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CHAPTER-2
EXPRESSING MEANING

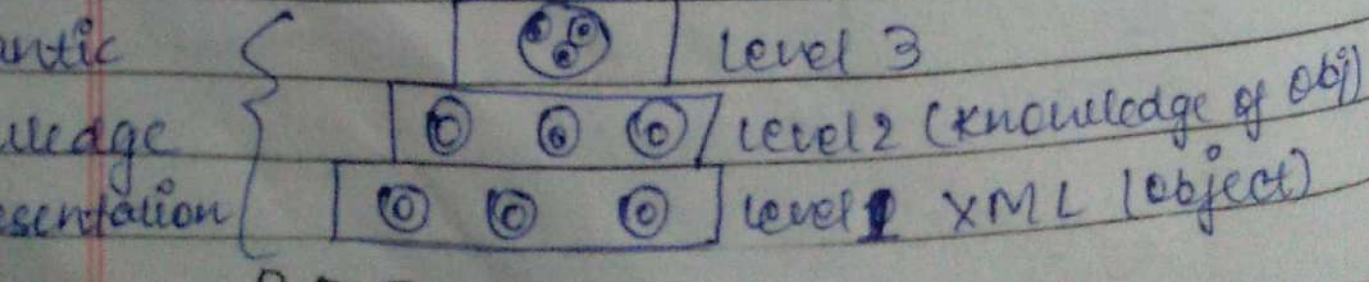
Contents:
- Triple Store
- Merging Graphs
- Querying : Case Study

Triple Store

E.g: Let us suppose we have a piece of information as:
Nirmala Patil has phone number 22445

XML
<PhoneNo>
<Owner> Nirmala Patil </Owner>
<PhNo> 224455 ~~</PhoneNr~~</PhNo>
</PhoneNr>

RDF or <Phone Name = "Nirmala Patil" Phone = "22445



RDF : Resource Development Framework

E.g: S1 studies in college.

Resource (subject) | Predicate | Resource (object)

Triple

Triple We have 03 components subject, predicate & object to define a statement / fact, is called triple.

Triple is a data structure. It is a basic unit to represent any information in semantic web.

RDF has the concept of XML, HTTP, URI.

RDF → XML, HTTP, URI

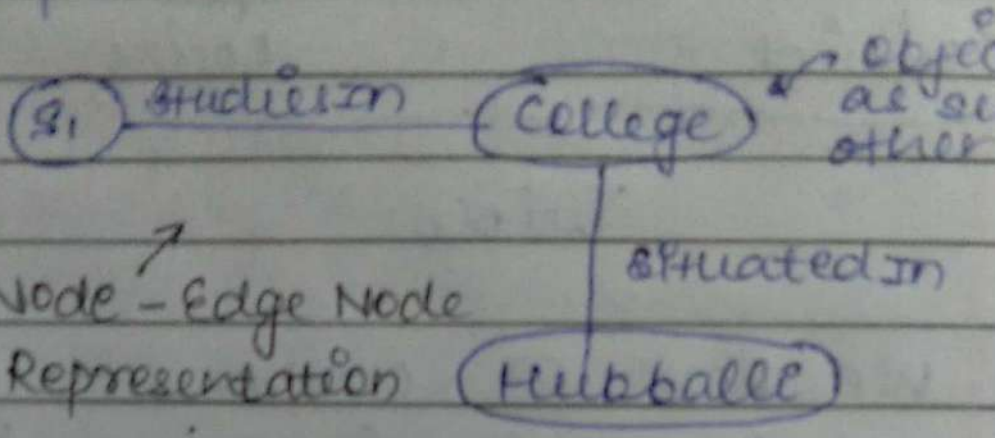
Subject (URI) | Predicate (URI) | Object (URI / Literal)

- The object can act as subject to some another statement.

S1 studies in XYZ University

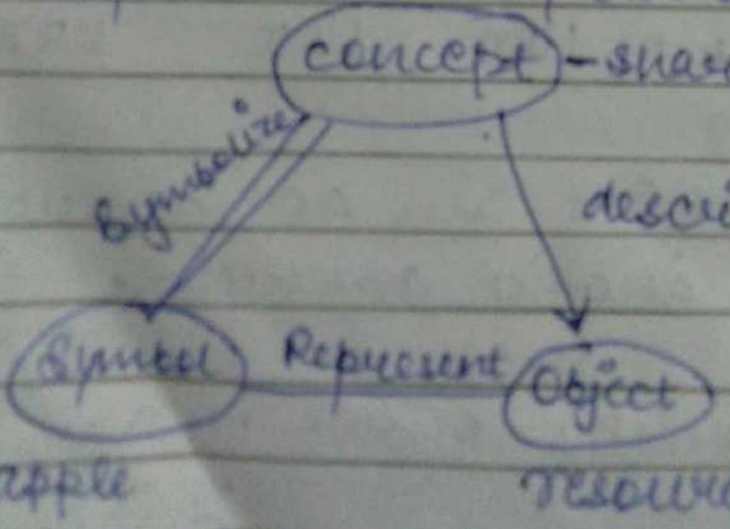
University: Literal.

- Triples can also be represented as graph.



* Types of Notations:
  1. Node-Edge-Node ✓
  2. N3
  3. Turtle (Extension of NB)

* Semiotic triangle :- {Triangle of Meaning}
Concept (A particular concept) can be symbolized. Now, this symbol can be represented by an object.



URI: Uniform Resource Identity.
Using this any entity can be represented on web.

URI → http://dbpedia.org/
└ Identity → 

HTML / XML — Represent → Information of object

* Merging Graphs:

Triple 1: "Pluto" "discovered in" "1930"
Subject Relationship Literal

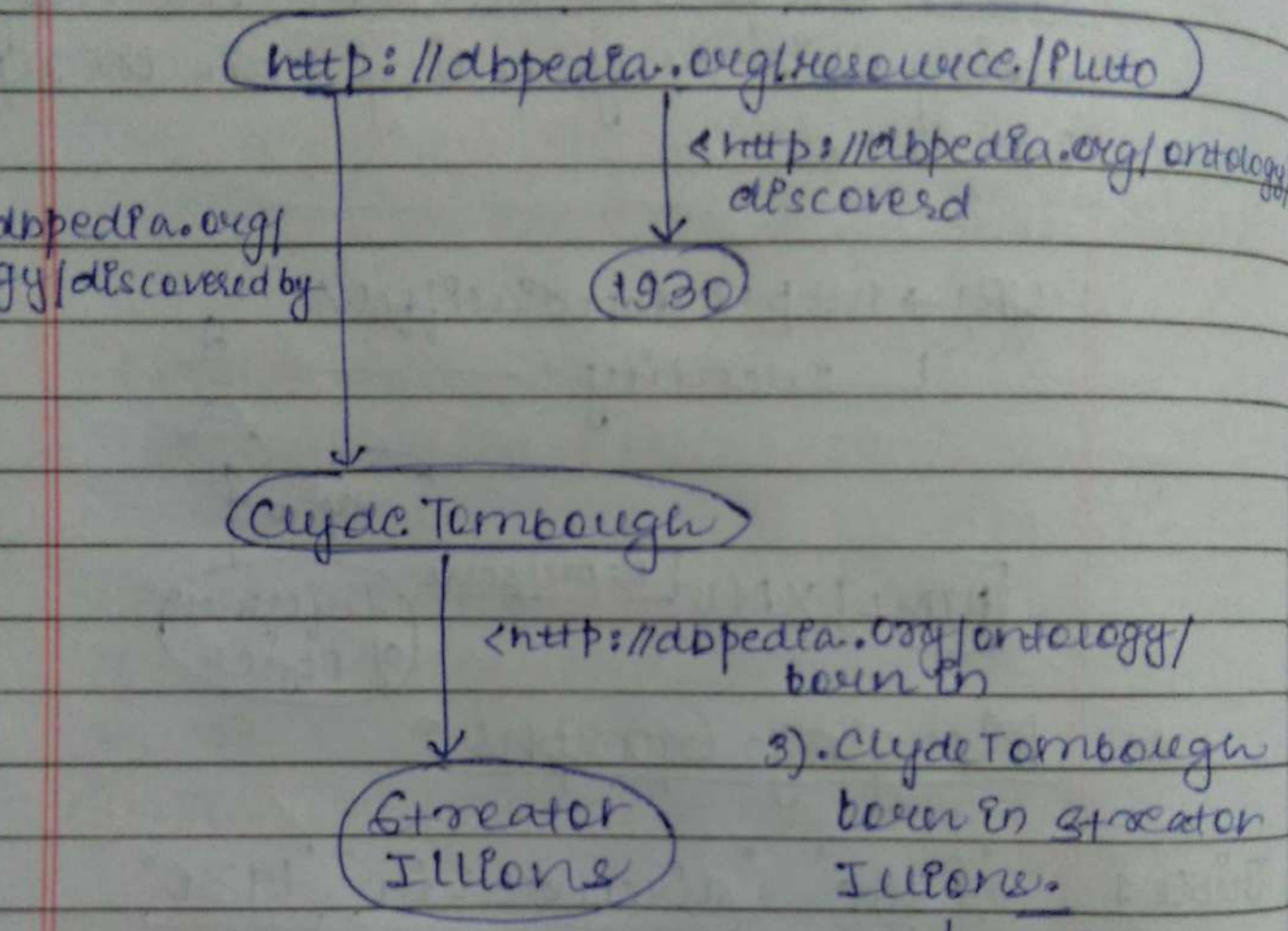
Triple 2: "Pluto" "discovered by" "Clyde-Tombaugh"
Object

1). (Pluto) — discovered in — (1930)

2). (Pluto) — discovered by — (Clyde Tombaugh)

For merging we need URI from ~~dpt~~ dbpedia.

Merging the triplets, we get :



3). Clyde Tombaugh born in Greater Illinois.

↳ Triple 3 (If present)

Chapter-02 (LP)

[Expressing Meaning]

1). What is a triple store? Can you relate it with any similar tool or technology?

- Triple store is a data structure used to model the graphs used in semantic technologies.
- It is a three column format also known as triple and it forms the fundamental building block of semantic representation.
- It can be related or compared with Relational databases.
- Unlike relational databases which store data in tables, triplestores store data as statements in the Subject-Predicate-Object form.
- E.g: Jessica teaches Computerscience.
- Here, Jessica is subject which corresponds to an entity a thing for which we have

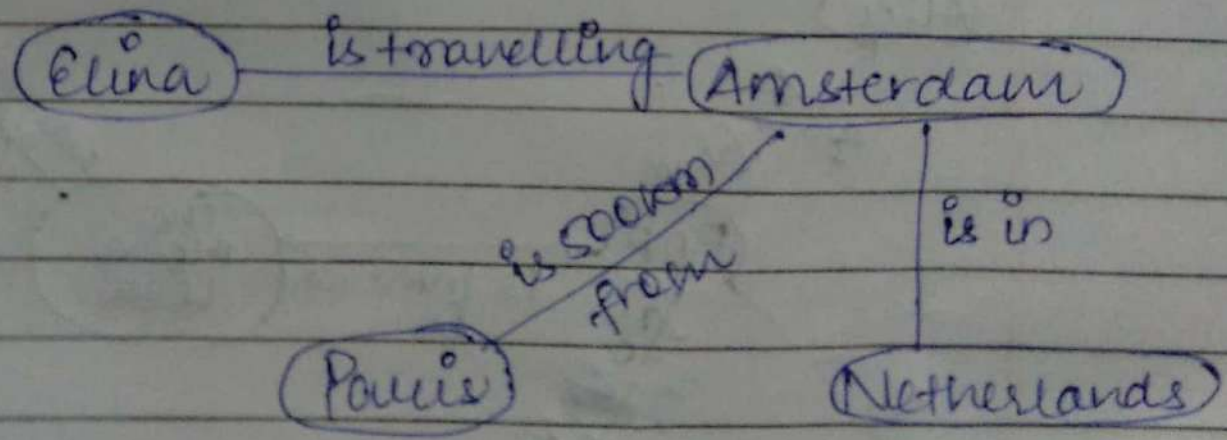
a conceptual class.

- 'Teaches' is a predicate that represents a property of the entity to which they are attached.

- 'Computer Science' corresponds to Object.

2). Design your own triple store for a railway seat booking engine.
In the given scenario, the triplets could be written as :-

- Elina is travelling to Amsterdam.
- Amsterdam is in Netherlands.
- Amsterdam is 500km from Paris.



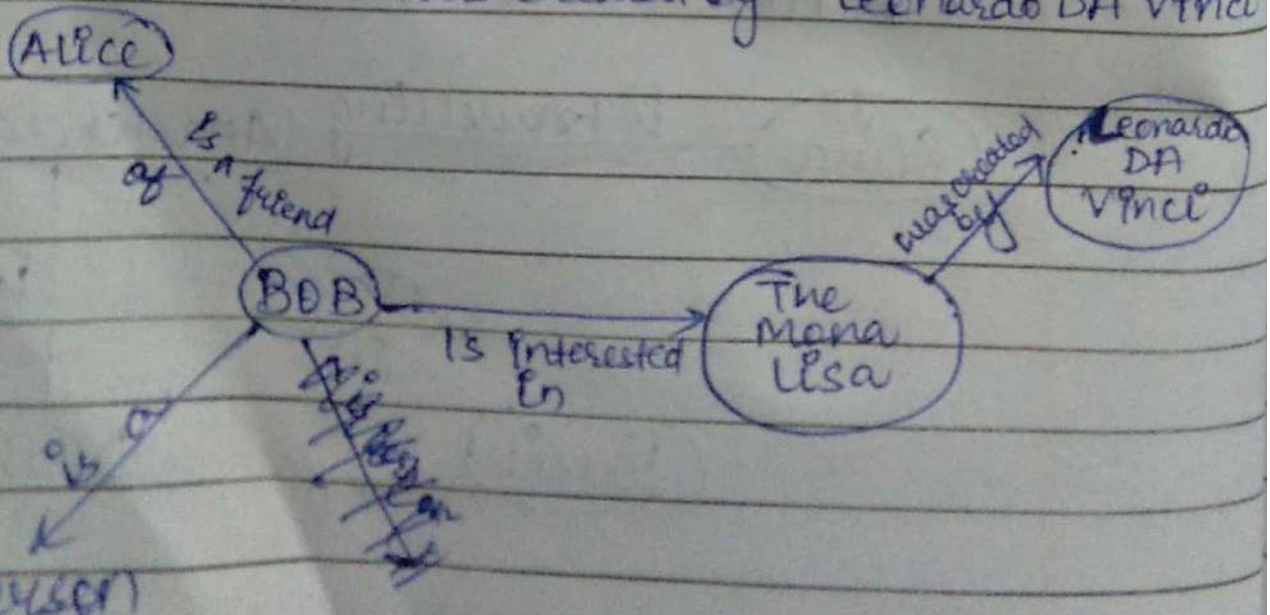
3). What are data graphs?

Multiple triples can be tied together by using same subjects and objects in different triples forming a directed graph.

Data graph is a data structure which is used to represent the triple data.

E.g:

Subject	Predicate	Object
Bob	is a friend of	Alice
Bob	is a	person
Bob	is interested in	The Mona Lisa
The Mona Lisa	was created by	Leonardo DA Vinci



5). Explain the need to query data.

Once the knowledge is represented using RDF, we need to be able to access relevant parts of it both for reasoning as well as developing applications using query language, which allows us to select, extract & otherwise easily get a hold of particular sections of knowledge expressed in RDF.

To simplify this kind of querying we use a simple query language that represents the different graph relationship