

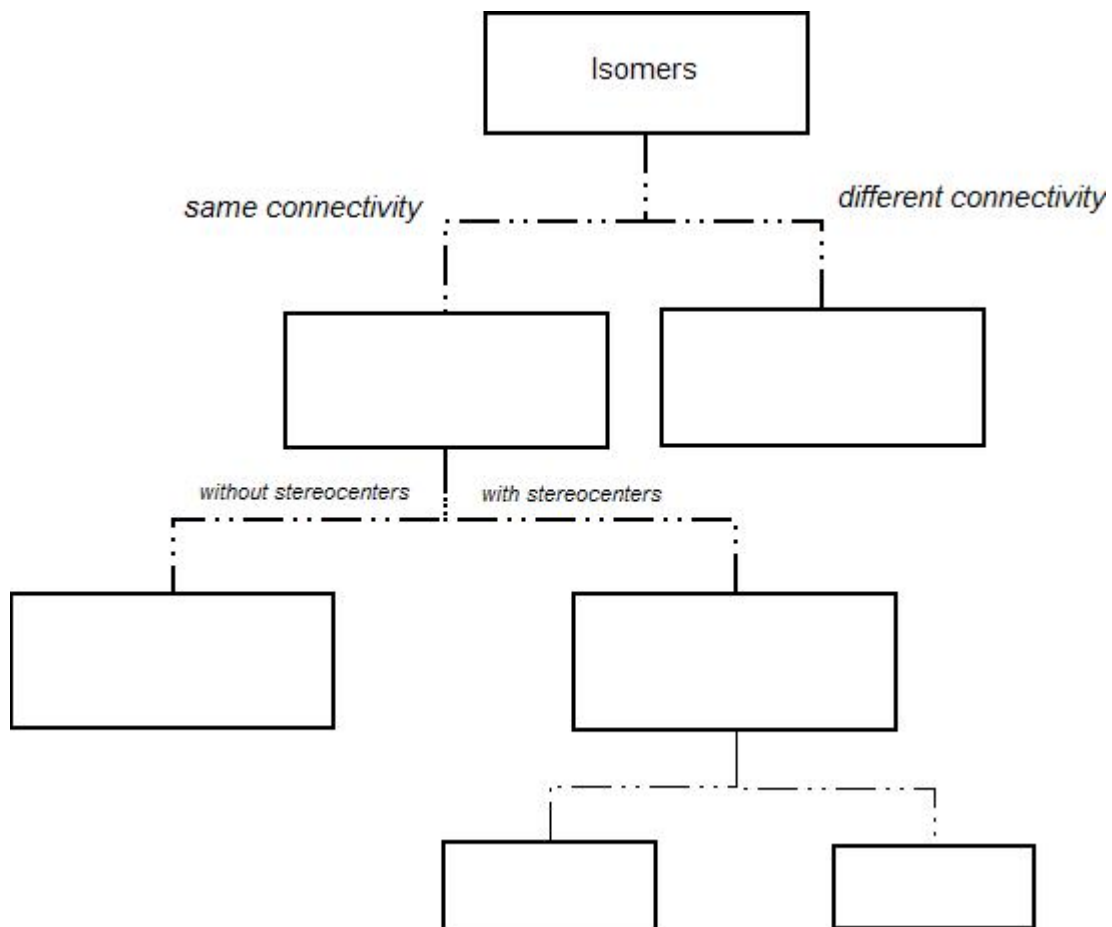
Organic Chemistry 212

Prof J. Walker

Notes: *Chapter Six – Chirality: The Handedness of Molecules*

Terminology

Fill in the following flowchart and provide examples for each term:



Practice drawing molecules using the perspective templates above.

Steps for assigning an R or S configuration to a stereocenter:

Step One:

Determine the priority of each group bonded to the stereocenter and assign a number from 1 (highest priority) to 4 (lowest priority).

How are priorities assigned?

Priorities depend on atomic number – the higher the atomic number the higher the priority. If the first atom is the same then consider the next atom and so on. Treat double bonds as if there were two of that kind of atom attached.

Step Two:

Orient the molecule so that the lowest priority group points to the back (away from you).

Step Three:

Let your eyes travel from highest (1) to next lowest (3) priority atom. If this journey is clockwise then the stereocenter is designated "R". If this journey is counter clockwise then the stereocenter is designated "S".

Optical Activity

Each member in a pair of enantiomers will rotate the plane of polarized light in a specific direction. The degree of rotation and the direction of rotation are specific to the molecule but each member of a pair will rotate polarized light in the opposite direction. The directions of light rotation are termed: dextrorotatory and levorotatory (clockwise and counterclockwise respectively). An R enantiomers can be either dextrorotatory or levorotatory – it just depends on the molecule.

Read the article about Alice – we'll discuss this in class.