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Data linking and keys project

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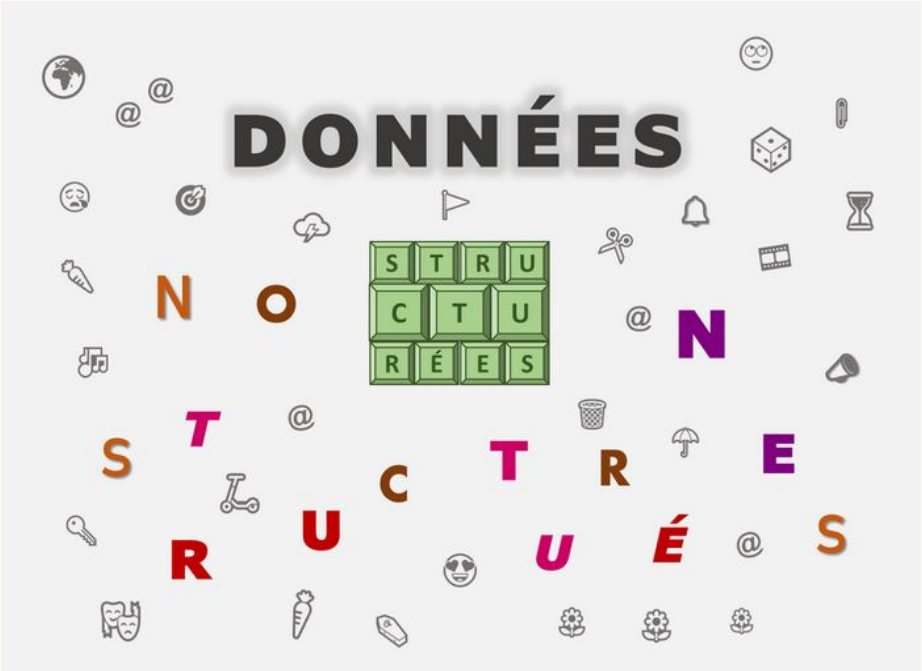
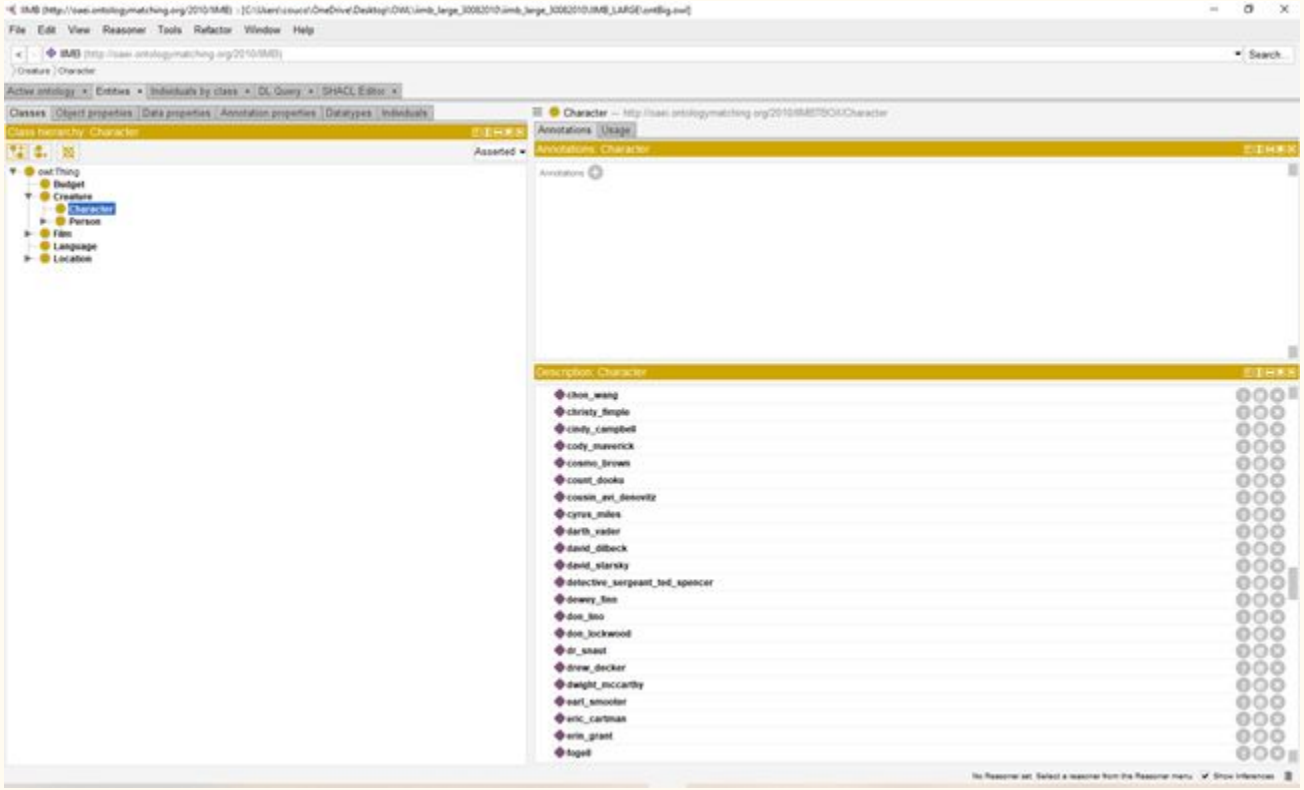
Introduction



Analyse et prétraitement des données

IIMB CINÉMA BENCHMARK

Analyse et prétraitement des données



Analyse et prétraitement des données

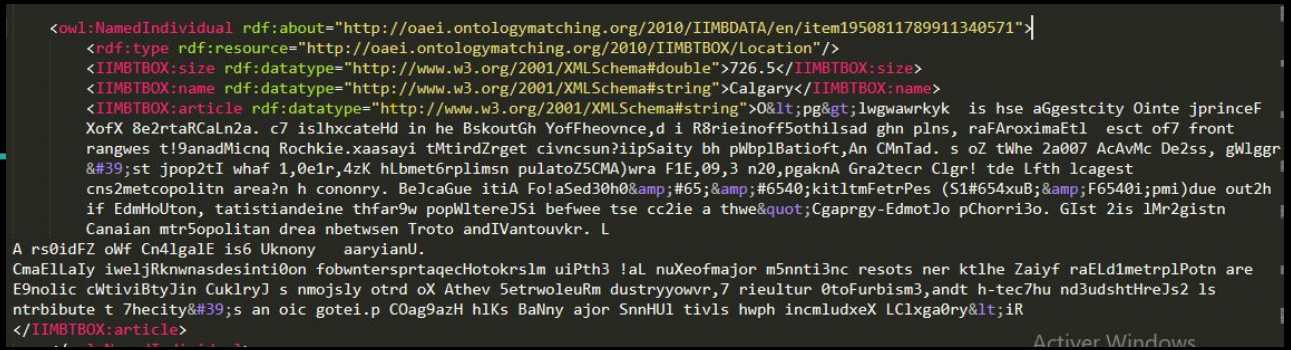
- objectif : Réduire la taille des fichiers sans perdre d'informations
- travail :
    - supprimer les propriétés non pertinentes
    - supprimer les redondances
    - supprimer les propriétés aberrantes
    - Comparaison par rapport à la grande base

Analyse et prétraitement des données

- supprimer les propriétés non pertinentes

Supprimer les propriétés avec des textes longs

- Si le nombre de mots total dans un article $>$ seuil : on supprime le texte.
- Si le nombre de mots total dans un article $<$ seuil : on garde le texte.



Analyse et prétraitement des données

- supprimer les propriétés non pertinentes
- supprimer les redondances

  - Utilisation du fichier “refalign.rdf”.
  - Intuition
  - Utilisation du fichier “ontBig.owl”

```
<Cell>
    <entity1 rdf:resource="http://oaei.ontologymatching.org/2010/IIMBDATA/en/botswana"/>
    <entity2 rdf:resource="http://oaei.ontologymatching.org/2010/IIMBDATA/en/item1275791610320834728"/>
    <relation>=</relation>
    <measure rdf:datatype="http://www.w3.org/2001/XMLSchema#float">1.0</measure>
</Cell>
```

```
<owl:NamedIndividual rdf:about="http://oaei.ontologymatching.org/2010/IIMBDATA/en/ken_hutch_hutchinson">
    <rdf:type rdf:resource="http://oaei.ontologymatching.org/2010/IIMBTBOX/Character"/>
    <IIMBTBOX:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Ken &quot;Hutch&quot;&quot; Hu
    <IIMBTBOX:gender rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Male</IIMBTBOX:gender>
    <IIMBTBOX:acted_by rdf:resource="http://oaei.ontologymatching.org/2010/IIMBDATA/en/owen_wilson"/>
</owl:NamedIndividual>
```

```
<owl:NamedIndividual rdf:about="http://oaei.ontologymatching.org/2010/IIMBDATA/en/item20476684090
    <rdf:type rdf:resource="http://oaei.ontologymatching.org/2010/IIMBTBOX/Actor"/>
    <IIMBTBOX:date_of_birth rdf:datatype="http://www.w3.org/2001/XMLSchema#string">8/23/70</IIMBT
    <IIMBTBOX:name rdf:datatype="http://www.w3.org/2001/XMLSchema#string">Jay Mohr</IIMBTBOX:name
    <IIMBTBOX:gender rdf:datatype="http://www.w3.org/2001/XMLSchema#string">M</IIMBTBOX:gender>
    <IIMBTBOX:article rdf:datatype="http://www.w3.org/2001/XMLSchema#string">2&gt;Jy Mohr7 7(bAuZ
```

Analyse et prétraitement des données

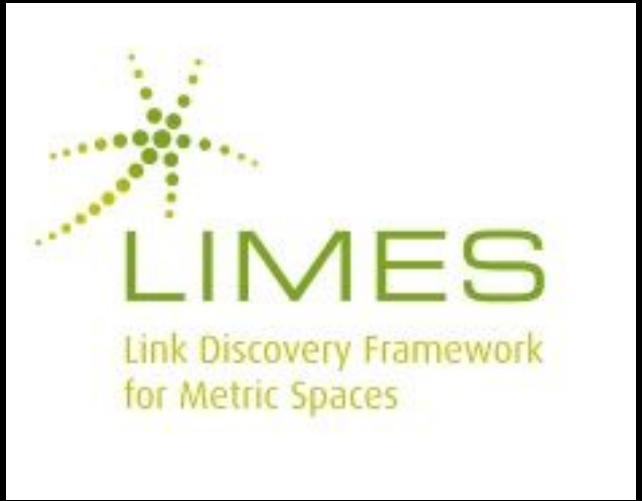
- supprimer les propriétés non pertinentes
- supprimer les redondances
- supprimer les propriétés aberrantes
  - Utilisation du fichier “ontBig.owl”

Analyse et prétraitement des données

- supprimer les propriétés non pertinentes
- supprimer les redondances
- supprimer les propriétés aberrantes
- Comparaison par rapport à la grande base

- Utilisation du fichier “ontBig.owl”
- utilisation de “refalign.rdf”

LIMES



LIMES

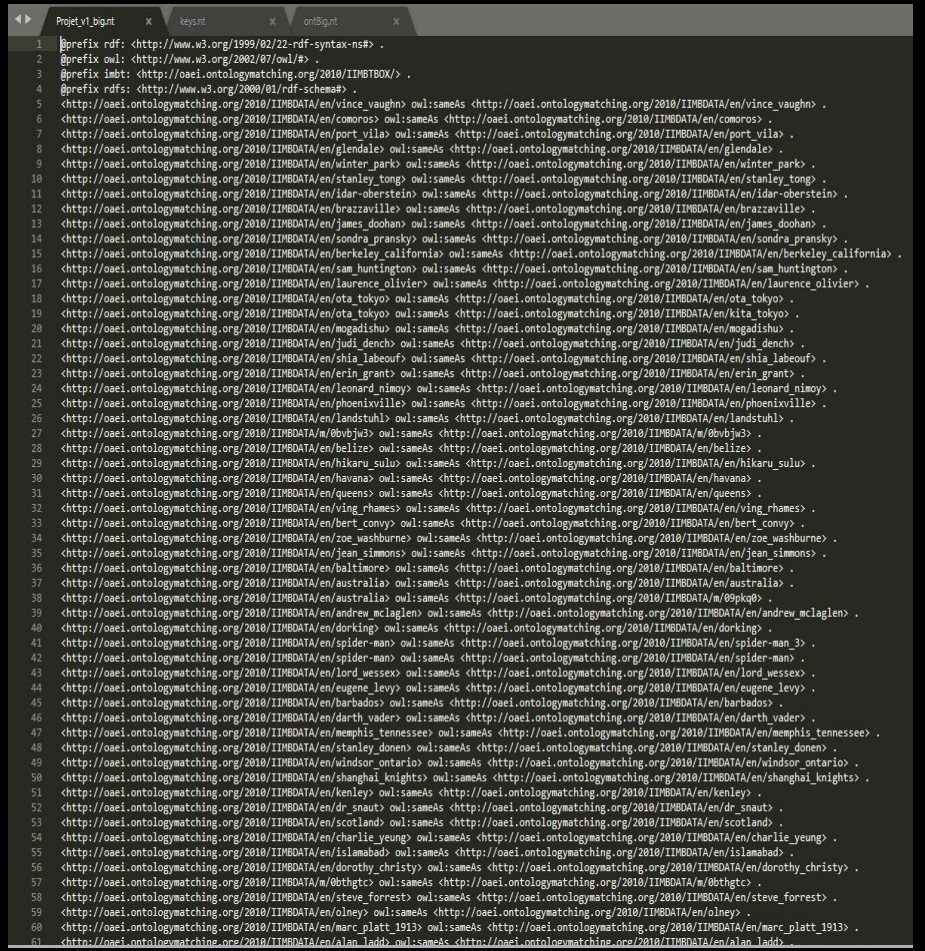
```xml
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2010 rel. 3 sp1 (http://www.altova.com)-->
<!DOCTYPE LIMES SYSTEM "limes.dtd">
<LIMES>
    <PREFIX>
        <NAMESPACE>http://www.w3.org/1999/02/22-rdf-syntax-ns#</NAMESPACE>
        <LABEL>rdf</LABEL>
    </PREFIX>
    <PREFIX>
        <NAMESPACE>http://www.w3.org/2000/01/rdf-schema#</NAMESPACE>
        <LABEL>rdfs</LABEL>
    </PREFIX>
    <PREFIX>
        <NAMESPACE>http://www.w3.org/2002/07/owl/#</NAMESPACE>
        <LABEL>owl</LABEL>
    </PREFIX>
    <PREFIX>
        <NAMESPACE>http://oaei.ontologymatching.org/2010/IIMBTBOX/</NAMESPACE>
        <LABEL>imbt</LABEL>
    </PREFIX>

    <SOURCE>
        <ID>ontBig1</ID>
        <ENDPOINT>C:\Users\couco\Downloads\LIMES.0.6.RC4-2\LIMES.0.6.RC4-2\Release_Examples\ontBig.nt</ENDPOINT>
        <VAR>?x</VAR>
        <PAGESIZE>5000</PAGESIZE>
        <RESTRICTION></RESTRICTION>
        <PROPERTY>imbt:name</PROPERTY>
        <TYPE>N-TRIPLES</TYPE>
    </SOURCE>
    <TARGET>
        <ID>output</ID>
        <ENDPOINT>C:\Users\couco\Downloads\LIMES.0.6.RC4-2\LIMES.0.6.RC4-2\Release_Examples\output_file.nt</ENDPOINT>
        <VAR>?y</VAR>
        <PAGESIZE>5000</PAGESIZE>
        <RESTRICTION></RESTRICTION>
        <PROPERTY>imbt:name</PROPERTY>
        <TYPE>N-TRIPLES</TYPE>
    </TARGET>
    <METRIC>jaro(x.imbt:name,y.imbt:name)</METRIC>
    <ACCEPTANCE>
        <THRESHOLD>0.9</THRESHOLD>
        <FILE>Projet_v1_big.nt</FILE>
        <RELATION>owl:sameAs</RELATION>
    </ACCEPTANCE>
    <REVIEW>
        <THRESHOLD>0.7</THRESHOLD>
        <FILE>Projet_v2_review_big.nt</FILE>
        <RELATION>owl:sameAs</RELATION>
    </REVIEW>
    <EXECUTION>Simple</EXECUTION>
    <OUTPUT>TTL</OUTPUT>
</LIMES>
```

LIMES

```
 INFO [main] (PPJoinController.java:146) - Loading target data ...
 INFO [main] (HybridCache.java:232) - Checking for file C:\Users\couco\Downloads\LI
MES.0.6.RC4-2\LIMES.0.6.RC4-2\cache\1583074885.ser
 INFO [main] (HybridCache.java:248) - No cached data found for output
 INFO [main] (QueryModuleFactory.java:19) - Generating <n-triples> reader
 INFO [main] (FileQueryModule.java:56) - RDF model read from C:\Users\couco\Downloa
ds\LIMES.0.6.RC4-2\LIMES.0.6.RC4-2\Release_Examples\output_file.nt is of size 8678
 INFO [main] (ModelRegistry.java:34) - Registry = [C:\Users\couco\Downloads\LIMES.0
.6.RC4-2\LIMES.0.6.RC4-2\Release_Examples\ontBig.nt, C:\Users\couco\Downloads\LIMES
.0.6.RC4-2\LIMES.0.6.RC4-2\Release_Examples\output_file.nt]
 INFO [main] (SparqlQueryModule.java:93) - Properties are [imbt:name]
 INFO [main] (SparqlQueryModule.java:139) - Query issued is
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX owl: <http://www.w3.org/2002/07/owl/#>
PREFIX imbt: <http://oaei.ontologymatching.org/2010/IIMBTBOX/>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
SELECT DISTINCT ?y ?v0
WHERE {
?y imbt:name ?v0 .
}
 INFO [main] (SparqlQueryModule.java:141) - Querying the endpoint.
 INFO [main] (SparqlQueryModule.java:149) - Getting statements 0 to 5000
 INFO [main] (SparqlQueryModule.java:149) - Getting statements 5000 to 10000
 INFO [main] (SparqlQueryModule.java:248) - Retrieved 1233 triples and 1233 entitie
s.
 INFO [main] (SparqlQueryModule.java:249) - Retrieving statements took 0.014 second
s.
 INFO [main] (HybridCache.java:179) - Serializing 1233 objects to C:\Users\couco\Do
wnloads\LIMES.0.6.RC4-2\LIMES.0.6.RC4-2\cache\1583074885.ser
 INFO [main] (PPJoinController.java:159) - Getting links ...
 INFO [main] (JaroMapper.java:25) - Running JaroMapper
1649372 = 0.999879362573663
477723 = 0.2896043880499839
 INFO [main] (PPJoinController.java:162) - Got links in 487ms.
 INFO [main] (SerializerFactory.java:22) - Getting serializer with name TTL
 INFO [main] (PPJoinController.java:172) - Using TtlSerializer to serialize
 INFO [main] (PPJoinController.java:191) - Returned 1289 links above acceptance thr
eshold.
 INFO [main] (PPJoinController.java:192) - Returned 3912 links to review.
 INFO [main] (PPJoinController.java:199) - Mapping carried out in 1.988 seconds
 INFO [main] (PPJoinController.java:200) - Done.
```

LIMES


Projet_v1_big.nt
keys.nt
ontBig.nt
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix owl: <http://www.w3.org/2002/07/owl/#> .
@prefix imbt: <http://oaei.ontologymatching.org/2010/IIMBTBOX/> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/vince_vaughn> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/vince_vaughn> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/comoros> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/comoros> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/port_vila> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/port_vila> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/glendale> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/glendale> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/winter_park> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/winter_park> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/stanley_tong> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/stanley_tong> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/idar-oberstein> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/idar-oberstein> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/brazzaville> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/brazzaville> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/james_doohan> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/james_doohan> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/sondra_pransky> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/sondra_pransky> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/berkeley_california> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/berkeley_california> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/sam_huntington> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/sam_huntington> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/laurence_olivier> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/laurence_olivier> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/ota_tokyo> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/ota_tokyo> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/ota_tokyo> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/kita_tokyo> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/mogadishu> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/mogadishu> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/judi_dench> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/judi_dench> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/shia_labeouf> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/shia_labeouf> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/erin_grant> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/erin_grant> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/leonard_nimoy> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/leonard_nimoy> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/phoenixville> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/phoenixville> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/landstuhl> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/landstuhl> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/m/0bvbjw3> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/m/0bvbjw3> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/belize> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/belize> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/hikaru_sulu> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/hikaru_sulu> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/havana> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/havana> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/queens> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/queens> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/ving_rhames> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/ving_rhames> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/bert_convy> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/bert_convy> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/zoe_washburne> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/zoe_washburne> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/jean_simmons> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/jean_simmons> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/baltimore> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/baltimore> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/australia> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/australia> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/australia> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/m/09pkq0> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/andrew_mclaglen> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/andrew_mclaglen> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/dorking> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/dorking> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/spider-man> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/spider-man_3> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/spider-man> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/spider-man> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/lord_wessex> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/lord_wessex> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/eugene_levy> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/eugene_levy> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/barbados> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/barbados> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/darth_vader> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/darth_vader> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/memphis_tennessee> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/memphis_tennessee> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/stanley_donen> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/stanley_donen> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/windsor_ontario> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/windsor_ontario> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/shanghai_knights> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/shanghai_knights> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/kenley> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/kenley> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/dr_snaut> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/dr_snaut> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/scotland> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/scotland> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/charlie_yeung> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/charlie_yeung> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/islamabad> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/islamabad> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/dorothy_christy> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/dorothy_christy> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/m/0bthgtc> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/m/0bthgtc> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/steve_forrest> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/steve_forrest> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/olney> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/olney> .
<http://oaei.ontologymatching.org/2010/IIMBDATA/en/marc_platt_1913> owl:sameAs <http://oaei.ontologymatching.org/2010/IIMBDATA/en/marc_platt_1913> .

Sakey

```
couco@DESKTOP-QCOGVOM MINGW64 ~/Downloads/PROJECT_DATA_SCIENCE-master/PROJECT_DATA_SCIENCE-master/Keys-selection
$ java -jar SAKey.jar mmm.nt 1
1-non keys: [[http://oaei.ontologymatching.org/2010/iimbtbox/gender], [http://oaei.ontologymatching.org/2010/iimbtbox
/currency], [http://oaei.ontologymatching.org/2010/iimbtbox/filmed_in], [http://oaei.ontologymatching.org/2010/iimbtb
ox/religion], [http://oaei.ontologymatching.org/2010/iimbtbox/born_in], [http://oaei.ontologymatching.org/2010/iimbtb
ox/form_of_government], [http://www.w3.org/2000/01/rdf-schema#subclassof]]

0-almost keys:[[http://oaei.ontologymatching.org/2010/iimbtbox/gender, http://www.w3.org/2000/01/rdf-schema#subclasso
f], [http://oaei.ontologymatching.org/2010/iimbtbox/name], [http://oaei.ontologymatching.org/2010/iimbtbox/religion,
http://www.w3.org/2000/01/rdf-schema#subclassof], [http://oaei.ontologymatching.org/2010/iimbtbox/religion, http://oa
ei.ontologymatching.org/2010/iimbtbox/form_of_government], [http://oaei.ontologymatching.org/2010/iimbtbox/gender, ht
tp://oaei.ontologymatching.org/2010/iimbtbox/form_of_government], [http://oaei.ontologymatching.org/2010/iimbtbox/bor
n_in, http://oaei.ontologymatching.org/2010/iimbtbox/form_of_government], [http://oaei.ontologymatching.org/2010/iimb
tbox/amount], [http://oaei.ontologymatching.org/2010/iimbtbox/currency, http://oaei.ontologymatching.org/2010/iimbtbo
x/born_in], [http://oaei.ontologymatching.org/2010/iimbtbox/date_of_birth], [http://oaei.ontologymatching.org/2010/ii
mbtbox/filmed_in, http://www.w3.org/2000/01/rdf-schema#subclassof], [http://oaei.ontologymatching.org/2010/iimbtbox/g
ender, http://oaei.ontologymatching.org/2010/iimbtbox/filmed_in], [http://oaei.ontologymatching.org/2010/iimbtbox/act
ed_by], [http://oaei.ontologymatching.org/2010/iimbtbox/article], [http://oaei.ontologymatching.org/2010/iimbtbox/dia
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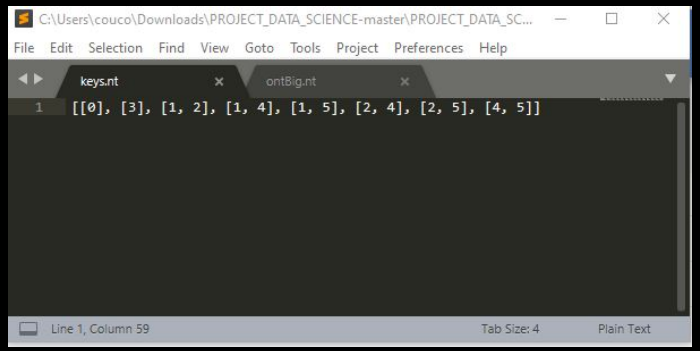

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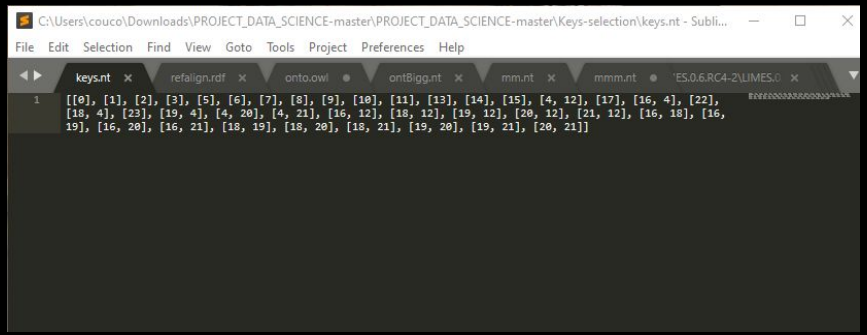

Fichier nt exemple

Fichier nt issu de notre ontologie

Conclusion

Projet Bilan
Cross-Technologie
Facilité & Difficulté