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Genomorphisms of monounary algebras. (English) Zbl 1237.08003

Chajda, I. (ed.) et al., Proceedings of the 79th workshop on general algebra "79. Arbeitstagung Allgemeine Algebra", 25th conference of young algebraists, Palacký University Olomouc, Olomouc, Czech Republic, February 12–14, 2010. Klagenfurt: Verlag Johannes Heyn (ISBN 978-3-7084-0407-3/pbk). Contributions to General Algebra 19, 25-32 (2010).

Genomorphisms were first applied in theoretical computer science. The notion of genomorphism was introduced by *E. K. Blum* and *D. R. Estes* [Algebra Univers. 7, 143–161 (1977; Zbl 0386.08003)] as follows.

Let $\mathcal{A} = (A, F)$, $\mathcal{B} = (B, G)$ be algebras (not necessarily of the same type), $h : A \to B$. The mapping h is called a genomorphism of $\mathcal{A}$ into $\mathcal{B}$, if $\ker h \in \mathrm{Con}\mathcal{A}$ (h is congruential) and for each n-ary $f \in F$, $a_1, \ldots, a_n \in A$, the element $h(f(a_1, \ldots, a_n))$ belongs to a subalgebra of $\mathcal{B}$ generated by $\{h(a_1), \ldots, h(a_n)\}$ (h is generative). An isogenomorphism is a bijective genomorphism; it is said to be invertible if h^{-1} is an isogenomorphism of $\mathcal{B}$ onto $\mathcal{A}$. In the mentioned paper it was shown that each genomorphism is the composition of an isogenomorphism and a homomorphism, thus the present paper is devoted mostly to isogenomorphisms. The authors first characterize generative mappings and then invertible isogenomorphisms between monounary algebras. Further they provide some constructions which, applied to a monounary algebra, yield an isogenomorphic copy where the identity mapping is the corresponding isogenomorphism.

For the entire collection see [Zbl 1201.08001].

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MSC:

08A60 Unary algebras
08A35 Automorphisms and endomorphisms of algebraic structures

Keywords:

genomorphism; isogenomorphism; monounary algebra; induced quasiorder; component; cycle