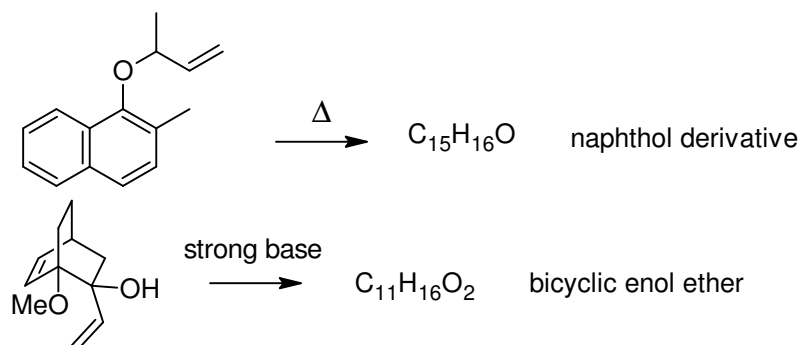
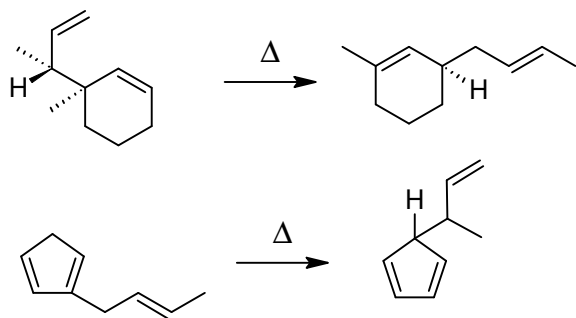


1. Two rearrangements occur as described below. Draw a likely product (include stereochemistry where relevant) and reaction mechanism. Hint: each rearrangement includes a Claisen or Cope rearrangement (or both).



2. Draw plausible mechanisms for the rearrangements shown below. Your mechanism should account for any observed stereoselectivity and the order, [m, n], of sigmatropic rearrangements should be indicated. In addition, draw the transition state for any [3,3] rearrangements and clearly indicate whether a *chair* or *boat* geometry is required). Keep in mind that realistic pericyclic steps must be allowed and not too unfavorable.



3. Ireland et al., *JOC*, **1991**, 56, 3572, report selective preparation of *E* and *Z* silyl ketene acetals. These compounds rearrange at 20-30 °C to give water-sensitive RCO_2SiMe_3 products that hydrolyze to the corresponding carboxylic acids.
- What products would be obtained if the *E* and *Z* acetals rearranged solely by way of a *chair* transition state? Justify your answers by drawing the transition states.
 - What products would be obtained if they rearranged solely by way of a *boat* transition state? Justify your answers.
- Hint: Use models, either plastic or *Spartan*, to visualize transition state geometries.

