

STATISTICALLY DUAL DISTRIBUTIONS AND CONJUGATE FAMILIES

Sergey I. Bityukov¹, Nikolai V. Krasnikov²

(1) Institute for high energy physics, 142281 Protvino, Russia

(2) Institute for nuclear research RAS, Moscow, Russia

(e-mail: Serguei.Bitoukov@cern.ch, <http://home.cern.ch/bityukov>)

Abstract

In ref.[1] the notion of statistically dual distributions is introduced. The reconstruction of confidence density [2] for the location parameter for several pairs of statistically dual distributions (Poisson and Gamma, normal and normal, Cauchy and Cauchy, Laplace and Laplace) in the case of single observation of the random variable is unique. It is the evidence that considered distributions belong to conjugate families. Also, in paper the clear frequentist sense of the confidence density is shown.

References:

[1] S.I. Bityukov et al. e-Print: [math.ST/0411462](http://arxiv.org/abs/math.ST/0411462);

S.I. Bityukov et al. <http://home.cern.ch/bityukov/stdual.pdf>

[2] For example, B. Efron, R.A. Fisher in the 21st Century. *Stat.Sci.* **13** (1998) 95-122.

Key Words: Uncertainty, Measurement, Estimation