

Can the box plot be improved?

Chamnein Choonpradub and Don McNeil
Songklanakarin J. Sci. Technol., 2005, 27(3): 649-657

<http://www.aseanbiotechnology.info/Abstract/23005689.pdf>

Abstract

Invented by Spear in 1952 and popularized by Tukey in 1977, the box plot is widely used for displaying and comparing samples of continuous observations. Despite its popularity, it is less effective for showing shape behaviour of distributions, particularly bimodality.

Using robust estimators of data skewness and kurtosis to classify the distribution into categories, we suggest a simple enhancement for indicating bimodality, central peakedness, and skewness. We also suggest a new graphical method for displaying confidence intervals when comparing several samples of continuous data.

Key words : box plot, bimodality, peakedness, skewness, kurtosis, graphing confidence intervals, multiple comparisons