Magnitudes of the 1s wavefunctions on hydrogen atoms A and B are $3a_0$ apart, but not interacting. The abscissa is the distance from atom A along the internuclear axis in units of $a_0$.

(a) Magnitude of the normalized molecular orbital $\psi_g$ when protons A and B are separated by $3a_0$. (b) Magnitude of the normalized molecular orbital $\psi_u$. (c) Magnitude of $\psi_g^2$. (d) Magnitude of $\psi_u^2$. 
Plot of the electron density in the $xy$ plane for the hydrogen molecule ion $\text{H}_2^+$ with (a) a $1s$ sigma bonding orbital and (b) a $1s$ sigma antibonding orbital. Note the buildup of electron density between the nuclei with the bonding orbital. Also note that with the antibonding orbital the electron density is zero along a line perpendicular to the line between the nuclei and halfway between the nuclei. The internuclear axis is along $x$. 
Formation of pairs of molecular orbitals from pairs of atomic orbitals. The solid points represent nuclei A and B.