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CYLINDRIC ALGEBRAS WITH A PROPERTY OF RASIOWA AND SIKORSKI

It was observed by Rasiowa and Sikorski in *A proof of the completeness theorem of Gödel*, **Fund. Math.** 37 (1950), pp. 193–200, that in any Lindenbaum algebra of formulas of finitary first-order logic, the following equality holds:

(1.1) $[(\exists\nu_\kappa)\phi(\nu_\kappa)] = \Sigma_{\lambda\neq\kappa}[\phi(\nu_\lambda)]$

where $\phi(\nu_\lambda)$ is the result of validly replacing ν_κ by ν_λ in $\phi(\nu_\kappa)$, and $\Sigma_{\lambda\neq\kappa}$ is the least upper bound of the $[\phi(\nu_\lambda)]$ for $\lambda \neq \kappa$. In the language of cylindric algebras, this equality may be written:

(1.2) $c_\kappa\chi = \Sigma_{\lambda\neq\kappa} s^\kappa_\lambda \chi$,

where κ is understood to remain fixed while λ varies.

In this paper we investigate the class of cylindric algebras which satisfies (1.2), and its relationship with order important class of cylindric algebras, and present several conditions which are equivalent to (1.2).

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