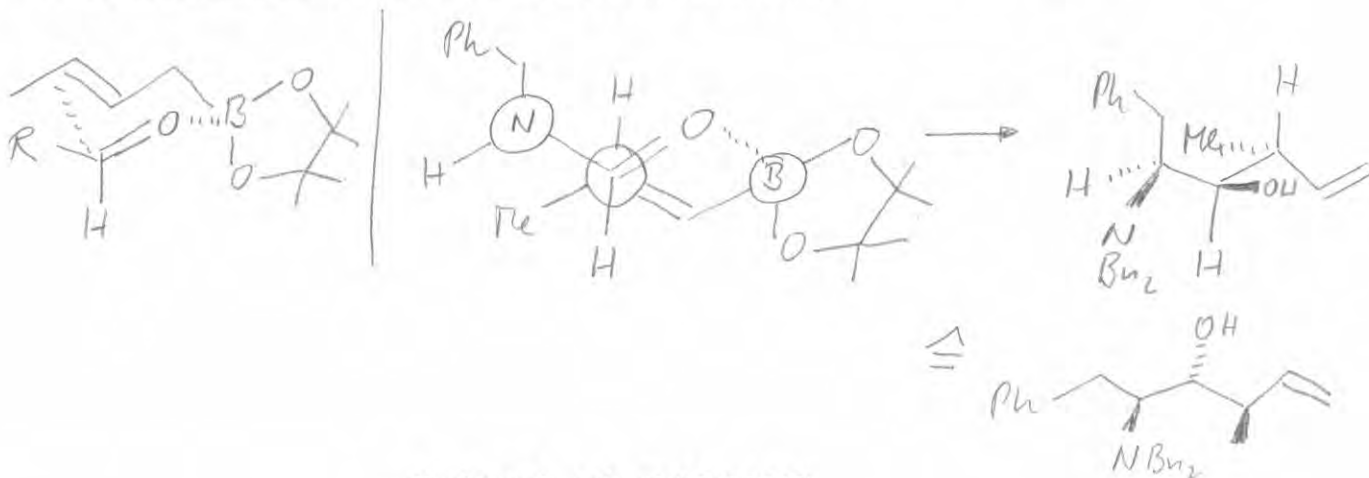


Correction Problem Set No. 6 (5.6.2012)

Old question

4. Which major product will you obtain by the reaction of (*E*)-crotyl pinacol boronate to *N,N*-dibenzyl-protected (*S*)-2-amino-3-phenylpropanal? Draw the transition state of this reaction leading to a compound with three contiguous stereocenters.

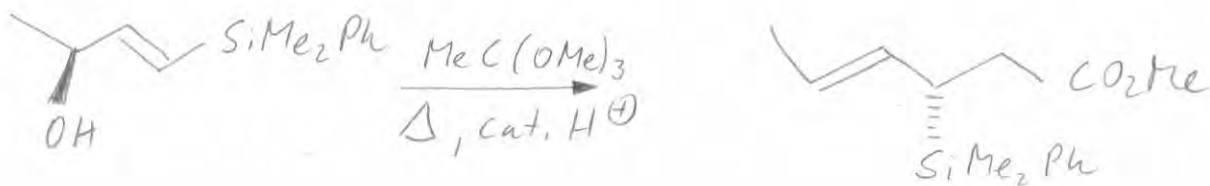
Dear students, the final transition state given on June 5 unfortunately was wrong. The chiral aldehyde is reacting with its *Si* face. The correct one should be:



Problem Set No. 7 (12.6.2012)

1. Explain the mechanism of the Johnson-Claisen-rearrangement in full detail (including stereochemistry)! Hint: a chair-like transition state is also assumed for this process.

Please note that the configuration of the product is different from that given in the lecture (mistake in the textbook!)



2. Start with the (*R,R*)-configured tartrate derived allylboronate and react it with (*R*)-2-benzyloxypropanal. Do you expect that this a matched or a mismatched case? Try to draw the transition state of the process!

3. React allyl(tributyl)stannane with (*S*)-2-benzyloxypropanal under chelate control! What is a suitable Lewis acid and which major product do you expect? Draw the respective transition state.

4. The addition of allyl chromium(III) reagents to aldehydes is called Nozaki-Hiyama-Kishi reaction. Start from (*Z*)-1-bromo-pent-2-ene and  $\text{CrCl}_2$  and add the resulting reagent to benzaldehyde. Provide the sequence with complete stoichiometry and with correct relative configuration of the resulting addition product!