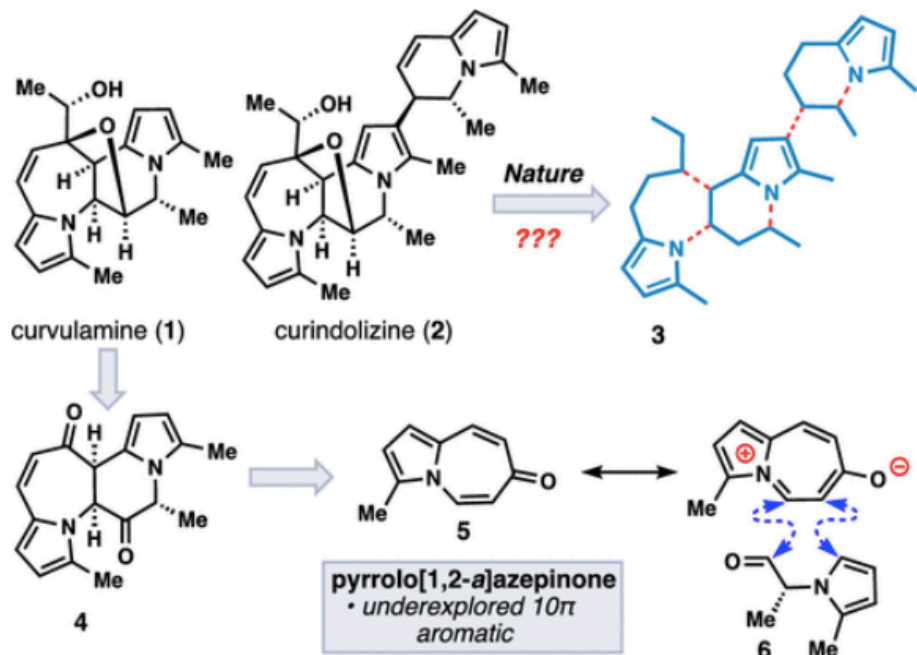


Total synthesis of (-)-Curvulamine

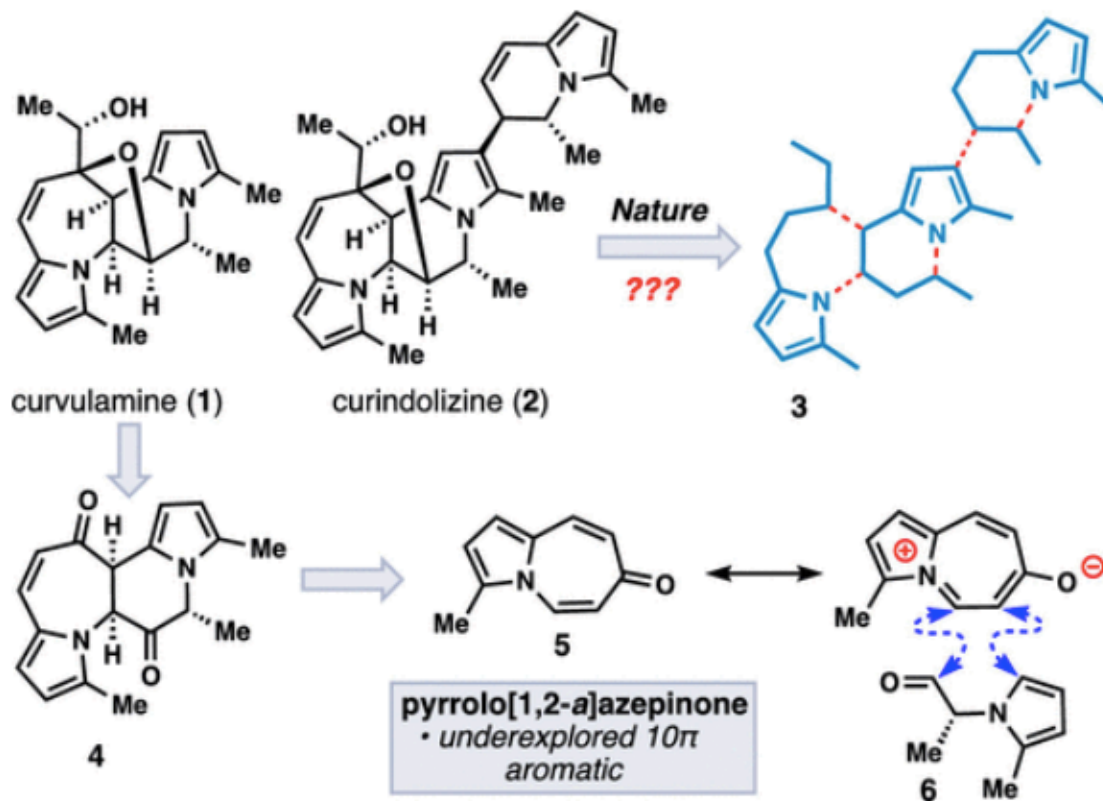
Haelsig, K. ; Xuan, J.; Maimone, T. "Total Synthesis (-)-Curvulamine" *J. Am. Chem. Soc.* **2020**, *142*, 1206-1210.



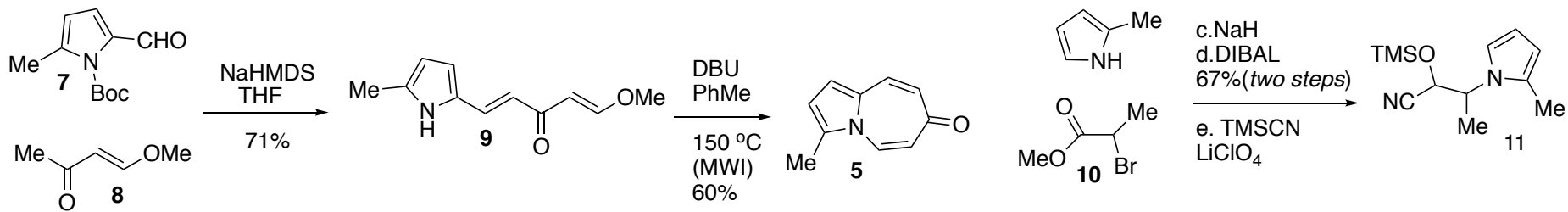
(-)-Curvulamine was isolated from the fungi strain *Curvularia* associated with the white croaker fish.

- It was found to possess sub-micromolar minimum inhibitory concentrations against a variety of Gram-positive and negative bacteria.
- Its biogenetically related trispyrrole natural product curindolizine 2 was found to lack these properties but possesses anti-inflammatory activity.
- Here is the first chemical synthesis of (-)-curvulamine in 10 steps.

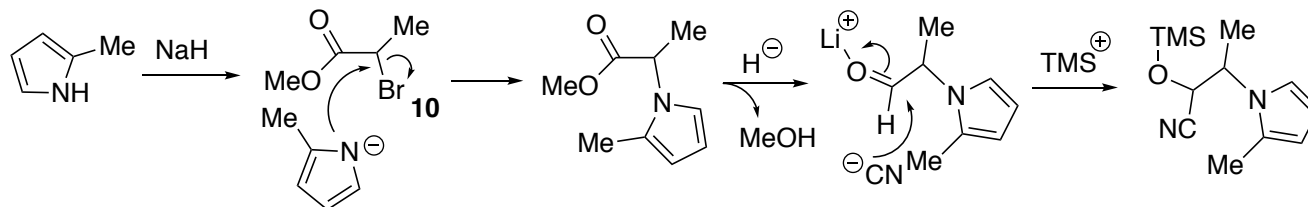
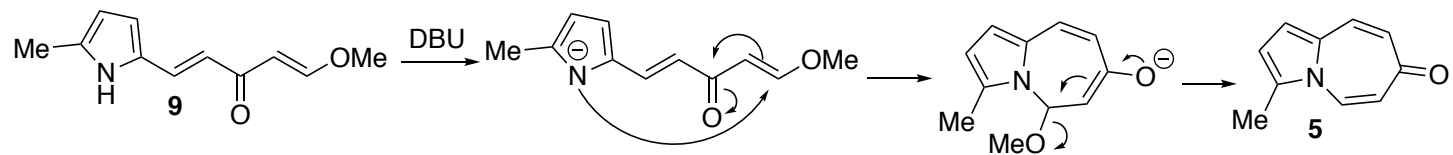
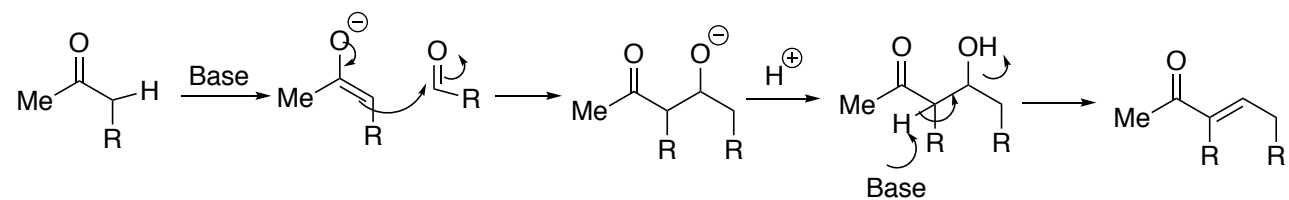
Retrosynthetic analysis

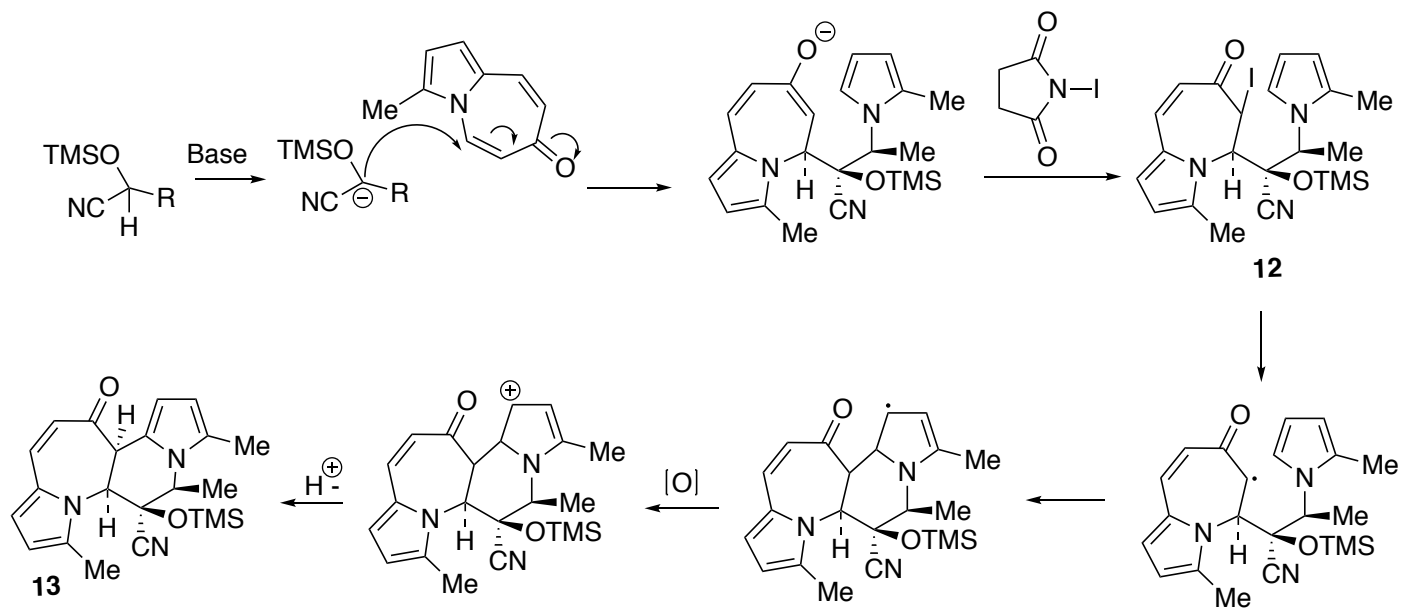
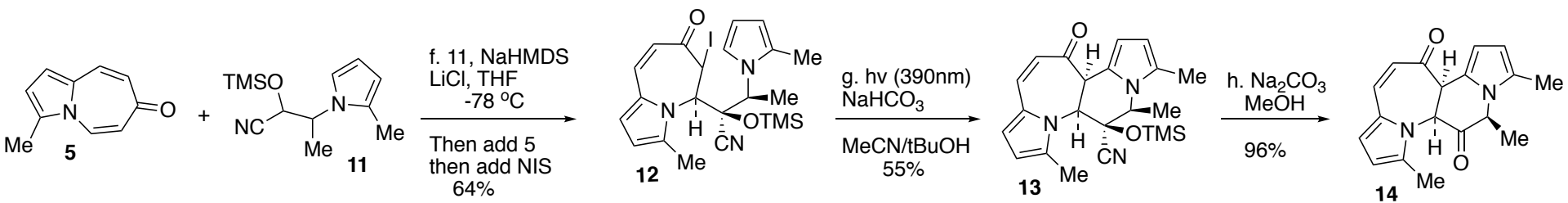


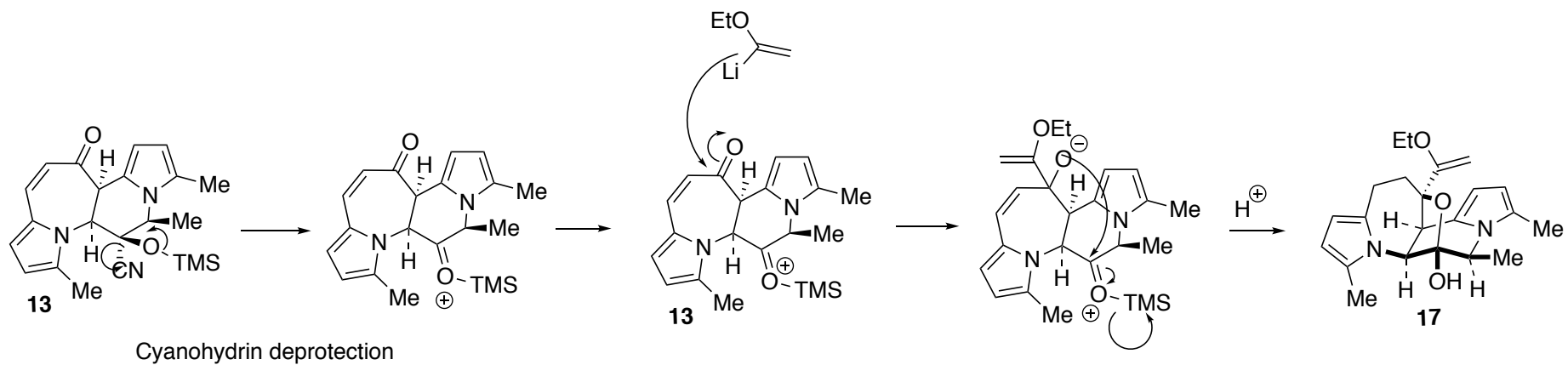
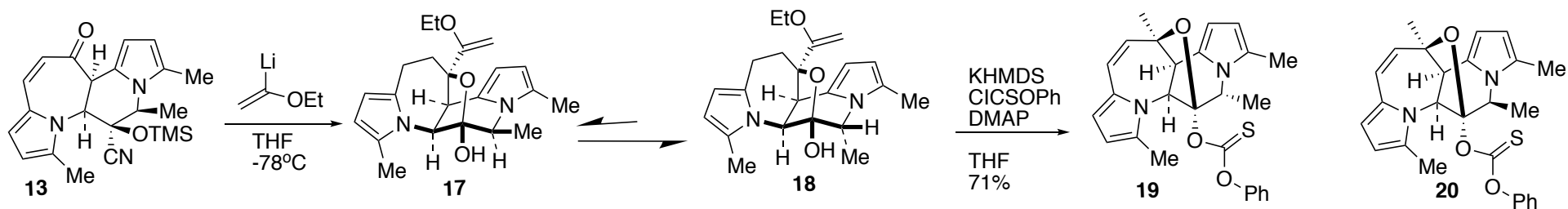
Curvulamine could be traced back to diketone 4 via excision of a two-carbon nucleophile and redox manipulations. Then they envisioned construction tetracycle 4 from 5 and pyrrole 6

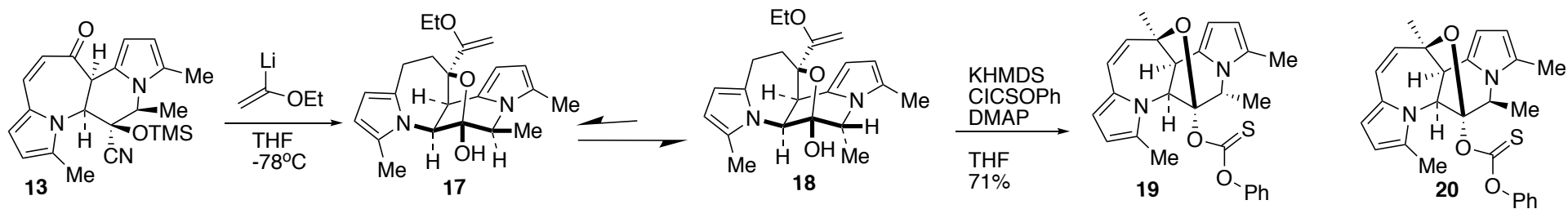


Aldol condensation

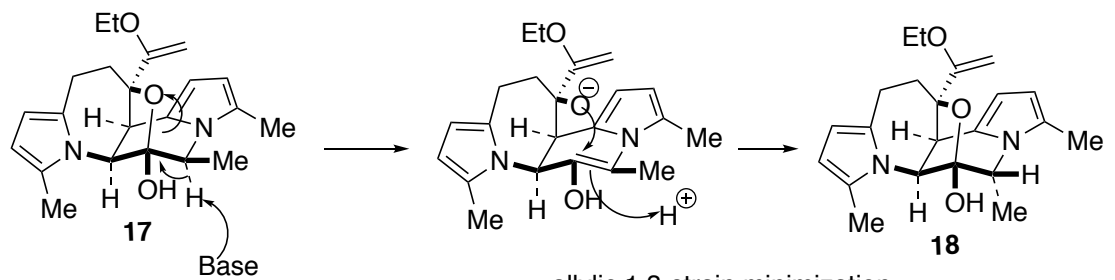




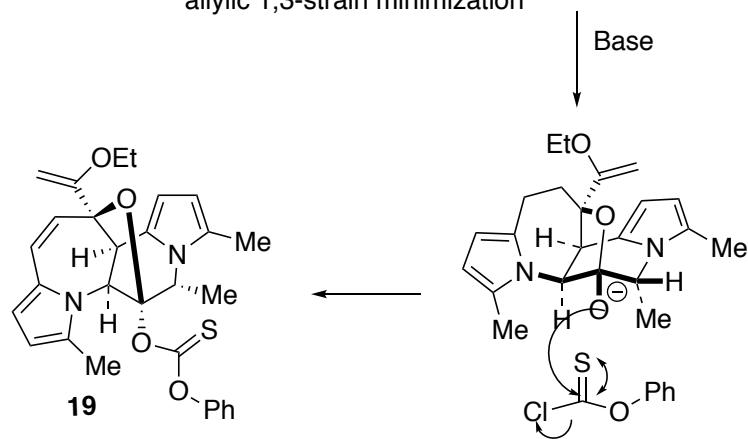


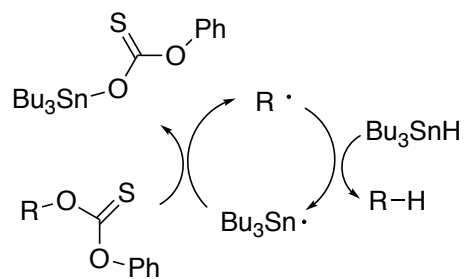
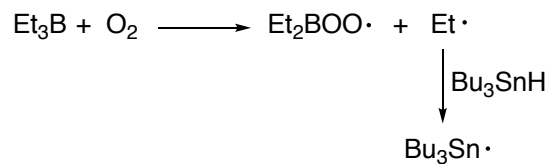
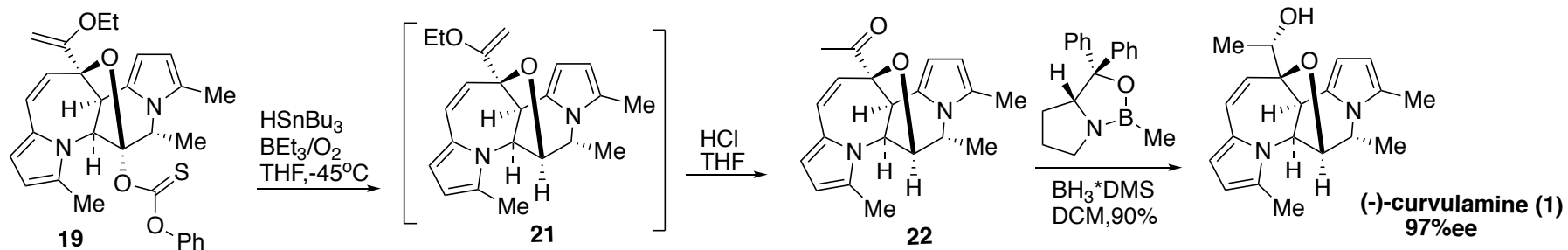


epimerization

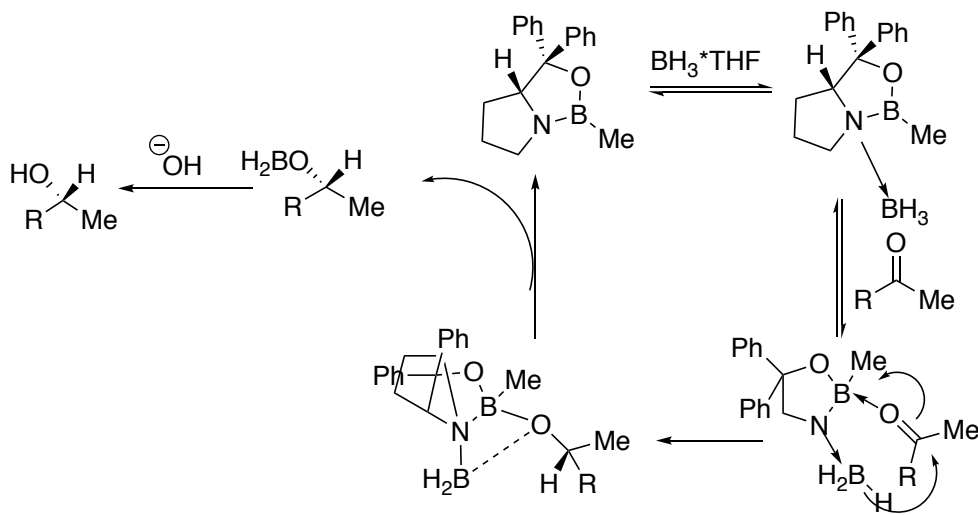


allylic 1,3-strain minimization





CBS reduction condition



enol ether hydrolysis

