LINKED DATA FOR PROVENANCE RESEARCH: ENABLING KNOWLEDGE DISCOVERY FOR CULTURAL HERITAGE COLLECTIONS
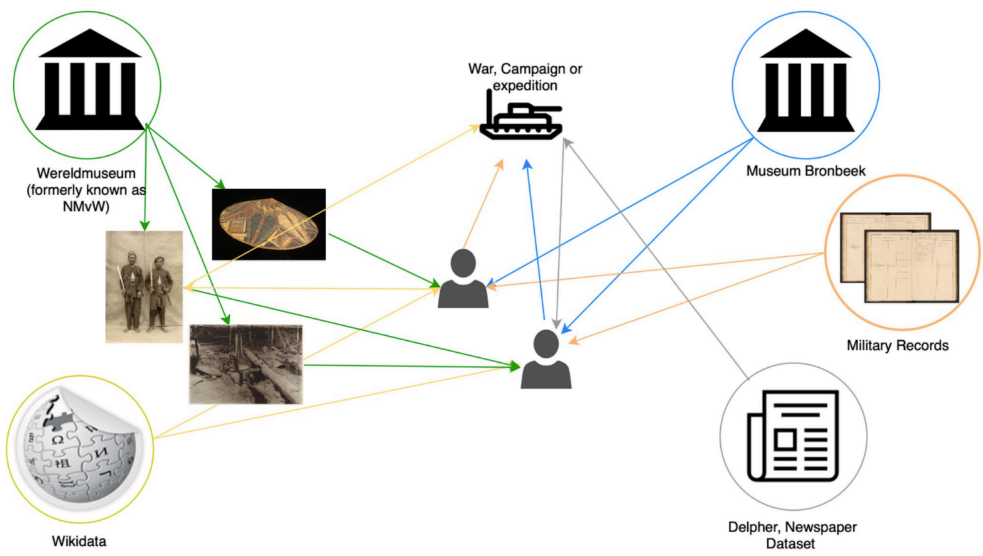
Gift ?

Loot ?

...

- **Provenance research** investigates the origin, ownership history, and context of cultural heritage objects — tracing how, when, where, and by whom an object was collected, transferred, or acquired.
- Provenance Research is crucial; but, time consuming and expensive.

RQ: How can Linked Data foster knowledge discovery in critical and complex fields like provenance research?

War, Campaign or expedition

Wereldmuseum (formerly known as NMvW)

Museum Bronbeek

Military Records

Wikidata

Delpher, Newspaper Dataset

CHALLENGES

Unstructured Data

What are the effective methods for **knowledge representation** that are able to capture the complexity of ethnographic cultural heritage objects' provenance?
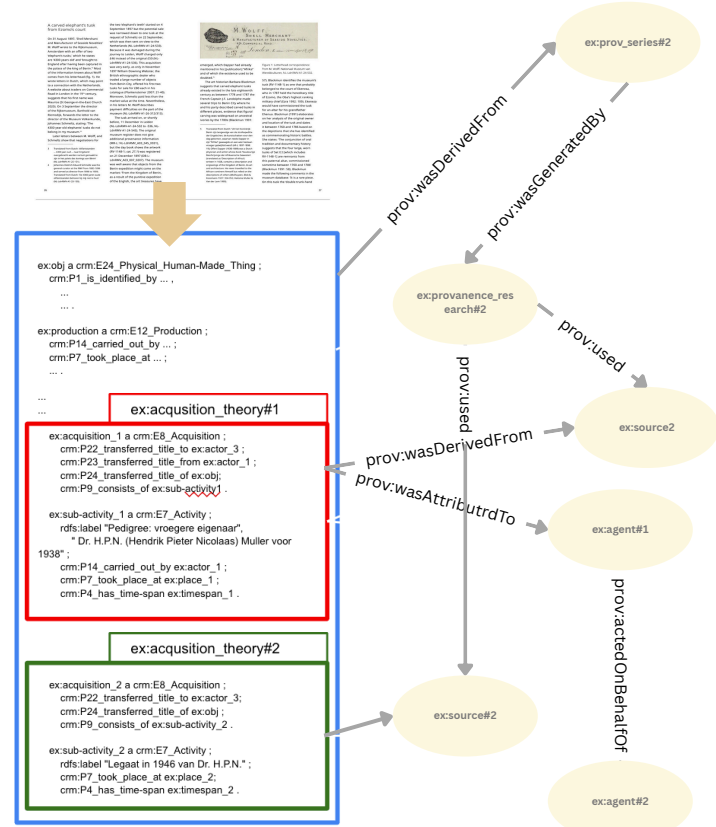
Distributed Data Sources

What are the effective methods for **data linking** given incompleteness and skewness in the metadata to ensure fairness in knowledge discovery?

Lack of Task Definition

How can we **present** such information and communicate to the end-users to foster interesting knowledge discovery?
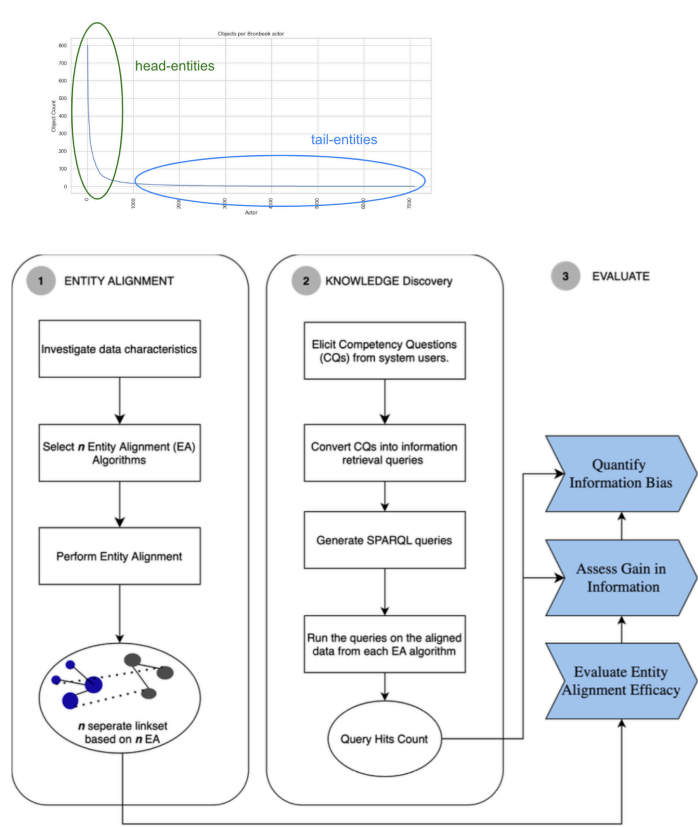
SOLUTIONS

Data Modeling

Entity Linking Evaluation

Visual Analytics

Place of origin of collected objects

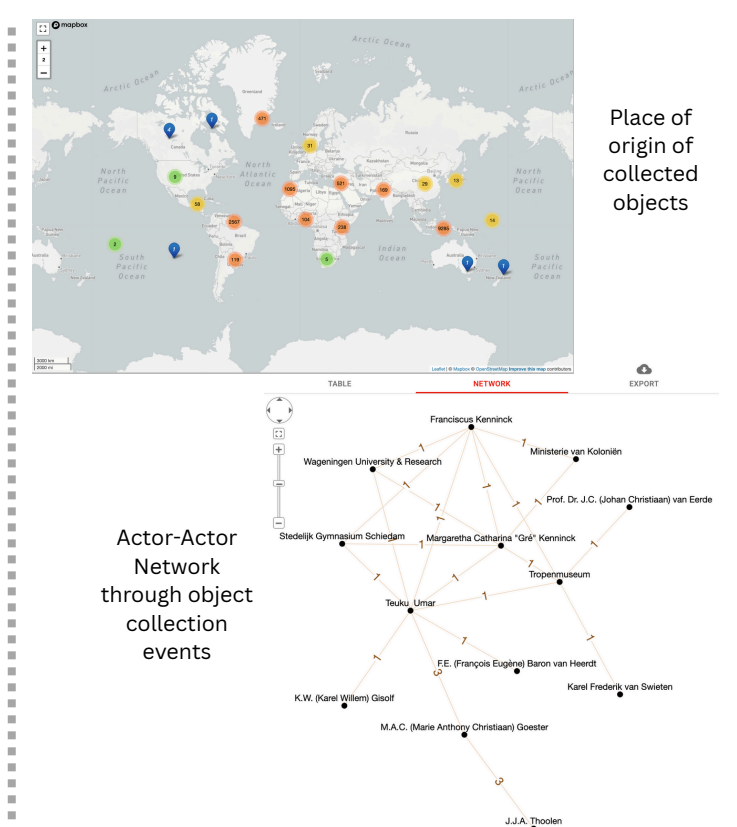Actor-Actor Network through object collection events

[1] Shoilee, S.B.A., de Boer, V., van Ossenbruggen, J. (2023). Polyvocal knowledge modelling for ethnographic heritage object provenance. In: Knowledge Graphs: Semantics, Machine Learning, and Languages vol. 56, pp. 127–143. IOS Press, Leipzig, Germany.

[2] Shoilee, S.B.A., de Boer, V., van Ossenbruggen, J. (2025). A Framework for Evaluating Entity Alignment Impact on Downstream Knowledge Discovery. In: Knowledge Engineering and Knowledge Management. EKAW 2024. Lecture Notes in Computer Science, vol 15370. Springer, Cham.

[3] Shoilee, S. B. A., Ahola, A., Rantala, H., Hyvönen, E., de Boer, V., van Ossenbruggen, J., & Legene, S. (2025). Enhancing provenance research with Linked Data: A visual approach to knowledge discovery. Just Accepted. SemDH Workshop, co-located with ESWC 2025. Portorož, Slovenia.

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