**Exercice 1 : Proximity Effect**

1-A) Considering the deuterium labeling experiment (*vide infra*), please provide a plausible mechanism accounting for the formation of bicyclic alcohol A.

1-B) Upon treatment under identical conditions, *trans*-cyclooctene oxide is converted into a mixture of cycloheptanecarboxaldehyde 7 and exo-A. Provide a mechanism for the formation of 7.

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**Solutions :**

1-A)

\[
\begin{align*}
\text{trans-cyclooctene oxide} & \xrightarrow{\text{LDA excess, } \text{Et}_2\text{O, reflux, } 48\text{h}} \text{carbene-like intermediate} \\
\text{cis-cyclooctene oxide} & \xrightarrow{\text{R}_2\text{NLi}} \text{carbene-like intermediate}
\end{align*}
\]

Proposed transition state :

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**Exercice 2 & 3 : See publications.**

For questions regarding the mechanism of the Reformatsky reaction in Shenvi's total synthesis of Bilobalide, see: