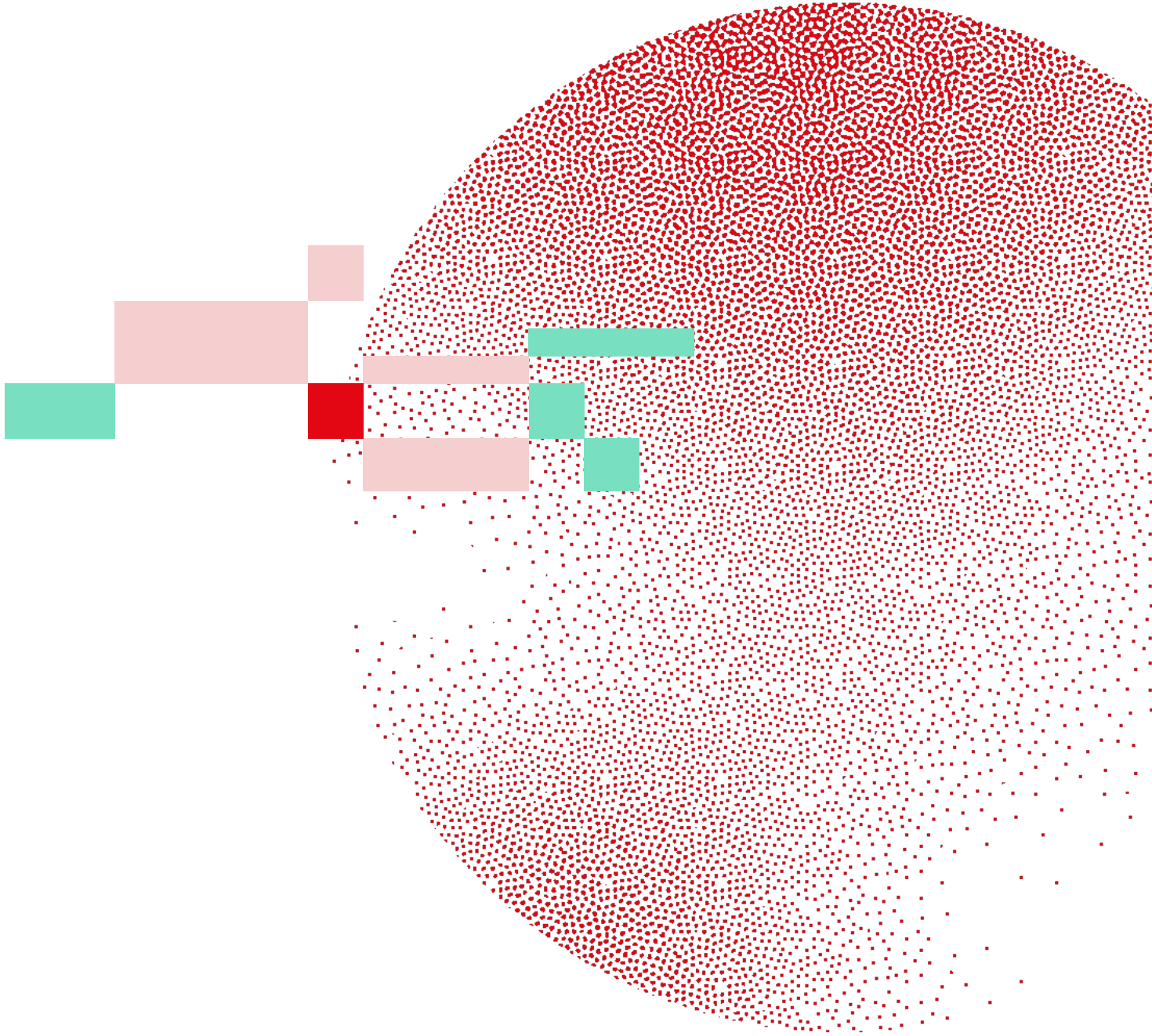
Swiss Institute of Bioinformatics



EMI semantic model

Tarcisio Mendes

08/11/2023

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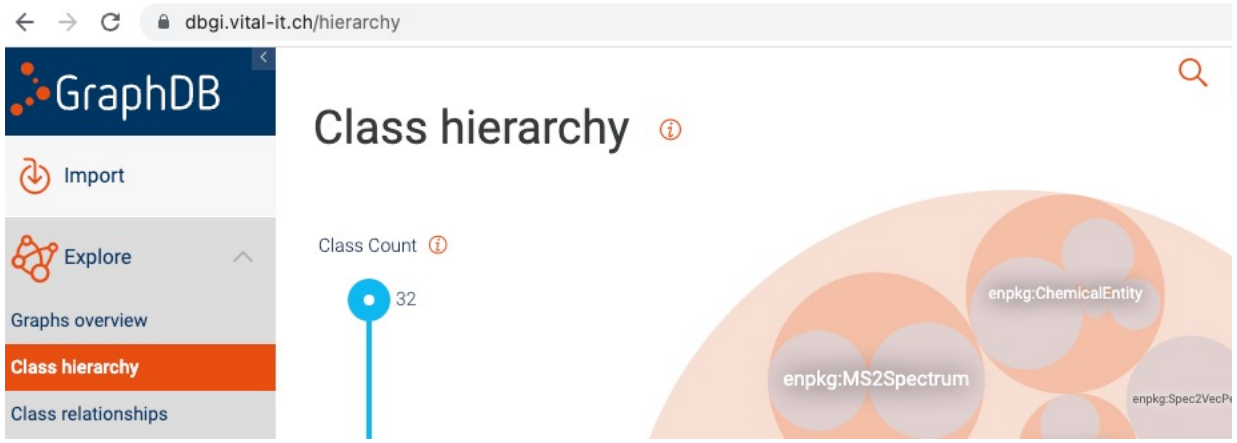
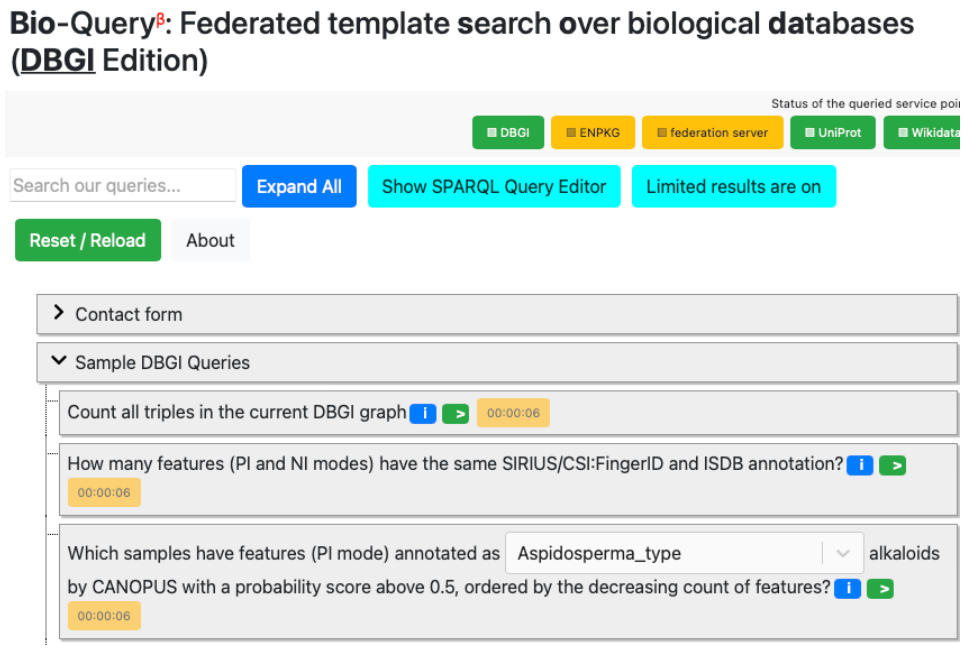
Testbed and BioQuery

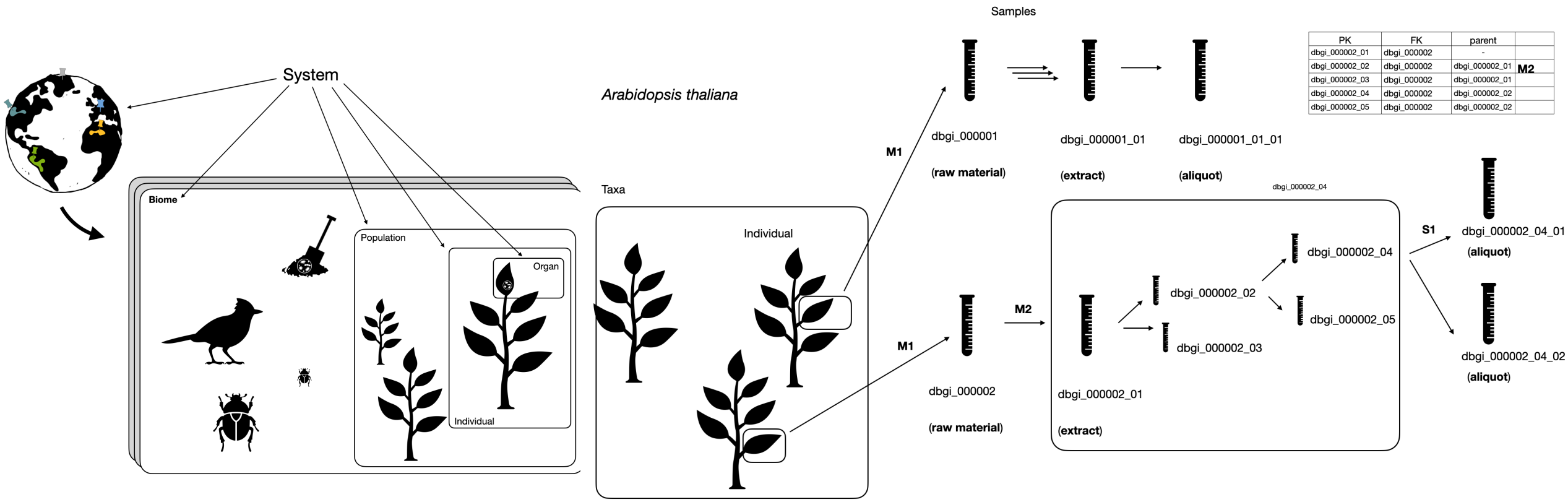


- https://dbgi.vital-it.ch/sparql



- **BioQuery** – Template queries over the DBGI graph
  - https://dbgi.vital-it.ch/bioquery
  - To provide more real questions and templates

System of systems – from ecosystems to a single individual portion sample



PK	FK	parent	
dbgi_000002_01	dbgi_000002	-	
dbgi_000002_02	dbgi_000002	dbgi_000002_01	M2
dbgi_000002_03	dbgi_000002	dbgi_000002_01	
dbgi_000002_04	dbgi_000002	dbgi_000002_02	
dbgi_000002_05	dbgi_000002	dbgi_000002_02	

System of systems – from ecosystems to a single individual portion/sample

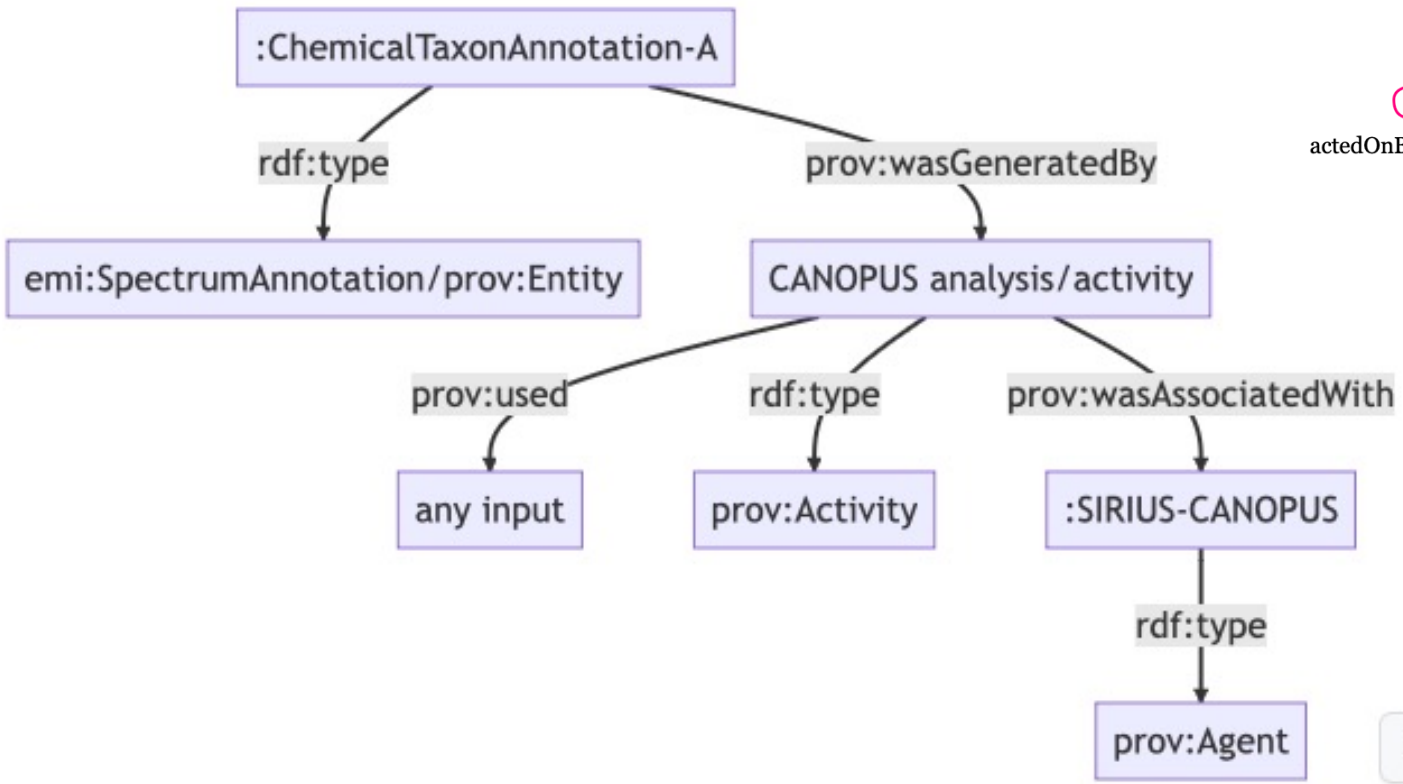
- To describe system of systems we rely on **SOSA (Sensor, Observation, Sample, and Actuator)** ontology
  - Supports a wide range of applications and use cases including scientific observations
  - Although this ontology was not designed for our problem, it fits well our semantic modelling needs
  - It is generic enough to accommodate other use cases and extensions
  - A lightweight version of SSN (Semantic Sensor Network) ontology

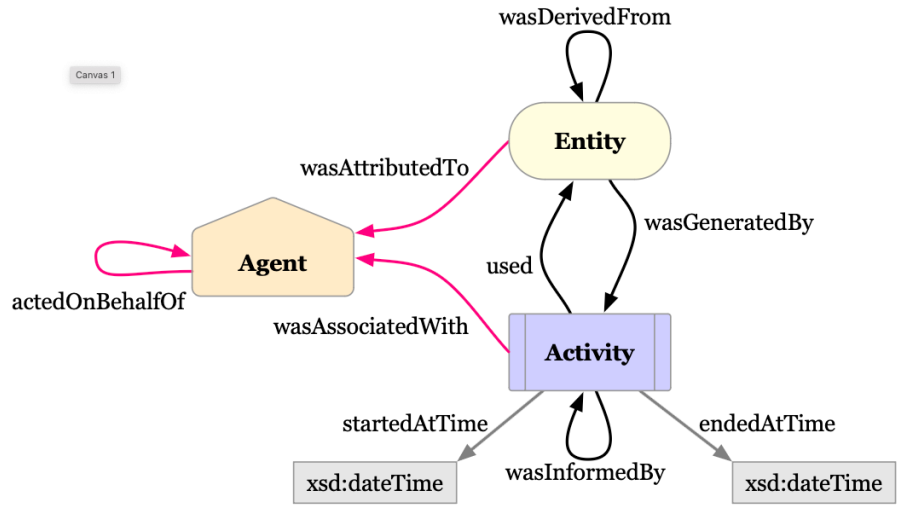
System of systems – from ecosystems to a single individual portion sample

- Modelling examples
- https://github.com/digital-botanical-gardens-initiative/earth_metabolome_ontology

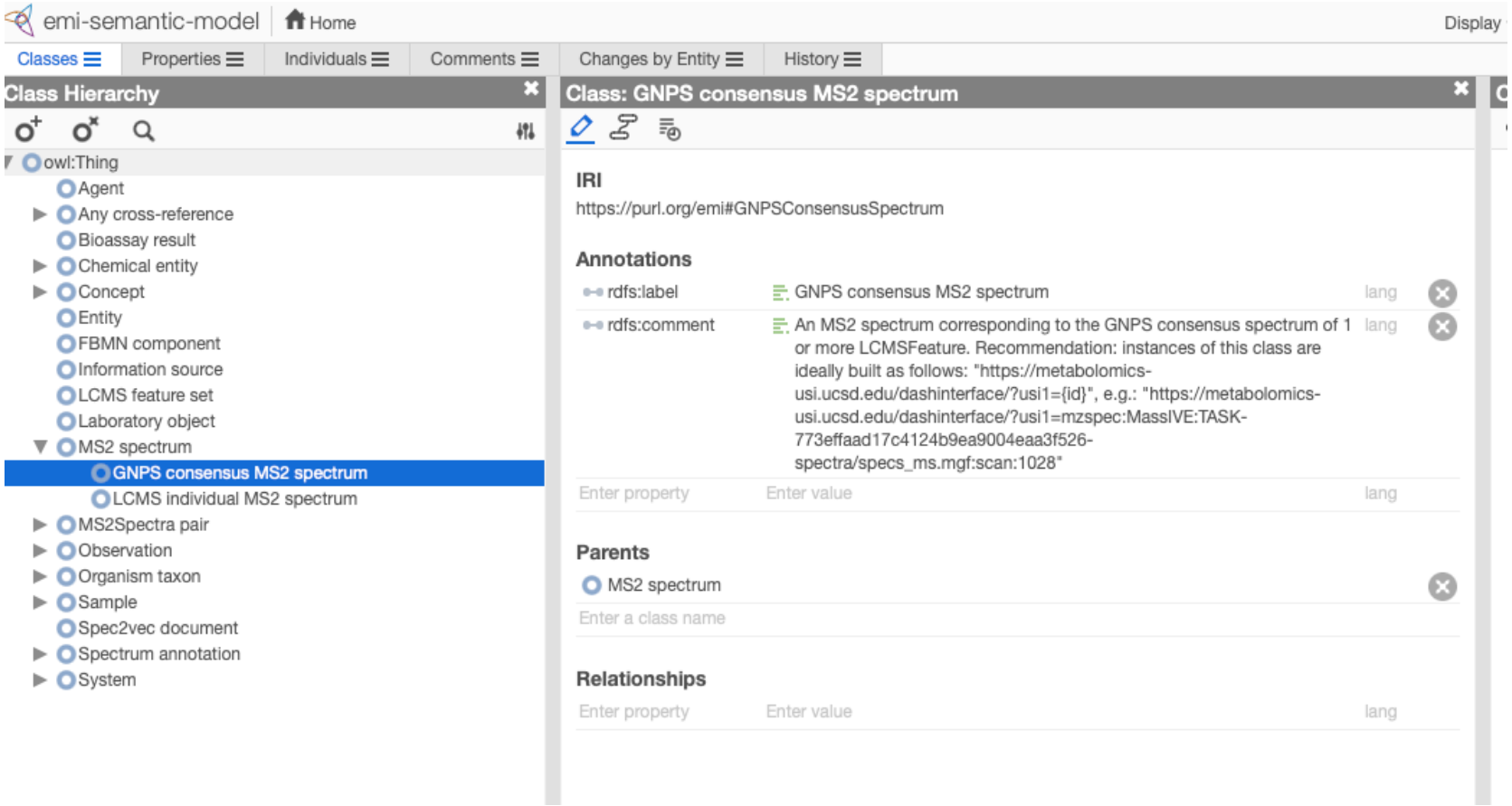
Spectrum annotation provenance

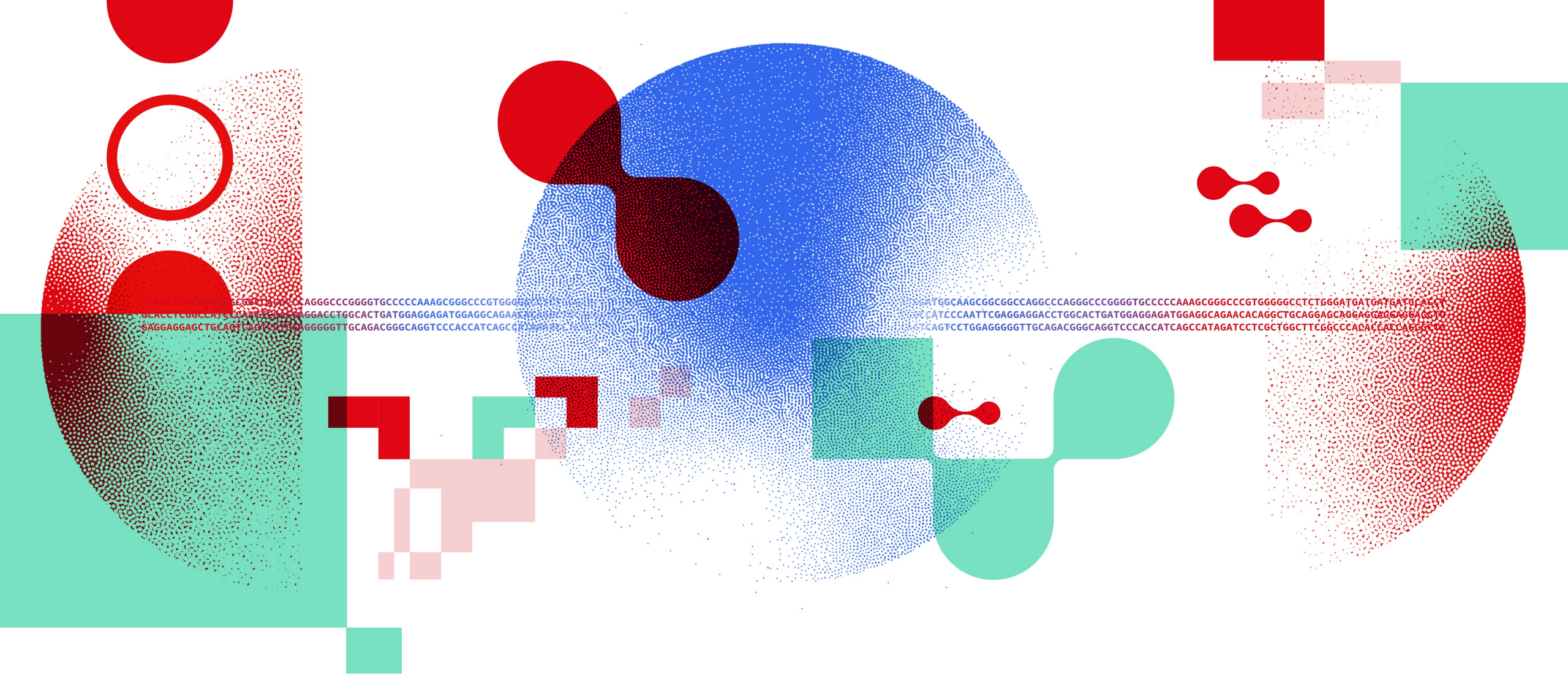
To describe annotation provenace (i.e., information source), we are importing and applying the PROV-Ontology (a W3C reccomendantion). Below we show an application example to our knowledge domain:





Curating EMI terms collaboratively with WebProtege:





Thank you!

DATA SCIENTISTS FOR LIFE

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