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The Weyl groupoid of a semisimple Yetter-Drinfeld module. Preliminary report.

This is a report on work in progress together with N. Andruskiewitsch and I. Heckenberger. We define the Weyl groupoid of a semisimple Yetter-Drinfeld module extending work of I. Heckenberger in the diagonal case, that is when the simple Yetter-Drinfeld summands are one-dimensional. The general case is needed to understand pointed Hopf algebras whose coradical is the group algebra of a non-abelian group. As an application we finish the classification of finite-dimensional pointed Hopf algebras with group S_3 , and of finite-dimensional Nichols algebras over S_4 . (Received August 06, 2007)