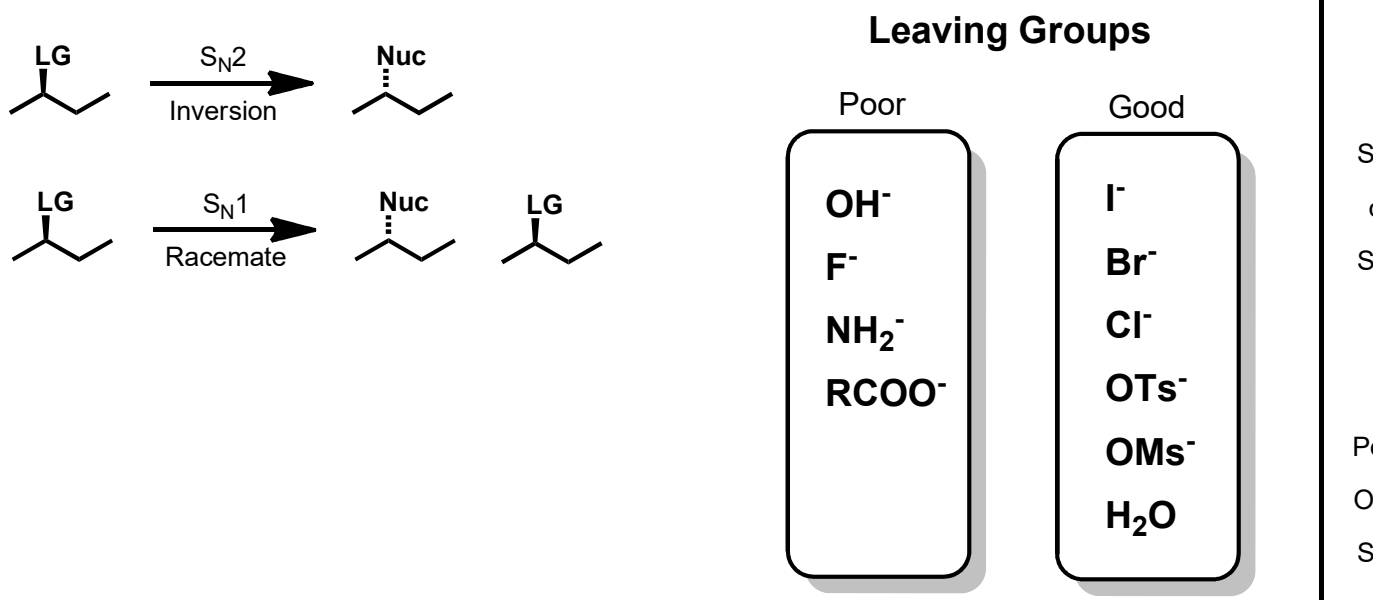


	S_N1	S_N2	
Identify the substrate	$2^\circ / 3^\circ$	$1^\circ / 2^\circ$	Increasing Strength ↑ G C S ↑ N _t
Identify the LG	Must be good LG	Good / poor LG	
Identify the nucleophile	Prefers poor Nuc	Must be good Nuc	
Identify the solvent	Polar, protic solvent	Polar, aprotic solvent	



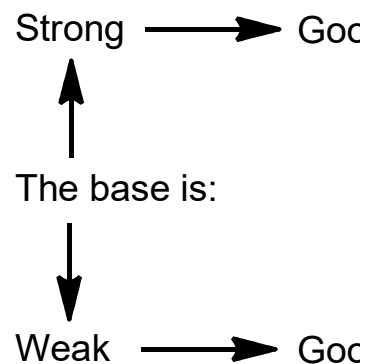
Substitution vs. Elimination reactions

Good nucleophiles favor substitution reactions (S_N1 , S_N2). Eliminations ($E1/E2$) require a base.

$E2$ reactions are favored when using strong, non-nucleophilic bases

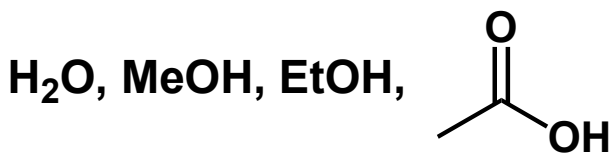
(t -BuOK is too sterically bulky to be a good nucleophile)

$E1$ reactions require weak bases and compete with S_N1 reactions

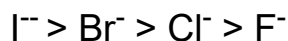


Nucleophiles

Polar, protic solvents



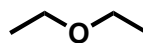
Favors $\text{S}_{\text{N}}1/\text{E}1$



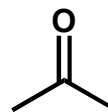
Polar, aprotic solvents



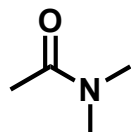
THF



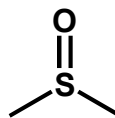
Et_2O



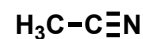
ace



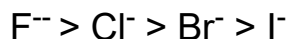
DMF



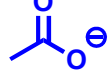
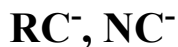
DMSO



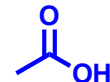
Favors $\text{S}_{\text{N}}2$



ood
only
 $\text{S}_{\text{N}}2$

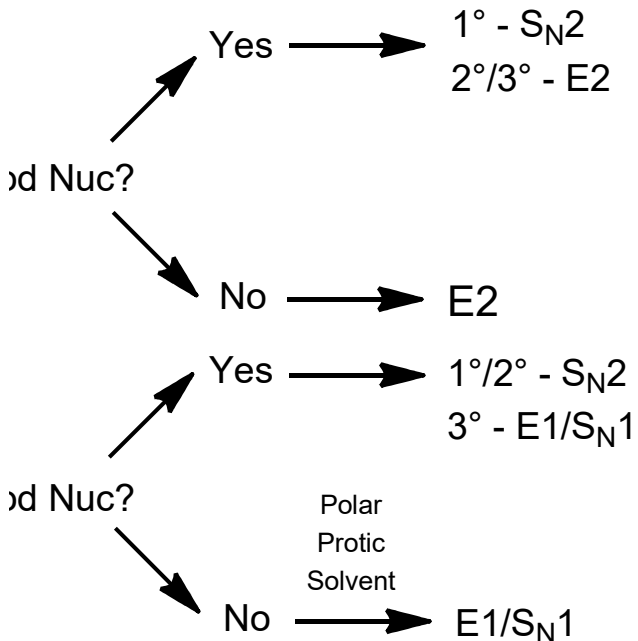


Also
bases
(See E1/E2)

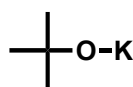


$\text{S}_{\text{N}}2$
or
 $\text{S}_{\text{N}}1$

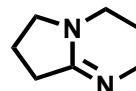
oor
only
 $\text{S}_{\text{N}}1$



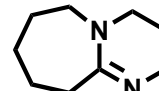
Strong, non-nucleophilic bases



t-BuOK

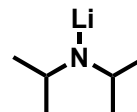


DBN



DBU

NaH



LDA

Favors $\text{E}2$