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Bound on Extended f-divergences for a Variety of Classes

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Abstract: The concept of f-divergences was introduced by Csiszár in 1963 as measures of the 'hardness' of a testing problem depending on a convex real valued function f on the interval $[0, \infty)$. The choice of this parameter f can be adjusted so as to match the needs for specific applications. The definition and some of the most basic properties of f-divergences are given and the class of χ^α-divergences is presented. Ostrowski's inequality and a Trapezoid inequality are utilized in order to prove bounds for an extension of the set of f-divergences. The class of χ^α-divergences and four further classes of f-divergences are used in order to investigate limitations and strengths of the inequalities derived.

Keywords: f-divergences; bounds; Ostrowki's inequality;

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