Future Internet

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Linked Data

- The Web of Data is a Web of Linked Data

- Specifically, the term Linked Data refers to a set of best practices for publishing and interlinking structured data on the Web using URIs and RDF:

  Tim Berners Lee's *Linked Data design issues (2006)*

  https://www.w3.org/DesignIssues/LinkedData.html

- Objective: providing a guide toward the development of the Web of Data

source: https://www.w3.org/standards/semanticweb/data

Linked Data

Linked Data principles:

- Use URI as names for things.
- Use HTTP URIs, so that people can look up those names.
- When someone looks up a URI, provide useful information, using the standards (RDF, SPARQL).
- Include links to other URIs, so that they can discover more things.

Tim Berners Lee

source: https://www.w3.org/standards/semanticweb/data

Linked Data

- Linked Data enables RDF links to be set between items in different data sources, creating a global data space: the Web of Data

- A typical case of a large Linked Dataset is DBPedia,

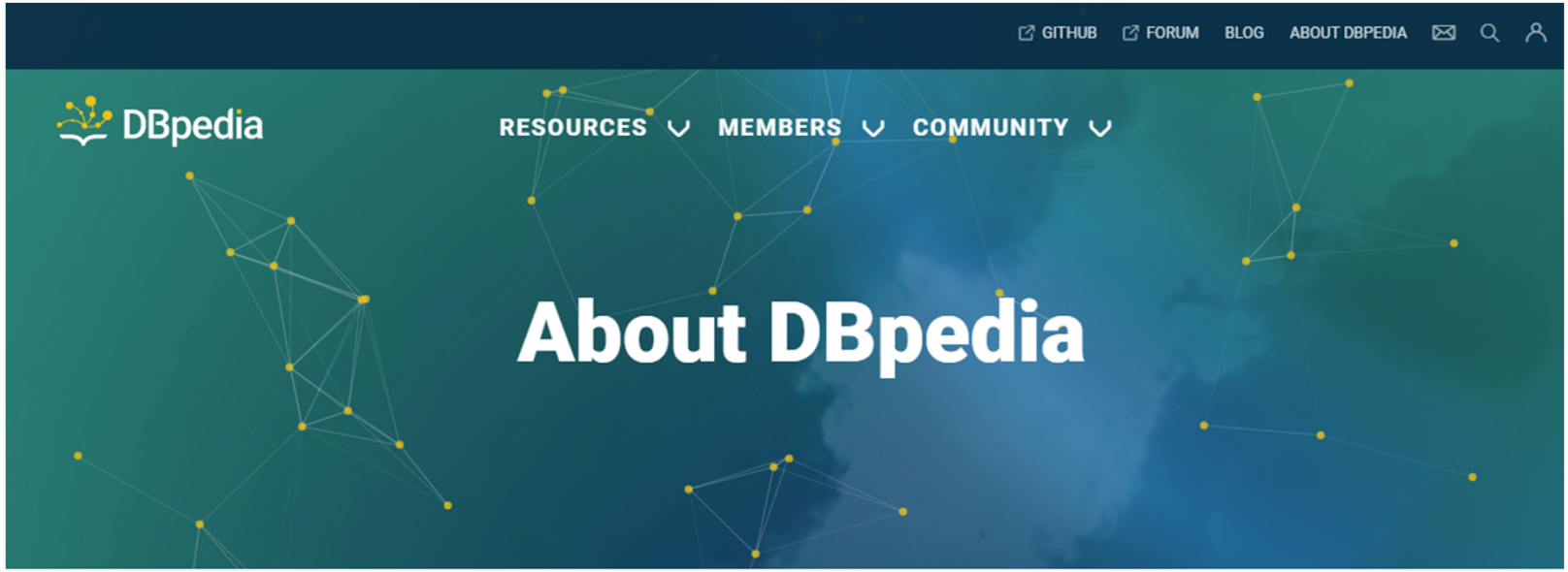
  Main features:

  - makes the content of Wikipedia available in RDF
  - incorporates links to other datasets on the Web, e.g., to Geonames

source: https://www.w3.org/standards/semanticweb/data

DBPedia

https://www.dbpedia.org/about/



DBpedia is a crowd-sourced community effort to extract structured content from the information created in various Wikimedia projects. This structured information resembles an **open knowledge graph (OKG)** which is available for everyone on the Web. A knowledge graph is a special kind of database which stores knowledge in a machine-readable form and provides a means for information to be collected, organised, shared, searched and utilised. Google uses a similar approach to create those knowledge cards during search. We hope that this work will make it easier for the huge amount of information in Wikimedia projects to be used in some new interesting ways.

DBpedia data is served as Linked Data, which is revolutionizing the way applications interact with the Web. One can navigate this Web of facts with standard Web browsers, automated crawlers or pose complex queries with SQL-like query languages (e.g. SPARQL). Have you thought of asking the Web about all cities with low criminality, warm weather and open jobs? That's the kind of query we are talking about.

Learn about DBpedia

If you like what our project does but are still new to DBpedia there are a few articles that can help you get started:

Linked Data best practices

Standard vocabularies should be reused as much as possible

How to Find Existing Vocabularies

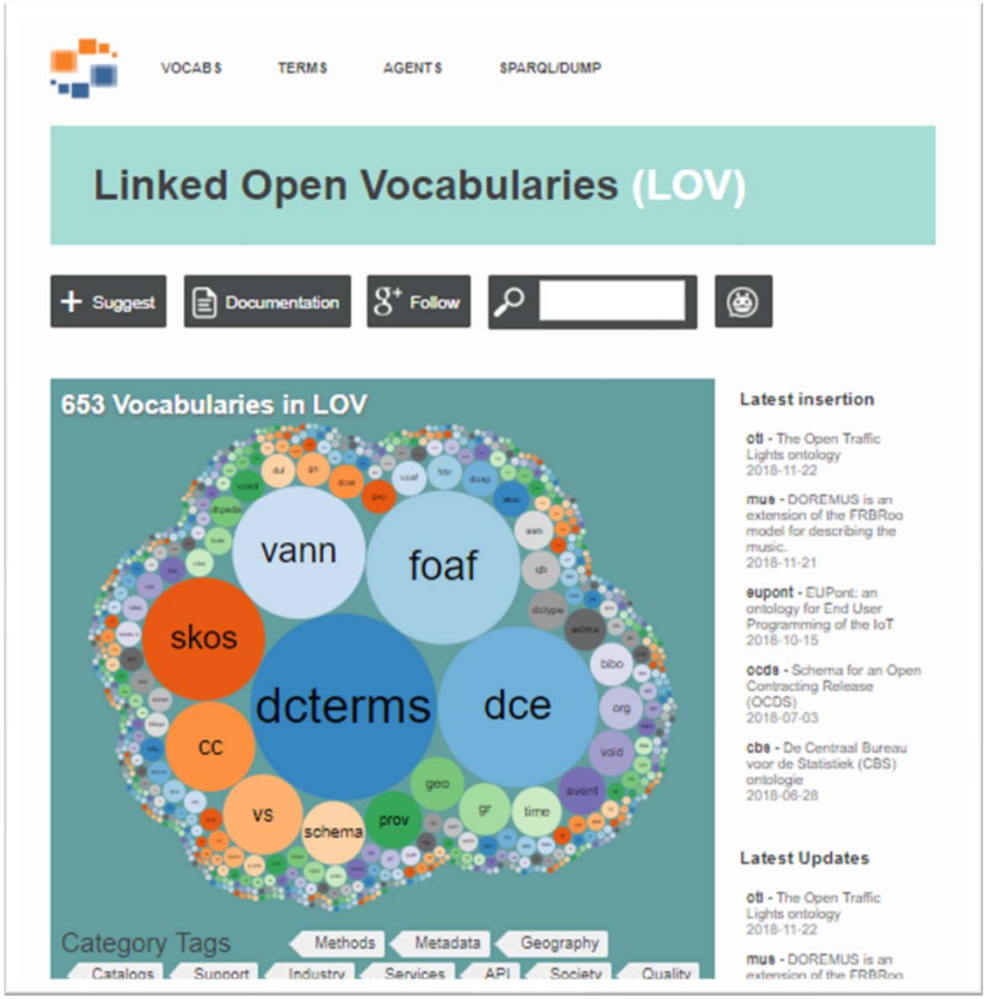
There are search tools that collect, analyze and index vocabularies and semantic data available online for efficient access. Search tools that use structured data represented as Linked Data include: (Falcons, Watson, Sindice, Semantic Web Search Engine, Swoogle, and Schemapedia).

Others include the LOV directory, Prefix.cc, Bioportal (biological domain) and the European Commission's Joinup platform.

source: https://www.w3.org/TR/ld-bp/

LOV

http://lov.okfn.org/



Linked Data best Practices

A basic vocabulary checklist:

- Vocabularies MUST be documented
- Vocabularies SHOULD be self-descriptive
- Vocabularies SHOULD be described in more than one language

  For example, for the same term Contributor

  rdfs:label "Contributor"@en, "Colaborador"@es
- Vocabularies SHOULD be published by a trusted group or organization
- Vocabularies SHOULD provide a versioning policy

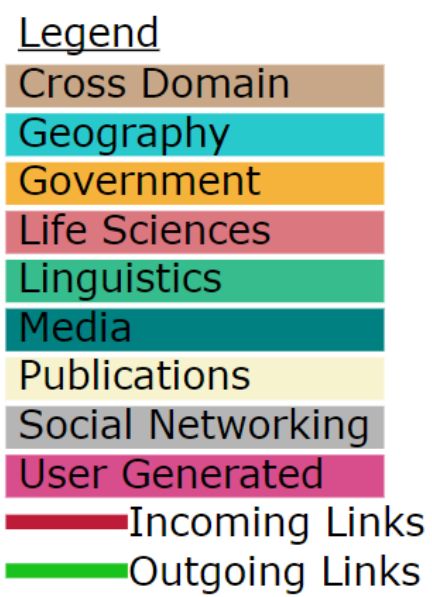
https://www.w3.org/TR/ld-bp/

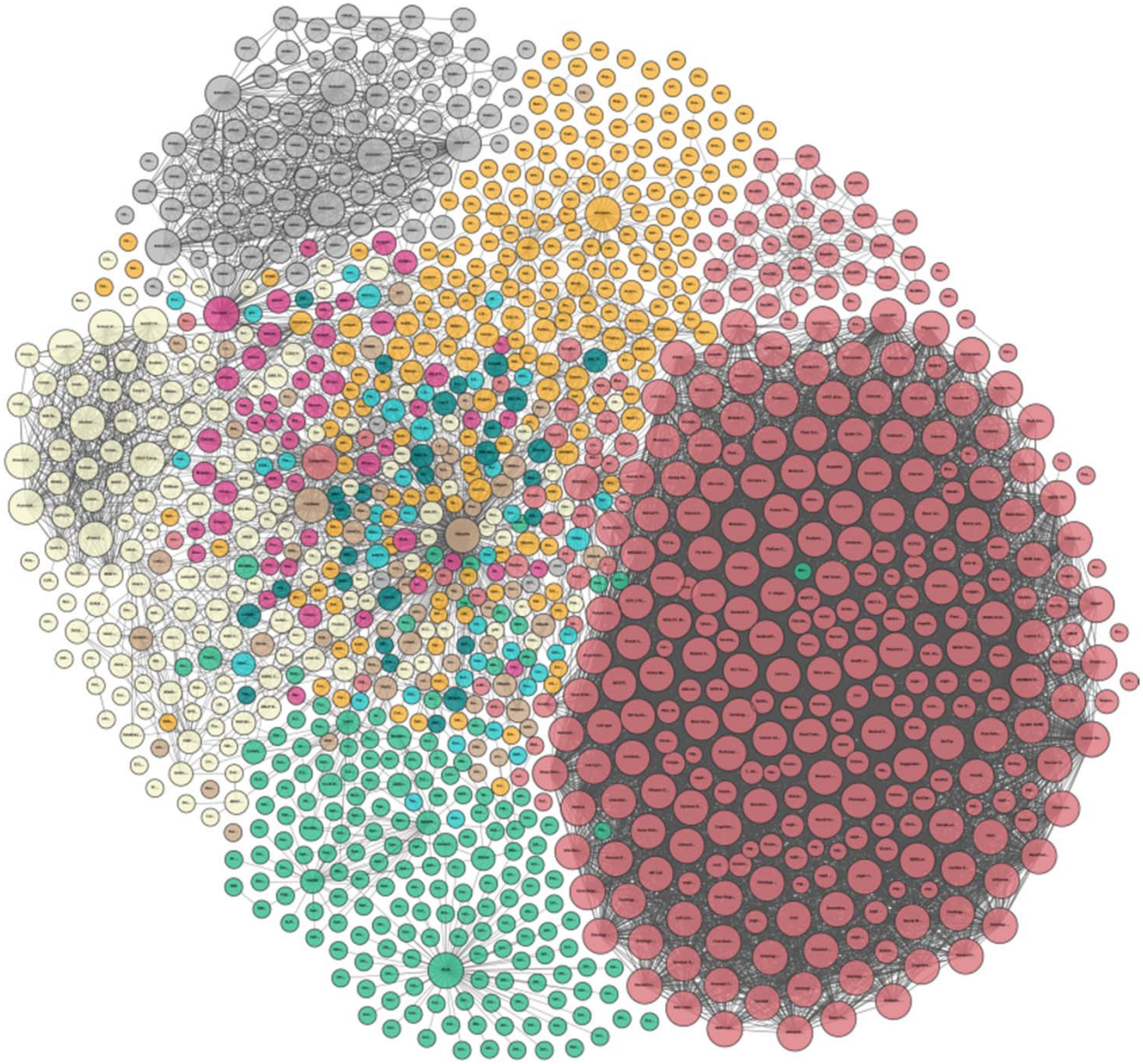
Linked Open Data (LOD)

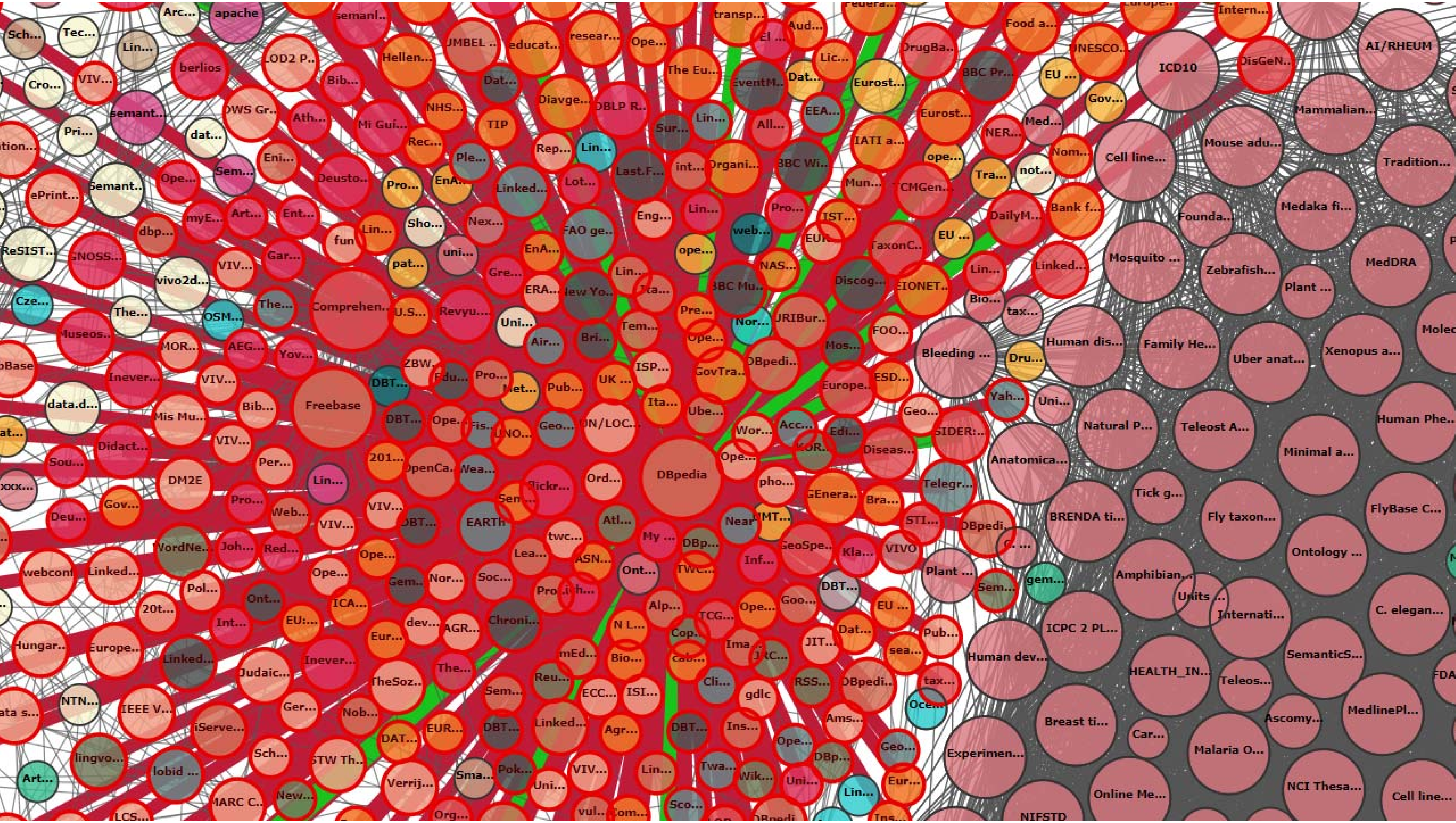
- Linked Data joins Open Data movement
- Progressive steps towards Linked Open Data publishing (aimed to encourage people and third parties, especially government data owners)
- Linked *Open* Data is Linked Data which is released under an open license

- Star rating system By Tim Berners Lee

LOD Cloud diagram



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Intern...
AI/RHEUM
ICD10
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UNESCO...
DrugBa...
BBC Pr...
Eurost...
Mammalian...
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Bleeding ...
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Freebase
DBpedia
Comprehen...
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WordNe...
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UN/LOC...
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