At low temperatures, only those reactions with lower activation barriers will tend to predominate, even if the products that result are not the most thermodynamically favorable. When a large, bulky base is used in eliminations, the steric hindrance of that base can cause the formation of a less substituted alkene.

Wittig

\[ \text{C}_3 \text{H}_7 \text{Br} \rightarrow \text{PO}_3 \]

triphenylphosphine

\[ \text{PO}_3 \rightarrow \text{CH}_2 \text{PO}_3 \]

tetraalkyl phosphonium salt

\[ [\text{PO}_3\text{CH}_2]^{+} \leftrightarrow \text{PO}_3 = \text{CH}_2 \]

ylide

\[ \text{Zwitterion - "twin ion"} \]
\[
\begin{align*}
\text{oxaphosphetane} & \rightarrow \text{triphenylphosphine oxide} \\
\text{phenyl} & \quad \text{benzyl} & \quad \text{vinyl} & \quad \text{allyl} & \quad \text{asparagyl} \\
\text{usually acidic due to resonance stabilization} & \\
\end{align*}
\]

\[\text{NaH}_2\text{SO}_3 \text{ wash to reduce triphenylphosphine oxide (by-product)}\]