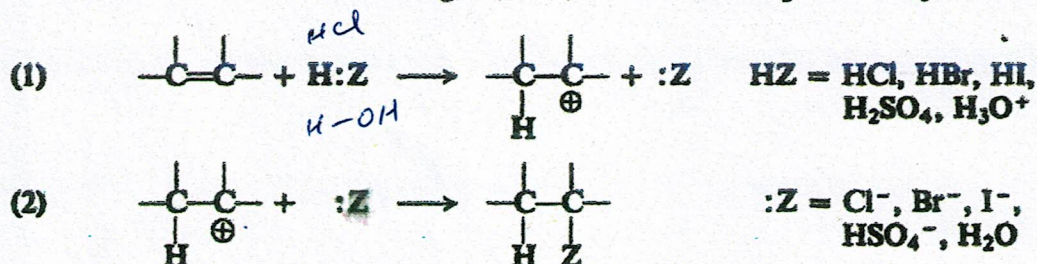


Mechanism of addition reaction (Markonikove)

Addition of the acidic reagent, HZ, is believed to proceed by two steps:

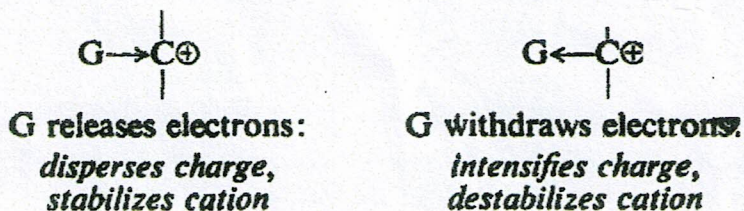


Step (1) involves transfer of hydrogen ion from :Z to the alkene to form a carbonium ion; this is a transfer of a proton from one base to another.

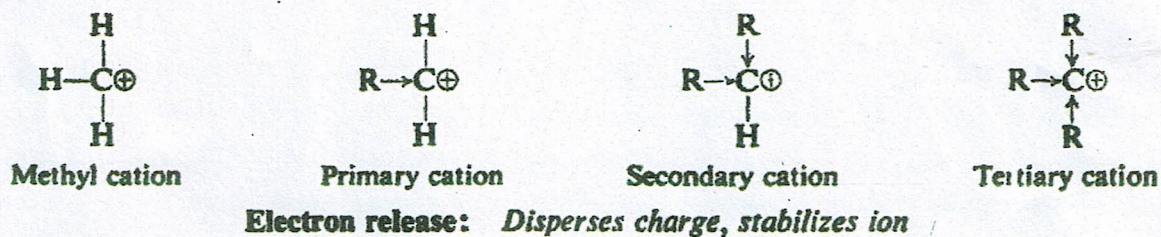
② Addition of :Z to Carbonium ion
Carbonium ions

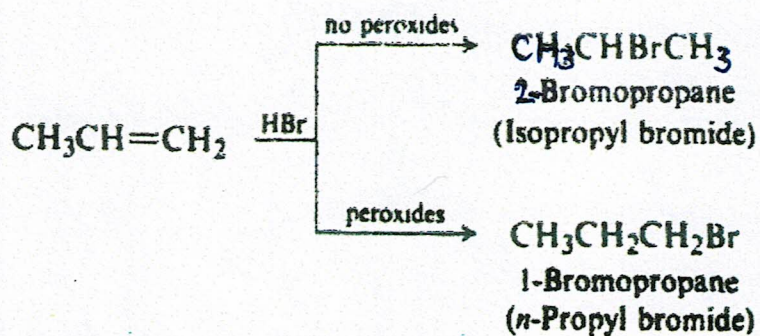
the Carbonium ion, (Carbo ation) a group of atoms that contains a carbon atom bearing only six electrons. Carbonium ions are classified as primary, secondary, or tertiary after the carbon bearing the positive charge. They are named by use of the word cation. For example

Carbonium Ion Stability



The facts are, then, that the greater the number of alkyl groups, the more stable the carbonium ion.



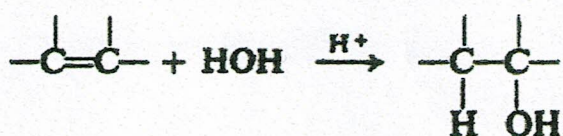


Markovnikov addition

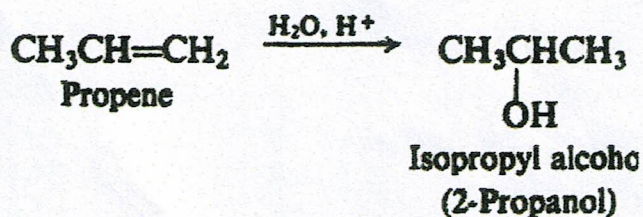
SS

Anti-Markovnikov addition

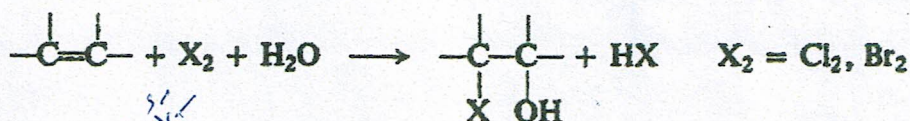
5. Addition of water. Hydration. Discussed in Sec. 6.9.



Example:

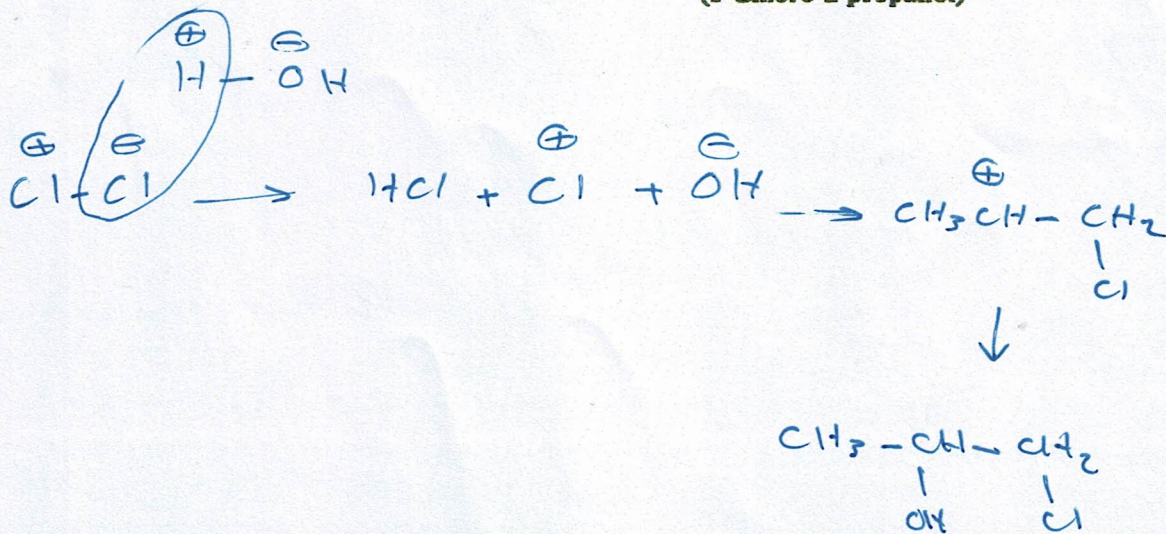
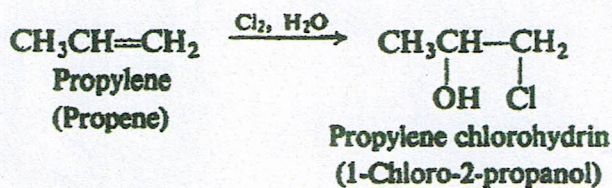


6. Halohydrin formation. Discussed in Sec. 6.14.



Example:

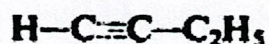
الأمثلة



Alkyne

Nomenclature:

The alkynes are named according to two systems. In one, they are considered to be derived from acetylene by replacement of one or both hydrogen atoms by alkyl groups.



Ethylacetylene

1-Butyne



Dimethylacetylene

2-Butyne



Methylisopropylacetylene

4-Methyl-2-pentyne

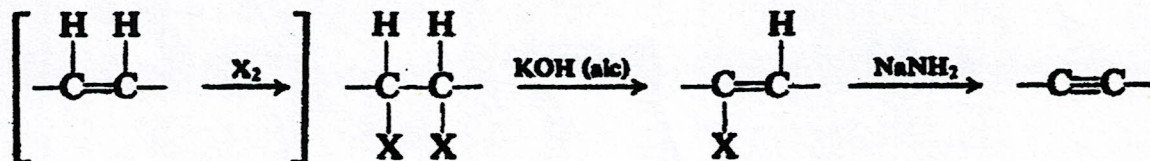
For more complicated alkynes the IUPAC names are used. The rules are exactly the same as for the naming of alkenes, except that the ending -yne replaces

-ene. The parent structure is the longest continuous chain that contains the triple bond, and the positions both of substituents and of the triple bond are indicated by numbers. The triple bond is given the number of the *first* triply-bonded carbon encountered, starting from the end of the chain nearest the triple bond.

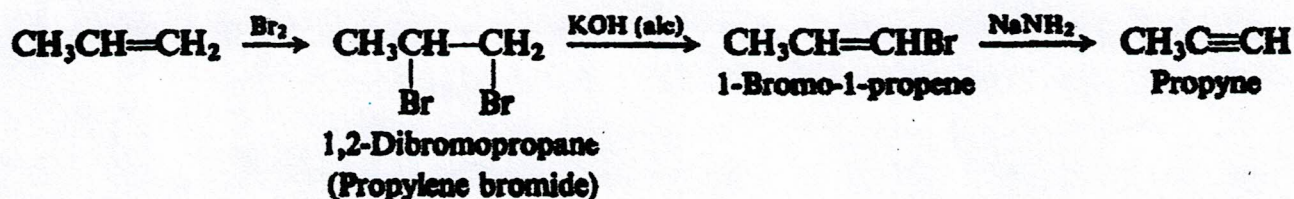
Name	Formula
Acetylene	$\text{HC}\equiv\text{CH}$
Propyne	$\text{HC}\equiv\text{CCH}_3$
1-Butyne	$\text{HC}\equiv\text{CCH}_2\text{CH}_3$
1-Pentyne	$\text{HC}\equiv\text{C}(\text{CH}_2)_2\text{CH}_3$
2-Butyne	$\text{CH}_3\text{C}\equiv\text{CCH}_3$
2-Pentyne	$\text{CH}_3\text{C}\equiv\text{CCH}_2\text{CH}_3$
3-Methyl-1-butyne	$\text{HC}\equiv\text{CCH}(\text{CH}_3)_2$
2-Hexyne	$\text{CH}_3\text{C}\equiv\text{C}(\text{CH}_2)_2\text{CH}_3$
3-Hexyne	$\text{CH}_3\text{CH}_2\text{C}\equiv\text{CCH}_2\text{CH}_3$

PREPARATION OF ALKYNES

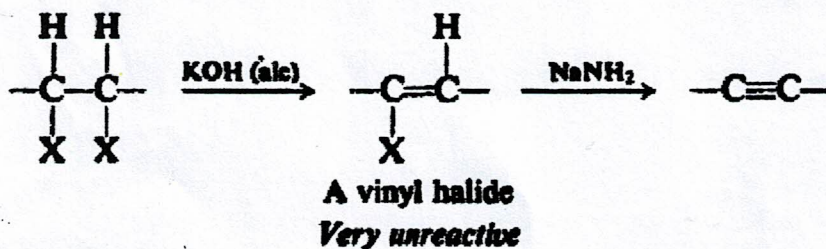
1. Dehydrohalogenation of alkyl dihalides. Discussed in Sec. 8.6.



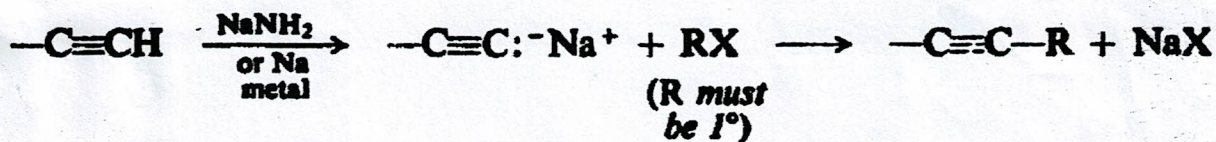
Example:



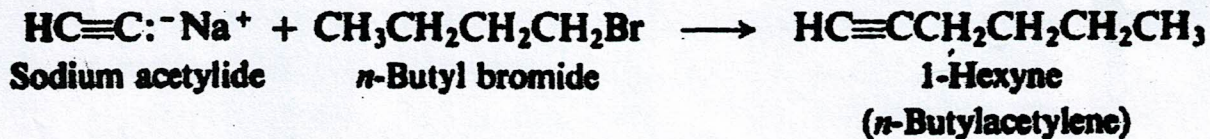
Dehydrohalogenation can generally be carried out in two stages as shown.



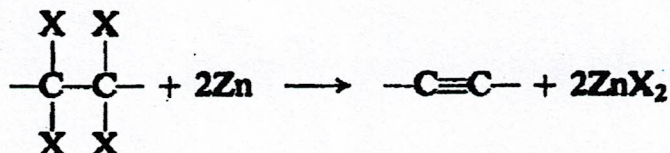
2. Reaction of sodium acetylides with primary alkyl halides. Discussed in Sec. 8.12



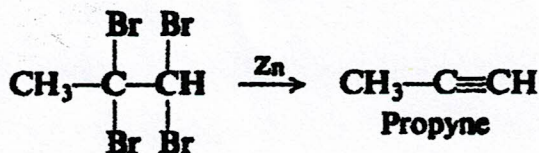
Examples:



3. Dehalogenation of tetrahalides. Discussed in Sec. 8.6.

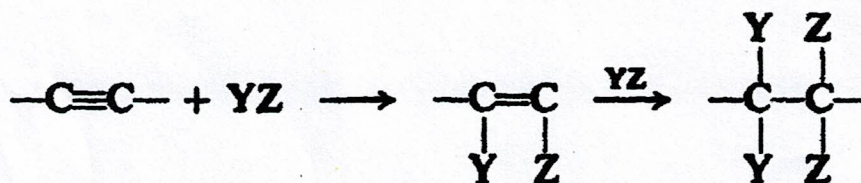


Example:

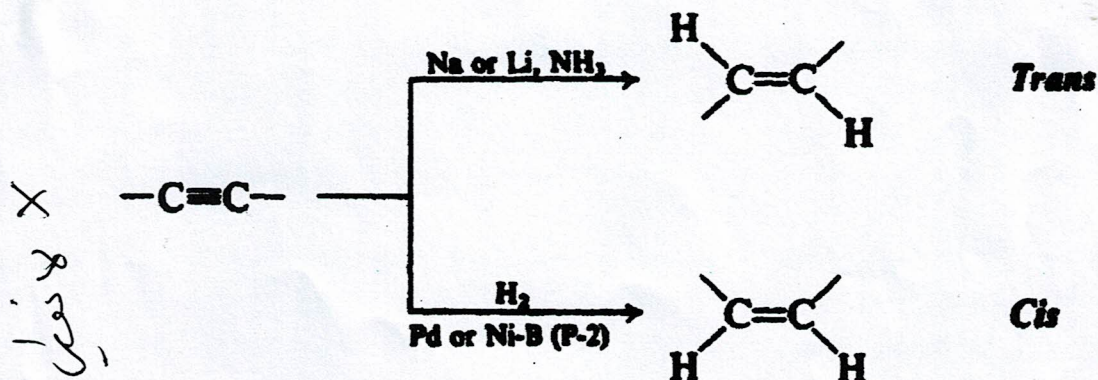
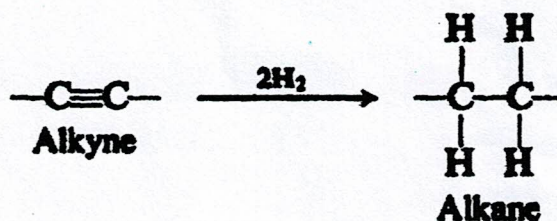


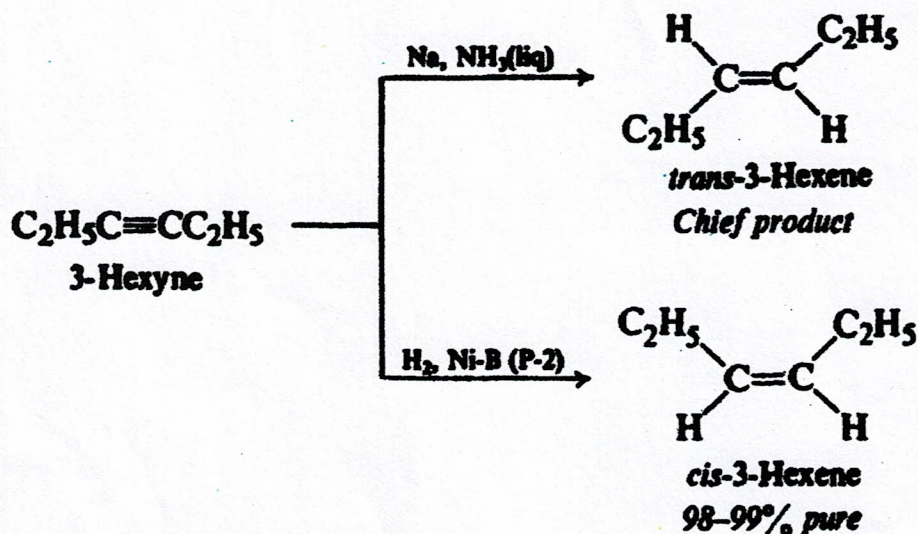
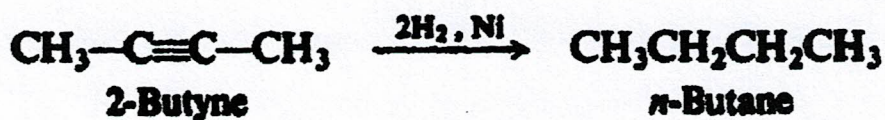
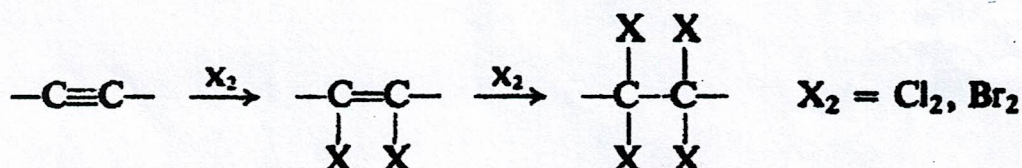
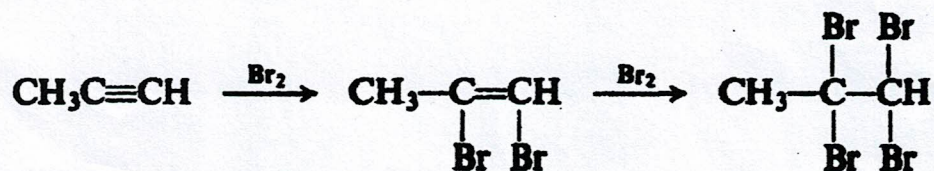
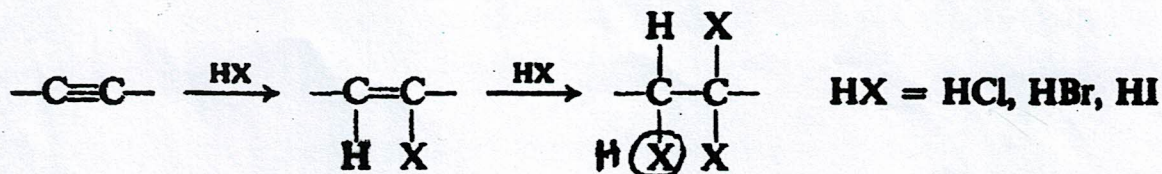
REACTIONS OF ALKYNES

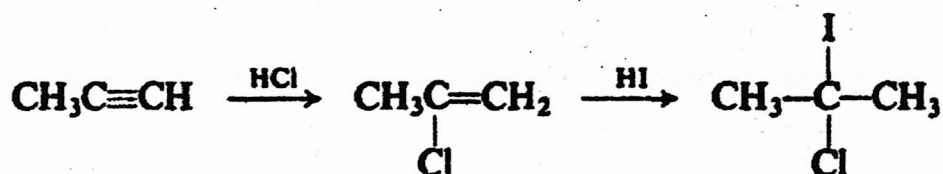
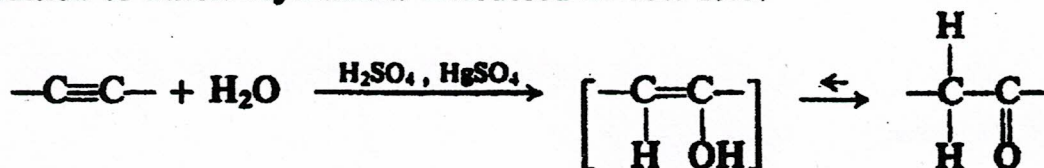
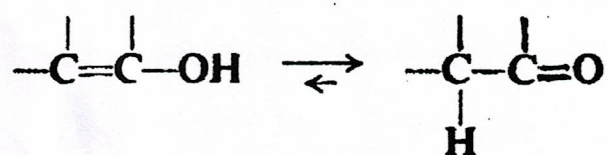
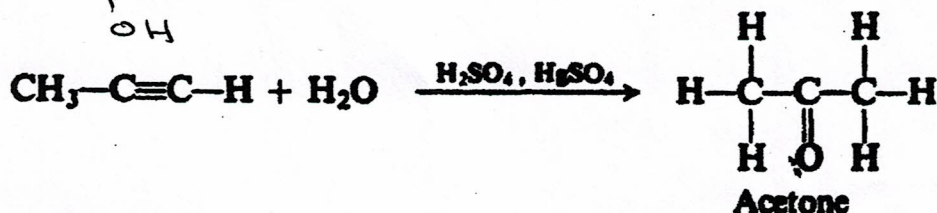
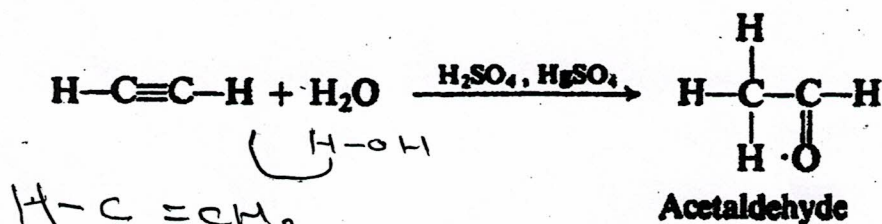
Addition Reactions



1. Addition of hydrogen. Discussed in Sec. 8.9.

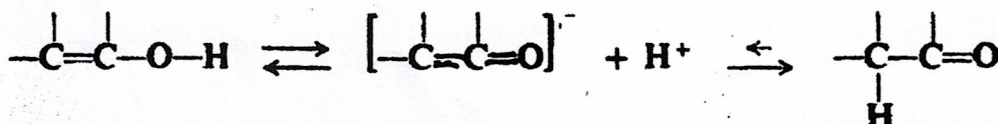


Examples:**2. Addition of halogens. Discussed in Sec. 8.8.****Example:****3. Addition of hydrogen halides. Discussed in Sec. 8.8.**

Example:**4. Addition of water. Hydration. Discussed in Sec. 8.13.****Examples:**

Enol structure

Keto structure

Keto-enol tautomerism*Handwritten:* $\text{CH}_2=\text{CH}-\text{OH}$ 

Stronger acid

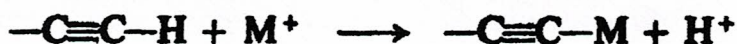
Weaker acid

Keto-enol tautomerism

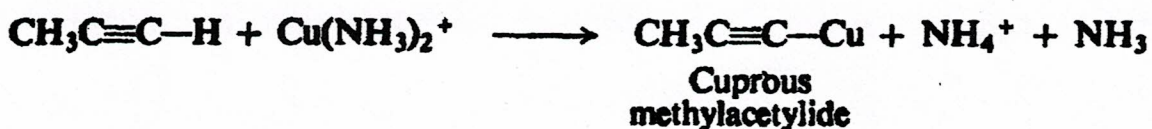
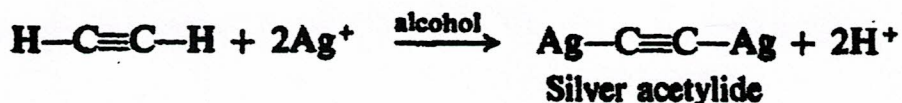
Reactions as Acids



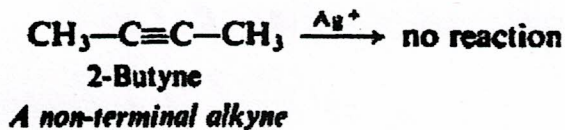
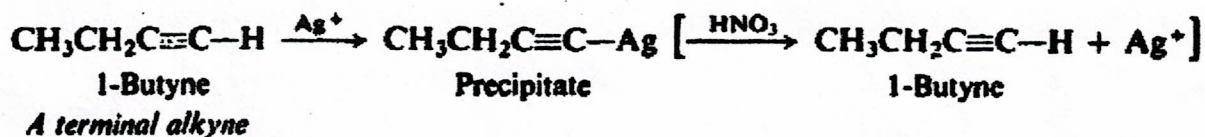
5. Formation of heavy metal acetylides. Discussed in Sec. 8.11.



Examples:



*Identification
of terminal
alkynes*



6. Formation of alkali metal acetylides. Discussed in Sec. 8.10.

Examples:

