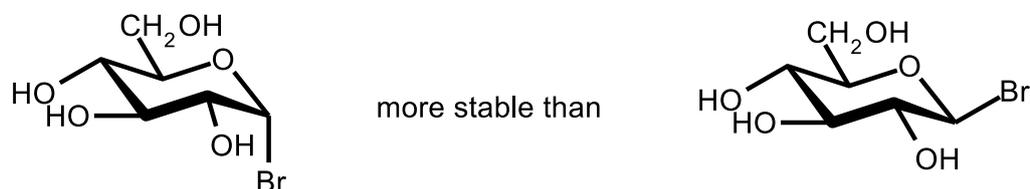
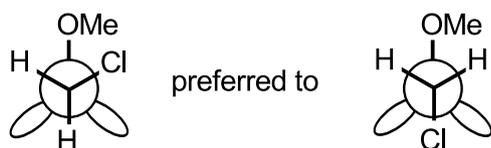


anomeric effect

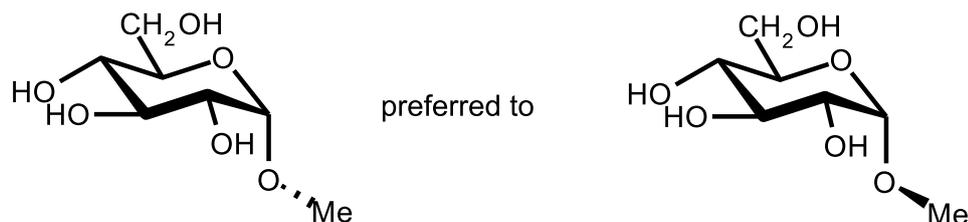
Originally the thermodynamic preference for polar groups bonded to C-1 (the anomeric carbon of a glycopyranosyl derivative) to take up an axial position.



This effect is now considered to be a special case of a general preference (the generalized anomeric effect) for synclinal (gauche) conformations about the bond C–Y in the system X–C–Y–C where X and Y are heteroatoms having nonbonding electron pairs, commonly at least one of which is nitrogen, oxygen or fluorine. For example in chloro(methoxy)methane the anomeric effect stabilizes the synclinal conformation.



In alkyl glycopyranosides the anomeric effect operates at two sites (i) along the endocyclic C-1 oxygen bond (endo-anomeric effect) and (ii) along the exocyclic C-1 oxygen bond (exo-anomeric effect). The opposite preference is claimed for some systems e.g. glycopyranosyltrialkylammonium salts, and has been referred to as the reverse anomeric effect.



Source:

PAC, 1996, 68, 2193 (*Basic terminology of stereochemistry (IUPAC Recommendations 1996)*) on page 2198