Hopf-Galois structures on Galois field extension of degree $p^3$ and their relationship to braces

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We briefly talk about Hopf-Galois structures on a Galois field extension and their relationship to braces, or more generally to skew braces in the nonabelian setting as studied recently by L. Guarnieri and L. Vendramin. Then we explain how one can, with the aid of some methods of N.P. Byott, enumerate the Hopf-Galois structures on Galois field extensions of degree $p^3$ for a prime number $p$; we explain how our findings can help to obtain results relating to classification of skew braces of order $p^3$, which in the abelian setting should match those obtained by D. Bachiller.