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Analyzing categorical time series in the presence of missing observations

Wednesday, 15 September 2021 14:00 (20 minutes)

In real applications, time series often exhibit missing observations such that standard analytical tools cannot be applied. While there are approaches of how to handle missing data in quantitative time series, the case of categorical time series seems not to have been treated so far. Both for the case of ordinal and nominal time series, solutions are developed that allow to analyze their marginal and serial properties in the presence of missing observations. This is achieved by adapting the concept of amplitude modulation, which allows to obtain closed-form asymptotic expressions for the derived statistics' distribution (assuming that missingness happens independently of the actual process). The proposed methods are investigated with simulations, and they are applied in a project on migraine patients, where the monitored qualitative time series on features such as pain peak severity or perceived stress are often incomplete.

The talk relies on the open-access publication

Weiß (2021) Analyzing categorical time series in the presence of missing observations.
Statistics in Medicine, in press.
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Keywords

incomplete data; nominal time series; ordinal time series

Special/invited session

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