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Secondary Hochschild Cohomology.

For a $B$-algebra $A$, we study algebra deformations $A[[t]]$ that admit a $B$-algebra structure. The main idea is that a $B$-algebra structure on $A$ gives a family of products that satisfies a certain generalized associativity condition. We use a Hochschild-like cohomology to describe deformations of this family of products. When $A[[t]]$ has an identity element, we get a $B$-algebra structure on $A[[t]]$. (Received January 08, 2014)