DBpedia Atlas

Mapping the Uncharted Lands of Linked Data

LDOW2015 - ***Fabio Valsecchi***, *Matteo Abrate, Clara Bacciu, Maurizio Tesconi, Andrea Marchetti*

Motivation

- Users always ask ***"What is the dataset like?"***
- Linked Data sets are difficult to make sense to **non-experts** of Semantic Web:
  - Content (Data)
  - Structure (Ontologies)
- **Visualizing** or **exploring** LD sets is difficult:
  - Volume
  - Complexity

LD visualization tools

Applications like *LODlive, RelFinder, DBpedia viewer, LOD Visualization*, … feature **some but not all** of the following:

- description of a **single instance**
- exploration of **small groups of instances**
- presentation of a **summary of the whole dataset**

None of them follows ***Shneiderman's Mantra***.

Visual Information-seeking Mantra

"Overview first, zoom and filter, then details on demand."

Lead a user from an overview of the main features of a dataset to its tiniest details.

- Provide an **overview** that acts as an ***entry point*** of the dataset
- Allow to **zoom and filter** for focusing on specific parts of the dataset
- Give **details** on single instances

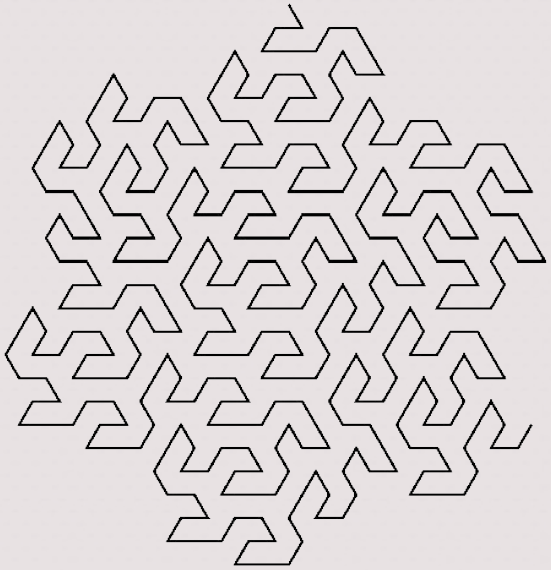
Use case

The **DBpedia** knowledge base*

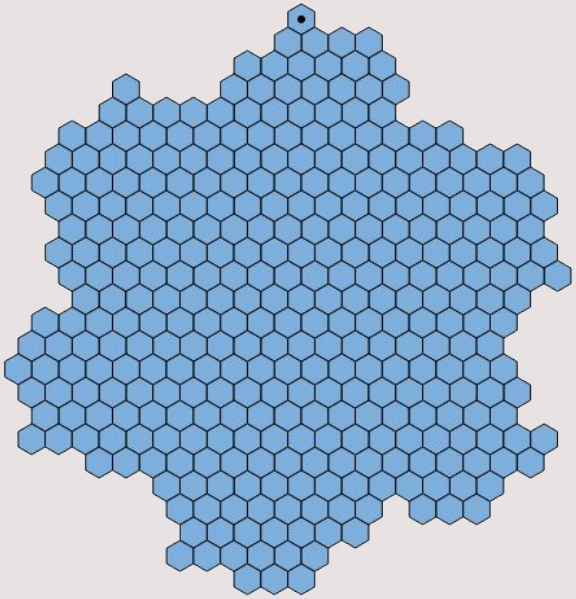
- **3 billion** RDF triples
- More than **4 million** instances
- A **hierarchical** ontology composed by **685** classes

*[DBpedia - A crystallization point for the Web of Data]

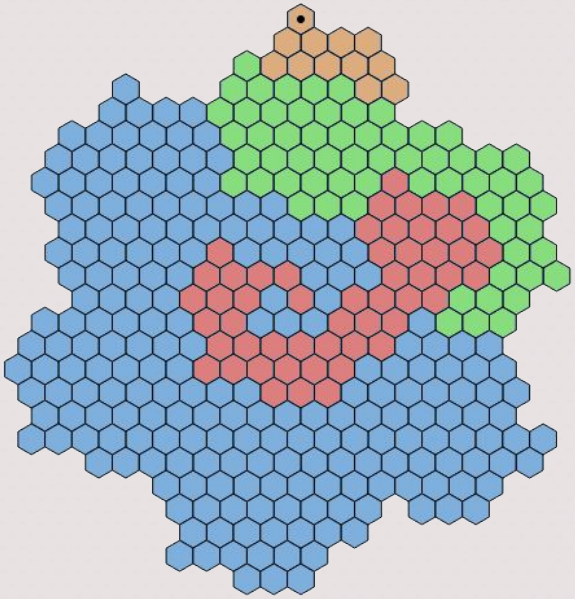
Spatialization approach



Gosper **space-filling** curve*



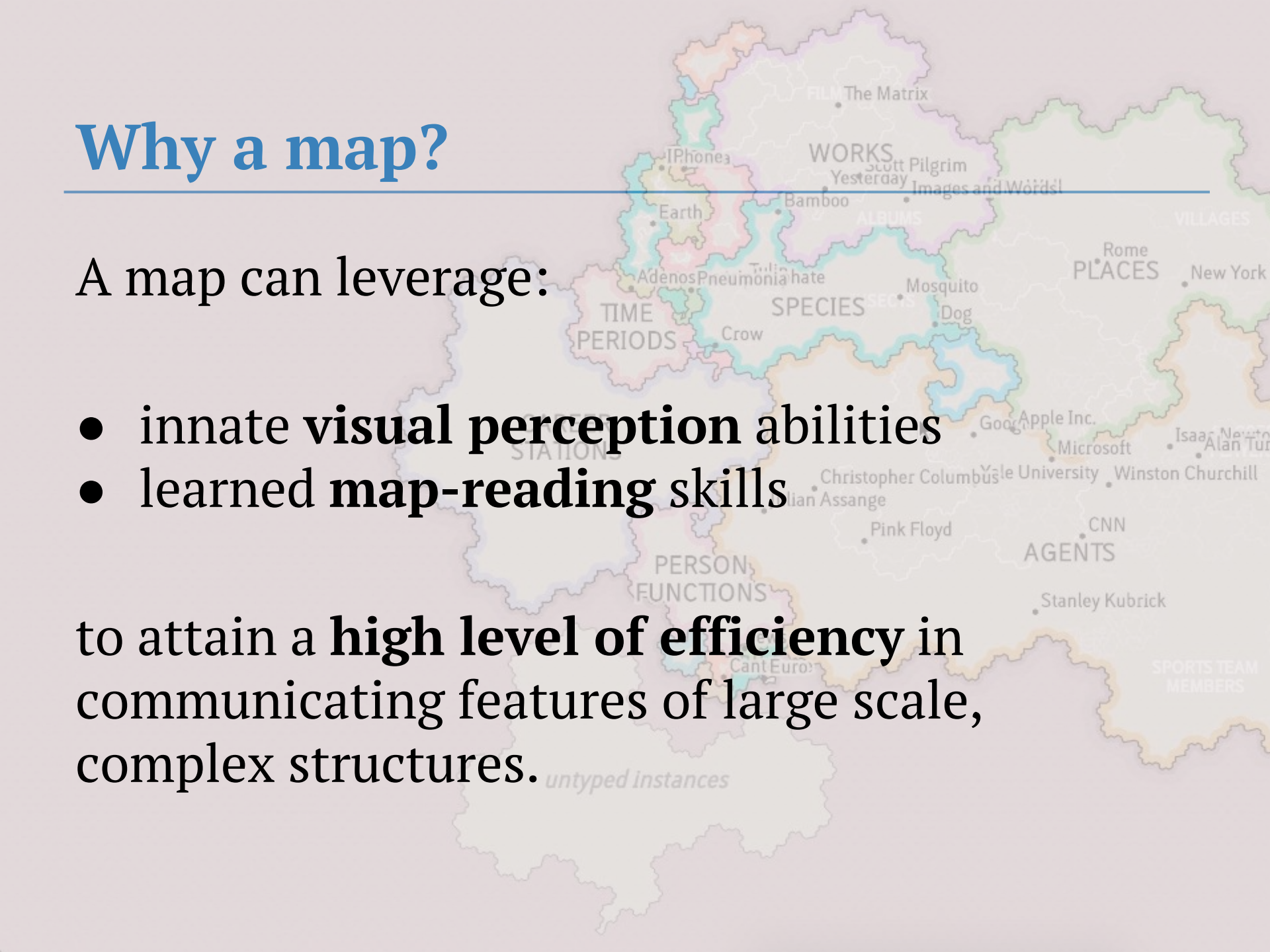
Hexagonal **tiles**



Treemap

*[GosperMap: Using a Gosper Curve for Laying Out Hierarchical Data - Auber, D.]

Why a map?

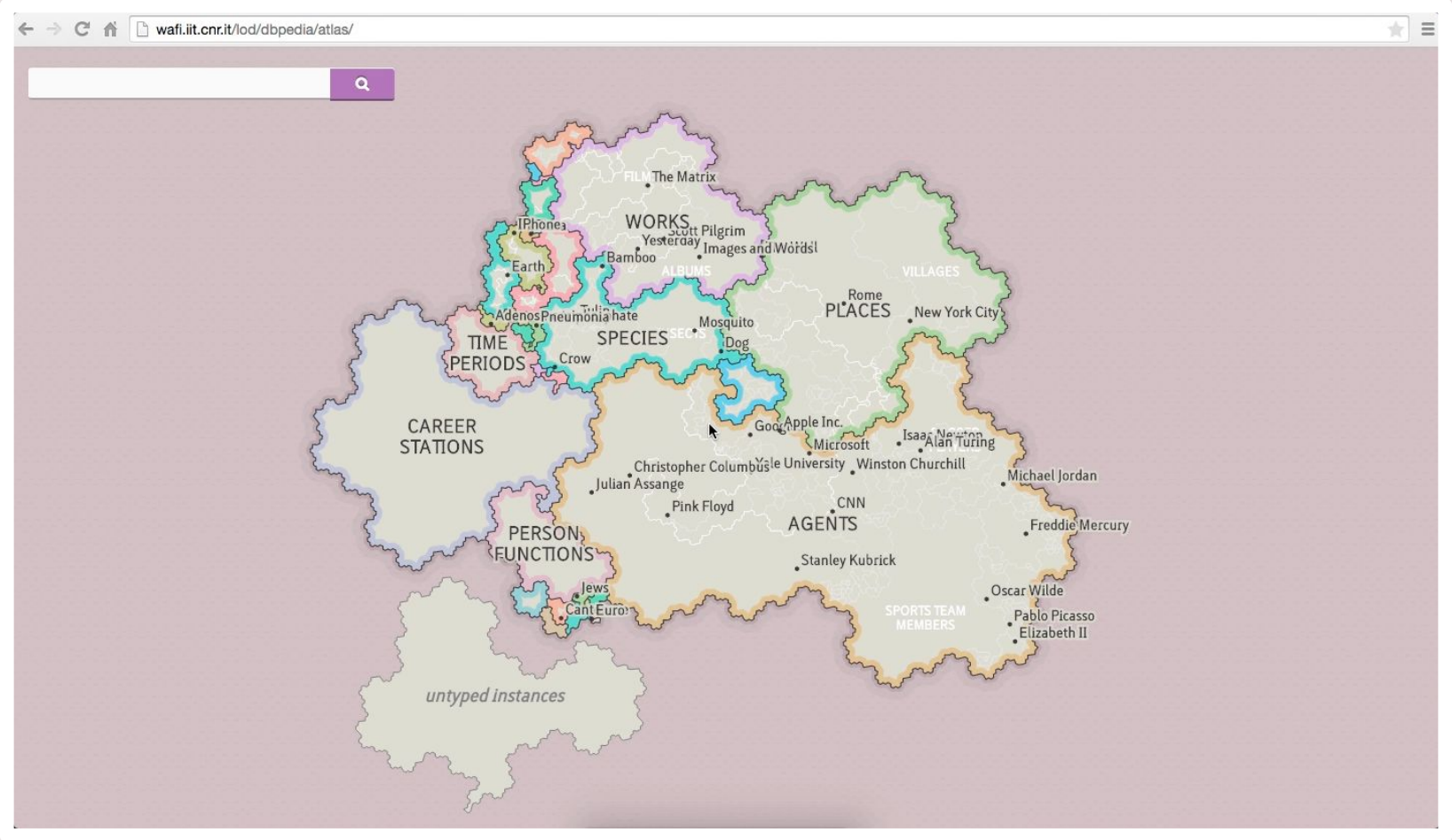


A map can leverage:

- innate **visual perception** abilities
- learned **map-reading** skills

to attain a **high level of efficiency** in communicating features of large scale, complex structures.

Demonstration Video



Future Works

- **Similarity:** displace similar instances close together (inside the same region)
- **“Cities”:** implement an automatic system for ranking the importance of instances
- **Level of detail:** as the user zooms in, more content should be shown
- **Additional functionalities:**
  - Advanced search (SPARQL)
  - Path finding features (à la RelFinder)
  - …

Thank you!

Take a look at the application:

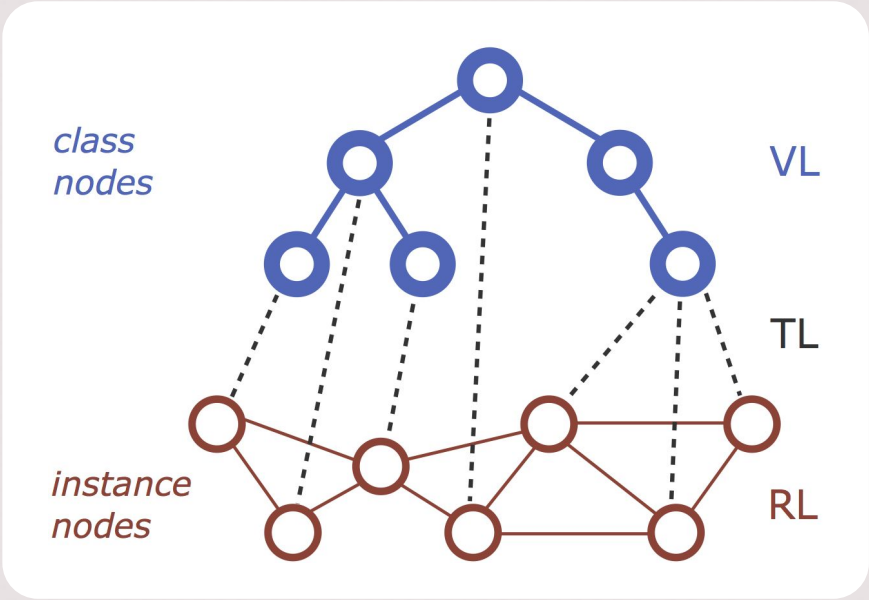
http://wafi.iit.cnr.it/lod/dbpedia/atlas

fabio.valsecchi@wafi.iit.cnr.it

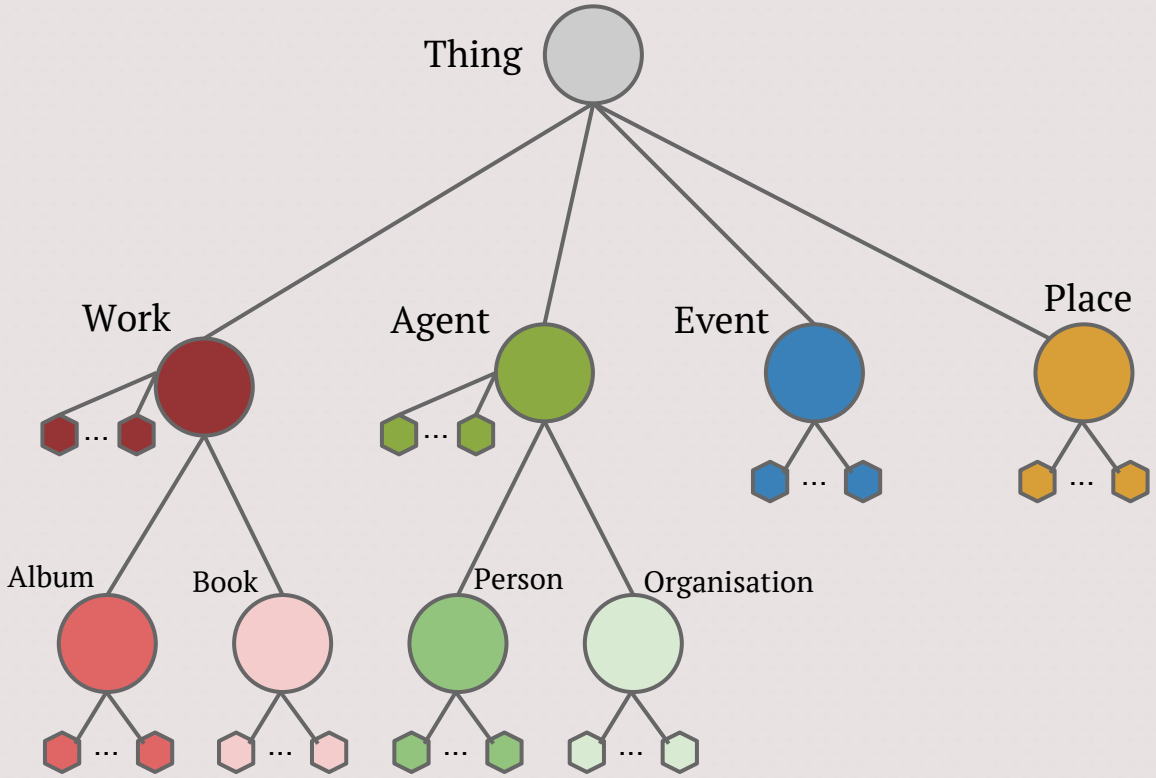
Data Abstraction

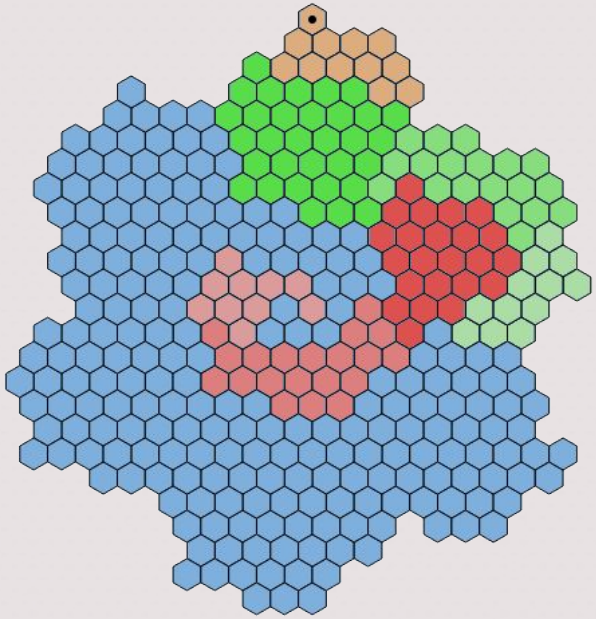
Compound Network: a structure defined by a graph with an associated tree.

- Tree:
  - DBpedia Ontology
- Graph:
  - The DBpedia triples



Spatialization approach





Visualization Pipeline