



Derived Algebraic Structures from Algebraic Hyperstructures

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Abstract

Given an algebraic hyperstructure (AHS) H . Let P be an algebraic property. In our talk we want to answer to Is there a smallest strongly regular relation ρ on H , such that the quotient H/ρ , the derived algebraic structure (AS) from H , satisfies in the property P ? In this regards we try to answer to this question in general. In this regards first we review briefly some attempts to this diirection and we answer the questions for two specila manners for derived Engle groups and (pseduo) regular rings.

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1 Introduction

The theory of hyperstructures has been introduced by Marty in 1934 during the 8th Congress of the Scandinavian Mathematicians [21]. Marty introduced hypergroups as a generalization of groups. He published some notes on hypergroups, using them in different contexts as algebraic functions, rational fractions, non commutative groups and then many researchers have been worked on this new field of modern algebra and developed it. It was later observed that the theory of hyperstructures has many applications in both pure and applied sciences; for example, semi-hypergroups are the simplest algebraic hyperstructures that possess the properties of closure and associativity. The theory of hyperstructures has been widely reviewed [21, 10, 11, 14, 33].

In [11] Corsini and Leoreanu-Fotea have collected numerous applications of algebraic hyperstructures, especially those from the last fifteen years to the following subjects: geometry, hypergraphs, binary relations, lattices, fuzzy sets and rough sets, automata, cryptography, codes, median algebras, relation algebras, artificial intelligence, and probabilities. A special equivalence relations which is called fundamental relations play important roles in the the theory of algebraic hyperstructures. The fundamental relations are one of the most important and interesting concepts in algebraic hyperstructures that ordinary algebraic structures are derived from algebraic hyperstructures by them. The fundamental relation β^* on hypergroups was defined by Koskas [19], mainly studied by Corsini [21], Freni [18], Vougiouklis [34](for more details about hyperrings and fundamental relations

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