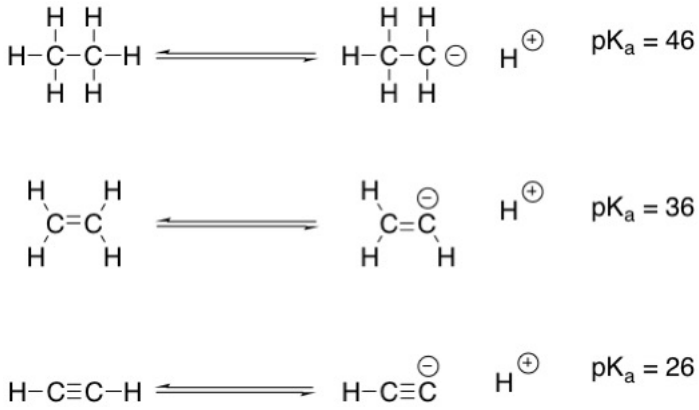
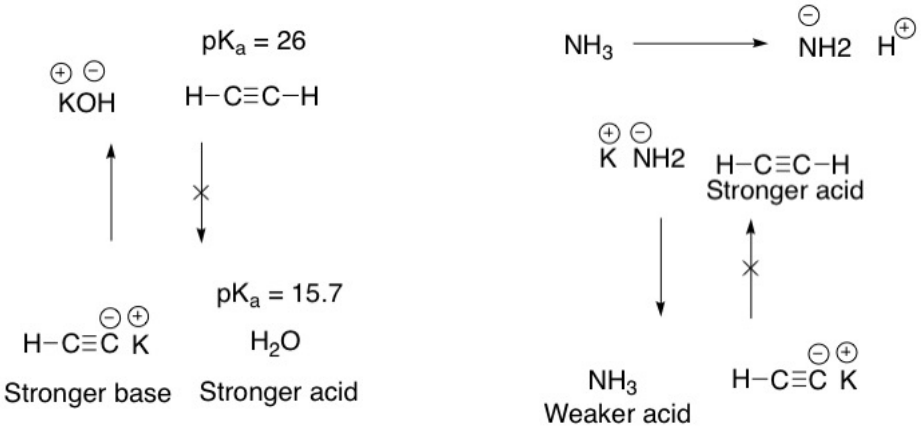
Synthesis of Alkenes and Alkynes



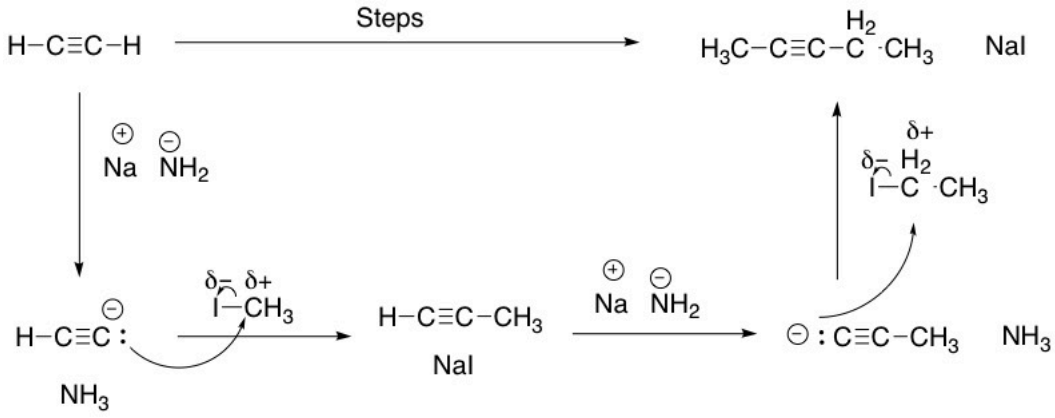
Equilibrium lies to the left in each of these reactions as alkanes, alkenes, and alkynes are very weakly acidic.

Deprotonating acetylenes



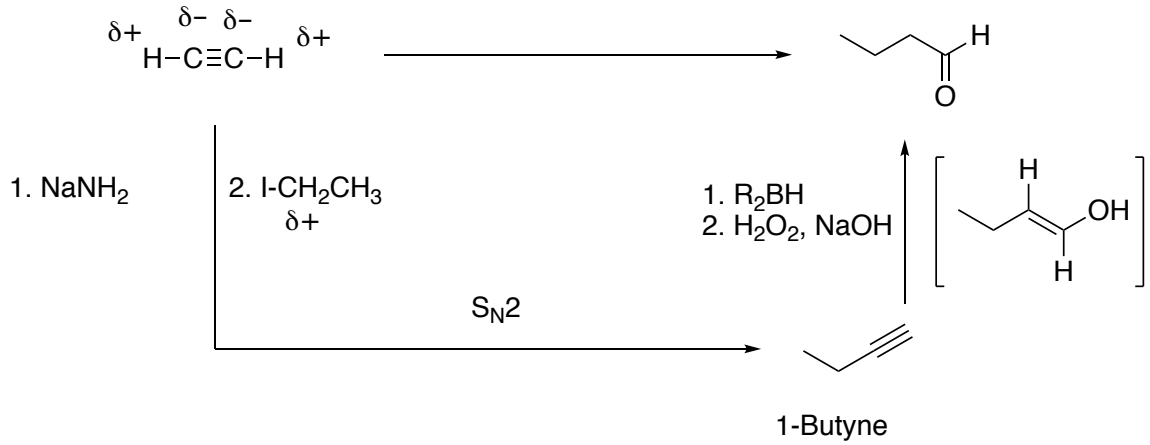
KOH will not deprotonate acetylene because it is a weaker base than acetylenes conjugate base (acetylide).
On the other hand KNH_2 will deprotonate acetylene, as the resulting acetylide is a weaker base. Ammonia pKa is 36

Organic synthesis example:

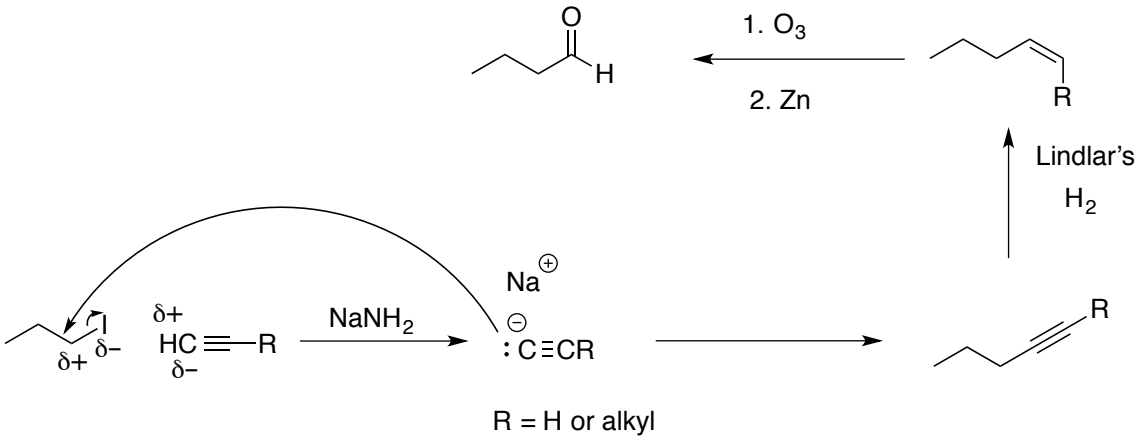


Both substitution reactions involving methyl iodide and ethyl iodide are S_N2, as the primary and secondary carbons will not hold the positive charge that is characteristic of an S_N1 intermediate (tertiary carbocation).

Example:



Alternative solution to above problem:



R = H or alkyl