eScience in the social sciences and humanities

Dafne van Kuppevelt
Three projects

• Case Law analytics (Pathfinder project)
  Gijs van Dijck

• Corporate networks (Young eScientist)
  Frank Takes

• Bridging the Gap (ADAH project with CLARIAH)
  Christian Lange
Case Law Analytics
Example research questions

• How is case law being used by judges?
• What cases are important for a certain domain of case law?
• Which cases are ground-breaking for a new sub-area of law?
eScience solution

- Network visualization
- Network analysis (indegree, authorities/hubs, betweenness centrality)
- Automated data collection
Visualization
Impact in the domain

- Analysis of large data set by non-technical scholars
  - Explore area of law (clusters, sub-areas)
  - What cases are important in the network?
  - Compare: behavior of judges vs. analyses in literature

- Inspiration for new research questions
  - Follow-up grant proposals are being written

- Sell the story of empirical research!
  - Students & legal scholars
Corporate board-interlock networks
Community detection

Image from:
Heemskerk et al. (2016) Where is the global corporate elite? A large-scale network study of local and nonlocal interlocking directorates.
Research questions

• Does the structure of the elite-network change over time?
• Can we explain the (changing) structure of the network, e.g. with geo-political factors?
eScience components

• Application of Computer Science algorithms as methodology in domain
• Extend existing software packages with state-of-the-art algorithms
• Make data and workflows ‘FAIR’
Bridging the Gap: Arabic digital humanities
Research questions

• Long-duree analysis of Arabic texts from 12 centuries
  – How does thought about free reasoning differ per region or school, and evolve over time?
  – Which of the 5 senses are important for Arabic scholars over time?
eScience solution

- Adapt available technology to Arabic corpus
  - Left-to-right
  - Morphologically complex language
    (word = root + prefix, suffix, infix)
  - Arabic not integrated in standard text mining tools
- **Morphological analysis:** SAFAR  
  (Mohamed V University Agdal)

- **Search engine:** BlackLab  
  (Instituut voor de Nederlandse Taal)

- **Text processing pipeline:** nlppIn  
  (Netherlands eScience Center)