

Preservation theorems

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Can be shown that these class operators are idempotent:

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Corollary. A class \mathcal{K} of structures is axiomatizable by universal sentences iff \mathcal{K} is closed under ultraproducts and substructures iff $\mathbf{SP}_U(\mathcal{K}) = \mathcal{K}$.

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- ① (Left cancellation) $(\forall x)(\forall y)(\forall z)((xy = xz) \rightarrow (y = z))$.
- ② (Absence of n -torsion) $(\forall x)(nx = 0 \rightarrow x = 0)$.
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