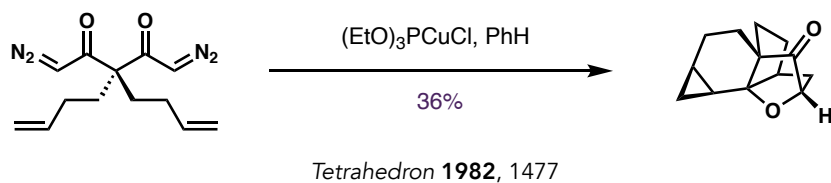
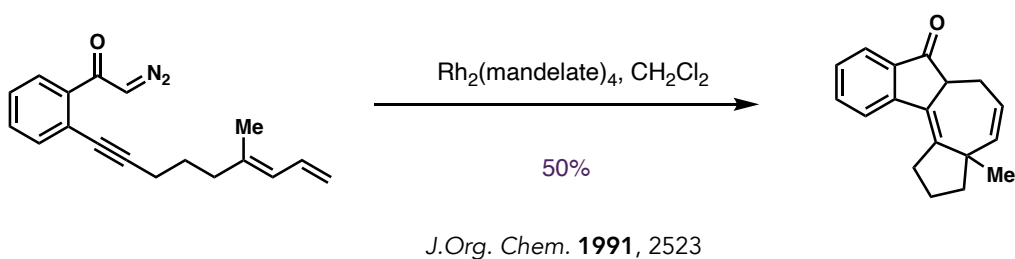


1. Propose a mechanism for the following transformation.



2. Propose a mechanism for the following transformation.



3. Hashmi and co-workers leveraged the dichotomy of a particular reactive metal intermediate to achieve divergent annulations with Pt^{II} and Au^{III} catalysis. Provide a mechanism to account for the formation of quinoxaline *N*-oxide **1** and benzimidazole **2**.

Hint: The mechanisms both begin through the formation of the same organometallic species. The properties of the metal associated with that intermediate guide the divergent selectivity.

