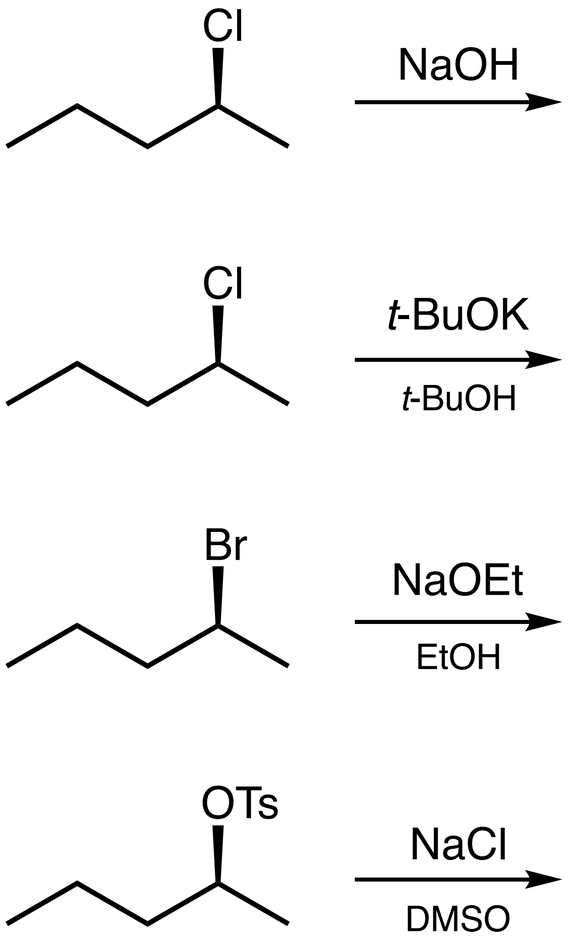
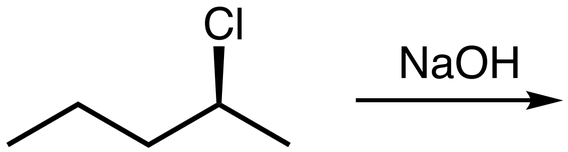
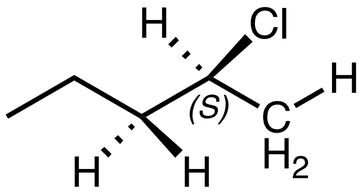
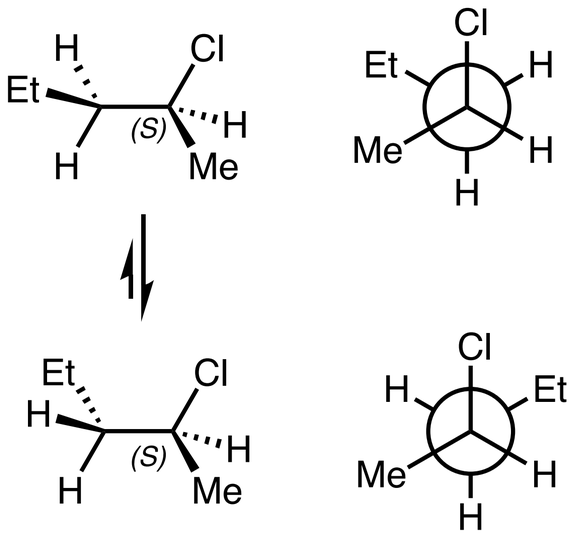
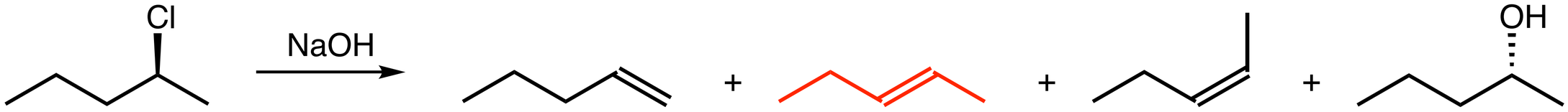

Cl
NaOH
Cl
t-BuOK
t-BuOH
Br
NaOEt
EtOH
OTs
NaCl
DMSO

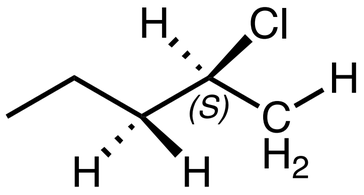

Cl
NaOH

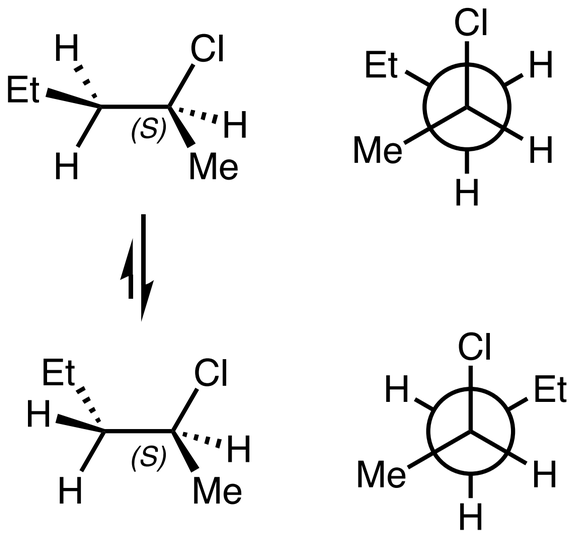

H
Cl
H
(S)
C
H2
H
H

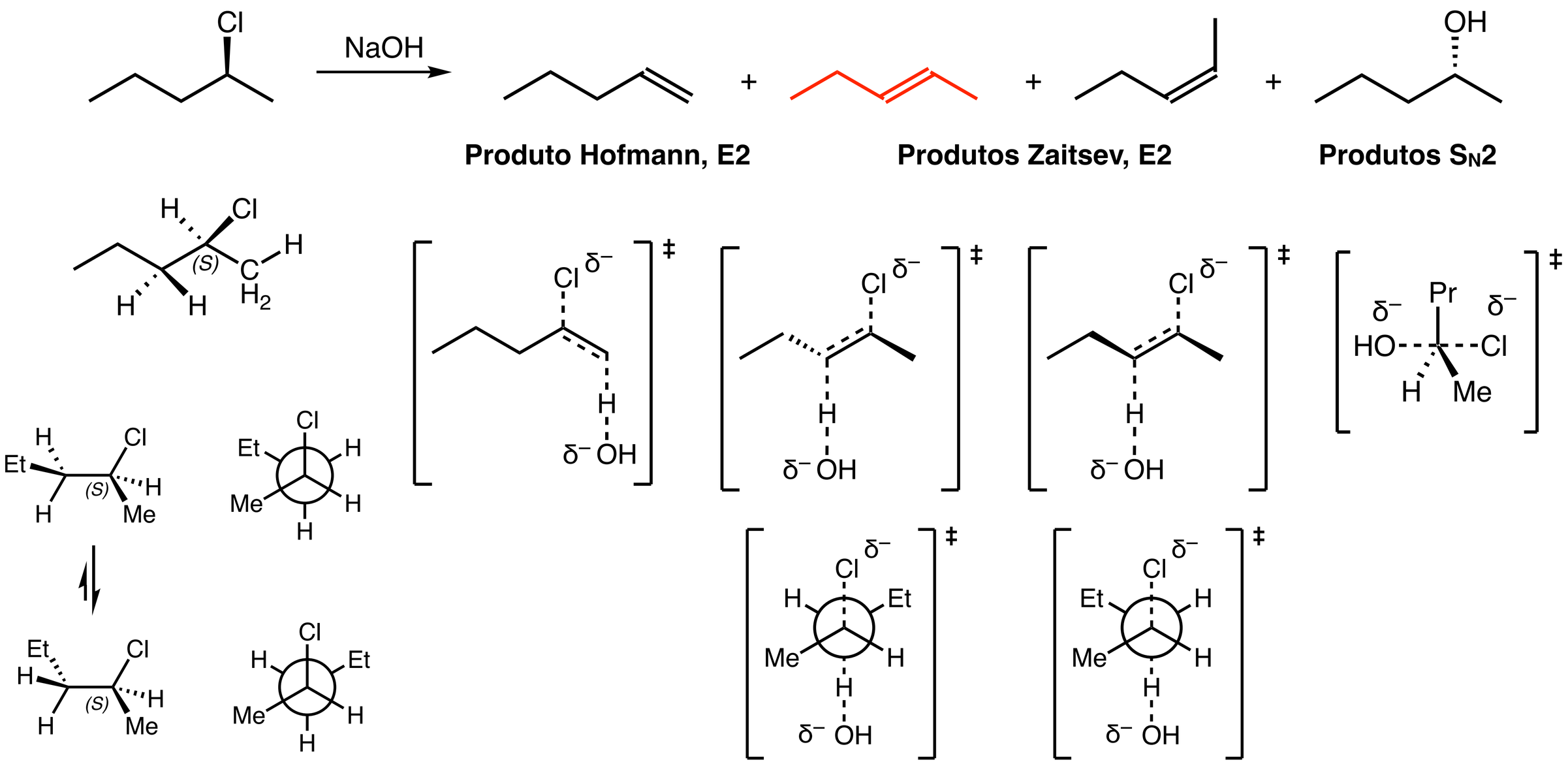

H
Cl
Et
(S)
H
H
Me
Cl
Et
H
Me
H
H
Et
Cl
H
(S)
H
H
Me
Cl
H
Et
Me
H
H

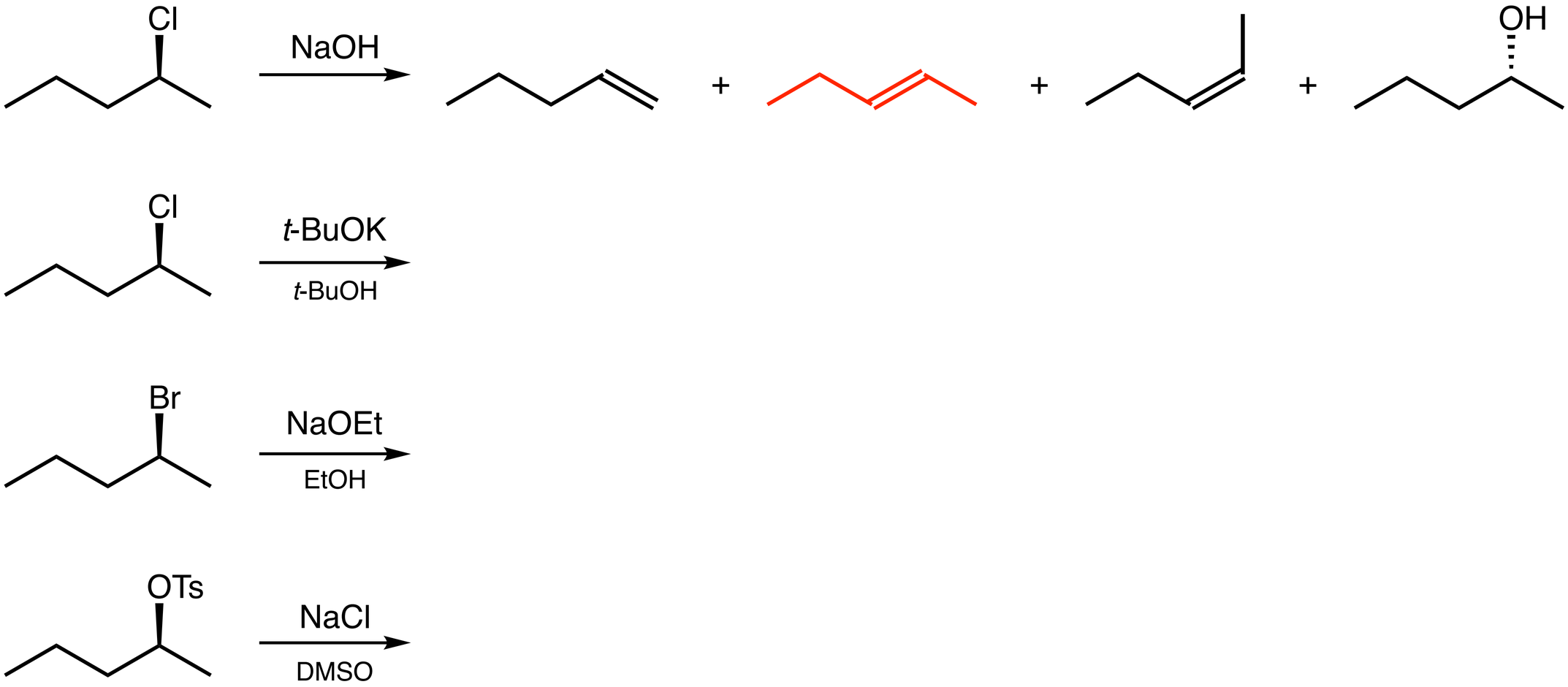


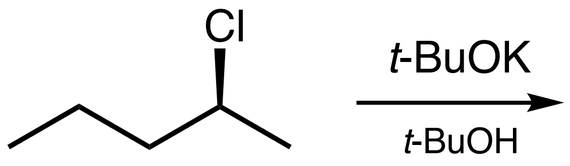
Produto Hofmann, E2 **Produtos Zaitsev, E2** **Produtos S_N2**

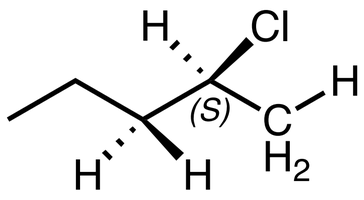


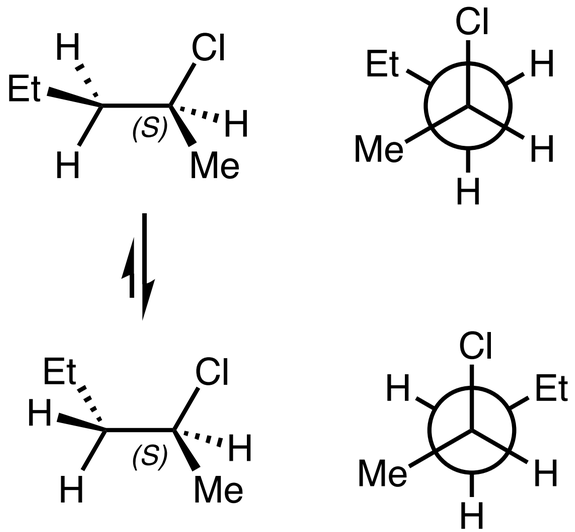



Cl
NaOH
OH
Produto Hofmann, E2
Produtos Zaitsev, E2
Produtos SN2
H
Cl
(S)
C
H2
H
H
Et
Me
δ−
OH
Pr
HO
‡


Cl
NaOH
+
+
+
OH
Cl
t-BuOK
t-BuOH
Br
NaOEt
EtOH
OTs
NaCl
DMSO


Cl
t-BuOK
t-BuOH


H
Cl
H
(S)
C
H2
H
H


H
Cl
Et
(S)
H
H
Me
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Et
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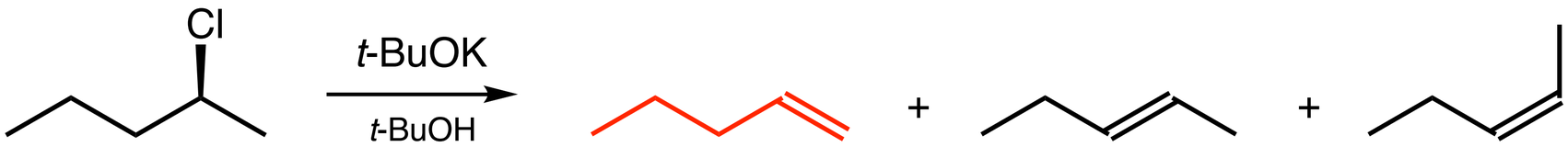
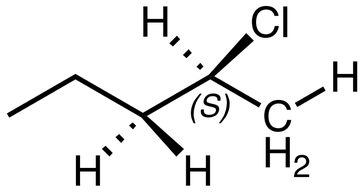
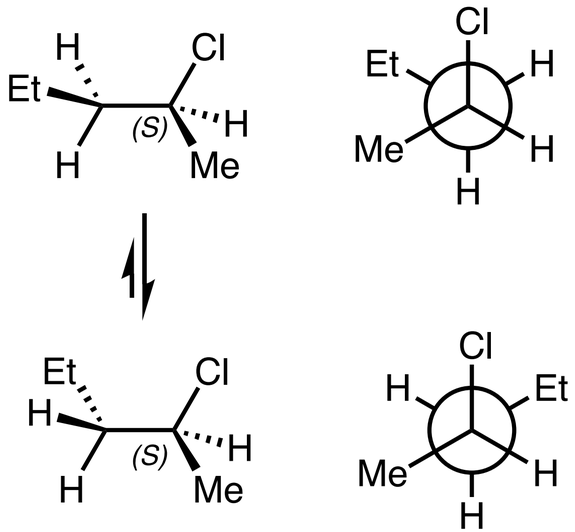
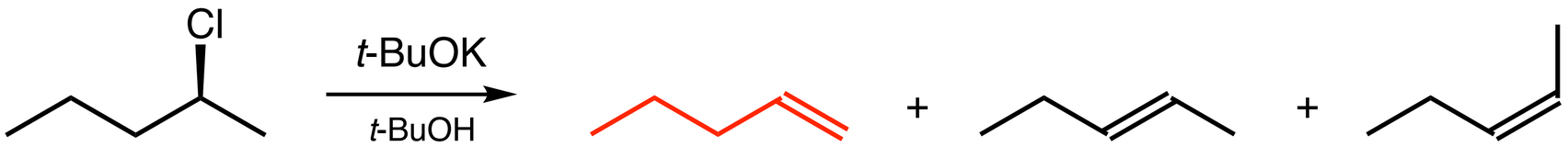
H
H
Et
Cl
H
(S)
H
H
Me
Cl
H
Et
Me
H
H



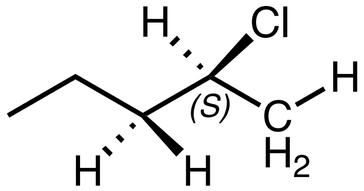
Produto Hofmann, E2 **Produtos Zaitsev, E2**

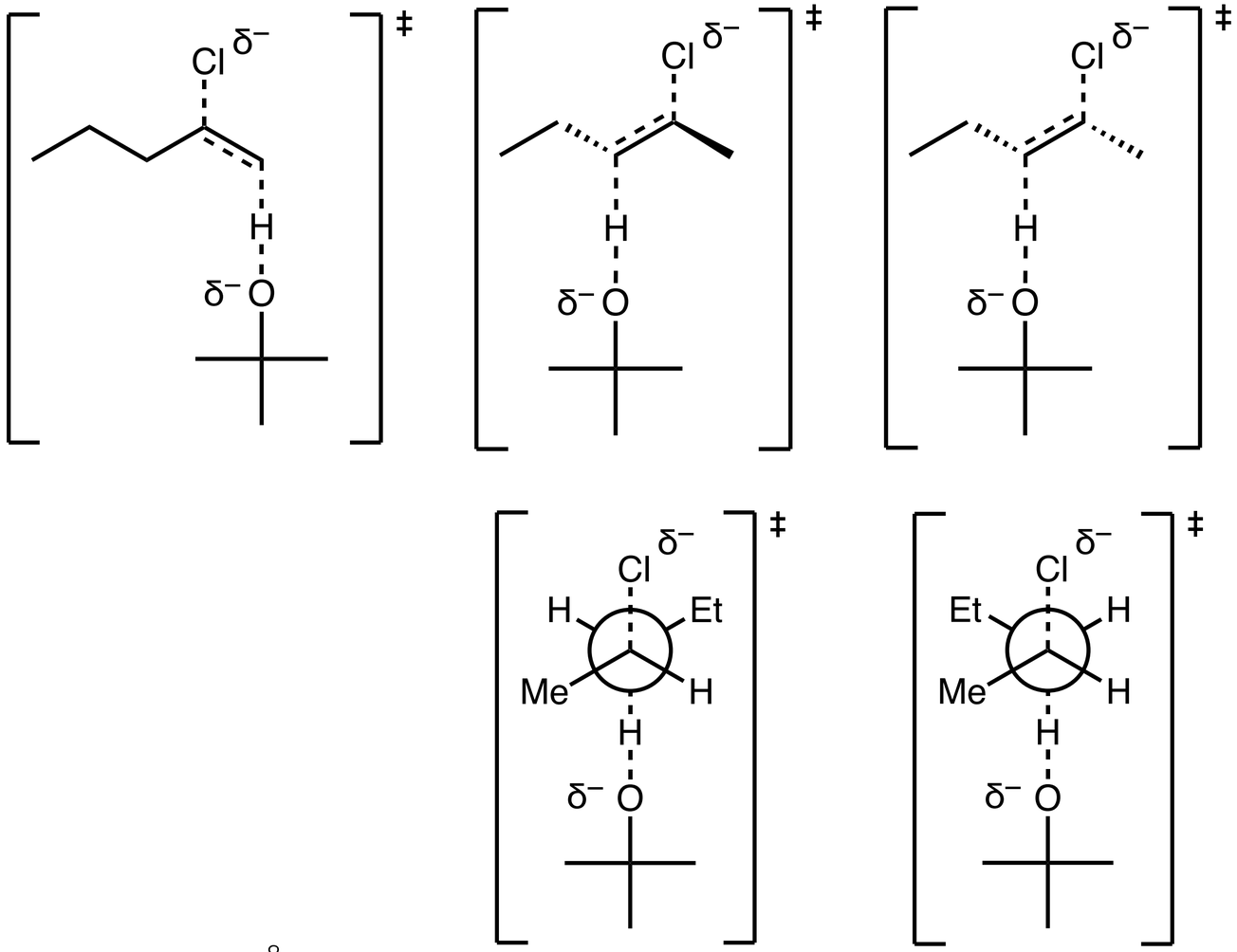


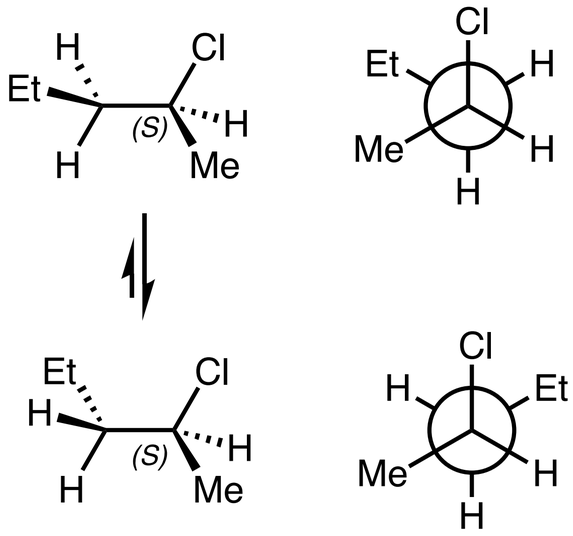


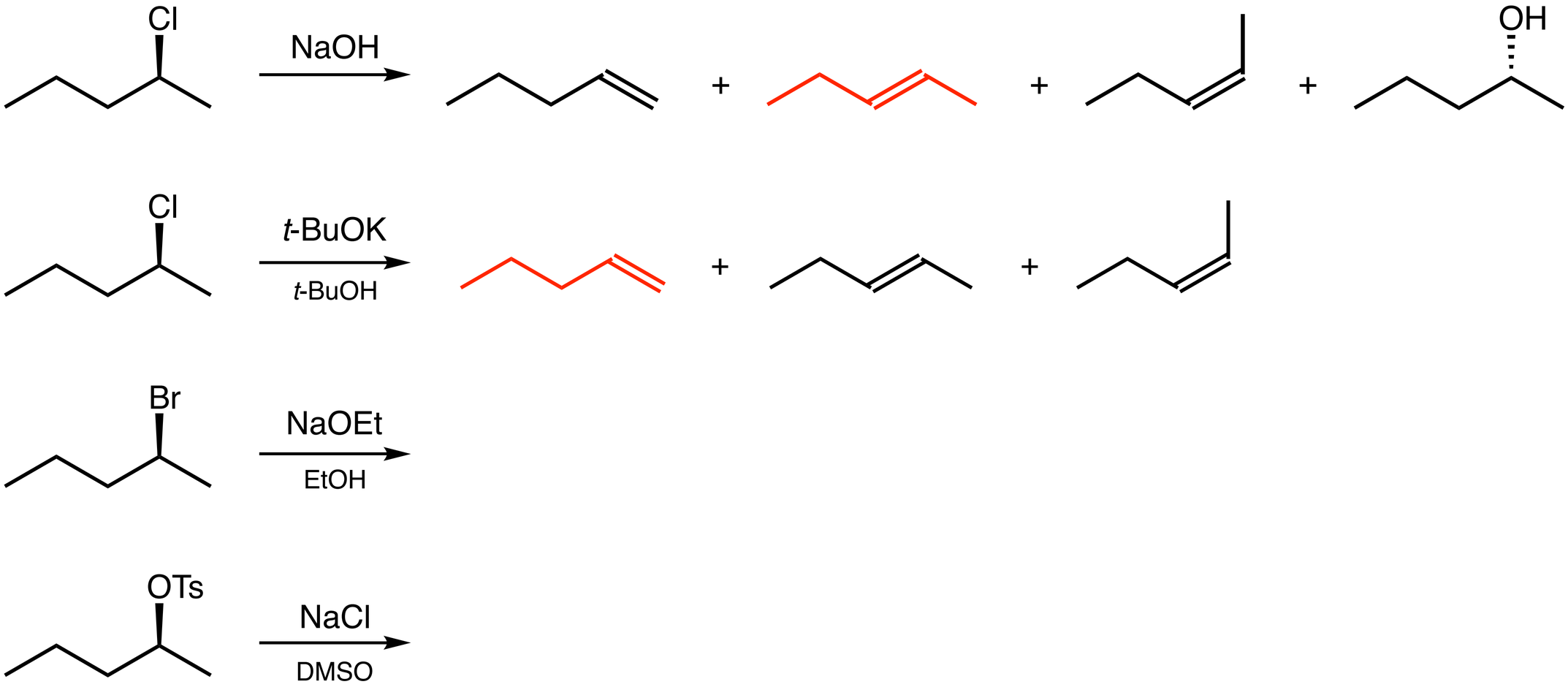


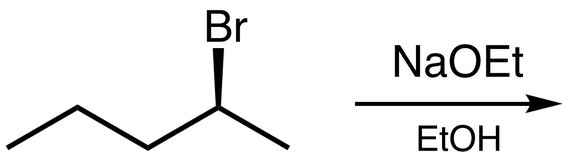
Produto Hofmann, E2 **Produtos Zaitsev, E2**



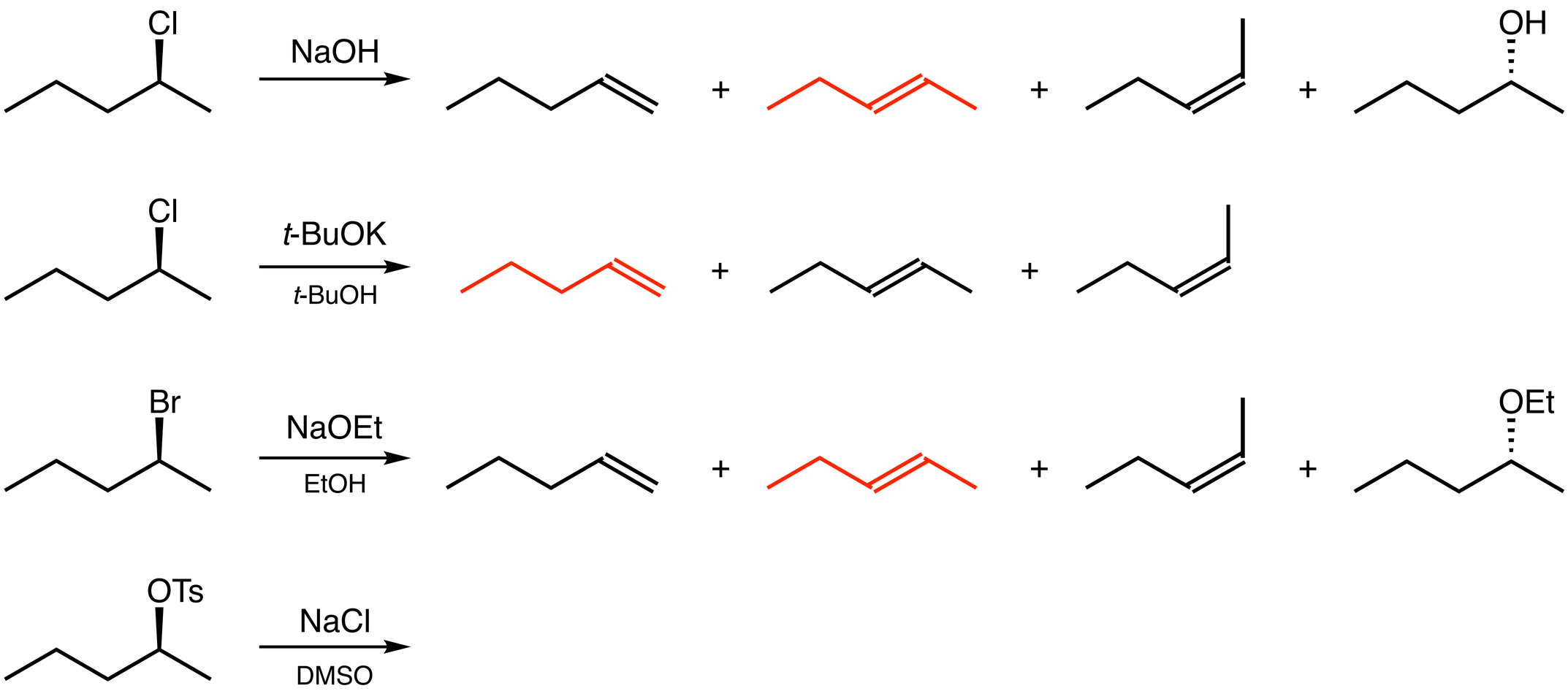


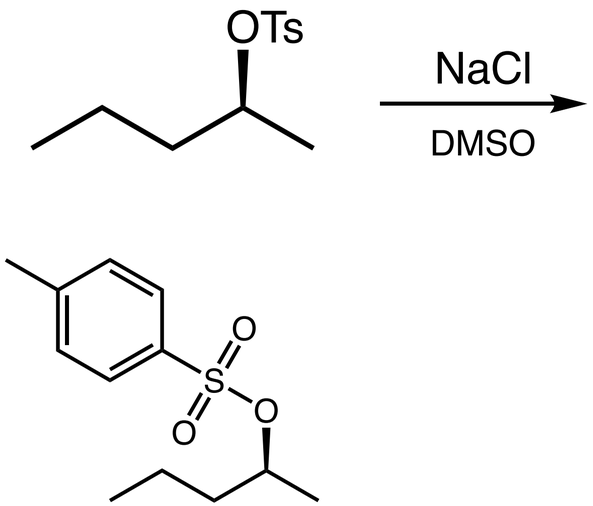


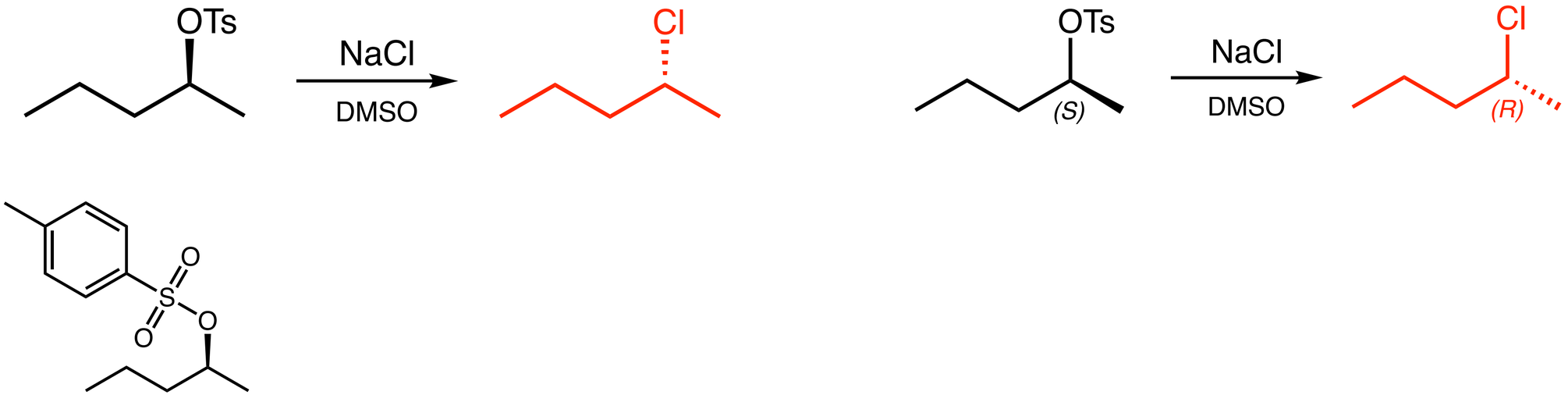

Cl
NaOH
+
+
+
OH
Cl
t-BuOK
t-BuOH
+
+
Br
NaOEt
EtOH
OTs
NaCl
DMSO


Br
NaOEt
EtOH

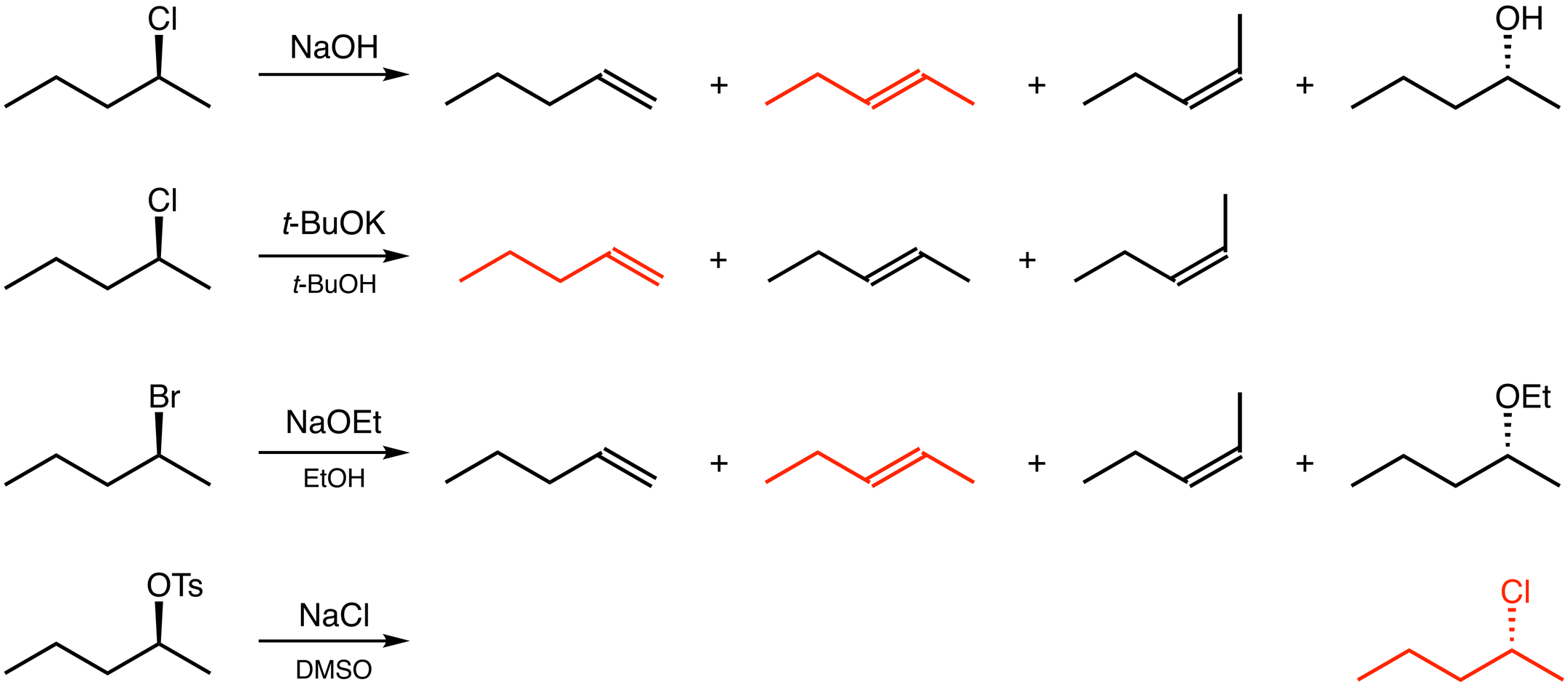
Produto Hofmann, E2 **Produtos Zaitsev, E2** **Produtos S_N2**


Cl
NaOH
+
+
+
OH
Cl
t-BuOK
t-BuOH
+
+
Br
NaOEt
EtOH
+
+
+
OEt
OTs
NaCl
DMSO


OTs
NaCl
DMSO
O
S
O
O


OTs
NaCl
DMSO
Cl
OTs
(S)
NaCl
DMSO
Cl
(R)
O
S
O
O

Produto Hofmann, E2 **Produtos Zaitsev, E2** **Produtos S_N2**



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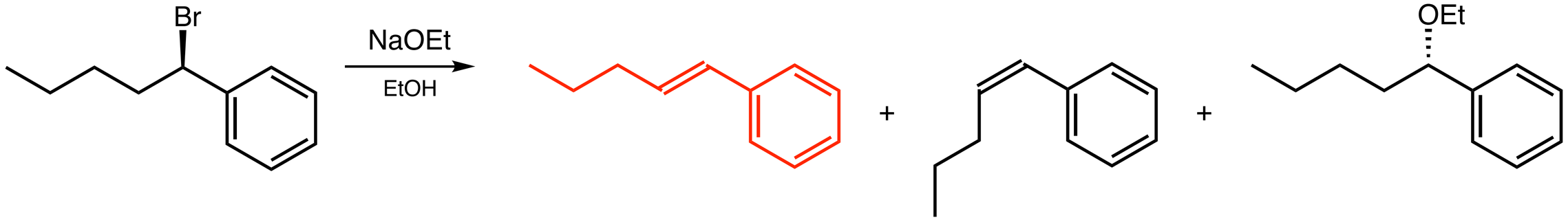
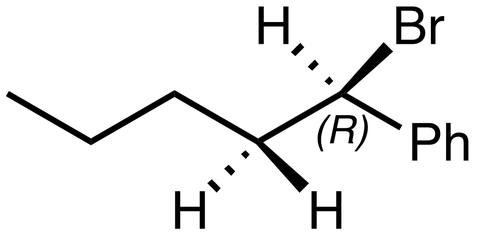
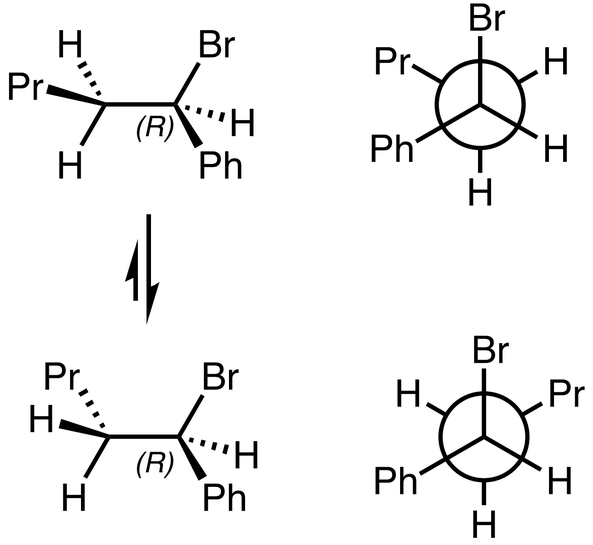
QUÍMICA FEIJÃO COM ARROZ

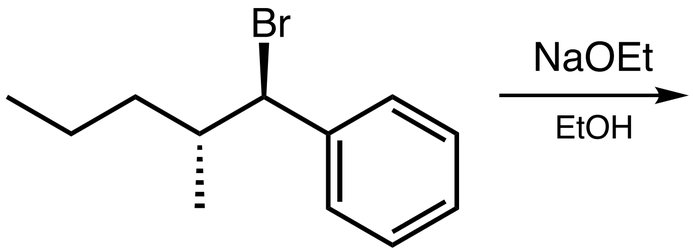
Substituição nucleofílica vs. Eliminação

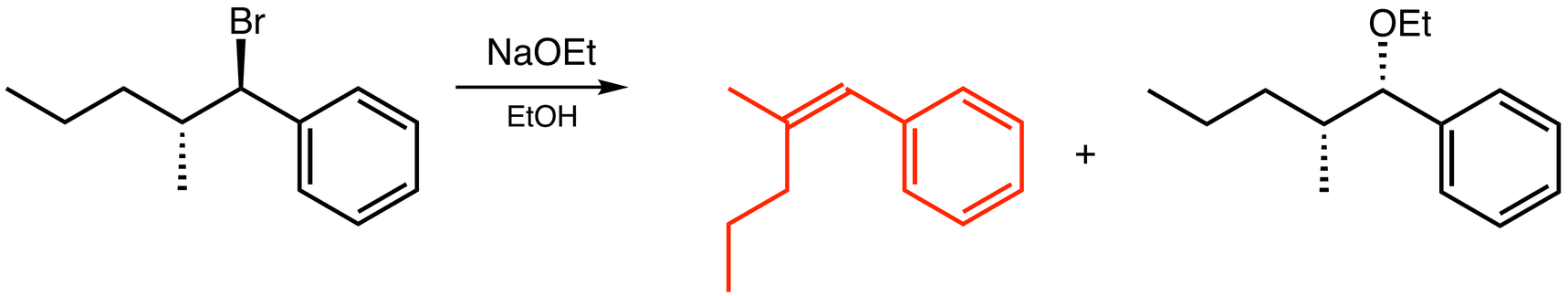
Parte 1

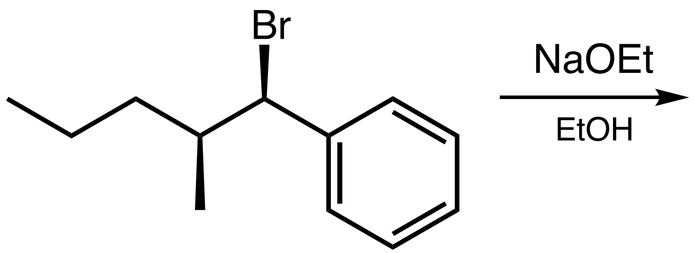

Br
NaOEt
EtOH
+
+
OEt

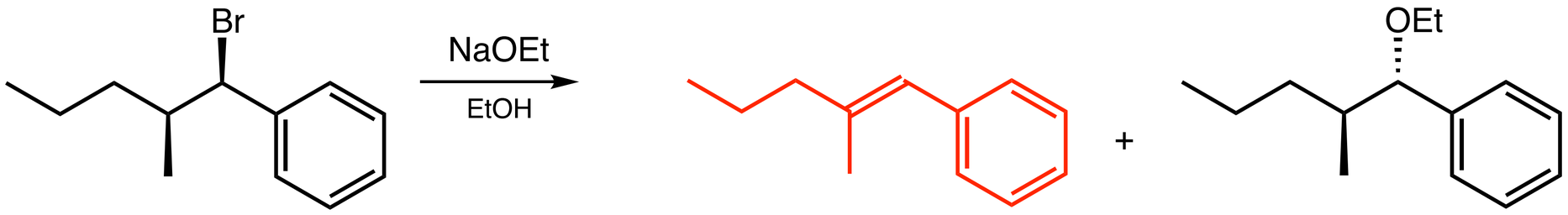

H
Br
(R)
Ph
H
H

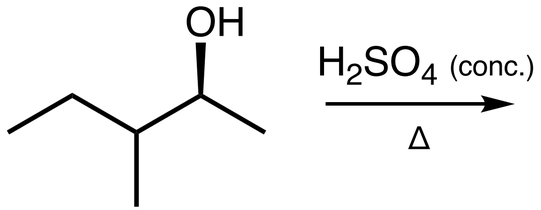

H
Br
Pr
(R)
H
H
Ph
Br
Pr
H
Ph
H
H
Pr
Br
H
(R)
H
H
Ph
Br
H
Pr
Ph
H
H

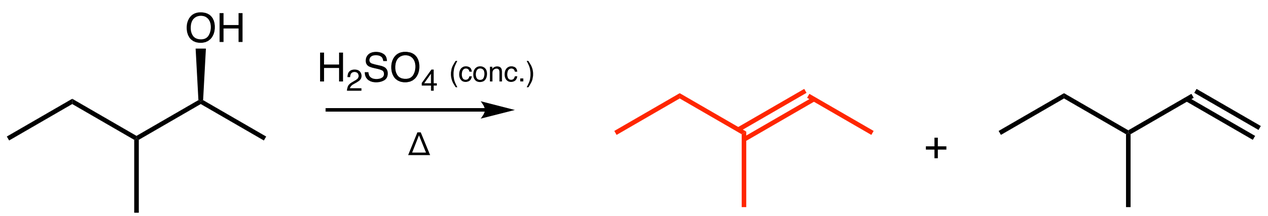

Br
NaOEt
EtOH

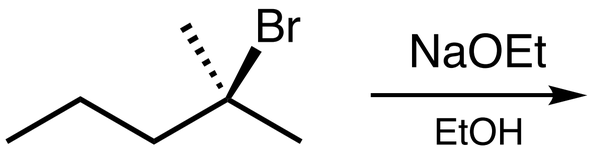

Br
NaOEt
EtOH
+
OEt

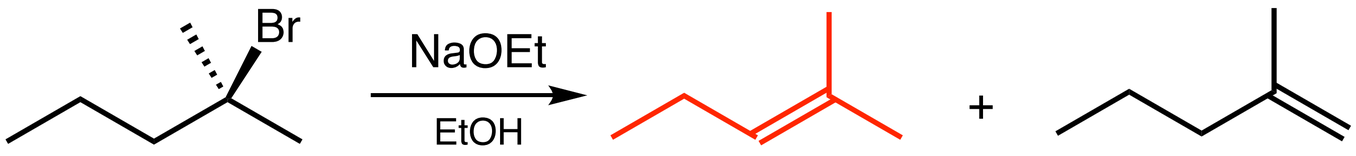

Br
NaOEt
EtOH

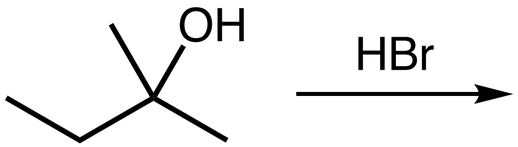

Br
NaOEt
EtOH
+
OEt

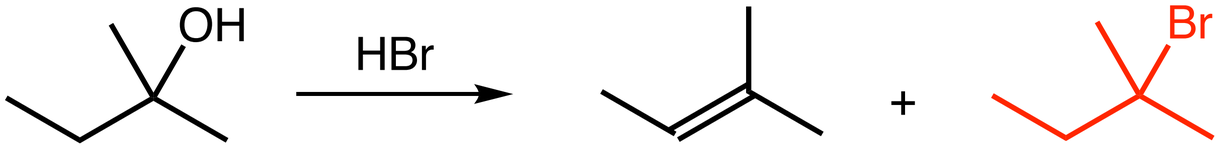

OH
H_2SO_4 (conc.)
Δ

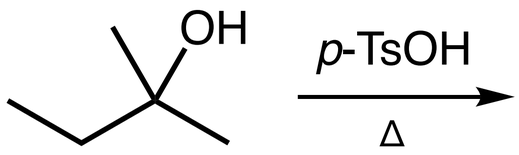

OH
H_2SO_4 (conc.)
Δ
+


Br
NaOEt
EtOH


Br
NaOEt
EtOH
+


OH
HBr


OH
HBr
+
Br


OH
p-TsOH
Δ

OH
p-TsOH
Δ
+
OTs

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QUÍMICA FEIJÃO COM ARROZ

Substituição nucleofílica vs. Eliminação

Parte 2

Química Feijão com Arroz

Substituição Nucleofílica vs. Eliminação

S_N *vs.* E

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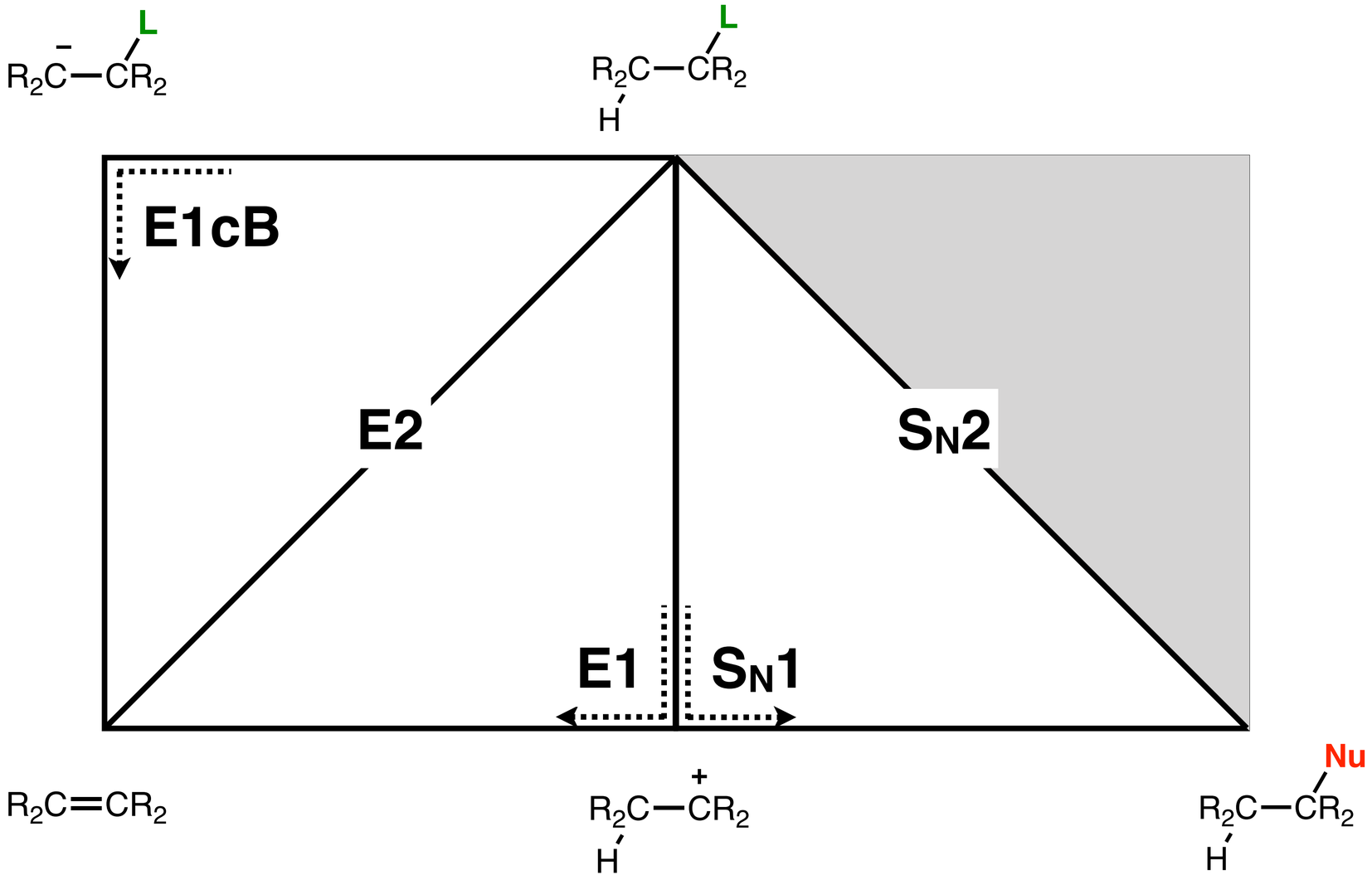
	Nucleófilo bom, base fraca			**Base forte, nucleófilo ruim**			**Nucleófilo bom e base forte**			**Base fraca e nucleófilo ruim**		
e.g.,	Cl^-, Br^-, RSH, H2S			DBU, DBN, H^-			MOH, MOMe, MOEt (M = Na, Li, K)			H_2O, ROH (R = Me, Et)		
Reação	Substituição			Eliminação			S_N2 e E2			Todas		
Substrato	1º	2º	3º	1º	2º	3º	1º	2º	3º	1º	2º	3º
	S_N2	S_N1 + S_N2	S_N1	E2	E2	E2	S_N2 (+) + E2 (–)	E2 (+) + S_N2 (–)	E2	E2 + S_N2	S_N1 + S_N2 + E1 + E2	S_N1 + E1

SUBSTRATO ▸ BASE ▾	MeX	RCH_2X	R_2CHX	R_3CX
Fraca e.g., $CN^- > N_3^- > NH_3 > H_2O$	**S_N2**	**S_N2**	**S_N2**: solv. polar aprótico, Nu forte, [Nu] alta, substrato pouco impedido. **S_N1 e E1**, solv. próticos, Nu fracos	**S_N1 e E1**: aumento da temperatura favorece E1
Forte e.g., HO^-, RO^-, HCC^-, NH_2^-, R^-	**S_N2**	**S_N2**	**E2**, Zaitsev	**E2**, Zaitsev
Forte e impedida e.g., *t*-BuO^-, $(i\text{-}Pr)_2N^-$	**S_N2**	**E2**, Hofmann quando possível	**E2**, Hofmann quando possível	**E2**, Hofmann quando possível
Forte e não nucleofílica e.g., H^-, DBU, DBN	Sem reação	**E2**	**E2**	**E2**


L
R2C—CR2
L
R2C—CR2
H
E1cB
E2
SN2
E1
SN1
R2C=CR2
R2C—CR2
H
Nu
R2C—CR2
H