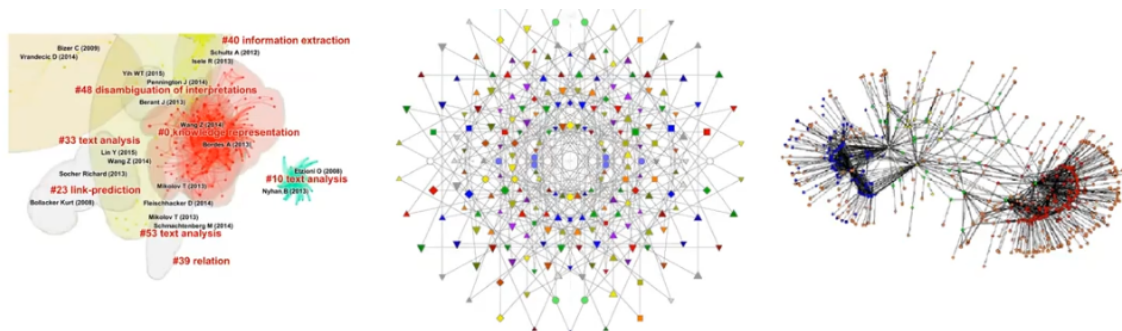


# W7. Lecture Notes — By Junyi

## Summary

- Users want to consume a knowledge graph in different modes
  - Pull vs push and interactive vs batch
- We must not assume that a graphical visualization is the best display
  - Graphs are usually effective for schema but not always for instances
- Ideal interfaces will use a combination of method
  - Leverage visualization design principles

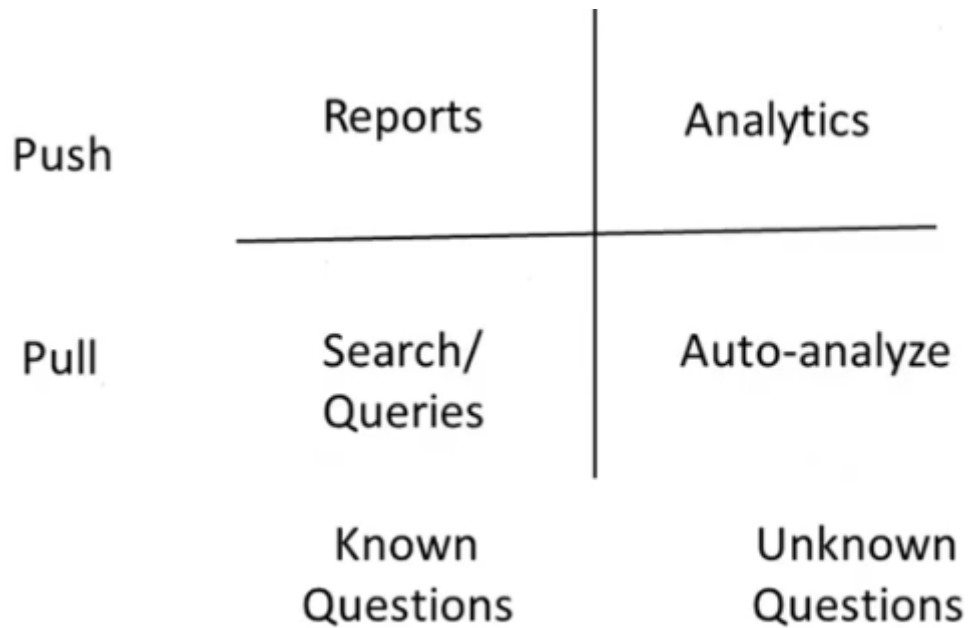


What is the best way to show a Knowledge Graph?

### ▼ interaction paradigms

▼ schema → overview of the knowledge graph

▼ whether the interaction is initiated by the user (ie, Pull), or in response to information presented to the user (ie, Push), and whether the questions are known in advance vs questions are not known in advance.



▼ visualization techniques

▼ general principles

▼ amplify the user understanding of data

- ▼ present more information
- ▼ unburden: look for information
- ▼ place relevant data next to each other
- ▼ provide more abstract view through omission and recording of information
- ▼ allow a user to interact with and manipulate

▼ design choices

- ▼ spatial substrate
- ▼ marks
- ▼ connections and enclosures
- ▼ retinal properties
- ▼ temporal encoding

▼ best practice

- ▼ five step design process

- Identify variables that could be mapped to spatial positions
- Combine mappings to increase dimensionality
- Use retinal properties to add more dimensions
- Add controls for user interaction
- Consider attentive reactive capabilities

#### ▼ design template

- Overview
- Dynamic queries
- Zooming in
- Details on demand
- Retrieval by example

#### ▼ best practices

#### ▼ Query interface

##### ▼ structured query interface

- ▼ queries conform to a pre-defined grammar
- ▼ system uses auto-completion in response to user's input
- ▼ improvement
  - ▼ improving the range of queries requires - expand the grammar
  - ▼ well-suited only for limited domains

##### ▼ natural language query interfaces

##### ▼ semantic parsing technology

##### ▼ semantic parsing system

- ▼ executor
- ▼ grammar
- ▼ model
- ▼ parser
- ▼ learner

##### ▼ extremely difficult problem

▼ requires amassing a large amount off training data