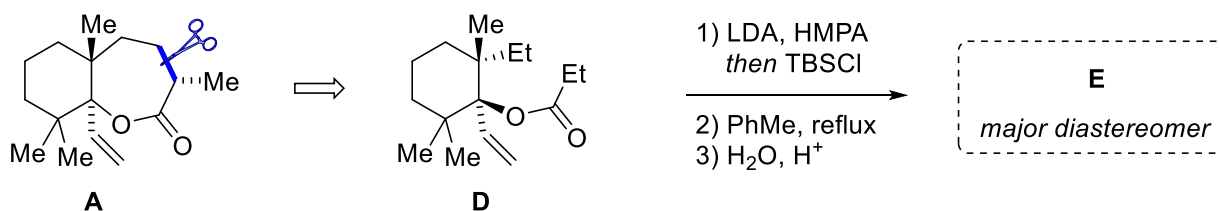


Bicyclic lactone **A** is submitted to the indicated reaction conditions.

- Give the structure of intermediate **B** and product **C**.
- Draw the relevant transition state [**B** → **C**] in a suitable 3D-perspective, and use it as base for your arguments to show that product **C** is indeed formed selectively as a single diastereomer.



When we “cut” the indicated blue bond in lactone **A**, we get ester **D**. We subject it to the same reactions conditions as earlier.

- Draw the relevant intermediates and transition states in a suitable 3D-perspective, and use them to argue which diastereomer **E** you would expect to be the dominantly formed reaction product.
- What would the outcome be if HMPA was omitted in the transformation of **D**?