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Title: Minkowski-type inequalities for means generated by two functions and a measure

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Given two continuous functions $f, g : I \to R$ such that g is positive and f/g is strictly monotone, and a probability measure μ on the Borel subsets of $[0,1]$, the two variable mean $M_{f,g;\mu} : I^2 \to I$ is defined by

$$M_{f,g;\mu}(x,y) := \left(\frac{f}{g}\right)^{-1} \left(\frac{\int \int_0^1 f\big(tx+(1-t)y\big)d\mu(t)}{\int \int_0^1 g\big(tx+(1-t)y\big)d\mu(t)}\right) \quad (x, y \in I).$$

The aim of this paper is to study Minkowski-type inequalities for these means, i.e., to find conditions for the generating functions $f_0, g_0 : I_0 \to R$, $f_1, g_1 : I_1 \to R$, ..., $f_n, g_n : I_n \to R$, and for the measure μ such that

$$M_{f_0,g_0;\mu}(x_1+\cdots+x_n, y_1+\cdots+y_n) \underset{[\geq]}{\leq} M_{f_1,g_1;\mu}(x_1,y_1)+\cdots+M_{f_n,g_n;\mu}(x_n,y_n)$$

holds for all $x_1, y_1 \in I_1$, ..., $x_n, y_n \in I_n$ with $x_1+\cdots+x_n, y_1+\cdots+y_n \in I_0$. The particular case when the generating functions are power functions, i.e., when the means are generalized Gini means is also investigated.

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