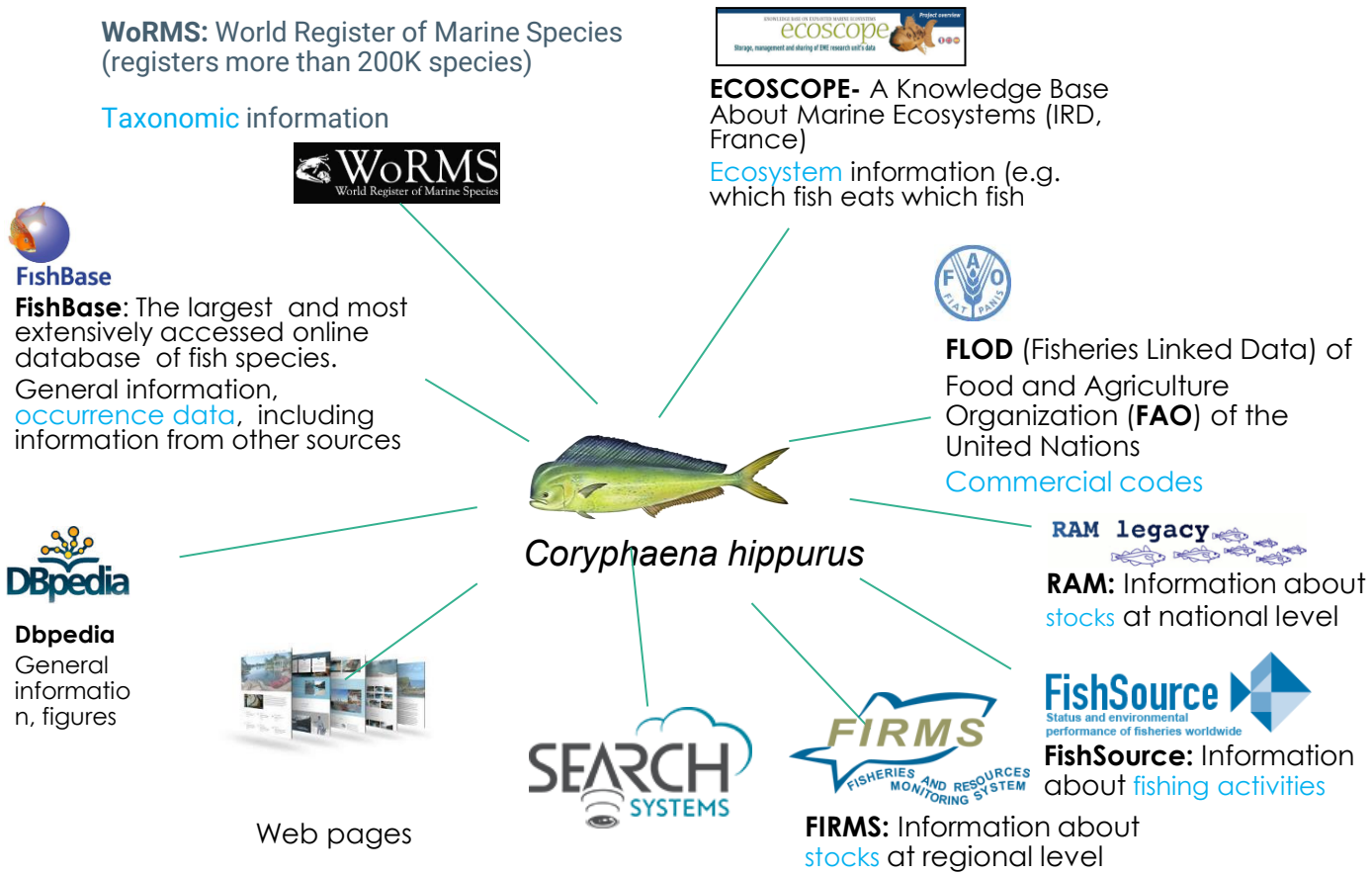
ONTOLOGIES

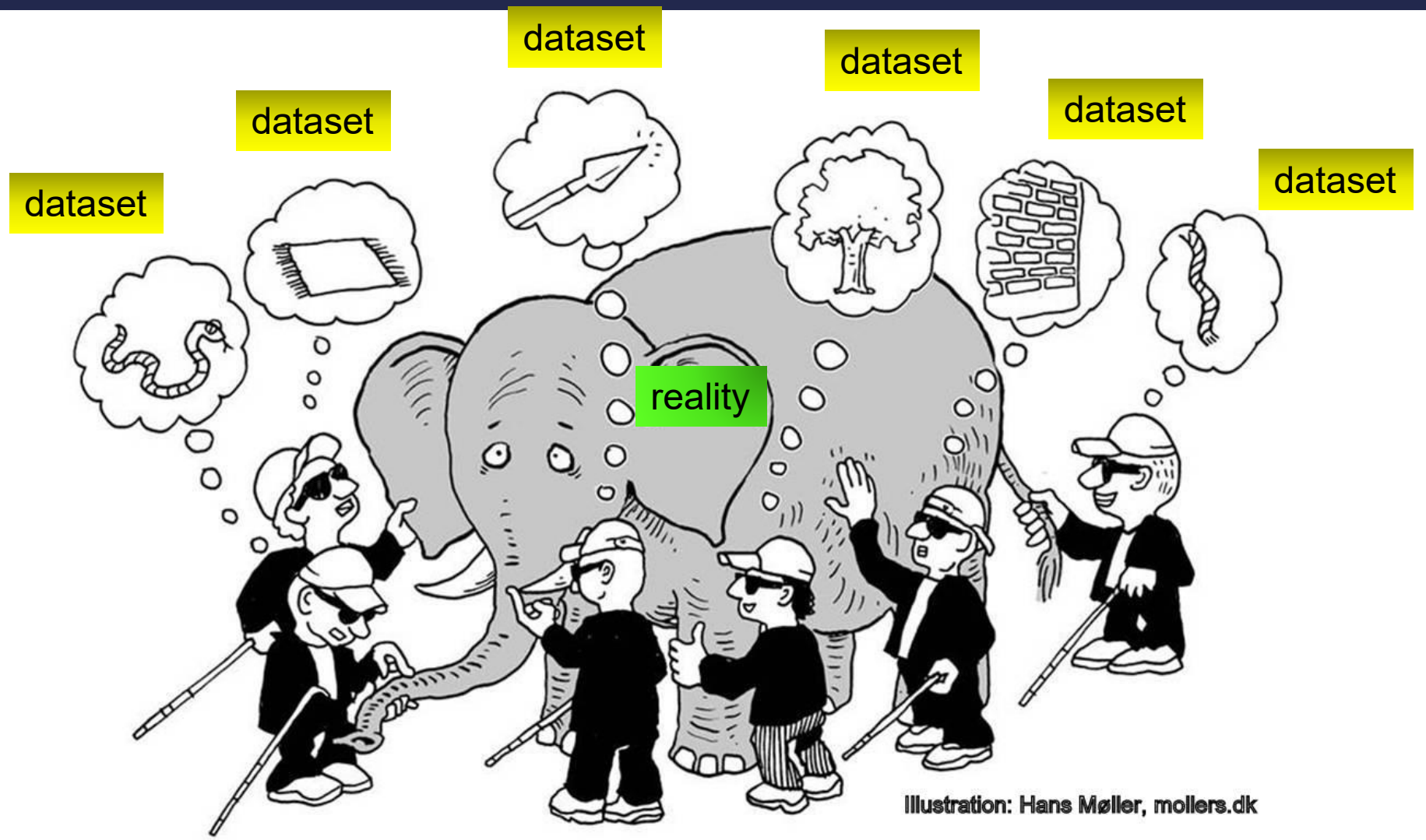
Yannick Spill, Senior Data Scientist

efsa
EUROPEAN FOOD SAFETY AUTHORITY

MARINE DOMAIN: BEFORE ONTOLOGY-BASED INTEGRATION

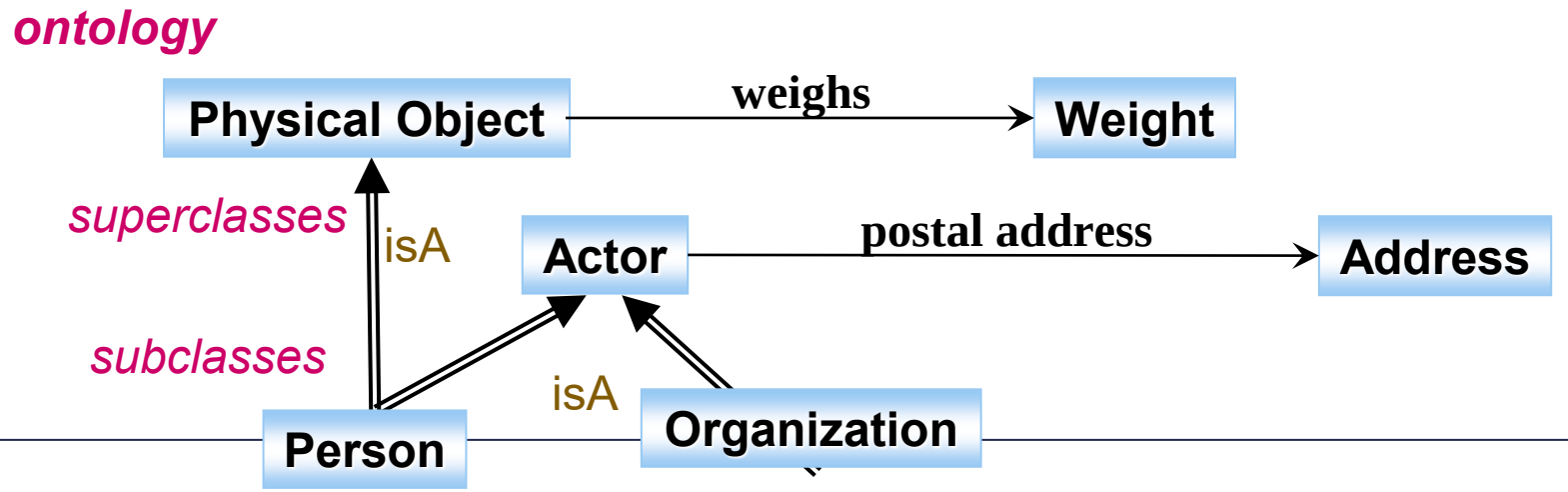


INDIVIDUAL DATASETS PROVIDE COMPLEMENTARY VIEWS

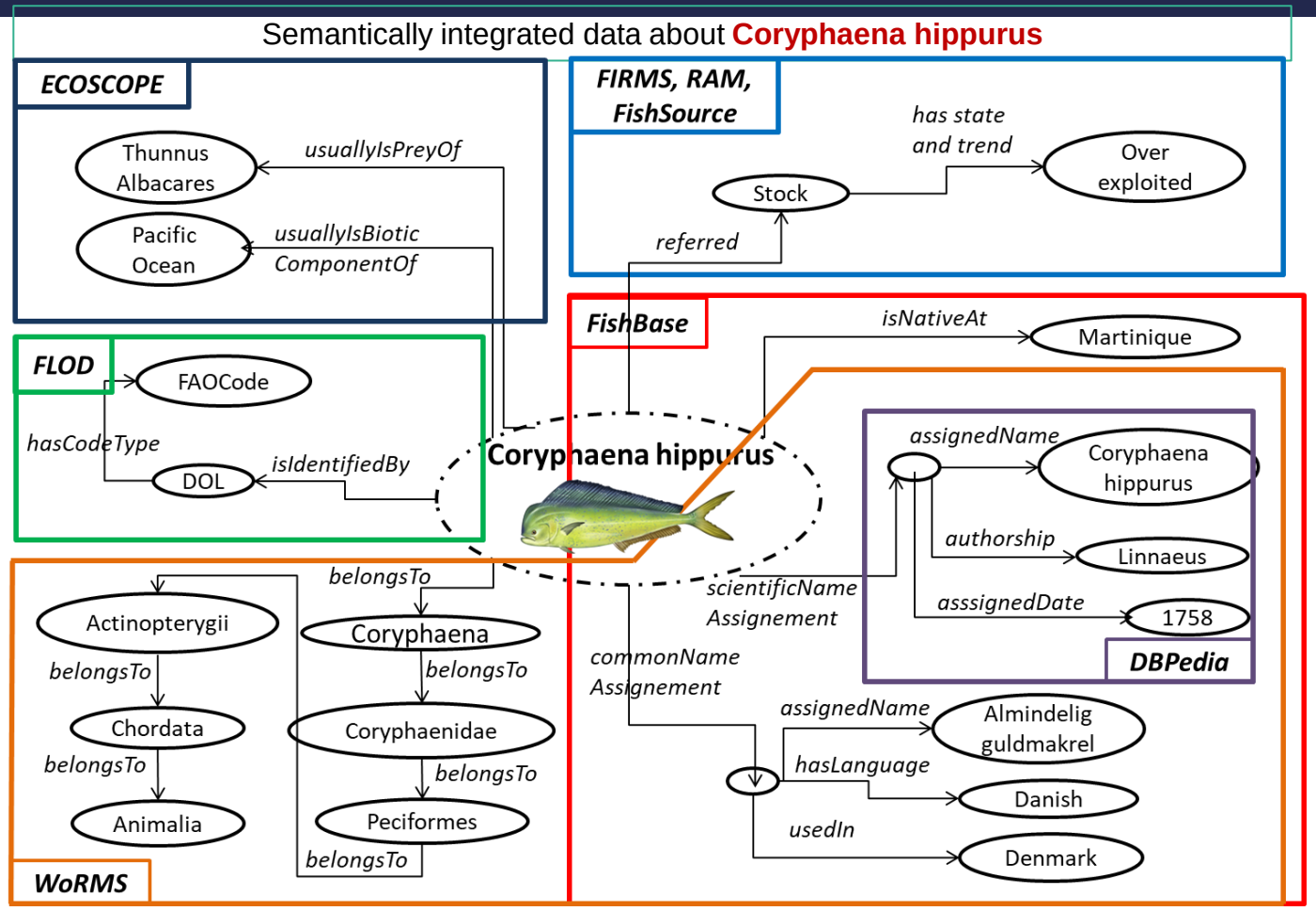


ONTOLOGIES

- An **ontology** is a formal representation of knowledge that defines the concepts and relationships (between those concepts) within a given domain.
- It is a system of ***organizing***, ***understanding***, and ***reasoning*** with the data and information within that domain.
- Ontologies can be expressed and exchanged using W3C standard formats (RDF Schema, OWL)



MARINE DOMAIN: AFTER ONTOLOGY-BASED INTEGRATION



Knowledge Graph obtained after defining a top-level ontology (**MarineTLO**, FAO, 2017) and transforming data from the existing sources

TASKS, DELIVERABLES AND DEADLINES

Task 1: Communication activities

- Info Session
- List of stakeholders to be recontacted
- Presentation material

January 31st 2022

January 31st 2023

January 31st 2023

Task 2: Ontologies and case studies

- List of ontologies relevant for EFSA
- Prioritized list of case studies (min 15)

Task 3: IT architectural suggestions

- An architectural suggestion of necessary IT components related to the storage, management, querying and maintenance of the ontologies and case studies

May 31st 2023

May 31st 2023

May 31st 2023

Task 4: Governance

- Governance recommendations to handle ontologies
- Update to SOPs/WINs if appropriate

Task 5: Case study implementation

- Implementation of minimum 3 case studies
- Documentation

November 30th 2023

November 30th 2023

SELECTED CASE STUDIES

- CS3: Improved **data sharing** from/to **external** stakeholders through ontology-induced constraints in the data models
  - Benefit: provide a clear interpretation of the values in the dataset and would make explicit also the range of the values

- CS4: **EFSA Catalogue browser** uses ontology-driven constraints and inference (instead of programmatic ones) for FoodEx2 encoding including facets
  - Benefit: Increased expressiveness and reuse of Foodex2 for business users including EFSA data providers and consumers

ONTOLOGIES MAIN TAKEAWAYS

Exposing our data models through an **open standard** will unlock long term benefits:

Findable: lower the adoption barrier outside EFSA

Accessible: Help leverage existing tools to navigate and improve discoverability

Interoperable:

- Standardize machine-to-machine interoperability (Ontologies are exposed through URI)
- Enable the combination of other existing ontologies to extend the domain of data collections and/or models of the whole food/feed safety domain or related

*Ultimately, these benefits will enhance **Reusability**, making our data FAIR*