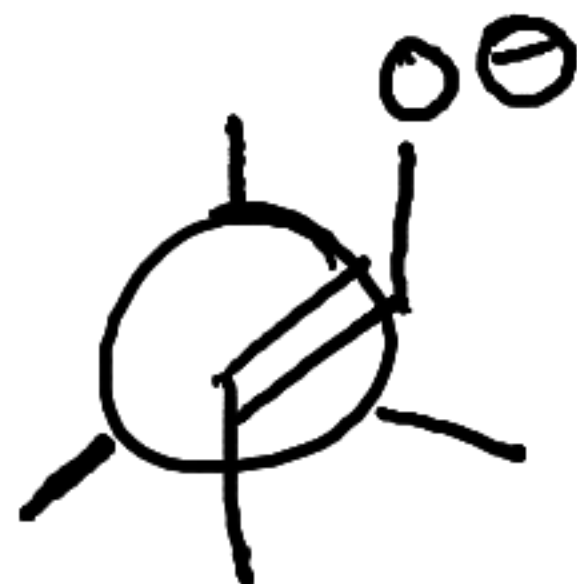


Enantiomers are the something,
 different drawing

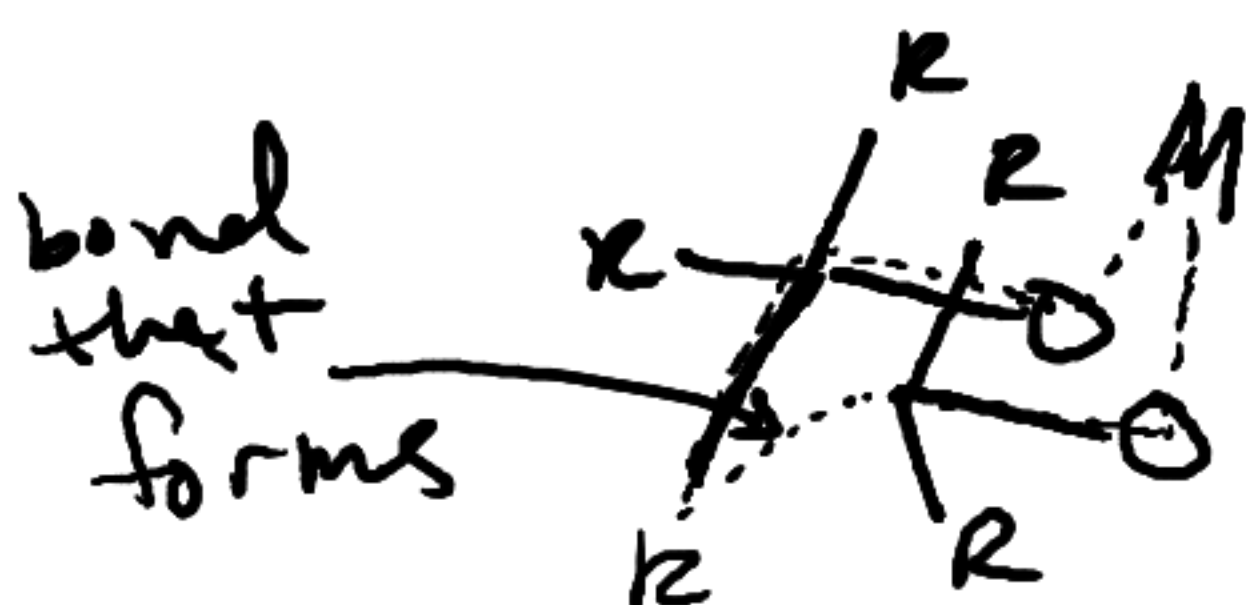
So the stereoconditions of diastereoisomers
 is what matters

→ essentially boils to cis v. trans

THINK IN 3D or use Models

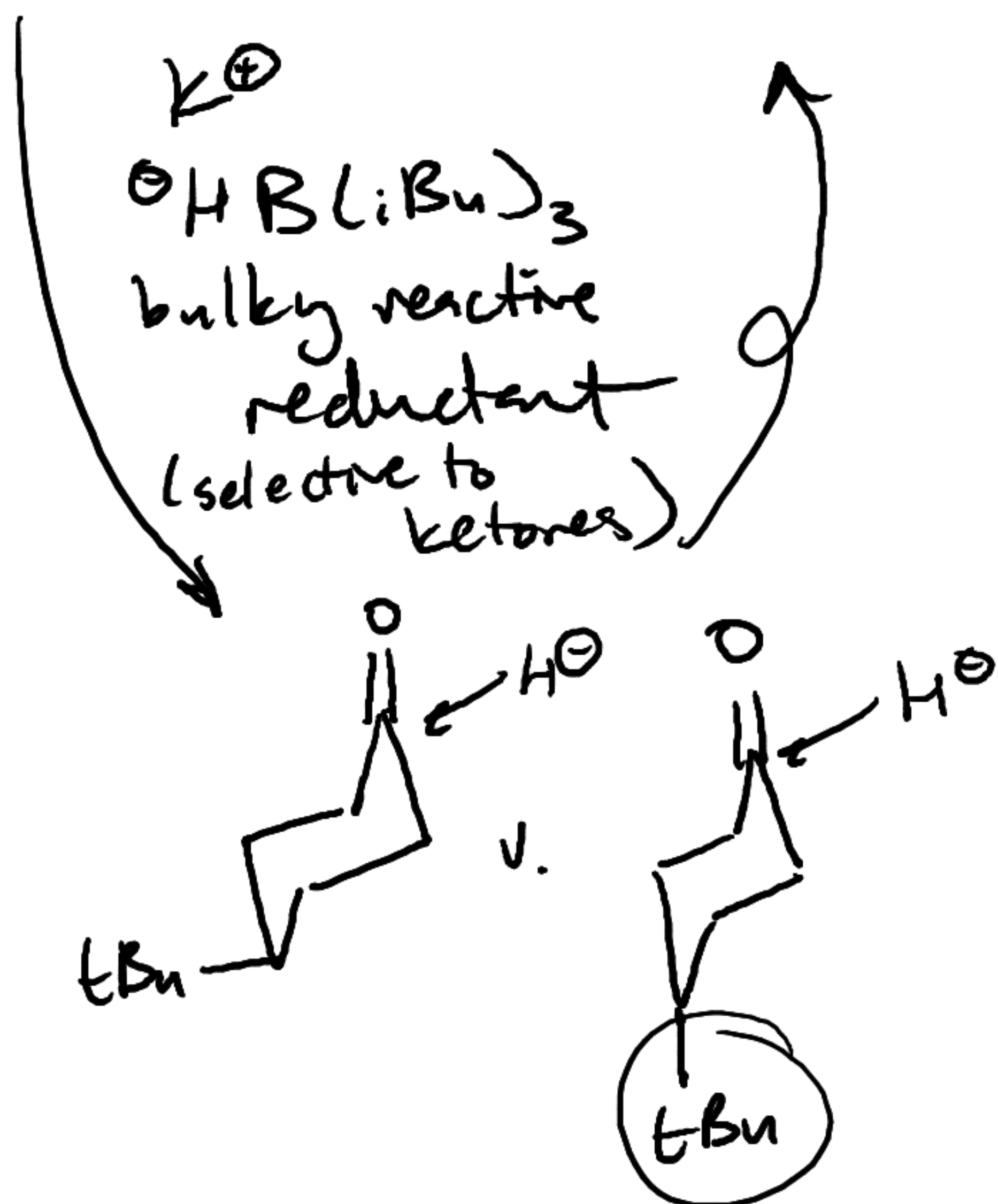
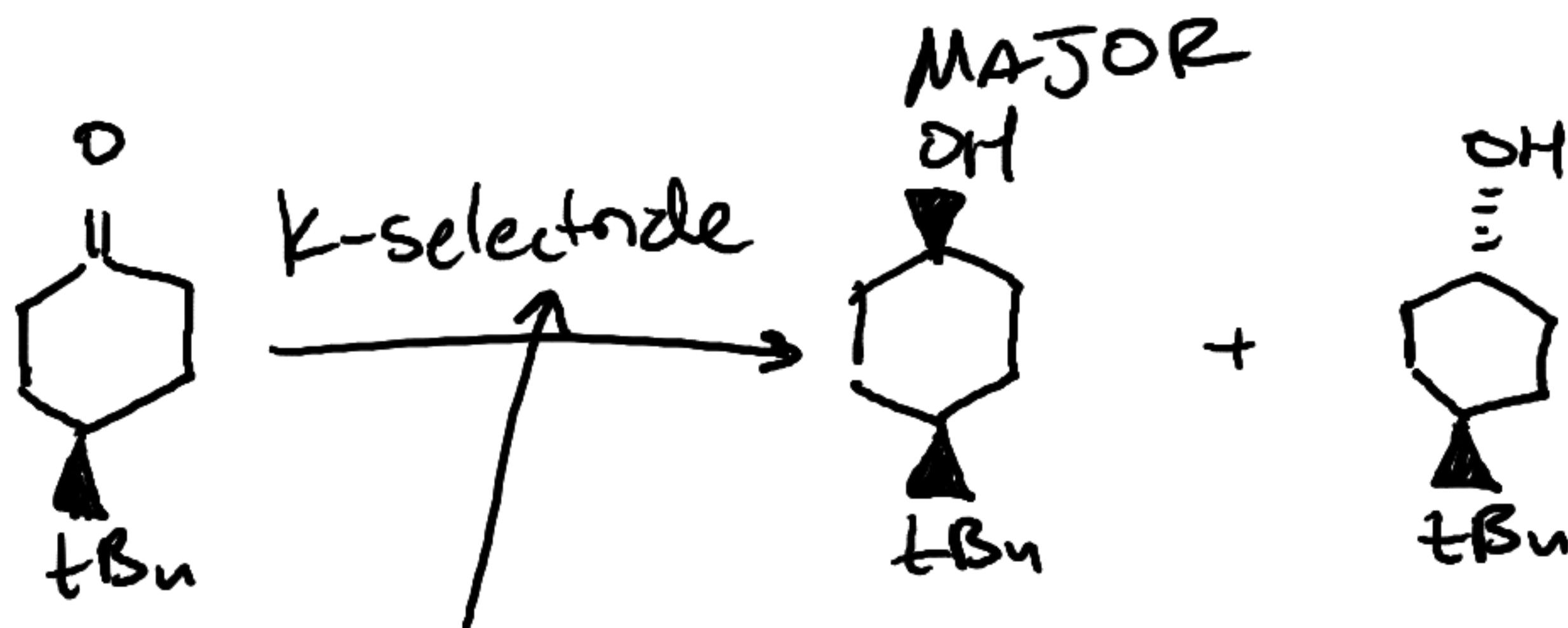


Felkin-Ahn for Nuc^{\ominus} at C^{α}
 + weakly coord.
 $\text{M}(\text{Na}^+, \text{K}^+)$



Zimmerman-Traxler for
 good coord.
 $\text{M}(\text{Li}^+, \text{Zn})$

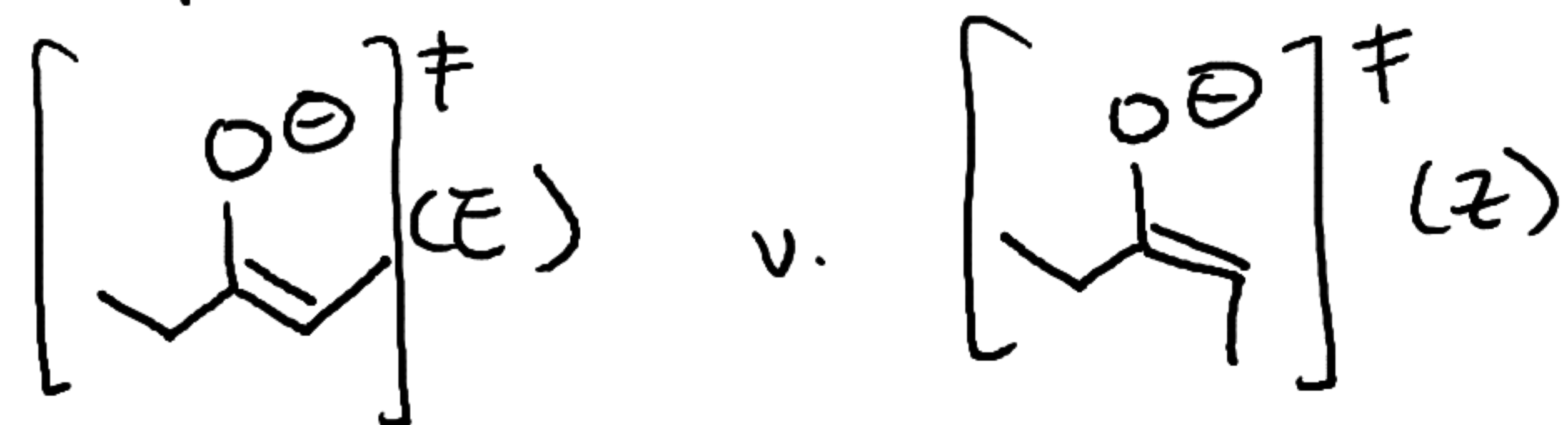
Sterics will always play 2ndary to the main driving force of diastereomers:
 favorable transition state based on conformation



K^\oplus controls \neq but not $\text{H}^\ominus \text{B}(\text{iBu})_3$ at the

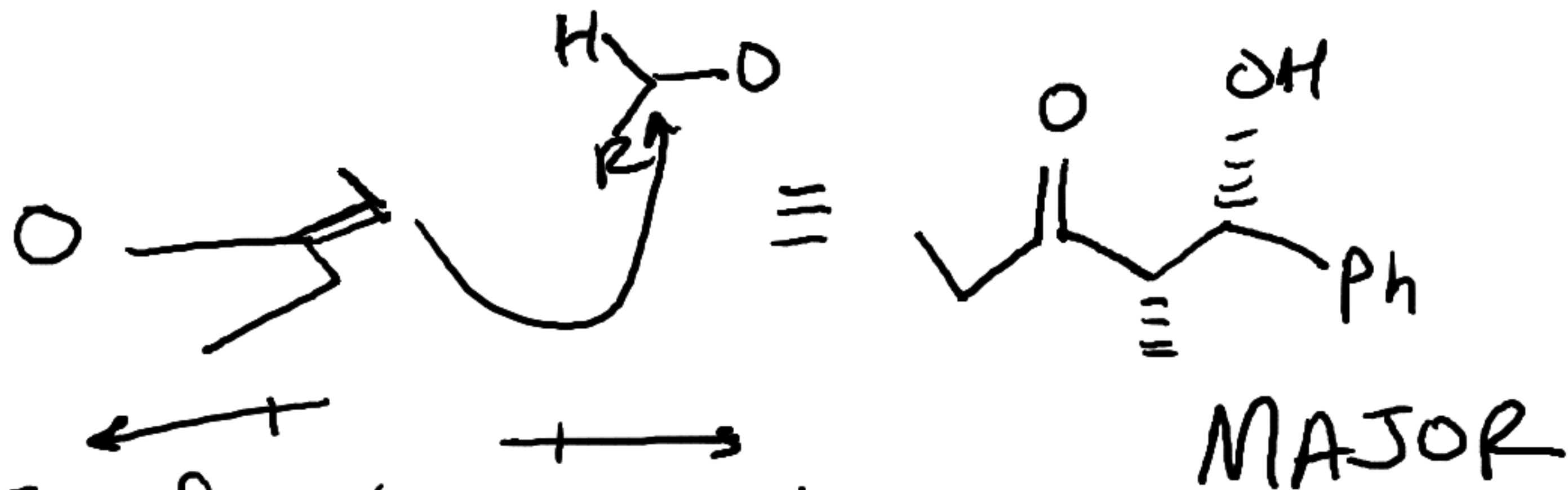
Determining Major Product (using ex. from before)

- ① Identify transition state to determine possible mechanisms how chirality was formed



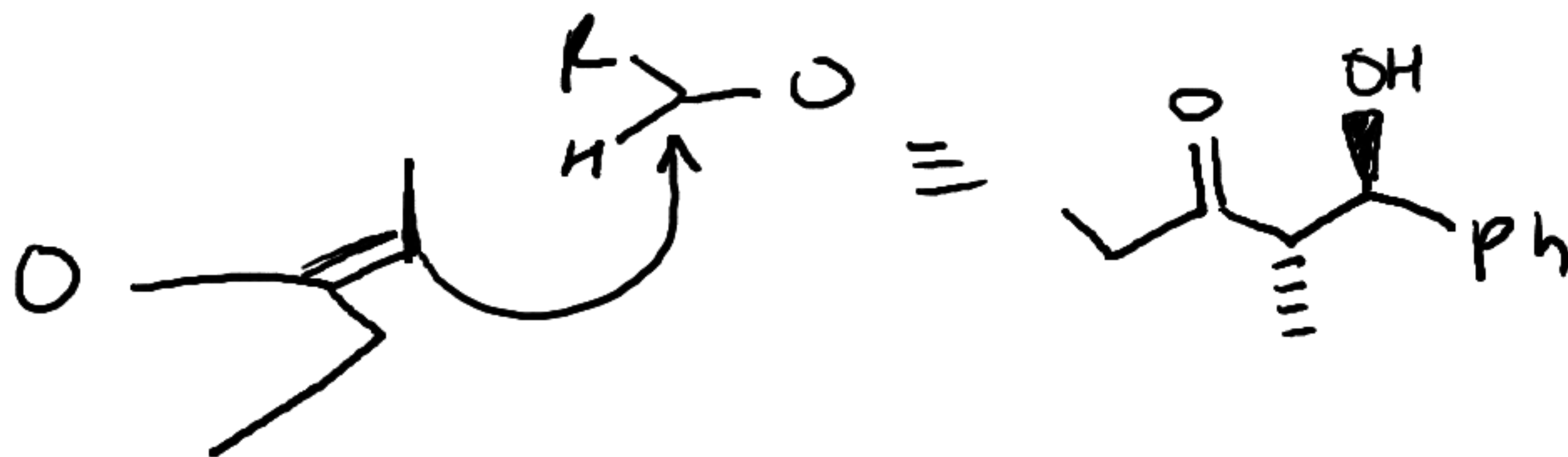
- ② Consider mechanisms w/ $(\text{E})^\ddagger$

I.



This formation maximizes distance of π density

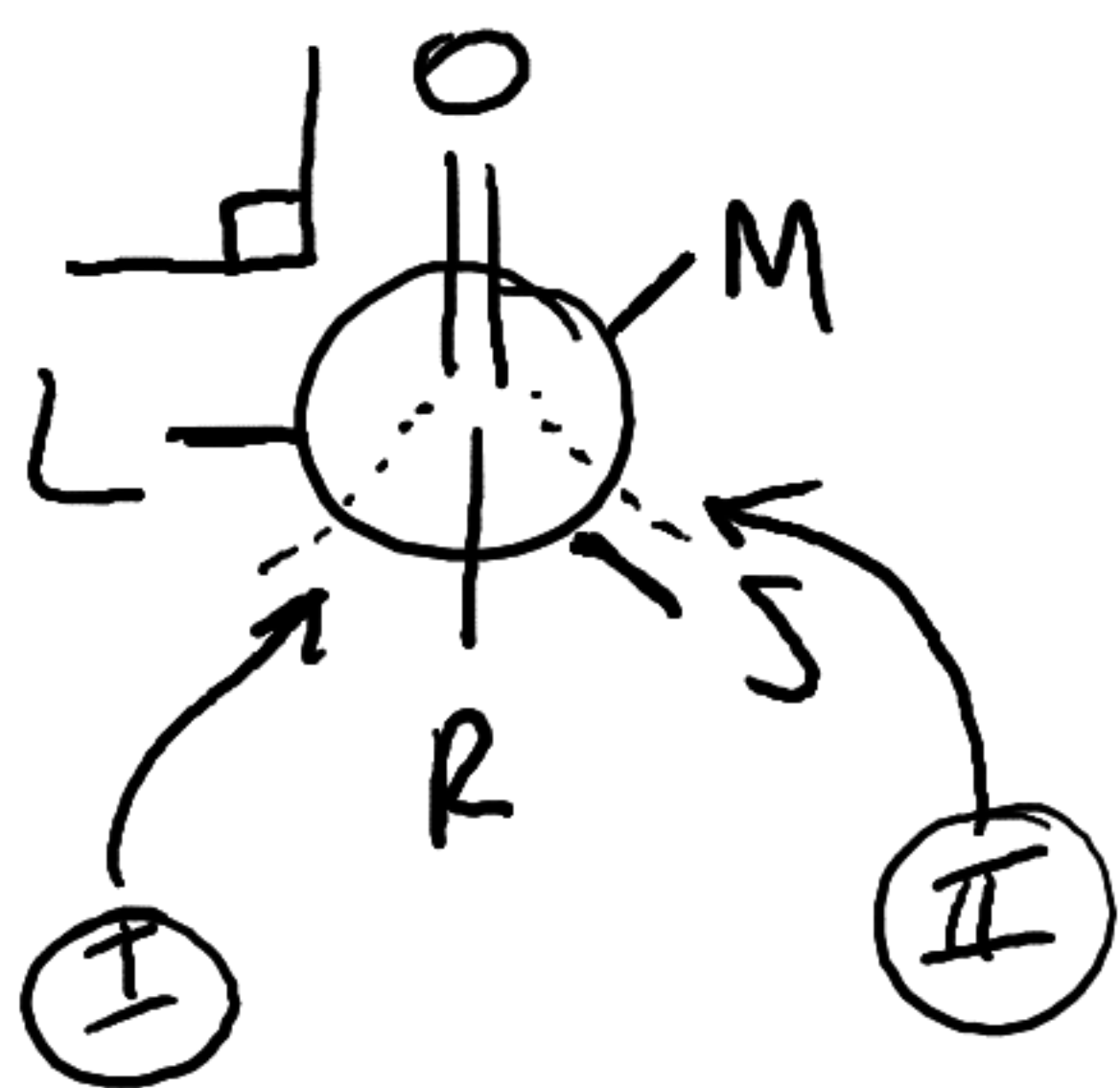
II.



3 models to predict Stereochem

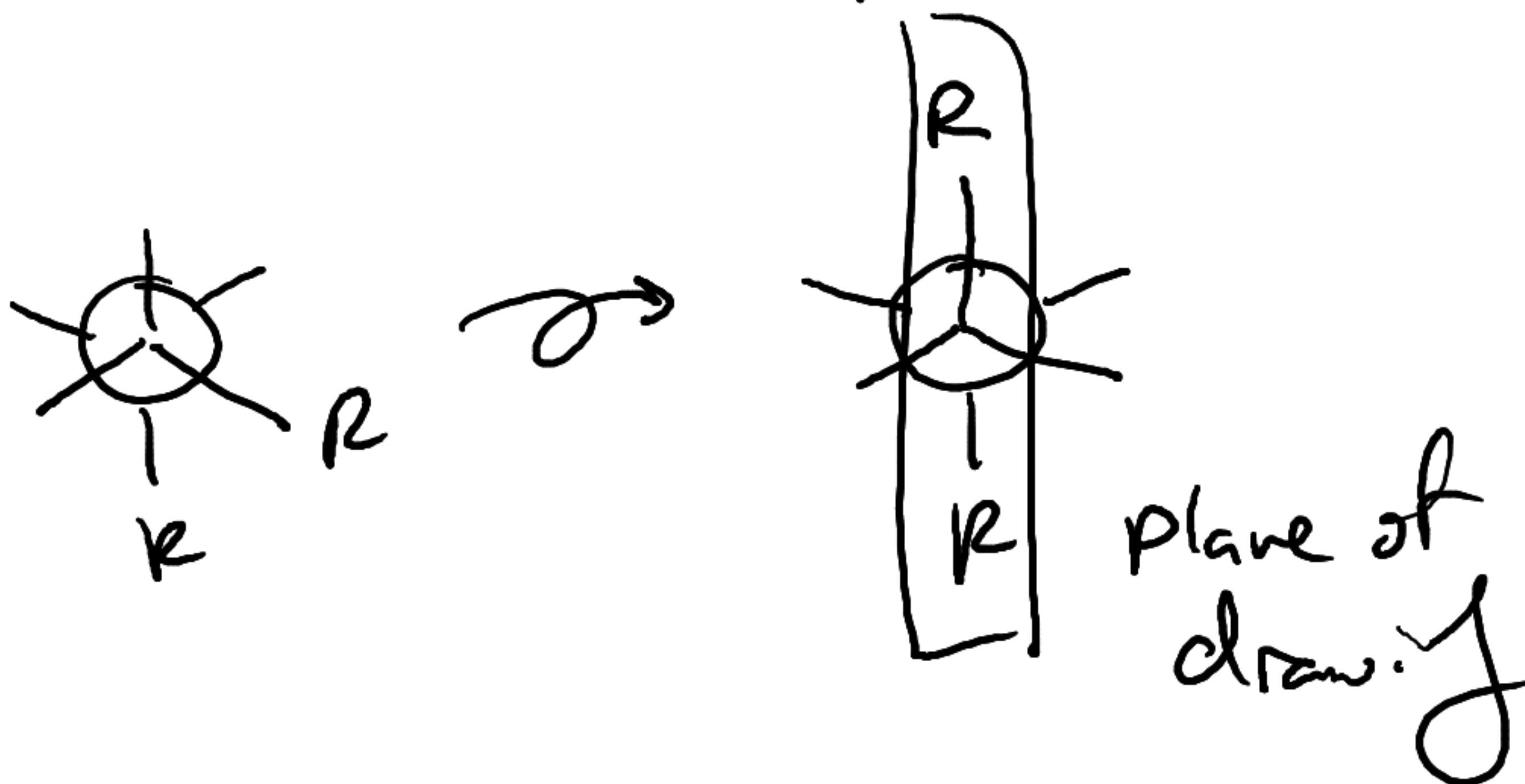


① Addition of Nu^\ominus to CO w/ Felkin-Ahn Model

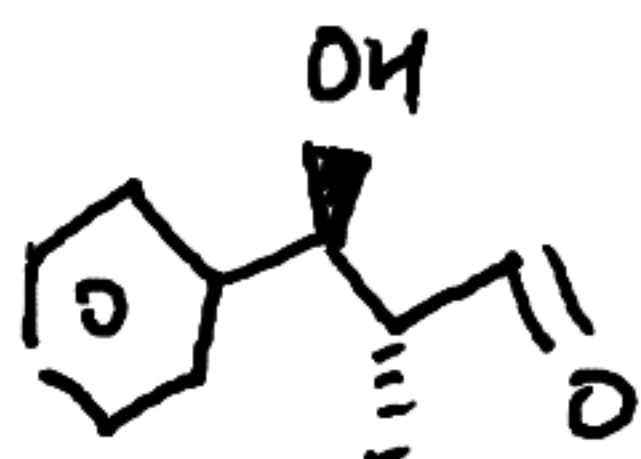
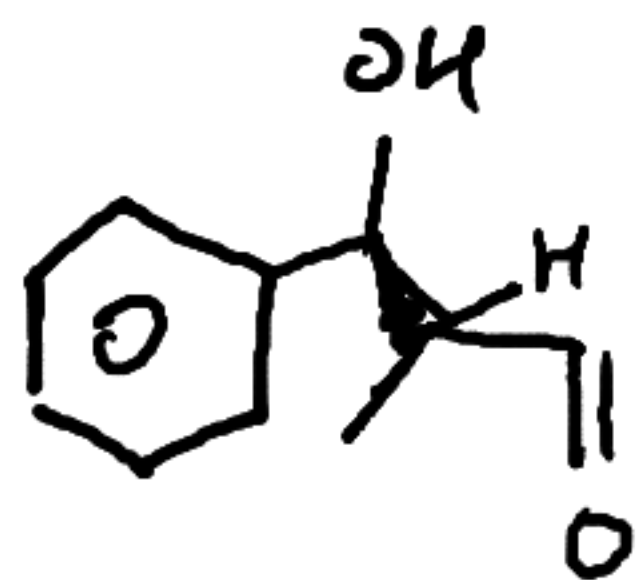
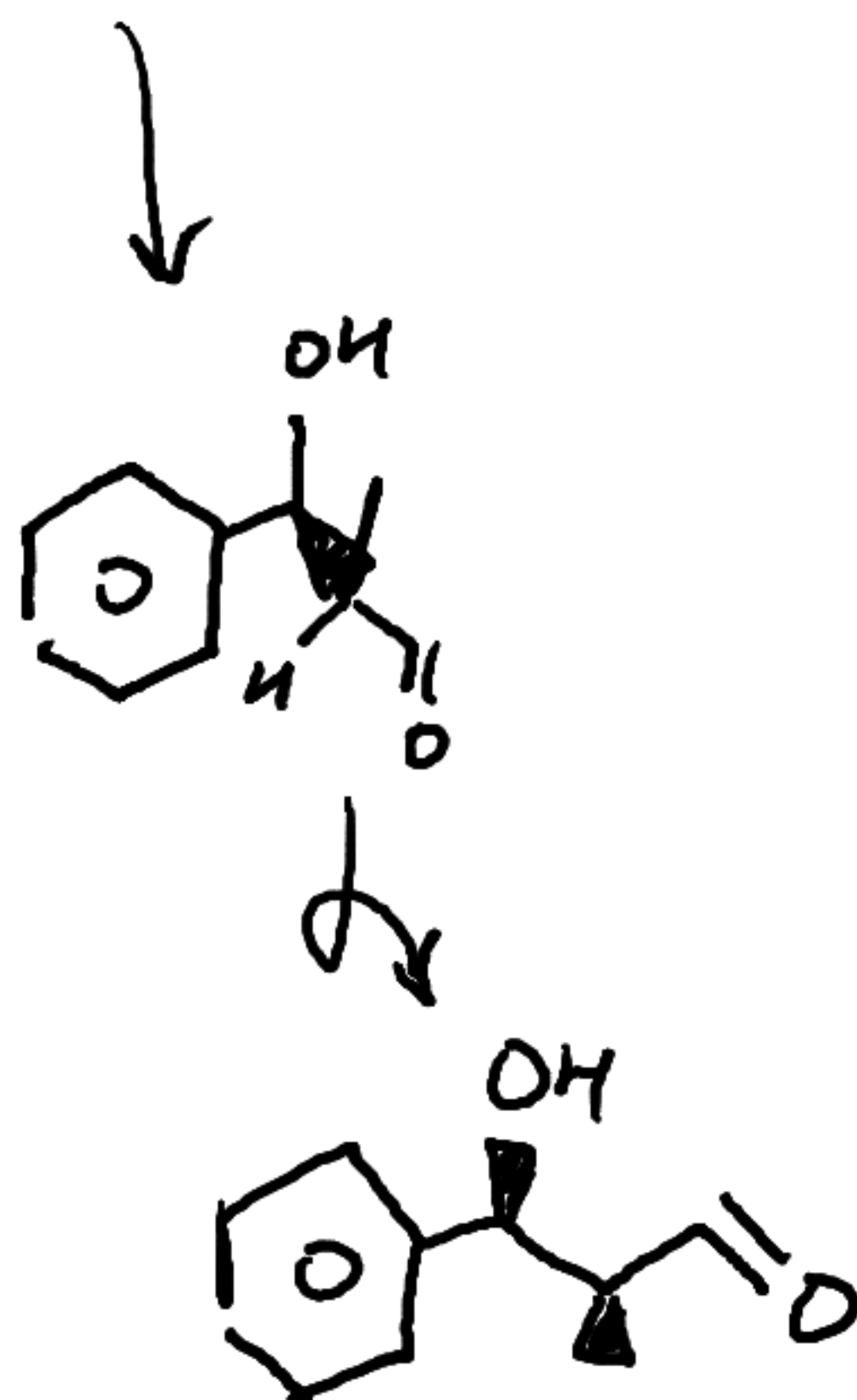
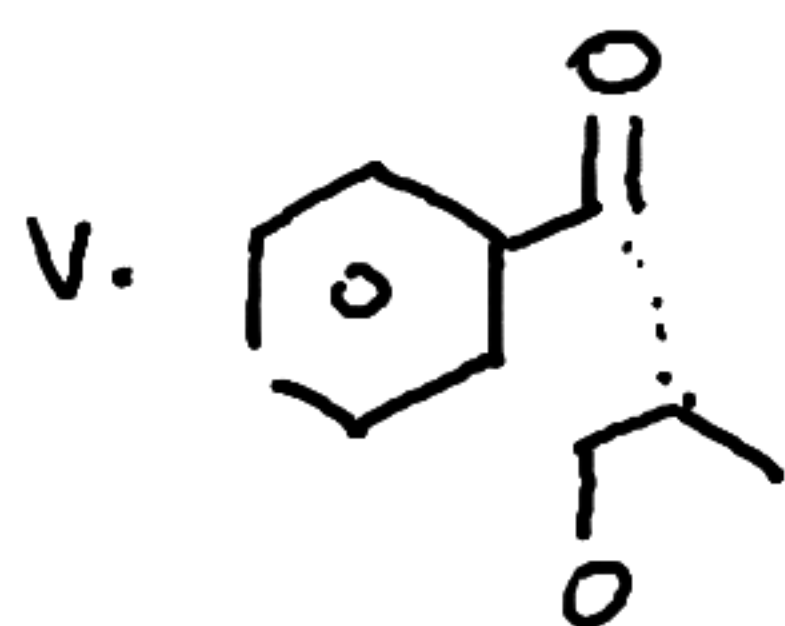
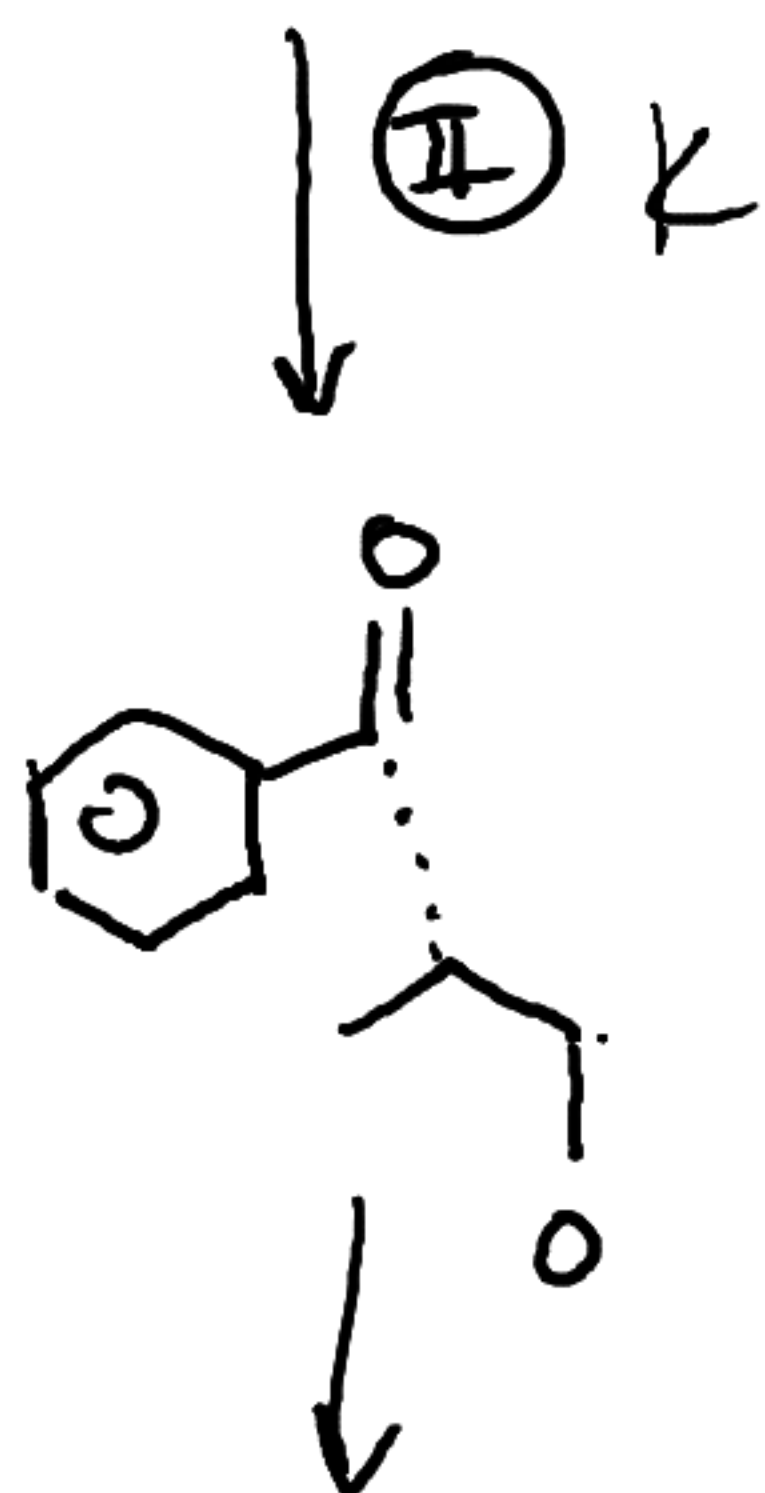
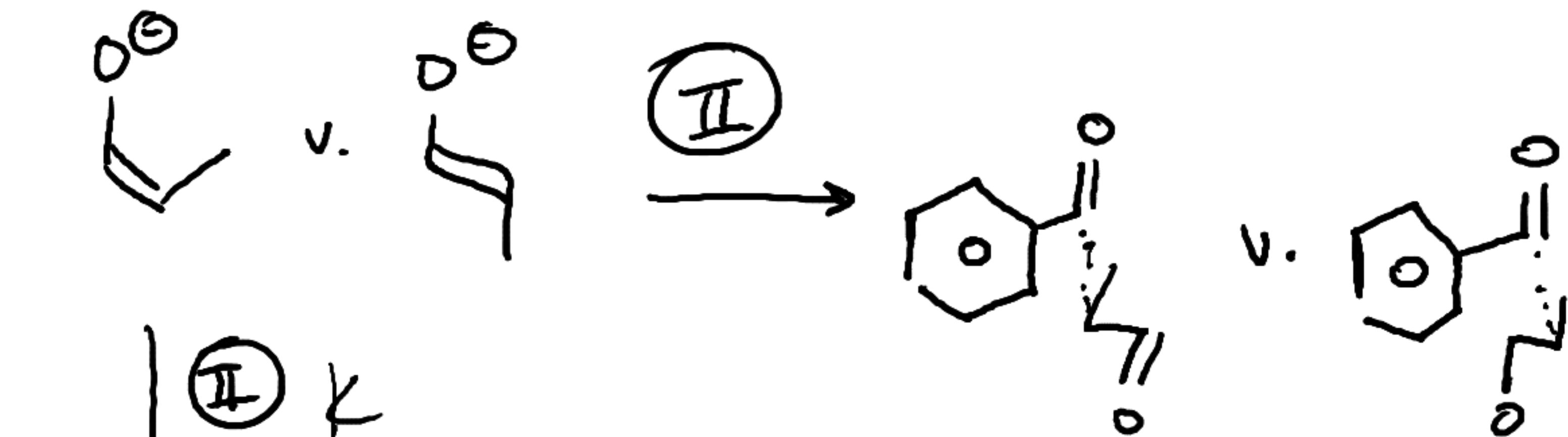
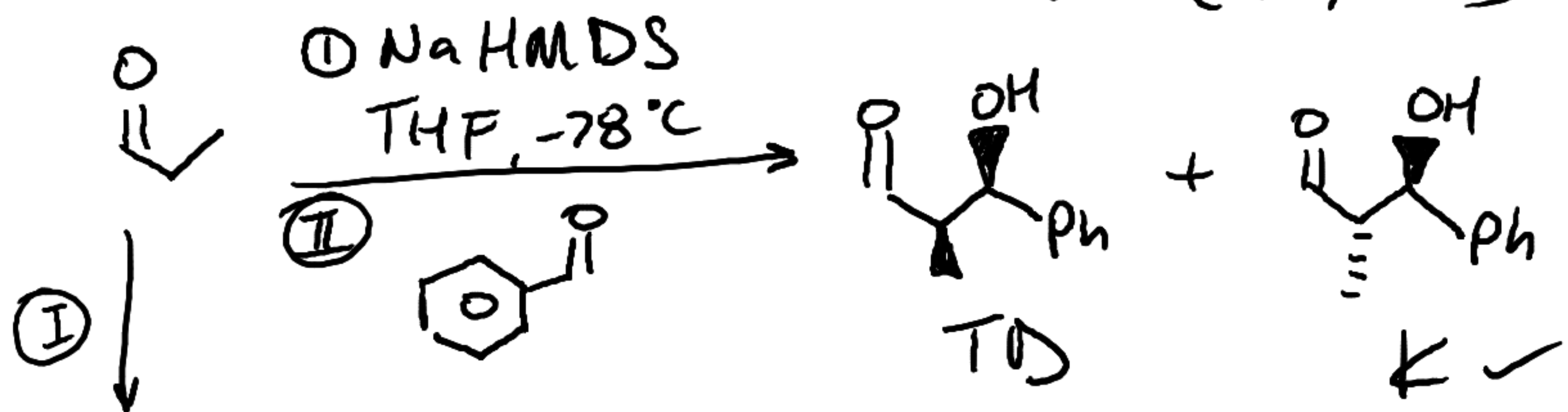


- ① Draw Newmann Projection
- ② Orient L group 90° of ketone
- ③ ① is sterically favored for nu^\ominus att
- ④ nu^\ominus att defines relative orientation

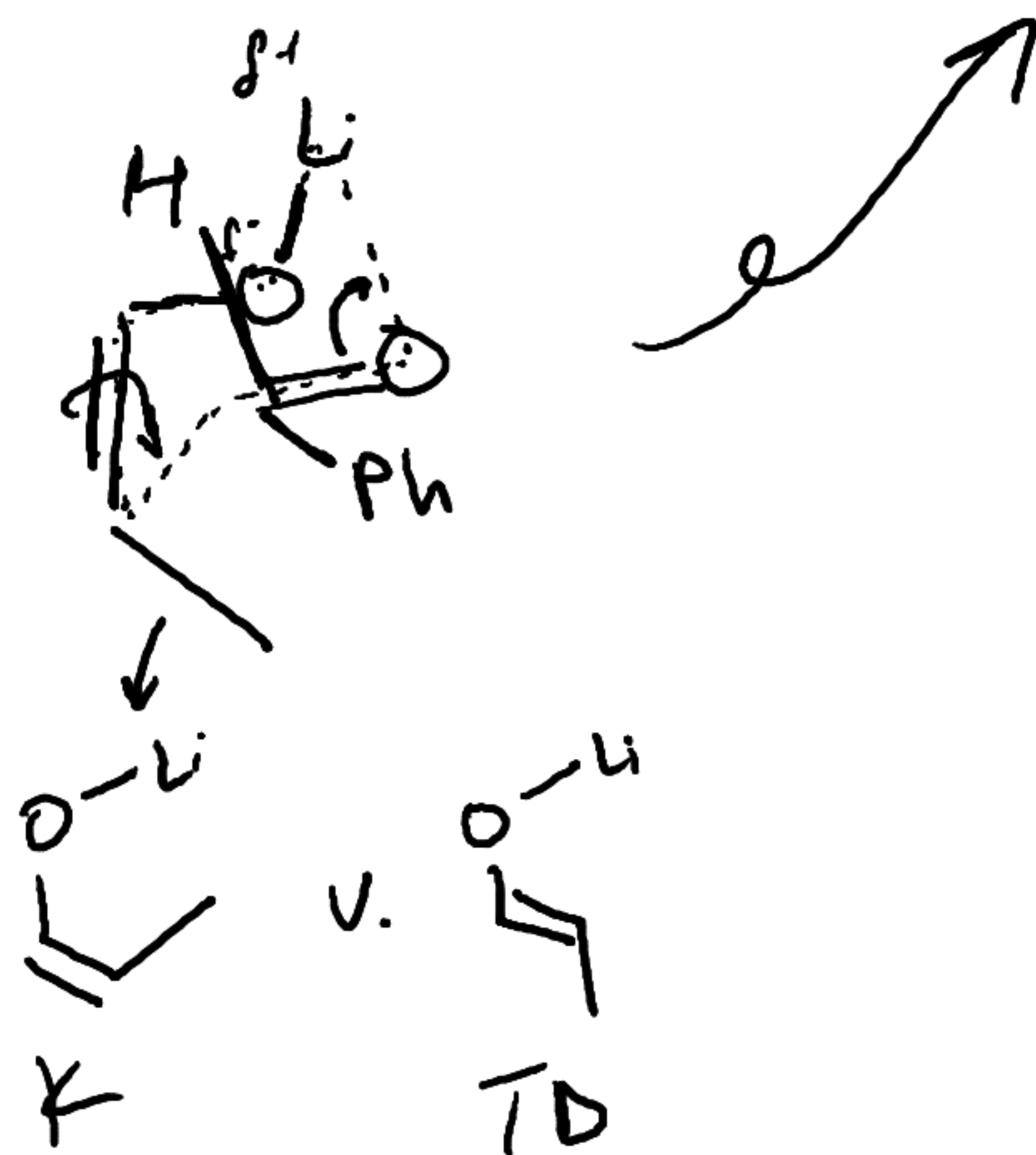
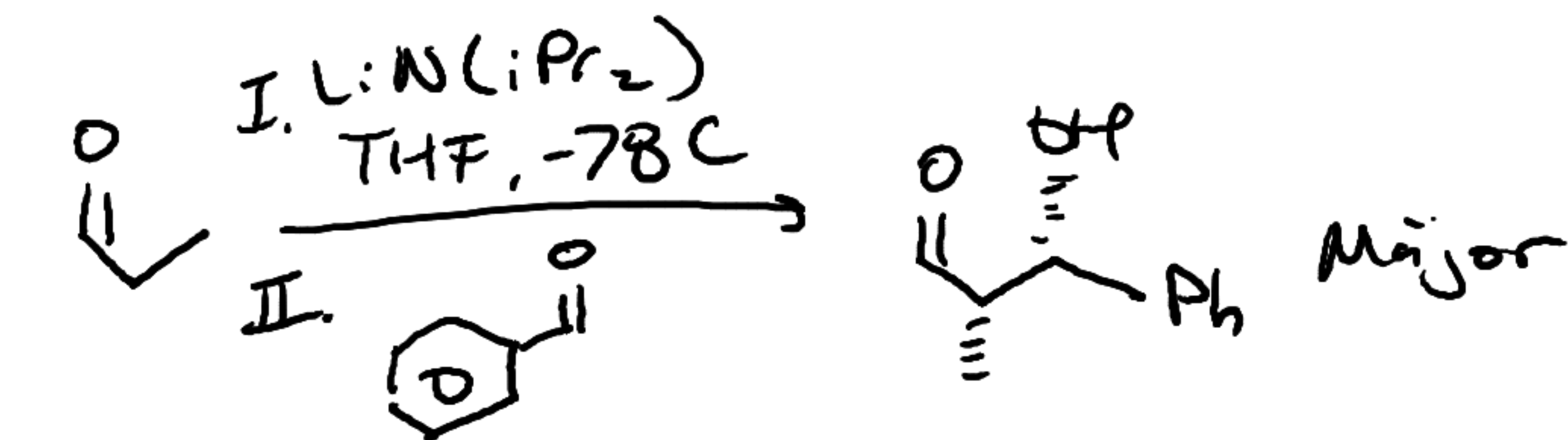
When reconvertng to drawing, make sure to turn "wheel" to proper orientation



③ Addition to Enolate w/ poorly complexing ion (K^+ , Na^+)

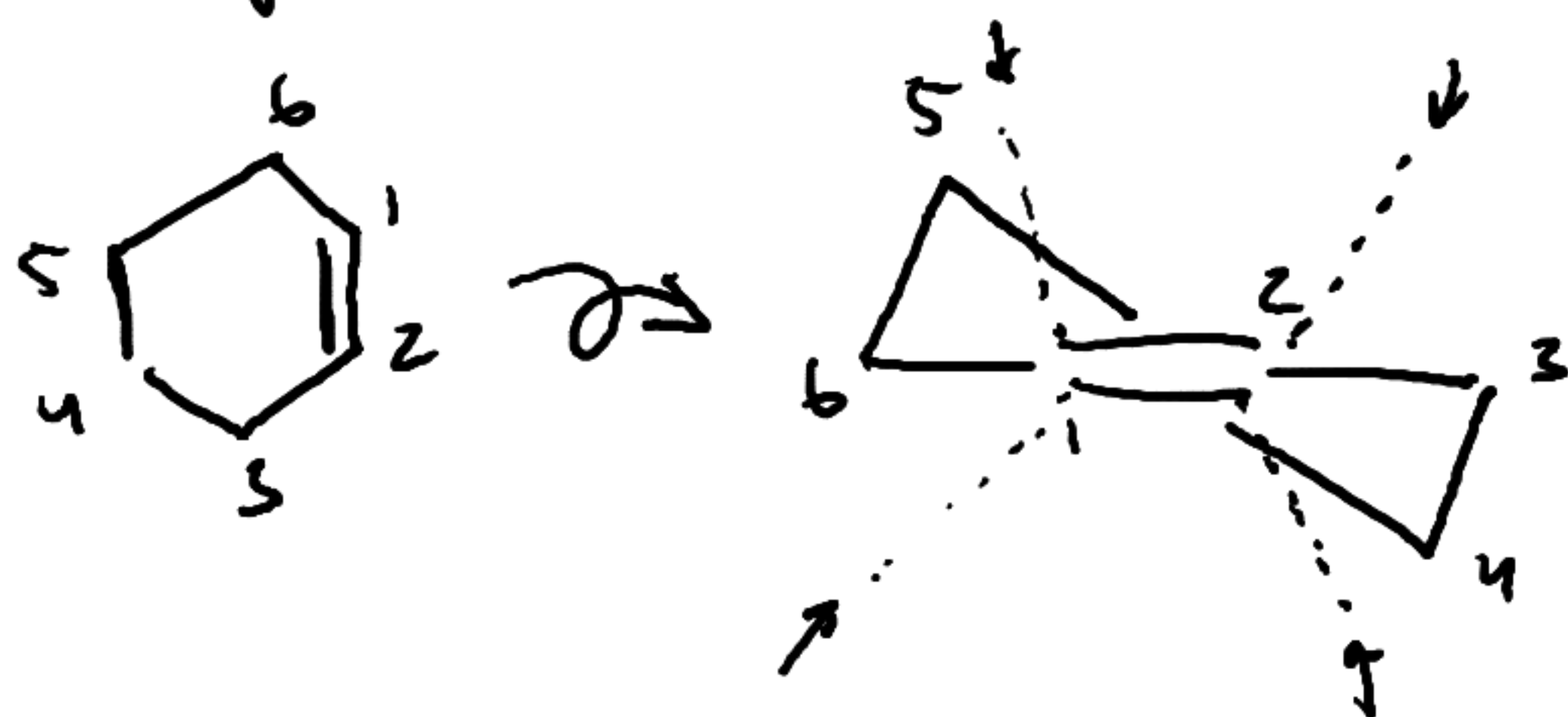


③ Addition to Enolate w/ Good Complexing Ions (Li, Zn): Zimmerman Traxler Model

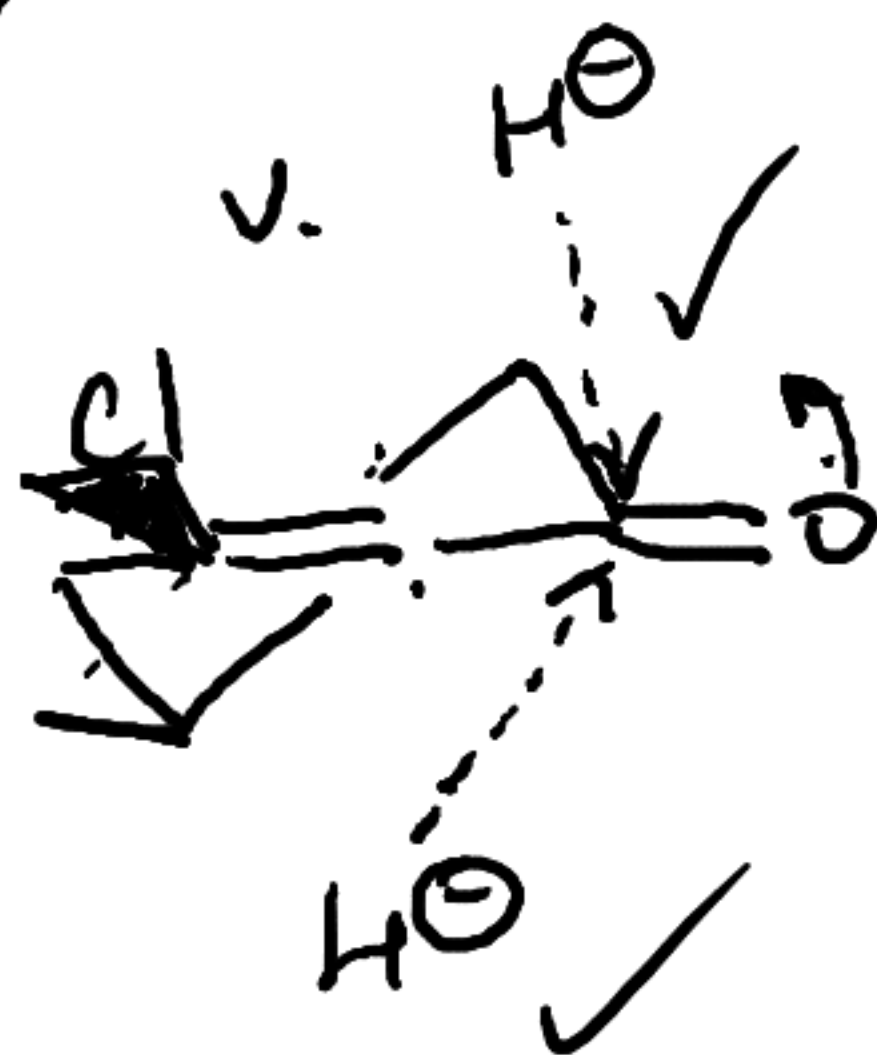
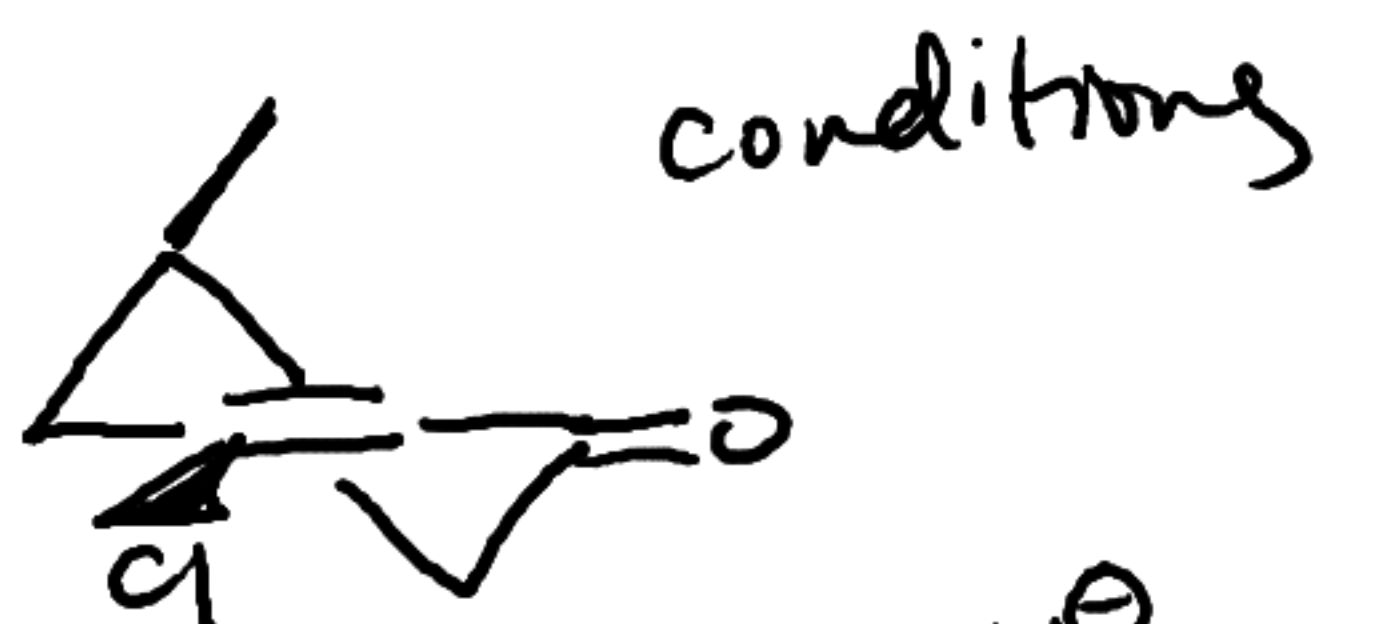
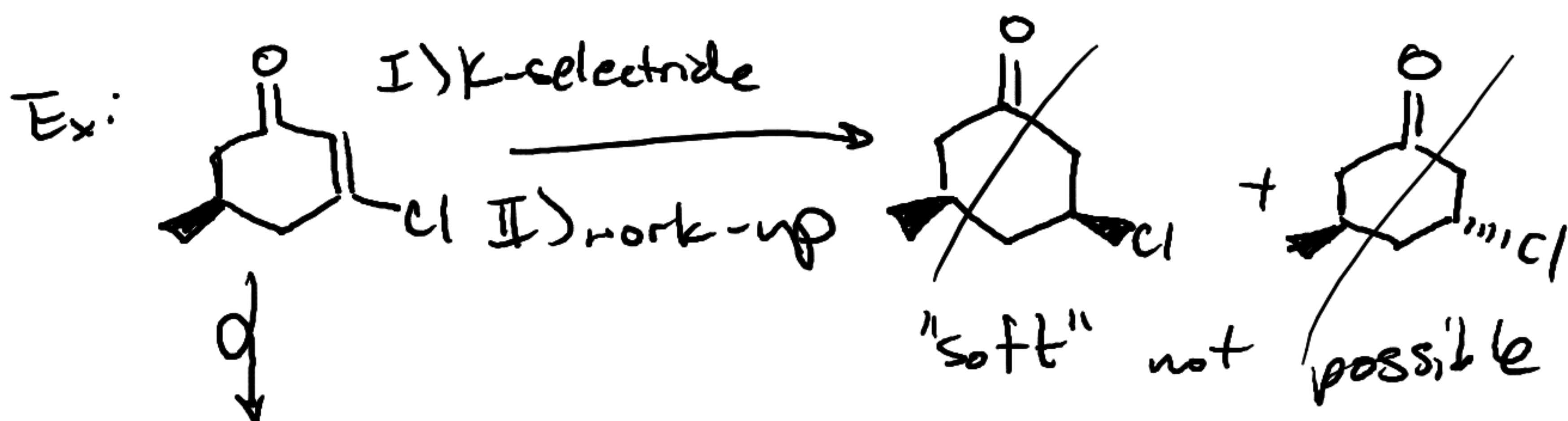


Use a chair model when dealing w/ Sigmatropic rearrangements as well

⑤ Cyclohexanes w/ 2 sp^2 centers

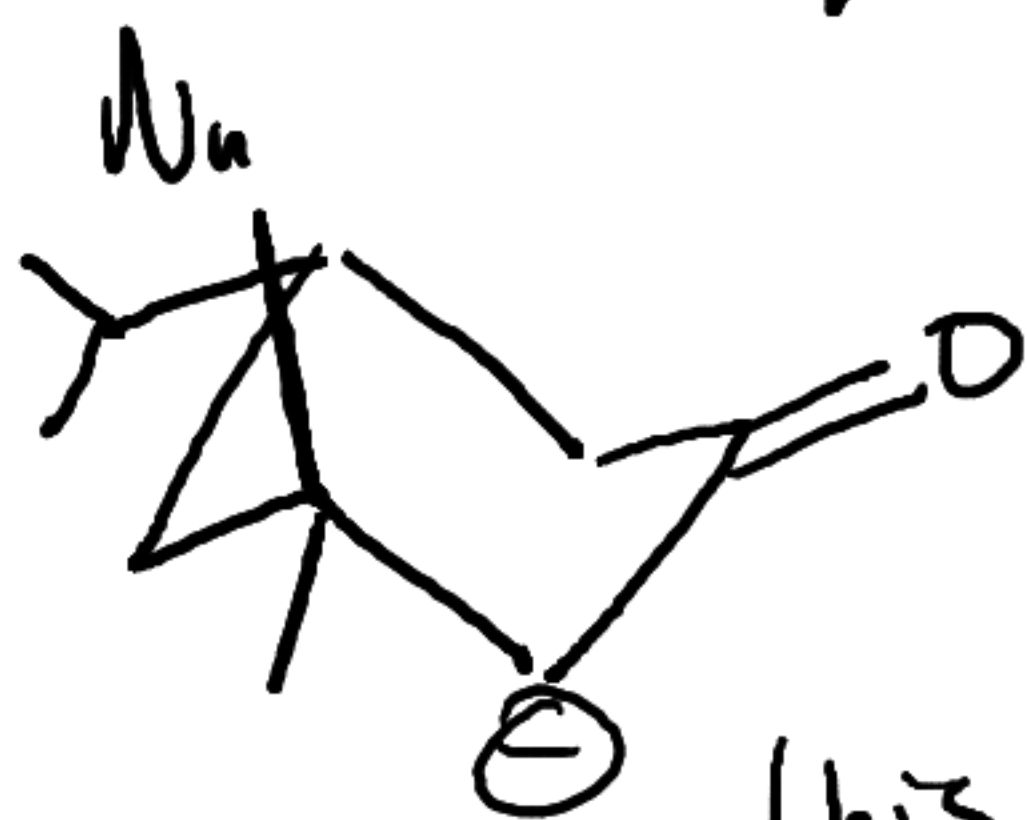
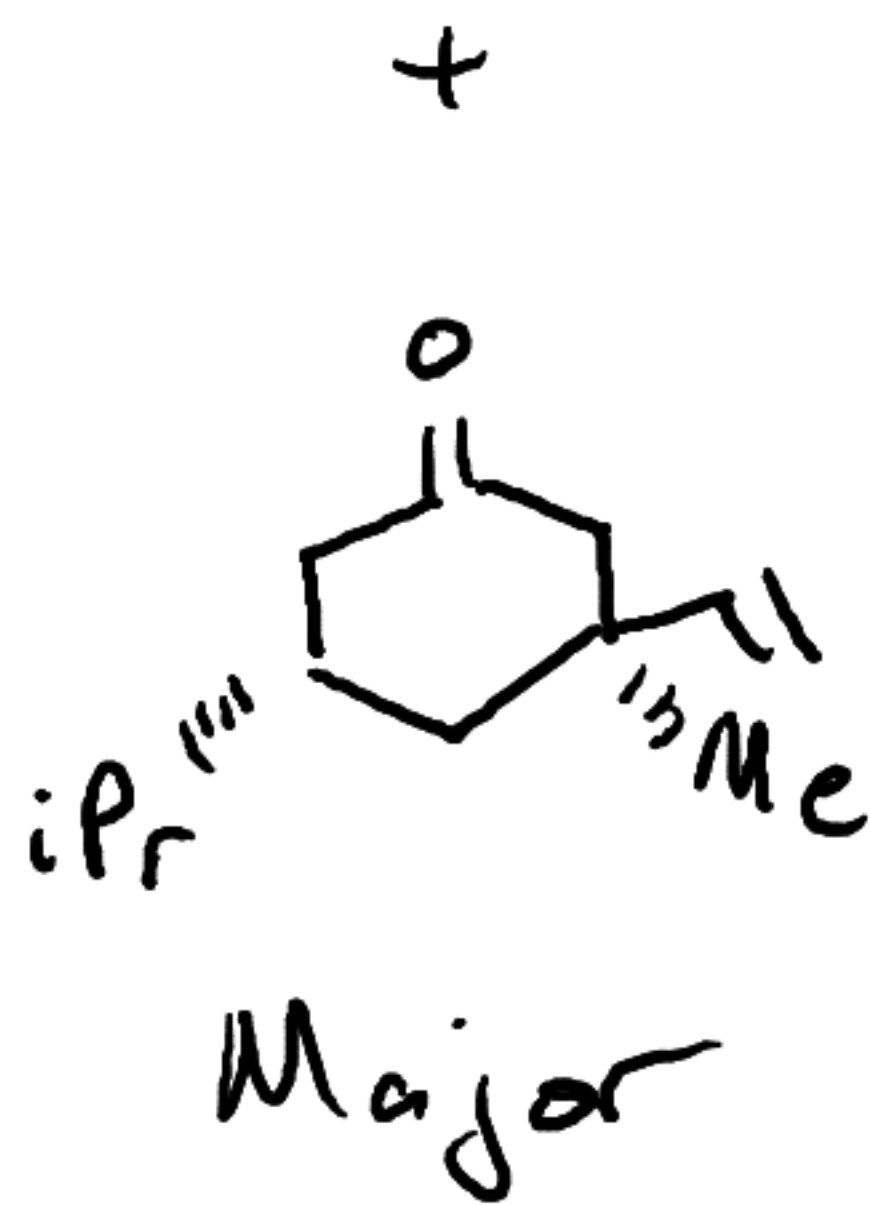
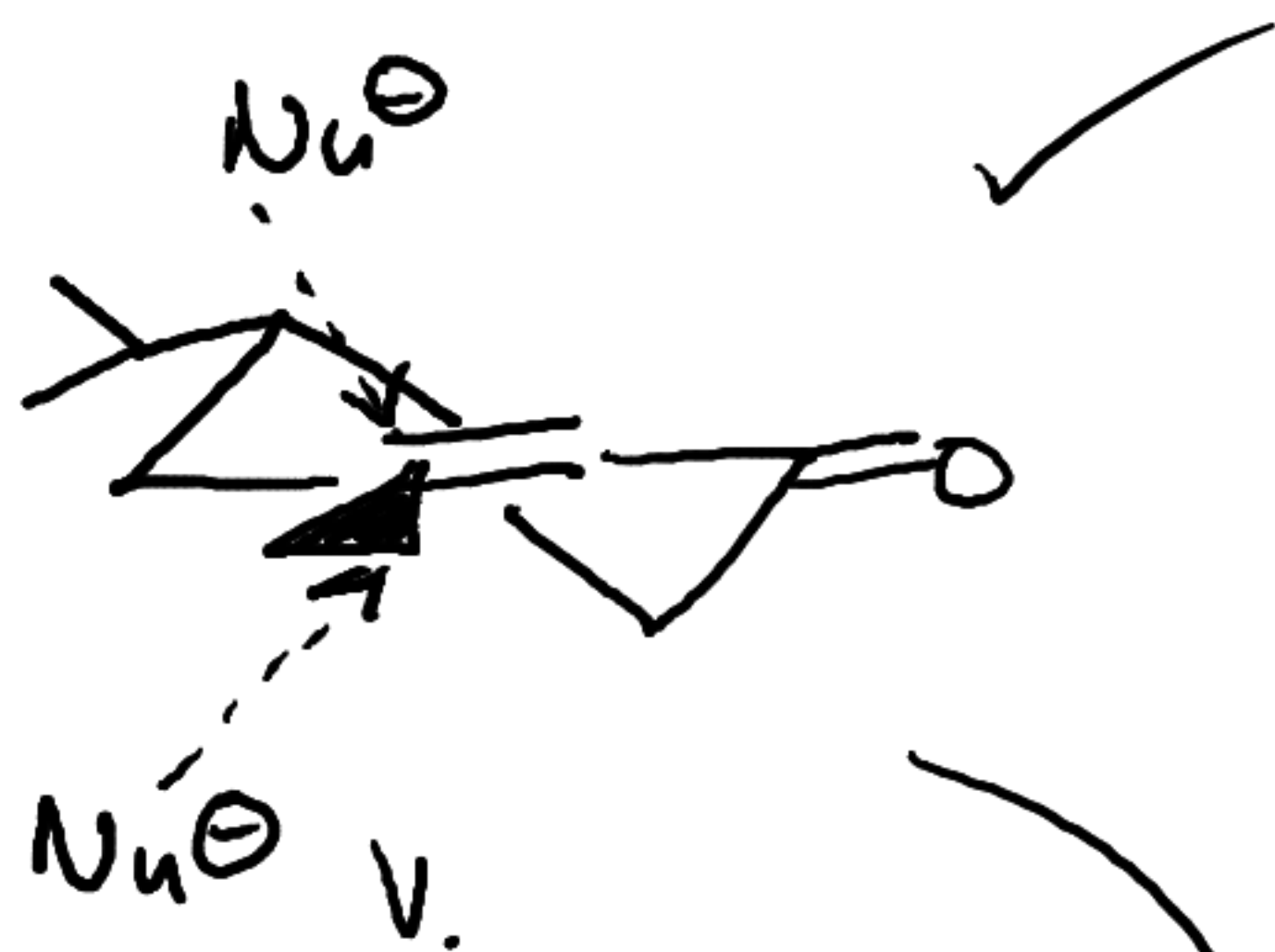
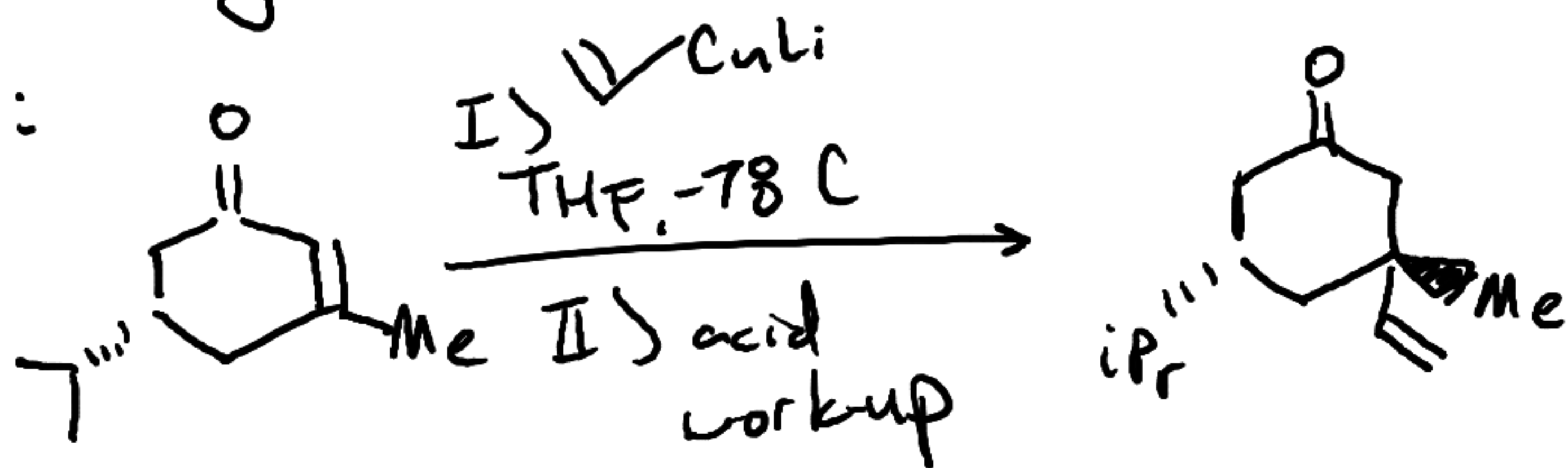


Nuc[⊖] attk drives " $\frac{1}{2}$ model" chair to "full" chair



Driven by formation towards chair

Ex:



this transformation makes sense think 3D