OWL

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OWL

https://github.com/mikel-egana-aranguren/ABD

OWL

OWL: Web Ontology Language

W3C-ren estandar ofiziala web-ean ontologiak sortzeko, semantika zehatz eta formal batekin

OWL

Logika Deskriptiboan (DL) oinarritzen da ezagutza-arlo baten adierazpen konputazionala sortzeko:

- Arrazonamendu automatikoa: "berria" (*) den ezagutza ondorioztatu, kontsultak, koherentzia, ontologiaren arabera entitateak sailkatu, ...
- Informazio sakabanatua integratu hiztegi amankomun bat erabiliz

OWL

Ez da murrizketak ezartzen dituen eskema-lengoaia, inferentzian oinarritzen dena baino (Horretarako SHACL dago)

RDF hizkuntza bera datuak eta bere hiztegia definitzeko* (NoSQL!RDF!)

RDF/XML sintaxia

```
<owl:Class rdf:about="#arm">
   <rdfs:subClassOf>
    <owl:Restriction>
         <owl:onProperty rdf:resource="#part_of"/>
         <owl:someValuesFrom rdf:resource="#body"/>
    </owl:Restriction>
   </rdfs:subClassOf>
</owl:Class>
```

Manchester OWL Syntax

Manchester OWL Syntax: arm subClassOf art_of some body

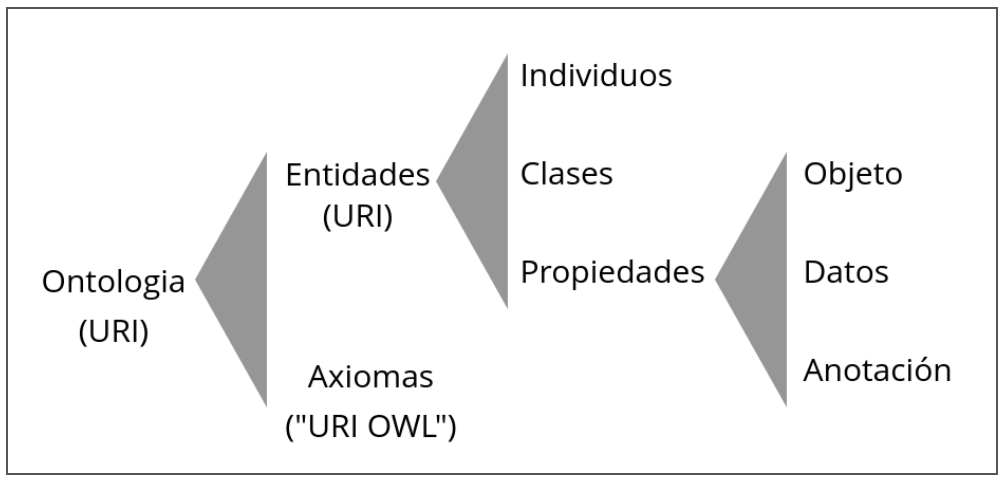
OWL semantika

Entitateak: ezagutza-arloko entitateak, URIekin identifikatuta, garatzaileak sartutakoak ("Mikel", "parte_hartzen_du", ...)

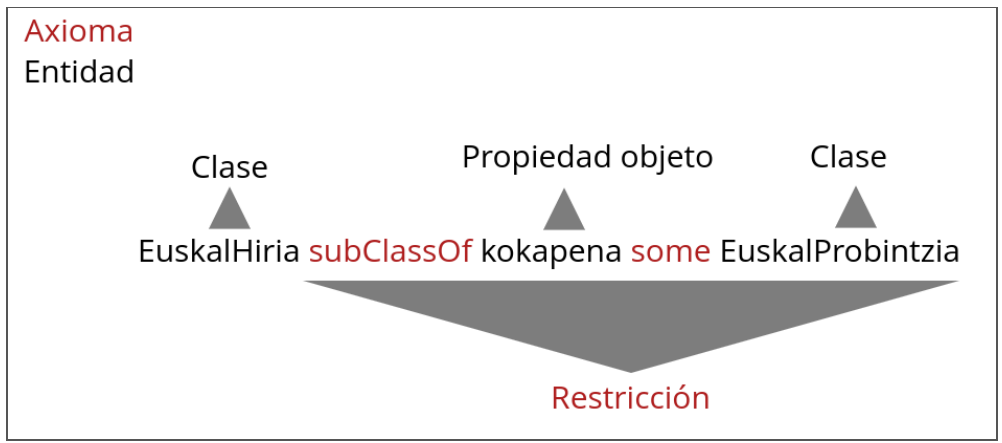
Axiomak: entitateak logika-hiztegiaren bidez lotzen dituzte, OWLek eskaintzen duena (OWL Namespace)

Ontologia batek beste bat inportatu dezake (owl:import) eta bere entitateei erreferentzia egin axiomak erabiliz

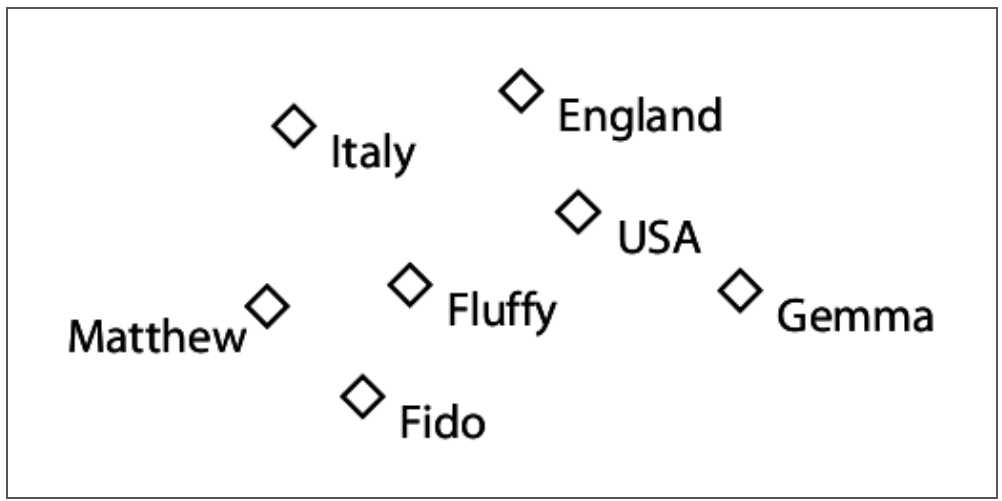
OWL semantika



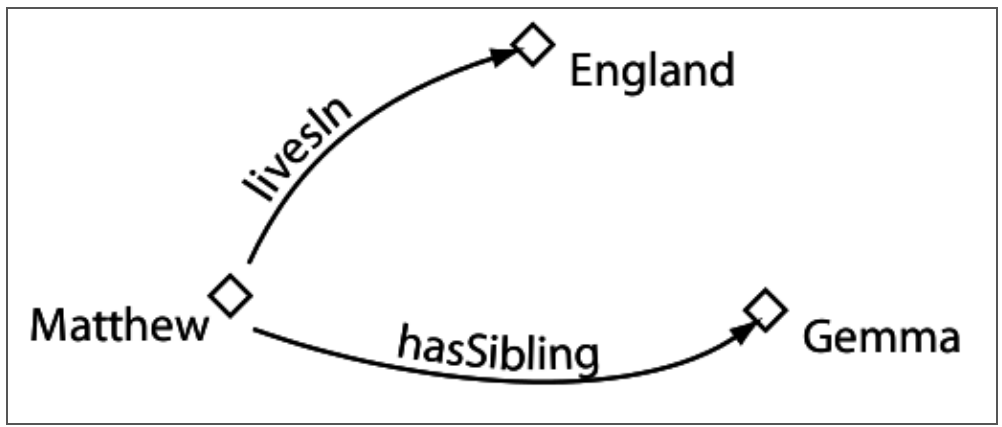
OWL semantika



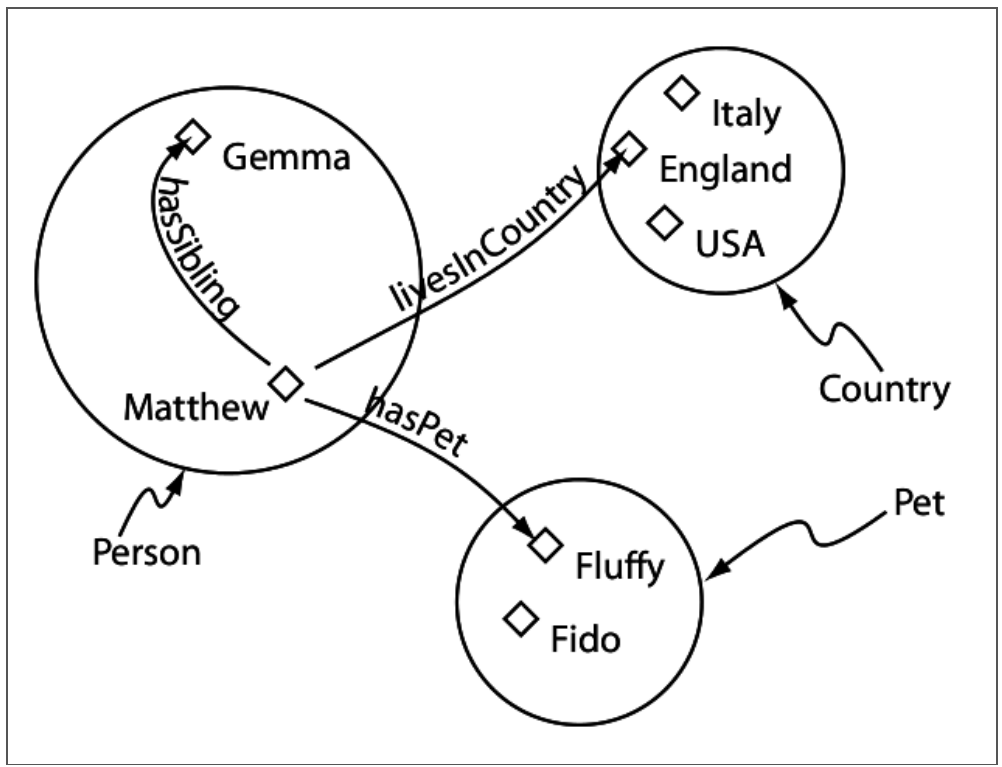
Banakoak



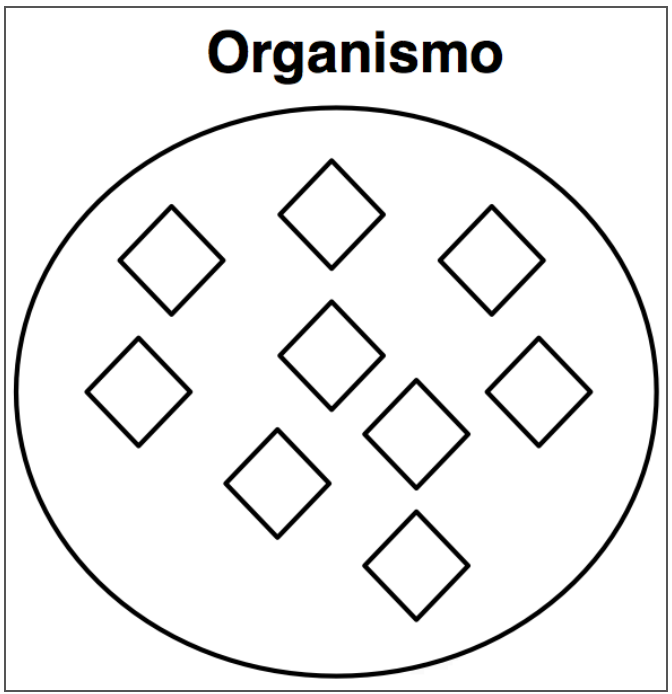
Propietateak



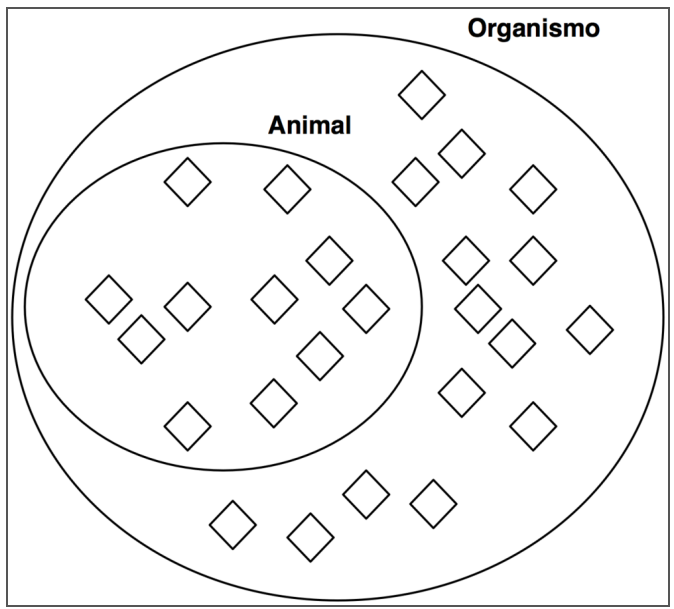
Klaseak


Gemma
hasSibling
livesInCountry
Italy
England
USA
Country
Matthew
hasPet
Person
Pet
Fluffy
Fido

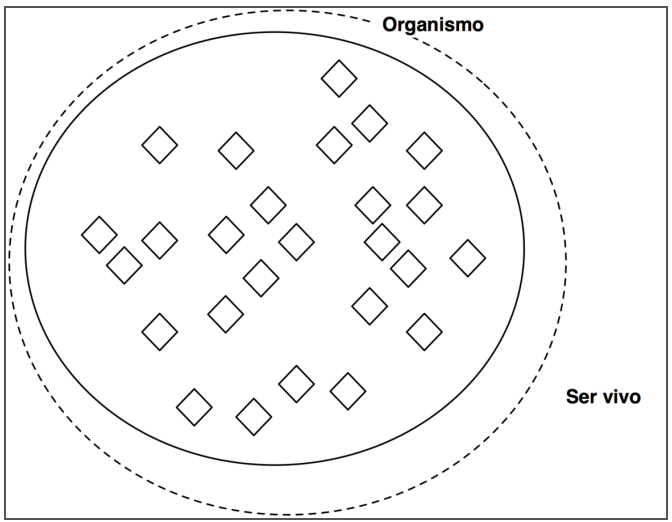
Klaseak



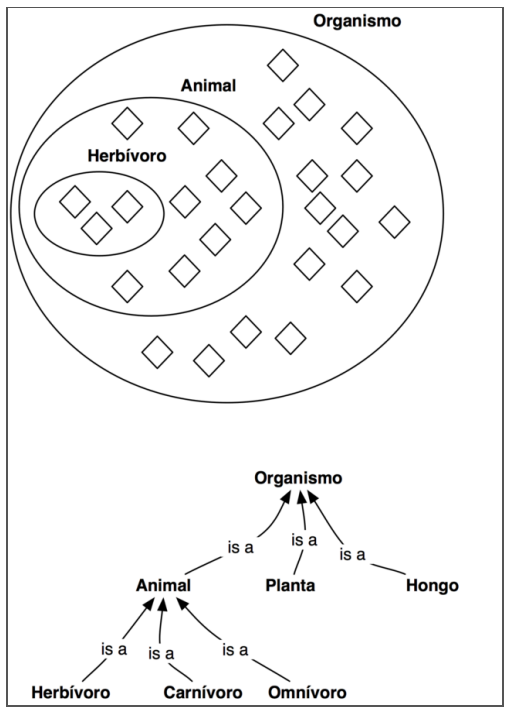
Klasea azpiklase



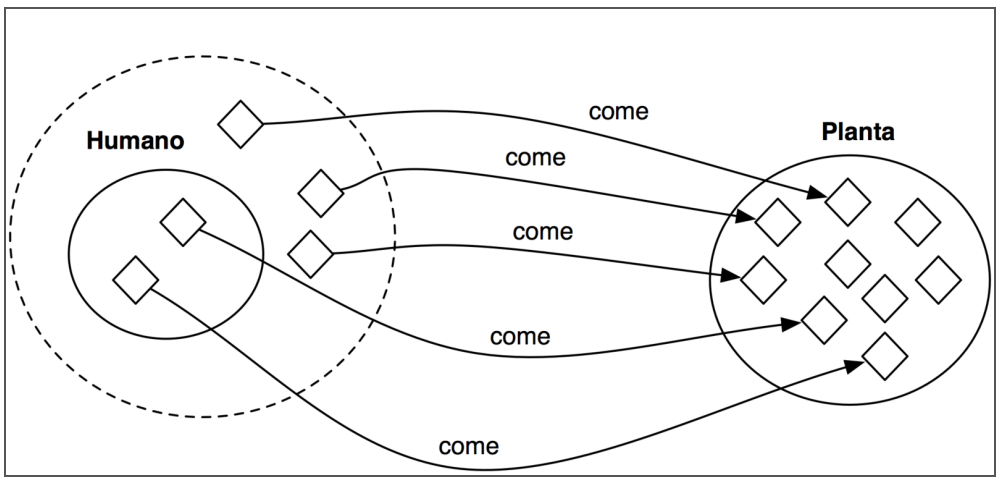
Klase baliokideak



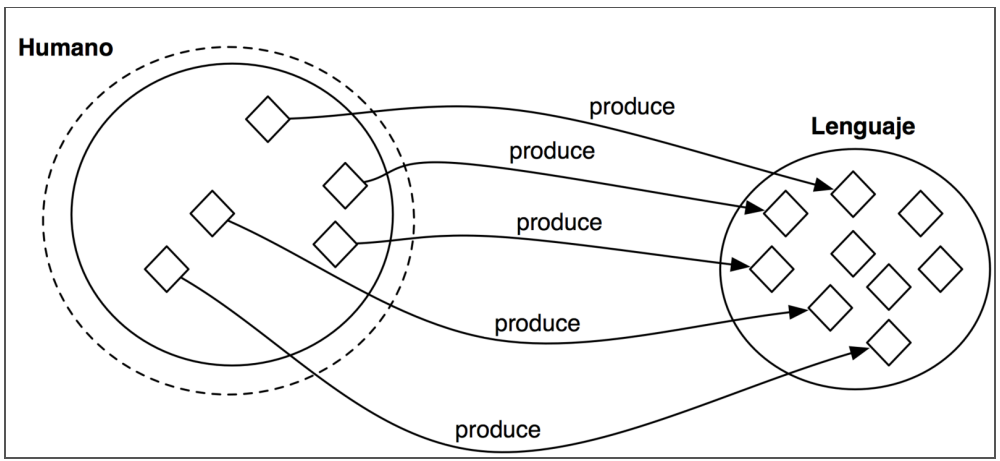
Klaseen hierarkia (Taxonomia)



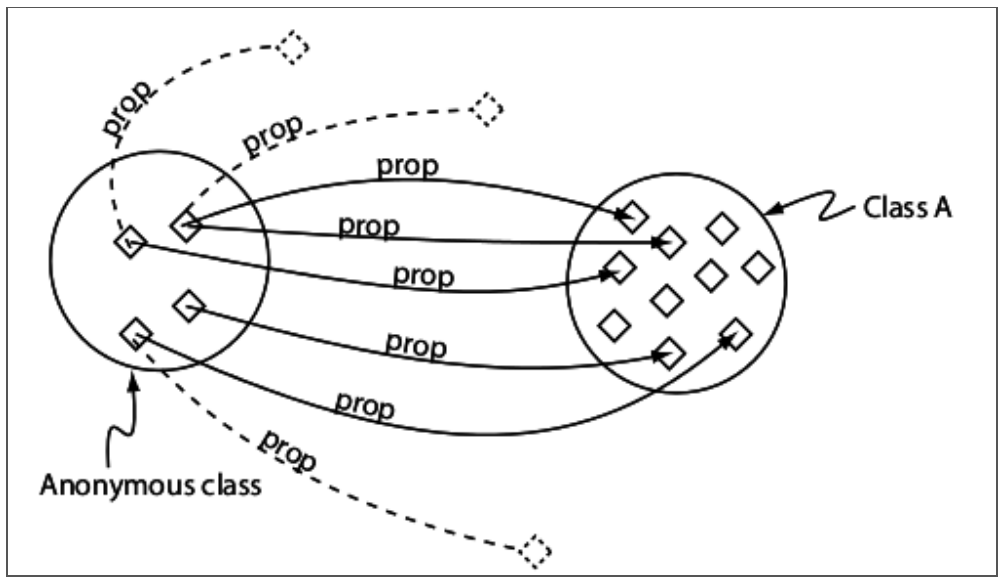
Beharrezko baldintzak



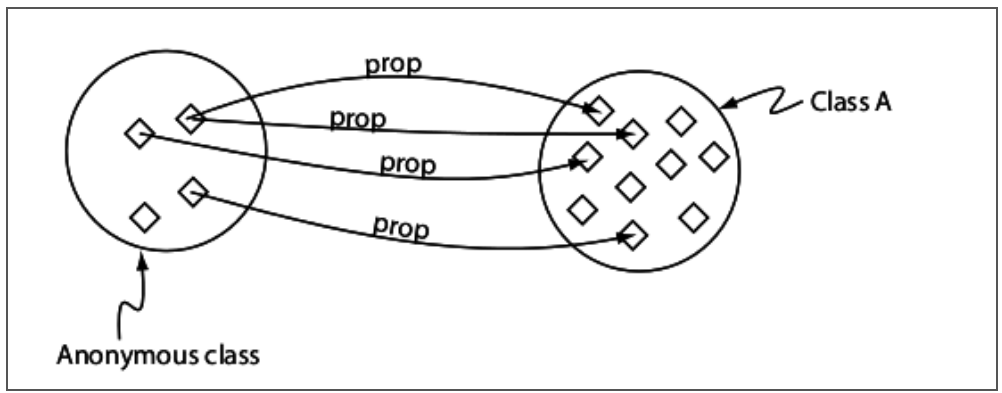
Beharrezkoak eta nahikoak diren baldintzak



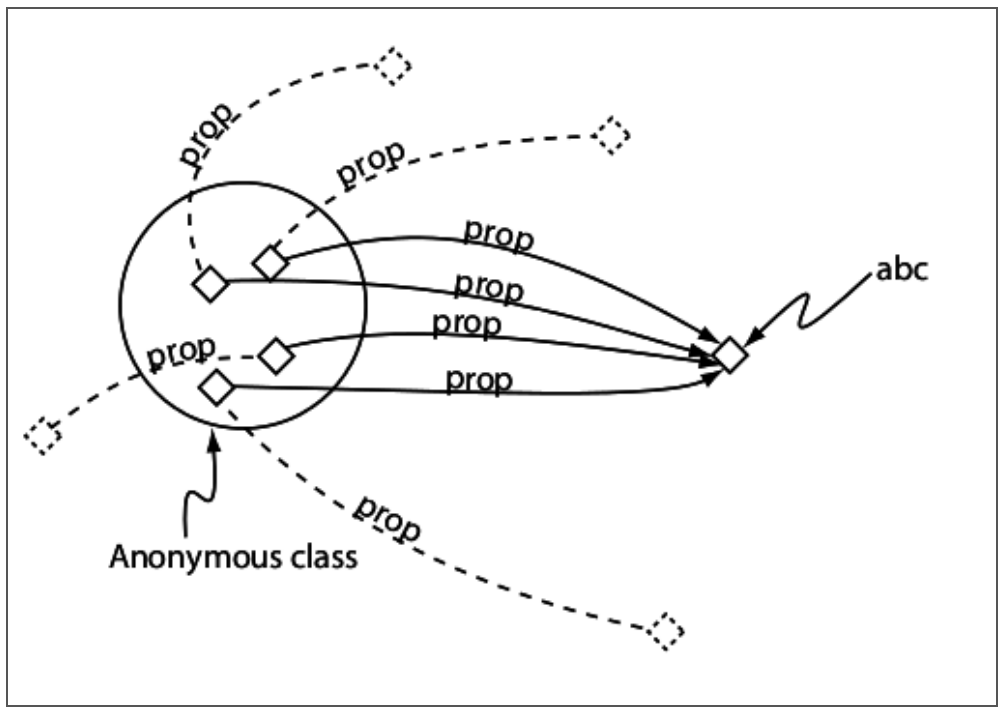
Murrizketa existentziala



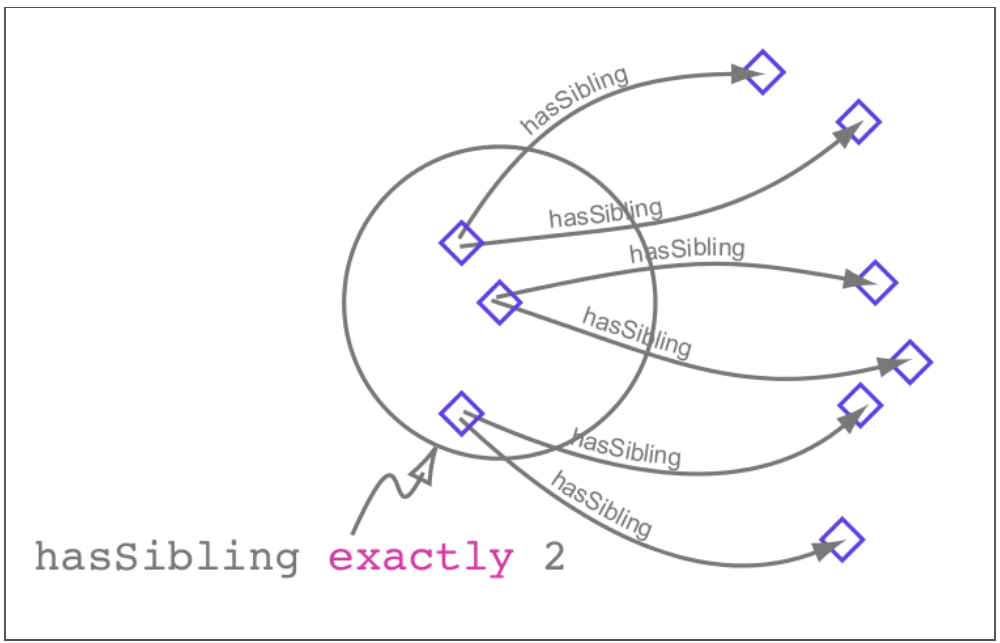
Murrizketa unibertsala



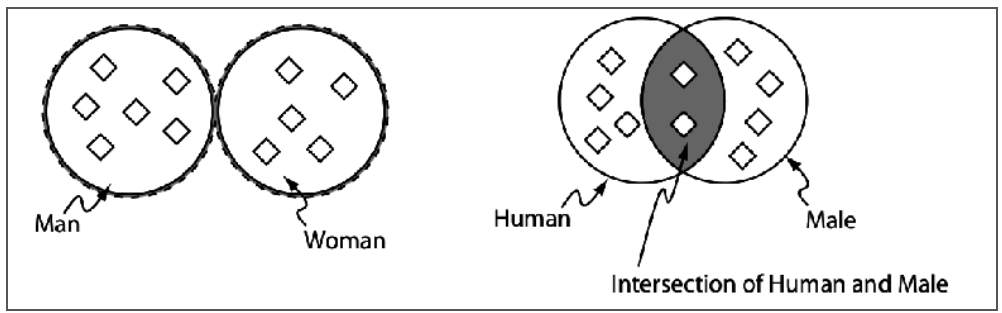
Banako bateko murrizketa (value)



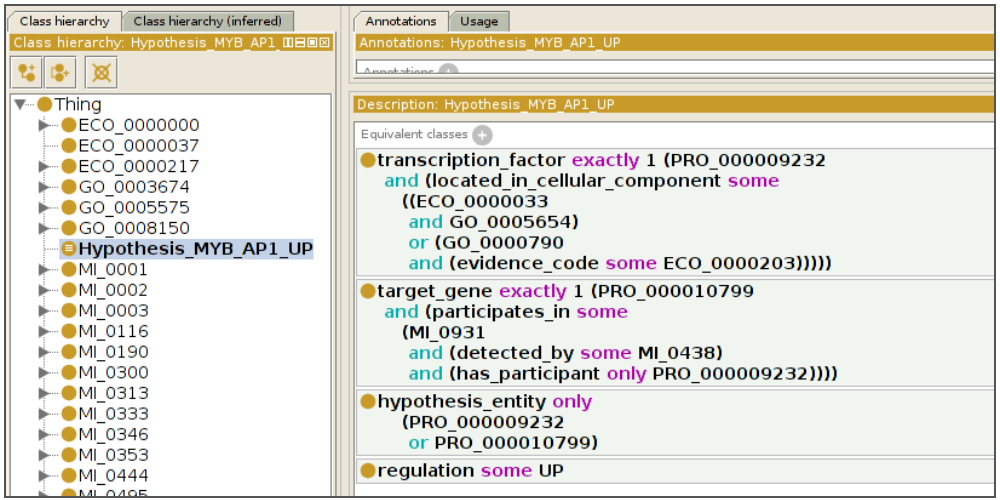
Murrizketa kardinalak



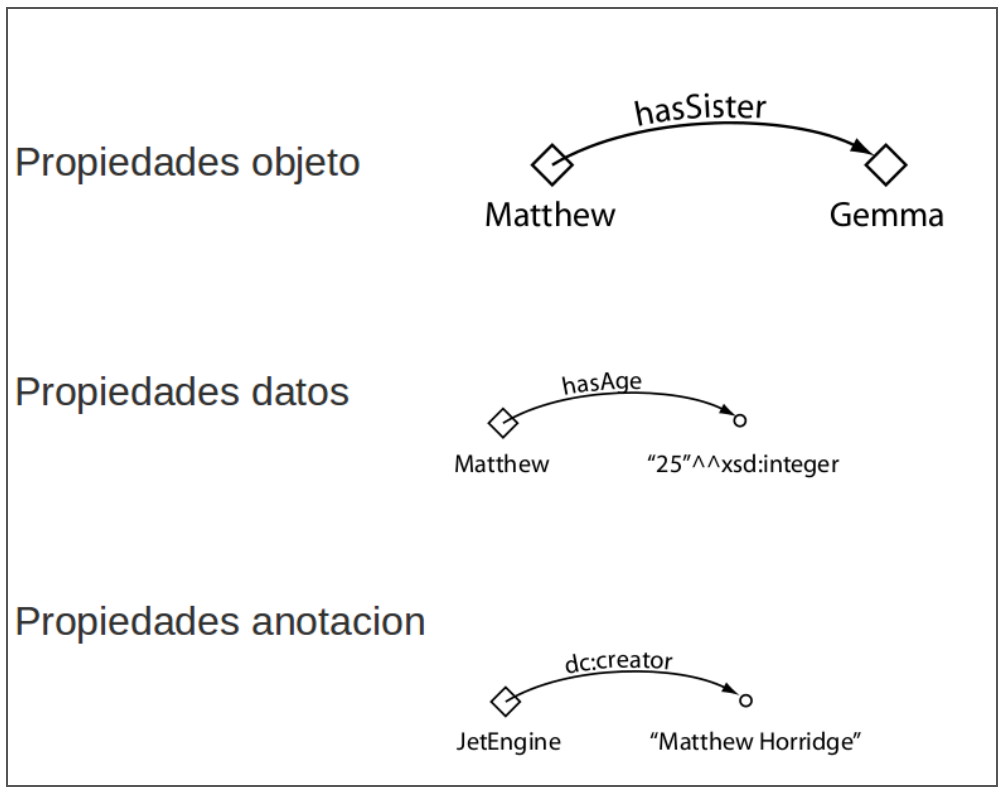
disjointFrom, not, or, and



Adierazpen konplexuak

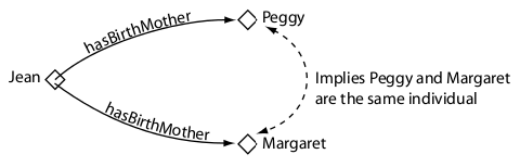


Propietateak

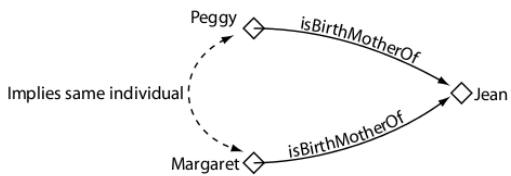


Propietateak

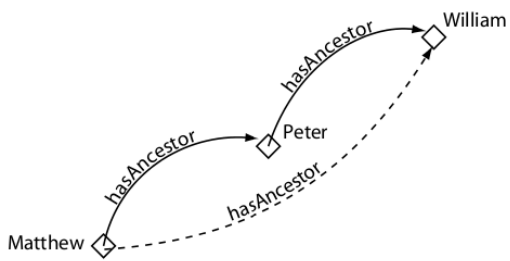
Funcional



Inversa funcional

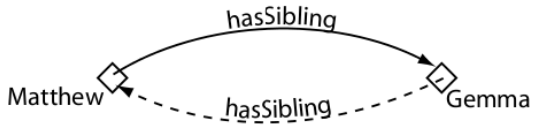


Transitiva

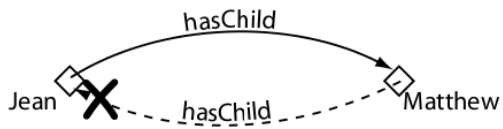


Propietateak

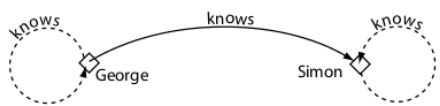
Simetrica



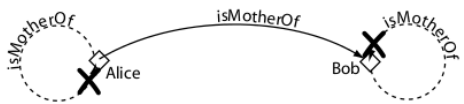
Antisimetrica*



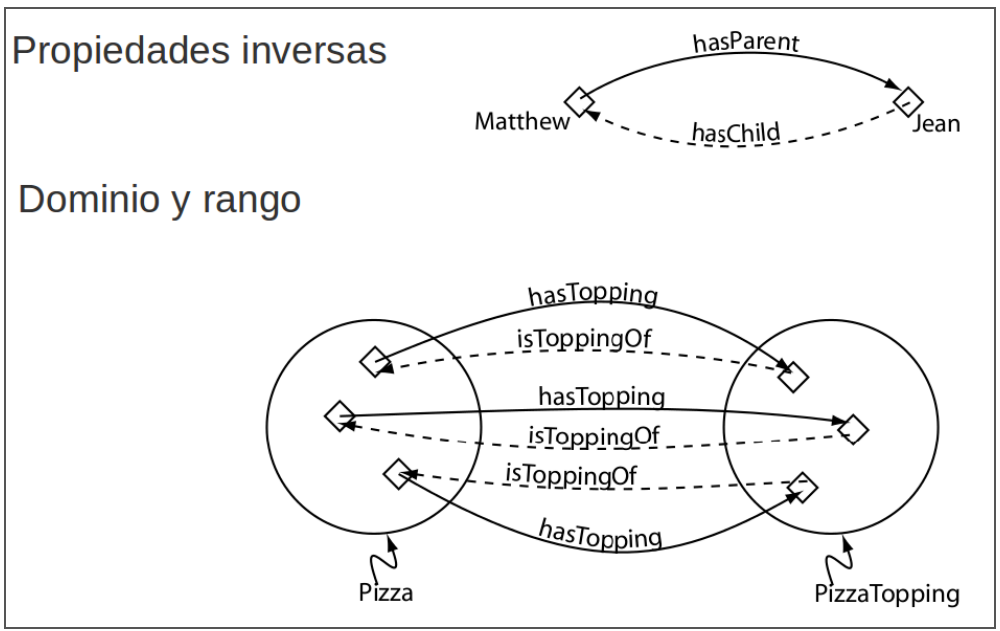
Reflexiva



Irreflexiva*



Propietateak



Banakoak

Klase bateko edo gehiagoko kidea: rdf:type (RDF! Web Semantikoa! NoSQL!)

Berdin (owl:sameas) edo desberdin (owl:differentfrom) beste norbaitengandik

Beste norbait edo datuekin dituen erlazio binarioak (hirukoitza), positiboak edo negatiboak

Arrazonamendu automatikoa

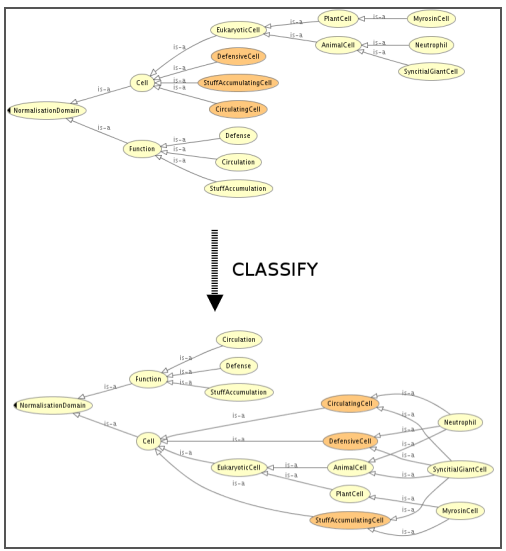
Arrazonatzaile batek ontologian sartu ditugun axiomak dakartzaten "berriak" diren axiomak ondorioztatzen ditu

Arrazonatzaileak axiomak guztiak ondorioztatzen ditu; ezagutza konplexuarekin lan egiteko baliagarria da

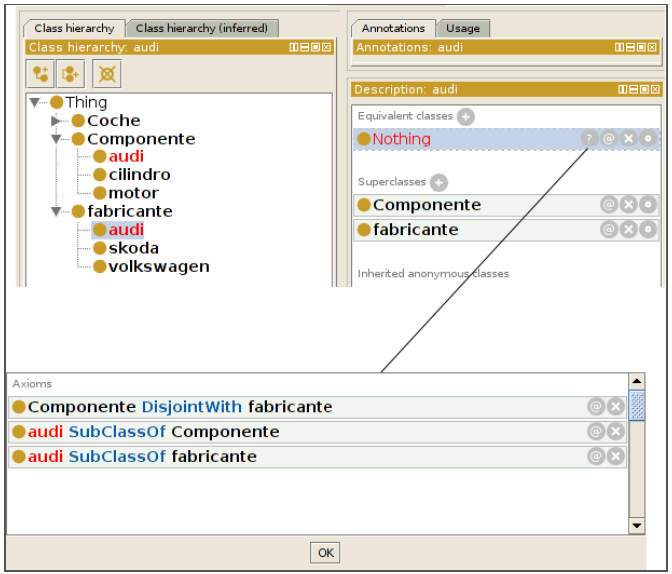
Open World Assumption

No Unique Name Assumption

Arrazonamendu automatikoa: taxonomia mantendu



Arrazonamendu automatikoa: konsistentzia

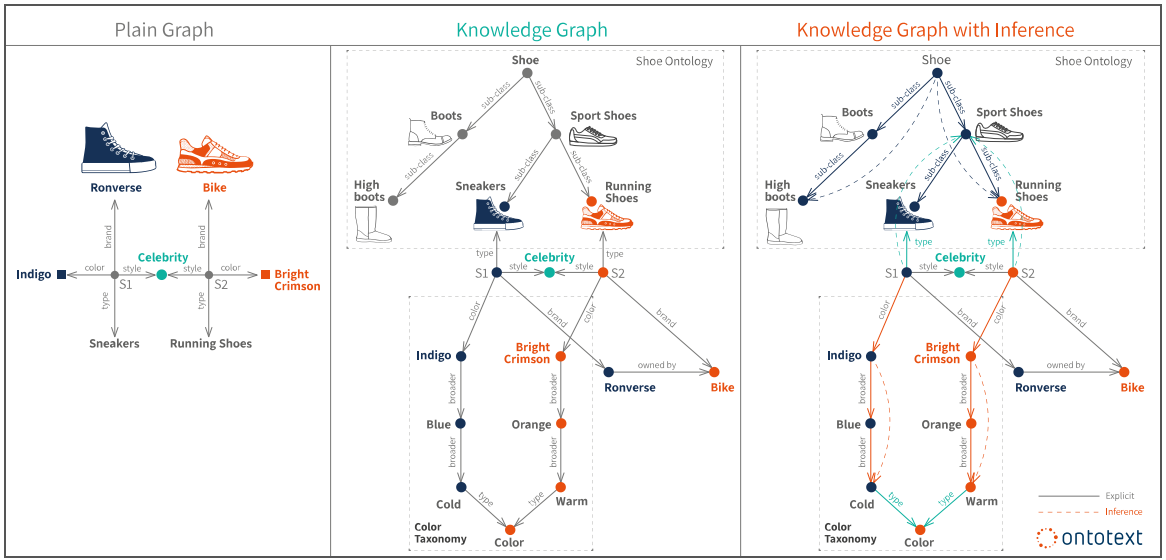


Arrazonamendu automatikoa: klasifikatu

Entitateak sailkatu: entitate berri bat emanda, nola erlazionatzen den beste entitateekin (mota, equivalentTo, subClassOf, hirukoitza)

Kontsulta entitate anonimo bat da, ontologiaren kontra sailkatzen duguna, entitate bat balitz bezala

Knowledge Graphs



Knowledge Graphs

WikiData: https://www.wikidata.org/

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

Uniprot: https://sparql.uniprot.org/

…