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2. Algebra

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Hopf algebras with a weak projection

Let H be a Hopf algebra, and $H' \subset H$ a Hopf subalgebra. If the inclusion map of H' into H splits as a Hopf algebra map, a well-known result of Radford describes how H is decomposed as a tensor product of H' with another factor, which, in more recent language, is a Hopf algebra in the braided category of Yetter-Drinfeld modules over H'. We describe the structure of H in the case when only a splitting map for the inclusion with weaker properties is assumed to exist, and discuss some applications.