The Interactive Isnalyser

Automation of isnād trees drawing

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January 26, 2021

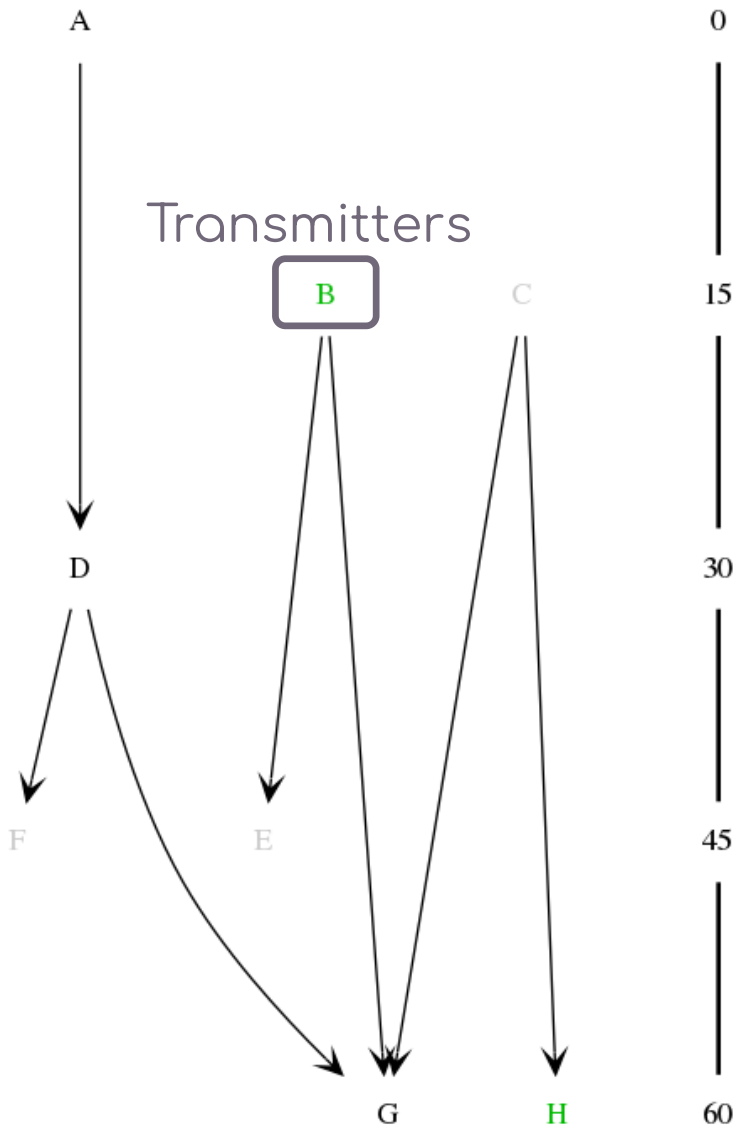
Setting

Transmission of Oral Tradition

- Scholars model Ḥadīth transmissions with isnād trees
- Drawing by hand can be tedious
- Automatization approaches
  - Automation of data processing
  - Automation of visualization (ours)
- Our focus:
  - Reproducability
  - Open source spirit -> improvability
  - Colaborative platform
- Two steps
  - Software library (Python)
  - Web application (Javascript)

Isnalyser

The beginnings



Isnalyser

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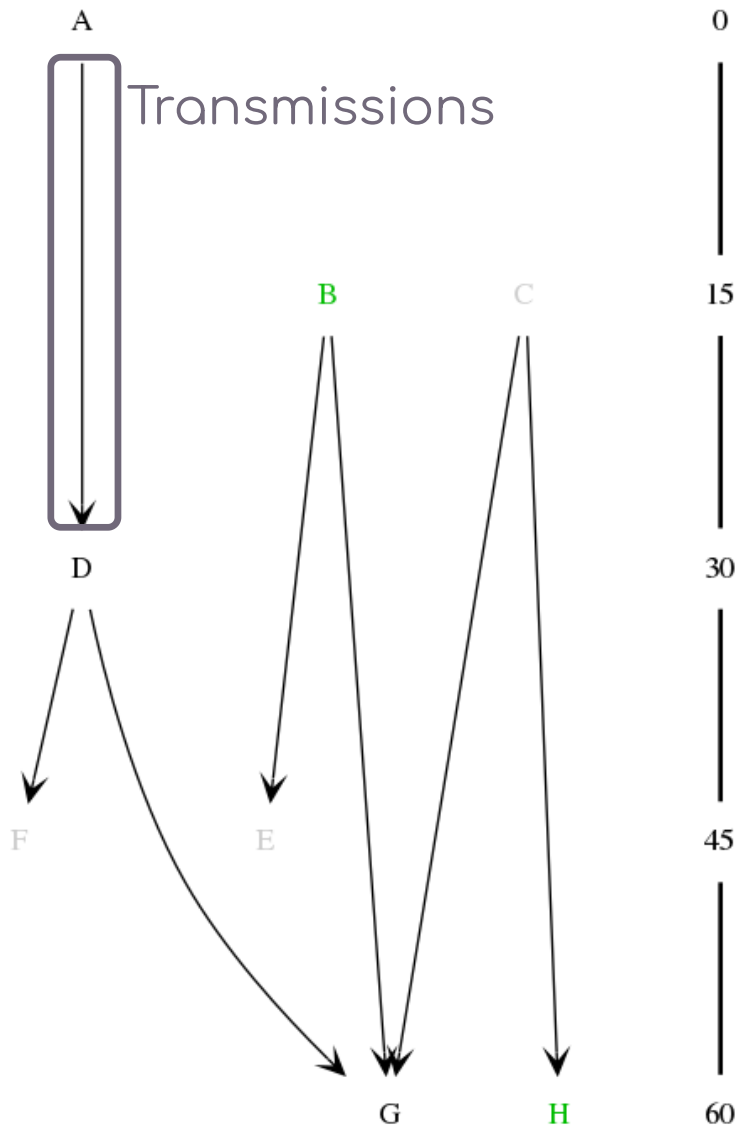

Isnalyser

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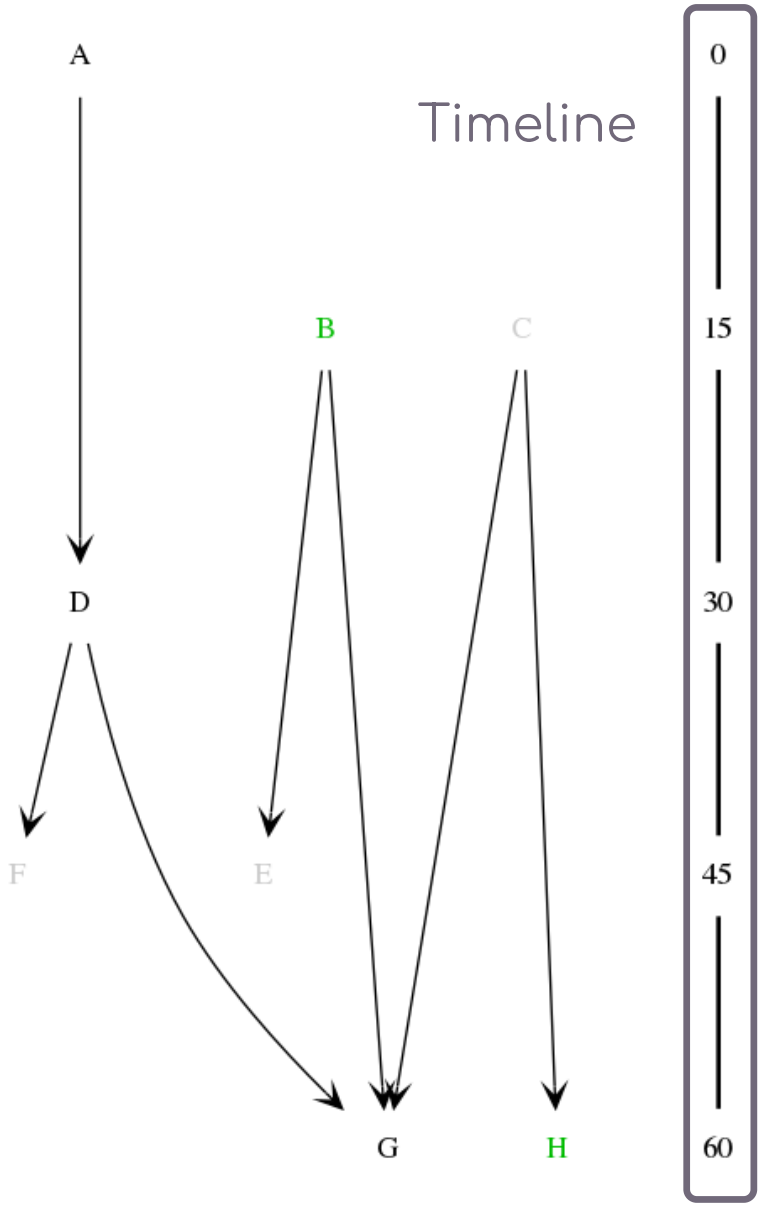


Isnalyser

The beginnings

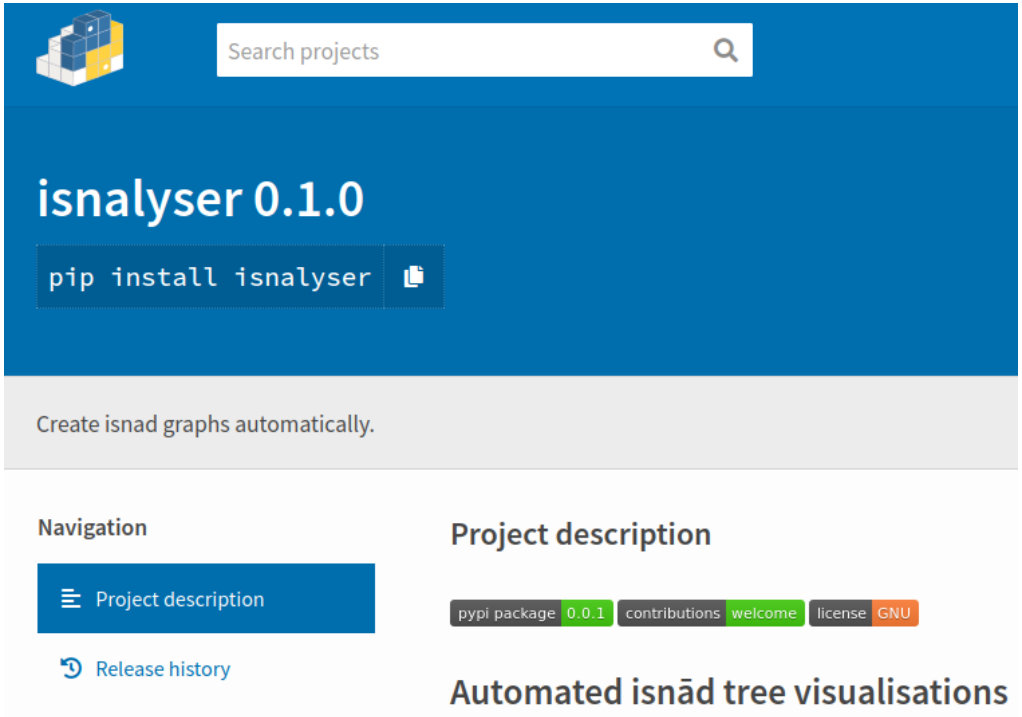
- Exploring different tools/languages
- Python as language of choice
  - Powerful and flexible
  - Great community and ecosystem
  - Graphviz as library for drawing graphs
- Graphviz
  - Open source tool
  - Draws graphs specified in DOT language
  - Available as Python library

- Next step: create Open source Python library from code
  - Move everything to Github
  - PyPI as platform for Python libraries
  - Adjust folder/file structure according to PyPI standards
  - Register on Test PyPI and PyPI

  - Upload on Test PyPI
    - See if it works
    - See that is does not work
    - Repeat 3-4 times until it works
  - Upload to real PyPI and feel good!

Isnalyser

Publishing the library

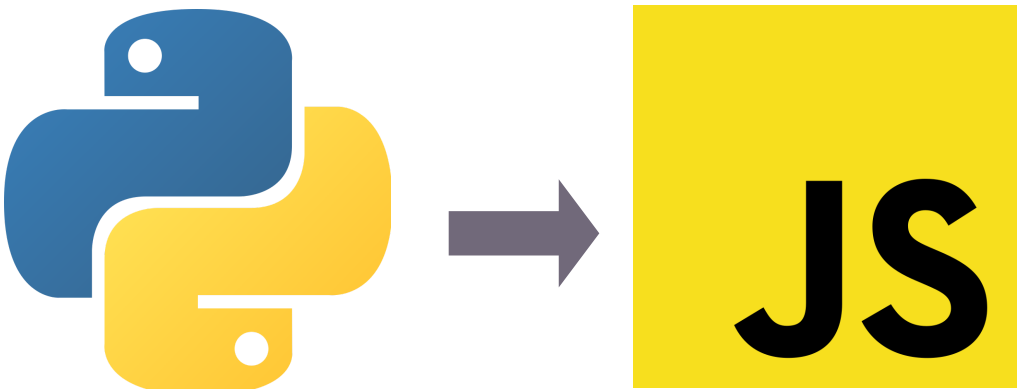


- If you are interested: Just `pip install isnalyser`
- Documentation on Github

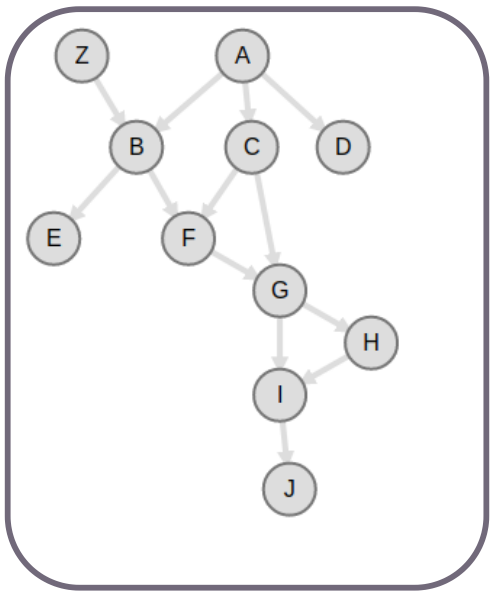
Isnalyserjs

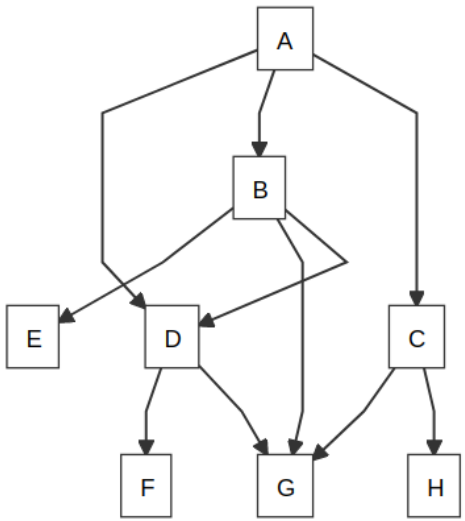
Making the isnalyser more accessible

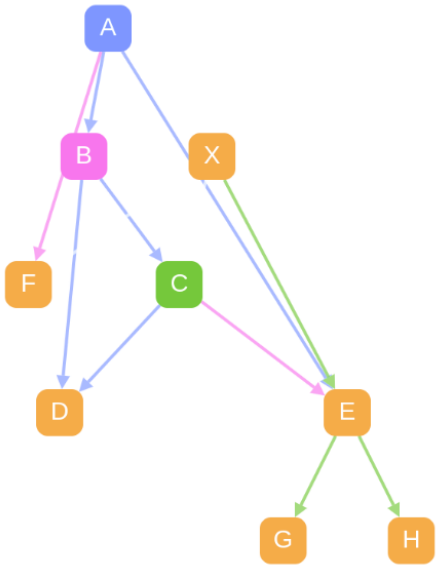
- Python is great but requires coding knowledge
- Limited audience/reproducability?
- Idea: create a web application
- Users can upload table and explore their data
- Natural choice: Javascript



- But which extensions?
- Long phase of exploration
  - D3, Dagre, Cytoscape, ...







- But which extensions? Not just the same
- Long phase of exploration
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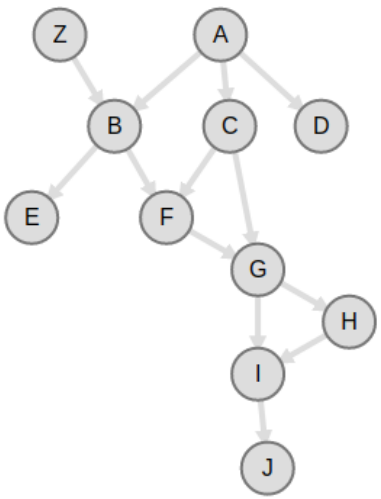

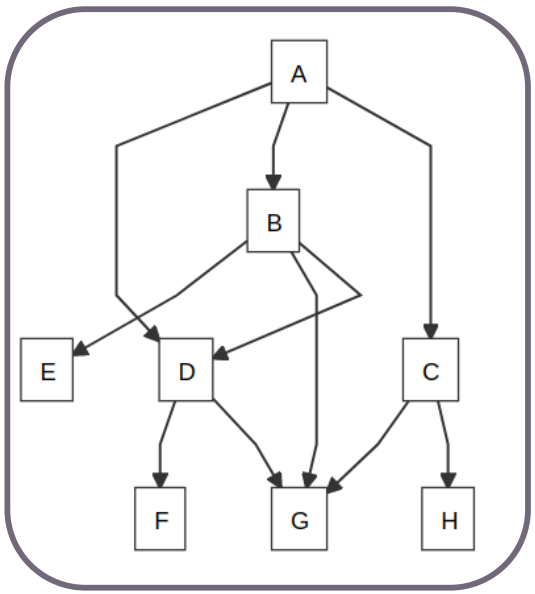

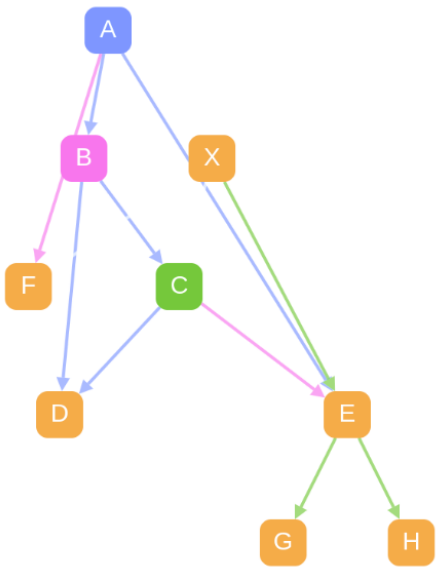

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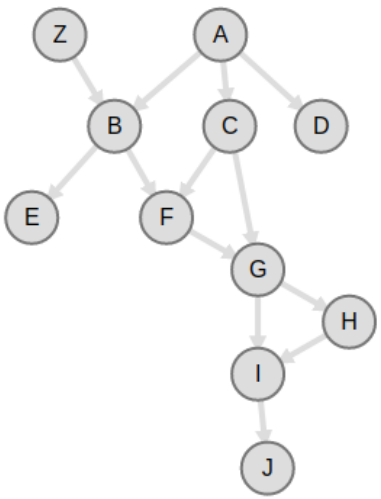
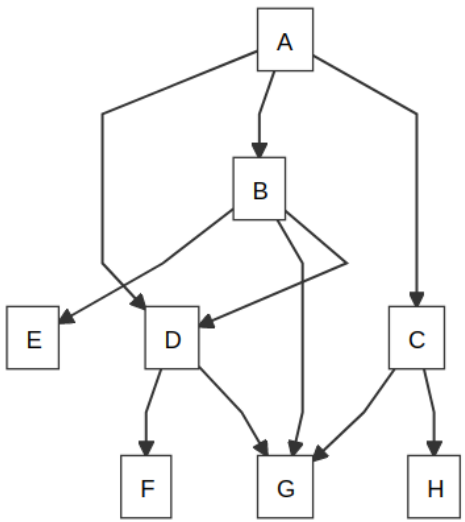
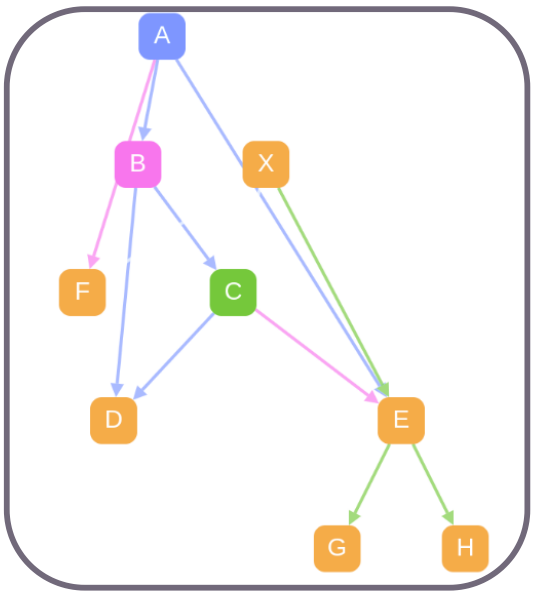
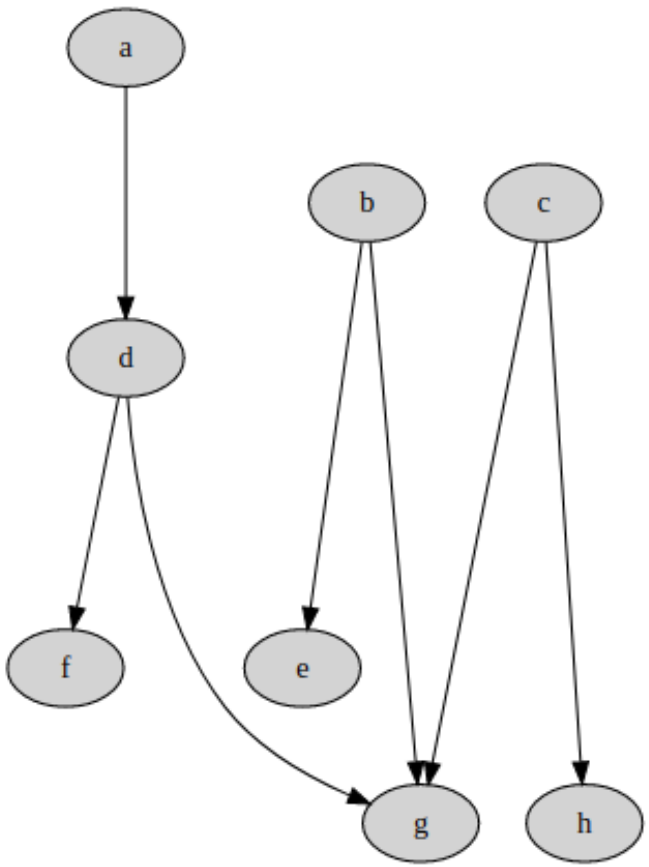


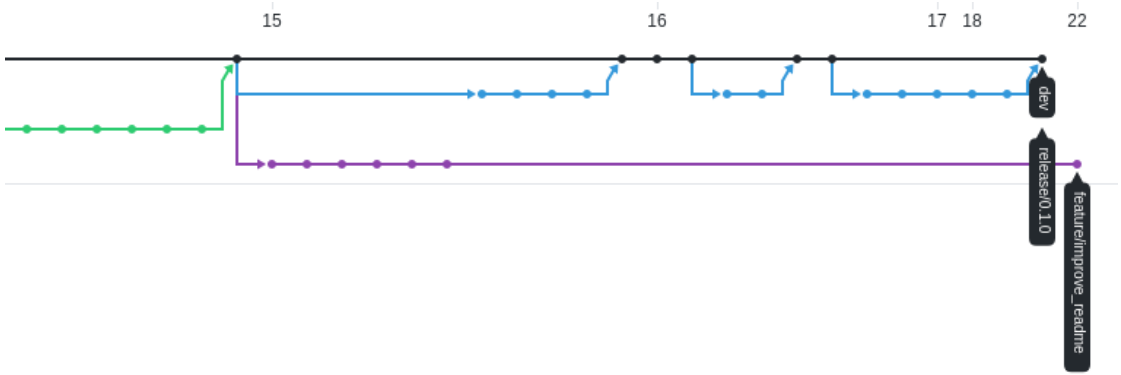




- Graphviz has good layout and constraint capabilities
- Solution: d3-graphviz
  - Direct translations of Graphviz to Javascript with d3-capabilities
  - Combine graphviz layout and d3 visualization/interaction
  - Interactive graph with nice layout

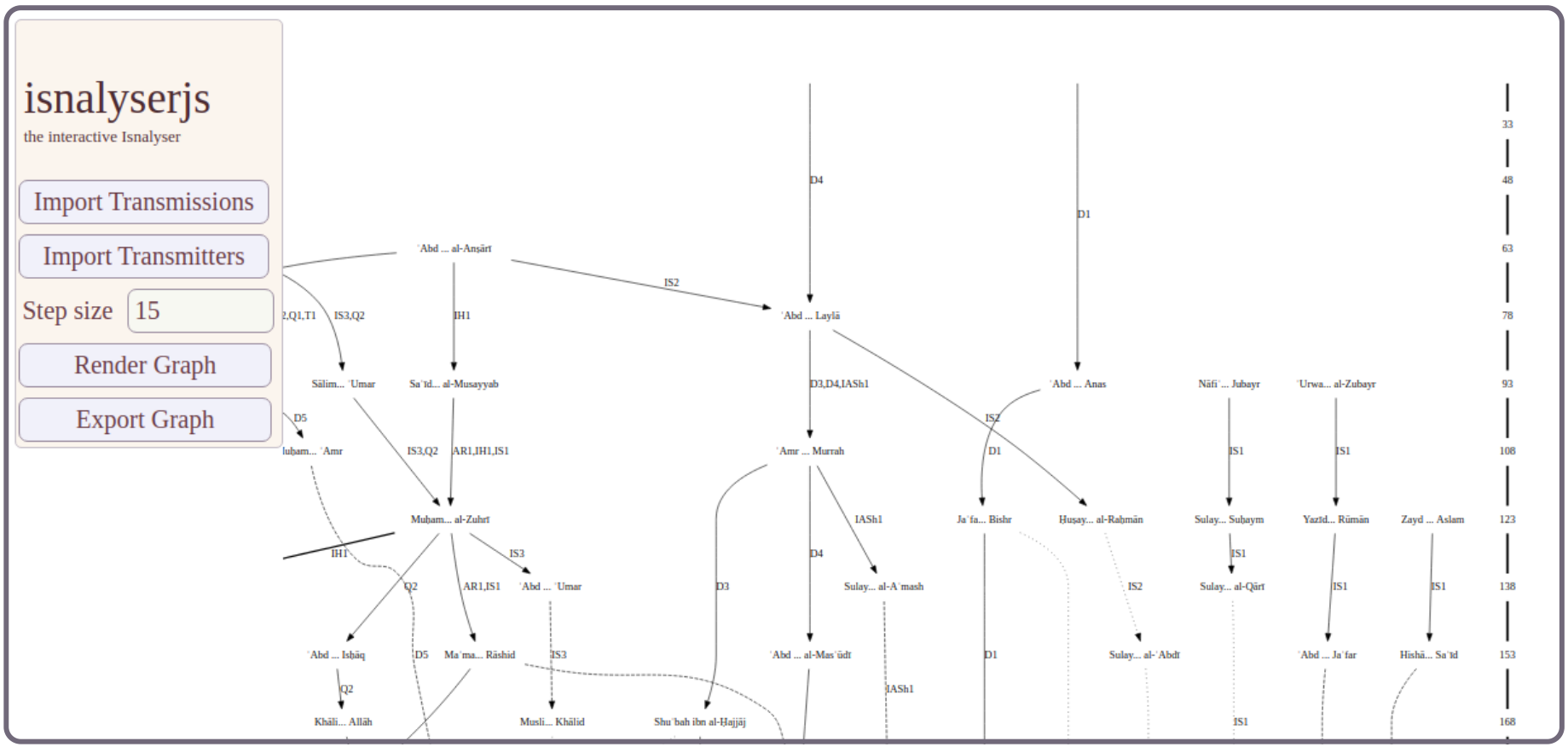


- Implement the functionalities from Python to Javascript
- Use gitflow for feature development
  - Main branch
  - Each new feature as new branch
  - If feature is finished, merge into main branch



- Transparent development history
- Always one working version
- Now at version 0.1.0 - ready for first release

Isnalyserjs



Future of the Isnalyser

- Paper in the works for Journal of Open Source Software
- Eventually develop into a colaborative platform
  - Users can upload and share graphs
  - Edit, annotate other's
- Beyond isnād trees
  - I.e. citation graphs

Takeaways

What did we learn from this project?

- Creating a PyPI package is not that hard
- Git flow helps keeping track and maintaining transparency
- Most important part of the project are users
- Interaction happens on many levels
- If you interested in the isnalysers
  - Try them out
  - File github issues
  - Send us mails
  - Extent the code
- Live demo