

Constructing Ultrapowers from Elementary Extensions of Full Clones

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Let A be an infinite set. Let $\Omega(A)$ be the algebra over A where every constant is a fundamental constant and every finitary function is a fundamental operation. We shall give a method of representing any algebra \mathcal{L} in the variety generated by $\Omega(A)$ as limit reduced powers and even direct limits of limit reduced powers of \mathcal{L} . If the algebra \mathcal{L} is elementarily equivalent to $\Omega(A)$, then this construction represents $\Omega(A)$ as a limit ultrapower and also as direct limits of limit ultrapowers of $\Omega(A)$. This method therefore gives a method of representing Boolean ultrapowers and other generalizations of the ultrapower construction as limit ultrapowers and direct limits of limit ultrapowers.

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