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THE NONSTANDARD HULL OF A NORMED SPACE IN A BOOLEAN-VALUED UNIVERSE

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In this article, we extend some results of infinitesimal analysis on normed spaces and the field of reals to the functional representation of a Boolean-valued universe. In particular, we prove equivalence of the following three conditions for an arbitrary polyverse over Q: a point $q \in Q$ is not σ-isolated; the stalk of the polyverse at q is countably saturated; and the nonstandard hull of every normed space in the stalk of the polyverse at q is complete.

Key words and phrases: Boolean-valued analysis, infinitesimal analysis, nonstandard analysis, polyverse, nonstandard hull.

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