Navigating a Network Maze
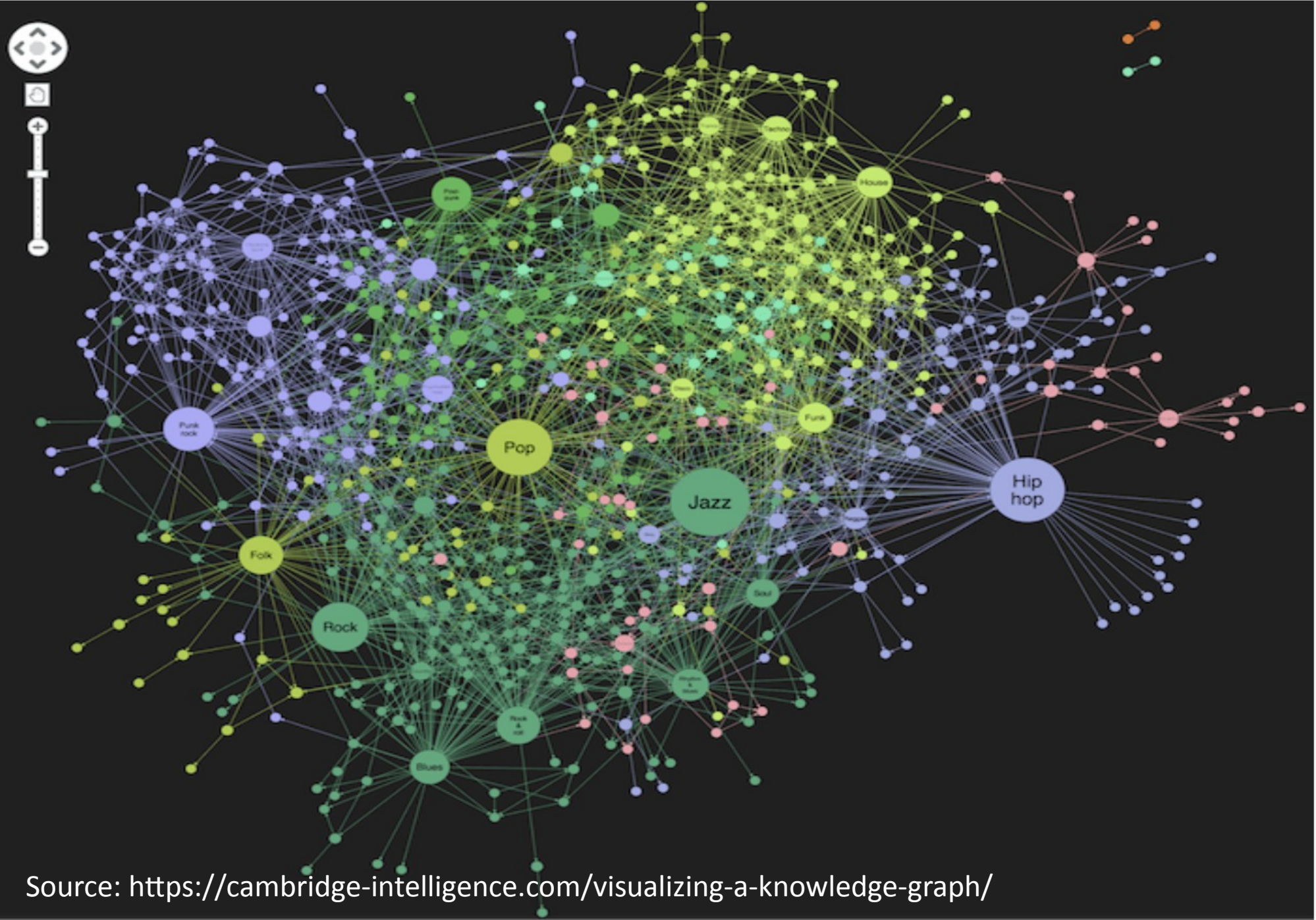## A Multi-Architectural Perspective

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Infoloom

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What's a node?

- A name representing a concept.
- Or... An abstract unit of meaning that can
  - Be represented by zero to multiple names.

What's a link ?

- A predicate that is part of an ontology
- A semantic relationship between nodes

The Resource Description Framework

- Based on Triples: Subject – Predicate – Object

- Predicates are most often chosen from a pre-defined list

- Subjects and objects have properties

- Rules describing object properties and predicate logic are defined in ontologies.

The Topic Maps Architecture

- Topics are computer-representation of units of meaning.
- Topics can be freely associated with any other.
- Topics can point to external resources, relevant to their meaning.
- Topics occupy a "topic space". They are interconnected through a "topic map".

Human vs. Machine Processing

- Topic Maps is optimized for human interaction
  - Initially designed to capture the indexes of books.
- RDF is optimized for machine processing
  - Integration of data sets within specific industries. Ex. Travel

Disruptive Big Data Leads to AI

- The amount of data considered has overwhelmed the existing architectures.
  - Ontologies are hard to define, and even harder to maintain over time.
  - Human-only systems are not appropriate for big amounts of data.
- AI presented as a viable solution. (Self-generated algorithms will take care of everything).
  - Less humans required
  - More efficient, Less costly
  - Does it really deliver? It remains to be seen.

Two usages of data

- Fishing what's out there.
  - Collect existing data and try to make sense of some of it.
  - Some data may be missed, but nobody won't notice.
- Showing what you own.
  - Render known data in efficient ways
  - Issuer is liable for data quality, accuracy, precision and completeness.
- No technology-fits-all.

Workflow

- Collect data: ETL, Search Engine, ChatGPT, Natural Language Processing, Image Recognition, etc.

- Curate data: Check, Quality Control, Assessment by Subject Matter Experts

- Feedback loop:
  - Improve the algorithms for the next iterations (Machine-Learning)
  - Connect a human-maintained knowledge base to the data collected.

Applications

- IRS Tax Map
- NYU: Enhanced Networked Monographs
- Mapping of overlapping Auditing/Accounting Standards

The Networker, as Middleware

- Integration of multiple data sets in various formats: Spreadsheets, Databases, JSON, XML, HTML, Text, etc.
  - Using customized, automated pipelines
- Curation of the results with a user interface that can be directly usable by non-technical personnel
- Output in a format that is compatible with the technology stack.

Address Name ◑ gl-bu

Graph | **Merge/Detach** | **Delete**

Add | Edit

Names

Address Name ◑ gl-bus 🌐 English

👍 gl-bus:organizationAddressName △ XML Element Name

👍 Nombre ◑ gl-bus 🌐 Spanish

👍 Nome dell'indirizzo ◑ gl-bus 🌐 Italian

👍 Nome do Endereço ◑ gl-bus 🌐 Portuguese

👍 Nom indiqué dans l'adresse ◑ gl-bus 🌐 French

👍 住所名 ◑ gl-bus 🌐 Japanese

👍 组织地址名称 ◑ gl-bus 🌐 Chinese

Up (2)

Accountant Address ◑ gl-bus

‹ Accountant Information ◑ gl-bus ‹ Entity Information section ◑ gl-co

Address ◑ gl-bus

‹ Entity Information section ◑ gl-cor ‹ Accounting Entries ◑ gl-cor
‹ Identifier Reference ◑ gl-cor ‹ Entry Detail ◑ gl-cor ‹ Entry Informa

Down

Connect (3)

🔗 — RDM-XBRL Address Name | Organization. Abbreviated Name
— has type organizationAddressNameItemType ◑ gl-bus
— has type accountantAddressNameItemType ◑ gl-bus

Web (0)

Notes

Address Name
🌐 English
Name of organization used at this address

住所名
🌐 Japanese
この住所で使用される組織の名前。

Nom indiqué dans l'adresse
🌐 French
Nom de l'organisation utilisé dans l'adresse

Nombre
🌐 Spanish
Nombre de la entidad en esta dirección

Nome do Endereço
🌐 Portuguese
Nome da organização utilizado para esse endereço

Nome dell'indirizzo
🌐 Italian
Nome dell'organizzazione utilizzato a quest'indirizzo o nome attribuito all'indirizzo.

组织地址名称
🌐 Chinese
使用这个地址的组织名称。