

Characterizations of inequality orderings by means of dispersive orderings

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ABSTRACT

The generalized Lorenz order and the absolute Lorenz order are used to compare two non-negative random variables in terms of inequality. In this note, we show that these orders are equivalent to two stochastic orders used to compare probability distributions in terms of dispersion: the concave order and the dilation order, respectively. These results are obtained as an easy consequence of the theory of submajorization as applied to decreasing rearrangements of functions.

Keywords: *Generalized Lorenz order, Absolute Lorenz order, Concave order, Dilation order*

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