

A CENTRAL CLOSURE CONSTRUCTION FOR CERTAIN ALGEBRA EXTENSIONS

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Algebra extensions $A \subseteq B$ where A is a left B -module such that the B -action extends the multiplication in A are ubiquitous. We encounter examples of such extensions in the study of group actions, group gradings or more general Hopf actions as well as in the study of the bimodule structure of an algebra. In this talk we describe how to extend Robert Wisbauer's method of constructing the central closure of a semiprime algebra using its multiplication algebra to those kinds of algebra extensions. More precisely if A is a k -algebra and B some subalgebra of $\text{End}(A)$ that contains the multiplication algebra of A , then the self-injective hull \widehat{A} of A as B -module becomes a k -algebra provided A does not contain any nilpotent B -stable ideals. We show that under certain assumptions \widehat{A} can be identified with a subalgebra of the Martindale quotient ring of A . This construction is then applied to Hopf module algebras.