

Ring Extensions Involving Amalgamated Duplications

Tim Long, George Mason University, Fairfax VA – 22030

Abstract

Let I be an ideal of a ring R . A concept that has recently gained much interest in commutative algebra is the ring construction $R \bowtie I$, known as the *amalgamated duplication* of a ring along an ideal (or simply a “*bowtie ring*”). Given rings $R \subseteq T$ with ideals $I \subseteq J$, respectively, we study the ring extension $R \bowtie I \subset T \bowtie J$, giving necessary and sufficient conditions for this extension to satisfy various algebraic properties (including integrality, going-down, and flat epimorphisms). We also discuss certain generalizations of the bowtie ring construction.

Keywords: ideal, bowtie ring, ring extension.