Zashev, Jordan

B-combinatory algebras. (English) Zbl 0654.03034

Serdica 12, 225-237 (1986).

This work introduces a class of algebras generalizing both the applicative systems of the author's earlier paper [C. R. Acad. Bulg. Sci. 37, 561-564 (1984; Zbl 0544.03020)] and the operative spaces studied in the reviewer's book [Algebraic recursion theory (1986; Zbl 0613.03018)]. Namely, a B-combinatory algebra is a poset $\mathcal{F}$ augmented with fixed elements: A, C, D, O, I, $D\check{}$, J, E, E_0, E_1, T, F, and monotonic operations: multiplication $\lambda\phi\psi\cdot\phi\psi$ and branching $\lambda\ \phi\ \psi\ \cdot(\phi,\psi)$ such that the following axioms hold: $((A\phi)\psi)\chi = \phi(\psi\chi)$, $(C\phi)((D\psi)\chi) = (\phi\psi)\chi$, $0 \leq \phi$, $\phi 0 = 0$, $I\phi = \phi$, $(C\phi)(D\check{}\psi) = \phi\psi$, $(C\chi)(J(\phi,\psi)) = (\chi\phi,\chi\psi)$, $((E_0\chi)\phi,(E_1\chi)\psi)E = \chi(\phi,\psi)$, $(\phi,\psi)T = \phi$ and $(\phi,\psi)F = \psi$. The central result is an abstract version of the First Recursion Theorem.

Reviewer: L.Ivanov

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