Abstract. By definition, a bialgebra H in a braided monoidal category $(\mathcal{C}, \tau)$ is an algebra and coalgebra whose multiplication and comultiplication (and unit and counit) are compatible; the compatibility condition involves the braiding τ.

The present paper is based upon the following simple observation: If H is a Hopf algebra, that is, if an antipode exists, then the compatibility condition of a bialgebra can be solved for the braiding. In particular, the braiding $\tau_{HH} : H \otimes H \to H \otimes H$ is uniquely determined by the algebra and coalgebra structure, if an antipode exists. (The notions of algebra and coalgebra (and antipode) need only the monoidal category structure of $\mathcal{C}$.)

We list several applications. Notably, our observation rules out that any nontrivial examples of commutative (or cocommutative) Hopf algebras in non-symmetric braided categories exist. This is a rigorous proof of a version of Majid's observation that commutativity is too restrictive a condition for Hopf algebras in braided categories.