Enantioselective C–H Rutheniation for the Preparation of Tetrahydrocarbazoles and Cyclohepta[b]indoles

Significance: Ackermann and co-workers report a cooperative ruthenium(II) and chiral Lewis acid catalysis protocol for the enantioselective C–H alkylation of indole derivatives, affording tetrahydrocarbazoles and cyclohepta[b]indoles in high yields and good enantioselectivities.

Comment: Mechanistic experiments and computations found that a fast C–H rutheniation formed intermediate A, which formed racemic intermediate B upon coordination and migratory insertion. Then the enantio-determining proto-demetalation took place, affording the desired product.