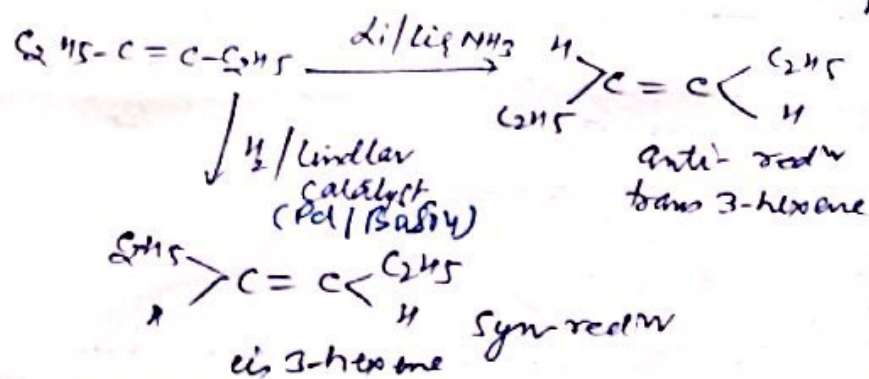
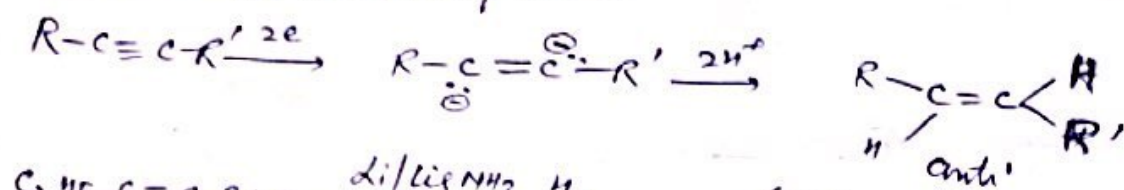


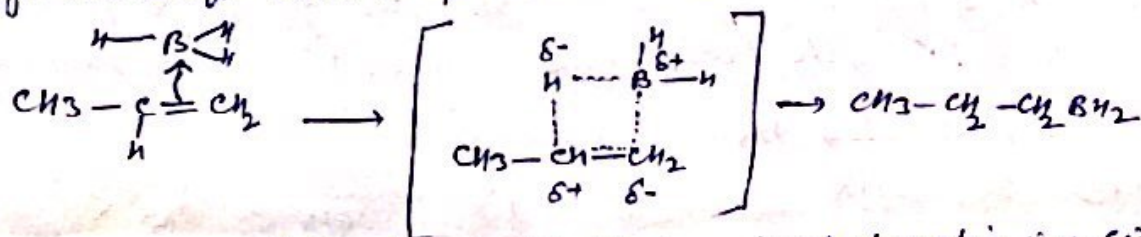
Hydrogenation of alkynes (Addition reactions)
 Electrons are transferred to alkynes more readily than to alkenes. This can be attributed to greater reactivity of alkynes towards nucleophiles. Reagents are metal amines and metal ammonia systems. The reduction is selectively anti.



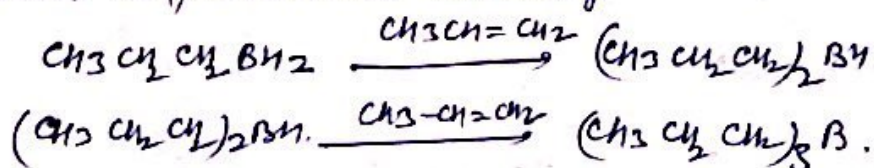
Thus the only product formed from disubstituted alkynes is the corresponding E-alkene. and therefore, the technique complements the formation of Z-alkenes by catalytic hydrogenation of alkynes.

Hydroboration (Jmp)

Borane (BH₃) itself is unknown but its dimer B₂H₆ behaves as if it were BH₃. As it has a vacant orbital so borane may be regarded as an electrophile and attacks the π electrons of alkene. Intramolecular hydride shift then completes the reaction.



Because of one step - four centre process, hydroboration is a cis-addition. Hydrogen and Boron become attached to the same side of the double bond. Alkyl boranes behave like boranes and react further with excess alkenes to form di and tri alkyl boranes.



The rate of addition of borane to alkenes decreases with increase in the number of alkyl substituents on the double bond.

