Asymmetric Lithiation Trapping of \(N\)-Boc Heterocycles

**Significance:** The asymmetric lithiation trapping of various \(N\)-Boc heterocycles is disclosed, using \(s\)-BuLi and chiral diamines such as \((-\)\)-sparteine and \((+\)\)-sparteine surrogate at temperatures above \(-78^\circ\text{C}\). The corresponding chiral heterocycles are obtained in high yields and with good enantiomeric ratios.

**Comment:** The experiments can be conveniently performed, since asymmetric lithiation trappings of, for example, \(N\)-Boc pyrrolidine may be conducted at \(-30^\circ\text{C}\), still furnishing the chiral heterocycles with a high enantiomeric ration of about 9:1.

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**Selected examples:**

1. \(s\)-BuLi/(+)\)-sparteine surrogate (1.3 equiv)
   \(\text{Et}_2\text{O, up to } -20^\circ\text{C}\)
   \(E^+, \text{up to } 91\% \text{ yield, } \text{er up to } 95:5\)

\(E^+ = \text{PhCHO, MeO}_2\text{CCl, Ph}_2\text{CO, Me}_2\text{SO}_4, \text{PhNCO, allyl bromide, PhBr}\)

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