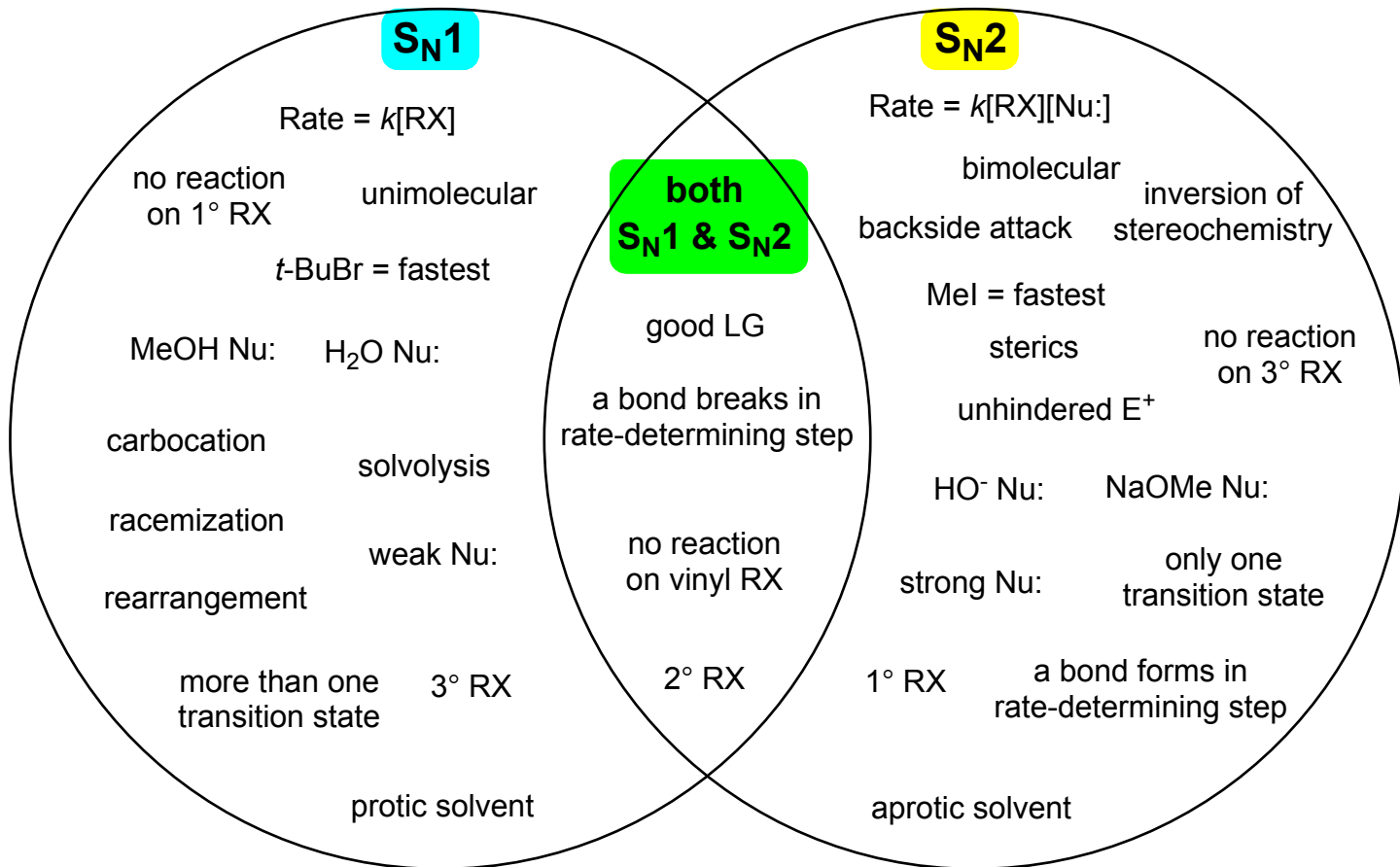
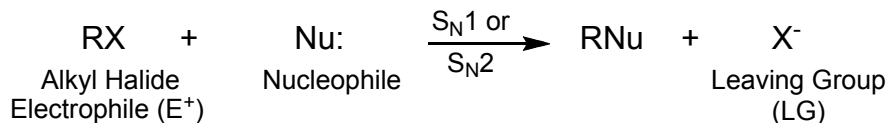


Comparison of S_N1 and S_N2 Mechanisms

Consider a substitution reaction:



Categorize each of the following items as being related to S_N1, S_N2, or both.

carbocation	sterics	no reaction on vinyl RX	strong Nu:
bimolecular	aprotic solvent	HO ⁻ Nu:	Rate = $k[\text{RX}][\text{Nu:}]$
good LG	unimolecular	Rate = $k[\text{RX}]$	<i>t</i> -BuBr = fastest
MeOH Nu:	H ₂ O Nu:	weak Nu:	no reaction on 3° RX
backside attack	solvolysis	inversion of stereochemistry	rearrangement
a bond forms in rate-determining step	Mel = fastest	NaOMe Nu:	a bond breaks in rate-determining step
more than one transition state	no reaction on 1° RX	protic solvent	racemization
3° RX	unhindered E ⁺	2° RX	1° RX
	only one transition state		