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neighbouring group participation

Also contains definitions of: anchimeric assistance, synartetic acceleration

The direct interaction of the reaction centre (usually, but not necessarily, an incipient carbenium centre) with a lone pair of electrons of an atom or with the electrons of a σ- or π-bond contained within the parent molecule but not conjugated with the reaction centre. A distinction is sometimes made between n-, σ- and π-participation. A rate increase due to neighbouring group participation is known as 'anchimeric assistance'. 'Synartetic acceleration' is the special case of anchimeric assistance ascribed to participation by electrons binding a substituent to a carbon atom in a β-position relative to the leaving group attached to the α-carbon atom. According to the underlying model, these electrons then provide a three-centre bond (or 'bridge') 'fastening together' (as the word 'synartetic' is intended to suggest) the α- and β-carbon atoms between which the charge is divided in the intermediate bridged ion formed (and in the transition state preceding its formation). The term synartetic acceleration is not widely used.
See also: intramolecular catalysis, multi-centre bond

Source:
PAC, 1994, *66*, 1077 *(Glossary of terms used in physical organic chemistry (IUPAC Recommendations 1994))* on page 1145

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