# Compositional properties of Sudoku tables

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**Abstract**

Compositional tables represent a natural extension of the vector compositional data (Aitchison, 1986) in two dimensions and carry information about the relative structure of the data distributed according to two factors (Egozcue, 2008). Similarly to the case of (vector) compositional data, it is not eligible to analyze directly the raw compositional tables and prior to analyzing them statistically, an appropriate coordinate representation is needed. In Fačevicová (2016, 2017) a system of orthonormal logratio coordinates is proposed, respecting the two-dimensional nature of compositional tables and also possibility of their decomposition into the independent and interactive parts (Egozcue, 2008).

A solved Sudoku table, a special case of a Latin square, can be considered as a popular example of compositional tables. Moreover, Sudoku tables are typical by their constant row and column marginals and thus they also represent an example of purely interaction table. The main aim of the contribution is to study properties of the Sudoku tables from the compositional perspective. Specifically, the aim is to find an appropriate coordinate representation and, consequently, to analyze the relationship between different configurations of the Sudoku table.

## References

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