**Chem 343 – Organic Reactions**

**Chapter 11**

**Synthesis and Reactions of Ethers #5: Alkoxymercuration-Reduction**

1. \( \text{Hg(OAc)}_2 / \text{R-OH} \)
2. \( \text{NaBH}_4 / \text{NaOH} \)

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**Mechanism**

The alcohol molecule can attack either side of the more substituted carbon atom.

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The cyclic mercurinium ion has a greater positive charge on the most substituted carbon of the three-membered ring intermediate. The solvent alcohol as the nucleophile in the reaction will then attack and displace the Hg-atom. In the reduction phase of the reaction (\( \text{NaBH}_4 \)) the Hg-carbon bond is broken and mercury is reduced.

The reaction proceeds by a Markovnikov addition regiochemistry. Scrambling occurs at the nucleophilic attack by water and consequently, the stereochemistry of the product results in an anti and syn addition.