

A Note on the Closedness of the Convex Hull and Its Applications

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Abstract: This paper answers the following question motivated by the problem of spannability of functions. When is the convex hull of an unbounded (closed) set closed? We provide necessary and sufficient conditions for the closedness of the convex hull. Then we apply these results to the problem of spannability of functions playing an important role in mathematical economics and variational calculus. Resulting characterizations of spannability of functions imply previously known sufficiency conditions for spannability.

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