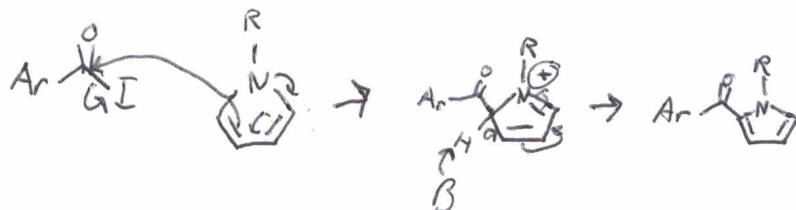
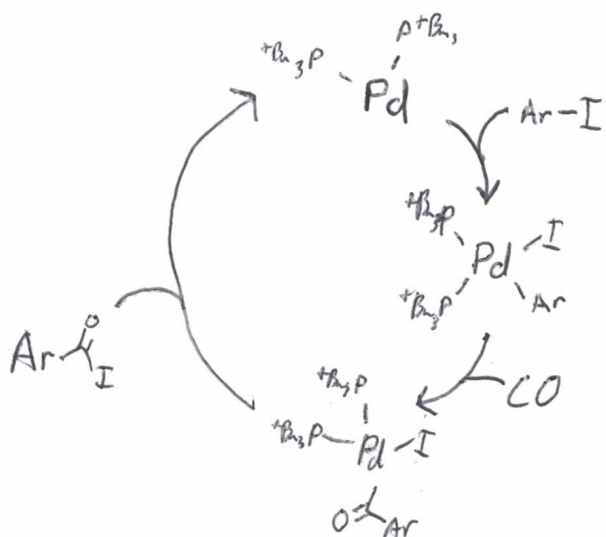
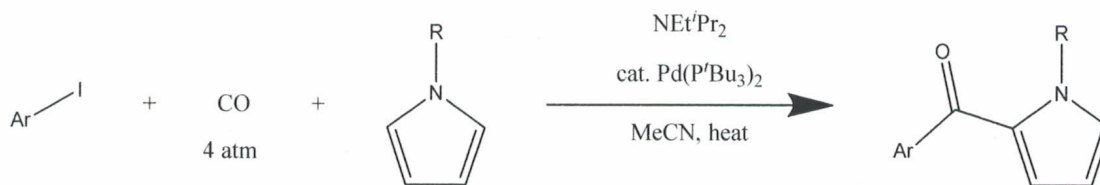
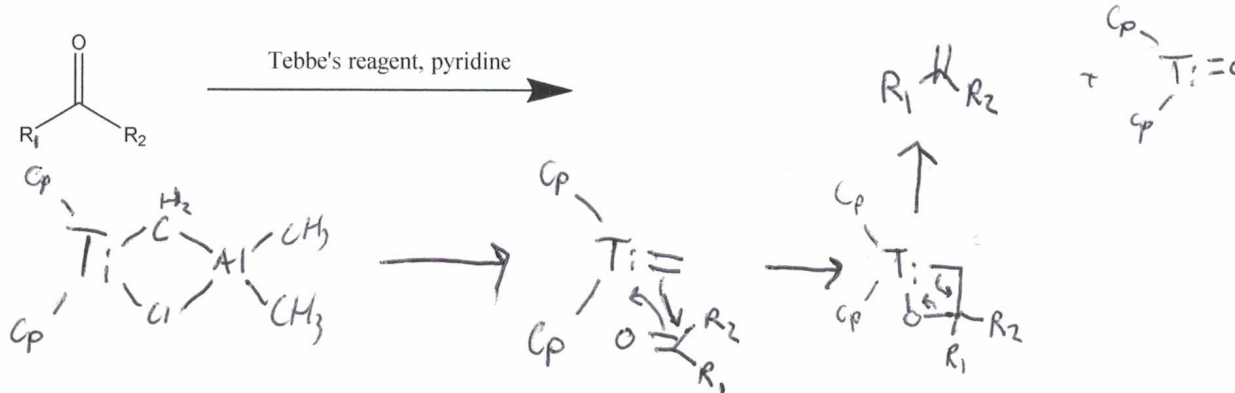


1. Give a plausible mechanism for the following transformation:

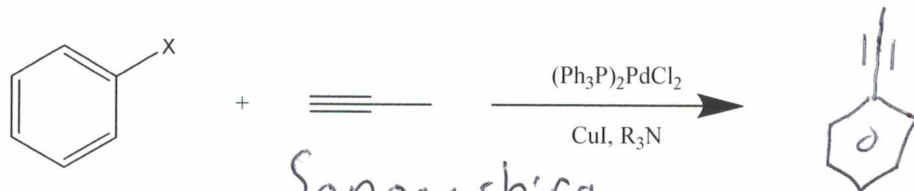


Arndsten JACS 2015 DOI 10.1021/jacs.5b07098

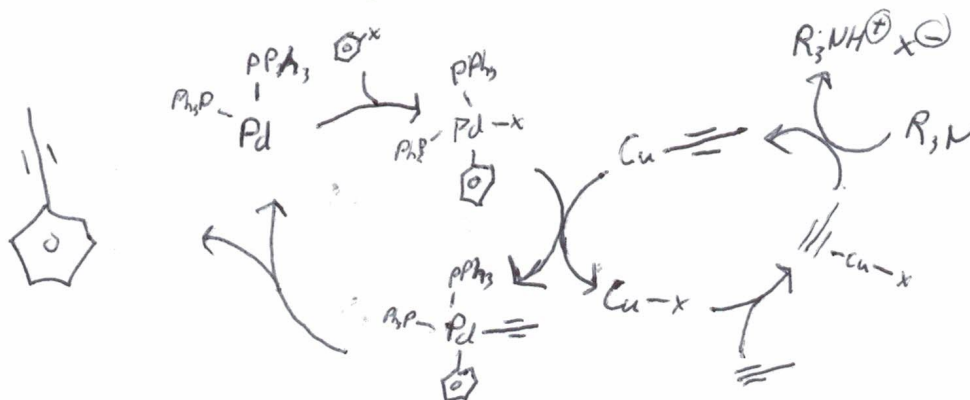
2. Give the structure of the reagent, the active species, the product, and the reaction mechanism.



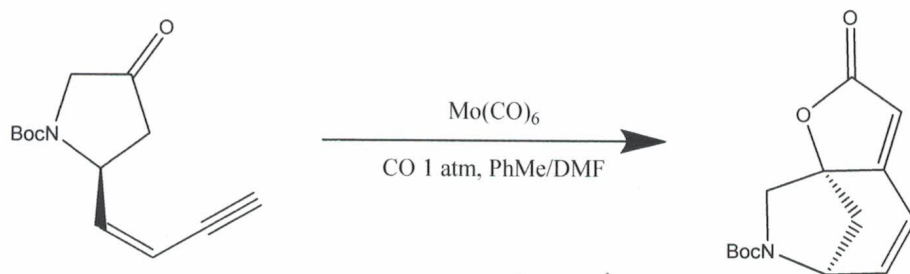
3. Give the name, mechanism, and product for the following transformation:



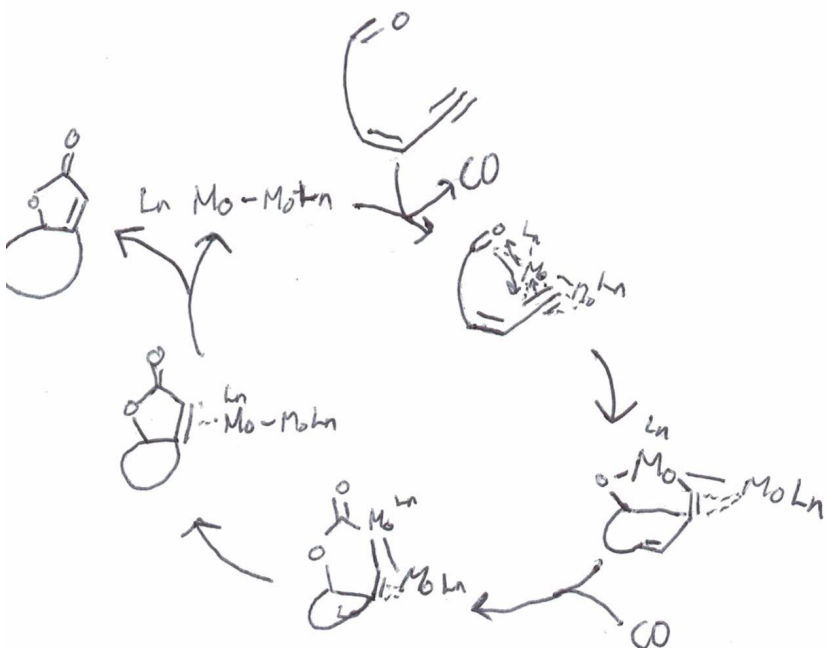
Sonogashira



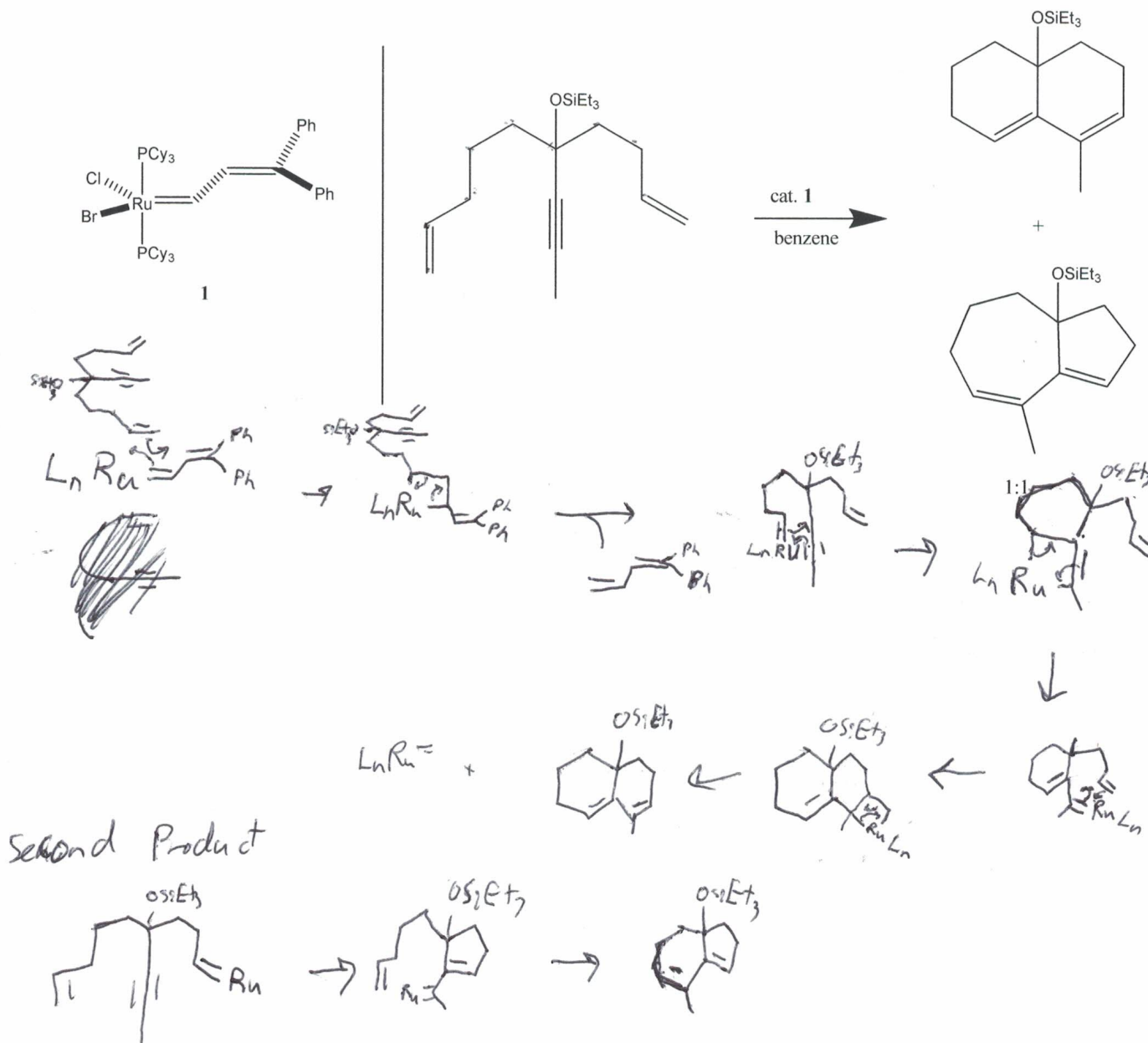
4. Provide a name and plausible mechanism for the following transformation (Mo complex can be generalized with L_n representations):



Pauson-Khand



5. Provide a plausible mechanism for the following transformation, accounting for the formation of both products, and identify a competing reaction (retaining the alkyne):



Second Product

Competes with formation of the 8 member ring

