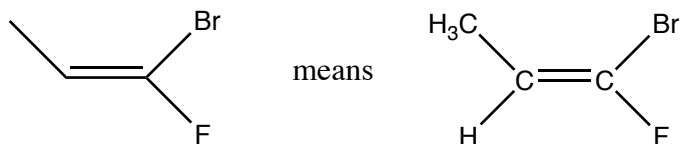
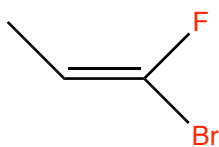


Nomenclature of Alkenes continued:

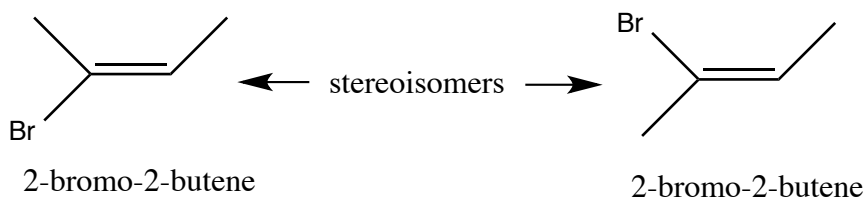
1-bromo-1-fluoropropene



1-bromo-1-fluoropropene

Question: Are the compounds above the same?

Answer: No, they are diastereomers and we can differentiate them by using the E and Z nomenclature

Another example:

(methyls same side of double bond)

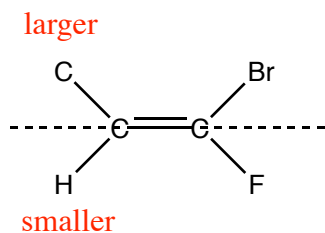
(methyls opposite sides of double bond)

E and Z Nomenclature

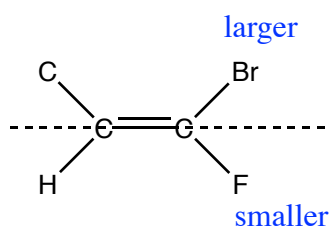
Example: **1-bromo-1-fluoro-1-propene** (from above)

- compare the atomic no. of the adjacent atoms.

Compare the **left** side of the C=C bond



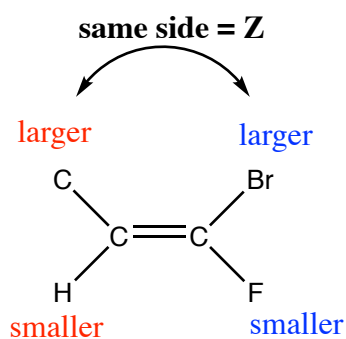
Compare the **right** side of the C=C bond



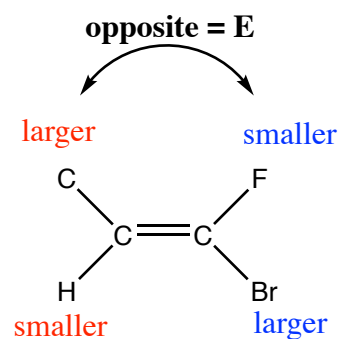
- Compare now if the larger atoms/group is on the same side (Z) or opposite side (E)

Z – Zusammen

E – Entgegen

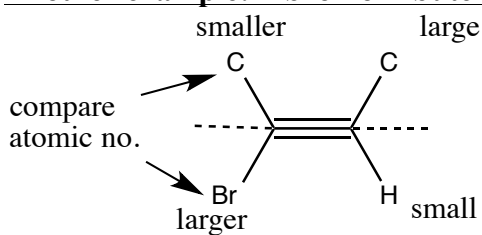


(Z) 1-bromo-1-fluoro-1-propene



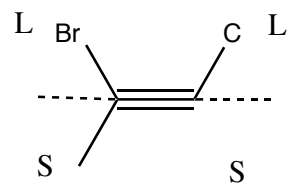
(E)-1-bromo-1-fluoro-1-propene

Another example: 2-bromo-2-butene

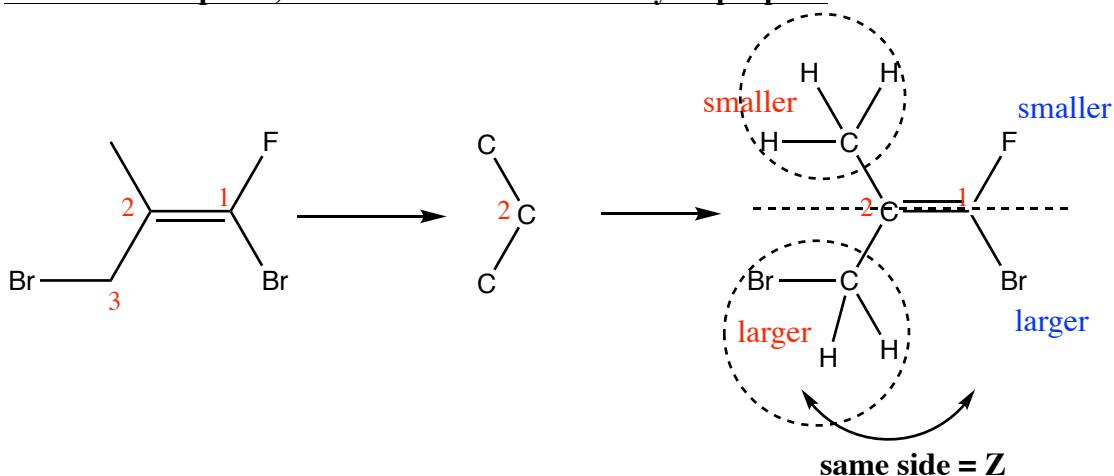


Large groups are on opposite sides on the C=C --> E

E-2-bromo-2-butene

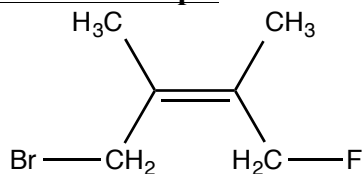


Z-2-bromo-2-butene

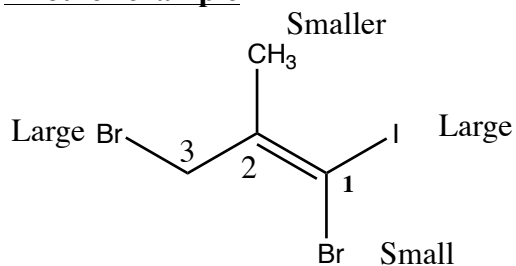
Another example: 1,3-dibromo-1-fluoro-2-methyl-1-propene

Therefore the name is: (Z)-1,3-dibromo-1-fluoro-2-methyl-1-propene

If you cannot decide on basis of atomic number of atoms directly attached to double bond, go to the next set of atoms until a higher atomic number is found

Another example

Z-1-bromo-2,3-dimethyl-4-fluoro-2-butene

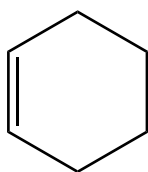
Another example

(E)-1,3-Dibromo-1-iodo-2-methyl-1-propene

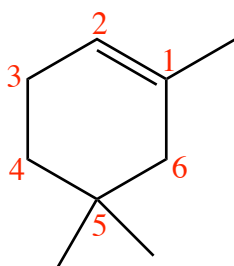
Nomenclature of Cycloalkenes



Cyclopropene



Cyclohexene



1,5,5-trimethyl-1-cyclohexene

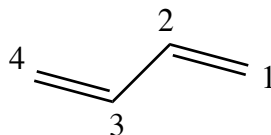
Multiple $C=C$

2 Diene

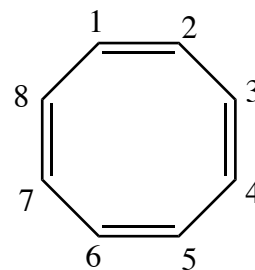
3 Triene

4 Tetraene

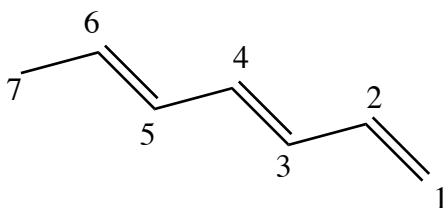
↓
...etc



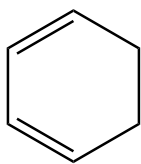
Buta-1,3-Diene
1,3-Butadiene



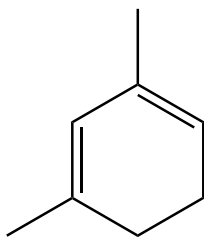
1,3,5,7-Cyclooctatetraene
COT



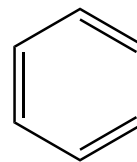
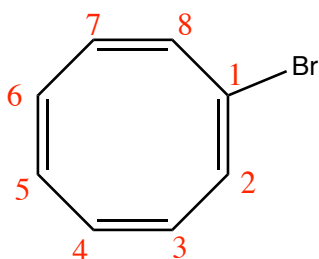
1,3,5-triene
(3E,5E)-1,3,5-Heptatriene
1,3E,5E-Heptatriene

other examples:

1,3-cyclohexadiene

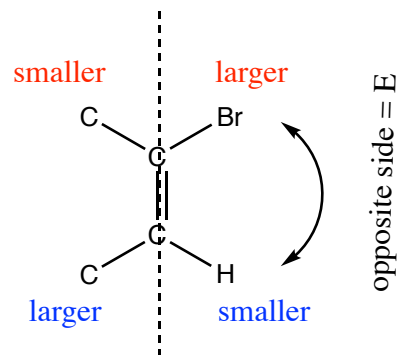


1,3-dimethyl-1,3-cyclohexadiene

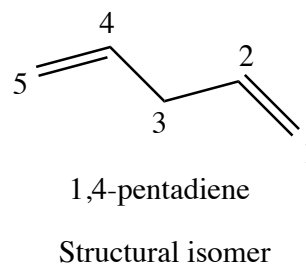
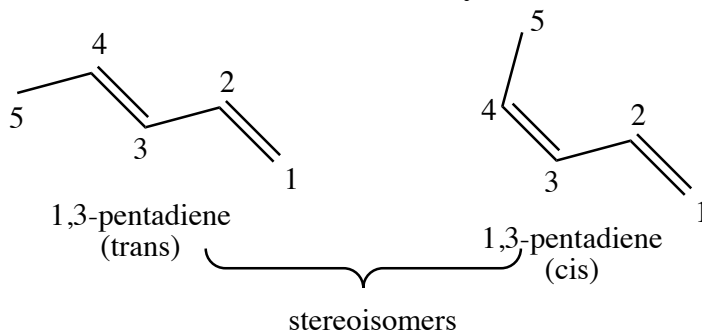
benzene
(NOT a cyclohexatriene)
(aromatic)

1-bromo-1,3,5,7-cyclooctatetraene

E or Z?

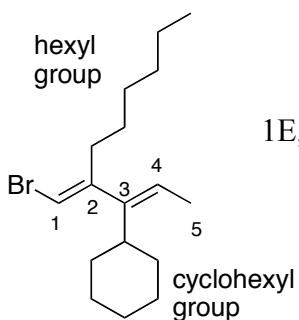


It is there for (E)-1-bromo-1,3,5,7-cyclooctatetraene

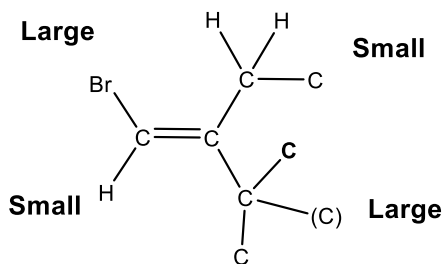
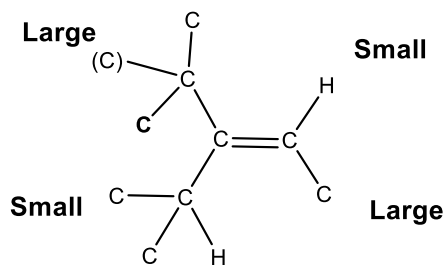


1,3-pentadiene (trans) = (E)-1,3-pentadiene

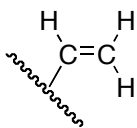
1,3-pentadiene (cis) = (Z)-1,3-pentadiene

Another Example

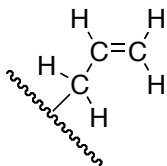
1E,3E-1-bromo-3-cyclohexyl-2-hexyl-1,3-pentadiene

1st double bond2nd double bond

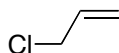
Note: Carbons attached to double and triple bonds are depicted as additional carbon-carbon bonds in the representations above.

Special Nomenclature of common groups:*Different groups*

Vinyl group

Vinyl chloride
1-chloroethene

Allyl group

Allyl chloride
3-chloropropene