Copper-Catalyzed Asymmetric Cross-Aldol Reactions

**Significance:** The authors report copper-catalyzed asymmetric iterative and domino cross-aldol reactions. A variety of 1,3-polyols were obtained in high yields and high diastereo- and enantioselectivities.

**Comment:** In this reaction, the use of amine additives permits asymmetric triple and quadruple aldol reactions to be performed in a one-pot process. The method should be useful for the straightforward synthesis of enantiomerically and diastereomerically enriched 1,3-polyols.

**Key words**
- aldol reaction
- polyols
- copper
- asymmetric catalysis
- domino reaction