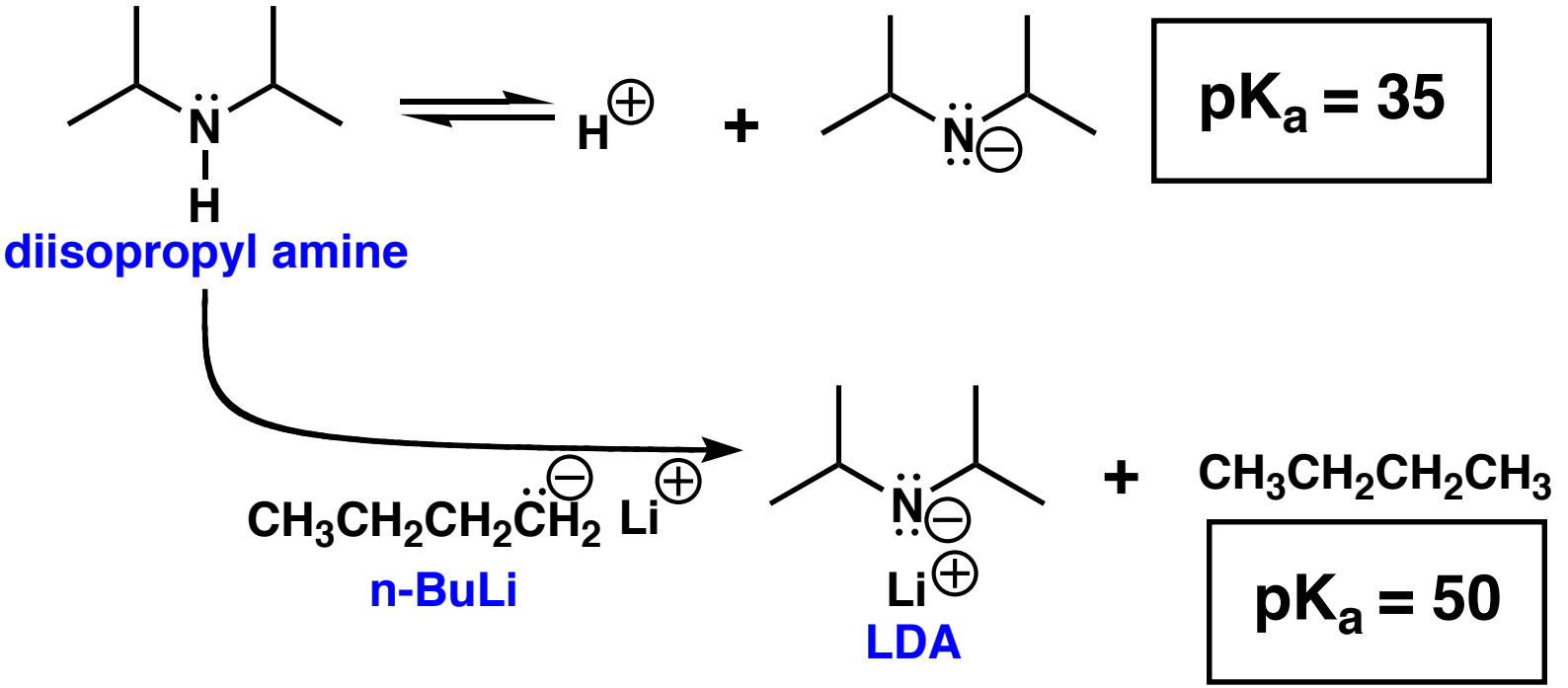
LDA is a Base Used to Form Enolate Anions

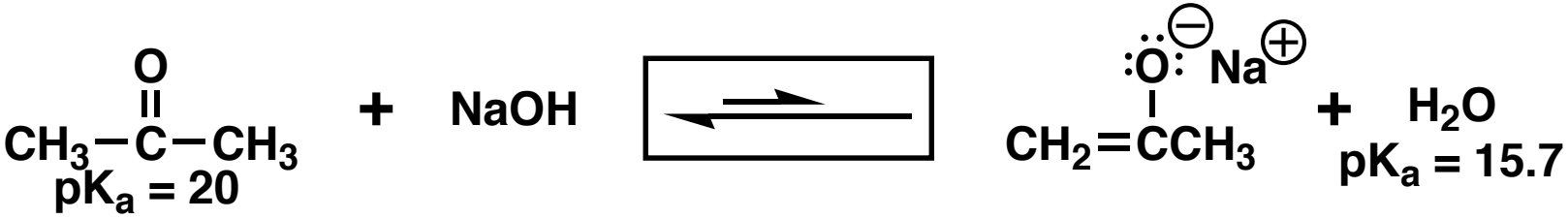
Strong organic bases such as **LDA** (**L**ithium **D**iisopropyl**A**mide) can be used to drive the ketone-enolate equilibrium completely to the enolate side. LDA is a strong base that is useful for this purpose. The steric bulk of its isopropyl groups makes LDA non-nucleophilic. Even so, it's a strong base. LDA is prepared by the deprotonation of diisopropyl amine using a very strong base such as n-butyl lithium as shown.



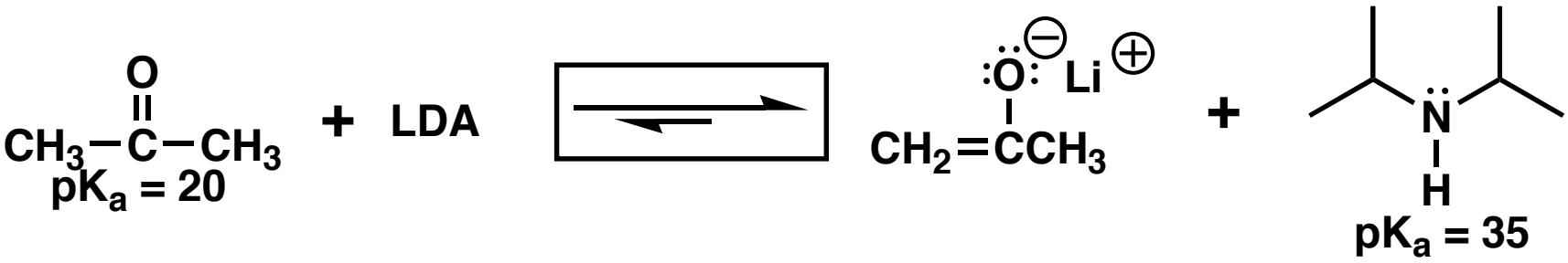
Enolate Equilibria are Acid-Base Reactions

To which side does the equilibrium lie?

$K_{eq} = 5 \times 10^{-5}$

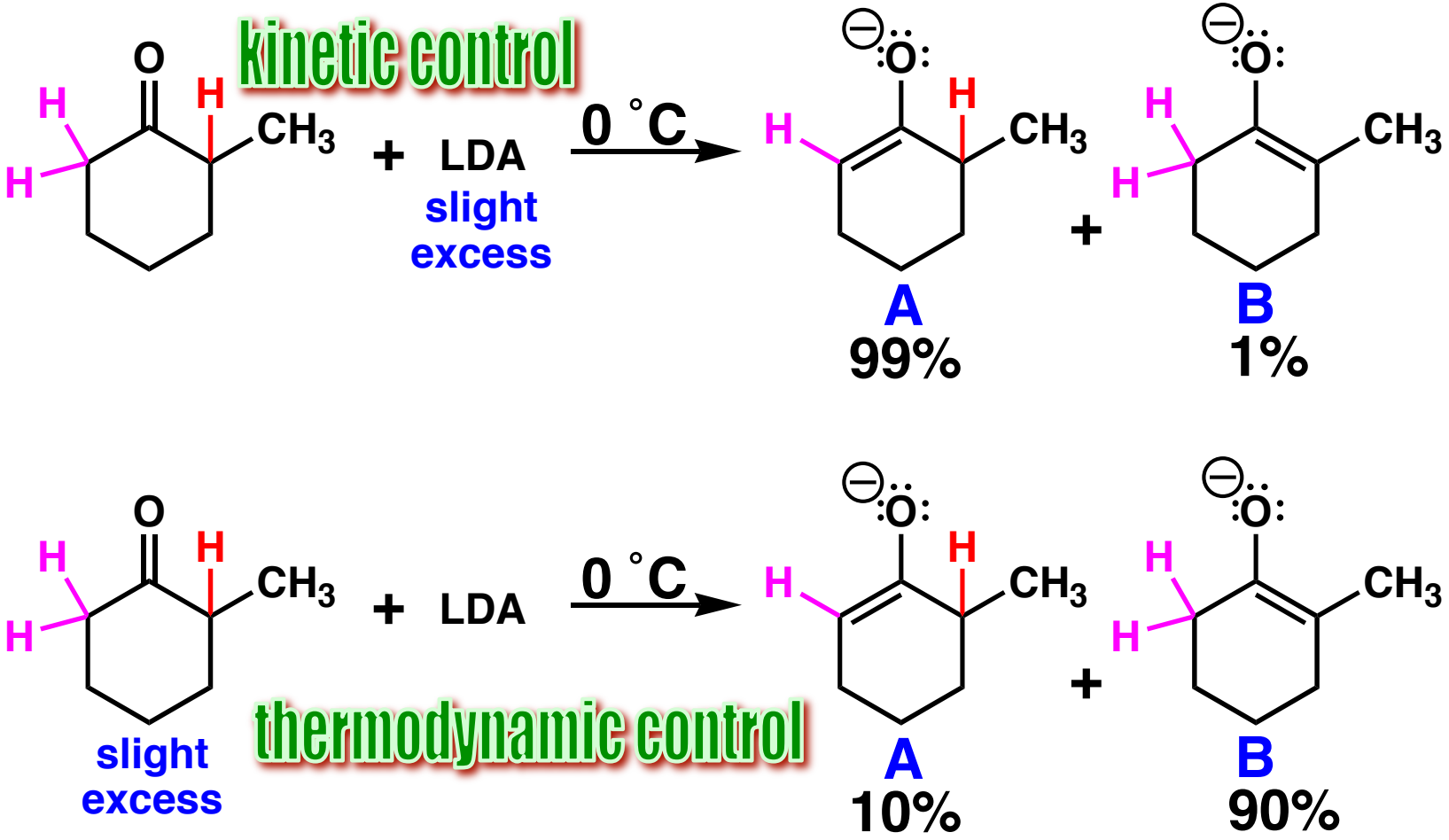


$K_{eq} = 1 \times 10^{15}$



Using a strong enough base, quantitative enolate formation is feasible.

Thermodynamic vs. Kinetic Control of Enolate Formation



The indicated difference in reaction conditions determines whether deprotonation is reversible or irreversible.

Which enolate is more stable? B

Which enolate is formed faster? A