Scholarly Navigation on an Open Science Platform

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A Computational Study of OpenEdition's Server Logs

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Background

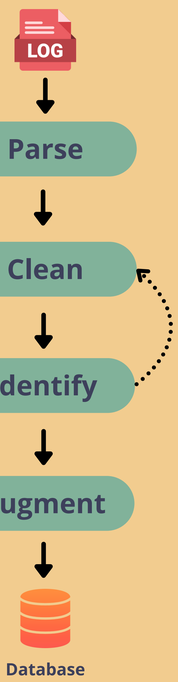
This study analyzes **user behavior** on OpenEdition, a French open access platform for the humanities and social sciences, which includes four services: Journals, Books, Hypothèses (blogs), and Calenda (events), plus a search engine. Using **server logs** from October 2023 and 2024, the research investigates how users interact with and navigate these platforms.

Question

What **patterns** of user behavior are typically observed during navigation within an open access **digital library**?

Data Preprocessing

- Unstructured, noisy data.
- Extract information from log files.
- Clean the non-human queries.
- Identify queries within the same session.
- Enrich with some additional data.
- Structured, enriched data.



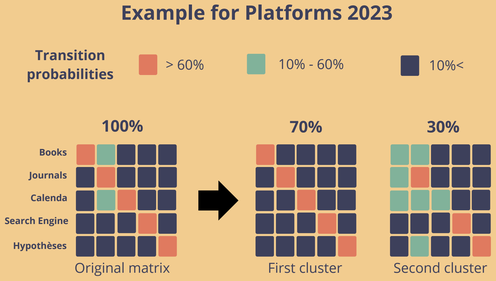
Methodology

- Log files were **preprocessed** to extract features and structure data around identified **user sessions**, enabling a coherent view of user interactions over time.
- **Three separate behavioral analyses** were conducted, each using a different clustering algorithm tailored to a specific objective.

Transitions

- How do users **transition** in the digital library websites?
- Compute **transition matrices** at platform and website levels.
- Cluster sessions via **Expectation Maximization** and derive matrices with cluster proportions.

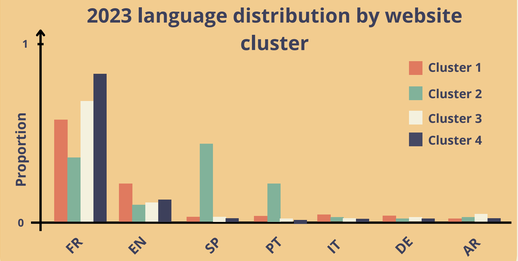
Example for Platforms 2023



Preferences

- Are there some preferences for consulted ressources?
- Build an **item-item** similarity matrix for editor websites based on sessions.
- Cluster similar **websites** and analyze them by **attributes** like language or discipline.

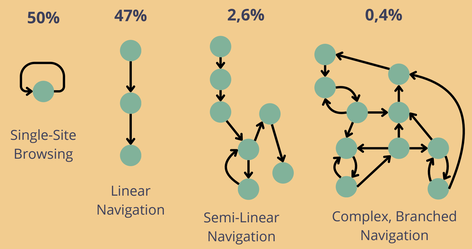
2023 language distribution by website cluster



Topology

- What types of navigation **profiles** can be expected in user sessions?
- Represent visited websites numerically using **Word2Vec**.
- Analyze **topology** of navigation paths and cluster by structure.

Example of navigation strategies



Preliminary Results

- Most sessions stay on one platform; cross-platform sessions often lead to journal sites.
- User preferences emerge in editor metadata—for example, one group favors Spanish and Portuguese sites, another prefers disciplines like sociology, anthropology, education, and area studies
- Navigation patterns reveal four session types: single-site (one editor), linear (no revisits), semi-linear (linear start with later loops), and complex (branched with constant backtracking).

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