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On the notion "significance of the difference"

The concept of "the significance of the difference" is widely used in data analysis in high-energy physics. We consider the significance Type C [1]. This significance is used in works [2,3,4]. It is shown that when comparing two independent samples obtained from one general population, the distribution of estimates of the "significance of the difference" for mean values, obtained for these samples, is close to the standard normal distribution.

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[2] Aubert B., et al (BABAR Collaboration), Search for CP Violation in Neutral D Meson Cabibbo-suppressed Three-body Decays, Phys.Rev. D78 (2008) 051102.

[3] Bediaga I., Bigi I.I., Gomes A., Guerrer G., Miranda J., dos Reis A.C., On a CP Anisotropy Measurement in the Dalitz Plot, Phys.Rev. D80 (2009) 096006.

[4] Bitjukov S., Krasnikov N., Nikitenko A., Smirnova V., On the distinguishability of histograms, Eur.Phys. J. Plus (2013) 128:143.

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