

Bandelt, Hans - J.

Ein Axiomensystem für Baum-Algebren. (German) Zbl 0532.05058

Čas. Pěst. Mat. 108, 353-355 (1983).

The concept of a tree algebra is derived from the graph-theoretical concept of a tree. If T is a tree, let P be a ternary operation on the vertex set $V(T)$ of T defined so that $P(x,y,z)$ is the (uniquely determined) vertex of T contained simultaneously in a path from x to y , in a path from x to z and in a path from y to z . Then $V(T)$ together with P forms an algebra called a tree algebra; it can be described by certain axioms. Tree algebras can be considered more generally - as algebras fulfilling the mentioned axioms, but not necessarily corresponding to trees. In the paper the so-called discrete tree algebras are studied. A segment on such an algebra is defined by means of P and, conversely, P is defined by means of the segment. A system of three axioms in terms of segments is introduced and its equivalence with another axiom system (in terms of P) for tree algebras is proved.

Reviewer: [B.Zelinka](#)

MSC:

[05C99](#) Graph theory

[08A05](#) Structure theory of algebraic structures

[05C05](#) Trees

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[tree algebra](#); [segment](#); [axiom system](#)

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