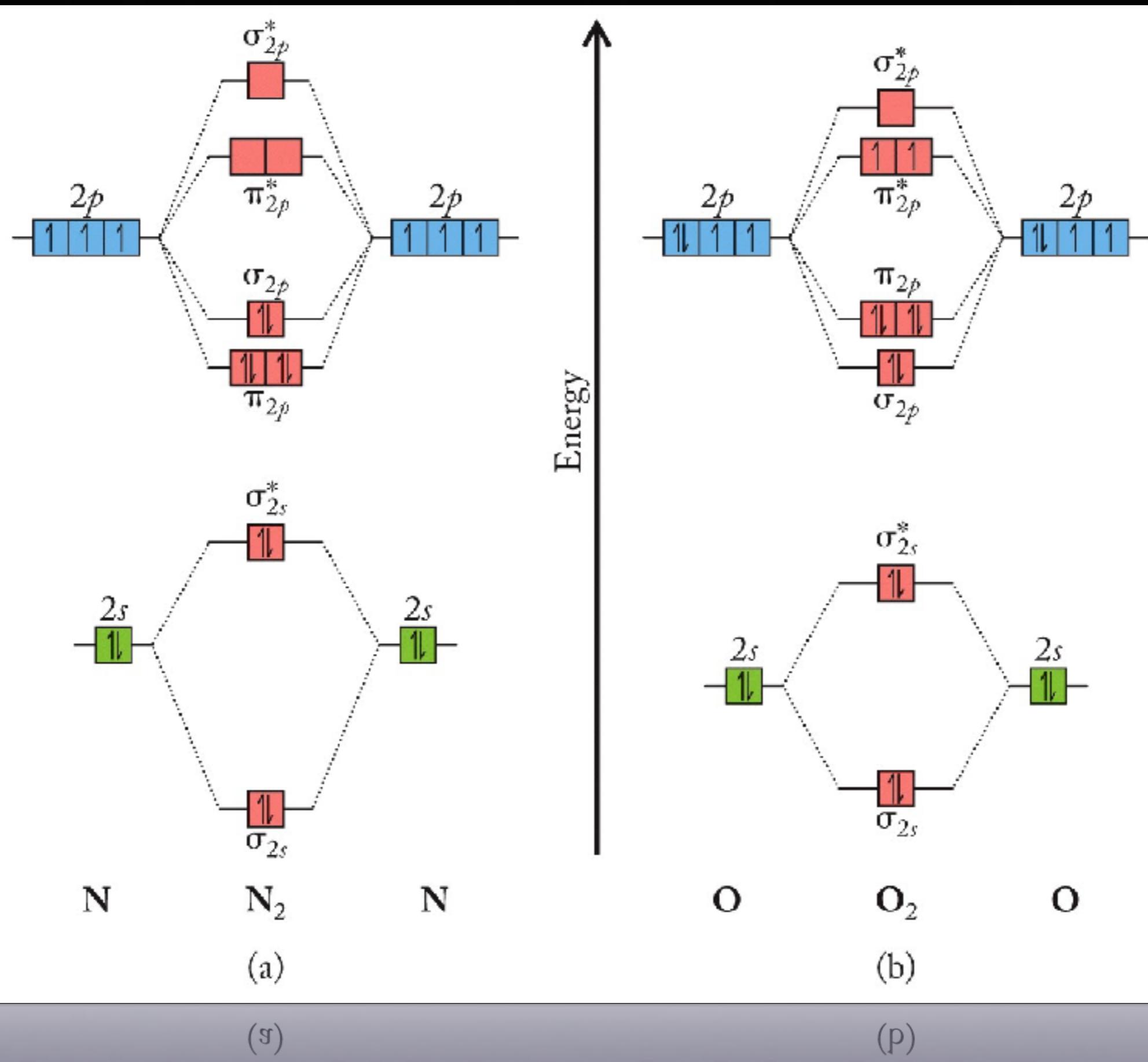
A photograph of a fork standing upright in a field of lavender. The fork's tines are pointing downwards, and its handle is pointing upwards. In the background, there is a paved road leading towards a line of trees under a clear sky.

Where are we going today?

Ch1010-A17-A03 Lecture 21

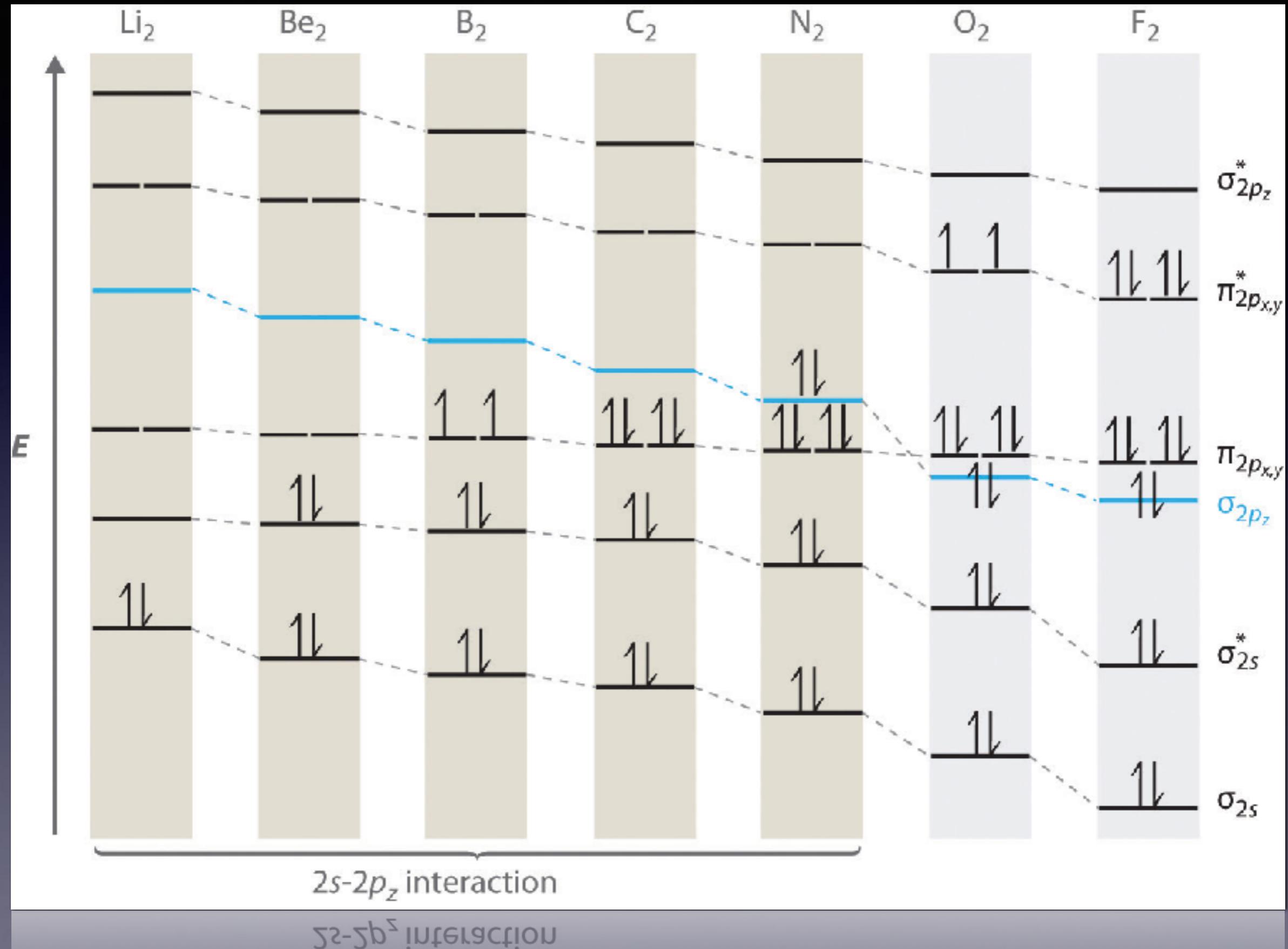
- §6.4 Morelcular orbitals





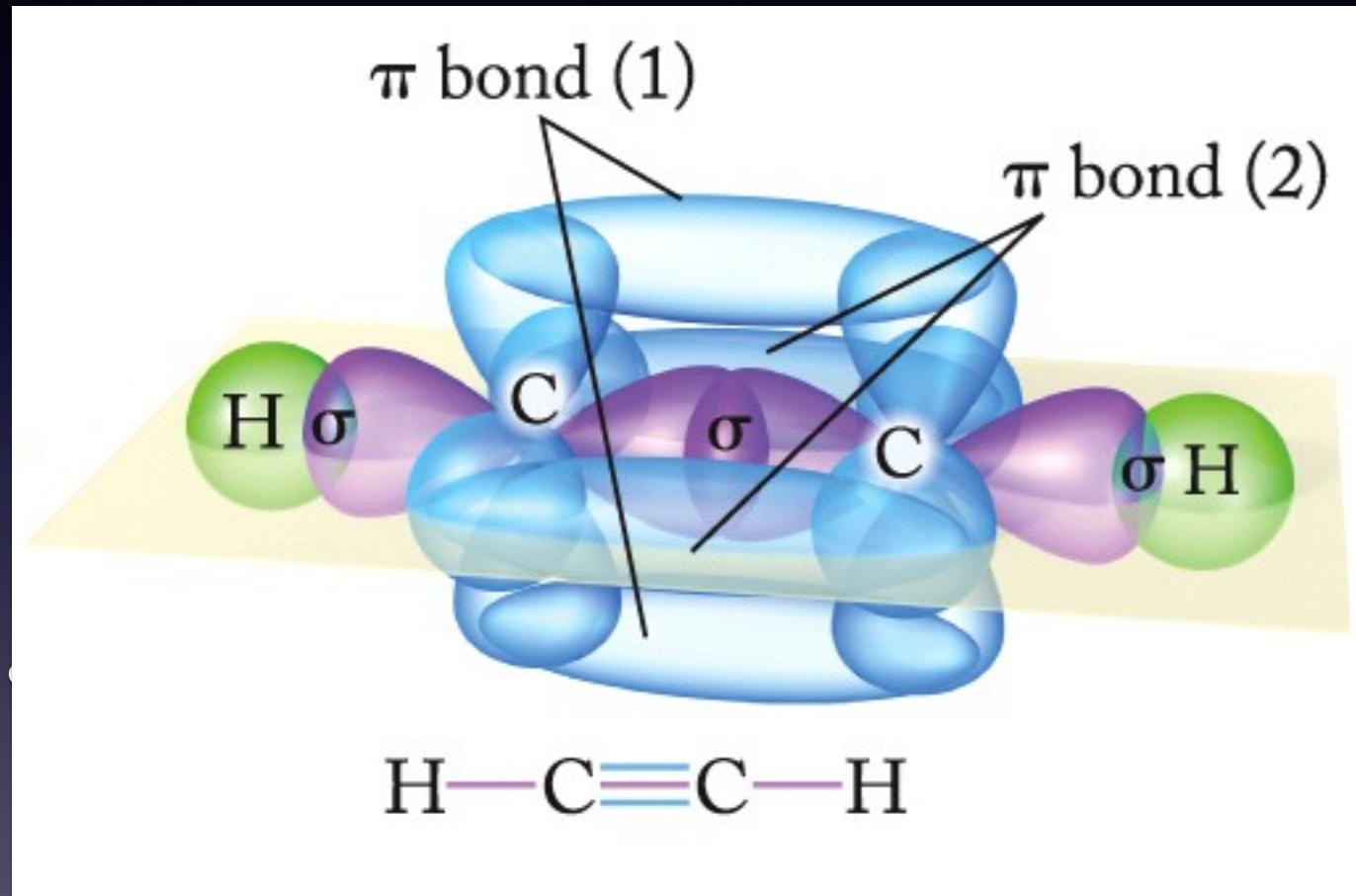
Paramagnetic vs diamagnetic: support of molecular orbital theory

<https://www.youtube.com/watch?v=KcGEev8qulA>



Don't confuse the nodes!

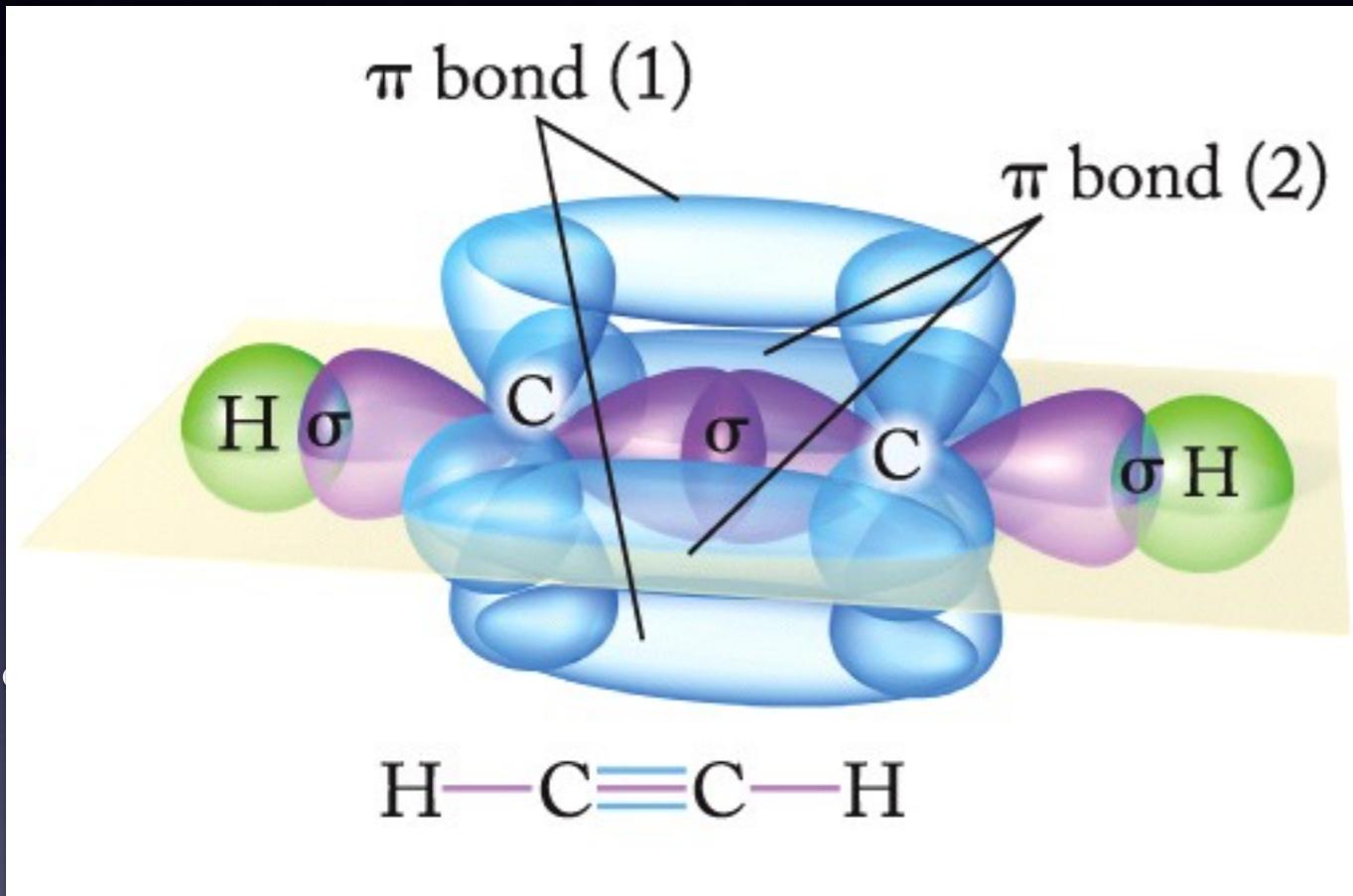
GKF 5.28



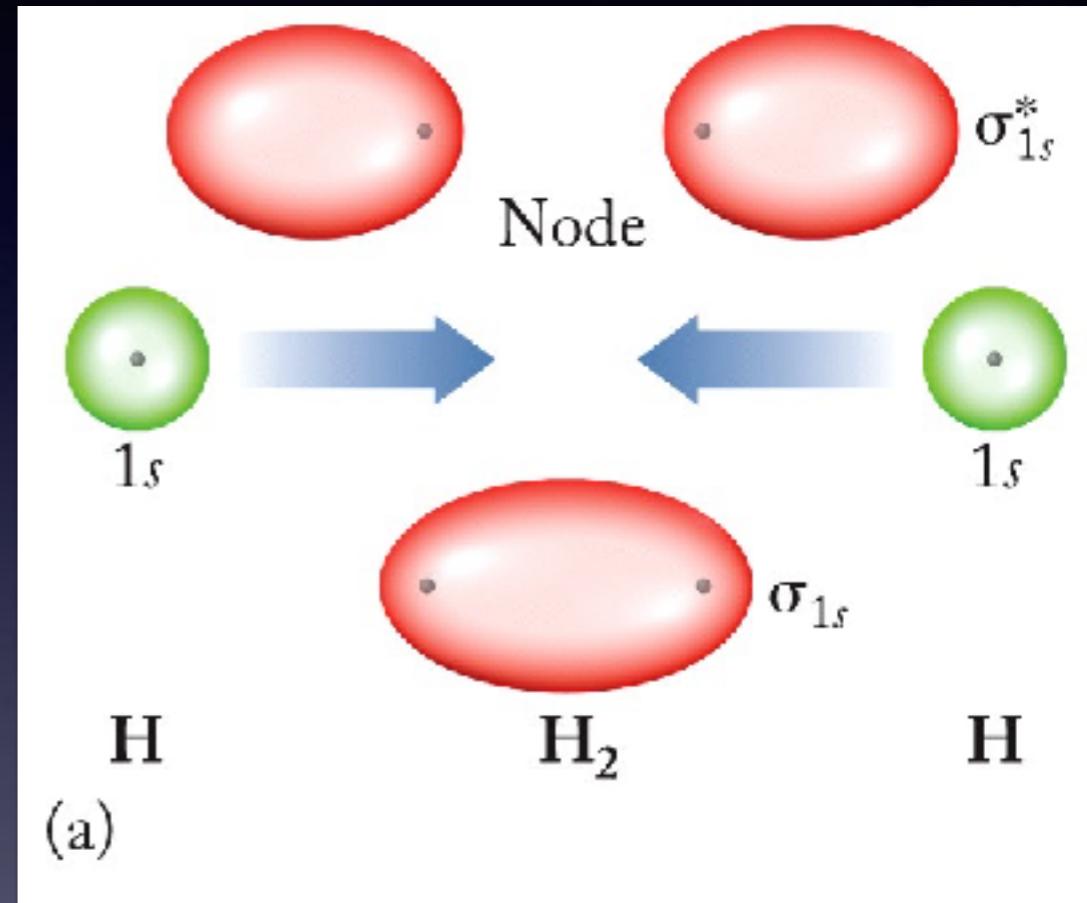
π MOs have nodes
coplanar with the atoms

Don't confuse the nodes!

GKF 5.28



GKF 5.42

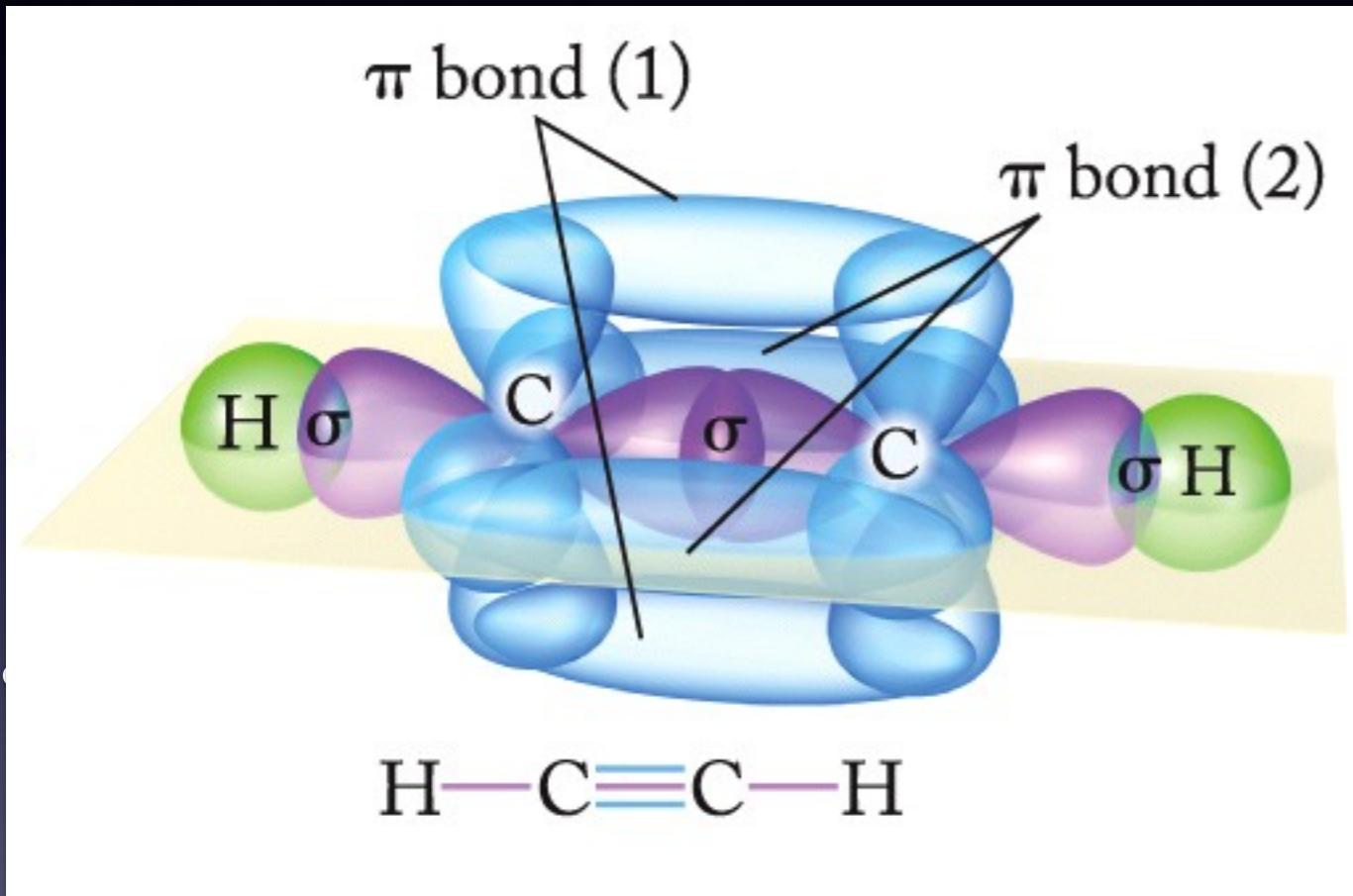


π MOs have nodes
coplanar with the atoms

σ^* MOs have nodes
between the atoms

Don't confuse the nodes!

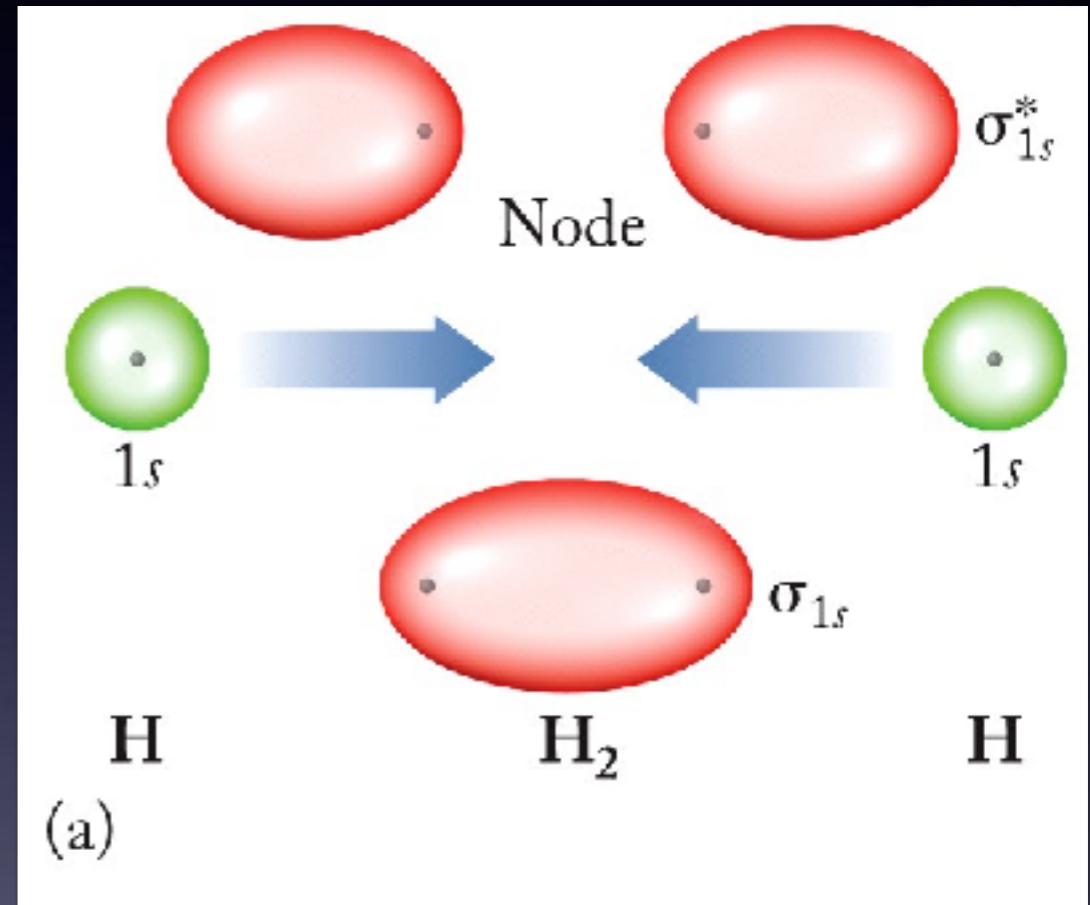
GKF 5.28



π MOs have nodes
coplanar with the atoms

π^* MOs have both

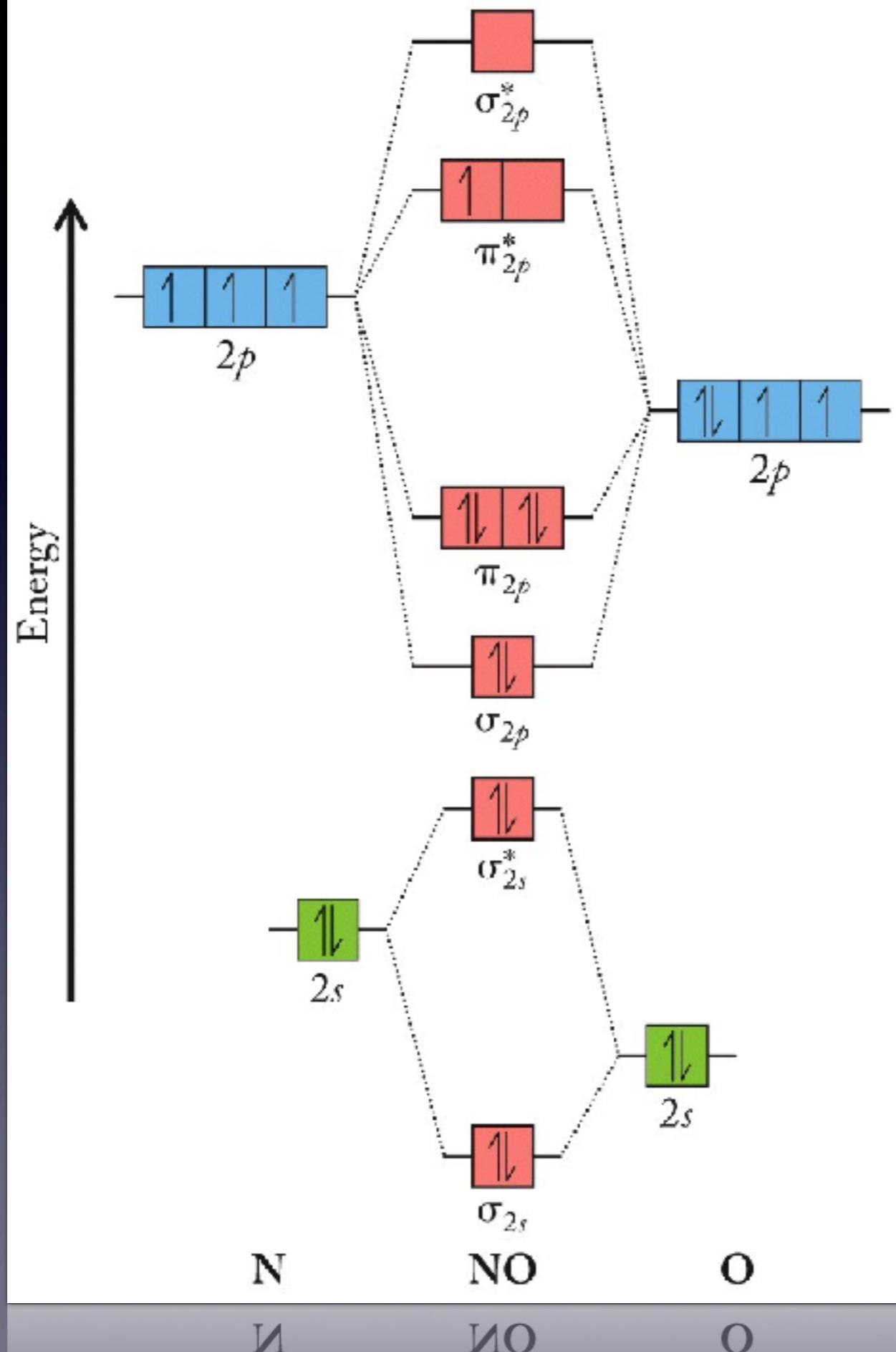
GKF 5.42



σ^* MOs have nodes
between the atoms

What about different elements?

Bond	Length (pm)
N – N	147
N = N	124
O – O	148
O = O	121
N – O	136
N = O in organics	122
N ≡ O in organics	106
N = O in NO molecule	115



NO bonding

- What's the bond order in nitrogen monoxide?
- Does this diagram support/explain the unexpected bond length in NO?
- What might the π_{2p}^* orbital look like?



Where did we go today?

Ch1010-A17-A03 Lecture 21

- §6.4 Morelcular orbitals

Next time...

- §11.1 London fog and also dispersion