Abstract:

Ordinarily when studying compositions the number of parts is constant and often predetermined by the researcher. However, when studying compositional time series the number of parts can vary during the course of time. This can e.g. occur when studying the composition of party shares in the electorate. Parties are founded, break away, merge, and disbanded. In time series it is usually of interest to quantify the distance or correlation between the compositions at different time points. So, if the number of parts changes, this must be handled somehow by the researcher.

We present the issue and the problem it causes and discuss various approaches to handle it, e.g. by looking at a subcomposition of parts for which data are available for all time points, using suitable distance measures etc. We discuss when treating a missing part as zero and utilising zero replacement is reasonable and not. The different problems and possible solutions are illustrated using Danish election data from the last eight elections and 50 years of monthly polling data from Sweden.