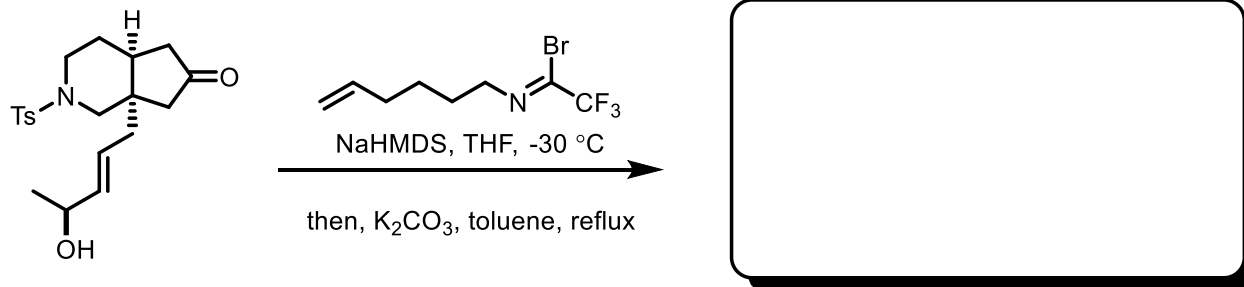
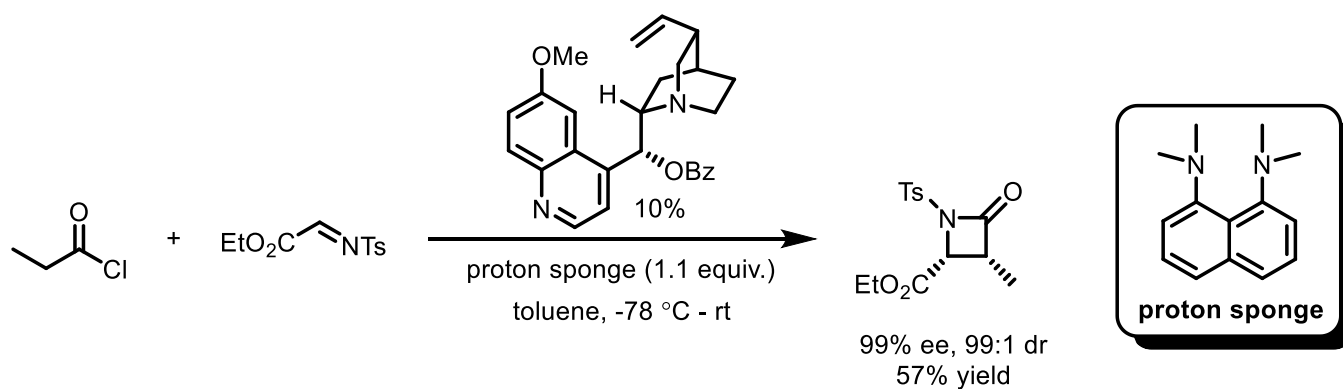


1. Provide the product and a mechanism for the named rearrangement.



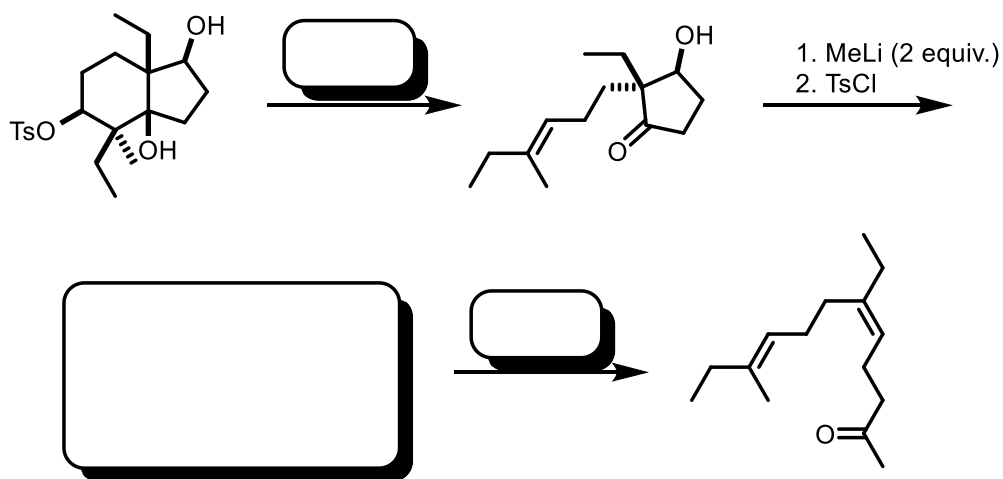
Clark, J.S. *Angew. Chem., Int. Ed.* **2016**, *55*, 1–5

2. Provide a mechanism for the following transformation.



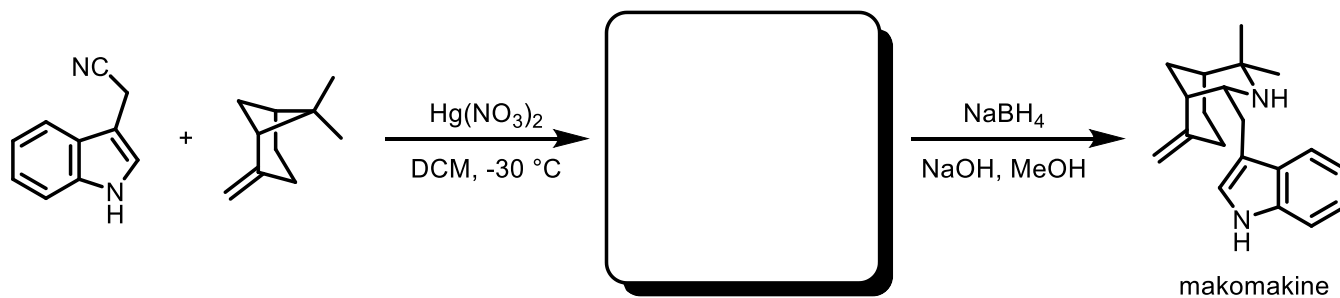
Lectka, T. *JACS.* **2000**, *122*, 7831–7832

3. Provide the *simple* reagent needed for the following transformation. Propose a mechanism for the fragmentations.



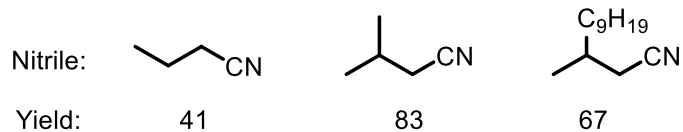
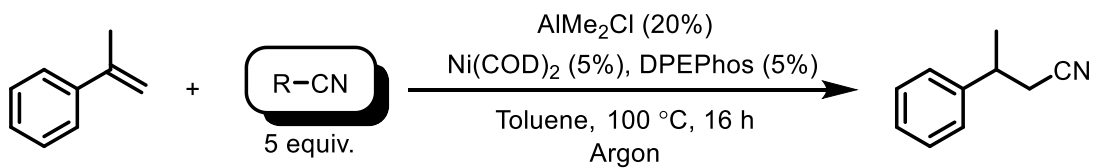
Edwards, J.A. *JACS*, **1968**, *90*, 6224–6225

4. Provide a mechanism for this concise synthesis of makomakine.



Stevens, R.V. *J. Chem. Soc., Chem. Commun.*, **1983**, 384–386

5. Propose a mechanism for the following transformation. Provide a rationale for the observed trend in yield.



How would you achieve the reverse reaction?

