Rhodium-Catalyzed Asymmetric Dearomatization of Naphthols with Alkynes

**Significance:** Recent efforts have been extended towards the development of asymmetric C–H functionalization reactions. The authors report an asymmetric version of the previously known metal-catalyzed dearomatization of phenols.

**Comment:** Twenty-six dearomatized products were synthesized in moderate to high enantioselectivity by using a chiral ligand recently invented by Cramer. The use of unsymmetrical alkynes leads to regioisomeric alkene mixtures in greater than 7:1 selectivity. A primary deuterium kinetic isotope effect indicates that C–H bond cleavage is most likely the rate-determining step.

**Selected examples:**

- **81% yield 90% ee**
  - 90% regioselectivity

- **38% yield 78% ee**
  - 78% regioselectivity

- **85% yield 92% ee**
  - 92% regioselectivity

- **82% yield 80% ee**
  - 80% regioselectivity

- **72% yield 82% ee**
  - 82% regioselectivity

**Proposed mechanism:**

[Diagram showing the proposed mechanism of the reaction.]