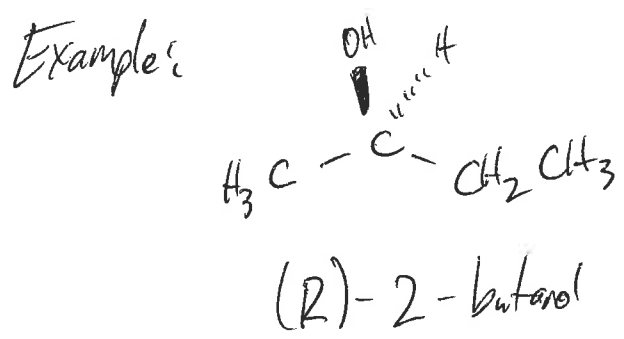


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Recall:

- Enantiomers
- R vs. S designation of configuration
- "Optical activity" - physical differentiation of enantiomers

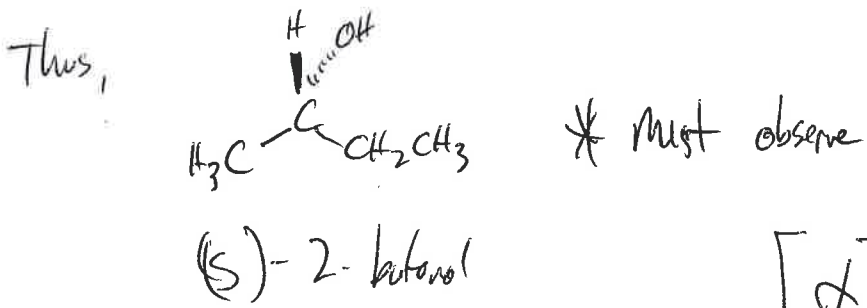


Optical activity measurement:

$$[\alpha]_D^{20} = -13.9^\circ$$

(i.e., counter clockwise)

See text?



$$[\alpha]_D^{20} = +13.9^\circ$$

(i.e., clockwise)

Relationship between (R vs. S) and (+ or -)?

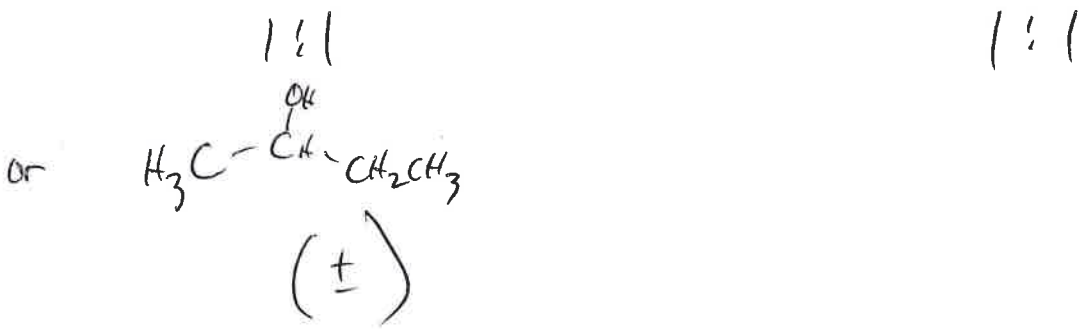
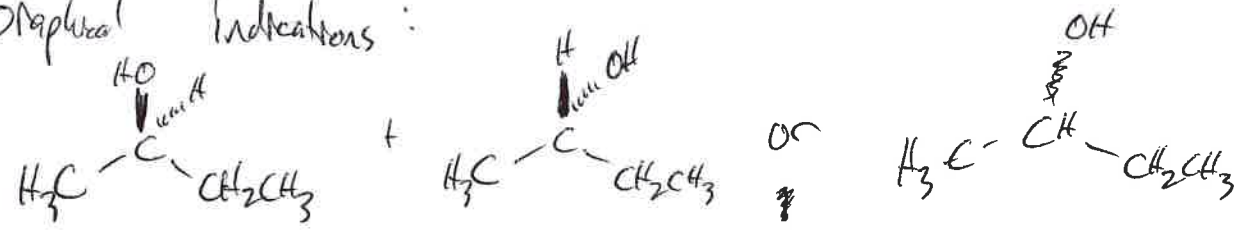
- No R vs. S assigned based on structure but + vs. - must be measured

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Thus, Full designations (S) - (+) - 2-butanol
 (R) - (-) - 2-butanol

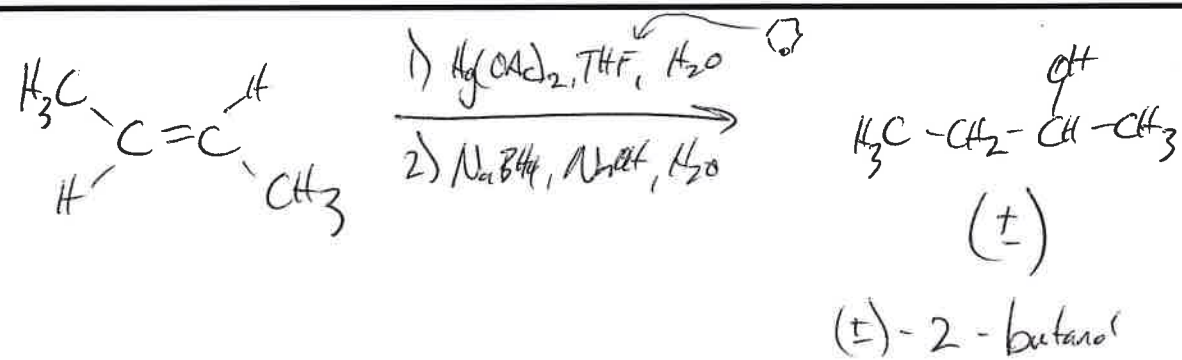
Racemic mixture ("racemate") - 1:1 mixture of enantiomers
 (Note: No optical activity) \Rightarrow enantiomer rotations cancel each other out
 i.e. $[\alpha]_D^{20} = 0$

Conspical indications:

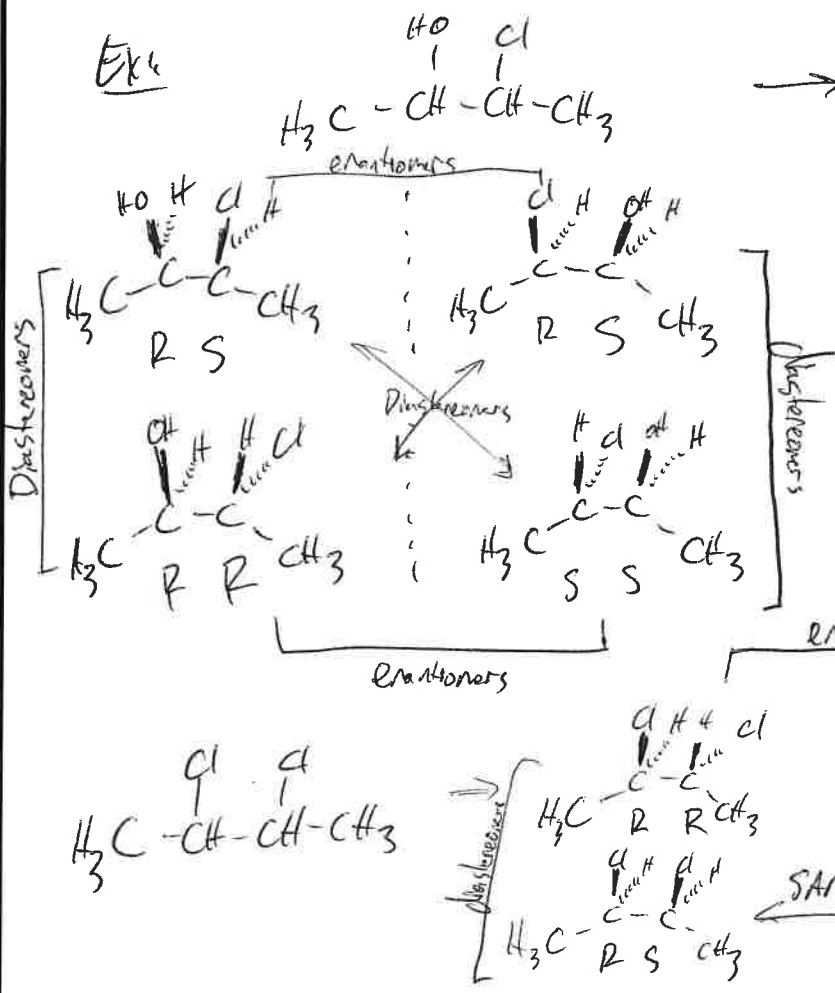


If an achiral molecule reacts to form a product with a chiral center and reagents, environment is achiral, then the product is a racemate

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Molecules with ≥ 2 chiral centers -
 New forms of stereoisomerism



→ 4 stereoisomers

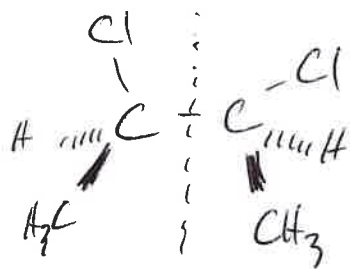
In general, molecule with n stereocenters, there is a max of 2^n stereoisomers (enantiomers or diastereomers)

Course Chem 343 Lecturer Gellman
Day Friday Date 10/16/15
Notes Taken By NB Total # of Pages 4

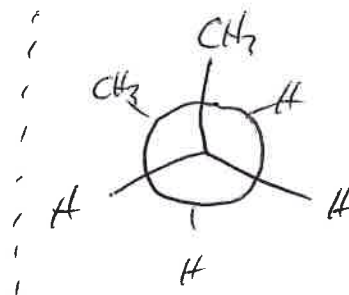
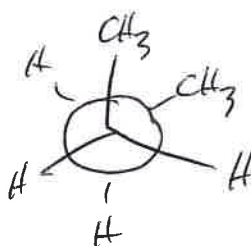
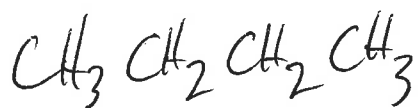
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A molecule that contains stereogenic centers but is not chiral is "meso"

One way to recognize meso compound - can be drawn to reveal an internal mirror plane



Molecules vs. conformations



Non-superimposable mirror images!