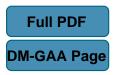
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Nd-SOLID VARIETIES

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To the memory of Professor Kazimierz Głazek

Abstract

A non-deterministic hypersubstitution maps any operation symbol of a tree language of type τ to a set of trees of the same type, i.e. to a tree language. Non-deterministic hypersubstitutions can be extended to mappings which map tree languages to tree languages preserving the arities. We define the application of a non-deterministic hypersubstitution to an algebra of type τ and obtain a class of derived algebras. Non-deterministic hypersubstitutions can also be applied to equations of type τ . Formally, we obtain two closure operators which turn out to form a conjugate pair of completely additive closure operators. This allows us to use the theory of conjugate pairs of additive closure operators for a characterization of *M*-solid non-deterministic varieties of algebras. As an application we consider *M*-solid non-deterministic varieties of semigroups.

Keywords: Non-deterministic hypersubstitution, conjugate pair of additive closure operators, *M*-solid non-deterministic variety.

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