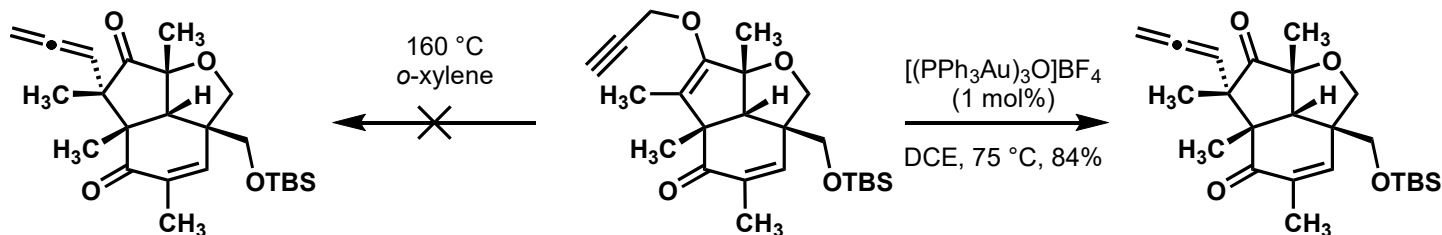


This reaction begins the synthesis of Ambiguine G by Rawal
(J. Am. Chem. Soc. 2021, 143, 10872-10875)
Please give the mechanism and account for the stereochemistry



This sequence begins the synthesis of one fragment of the
Aconitum alkaloids by Reisman
(ACS Cent. Sci. 2021, DOI:10.1021/acscentsci.1c00540)
Provide the intermediate and the mechanism of both steps.
(hint: aromaticity is lost in the first step)



This transformation is featured in Carreira's Indoxamycin B
(Angew. Chem. Int. Ed. 2012, 51, 3474 –3477)
Please give the mechanism of productive product formation
(Extra credit: how would one name the thermal reaction to the left)