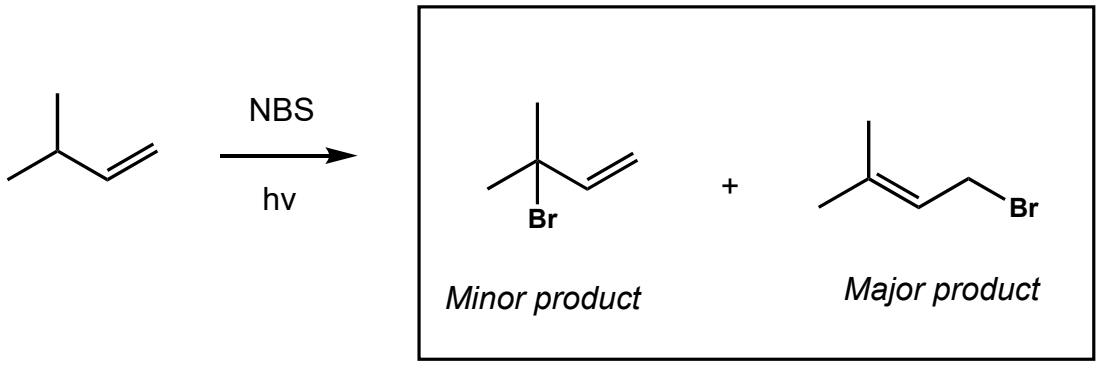
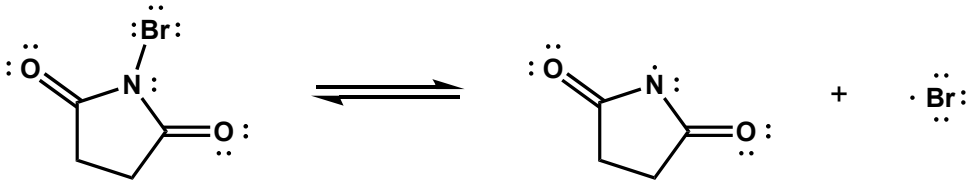
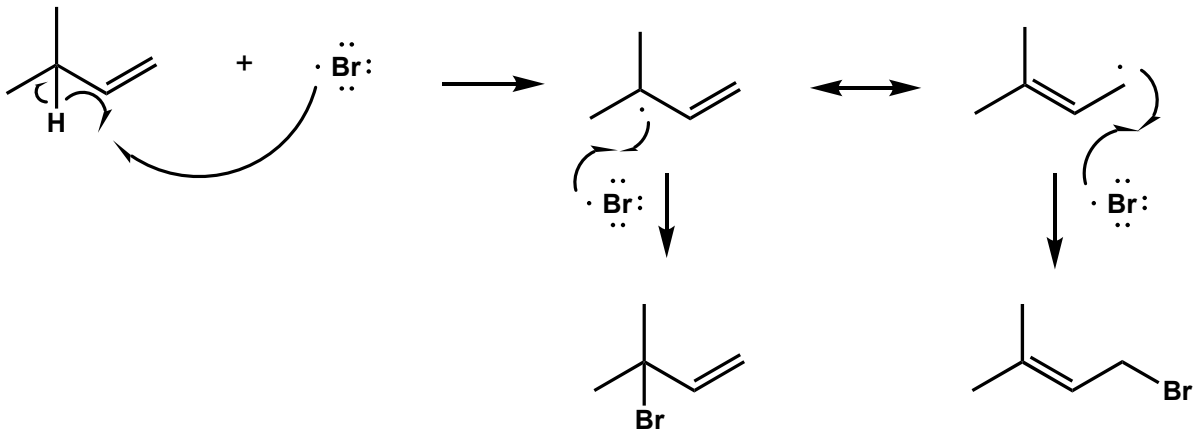
Allylic Radicals and Bromination

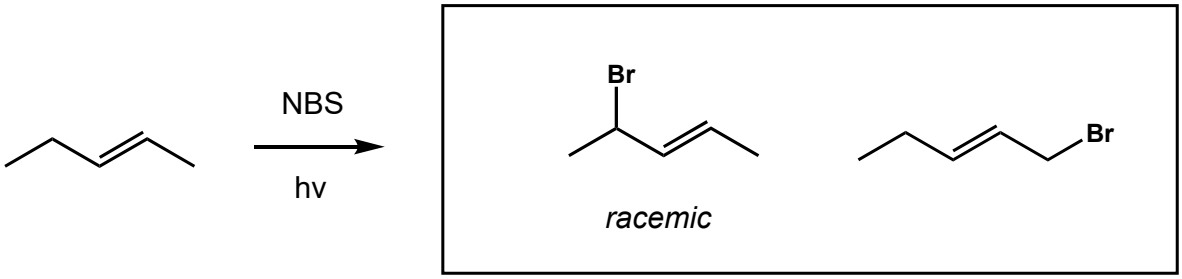
Consider the following reactions using NBS. Provide the products which you would expect. *Hint: remember resonance.*

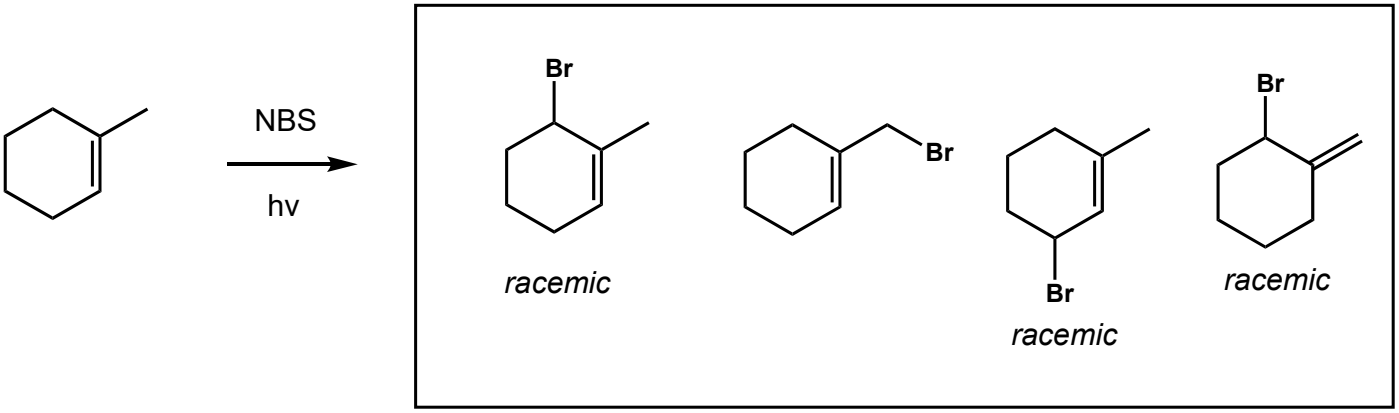


Mechanism

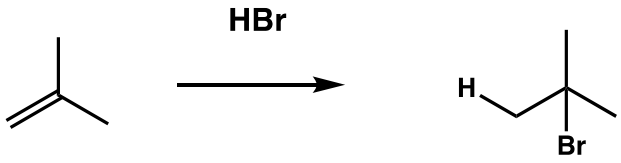




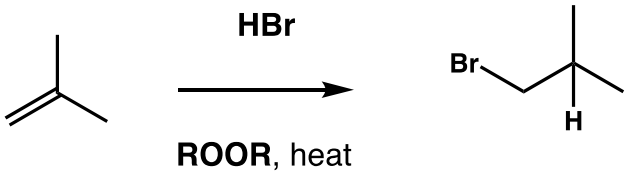




Markovnikov versus Non-Markovnikov Bromination of Alkenes

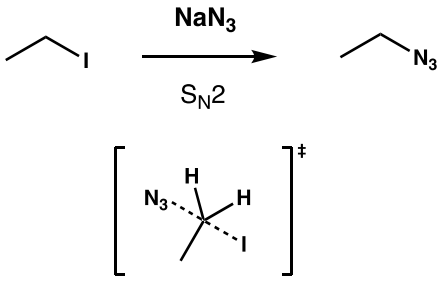


Markovnikov product formed selectively

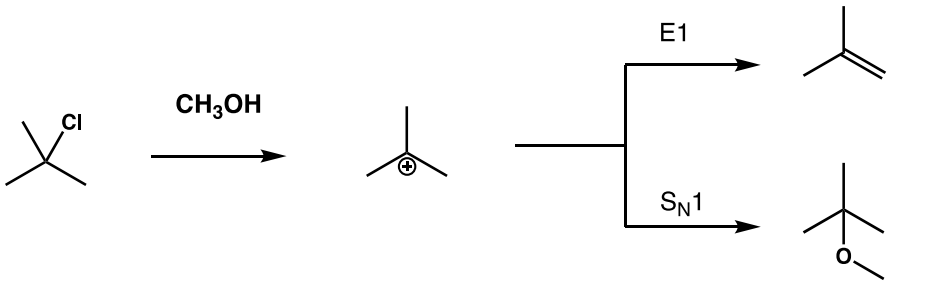


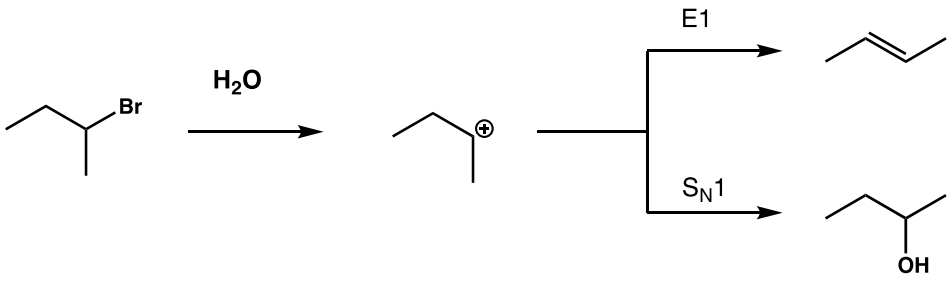
Non-Markovnikov product formed selectively

S_N1, S_N2, E1, and E2 Mechanisms

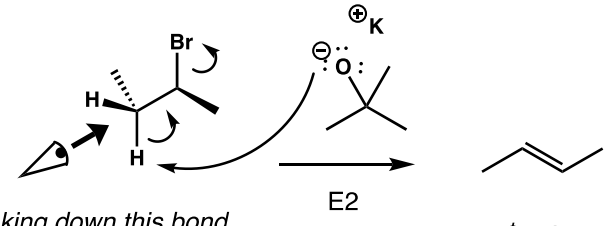


"inversion" of carbon center
as nucleophile displaces leaving group





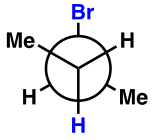
racemic



looking down this bond

+ ^{t}BuOH

Newman Projection



H *and* ***Br*** *must be anti-periplanar to eliminate.*

Notice that the Me groups are anti to each other, leading to E-alkene formation.