



Some characterization and ordering results based on entropies of current records

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Abstract

The aim of this paper is to investigate the entropy properties of current records. Several characterizations are obtained based on the entropy of these statistics. It is proved that the equality of the entropy of the endpoints of record coverage is a characteristic property of symmetric distribution. It is shown that the parent distribution can be identified uniquely by the entropy properties of the endpoints of record coverage. Considering the records coming from distribution with decreasing (increasing) density, the monotonicity of entropy of current records is discussed. We also prove that the dispersive ordering of the parent distributions implies the entropy ordering of their respective current records.

Keywords: Record coverage; Record range; Stochastic orders; Symmetric distribution.

MSC: 62G30; (62B10, 62E10, 60E15).

1 Introduction

Let $\{X_i, i \geq 1\}$ be a sequence of independent and identically distributed (iid) random variables each distributed according to absolutely continuous cumulative distribution function (cdf) $F(t)$ and probability density function (pdf) $f(t)$. An observation X_j will be

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