Catalytic Semireduction of Alkynes to Alkenes

Significance: A novel copper-catalyzed semireduction of alkynes to alkenes has been disclosed. 0.5 to 2 mol% of a copper catalyst in combination with polymethylhydrosiloxane and isobutyl alcohol efficiently reduced terminal and internal alkynes, even in the presence of nitro and iodo groups.

Comment: The authors propose the following mechanism: the silane transfers its hydride to the copper catalyst and a subsequent hydrocupration of the alkyne takes place. Protonation of this alkenyl-copper intermediate by the alcohol forms a copper alkoxide and the desired product.

Selected examples:

- **93% yield**
- **98% yield**
- **96% yield**

- **87% yield**
- **81% yield**
- **94% yield**