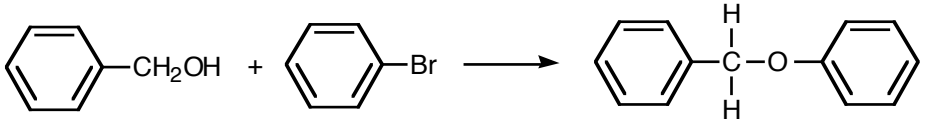
WORKSHOP, Chapter 16
Reactions of Ethers and Epoxides

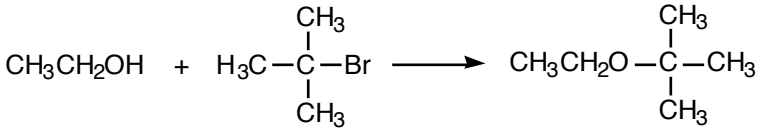
1. Identify the oxidation state of each carbon in the following functional groups. For each pairwise transformation, describe it as an oxidation, a reduction, or neither (there are 12 combinations to consider). For each transformation, indicate a reagent or sequence of reactions that would be appropriate to accomplish the transformation.

2. Each of the following Williamson ether synthesis reactions failed. Explain what went wrong and offer alternate synthetic approaches to form the target compounds.

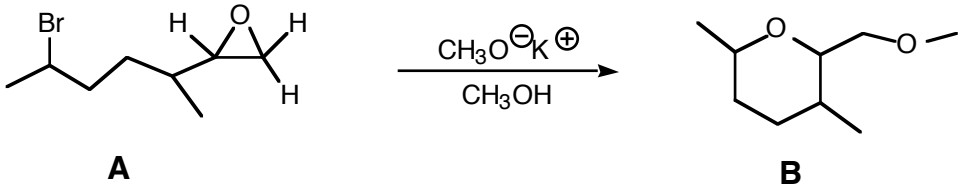
i.



ii.

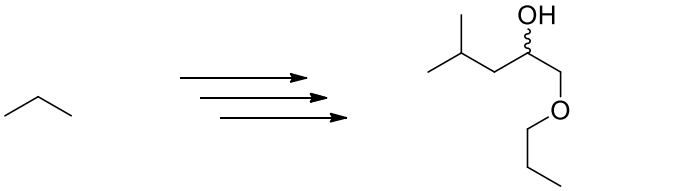


3. Propose a reasonable mechanism for the reaction below, in which compound **A** is transformed to compound **B** by reaction with base. Use the arrow formalism to show the flow of electrons.



A **B**

4. Design a synthesis of racemic 4-methyl-1-propoxypentan-2-ol. The only carbons you may use come from propane. You may use any reagents or conditions you have learned this year.



4-methyl-1-propoxypentan-2-ol