Semantic web: SPARQL

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Why the semantic web?

- The information is not understandable by computers
- We need to structure the information
- Example:
  - Winston Churchill died in the city of London
    - Winston Churchill is a human;
    - London is a city
    - London is the “city of death” of Churchill

The standardization of the semantic web

- World Wild Web Consortium (W3C)
- Resource Description Framework (RDF)
  - Graph RDF = a set of triplet
  - Triplet = subject, predicate, object

In our example

"Winston Churchill died in the city of London" :

- "Winston Churchill" is the subject;
- "city of death" is the predicate;
- "London" is the object.

SPARQL

- Created by the W3C
- Version 1.1 (March 2013)
- Adapted to RDF data
  - SELECT
  - CONSTRUCT

Example of request

- Select all the first episodes of the first season of all series on dppedia.org :

```
SELECT *
WHERE {
    ?e <http://dbpedia.org/ontology/releaseDate>     ?date   .
    ?e <http://dbpedia.org/ontology/episodeNumber>   1       .
    ?e <http://dbpedia.org/ontology/seasonNumber>    1
}
ORDER BY DESC(?date)
```

The result (JSON)


```
{
  "head": {
    "link": [],
    "vars": [
      "e",
      "date"
    ]
  },
  "results": {
    "distinct": false,
    "ordered": true,
    "bindings": [
      {
        "e": {
          "type": "uri",
          "value": "http://dbpedia.org/resource/Now_is_Not_the_End"
        },
        "date": {
          "type": "typed-literal",
          "datatype": "http://www.w3.org/2001/XMLSchema#date",
          "value": "2015-01-06"
        }
      },
      {
        "e": {
          "type": "uri",
          "value": "http://dbpedia.org/resource/Night_Zero_(The_Strain)"
        },
        "date": {
          "type": "typed-literal",
          "datatype": "http://www.w3.org/2001/XMLSchema#date",
```

Conclusion

- Evolution of SQL?
- Computers can manage the information
- Server can communicate information