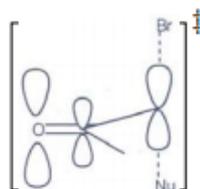


Even more effective is conjugation with electron deficient p bonds [in this case, the orbitals it can conjugate with are electron deficient, and so stabilise the negative charge even better]. The most important example is that of the carbonyl group.  $\alpha$ -halo carbonyl compounds display the fastest  $S_N2$  rates.



What is effectively happening is that the  $p^*$  of the C-C bond and the  $s^*$  of the C-Br bond (both low energy) combine with each other to form an even lower energy  $p^* + s^*$  orbital. The nucleophile will then attack where this new orbital has the largest coefficients (in the usual place). Attack could occur at the carbonyl, but it would be reversible.