Assignment 3 - Network Analysis 2022

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Contents

Conceptual Questions

Question 1

Are the following statements true or false? Explain why (0.5 point per statement).

1. If ergodicity holds, results from between-person analysis are expected to equal results from within-person analysis.
2. It is generally recommended to always remove trends (such as linear trends) prior to analyzing your N = 1 time series.

Question 2 (1.5 points)

Suppose a therapist measures a patient about 75 times on a set of depression symptoms, including a question on "suicidal thought". Suppose that you estimate a graphical VAR model from this data and find that the node "suicidal thought" is not connected to any of the other nodes in your network, neither in the temporal nor in the contemporaneous network.

List three potential reasons why the node "suicidal thought" may be disconnected in the resulting network.

Question 3 (1 point)

Give an example of a relationship that can only be studied at the *between-person* level.

Question 4 (2 points)

During the lecture we discussed multiple challenges regarding time-series modeling in the network approach. Pick your favorite challenge (this does not have to be a challenge we discussed during the lecture, feel free to pick any other challenge you might think of) and explain this challenge in your own words. Make sure to not only explain what the challenge is, but also why this is a challenge: in what way may this challenge impact your results (i.e., the network model you estimate) and how may this jeopardize your conclusions? You can use additional literature to back up your argument, but this is not required. If you choose to use additional literature, make sure to include a reference list (max 250 words).

Question 5 (2 points)

In a recent study by Haslbeck et al., (preprint) it was shown that use of a VAS or Likert scale has an affect on the observed distributions. Take a look at their article. Give (a) a short summary of the problem described in their paper, (b) reflect on this problem (e.g., why is this an issue and how does it affect the interpretation of our results?) and (c) think of a study to specifically test whether this phenomenon (different scales lead to different distributions) is a methodological artifact or a "true" phenomenon (max 250 words).