

Ontologie sur l'investissement immobilier dans les villes chinoises

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Construction de notre ontologie

« Ville » est un sujet trop général

→ l'investissement immobilier dans les villes chinoises

→ l'utilisation de logiciel *Protégé* pour la création de notre ontologie

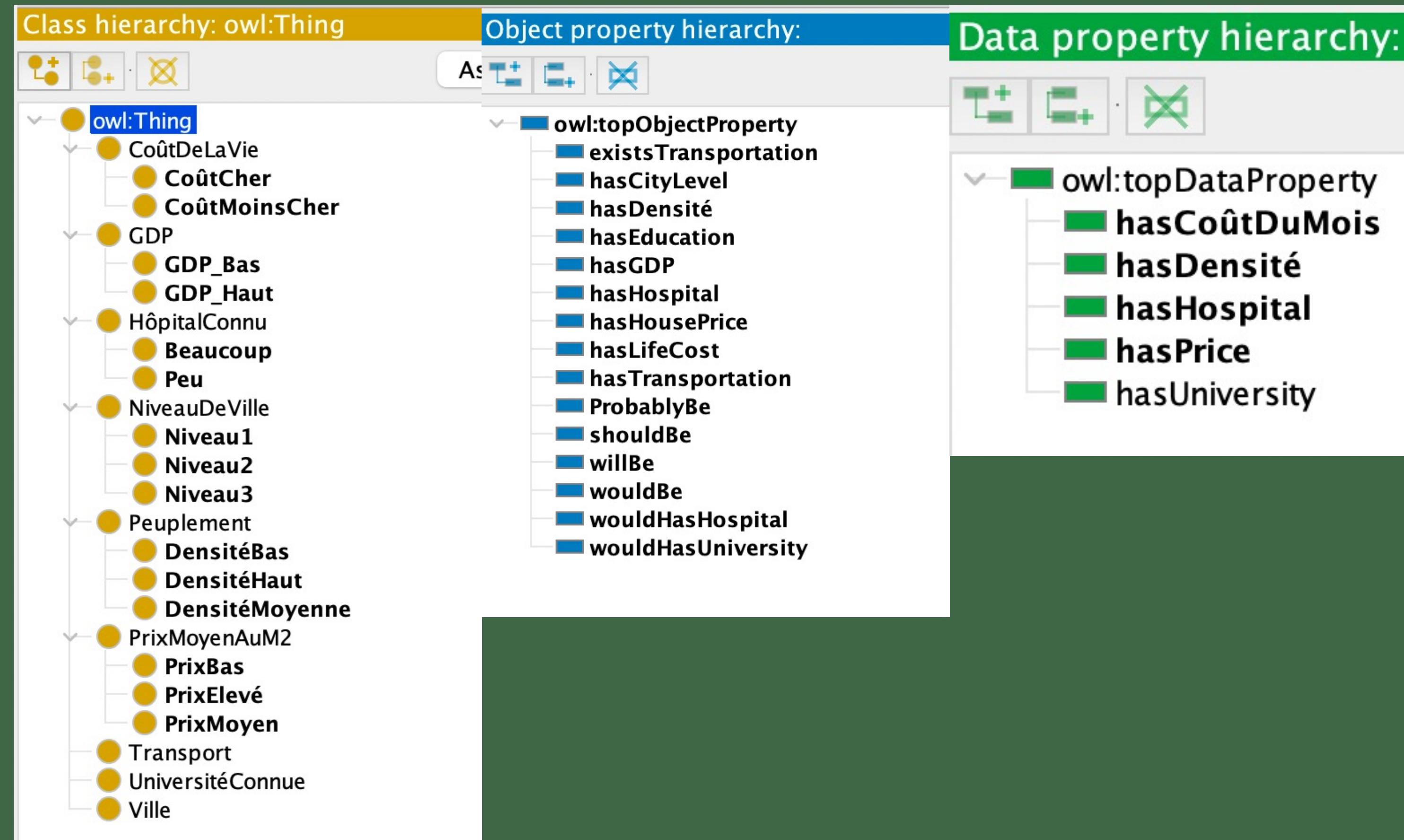


Construction de notre ontologie

Le but de ce projet est de construire une base de connaissances dans les domaines verticaux et de fournir des informations et des idées utiles pour choisir les villes en Chine pour l'investissement immobilier.



Création des classes et des attributs



Création des classes et des attributs

Active ontology Entities Individuals by class OWLViz DL Query OntoGraf

Datatypes Individuals OWLViz
Data properties Annotation properties
Classes Object properties

Class hierarchy: Niveau3 [? I E D X]

Annotations Usage

Annotations: Niveau3 [? I E D X]

Annotations +

owl:Thing

- CoûtDeLaVie
- CoûtCher
- CoûtMoinsCher
- GDP
- HôpitalConnu
- NiveauDeVille
 - Niveau1
 - Niveau2
 - Niveau3**
- Peuplement
- PrixMoyenAuM2
- Transport
- UniversitéConnue
- Ville

Asserted

Description: Niveau3 [? I E D X]

Equivalent To +
hasHousePrice some PrixBas

SubClass Of +
NiveauDeVille

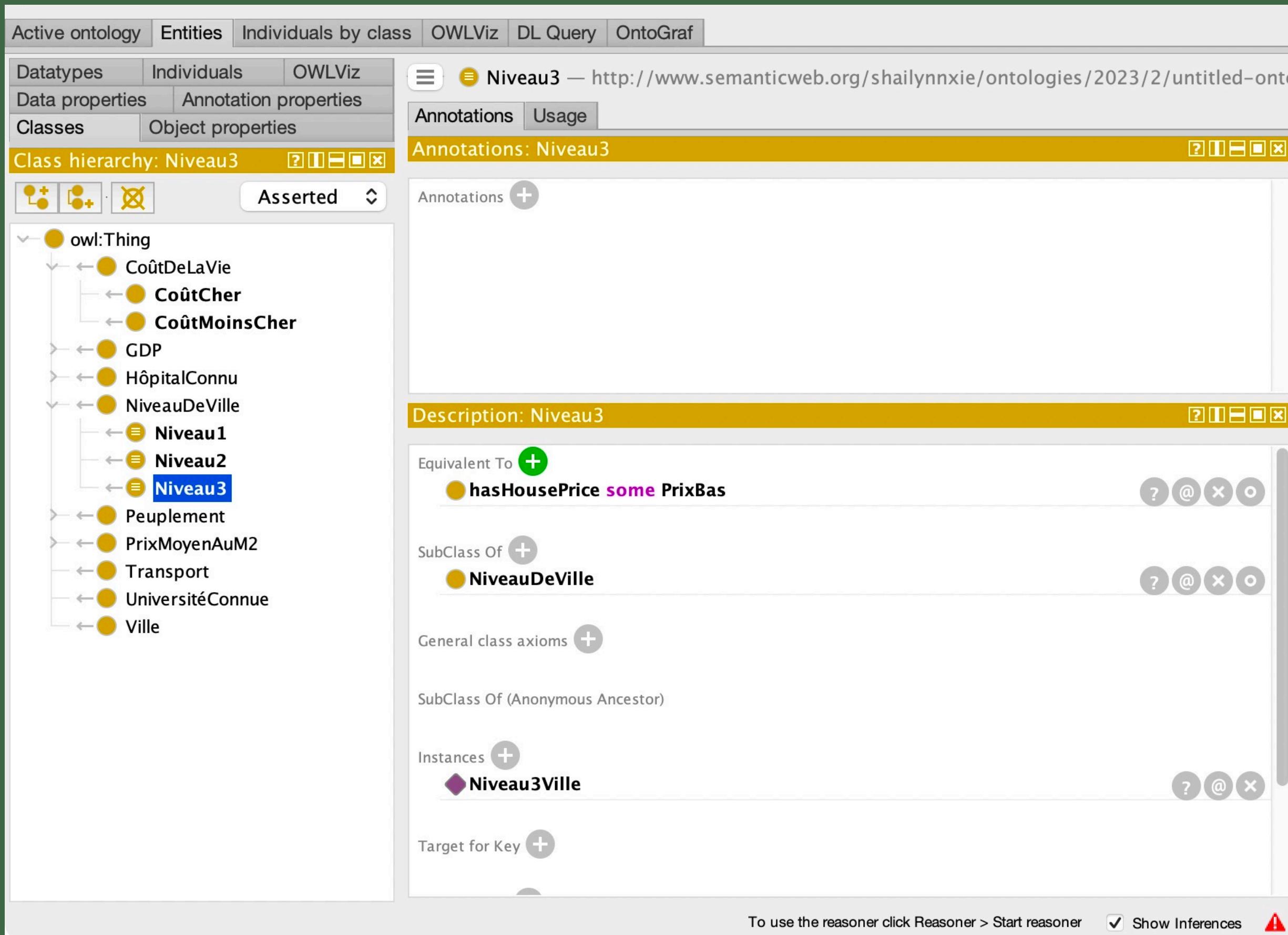
General class axioms +

SubClass Of (Anonymous Ancestor)

Instances +
Niveau3Ville

Target for Key +

To use the reasoner click Reasoner > Start reasoner Show Inferences 



Création des instances

Active ontology Entities Individuals by class OWLViz DL Query OntoGraf

Datatypes Individuals OWLViz
Data properties Annotation properties
Classes Object properties

Annotations Usage

Annotations: Coût10000+ ? I E D X

Individuals: Coût10000+ I E D X

Aéroport
Bateau
BeaucoupHôpitalConnu
Beijing
Bus
Chengdu
Coût10000+ (selected)
Coût5000-
Densité_Bas
Densité_Haut
Densité_Moyen
GDPBas
GDPHaut
Guangzhou
Kunming
Métro
Niveau1Ville
Niveau2Ville
Niveau3Ville
Nombre0
Nombre2
Nombre4
Nombre8
PeuHôpitalConnu
Prix30000-
Prix30000-50000

Annotations +

Description: Coût10000+ ? I E D X Property assertions: Coût10000+ I E D X

Types +
CoûtCher
NiveauDeVille

Same Individual As +
Different Individuals +

Object property assertions +
wouldBe Niveau1Ville ? @ X O

Data property assertions +
hasCoûtDuMois "Coût du mois plus de 10000 yuan."^^rdfs:Literal ? @ X O

Negative object property assertions +

Negative data property assertions +

Reasoner state out of sync with active ontology Show Inferences !

Reasoners et Inference

Description: Niveau1	Description: Niveau1
Equivalent To + ● hasLifeCost some CoûtCher	Equivalent To + ● hasLifeCost some CoûtCher
SubClass Of + ● NiveauDeVille	SubClass Of + ● NiveauDeVille ● Ville
General class axioms +	General class axioms +
SubClass Of (Anonymous Ancestor)	SubClass Of (Anonymous Ancestor)
Instances + ◆ Niveau1Ville	Instances + ◆ Beijing ◆ Guangzhou ◆ Niveau1Ville ◆ Shanghai
Target for Key +	Target for Key +
Disjoint With + ● Niveau2 ● Niveau3	Disjoint With +
Disjoint Union Of +	

Explanation for: Beijing Type Niveau1

Beijing hasLifeCost Coût10000+

Coût10000+ Type CoûtCher

Niveau1 EquivalentTo hasLifeCost some CoûtCher

Beijing, Guangzhou
et Shanghai =
Niveau1Ville

Reasoners et Inference

Description: Niveau2

Equivalent To +
● (hasHousePrice **some** PrixMoyen)
and (hasLifeCost **some** CoûtMoinsCher)

SubClass Of +
● NiveauDeVille

General class axioms +

SubClass Of (Anonymous Ancestor)

Instances +
■ Niveau2Ville

Target for Key +

Disjoint With +
■ Niveau1
■ Niveau3

Description: Niveau2

Equivalent To +
● (hasHousePrice **some** PrixMoyen)
and (hasLifeCost **some** CoûtMoinsCher)

SubClass Of +
● NiveauDeVille
■ DensitéMoyenne

General class axioms +

SubClass Of (Anonymous Ancestor)
● hasHousePrice **some** PrixMoyen

Instances +
■ Chengdu
■ Niveau2Ville
■ Sanya

Explanation for: Chengdu Type Niveau2

Chengdu hasLifeCost Coût5000–
Chengdu hasHousePrice Prix30000–50000
Coût5000– **Type** CoûtMoinsCher
Prix30000–50000 **Type** PrixMoyen
Niveau2 **EquivalentTo** (hasHousePrice **some** PrixMoyen) **and** (hasLifeCost **some** CoûtMoinsCher)

Chengdu et Sanya
= Niveau2Ville

Requêtes SPARQL en protégé

SPARQL query:

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX
base:<http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6#>
SELECT ?city ?level
    WHERE { ?city base:hasCityLevel ?level }
    ORDER BY ?level
```

city	level
Shanghai	Niveau1Ville
Beijing	Niveau1Ville
Guangzhou	Niveau1Ville
Chengdu	Niveau2Ville
Kunming	Niveau2Ville
Sanya	Niveau3Ville

Execute

SPARQL query:

```
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX
base:<http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6#>
SELECT ?city ?Nombre ?nb
    WHERE { ?city base:hasEducation ?Nombre.
        ?Nombre base:hasUniversity ?nb
        FILTER(?nb >0)
    }
```

city	Nombre	nb
Guangzhou	Nombre2	"2"^^<http://www.w3.org/2001/
Chengdu	Nombre2	"2"^^<http://www.w3.org/2001/
Beijing	Nombre8	"8"^^<http://www.w3.org/2001/
Shanghai	Nombre4	"4"^^<http://www.w3.org/2001/

Execute

Requêtes SPARQL en protégé

The image displays two separate SPARQL query interfaces, likely from the Protégé application, showing different queries and their results.

Left Query:

```
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX base:<http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6#>
ASK
{
    base:Beijing
    base:hasCityLevel base:Niveau1Ville
}
```

Result: True

Right Query:

```
SPARQL query: ASK
{
    base:Guangzhou base:hasUniversity ?Nombre_GZ.
    base:Beijing base:hasUniversity ?Nombre_BJ.
    FILTER(?Nombre_GZ >?Nombre_BJ)
}
```

Result: False

Both interfaces include a purple header bar with window control icons (minimize, maximize, close) and a blue "Execute" button at the bottom.

Requêtes SPARQL en playground

Show prefixes ... endpoint: <http://localhost:8888/sparql>

```
prefix city: <http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6#>

SELECT ?ville ?level ?price
WHERE {
    ?ville city:hasCityLevel ?level .
    OPTIONAL {
        ?ville city:hasPrice ?price .
    }
}
ORDER BY DESC (?price)
```

html ▾ Go Reset term finder

Query time is 0.011[s] for 6 rows

ville	level
< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Beijing >	< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Niveau1Ville > "63000"
< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Guangzhou >	< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Niveau1Ville > "63000"
< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Shanghai >	< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Niveau1Ville > "63000"
< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Chengdu >	< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Niveau2Ville > "38000"
< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Kunming >	< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Niveau2Ville > "38000"
< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Sanya >	< http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Niveau3Ville > "26000"

1 graph pattern 1 variable

203) Select things that are persons and are female (women)

1 graph pattern 1 variable 2 conditions

204) Select things that have a sex

1 graph pattern 2 variables distinct limit offset

206) Select persons and their pets

1 graph pattern 2 conditions 2 variables

207) Select persons and, if they have, their pets as well

1 graph pattern 2 conditions 2 variables optional

208) Select persons that DO NOT have any pets

1 graph pattern 2 variables filter not exists

209) William's and John's pets

1 graph pattern 1 variable union values

220) Select Eve's grandfather

2 graph patterns 2 variables exercise FILTER EXISTS

Requêtes SPARQL en playground

Show prefixes ... endpoint: <http://localhost:8888/sparql>

```
prefix city: <http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6>

SELECT ?ville ?nombre
WHERE {
    ?ville city:hasGDP city:GDPHaut .
    OPTIONAL {
        ?ville city:hasEducation ?nombre .
        FILTER (?nombre != city:Nombre2)
    }
}
```

html

term finder

Query time is 0.018[s] for 3 rows

ville	nombre
<http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Beijing>	<http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Nombre8>
<http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Shanghai>	<http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Nombre4>
<http://www.semanticweb.org/shailynnxe/ontologies/2023/2/untitled-ontology-6Guangzhou>	-

201) Select things that are females
1 graph pattern 1 variable

203) Select things that are persons and are female (woman)
1 graph pattern 1 variable 2 conditions

204) Select things that have a sex
1 graph pattern 2 variables distinct limit offset

206) Select persons and their pets
1 graph pattern 2 conditions 2 variables

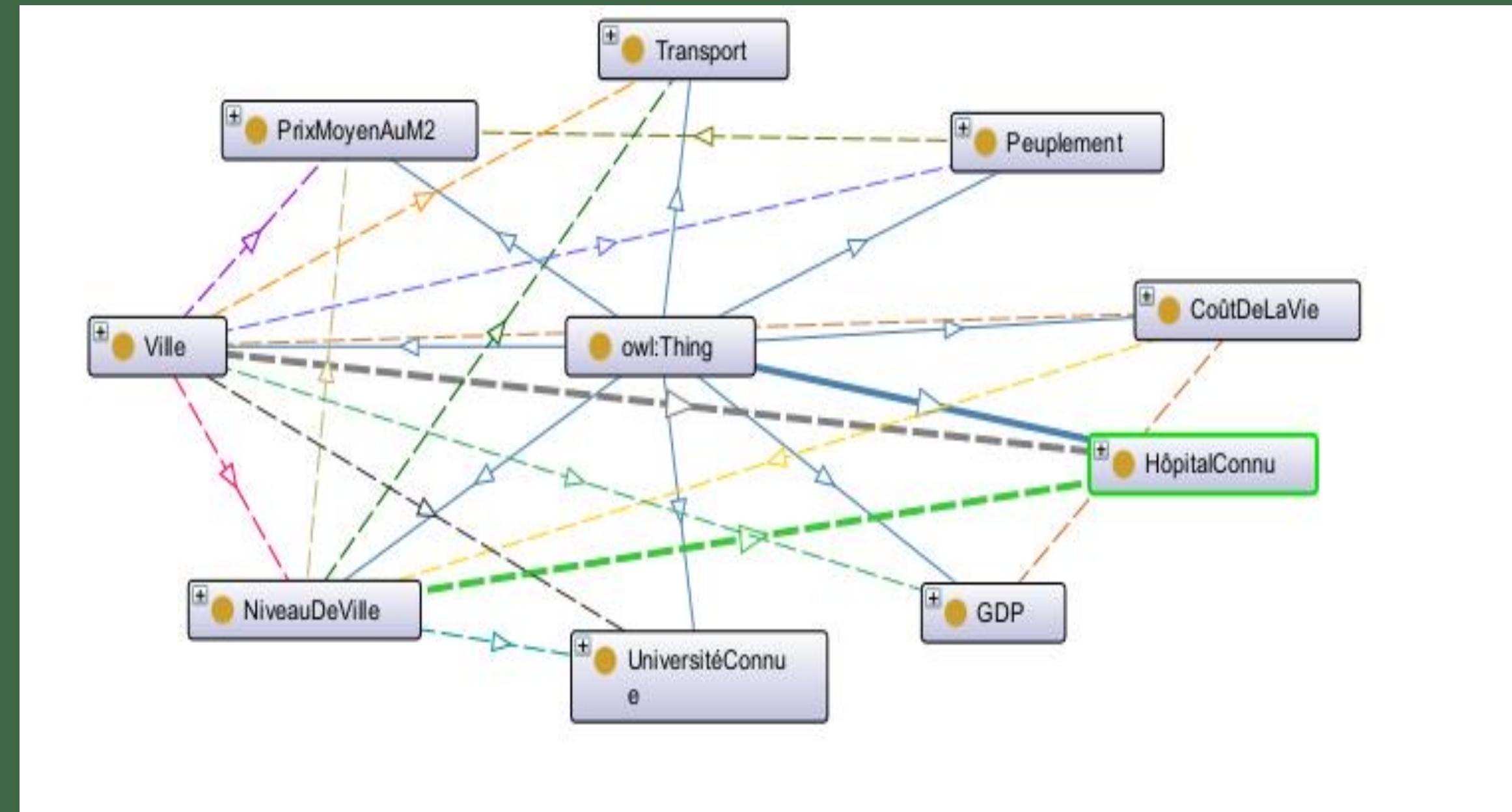
207) Select persons and, if they have, their pets as well
1 graph pattern 2 conditions 2 variables optional

208) Select persons that DO NOT have any pets
1 graph pattern 2 variables filter not exists

209) William's and John's pets
1 graph pattern 1 variable union values

220) Select Eve's grandfather
2 graph patterns 2 variables exercise FILTER EXISTS

Conclusion





Merci beaucoup !
