

ASYMPTOTIC NORMALITY OF ENTROPY
ESTIMATORS

Xing Zhang

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Abstract

Shannon's entropy plays a central role in many fields of mathematics. In the first chapter, we present a sufficient condition for the asymptotic normality of the plug-in estimator of Shannon's entropy defined on a countable alphabet. The sufficient condition covers a range of cases with countably infinite alphabets, for which no normality results were previously known.

In the second chapter of this dissertation, we establish the asymptotic normality of a recently introduced non-parametric entropy estimator under another sufficient condition. The proposed estimator, developed in Turing's perspective, is known for its improved estimation accuracy.