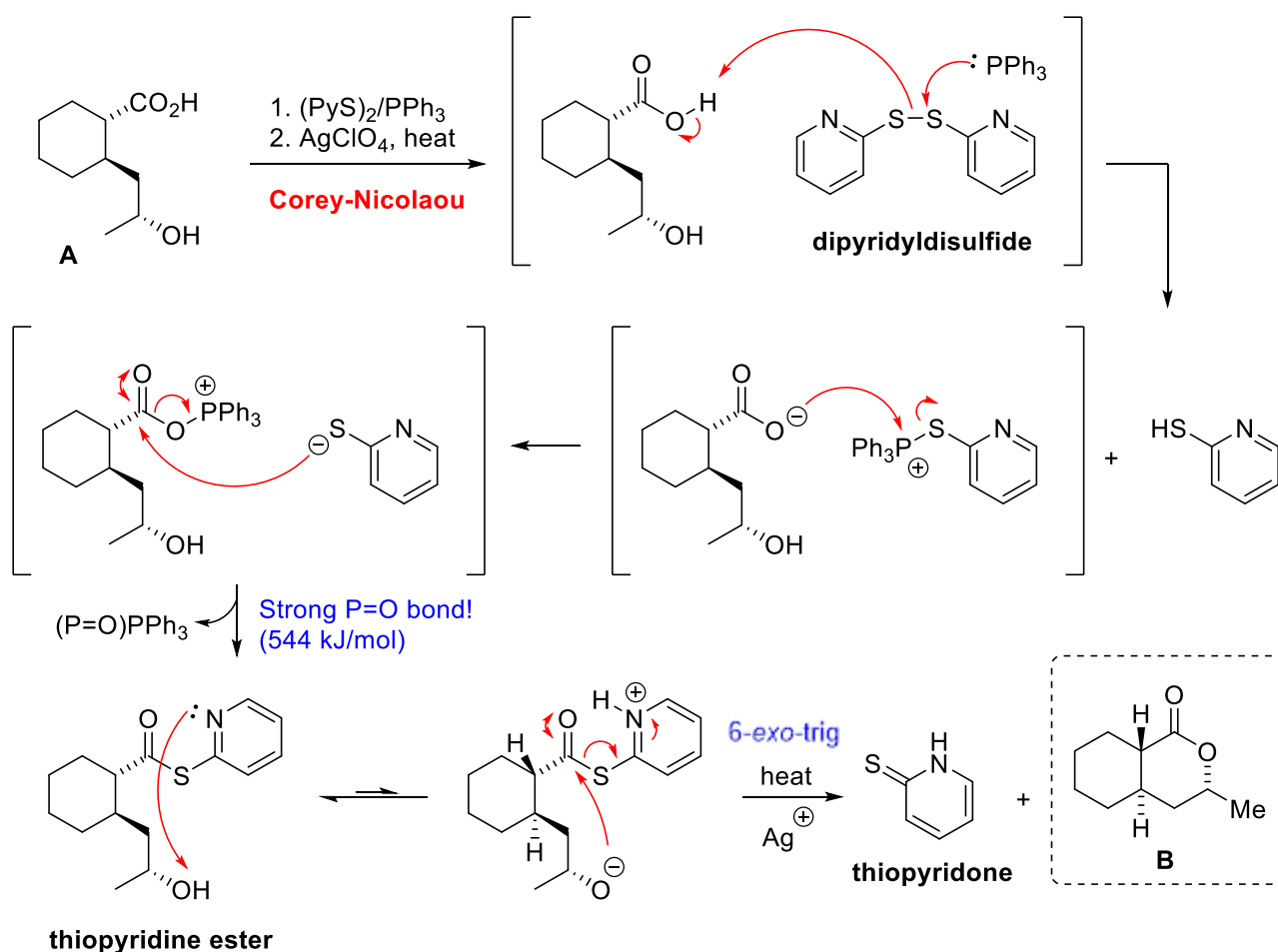


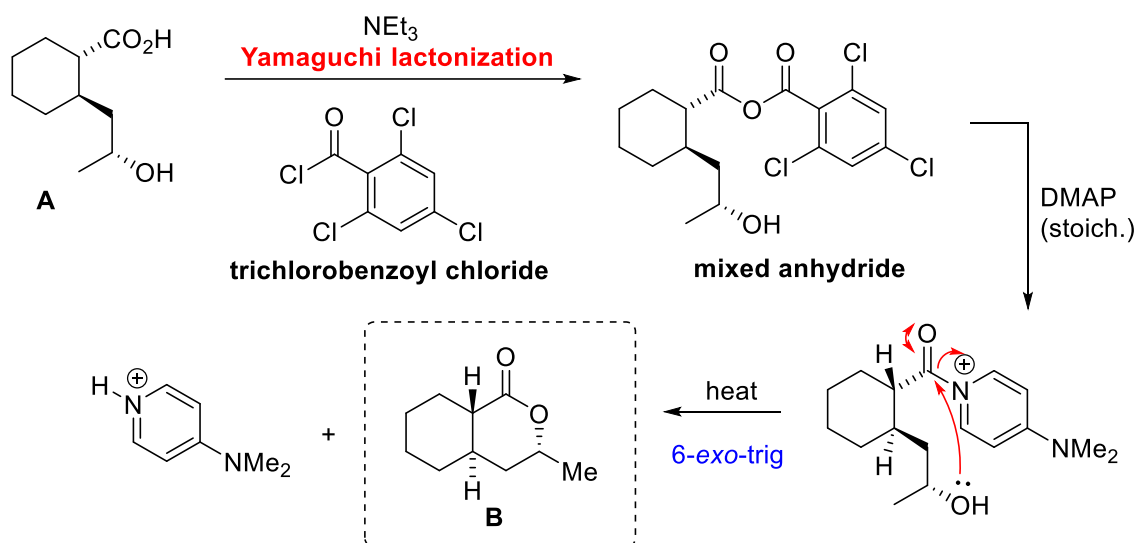
l)

Product **B** arises from cyclization with retention of the configuration of the hydroxyl group -> the carboxylic acid must be activated, for example with the **Corey-Nicolaou** method (via the thiopyridine ester) or the **Yamaguchi** lactonization (with trichlorobenzoyl chloride).

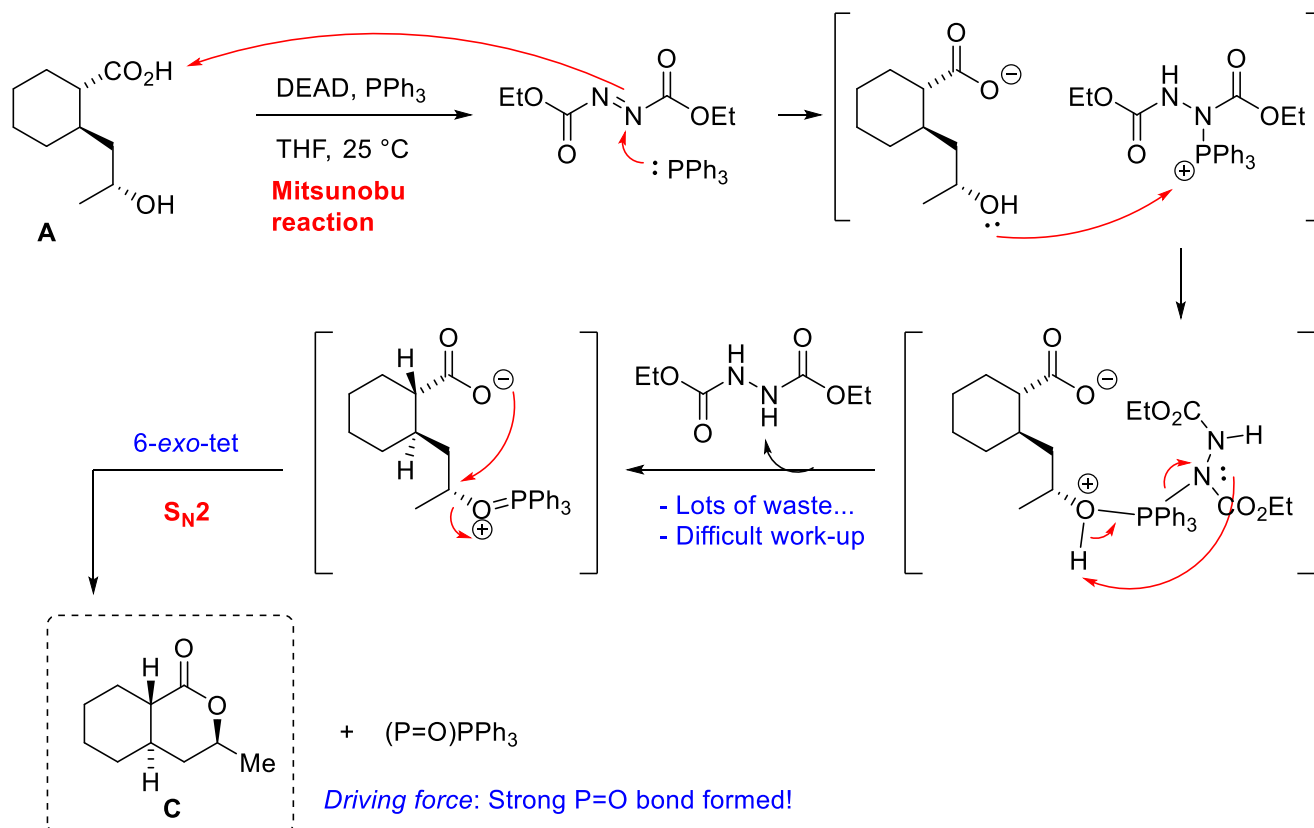


The cyclization reaction needs high temperature, but adding silver salts can result in a dramatic acceleration (by activating the thiopyridine ester --> even more electrophilic).

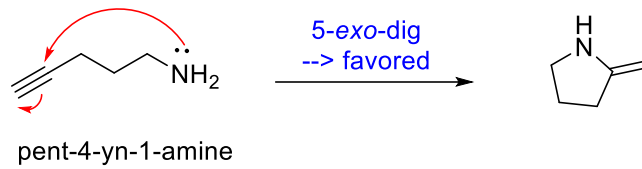
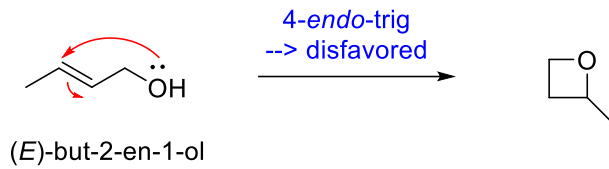
Option 2 for retention during lactonization (via acid activation):



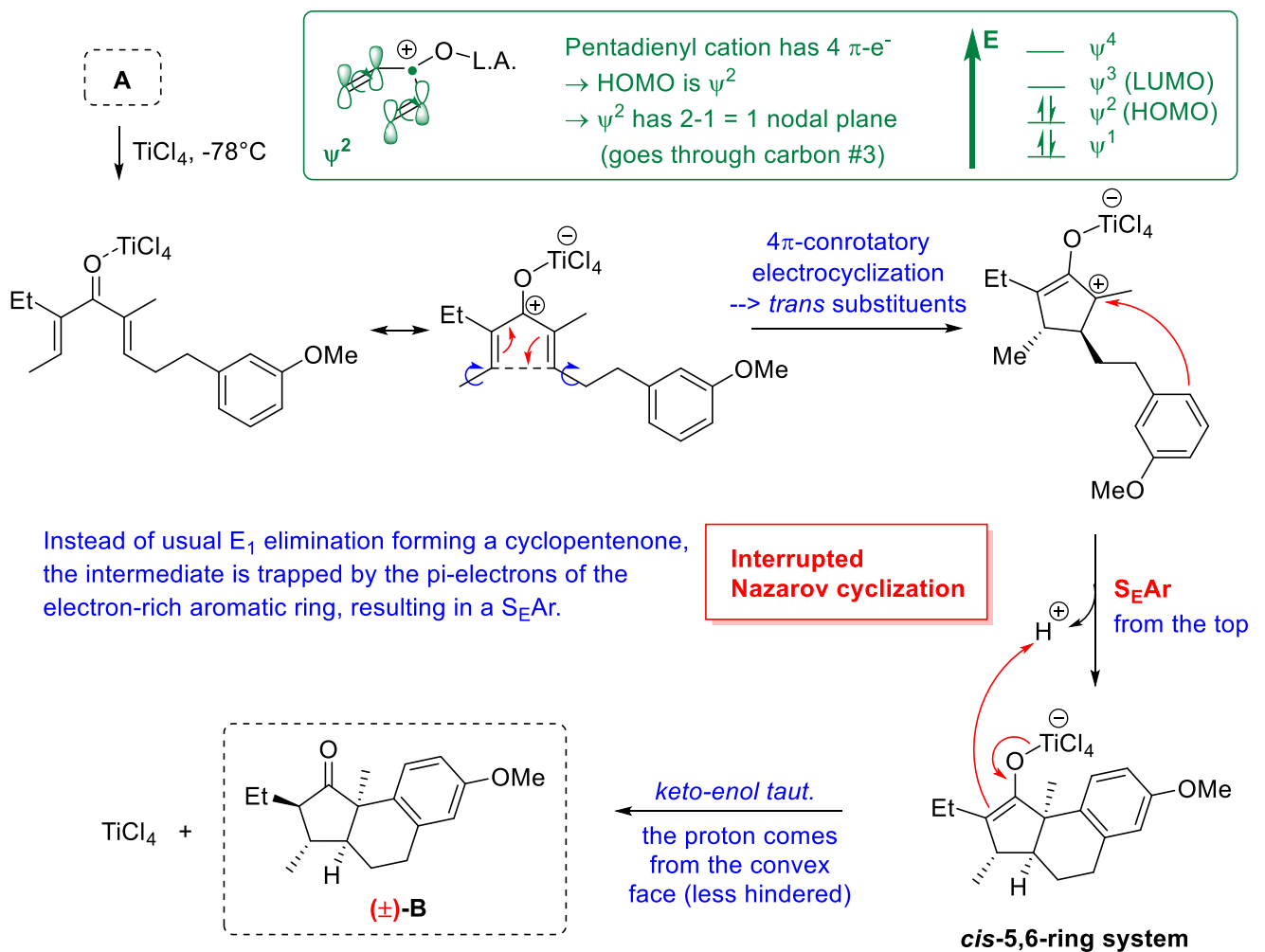
Product **C** arises from cyclization with inversion of the configuration of the hydroxyl group -> the hydroxyl group must be activated for the reaction to proceed under a clean S_N2 - mechanism, using the **Mitsunobu** reaction:



II)



III)



The conrotatory process can proceed in two ways
 \rightarrow we end up with a racemate!