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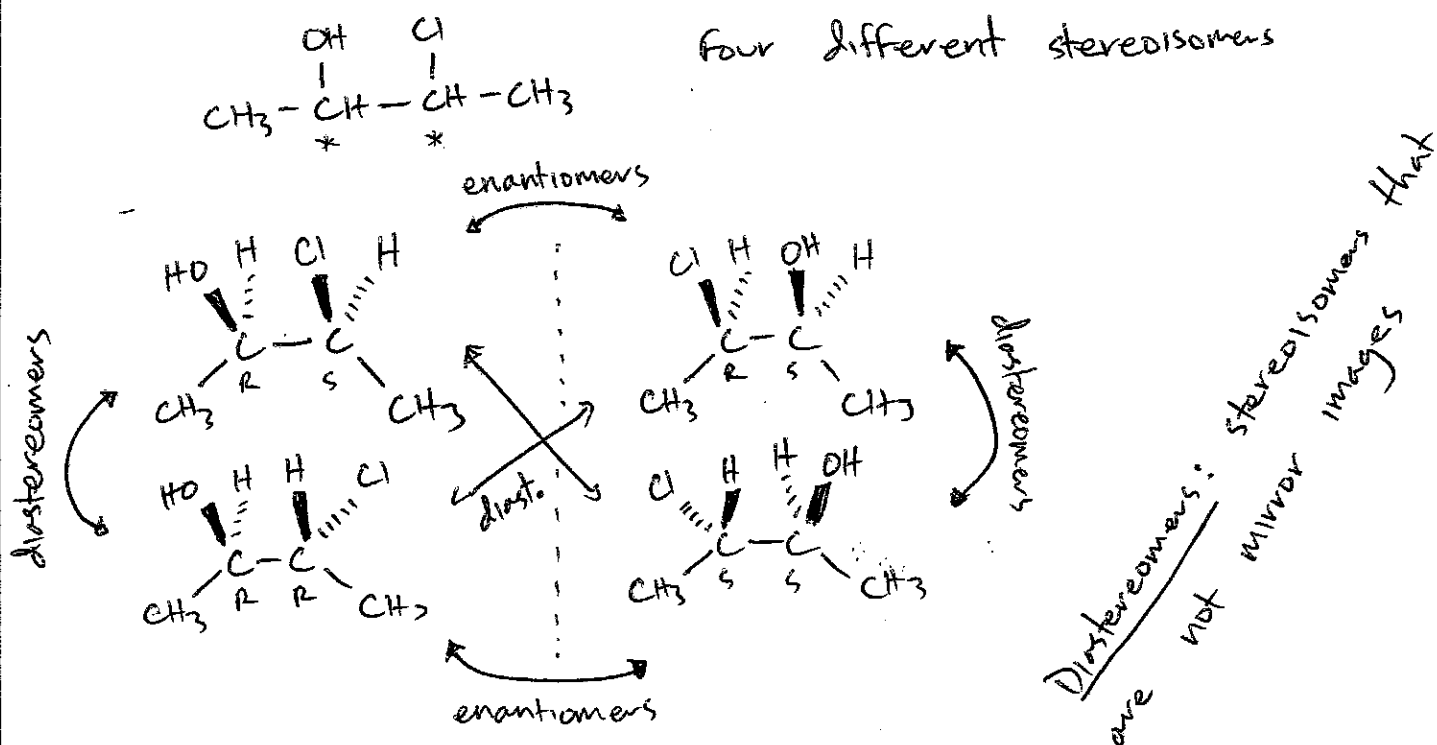
Last Lecture

(d, l, +/-)

- R/S Nomenclature
- Optical activity of enantiomers
- Racemic mixture (1:1 mixture of enantiomers)
- Reactions leading to racemic products

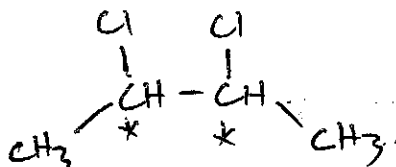
Ch 7 Problems : 1, 5, 6, 8-16, 19, 21, 23-37, 39-65

- Molecules with two stereogenic centers

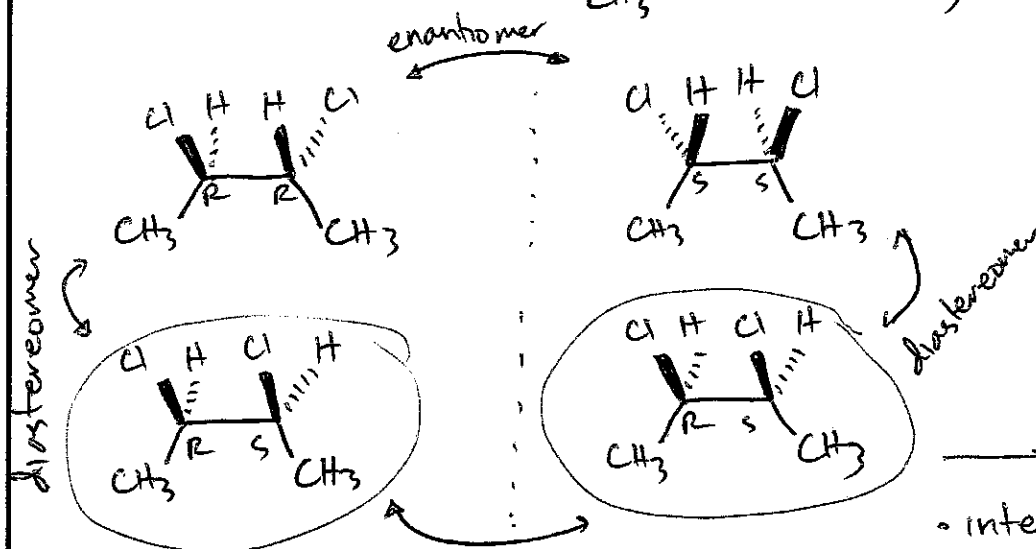


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New example:



2 stereocenters



Meso compound

- internal element of symmetry
- achiral - mirror image is superimposable

• 2 stereocenters, but only 3 stereoisomers (instead of 4)

- A molecule is achiral if there is a conformation with an internal plane of symmetry
- For "n" stereocenters, there are a max of 2^n stereoisomers
 - there are fewer if meso compounds are possible
- Look for internal symmetry to see if molecule is chiral

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• What is special about diastereomers?

- Diastereomers have different physical properties (mp, bp)

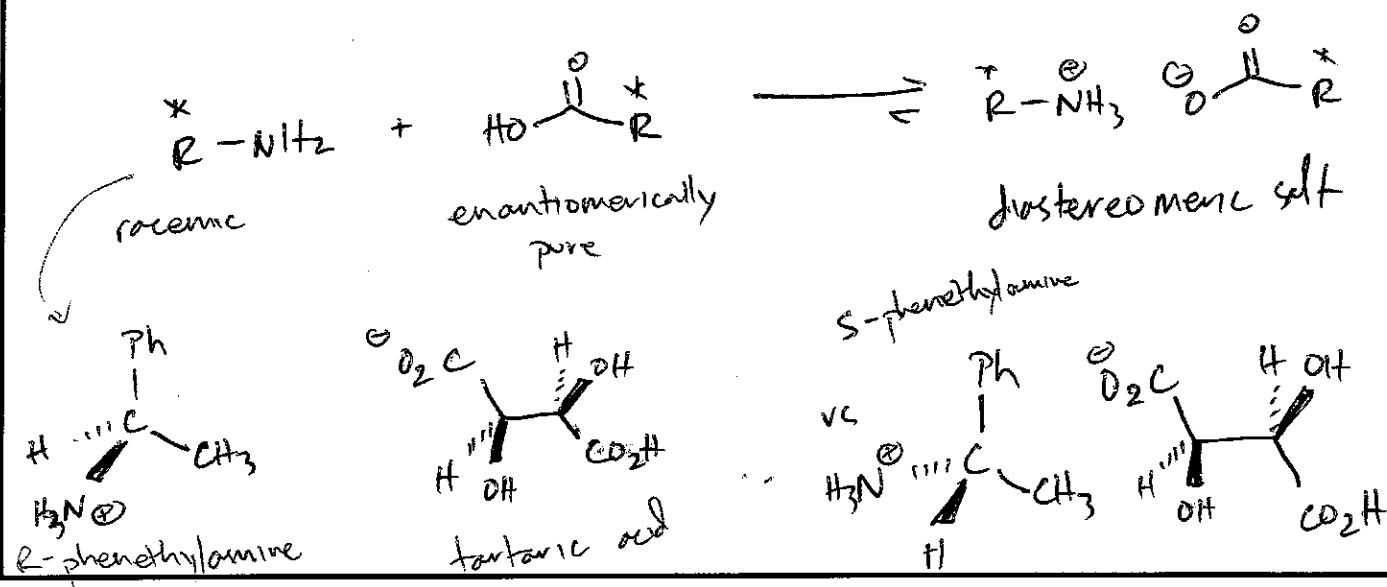
- This is in contrast to enantiomers

- & identical except for polarized light rotation

- however, plane polarized light is chiral, so this explains this "exception"

Example: glove/hand interaction to visualize different properties of diastereomers

• The concept of diastereomers is used to separate different enantiomers



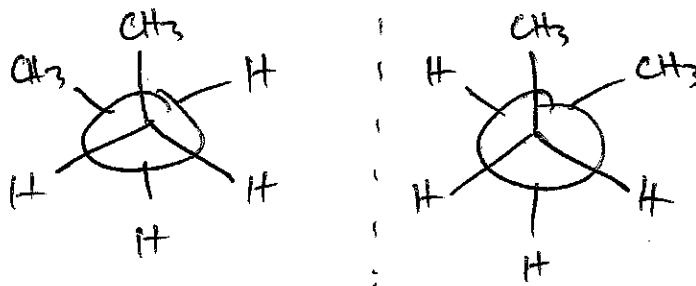
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- The salt of (*R*) phenethylamine crystallizes from solution, and the (*S*)-salt does not
 - salts are diastereomeric

- Molecules (configuration) vs conformations

- for butane, you can have chiral configurations

gauche:



not superimposable

- Butane has chiral conformations, even though it has no stereocenters

- Butane is overall achiral because these chiral conformations rapidly interconvert and are present in equal amounts

- Molecules can be chiral w/o sp^3 hybridization (Ch. 6.9)
 - not on the test

Course 343 Lecturer Heckenberger
Day _____ Date 10/18
Notes Taken By _____ Total # of Pages _____

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Ch 7 - Cyclic compounds + stereochemistry of reactions

* For the weekend: draw chairlike conformations of cyclohexane

