

# Les prix Nobel

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# Étape 1

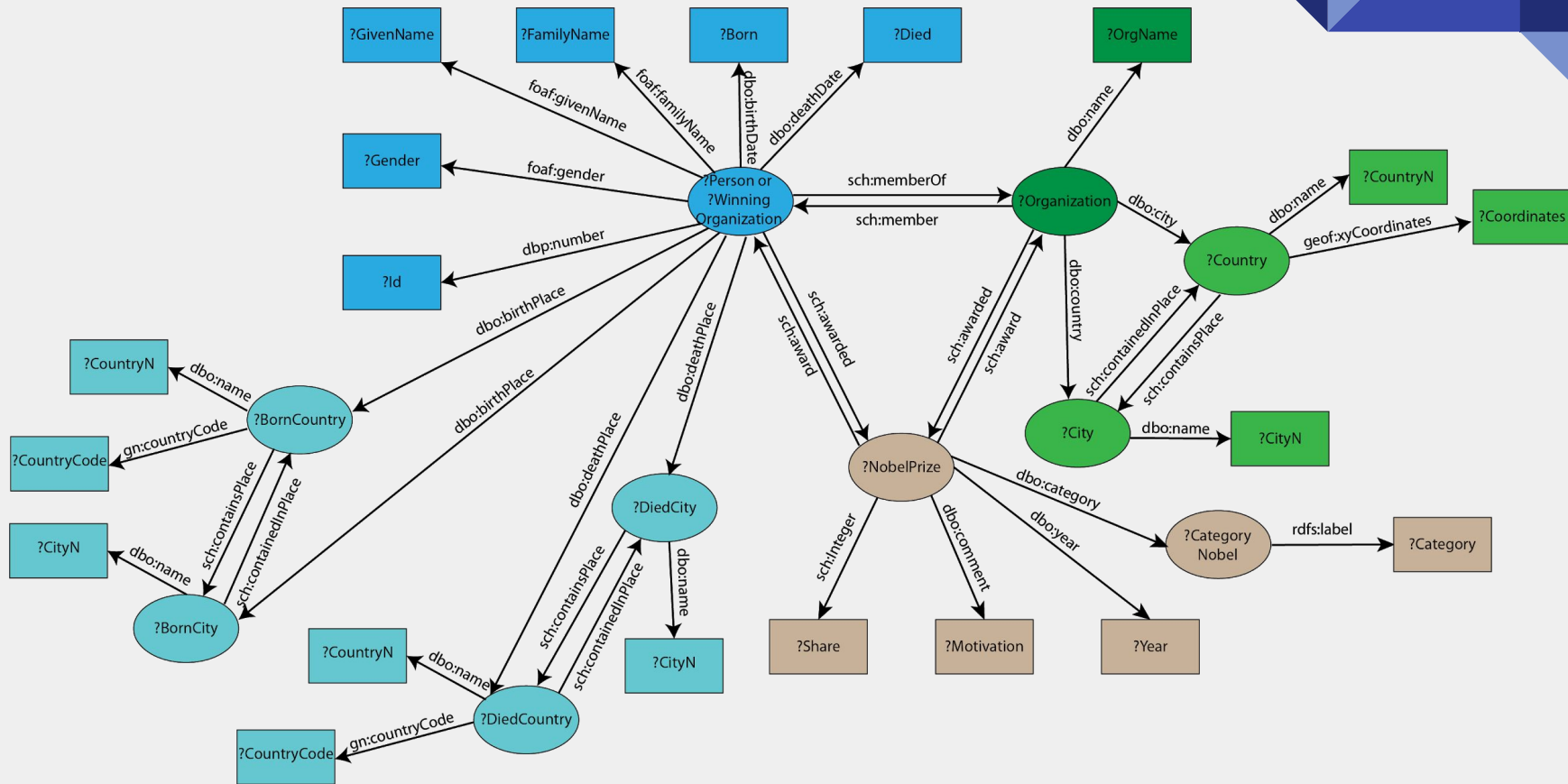
# Infos pratiques

- Fichier CSV d'environ **1000 lignes**.
- Près de **20 colonnes**.
- Prix Nobel de 1901 à 2017 (Soit **tous les prix Nobel**).
- Présence de différentes entités :
  - Détenteur du prix
  - Université d'affiliation
  - Prix Nobel
  - Divers lieux

# Construction du ttl

- Utilisation de nombreux préfixes dont :
  - foaf : <http://xmlns.com/foaf/o.1/>
  - sch : <http://schema.org/>
  - dbo : <http://dbpedia.org/ontology/>
- Création du fichier ttl via l'utilitaire Tarql en suivant la structure de données visible sur le graphe

# Graphe des données



# Requête n°1

Nous cherchons les 20 premiers **noms** et **prénoms** des détenteurs d'un prix Nobel dans la catégorie “**économie**” ainsi que l'**année d'obtention** de ce dernier **entre 1950 et 2009**, triées dans l'**ordre croissant**.

```
Prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
Prefix foaf: <http://xmlns.com/foaf/0.1/>
Prefix sch: <http://schema.org/>
Prefix dbo: <http://dbpedia.org/ontology/>
SELECT ?Givename ?Familynome ?Year
WHERE {
    ?x rdf:type foaf:Person.
    ?x foaf:givenName ?Givename.
    ?x foaf:familyName ?Familynome.
    ?x sch:awarded ?NobelPrize.
    ?NobelPrize dbo:category “economics”.
    ?NobelPrize dbo:year ?Year.
    FILTER (?Year > 1950 && ?Year < 2010)
}
LIMIT 20
ORDER BY(?Year)
```

Givename	Familynome	Year
"Ragnar"	"Frisch"	"1969"
"Jan"	"Tinbergen"	"1969"
"Paul A."	"Samuelson"	"1970"
"Simon"	"Kuznets"	"1971"
"Kenneth J."	"Arrow"	"1972"
"John R."	"Hicks"	"1972"
"Wassily"	"Leontief"	"1973"
"Gunnar"	"Myrdal"	"1974"
"Friedrich August"	"von Hayek"	"1974"
"Leonid Vitaliyevich"	"Kantorovich"	"1975"
"Tjalling C."	"Koopmans"	"1975"
"Milton"	"Friedman"	"1976"
"James E."	"Meade"	"1977"
"Bertil"	"Ohlin"	"1977"
"Herbert A."	"Simon"	"1978"
"Sir Arthur"	"Lewis"	"1979"
"Theodore W."	"Schultz"	"1979"
"Lawrence R."	"Klein"	"1980"
"James"	"Tobin"	"1981"
"George J."	"Stigler"	"1982"

# Requête n°2

```
Prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>>
Prefix foaf: <http://xmlns.com/foaf/0.1/>
Prefix sch: <http://schema.org/>
Prefix dbo: <http://dbpedia.org/ontology/>
SELECT ?Givenname ?Familyname ?Year ?OrganizationCountry
WHERE {
    ?x rdf:type foaf:Person.
    ?x foaf:givenName ?Givenname.
    ?x foaf:familyName ?Familyname.
    ?x dbo:birthPlace ?Birthplace.
    ?Birthplace dbo:name ?Name
    FILTER(?Name = "USA")
    ?x sch:awarded ?NobelPrize.
    ?NobelPrize dbo:year ?Year.
    ?x sch:memberOf ?Organization.
    ?Organization dbo:country ?Organizationcountry
    ?Organizationcountry dbo:name ?OrganizationCountry.
    FILTER(?OrganizationCountry != "USA")
}
ORDER BY(?Givenname)
```

Nous cherchons les **noms, prénoms**, ordonnés par **ordre alphabétique**, des détenteurs d'un prix Nobel ainsi que **l'année d'obtention** du prix. Les personnes doivent également être **nées aux USA** mais **affiliées à des universités étrangères**. Le **pays** de ces universités sera aussi affiché.

Givenname	Familyname	Year	OrganizationCountry
"Ben Roy"	"Mottelson"	"1975"	"Denmark"
"Brian P."	"Schmidt"	"2011"	"Australia"
"Dale T."	"Mortensen"	"2010"	"Denmark"
"John"	"O'Keefe"	"2014"	"United Kingdom"





# Étape 2

## Requête n°3

Nous cherchons l'indice de bonheur des pays d'origine des détenteurs de prix Nobels depuis 2013.

# Requête n°3

PREFIX dbo: <http://dbpedia.org/ontology/>

...

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

```
SELECT ?Givenname ?Familyname ?Countryname ?Rank ?Year WHERE {  
    ?x a dbo:Person.  
    ?x foaf:givenName ?Givenname.  
    ?x foaf:familyName ?Familyname.  
    ?x sch:awarded ?Nobelprize.  
    ?Nobelprize dbo:year ?Year.  
    ?x dbo:birthPlace ?Birthplace.  
    ?Birthplace a geof:Country.  
    ?Birthplace dbo:name ?Countryname.  
    ?y dbo:country ?Country.  
    ?y rank:happinessRank ?rank.  
    BIND(xsd:integer(?rank) AS ?Rank)  
    FILTER(regex(?Countryname = ?Country) && ?Year >= 2013)  
}  
ORDER BY(?Rank)
```

Givenname	Familyname	Countryname	Rank	Year
"Edvard I."	"Moser"	"Norway"	1	"2014"
"May-Britt"	"Moser"	"Norway"	1	"2014"
"Bengt"	"Holmström"	"Finland"	5	"2016"
"Arthur B."	"McDonald"	"Canada"	7	"2015"
"Alice"	"Munro"	"Canada"	7	"2013"
"Tomas"	"Lindahl"	"Sweden"	9	"2015"
"Martin"	"Karpus"	"Austria"	13	"2013"
"William C."	"Campbell"	"Ireland"	15	"2015"
"Thomas C."	"Südhof"	"Germany"	16	"2013"
"François"	"Englert"	"Belgium"	17	"2013"
"Patrick"	"Modiano"	"France"	31	"2014"
"Jean-Pierre"	"Sauvage"	"France"	31	"2016"
"Jean"	"Tirole"	"France"	31	"2014"
"Juan Manuel"	"Santos"	"Colombia"	36	"2016"
"Isamu"	"Akasaki"	"Japan"	51	"2014"
"Hiroshi"	"Amano"	"Japan"	51	"2014"
"Takaaki"	"Kajita"	"Japan"	51	"2015"
"Shuji"	"Nakamura"	"Japan"	51	"2014"
"Yoshinori"	"Ohsumi"	"Japan"	51	"2016"
"Satoshi"	"Ômura"	"Japan"	51	"2015"
"Stefan W."	"Hell"	"Romania"	57	"2014"
"Aziz"	"Sancar"	"Turkey"	69	"2015"
"Youyou"	"Tu"	"China"	79	"2015"
"Malala"	"Yousafzai"	"Pakistan"	80	"2014"
"Kailash"	"Satyarthi"	"India"	122	"2014"
"Svetlana"	"Alexievich"	"Ukraine"	132	"2015"

## Requête n°4

Nous cherchons l'indice de bonheur et la contribution du PIB au bonheur des pays d'origine des détenteurs de prix Nobels d'économie depuis 1990.

# Requête n° 4

PREFIX dbo: <http://dbpedia.org/ontology/>

...

PREFIX op: <http://environment.data.gov.au/def/op#>

**SELECT ?Givenname ?Familyname ?Countryname ?Year ?ContributionGDP ?Happiness\_Rank WHERE {**

?x a dbo:Person.

?x foaf:givenName ?Givenname.

?x foaf:familyName ?Familyname.

?x sch:awarded ?Nobelprize.

?Nobelprize dbo:category ?Category.

?Category rdfs:label "economics".

?Nobelprize dbo:year ?Year.

?x dbo:birthPlace ?Birthplace.

?Birthplace a geof:Country.

?Birthplace dbo:name ?Countryname.

?y dbo:country ?Country.

?y rank:happinessRank ?rank.

?y op:ecoGDPperCapita ?GDPperCapita.

?y op:happinessScore ?HappinessScore.

**BIND(xsd:float(?GDPperCapita)/xsd:float(HappinessScore) AS ?ContributionGDP)**

**BIND(xsd:integer(?rank) AS ?Happiness\_Rank).**

**FILTER(regex(?Countryname = ?Country) && ?Year >= 1990)**

**}**

**ORDER BY (?Happiness\_Rank)**

Givenname	Familyname	Countryname	Year	ContributionGDP	Happiness_Rank
"Finn E."	"Kydland"	"Norway"	"2004"	"0.21447037"^^xsd:float	1
"Bengt"	"Holmström"	"Finland"	"2016"	"0.19327512"^^xsd:float	5
"Robert A."	"Mundell"	"Canada"	"1999"	"0.2021876"^^xsd:float	7
"Myron S."	"Scholes"	"Canada"	"1997"	"0.2021876"^^xsd:float	7
"William"	"Vickrey"	"Canada"	"1996"	"0.2021876"^^xsd:float	7
"Robert J."	"Aumann"	"Germany"	"2005"	"0.21405889"^^xsd:float	16
"Jean"	"Tirole"	"France"	"2014"	"0.2221241"^^xsd:float	31
"Leonid"	"Hurwicz"	"Russia"	"2007"	"0.21495524"^^xsd:float	49
"Christopher A."	"Pissarides"	"Cyprus"	"2010"	"0.24122721"^^xsd:float	65
"John C."	"Harsanyi"	"Hungary"	"1994"	"0.24154995"^^xsd:float	75
"Amartya"	"Sen"	"India"	"1998"	"0.18359704"^^xsd:float	122

## Requête n°5

Nous cherchons l'indice de bonheur et la contribution de la liberté au bonheur des pays d'origine des détenteurs de prix Nobels de la paix depuis 1990.

# Requête n°5

PREFIX dbo: <http://dbpedia.org/ontology/>"

...

PREFIX op: <http://environment.data.gov.au/def/op#>

**SELECT ?Givenname ?Familyname ?Countryname ?Year ?ContributionFreedom ?Happiness\_Rank WHERE {**

?x a dbo:Person.

?x foaf:givenName ?Givenname.

?x foaf:familyName ?Familyname.

?x sch:awarded ?Nobelprize.

?Nobelprize dbo:category ?Category.

?Category rdfs:label "peace".

?Nobelprize dbo:year ?Year.

?x dbo:birthPlace ?Birthplace.

?Birthplace a geof:Country.

?Birthplace dbo:name ?Countryname.

?y dbo:country ?Country.

?y rank:happinessRank ?rank.

?y op:freedom ?Freedom.

?y op:happinessScore ?HappinessScore.

**BIND(xsd:float(?Freedom)/xsd:float(?HappinessScore) AS ?ContributionFreedom)**

**BIND(xsd:integer(?rank) AS ?Happiness\_Rank).**

**FILTER(regex(?Countryname = ?Country) && ?Year >= "1990")**

**}**

**ORDER BY (?Happiness\_Rank)**

Givenname	Familyname	Countryname	Year	ContributionFreedom	Happiness_Rank
"Martti"	"Ahtisaari"	"Finland"	"2008"	"0.08273542"^^xsd:float	5
"Rigoberta"	"Menchú Tum"	"Guatemala"	"1992"	"0.08232269"^^xsd:float	29
"Juan Manuel"	"Santos"	"Colombia"	"2016"	"0.07511207"^^xsd:float	36
"Liu"	"Xiaobo"	"China"	"2010"	"0.089662"^^xsd:float	79
"Malala"	"Yousafzai"	"Pakistan"	"2014"	"0.044641346"^^xsd:float	80
"Yasser"	"Arafat"	"Egypt"	"1994"	"0.059579756"^^xsd:float	104
"Mohamed"	"ElBaradei"	"Egypt"	"2005"	"0.059579756"^^xsd:float	104
"Shirin"	"Ebadi"	"Iran"	"2003"	"0.053137813"^^xsd:float	108
"Wangari Muta"	"Maathai"	"Kenya"	"2004"	"0.09944295"^^xsd:float	112
"Kailash"	"Satyarthi"	"India"	"2014"	"0.10891935"^^xsd:float	122
"Tawakkol"	"Karman"	"Yemen"	"2011"	"0.069430485"^^xsd:float	146
"Leymah"	"Gbowee"	"Liberia"	"2011"	"0.09422054"^^xsd:float	148
"Ellen"	"Johnson Sirleaf"	"Liberia"	"2011"	"0.09422054"^^xsd:float	148

## Requête n°6

Nous cherchons à collecter le maximum d'informations concernant les catastrophes naturelles dans le pays d'origine des lauréats du prix Nobel de chimie.



# Requête n°6

```
PREFIX dbo: <http://dbpedia.org/ontology/>
...
PREFIX dbpa: <http://dbpedia.org/page/>
SELECT ?Givenname ?Familyname ?Birthplace_Name ?NobelYear
?Happy_Rank (COUNT(distinct ?y) AS ?Earthquake_Count) (COUNT(distinct
?a) AS ?Tsunami_Count) (MAX(?Richter_Tsunami) AS
?Tsunami_Max_Richter) (COUNT(distinct ?b) AS ?Eruption_Count) WHERE {
    ?x rdf:type dbo:Person.
    ?x foaf:givenName ?Givenname.
    ?x foaf:familyName ?Familyname.
    ?x sch:awarded ?Nobelprize.
    ?Nobelprize dbo:category ?Category.
    ?Nobelprize dbo:year ?Nobelyear.
    ?category rdfs:label "chemistry".
    ?x dbo:birthPlace ?Birthplace.
    ?x dbo:birthDate ?Birthdate.
    ?Birthplace rdf:type dbo:Country.
    ?Birthplace dbo:name ?Birthplacename.
    BIND(xsd:integer(?Nobelyear) AS ?NobelYear)
    FILTER(?NobelYear >= 2010)
    ?y rdf:type dbpo:Earthquake.
```

```
?y dbpo:locationCountry ?Earthquakecountry.
BIND(LCASE(?Earthquakecountry) AS ?Earthquake_Country)
BIND(LCASE(?Birthplacename) AS ?Birthplace_Name)
FILTER(regex(?Birthplace_Name, ?Earthquake_Country))
?z dbo:country ?country.
?z rank:happinessRank ?rank.
BIND(LCASE(?country) AS ?Country)
BIND(xsd:integer(?rank) AS ?Happy_Rank)
FILTER(regex(?Birthplace_Name, ?Country))
?a dbpa:Richter_magnitude_scale ?Richter_tsunami.
BIND(xsd:double(?Richter_tsunami) AS ?Richter_Tsunami)
?a dbo:country ?Tsunami_country.
BIND(LCASE(?Tsunami_country) AS ?Tsunami_Country)
FILTER(regex(?Birthplace_Name, ?Tsunami_Country))
?b dbo:volcano ?Volcano.
?b dbo:country ?Volcano_country.
BIND(LCASE(?Volcano_country) AS ?Volcano_Country)
FILTER(regex(?Birthplace_Name, ?Volcano_Country))
}
GROUP BY ?Givenname ?Familyname ?Birthplace_Name ?NobelYear
?Happy_Rank ?Earthquake_Count ?Tsunami_Count ?Tsunami_Max_Richter
?Eruption_Count
ORDER BY DESC(?NobelYear)
```

# Requête n°6

Givenname	Familyname	Birthplace_Name	NobelYear	Happy_Rank	Earthquake_Count	Tsunami_Count	Tsunami_Max_Richter	Eruption_Count
"Yoshinori"	"Ohsumi"	"japan"	2016	51	403	284	"9.1"^^xsd:double	11
"Aziz"	"Sancar"	"turkey"	2015	69	321	39	"7.8"^^xsd:double	9
"Takaaki"	"Kajita"	"japan"	2015	51	403	284	"9.1"^^xsd:double	11
"Satoshi"	"Ômura"	"japan"	2015	51	403	284	"9.1"^^xsd:double	11
"Youyou"	"Tu"	"china"	2015	79	590	23	"8.5"^^xsd:double	2
"Isamu"	"Akasaki"	"japan"	2014	51	403	284	"9.1"^^xsd:double	11
"Hiroshi"	"Amano"	"japan"	2014	51	403	284	"9.1"^^xsd:double	11
"Shuji"	"Nakamura"	"japan"	2014	51	403	284	"9.1"^^xsd:double	11
"Arieh"	"Warshel"	"israel"	2013	11	23	2	"6.5"^^xsd:double	2
"Shinya"	"Yamanaka"	"japan"	2012	51	403	284	"9.1"^^xsd:double	11
"Mo"	"Yan"	"china"	2012	79	590	23	"8.5"^^xsd:double	2
"Dan"	"Shechtman"	"israel"	2011	11	23	2	"6.5"^^xsd:double	2
"Andre"	"Geim"	"russia"	2010	49	149	79	"9"^^xsd:double	1
"Konstantin"	"Novoselov"	"russia"	2010	49	149	79	"9"^^xsd:double	1
"Mario"	"Vargas Llosa"	"peru"	2010	63	180	47	"8.7"^^xsd:double	1
"Akira"	"Suzuki"	"japan"	2010	51	403	284	"9.1"^^xsd:double	11
"Ei-ichi"	"Negishi"	"china"	2010	79	590	23	"8.5"^^xsd:double	2
"Liu"	"Xiaobo"	"china"	2010	79	590	23	"8.5"^^xsd:double	2
"Christopher A."	"Pissarides"	"cyprus"	2010	65	6	2	"6.5"^^xsd:double	1



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