

Comparison of S_N1 and S_N2 Mechanisms

Table 1: Differences

S_N2	S_N1
Primary Carbon: Unstable	Tertiary Carbon: Stable
No positive inductive affect	Positive inductive affect
Bi-molecular Reaction (2)	Uni-molecular Reaction (1)
Rate = $k[\text{RX}][\text{OH}^-]$	Rate = $k[\text{RX}]$
Concerted Reaction	Non-concerted reaction
Backslide Attack in 1 st step	Attack from either side in 2 nd step
Transition state: coplanar, 5 co-ordinate, bipyrimidal	Intermediate: tri-molecular, trigonal planar
Occurs in cold, dilute, alkali solvent, aprotic solvent	Occurs in warm, polar solvent, protic solvent
No bonds broken initially	R-X bond broken first, due to ...
Walden Inversion	Non-mirror images
Product possesses optical activity	Optically inactive
1 Activated complex	2 Activated complexes
No mixture: 1 Type of Product	Product forms a racemic mixture

Table 2: Similarities

Both happen for 2 nd R-X reactions
Both undergo nucleophilic substitution
Both reactions are exothermic