VIVEKANANDA COLLEGE

THAKURPUKUR

KOLKATA-700063

NAAC ACCREDITED ‘A’ GRADE

Topic: Stereochemistry: Chirality-2

Course Title: Organic Chemistry -2

Paper: CEMA-CC-2-3-TH

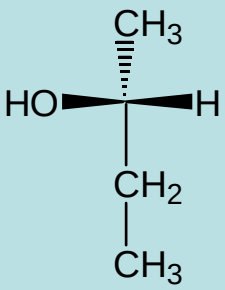
Unit: L-4

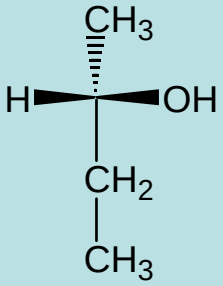
Semester: 2 (Hons)

Name of the Teacher: Yasin Nuree

Name of the Department: Chemistry

Cahn-Ingold-Prelog rules :





Both are "2-butanol"

Absolute configuration :

The R & S notation

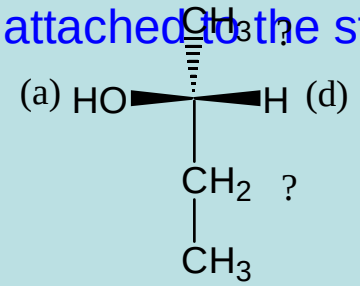
1. Assign priority sequence to the four groups attached to a stereogenic carbon following *sequence rule*
2. Observe the stereogenic centre from a direction opposite to the group of lowest priority
3. Trace the path from 1 to 2 to 3.

If clockwise ⟶ R (rectus, right)

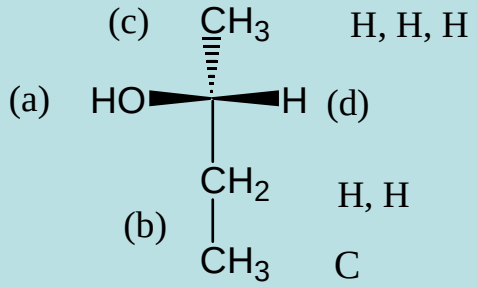
If anti clockwise ⟶ S (sinister, left)

Sequence rules:

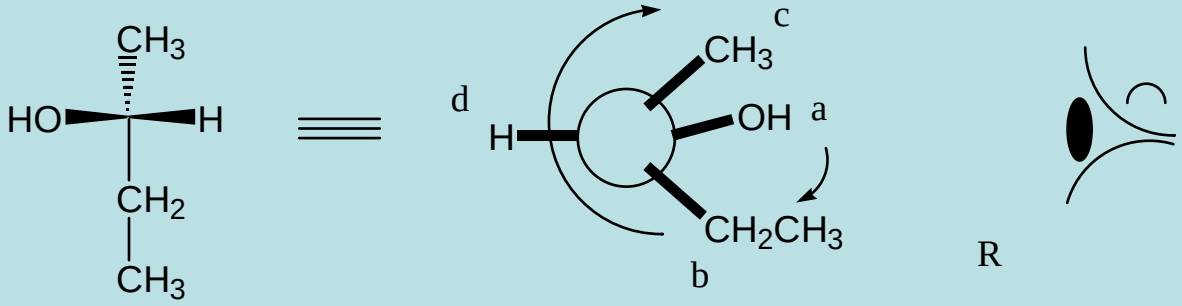
1. Priority is first assigned on the basis of the atomic number of the atom
that is directly attached to the stereo centre.



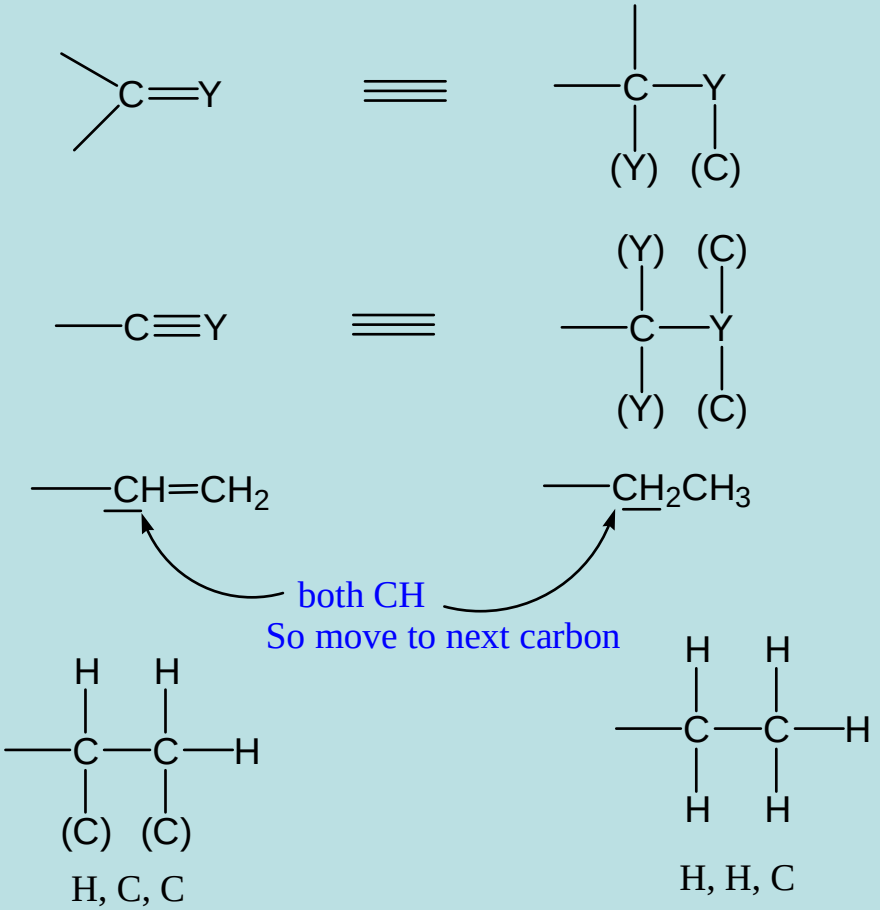
2. When a priority cannot be assigned on the basis of AN, then the next set of atoms/groups are examined.



3. Rotate the structure so that (d) is directed away from us.



4. Groups containing double or triple bonds are assigned as if both atoms were duplicated and triplicated.

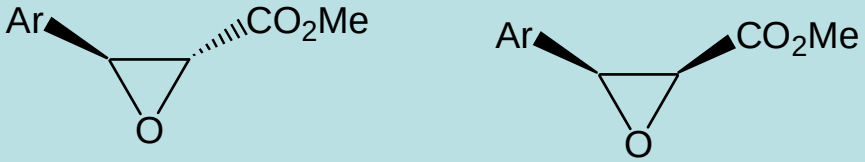


Vinyl > ethyl

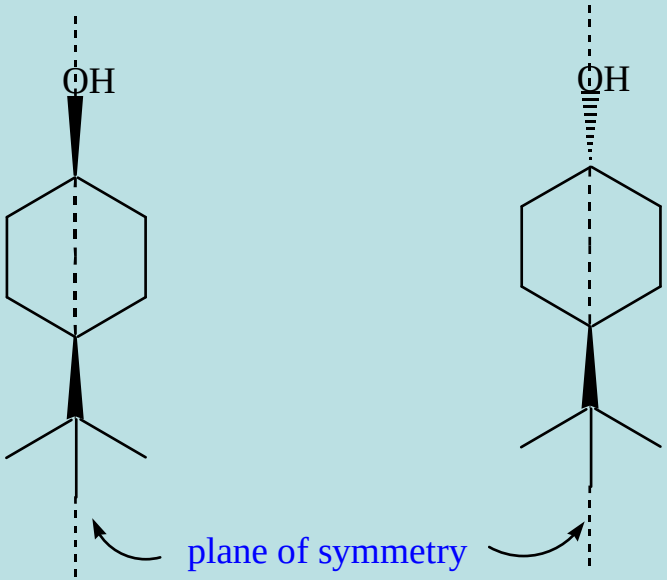
Diastereomers

Diastereomers are stereoisomers that are not mirror images. Two diastereomers are different compounds and have different relative stereochemistry.

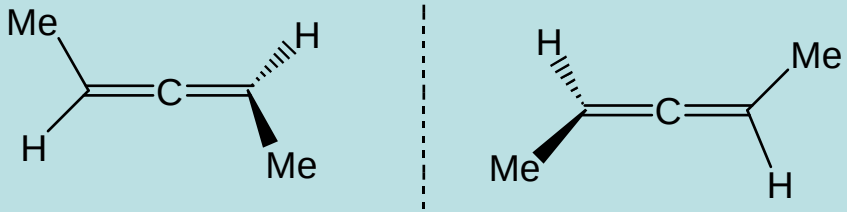
Diastereomers may be chiral (have no plane of symmetry):



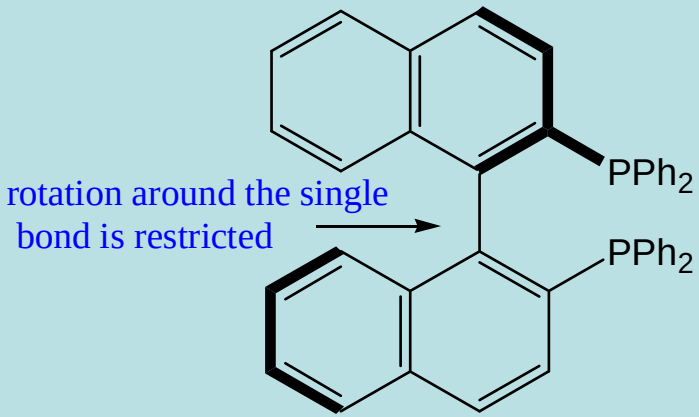
Diastereomers may be achiral

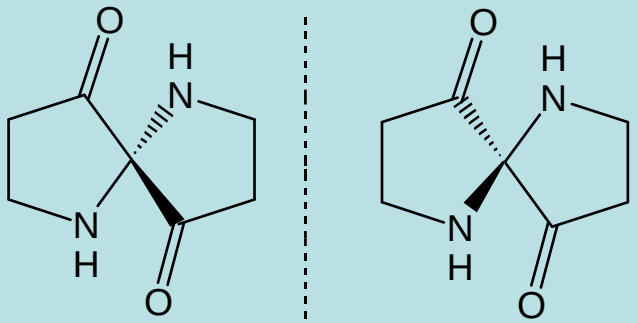


Chiral compounds with no stereogenic centres



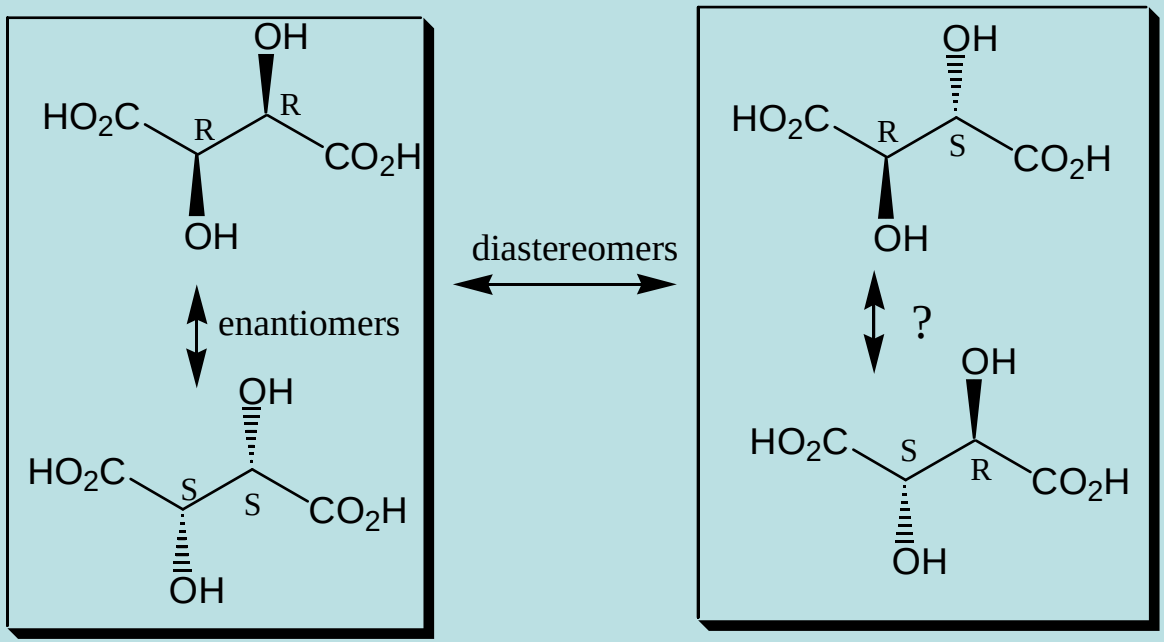
These mirror images are not superimposable - enantiomers



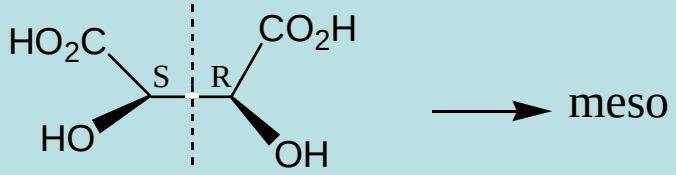


nonsuperimposable enantiomers

Tartaric acids



$2^2 = 4$ stereoisomers ?



References:

1. Advanced Organic Chemistry By Carey and Sundberg, Cahpter 3 , Part- A
2. Advanced Stereochemistry by D. Nasipuri
3. Advanced Stereochemistry by S Sengupta
4. Advanced Stereochemistry by Eliel.