Generalized monotonicity in terms of differential inequalities

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The classical notions of monotonicity and convexity can be characterized via the nonnegativity of the first and the second derivative, respectively. These notions can be extended applying Chebyshev systems. The aim of this note is to characterize generalized monotonicity in terms of differential inequalities, yielding analogous results to the classical derivative tests. Applications in the fields of convexity and differential inequalities are also discussed.