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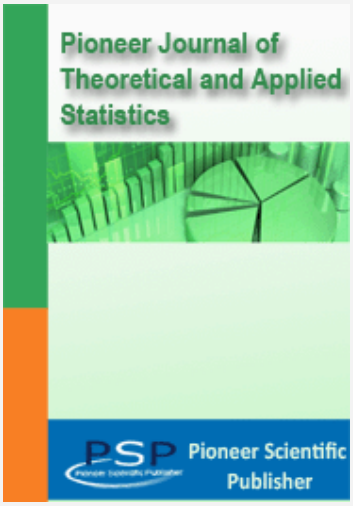

A STATISTICAL ANALYSIS OF THE ROTATED SIGNS OF THE PHAISTOS DISC

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Abstract

The Phaistos Disc is an artifact from Phaistos, Crete (Greece), over 3000 years old. It is a circular disc with on each side a spiral with pictorial signs, mainly of humans, animals and plants. Although discovered over a century ago, its nature is still unclear.

Several signs of the Phaistos Disc are rotated; the various occurrences of such a sign do not have the same orientation. For instance one occurrence of a sign might be upside down compared with other occurrences of the same sign.

In this paper, in particular rotated signs are considered where the rotation seems not to be motivated by lack of space. The two most important rotated signs are the cat and the flying bird. The hypothesis is put forward that these rotations are made on purpose, rather than by mistake.

Firm statistical support for this hypothesis is given, based on the concentration among only two or three signs. This result was obtained with the Monte Carlo method, using millions of random replications. A comparison is made with an approximate analytical approach.

The rotations did not yet receive attention as a significant aspect of the Disc. Hence this result might shed some new light on the nature of this ancient object and stimulate further research by archaeologists.

Keywords and phrases: applied statistics, Monte Carlo, occupancy problem, archaeology.