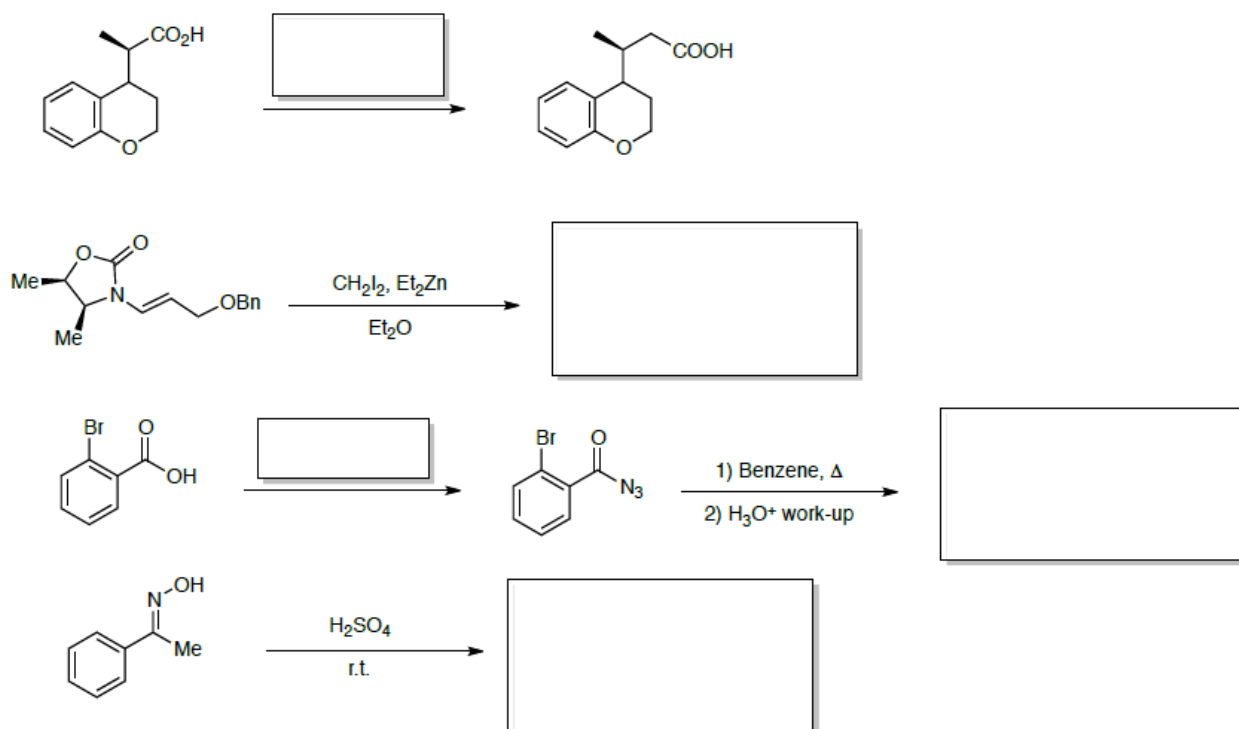
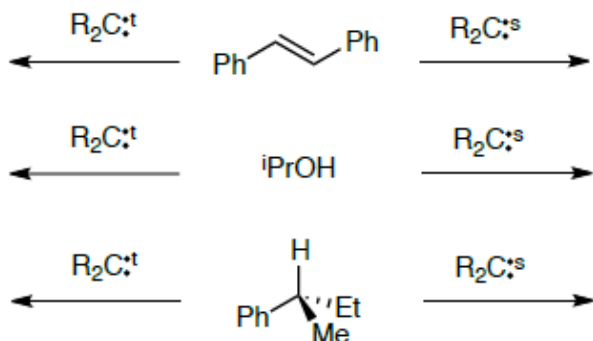


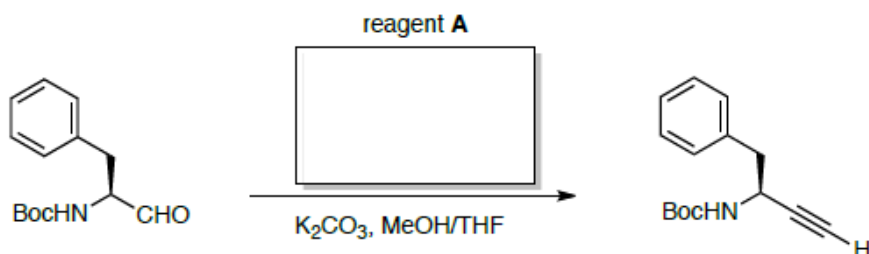
1. Fill in the missing reagents or products (no mechanism). For each transformation give the associated named reaction.



2. Predict the products of the following reactions (assume no relaxation of the singlet carbenes to the triplet state).

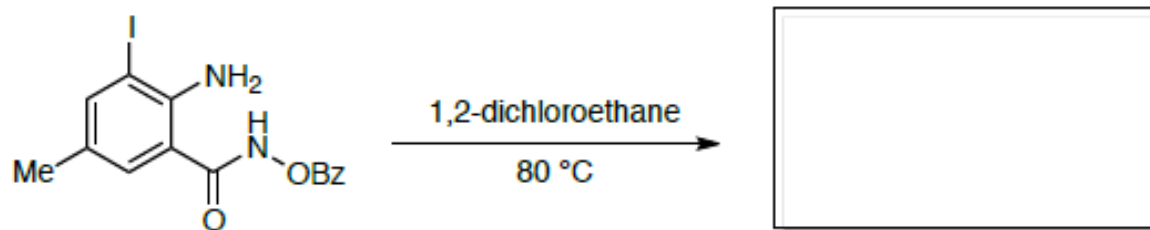


3. Consider the following reaction:



- Provide the structure and name of reagent A;
- Which named reaction is associated with this transformation?
- If one wants to convert an aldehyde into an alkyne, which other named reaction can be used? What would be the main problem of this alternative route compared to the one depicted above?

4. Predict the product of the following reaction and give a detailed mechanistic explanation.



5. Propose a short and cheap synthesis of **C** starting from **B** (reaction conditions and names but no mechanisms).

