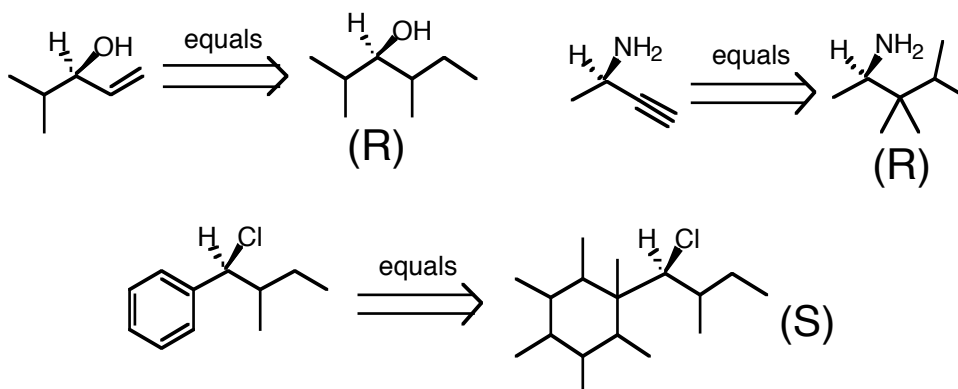


5.3 R/S Classification for Chiral Carbons

1. Assign Priority of Atoms/Groups attached to a tetrahedral stereocenter (1 highest, 4 lowest)
 - a. For different elements, higher atomic number takes priority
 - Halogen > Oxygen > Nitrogen > Carbon > Hydrogen
 - b. In case of carbon versus carbon ties: Differentiate at nearest point of difference
 1. A carbon with a heteroatom attached beats one without
 2. For carbons with no heteroatoms, one with more H's loses to one with less
 - 3° carbon > 2° carbon > 1° carbon > CH₃
 - c. Handling double bonds and triple bonds
 - A carbon with more H's again loses to one with fewer
 - Double or triple bonds are treated as if each of the bonds has extra C's attached



2. If the low priority group 4 (normally H) is in the back (hashed), trace a path from 1 → 2 → 3.
 - a. If the path goes clockwise, the stereocenter is (R)
 - b. If the path goes counterclockwise, the stereocenter is (S)
3. If the low priority group 4 (normally H) is in front (wedged), then the situation is reversed.
 - a. If the path goes clockwise, the stereocenter is (S)
 - b. If the path goes counterclockwise, the stereocenter is (R)
4. If the low priority group 4 (normally H) is to the left or to the right, exchange it with the group in the back (hashed), and trace the path on the resulting figure.
 - a. If the path goes clockwise, the stereocenter is (S)
 - b. If the path goes counterclockwise, the stereocenter is (R)
5. In Fisher projections, since H is always in front, clockwise is (S) and counterclockwise is (R)

Drawing Structure, Given Name: Draw the easiest one, with H in back. If correct, great! If incorrect, simply redraw with the H in front.

Ex: Draw (R)-3-chloroheptane