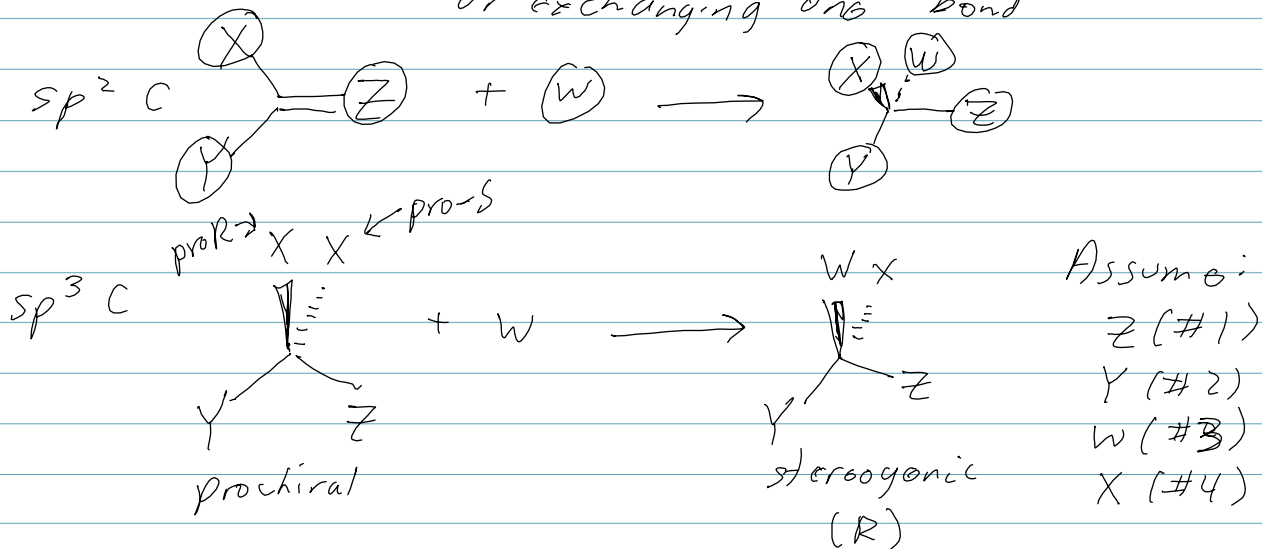


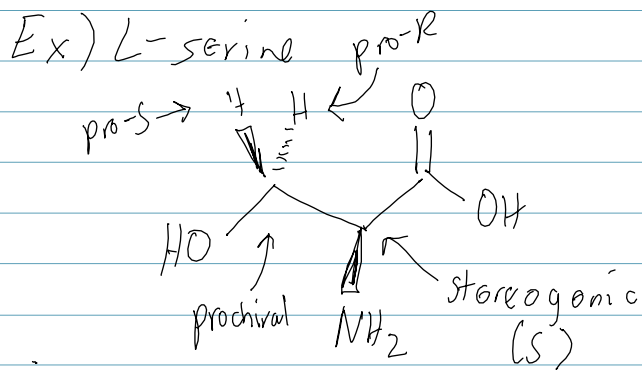
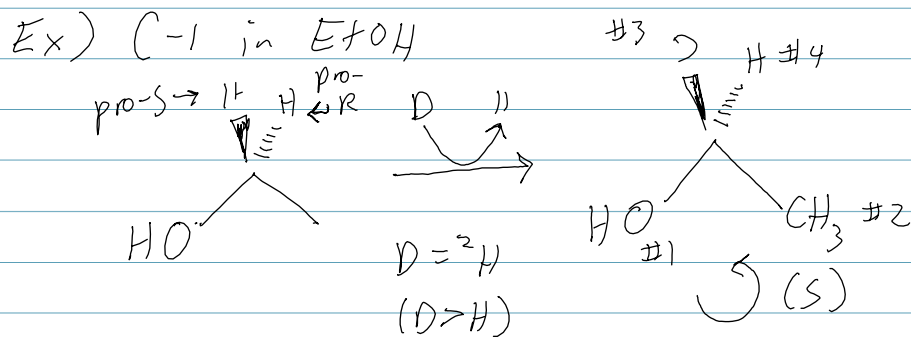
Prochirality

Stereocenter - atom (C) with bonds to 4 different groups
(R) & (S) → enantiomers

Prochiral atoms - not a stereocenter
made into stereocenter by adding
or exchanging one bond

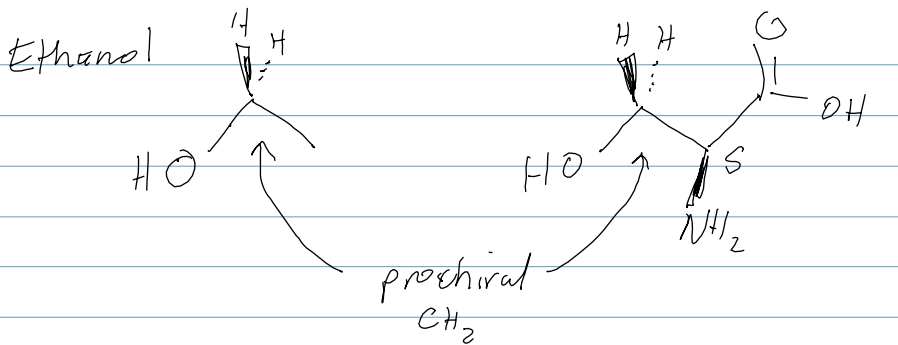


pro-R: X that, if replaced by slightly higher priority W, gives (R)
 pro-S: X " " " " " " " " W, gives (S)



Prochirality (p 2)

L-serine



Representative of...

achiral w/
prochiral CH₂

chiral w/
prochiral CH₂

not on a
prochiral C

Two different
substitutions:

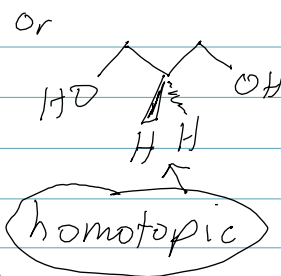
replace
pro-R pro-S

replace
pro-R pro-S

(CH₃ groups)

↓ ↓
enantiomers
(R ≠ S)

↓ ↓
diastereomers
(SS ≠ SR)



pro-R & pro-S are: enantiotopic

diastereotopic

in "normal" rxns: react at same rate

different rates

Same

in achiral environment

same spectroscopic characteristics

different spectroscopic characteristics

Same

(chiral molecules are racemic)

"chemically equivalent"
(in achiral environment)

"chemically nonequivalent"

"chemically equivalent"
(all environments)

Enzyme-catalyzed reactions

pro-R & pro-S react at different rates

diff. spectral properties

