Isaac Loh and Cesar E Silva* (csilva@williams.edu). On conditions implied by ergodic cartesian square for nonsingular ergodic actions.

We study conditions weaker than ergodic cartesian square for nonsingular transformations and actions such as weak double ergodic and ergodic with isometric coefficients. We give examples of rank-one transformations that are weak doubly ergodic and rigid (so all their cartesian products are conservative), but their 2-fold cartesian product is not ergodic. We also show that a weak doubly ergodic nonsingular group action is ergodic with isometric coefficients, and consider other examples. (Received September 20, 2016)