Group 6: Ising Model

A Network Perspective on TquanT 2019

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What we did

- Creating a Survey based on the seminar
- Using questions from the survey to construct expectations of network associations
- Create an Ising model based on the data gathered
- Shiny app allowing visualisation and regularisation of the network

Survey Questions asked

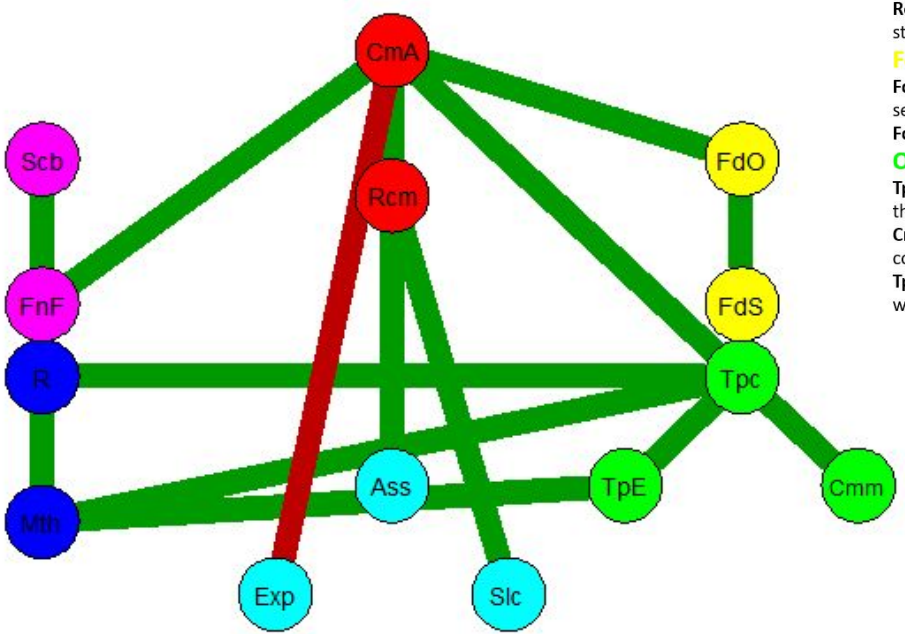
1. Are you a sociable person? (Food)
2. Were you happy with the food options at the seminar? (Food)
3. Are you comfortable using R? (Skills)
4. Were you happy with the selection of topics at the seminar? (Organisation)
5. Did you find people on the seminar that you get along with? (Social)
6. Do you like salty pastries? (Food)
7. Do you feel that you have a sufficient mathematical background for this seminar? (Skills)
8. Was the information about the seminar well communicated? (Organisation)
9. Would you come again to a TquanT seminar? (Evaluation)
10. Did you find the topics covered at the seminar were explained well? (Organisation)
11. Do you get assessed on the seminar? (Other)
12. Would you recommend this seminar to fellow students? (Evaluation)
13. Did you have to be selected to go to this seminar? (Other)
14. Did you find coming here expensive? (Other)

Network

- Thick edges imply stronger associations
- Colors show the type of association (+ or -)
- Colors of the nodes are suggesting the proposed grouping of items

The shiny app can be accessed online at psyguy.shinyapps.io/tquant2019-ising
The reproducible code can be found at bit.do/tqtising

Expectations



Evaluation

CmA: Would you come again to a TquanT seminar?
Rcm: Would you recommend this seminar to fellow students?

Food

FdO: Were you happy with the food options at the seminar?
FdS: Do you like salty pastries?

Organisation

Tpc: Were you happy with the selection of topics at the seminar?
Cmm: Was the information about the seminar well communicated?
TpE: Did you find the topics covered at the seminar were explained well?

Other

Ass: Do you get assessed on the seminar?
Slc: Did you have to be selected to go to this seminar?
Exp: Did you find coming here expensive?

Skills

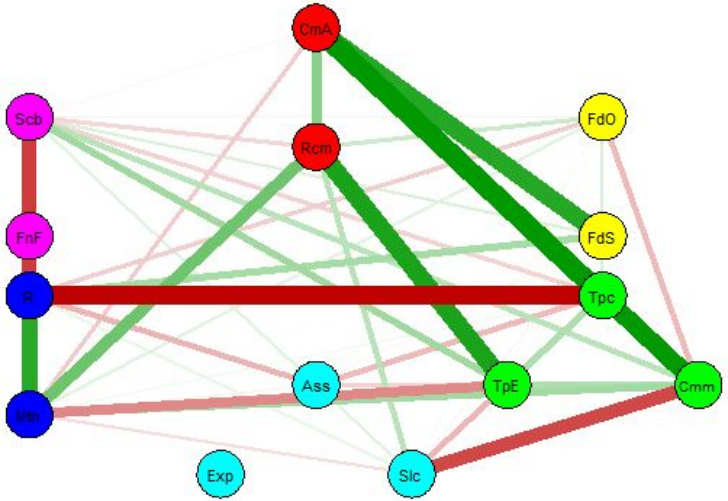
R: Are you comfortable using R?
Mth: Do you feel that you have a sufficient mathematical background for this seminar?

Social

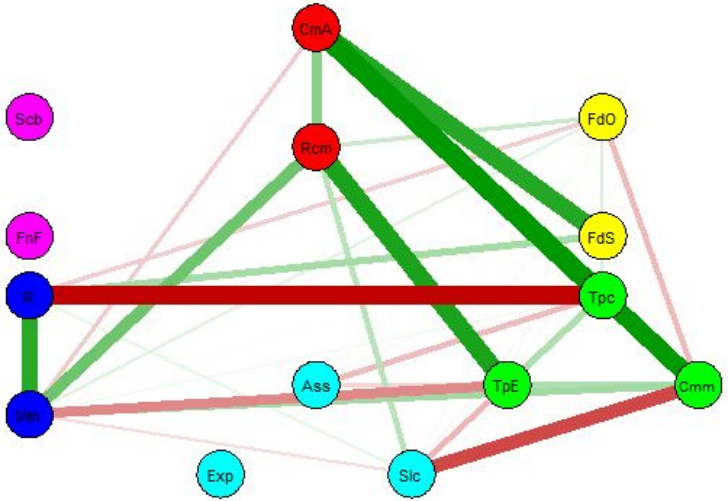
Scb: Are you a sociable person?
FnF: Did you find people on the seminar that you get along with?

Results

Unregularised



Regularised



Some Conclusions

- Differences between the expectations and the results
  - For example: We expected a positive relationship between sociable people and finding friends, however we found a negative relationship.
- Some interesting relationships
  - Positive relationship between people who liked salty pastries and wanting to come back again
  - Negative relationship between being comfortable with R and being happy with the selection of topics at the seminar
- Difference between unregularised and regularised networks
  - Regularised only shows strongest edges, resulting in a sparser network. By adjusting the gamma in the shiny app you can make this decision more strict.
- BUT! We cannot see directionality from the model
- Possibile to cover many relationships present in the network

Thank you for listening!

Questions?