trans-Selective Hydroboration of Internal Alkynes Catalyzed by Ruthenium


Comment: Both control and deuterium-labelling experiments provide support for a true trans-selective hydroboration, rather than an isomerization process. The proposed mechanism involves an inner-sphere hydride delivery to furnish metallocyclopropene C, which can relieve steric congestion about the Cp* ring via isomerization to metallocyclopropene E. The reductive elimination places the boron atom anti to the hydrogen atom, providing access to the E-configured olefin. While the method is highly functional-group-tolerant, modest regioselectivity is observed with unsymmetrical alkynes.

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