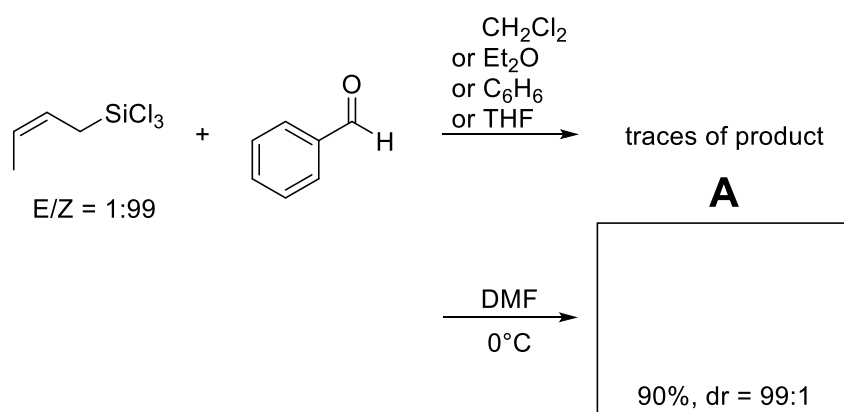


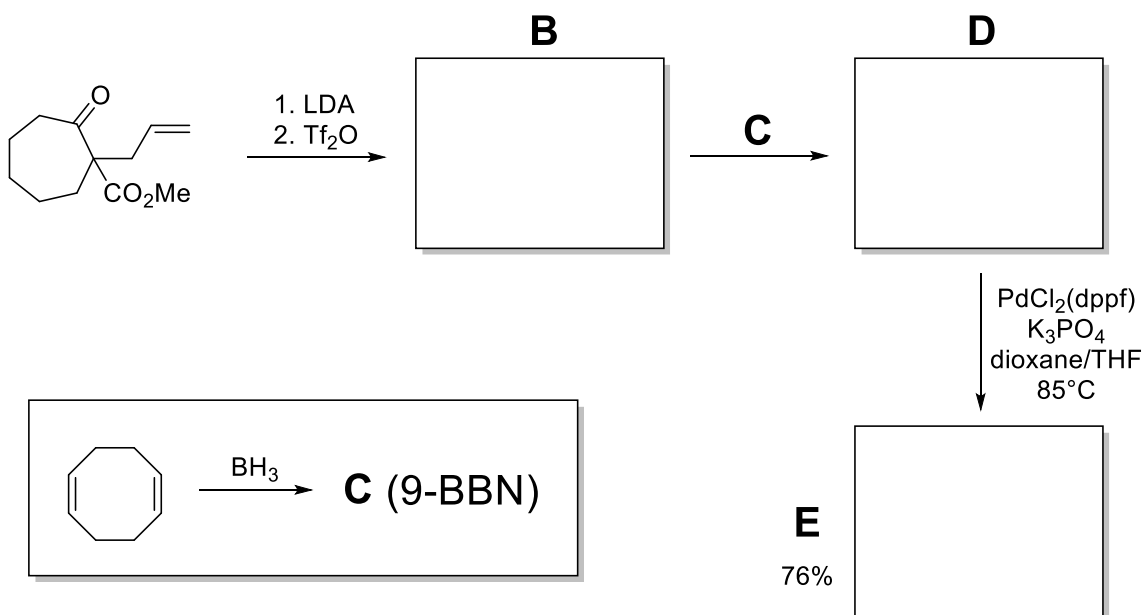
Problem Set #3 – Modern Synthetic Methods

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19.06.2015
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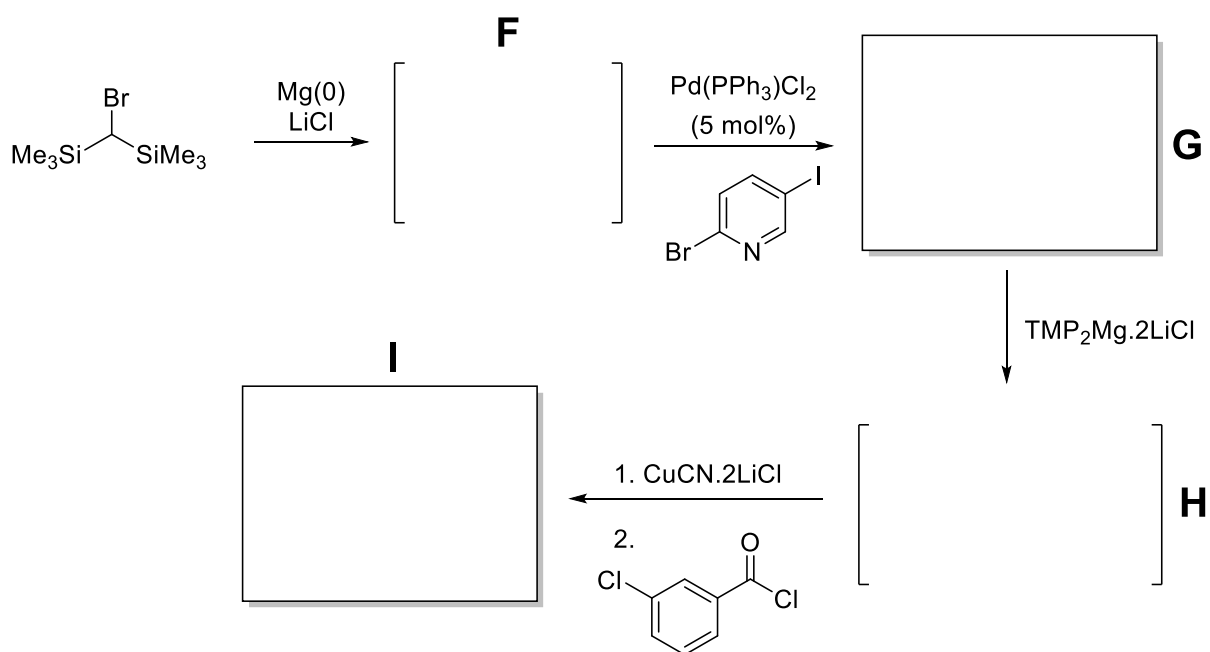
- 1) Find structure **A**. Explain the dramatic solvent effect observed in this reaction. Give the relative stereochemistry of **A**, and support your expectations with a model.



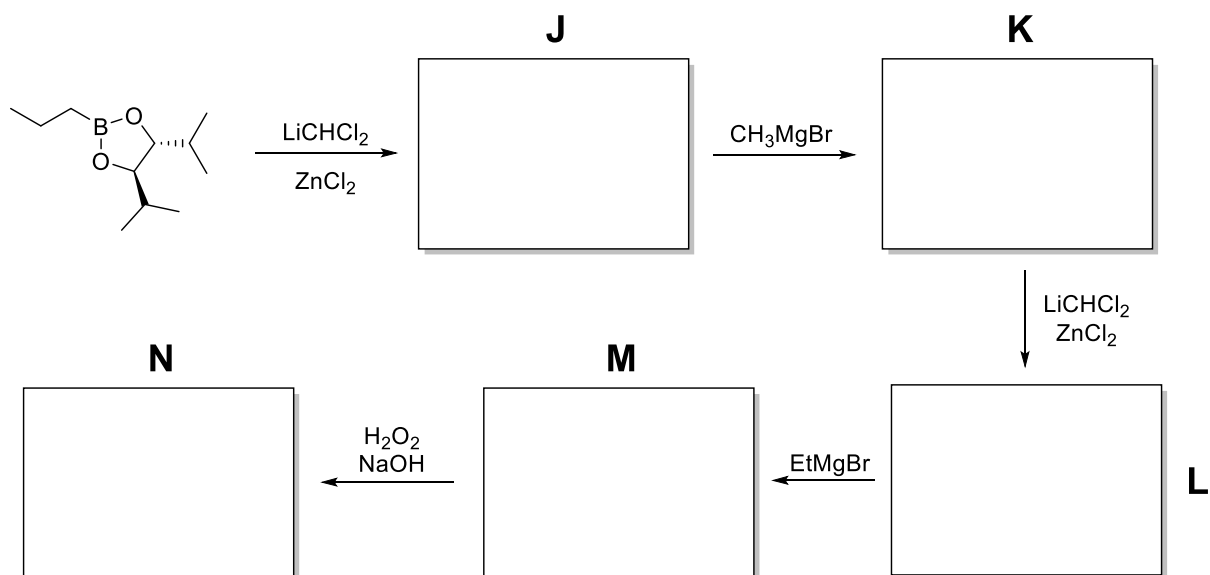
- 2) Find structures **B**, **C**, **D** and **E**. Argue the regioselectivity in the formation of **C** and **D**. Name the last step.



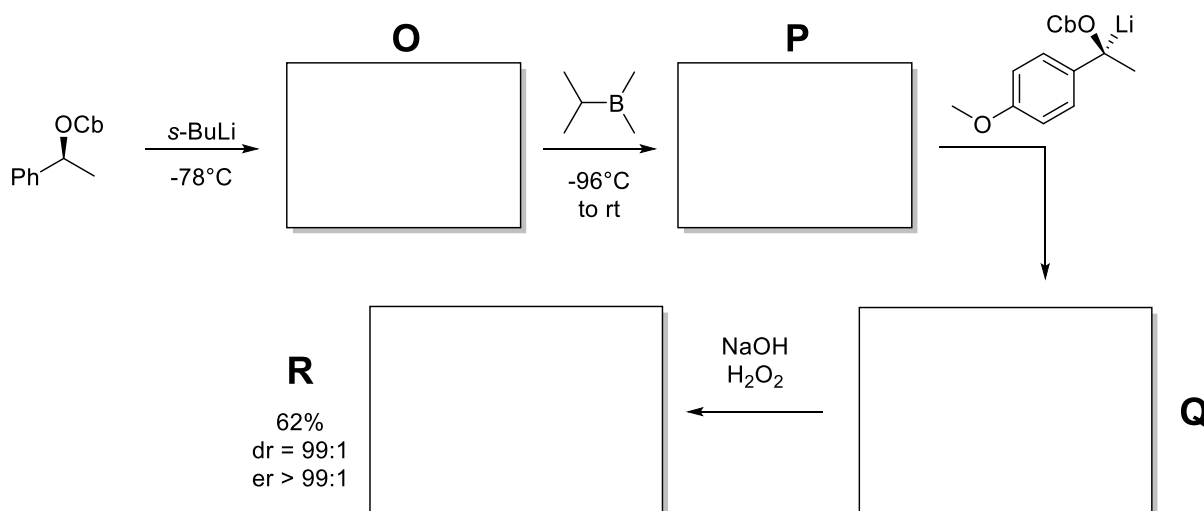
3) Find structures **F**, **G**, **H** and **I**.



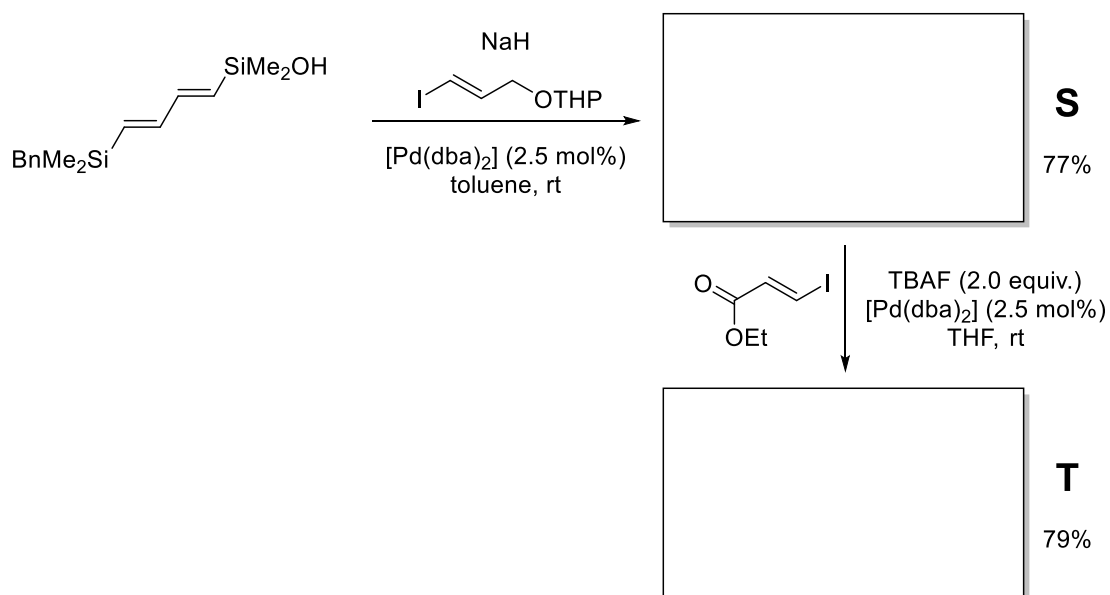
4) Find structures of products and intermediates **J**, **K**, **L**, **M** and **N**. Discuss the stereochemistry observed in **J** and **L**, supporting your suggestions with a model. The relative stereochemistry of **N** is *anti*.



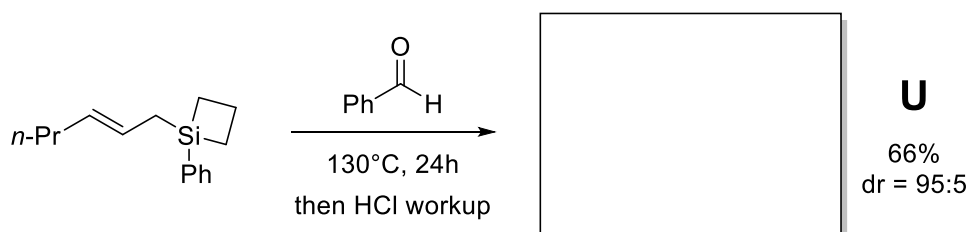
- 5) Find structures **O**, **P**, **Q** and **R**. If more than one alkyl group is present on the boron, the bulkiest will preferentially migrate first. Provide an explanation concerning the stereochemical issues in the formation of **P** and **Q**. Are transformations from **O** to **P** and **P** to **Q** stereoselective or stereospecific?



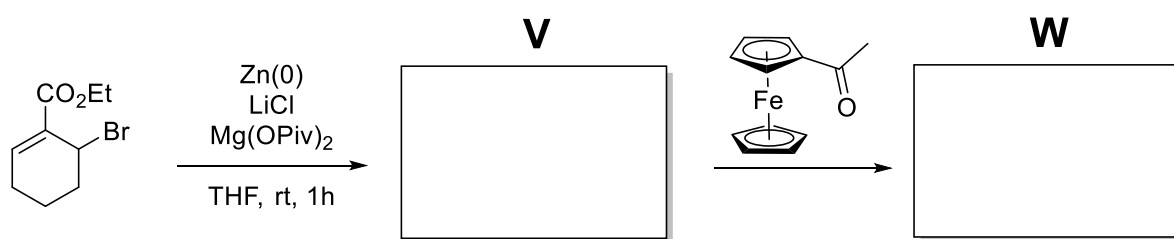
- 6) Find structures **S** and **T**. Propose a mechanism for the transformation of **S** into **T**.



- 7) Propose a key intermediate to explain the stereochemistry observed in **U**. What factor allows for the reaction to be performed?



8) Find structures **V** and **W** and explain the stereochemical outcome of the reaction.



9) Find structures **X** and **Y**.

