

Strong Completeness of Łukasiewicz Axioms

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For a given cardinal number \mathfrak{a} , we construct a totally-ordered MV-algebra $M(\mathfrak{a})$ having the property that every totally-ordered MV-algebra of cardinality at most \mathfrak{a} embeds into $M(\mathfrak{a})$. In case $\mathfrak{a} = \aleph_0$, the algebra $M(\mathfrak{a})$ is the first known MV-algebra with respect to which the deductive system for the infinitely-valued Łukasiewicz's propositional logic is strongly complete.