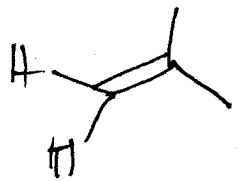
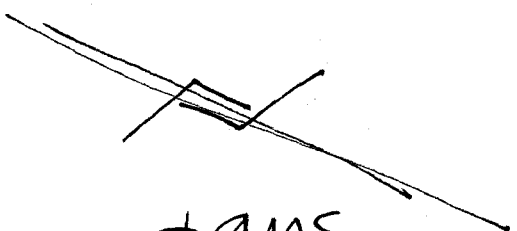
more alkene nomenclature

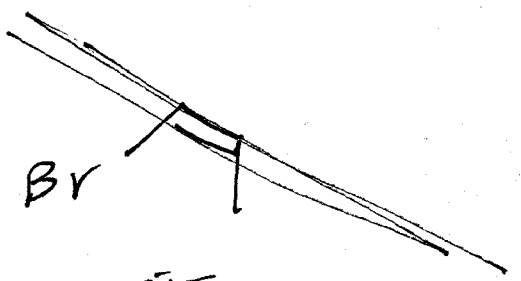
1. cis vs. trans – worry about this when both ends of the double bond have two <u>different</u> substs.



no cis/trans

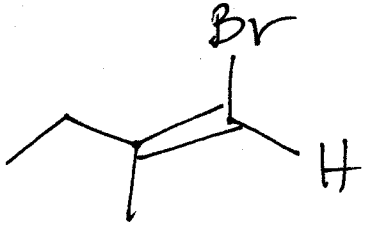


trans
= opposite



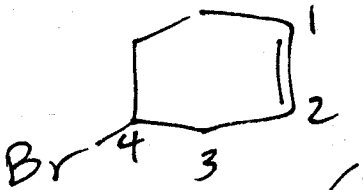
cis
= same

consider the double bond as a fence – where are the two big groups? (one from each end of the double bond)

What about: 

Hard to say. (wait for Ch. 7)

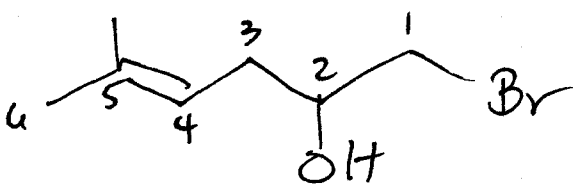
2. cyclic alkenes –



4-bromocyclohexene
(double bond defines #1)

Always cis if < 10 C's in ring, so don't need to specify.

3. What if there's both an OH and an alkene?
OH wins.

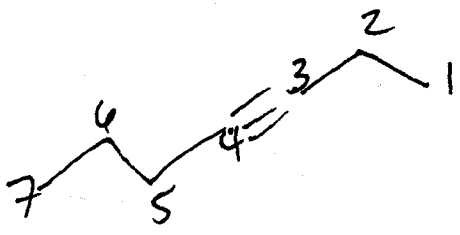


1-bromo-5-methyl-4-hexen-2-ol
. . . . . hex-4-en-2-ol

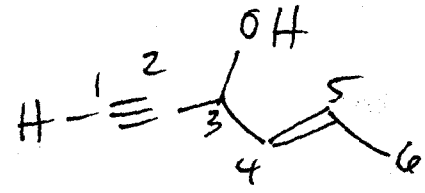
Alkynes –

longest chain

ane becomes yne



3-heptyne



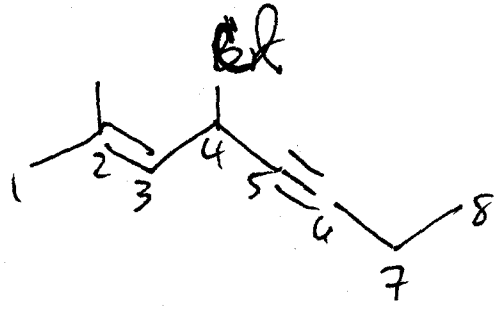
trans-

hex-4-ene-1-yne-3-ol

Double and triple – enyne

↑

priority



4-chloro-2-methyl-2-octen-5-yne

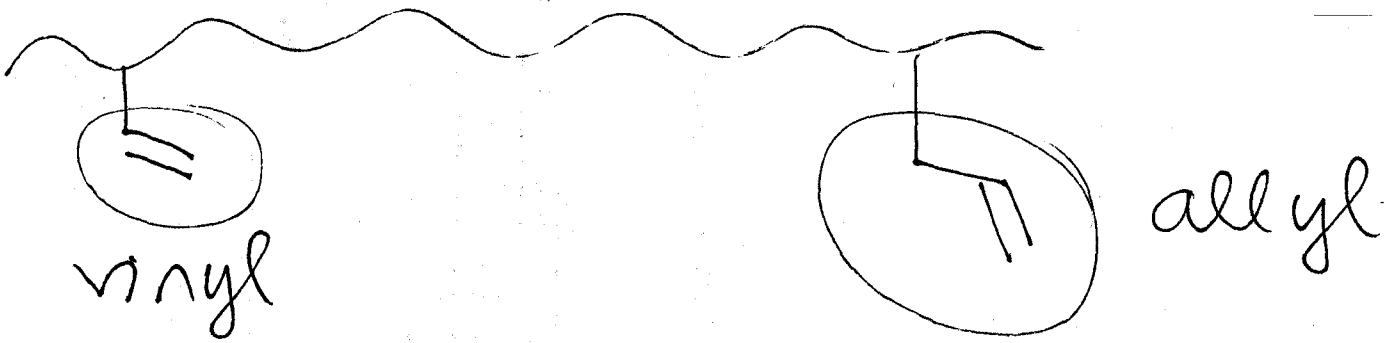
Add in an OH – now the OH is highest priority

enynol

Common names:

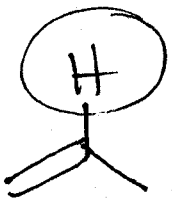
H-≡-H acetylene (ethyne)

Common fragments:

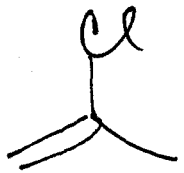


vinyl

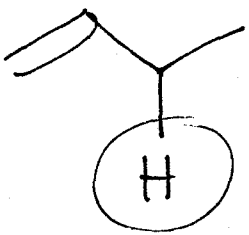
allyl



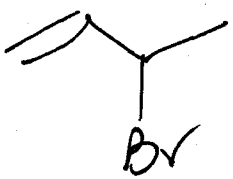
vinyl hydrogen



vinyl chloride



allyl(ic) hydrogen



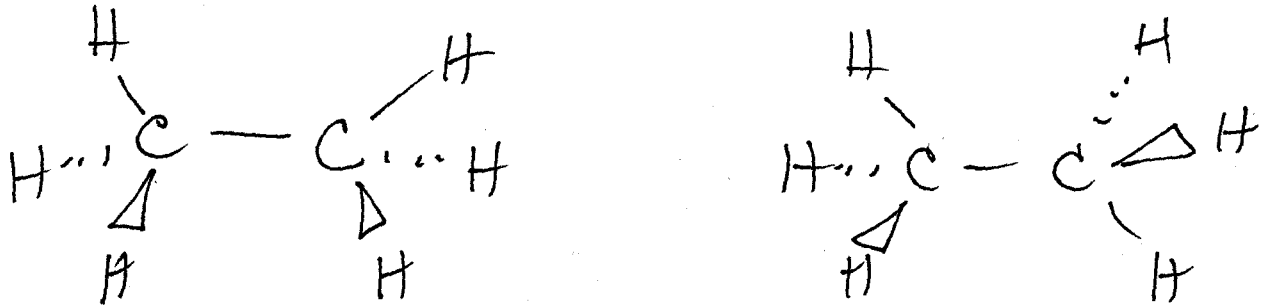
allyl(ic) bromide

Back when we were discussing bonding models of ethane, ethene, ethyne

* sigma bonds (axially symmetrical)
* pi bonds (not symmetrical)

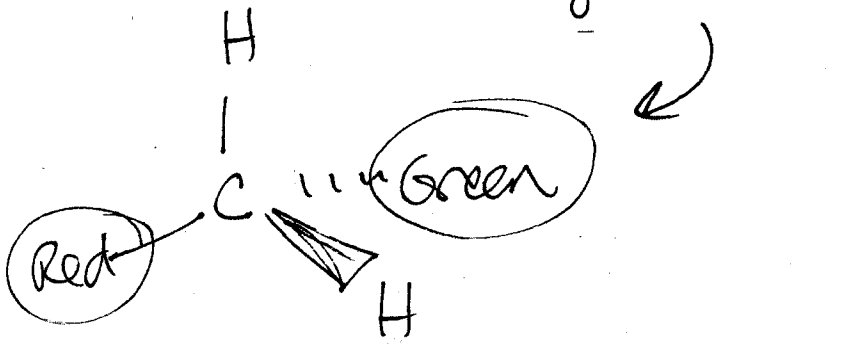
– bond line – added in wedges/hatches to simulate 3D.

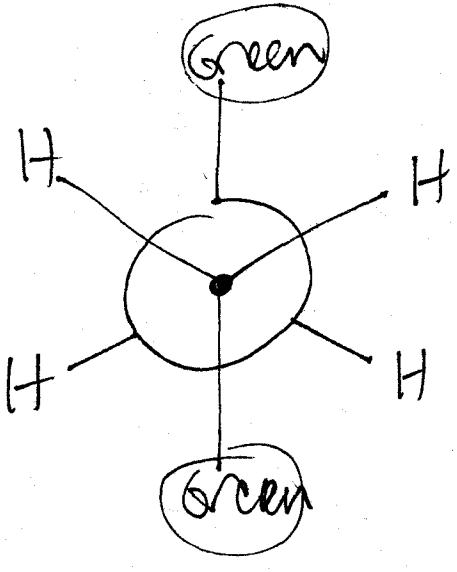
Consider ethane. CH_3CH_3



two different conformations of the same molecule.

Learn to draw Newman projections. Rather than a side view of a molecule, we want to sight along a bond.

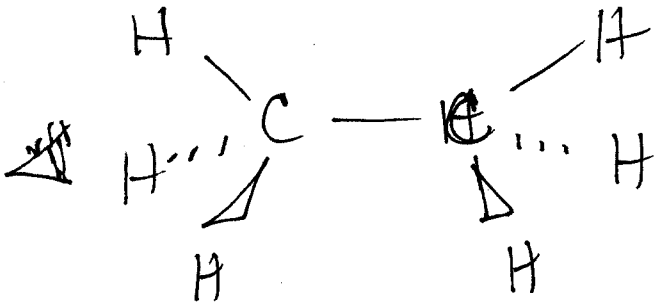


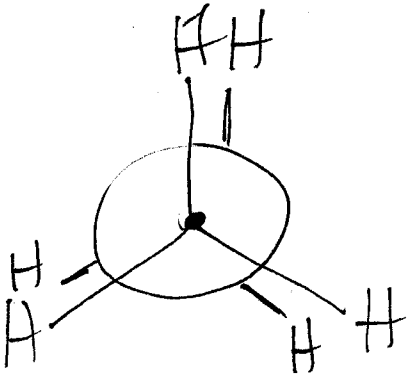


a Newman.

large circle is the atom at the far end of the bond in question.

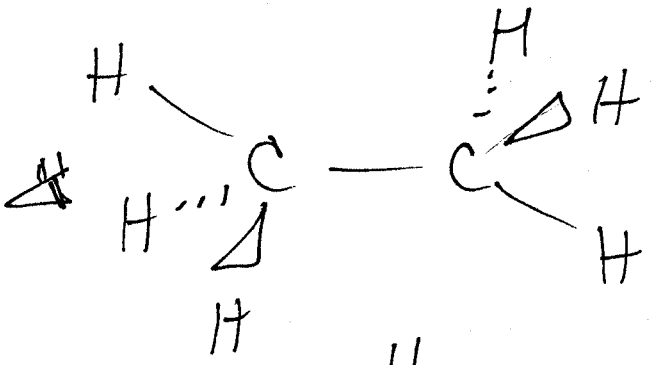
dot is the atom at the closer end of the bond in question

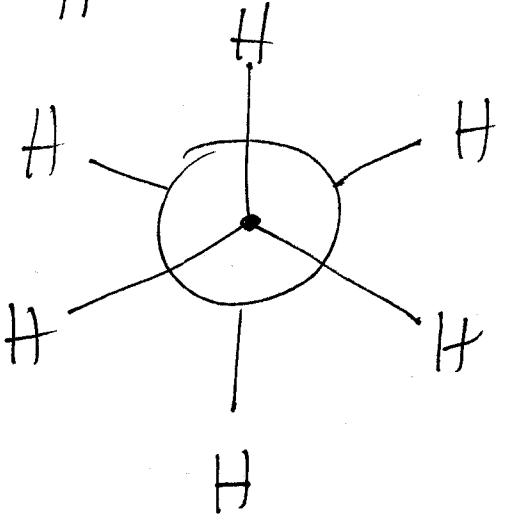




eclipsed conformation

high energy





staggered conformation

low energy