

# REPRÉSENTATION DES CONNAISSANCES

NICOLA CARBONI

The image shows a Google Sheets spreadsheet with the following data:

id	Panel ita	Panel eng	detail iconografico	superoggetto iconografico	Reference	Reference A Symb
51	San Francesco rinuncia ai beni terreni	Renunciation of Worldly Goods	window sill	domestic interior	Quale Francesco	Frugoni
52	Morte di san Francesco	Death and Ascension of Saint Francis	finger pointing the stigm	chiodi di carne	Quale Francesco	Frugoni
53	Natale di Greccio	Institution of the Crib at Greccio	mouth wide open	shaved friar singing	Quale Francesco	Frugoni
54	Natale di Greccio	Institution of the Crib at Greccio	mouth open	shaved friar singing	Quale Francesco	Frugoni
55	Morte di san Francesco	Death and Ascension of Saint Francis	mouth contemplating	shaved friar contemplating	Quale Francesco	Frugoni
56	Morte di san Francesco	Death and Ascension of Saint Francis	mouth mourning	shaved friar mourning St Fr	Quale Francesco	Frugoni
57	San Francesco davanti al Sultano	Saint Francis before the Sultan	wing	mountain	Quale Francesco	Frugoni

Annotations in the image:

- position:** Points to the row number '51' in the left margin.
- attribute:** Points to the cell containing 'San Francesco rinuncia ai beni terreni' in column B.
- value:** Points to the cell containing 'Renunciation of Worldly Goods' in column C.

My Drive - Google Drive x Metadati Buon fresco - Google

https://docs.google.com/spreadsheets/d/1ZCp0G8nmztIJB... subject of discourse

Metadati Buon fresco

San Francesco rinuncia ai beni terreni

	A	B	C	D	E	F	G
1	id	Panel ita	Panel eng	detail iconografico	superoggetto iconografico	Reference	Reference A Symb
49		Confessione della donna resuscitata					
50							
51	21a95dc0-a9c0-4c31-8e0a-da434b40773d	San Francesco rinuncia ai beni terreni	Renunciation of Worldly Goods	window sill	domestic interior	Quale Francesco	Frugoni
52	9631c7-2532-46e8-a05d-f94e6fc1e0db	Morte di san Francesco	Death and Ascension of Saint Francis	finger pointing the stigm	chiodi di carne	Quale Francesco	Frugoni
53	097e3176-bf56-4a75-b93b-38510141f413	Natale di Greccio	Institution of the Crib at Greccio	mouth wide open	shaved friar singing	Quale Francesco	Frugoni
54	d59a985e-ebad-4560-a694-a210550b5cd8	Natale di Greccio	Institution of the Crib at Greccio	mouth open	shaved friar singing	Quale Francesco	Frugoni
55	08065e65-d846-4711-bdc7-4d73d637fc33	Morte di san Francesco	Death and Ascension of Saint Francis	mouth contemplating	shaved friar contemplating	Quale Francesco	Frugoni
56	d01163f8-94f1-4e4e-a1da-a0eed75e51b0	Morte di san Francesco	Death and Ascension of Saint Francis	mouth mourning	shaved friar mourning St Fr	Quale Francesco	Frugoni
57	b4335e30-0741-4187-acdb-7e5e369b5ea7	San Francesco davanti al Sultano	Saint Francis before the Sultan	wing	mountain	Quale Francesco	Frugoni

where it is our information

feature we would like to talk about

what we would like to say

Buon Fresco

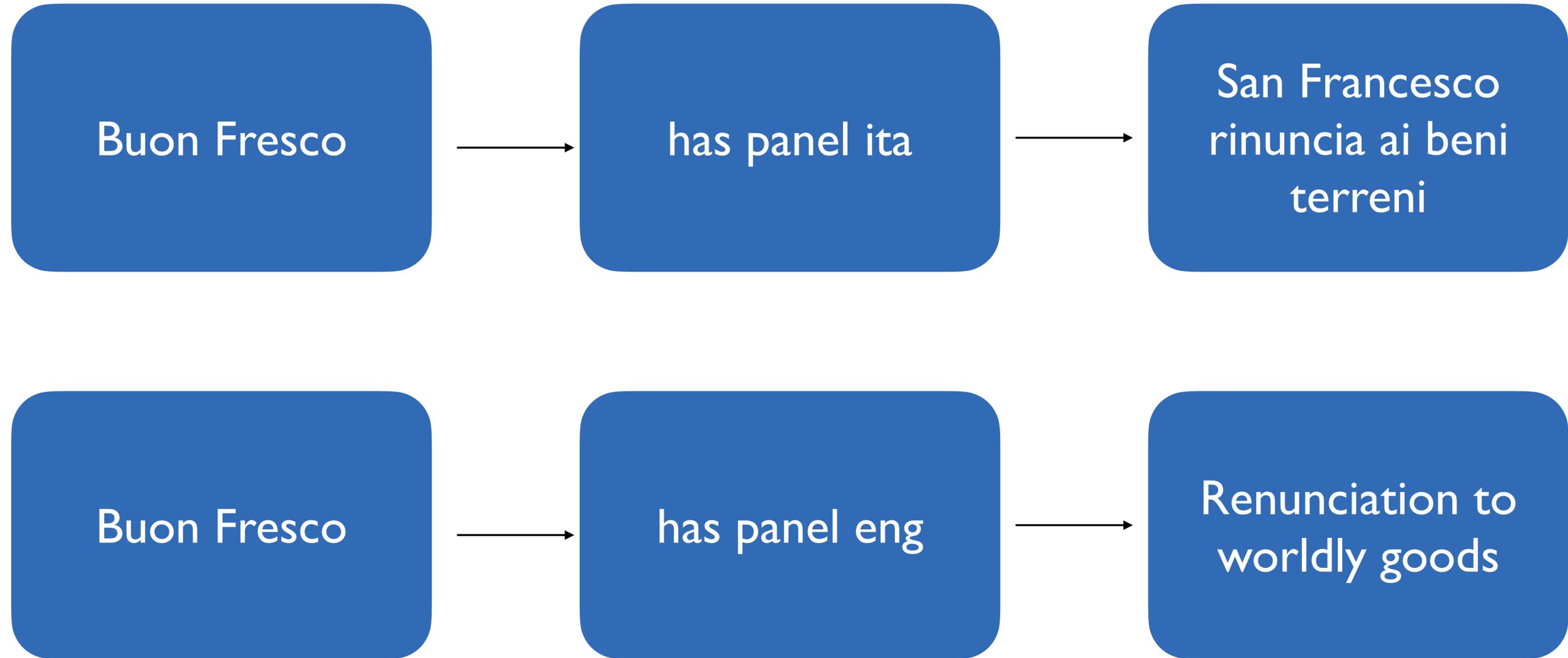


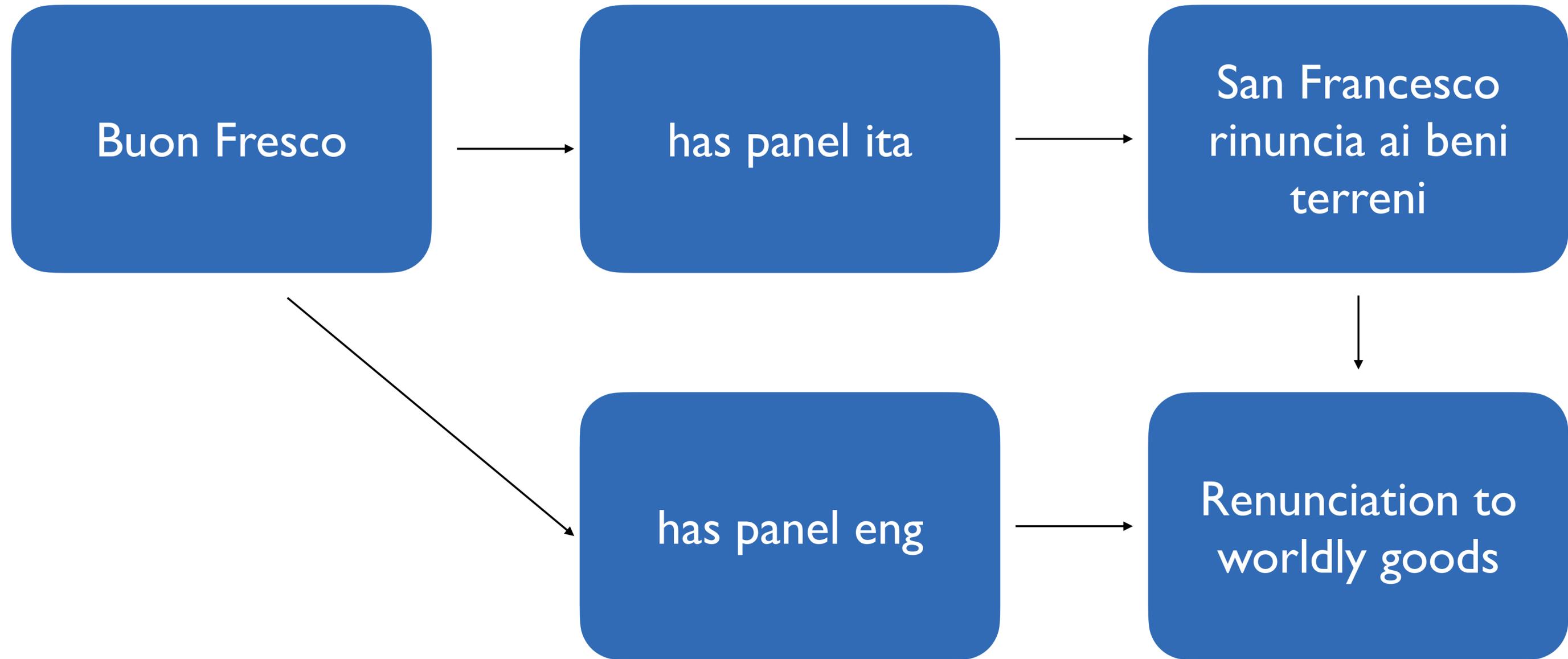
has panel ita

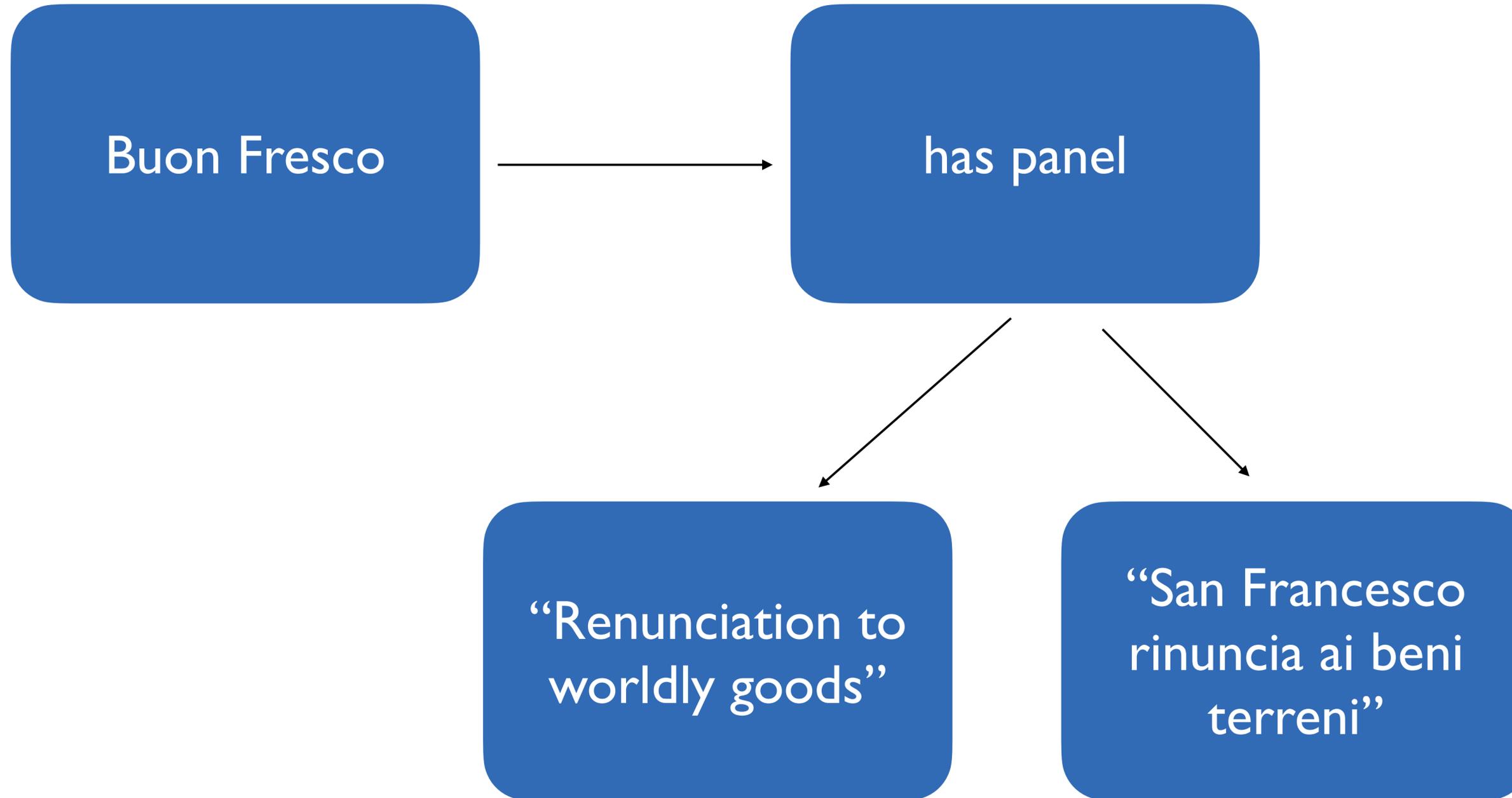


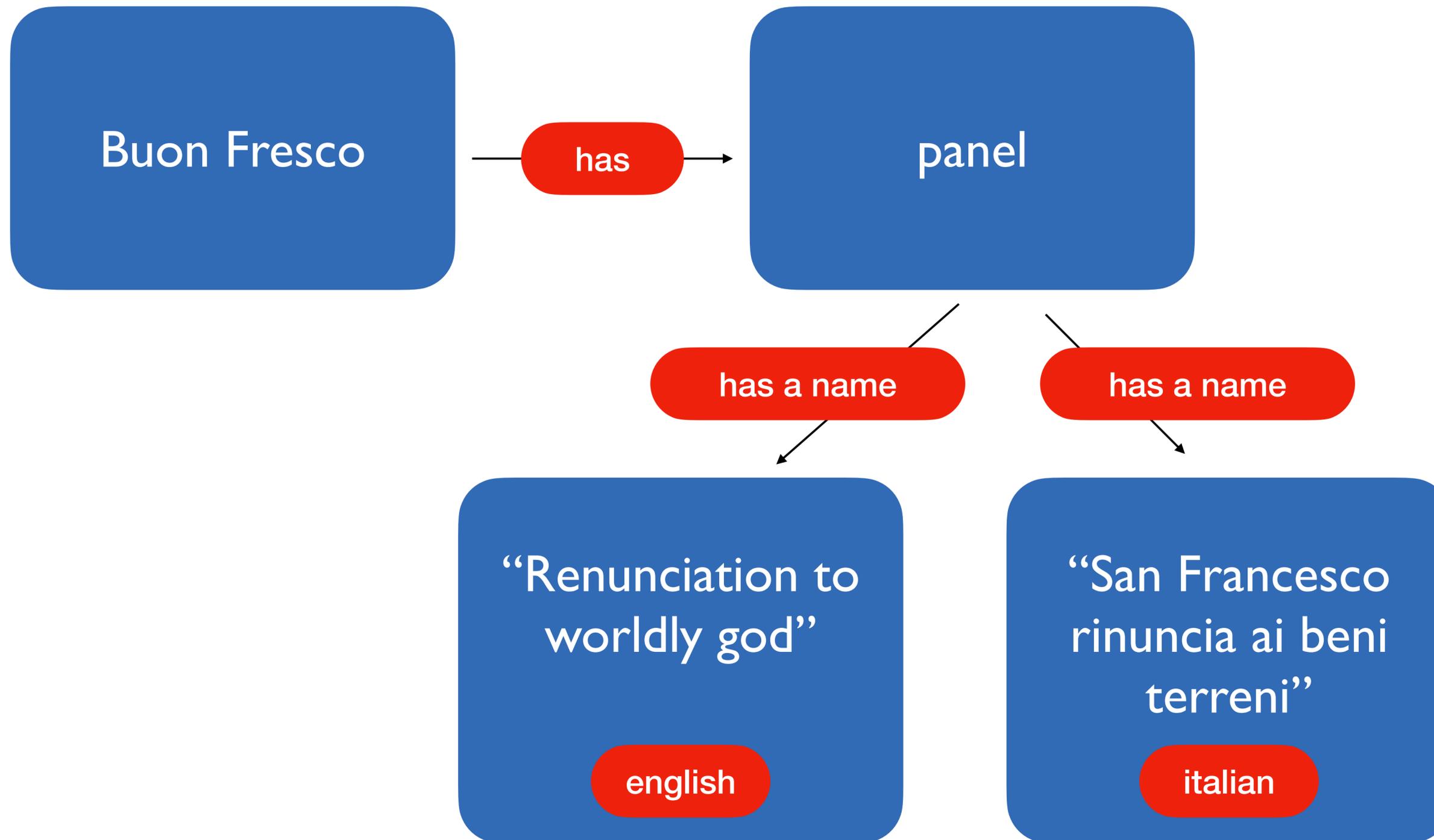
San Francesco  
rinuncia ai beni  
terreni











**subject of discourse**

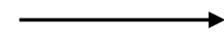
```
<TEI xmlns="http://www.tei-c.org/ns/1.0" xmlns:hal="http://www.haller.
xml:base="https://hallernet.org/" xml:id="letter_18159" hal:oxygenFramework="true
hal:lodPublished="true">

  <teiHeader>
    <fileDesc>
      <titleStmt>
        <title n="sn_14.000.001" hal:desc="briefttitel">Rudolf von Salis an Johann Jakob
Scheuchzer, 23.9.1705</title>
        <author n="sn_14.001.000" hal:desc="briefe_verf" key="person_24013">Salis, Rudolf von
(1652-1735)</author>
      </titleStmt>
```

**what we would like to say**

**feature we would like to talk about**

Letter 18159



has title



Rudolf von Salis an  
Johann Jakob  
Scheuchzer,  
23.9.1705

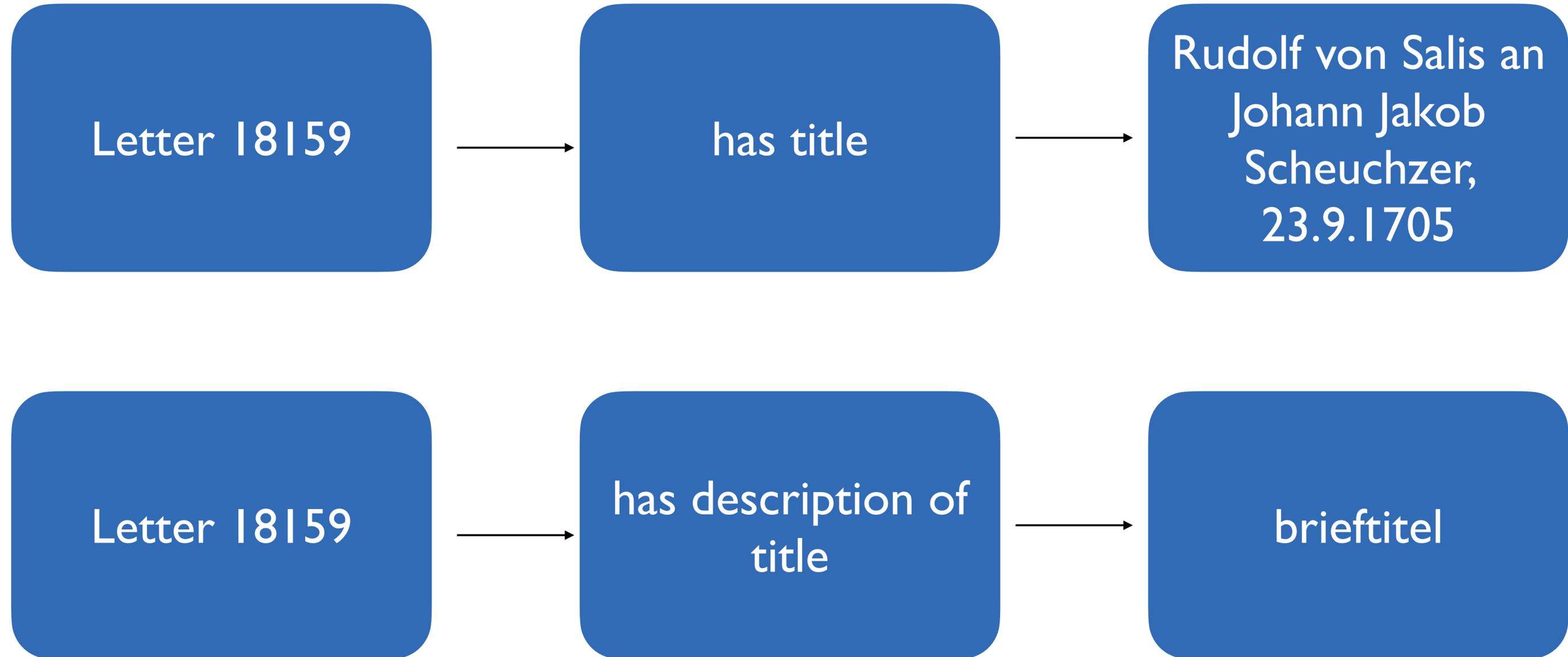
**subject of discourse**

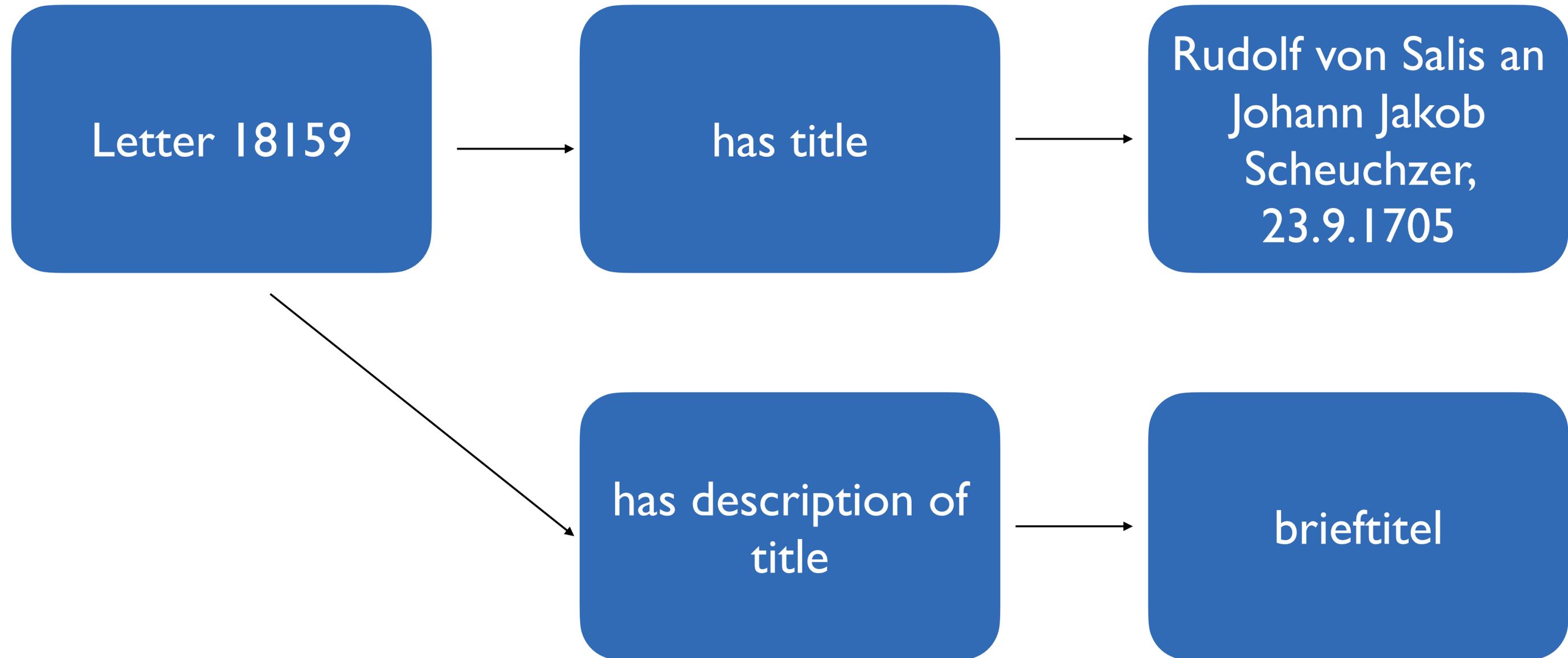
```
<TEI xmlns="http://www.tei-c.org/ns/1.0" xmlns:hal="http://www.haller.
xml:base="https://hallernet.org/" xml:id="letter_18159" hal:oxyFramework="true
hal:lodPublished="true">

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(1652-1735)</author>
      </titleStmt>
    </fileDesc>
  </teiHeader>
</TEI>
```

**what we would like to say**

**feature we would like to talk about**





**subject**

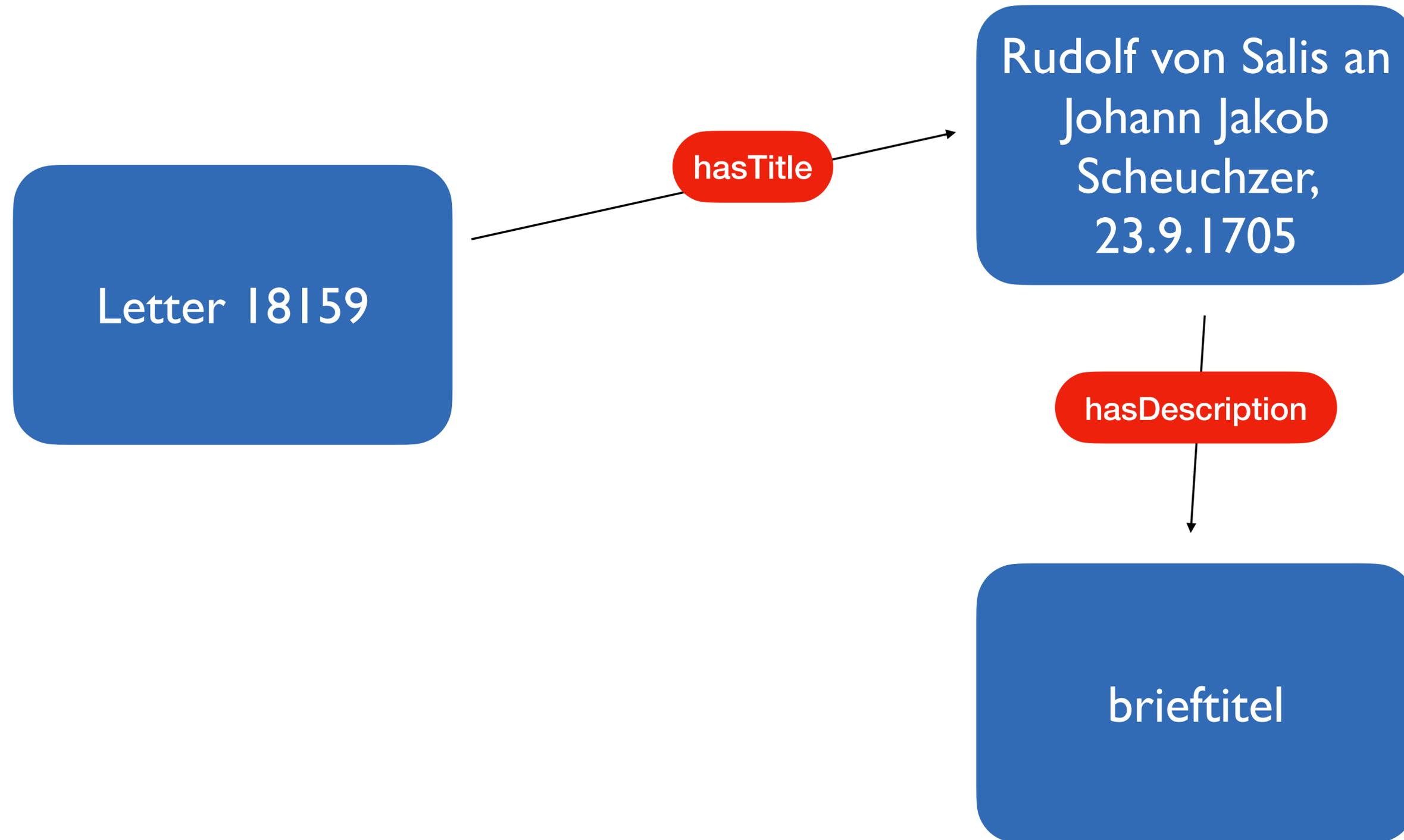
**object**

```
<TEI xmlns="http://www.tei-c.org/ns/1.0" xmlns:hal="http://www.haller.unibe.ch/ns/1.0"
xml:base="https://hallernet.org/" xml:id="letter_18159" hal:oxyFramework="true"
hal:lodPublished="true">

  <teiHeader>
    <fileDesc>
      <titleStmt>
        <title n="sn_14.000.001" hal:desc="briefftitel">Rudolf von Salis an Johann Jakob
Scheuchzer, 23.9.1705</title>
        <author n="sn_14.001.000" hal:desc="briefe_verf" key="person_24013">Salis, Rudolf von
(1652-1735)</author>
      </titleStmt>
    </fileDesc>
  </teiHeader>

```

**predicate**



My Drive - Google Drive    Metadati Buon fresco - Google

https://docs.google.com/spreadsheets/d/1ZCp0G8nmztIJB...  
 crm   debrid   b5m   bbox   scholar   SWTDrive   unige   vari   social   france   Id   plus   refine

**Metadati Buon fresco**    ☆    ☰    ☁  
 File Edit View Insert Format Data Tools Add-ons Help    Last edit was seconds ago    Share

100%    \$    %    .0    .00    123    Default (Ari...    10    **B**    *I*    A    [Grid]    [List]    [Align]    [Text]    [Link]    [Table]    [Filter]    [Sum]

B51    fx    San Francesco rinuncia ai beni terreni

	A	B	C	D	E	F	G
1	id	Panel ita	Panel eng	detail iconografico	superoggetto iconografico	Reference	Reference A Symbol
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50							
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53	097e3176-bf56-4a75-b93b-38510141f413	Natale di Greccio	Institution of the Crib at Greccio	mouth wide open	shaved friar singing	Quale Francesco	Frugoni
54	d59a985e-ebad-4560-a694-a210550b5cd8	Natale di Greccio	Institution of the Crib at Greccio	mouth open	shaved friar singing	Quale Francesco	Frugoni
55	08065e65-d846-4711-bdc7-4d73d637fc33	Morte di san Francesco	Death and Ascension of Saint Francis	mouth contemplating	shaved friar contemplating	Quale Francesco	Frugoni
56	d01163f8-94f1-4e4e-a1da-a0eed75e51b0	Morte di san Francesco	Death and Ascension of Saint Francis	mouth mourning	shaved friar mourning St Fr	Quale Francesco	Frugoni
57	b4335e30-0741-4187-acdb-7e5e369b5ea7	San Francesco davanti al Sultano	Saint Francis before the Sultan	wing	mountain	Quale Francesco	Frugoni

position

Metadati    metadati-work    panels    testo    Cosa    Explore

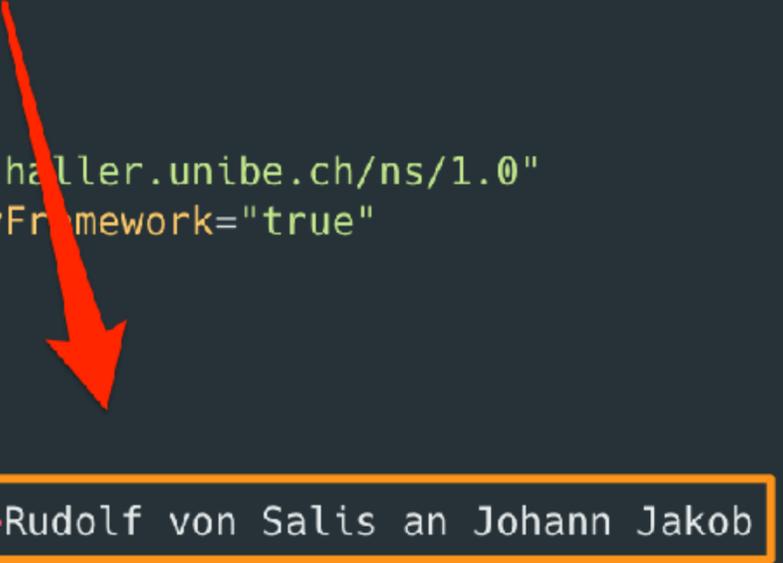
## Position:

`/TEI/teiHeader[1]/fileDesc[1]/titleStmt[1]/title[1]/text()`

```
<TEI xmlns="http://www.tei-c.org/ns/1.0" xmlns:hal="http://www.haller.unibe.ch/ns/1.0"
xml:base="https://hallernet.org/" xml:id="letter_18159" hal:oxygenFramework="true"
hal:lodPublished="true">

  <teiHeader>
    <fileDesc>
      <titleStmt>
        <title n="sn_14.000.001" hal:desc="brieftitel">Rudolf von Salis an Johann Jakob
Scheuchzer, 23.9.1705</title>
        <author n="sn_14.001.000" hal:desc="briefe_verf" key="person_24013">Salis, Rudolf von
(1652-1735)</author>
      </titleStmt>
    </fileDesc>
  </teiHeader>

```

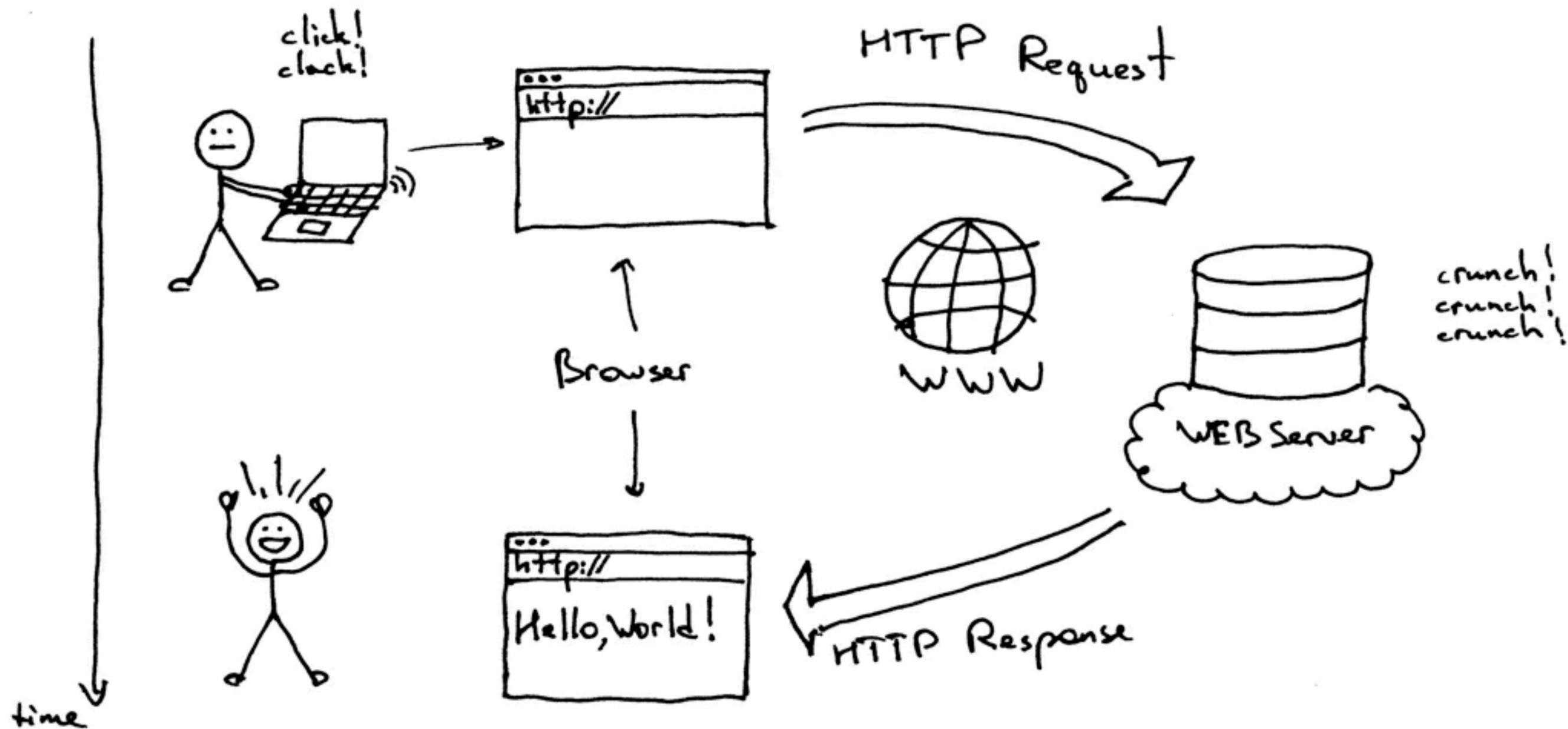


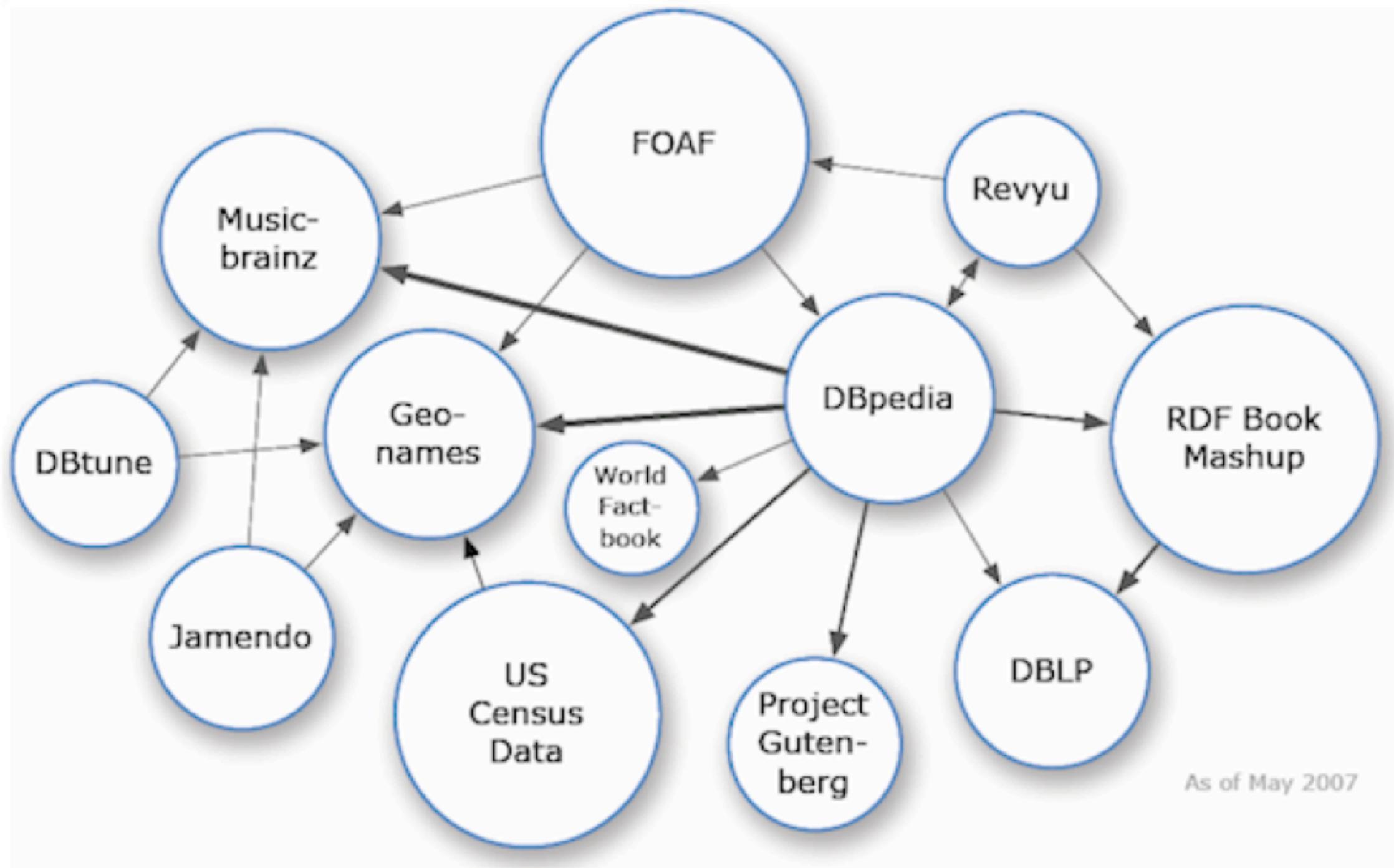
# URI / IRI

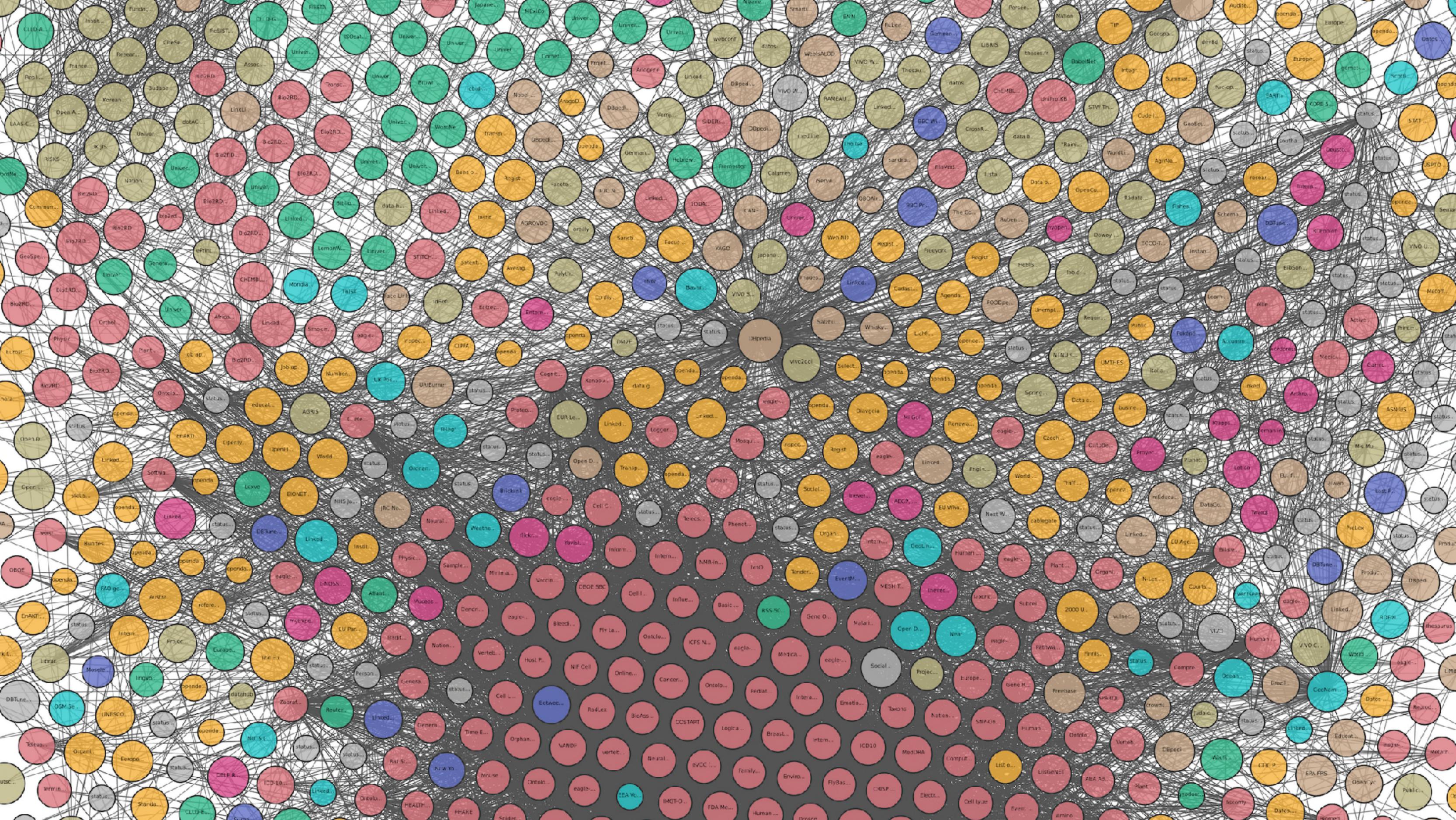
072e7d70-8403-4c03-b116-1901b07c07a0	Saluto di santa Chiara e delle sue compagne a San Francesco	Giotto?
0ab06522-d46f-4319-847c-8c58564bccd4	Canonizzazione di san Francesco	Giotto?
bb0a836c-a444-4981-817c-fb25bec8bb84	San Francesco appare a Gregorio IX	Giotto?
12f83e89-a78c-4eb4-b76b-3f9fb71d823f	Guarigione dell'uomo di Lleida	Giotto?
ff9961b3-7670-48c6-967d-e756d697565f	Confessione della donna resuscitata	Giotto?
6306dbdc-27de-4ecb-82d8-be9783138ad8	San Francesco libera l'eretico Pietro di Alife	Giotto?

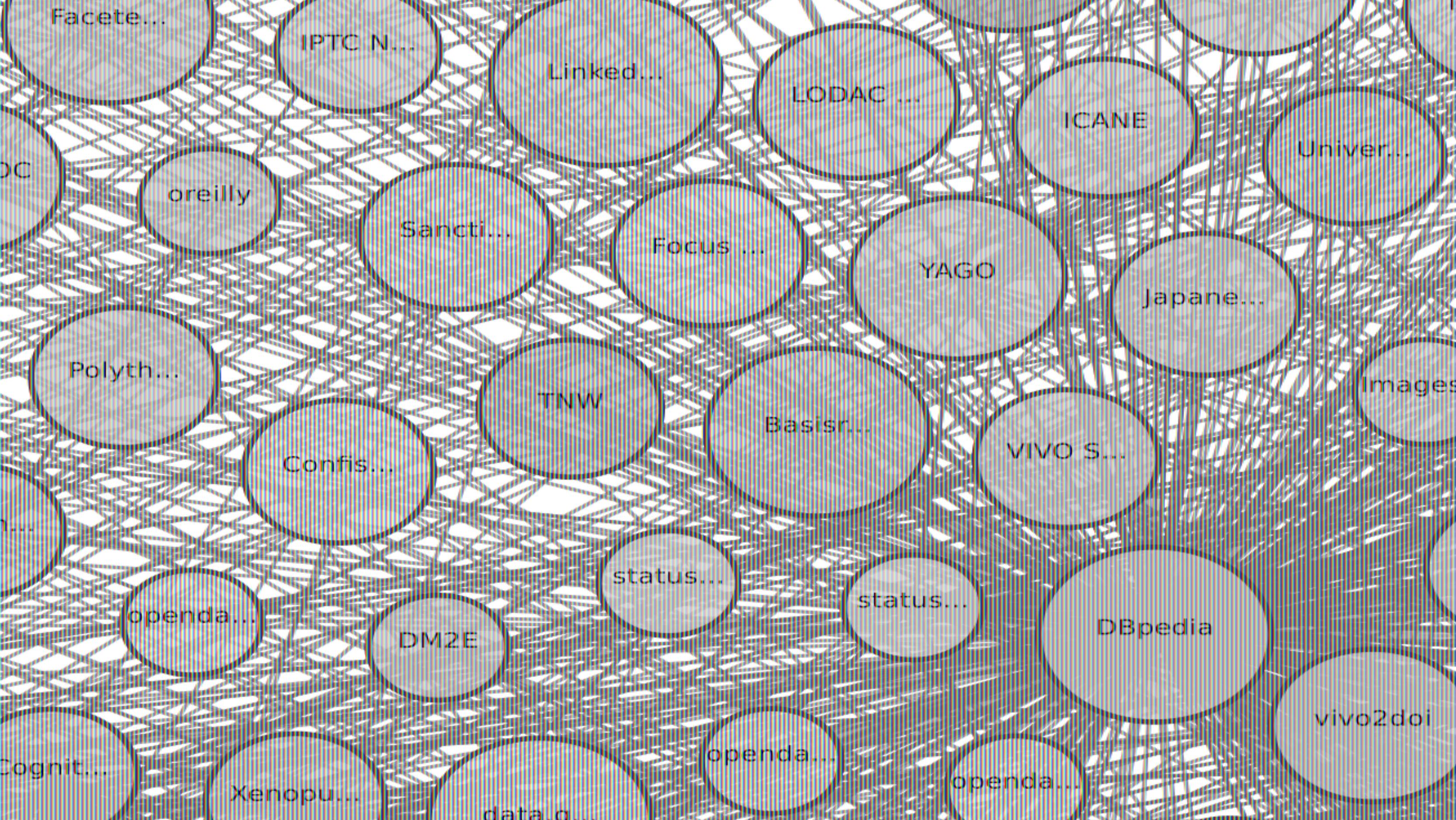
<http://lod.unige.ch/buonfresco/physical/fd4c5ec2-27c4-4f2b-ae92-8e3e71864867>

<http://lod.unige.ch/buonfresco/appellation/Q7814>









## SUBJECT

## PREDICATE

## OBJECT

Confession of a Woman Raised from the Dead

*was made by*

Giotto

Confession of a Woman Raised from the Dead

*illustrates*

“Nel borgo di Monte Marano, presso Benevento era morta una donna particolarmente devota di san Francesco....”

## Confession of a Woman Raised from the Dead

<http://lod.unige.ch/buonfresco/physical/fd4c5ec2-27c4-4f2b-ae92-8e3e71864867>

<http://lod.unige.ch/buonfresco/Q7814>

Giotto

## Confession of a Woman Raised from the Dead

<http://lod.unige.ch/buonfresco/physical/fd4c5ec2-27c4-4f2b-ae92-8e3e71864867>

made by

<http://lod.unige.ch/buonfresco/Q7814>

Giotto

# Confession of a Woman Raised from the Dead

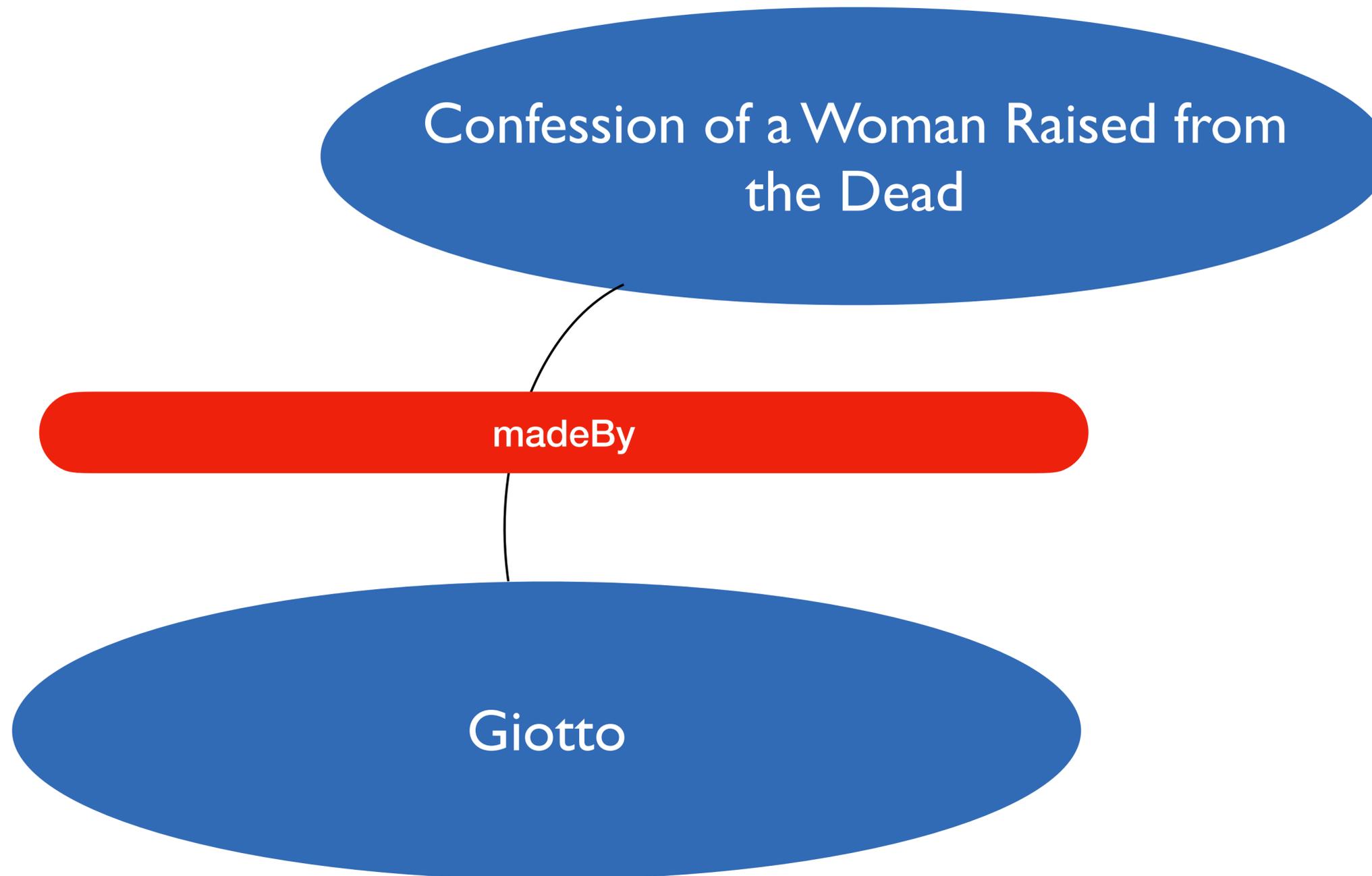
<http://lod.unige.ch/buonfresco/physical/fd4c5ec2-27c4-4f2b-ae92-8e3e71864867>

<http://lod.unige.ch/buonfresco/madeBy>

madeBy

<http://lod.unige.ch/buonfresco/Q7814>

Giotto



**SUBJECT**

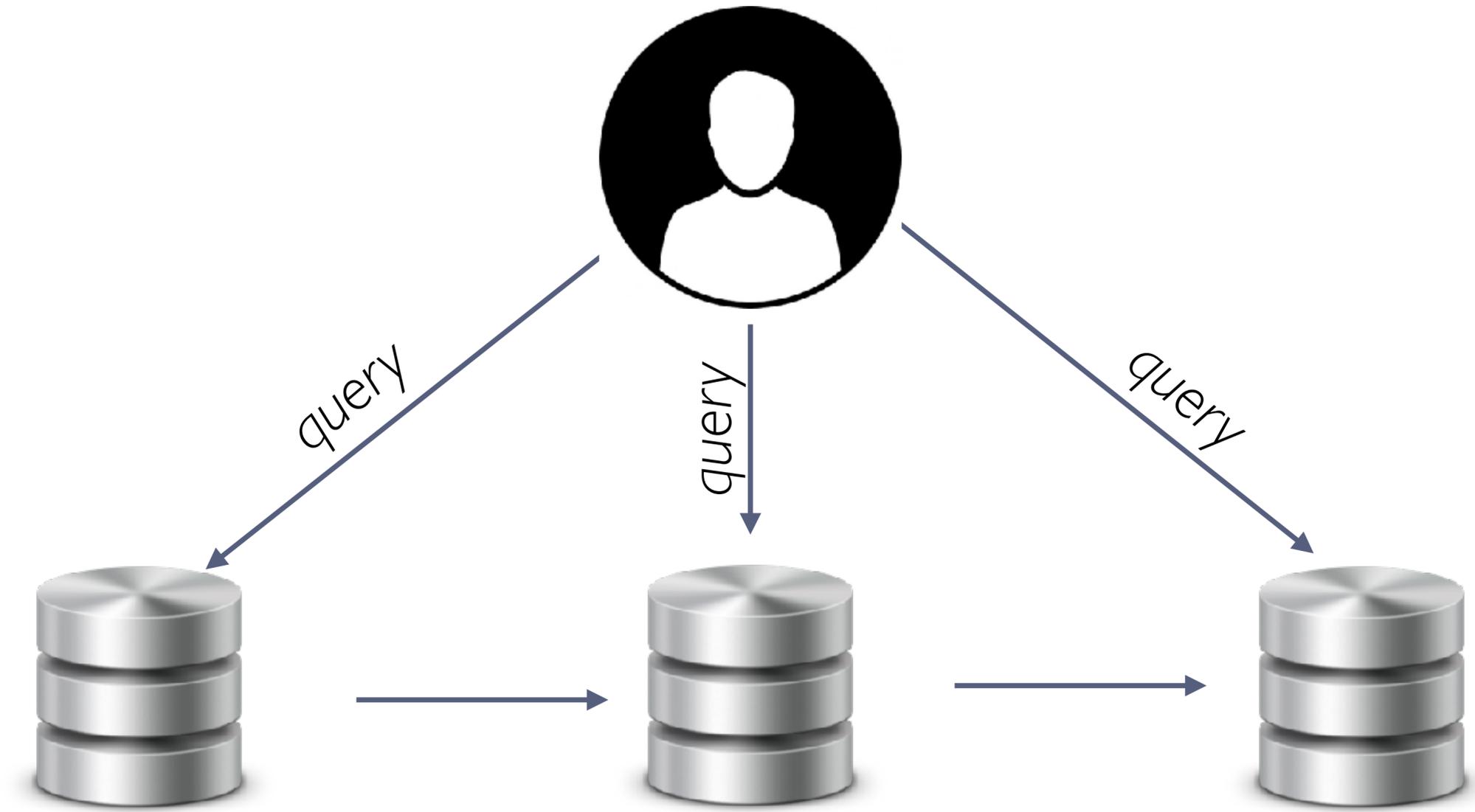
Confession of a Woman Raised from the Dead

madeBy

**PREDICATE**

Giotto

**OBJECT**



072e7d70-8403-4c03-b116-1901b07c67a0	Saluto di santa Chiara e delle sue compagne a San Francesco	Giotto?
0ab06522-d46f-4319-847c-8c58564bccd4	Canonizzazione di san Francesco	Giotto?
bb0a836c-a444-4981-817c-fb25bec8bb84	San Francesco appare a Gregorio IX	Giotto?
12f83e89-a78c-4eb4-b76b-3f9fb71d823f	Guarigione dell'uomo di Lleida	Giotto?
ff9961b3-7670-48c6-967d-e756d697565f	Confessione della donna resuscitata	Giotto?
6306dbdc-27de-4ecb-82d8-be9783138ad8	San Francesco libera l'eretico Pietro di Alife	Giotto?

ff9961b3-7670-48c6-967d-e756d697565f	<p>Nel borgo di <a href="#">edit</a> Monte Marano, presso Benevento era morta una donna particolarmente devota di san Francesco. La sera vennero i chierici per le esequie e già si apprestavano a celebrare la veglia con la recita dei salmi</p>	<p><a href="#">Legend of St Francis: 27. Confession of a Woman Raised from the Dead</a></p> <p><a href="#">Choose new match</a></p>	<p>Legend of St Francis: 27. Confession of a Woman Raised from the Dead</p>	Q3686621				
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[http://lod.unige.ch/buonfresco/physical/  
fd4c5ec2-27c4-4f2b-ae92-8e3e71864867](http://lod.unige.ch/buonfresco/physical/fd4c5ec2-27c4-4f2b-ae92-8e3e71864867)

<http://lod.unige.ch/buonfresco/madeBy>

<http://lod.unige.ch/buonfresco/Q7814>

<http://lod.unige.ch/buonfresco/physical/fd4c5ec2-27c4-4f2b-ae92-8e3e71864867>

<http://lod.unige.ch/buonfresco/hasDescription>

<http://lod.unige.ch/buonfresco/madeBy>

<http://lod.unige.ch/buonfresco/text/e5e01af8-aa6d-385a-ac98-529812bb50c9>

<http://lod.unige.ch/buonfresco/Q7814>

# SUBJECT

Confession of a Woman Raised from the Dead

# PREDICATE

hasDescription

madeBy

# PREDICATE

Giotto

Nel borgo di Monte Marano, presso Benevento era morta una donna particolarmente devota di san Francesco. La sera vennero i chierici per le esequie e già apprestavano a celebrare la veglia con la recita dei salmi quando improvvisamente, alla vista di tutti, la donna si alzò sul letto e chiamò i sacerdoti presenti, che era il suo padrino, e gli disse: \"Padre, voglio confessarmi. Ascolta il mio peccato. Quando sono morta, io dovevo essere gettata in un carcere di prigione, perché non avevo confessato il peccato che sto per dirti. Ma pregato san Francesco, che durante la vita ho sempre servito con devozione, mi è stato concesso di ritornare ora nel corpo, per confessare quel peccato e meritarmi la vita eterna. Dopo che lo avrò confessato, ecco, mi affrettavo alla pace promessa\". Tremando si confessò al sacerdote tremante, e ricevuta l'assoluzione, si stese in pace sul suo letto e s'addormentò felicemente nel Signore

# OBJECT

# OBJECT

## SUBJECT

## PREDICATE

## OBJECT

Confession of a Woman Raised from the Dead

*was made by*

Giotto

Confession of a Woman Raised from the Dead

*illustrates*

“Nel borgo di Monte Marano, presso Benevento era morta una donna particolarmente devota di san Francesco....”

## **RDF: Resource Description Framework**

- RDF is based on the idea of identifying things using Web identifiers (called Uniform Resource Identifiers, or URIs), and describing resources.
- A resource can be identified as a “thing” we want to talk about: a place, a person, a name, a webpage etc.
- Properties describe relationships between resource
- A statement about those resources is composed as triple in the form of `<subject, predicate, object>`

**{Subject}** + **{Predicate}** + **{Object}**



*Nicola*



*isA*



*Person*

---

*Engine*

*isPartOf*

*Car*

---

*Things*

*hasProperty*

*Value*

---

*IRI*

*IRI*

*IRI*

## **RDF: Resource Description Framework**

- Subject have to be a URI
- Object can be a URI or a Literal (string)
- Predicate have to be URI

## RDF: Resource Description Framework

- Predicates can be URI or Literals
- Literals are atomic values (strings or dates)
- A data type tells us whether we should interpret a value as string, a date, integer or some other type. It is recommend practice to use the data types defined by XML Schema
  - decimals - “1.23” `<http://www.w3.org/2001/XMLSchema#decimal>`
  - dates - “1982-08-30”<sup>^^</sup>`<http://www.w3.org/2001/XMLSchema#date>`
  - String - “Giotto”

# SUBJECT

Confession of a Woman Raised from the Dead

# PREDICATE

hasDescription

madeBy

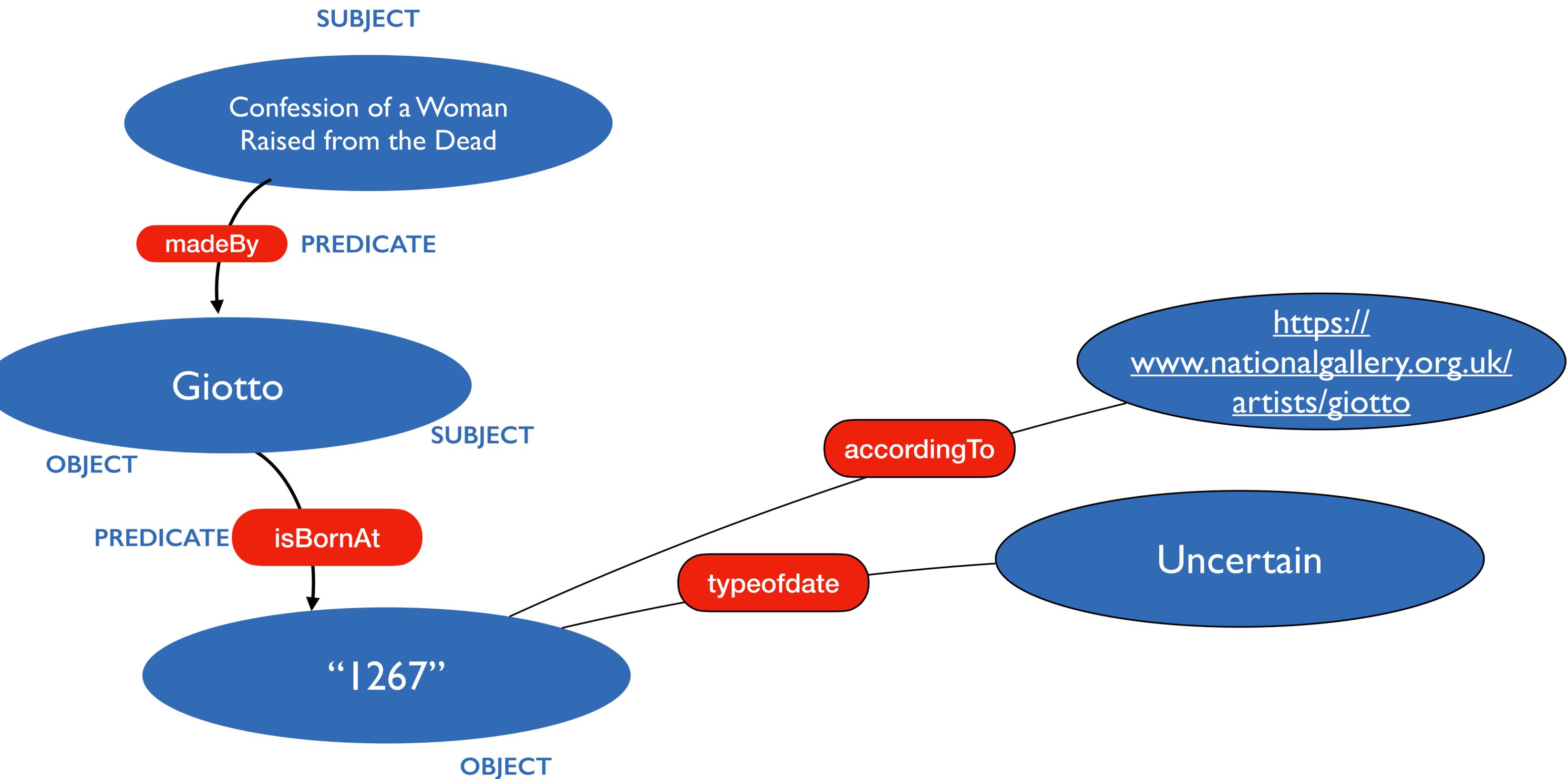
# PREDICATE

Giotto

Nel borgo di Monte Marano, presso Benevento era morta una donna particolarmente devota di san Francesco. La sera vennero i chierici per le esequie e già apprestavano a celebrare la veglia con la recita dei salmi quando improvvisamente, alla vista di tutti, la donna si alzò sul letto e chiamò sacerdoti presenti, che era il suo padrino, e gli disse: \"Padre, voglio confessarti il mio peccato. Quando sono morta, io dovevo essere gettata in un carcere di prigionia, perché non avevo confessato il peccato che sto per dirti. Ma pregato san Francesco, che durante la vita ho sempre servito con devozione, mi è stato concesso di ritornare ora nel corpo, per confessare quel peccato e meritarmi la vita eterna. Dopo che lo avrò confessato, ecco, mi affrettavo alla pace promessa\". Tremando si confessò al sacerdote tremante e ricevuta l'assoluzione, si stese in pace sul suo letto e s'addormentò felicemente nel Signore

# OBJECT

# OBJECT



SUBJECT

Confession of a Woman  
Raised from the Dead

madeBy

PREDICATE

Giotto

SUBJECT

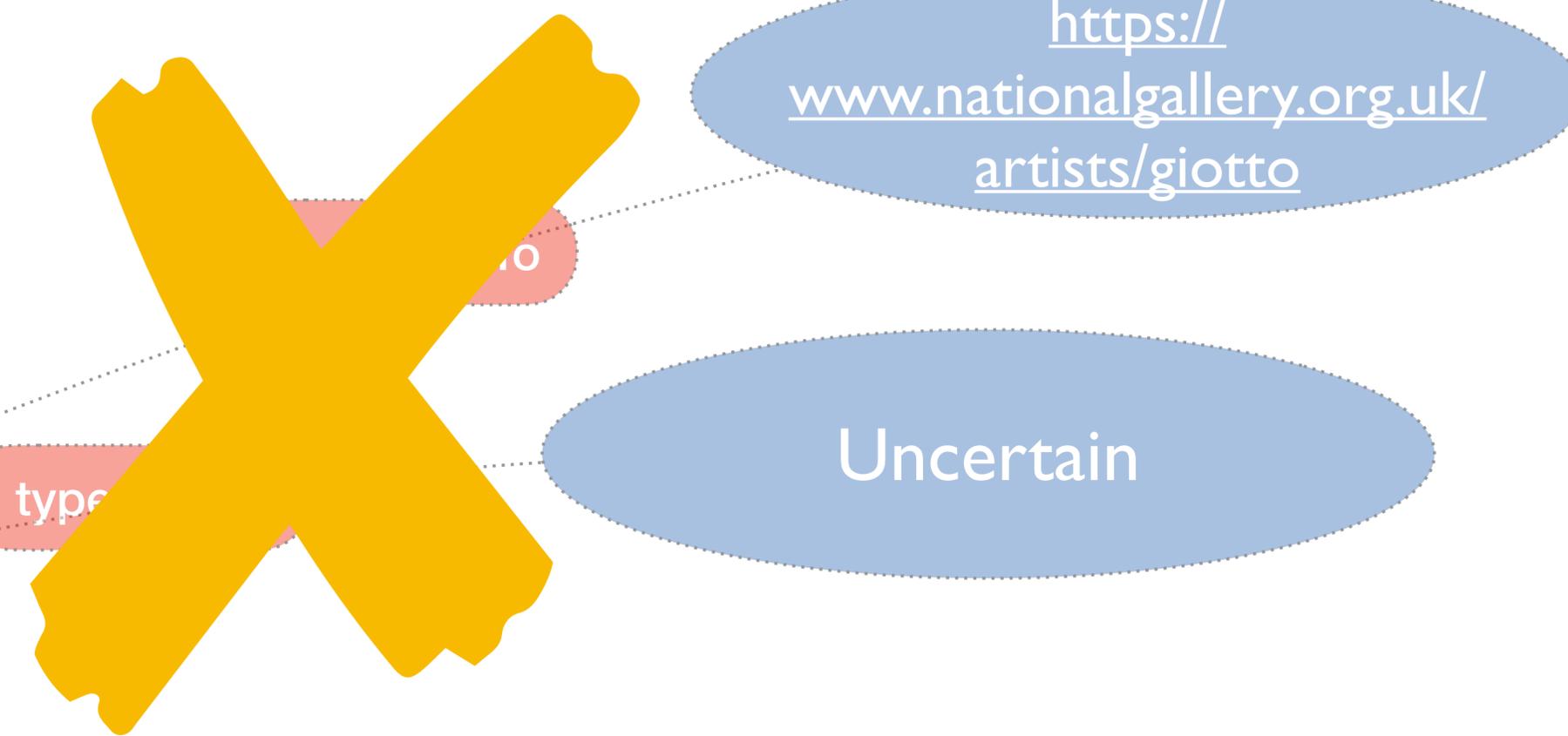
OBJECT

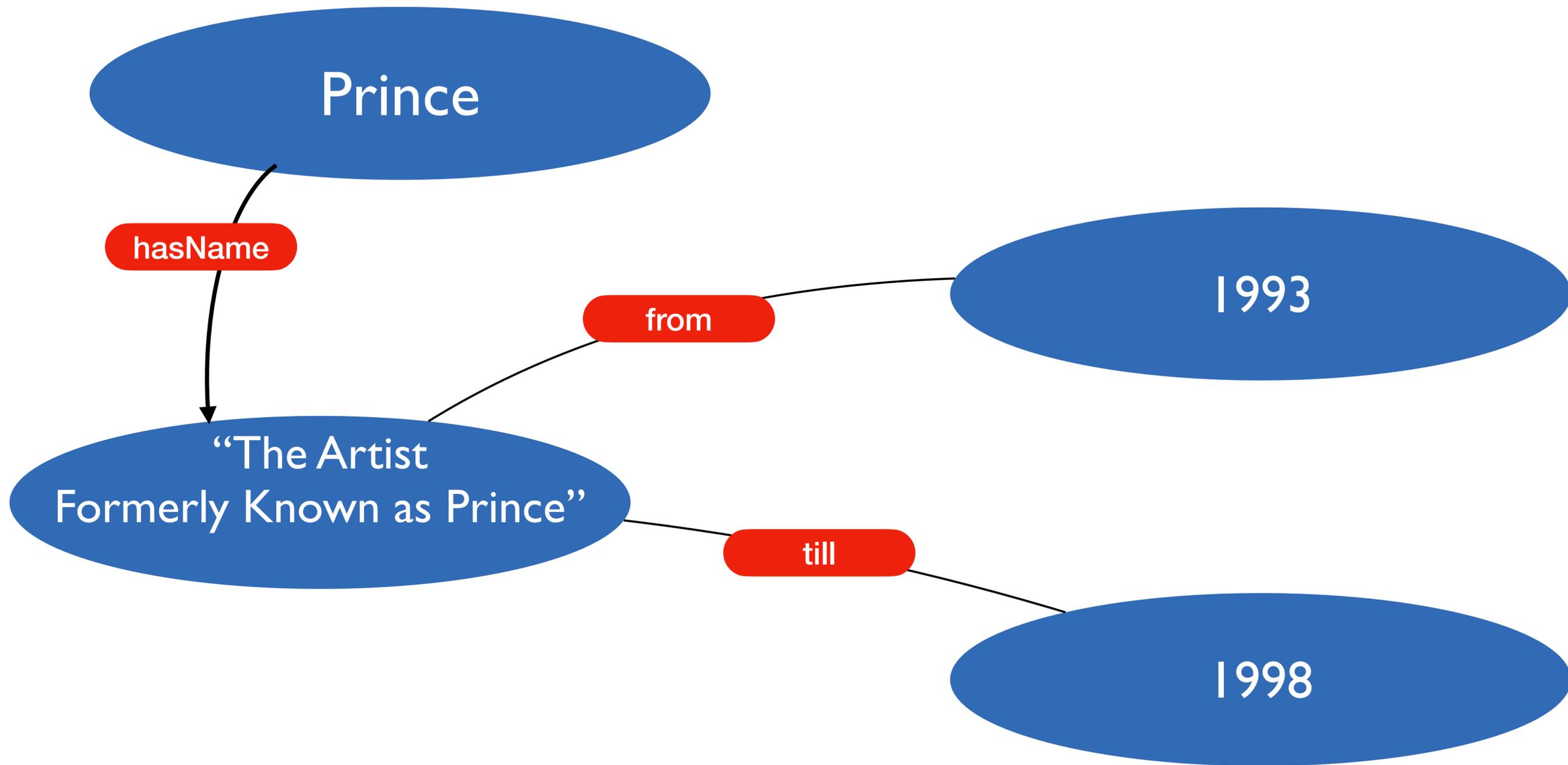
PREDICATE

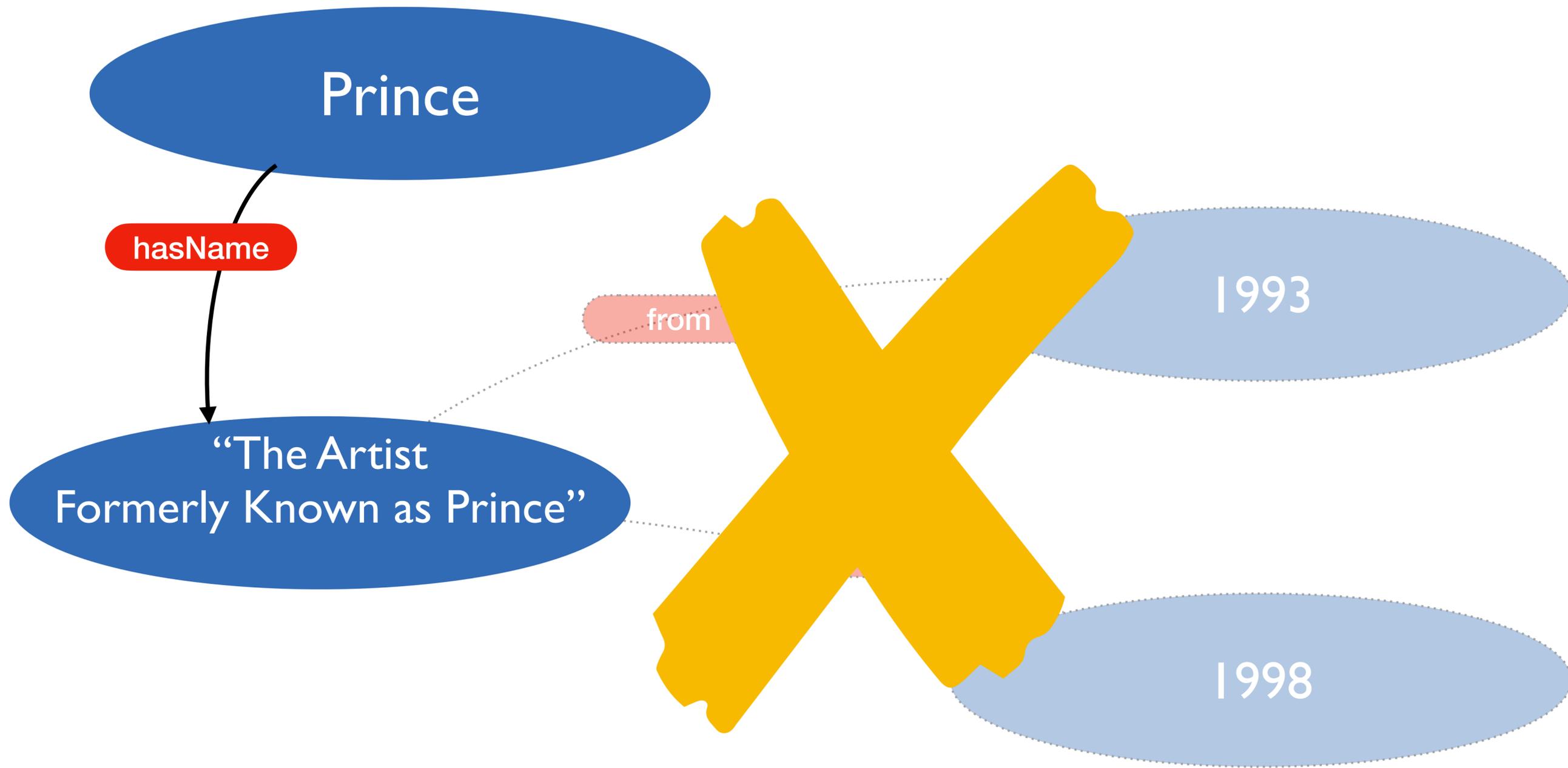
isBornAt

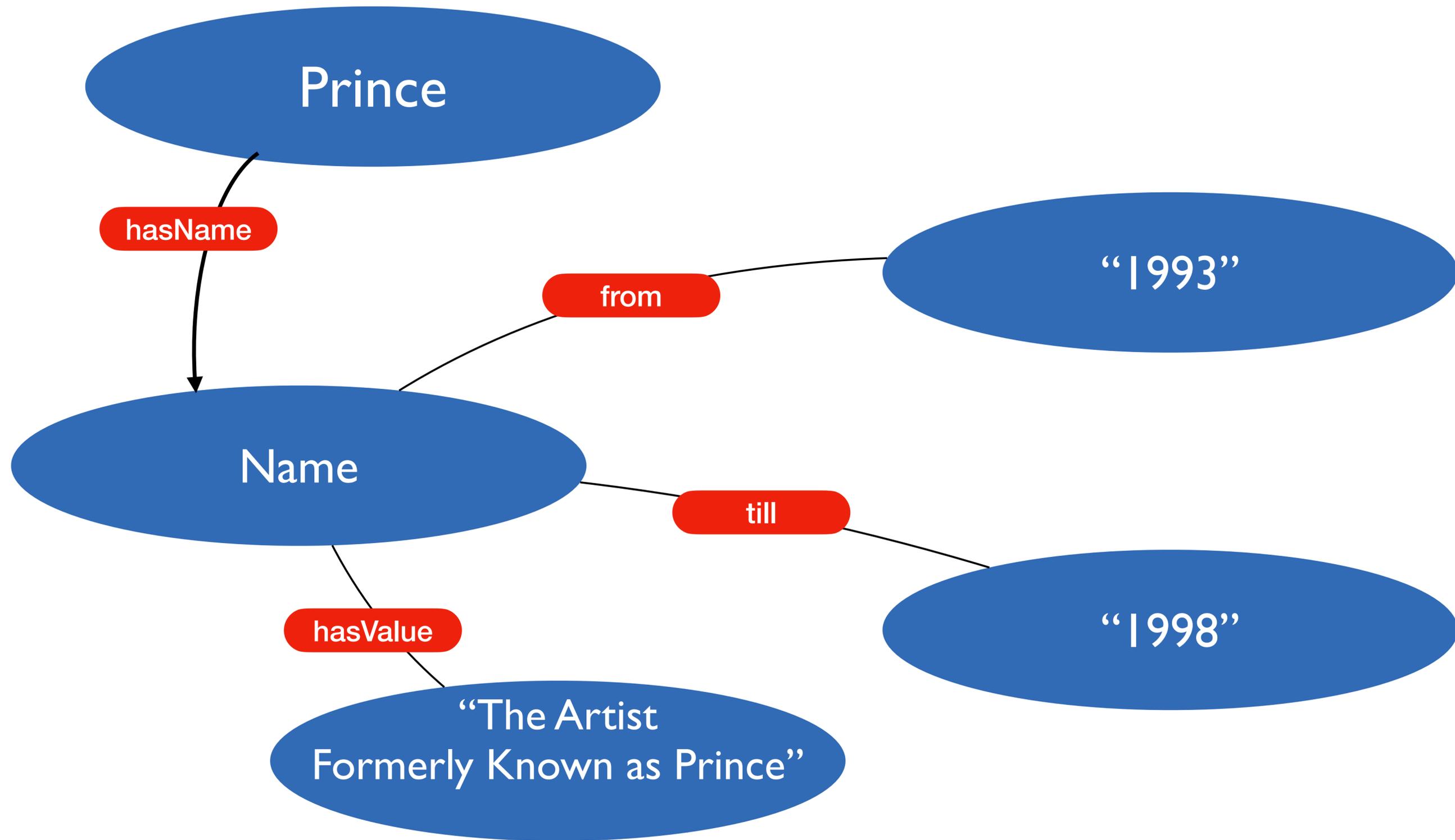
“1267”

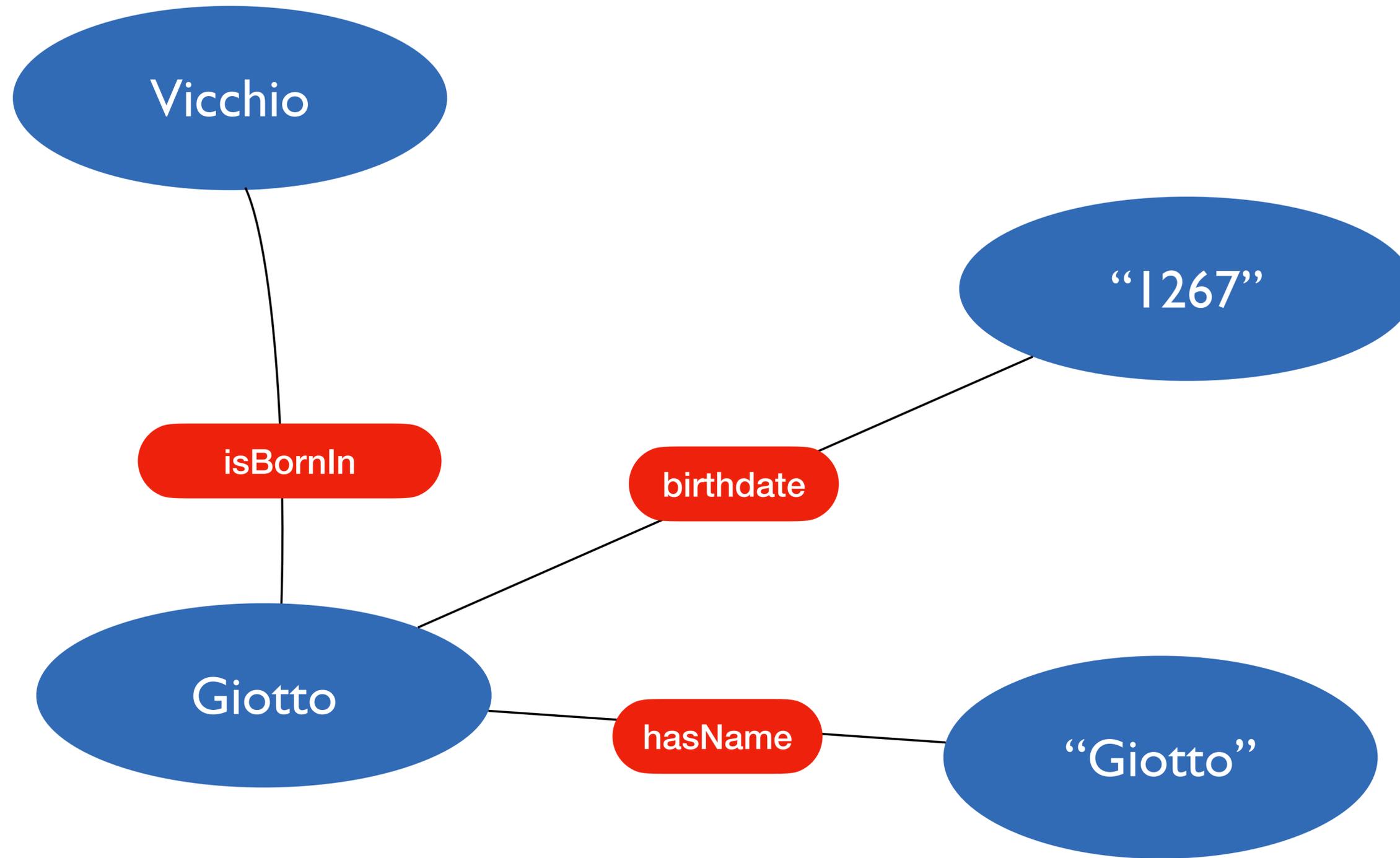
OBJECT

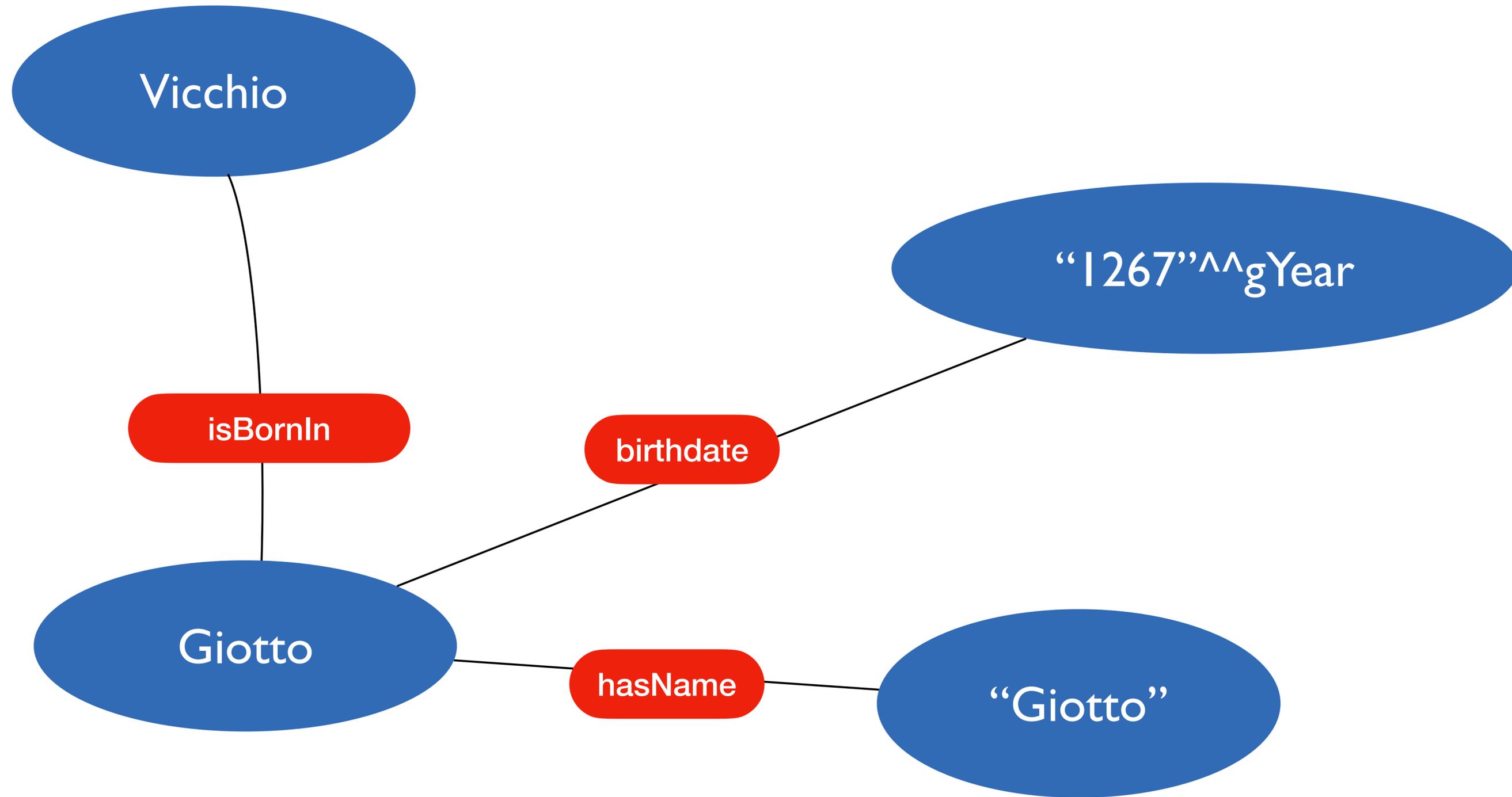


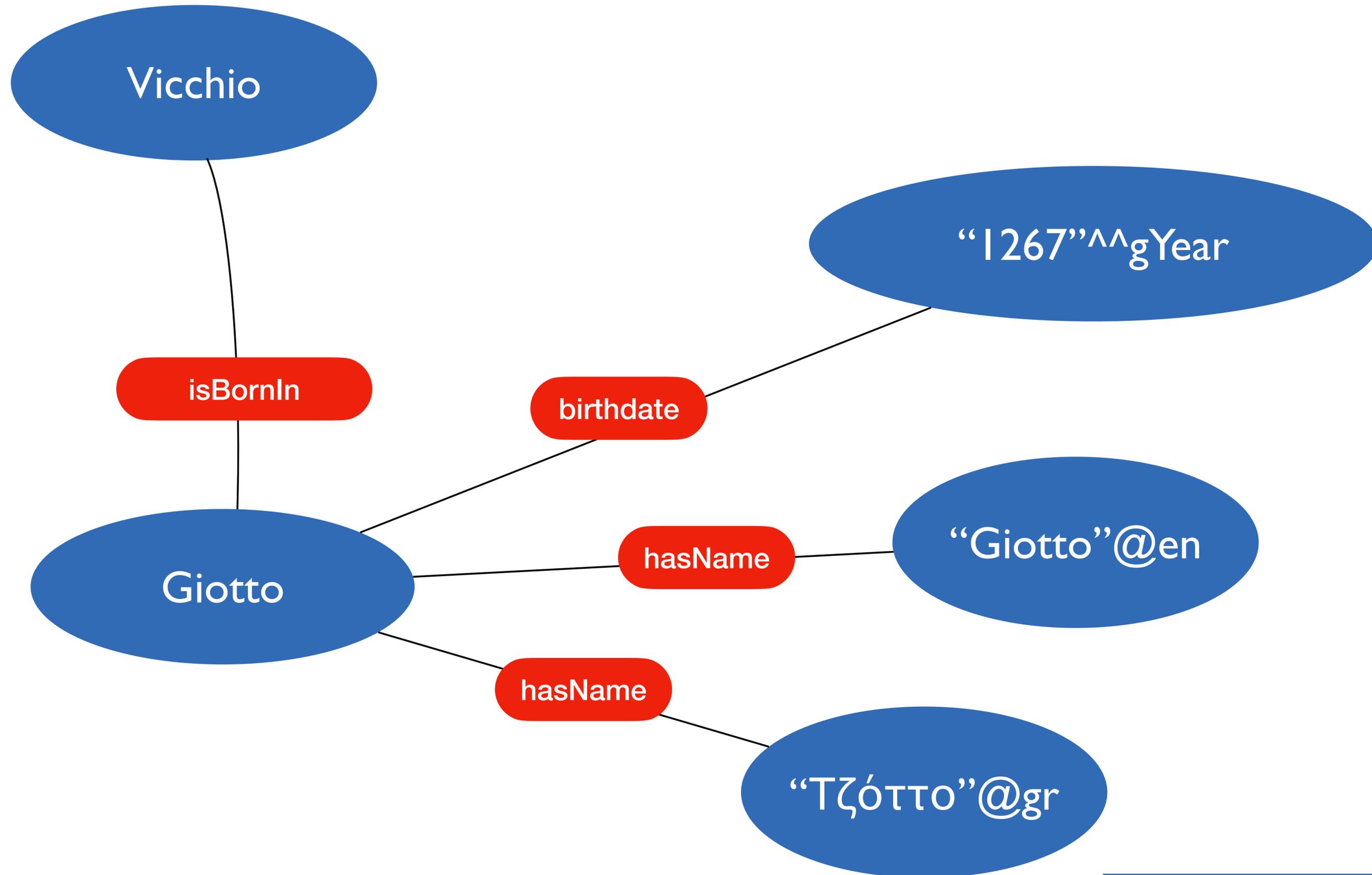


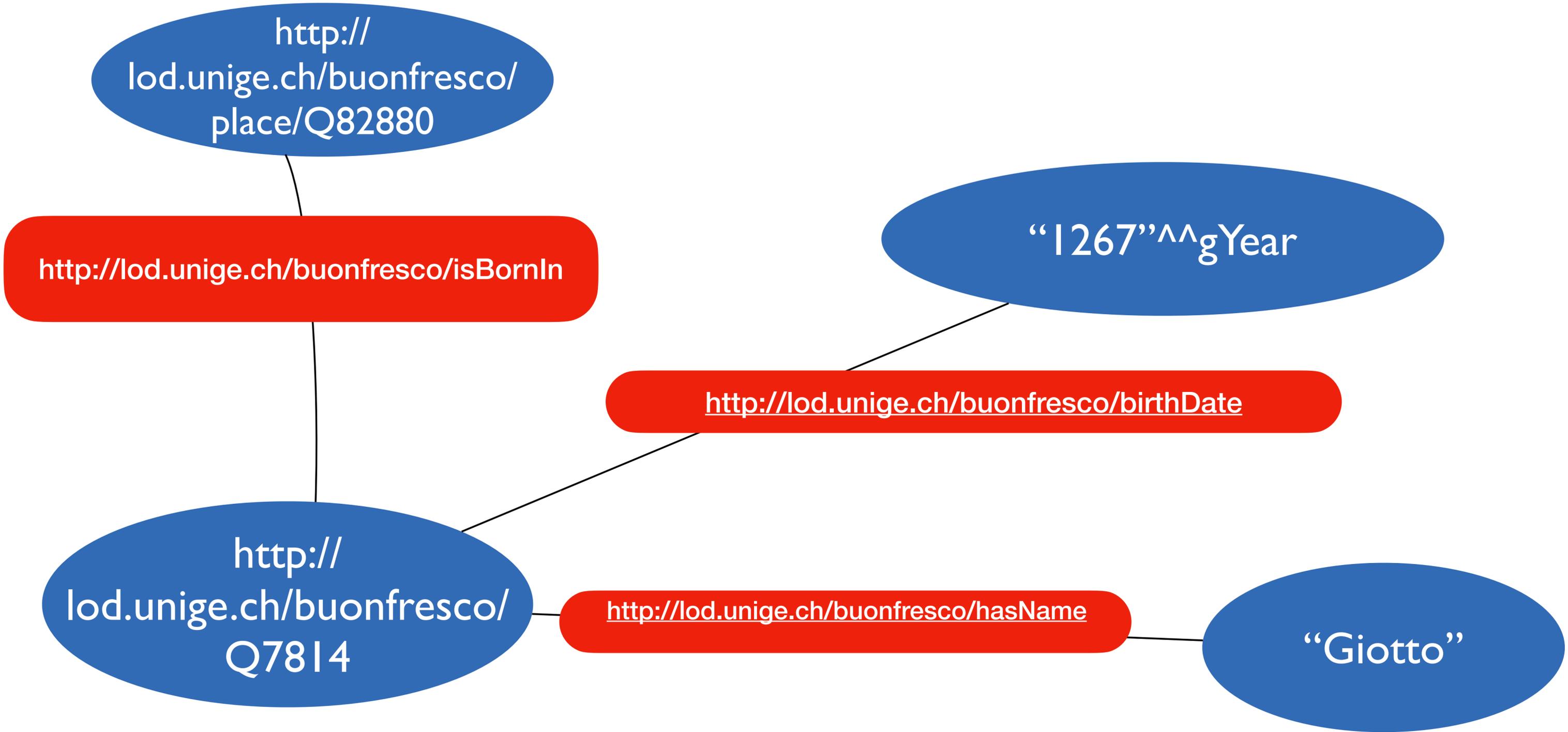






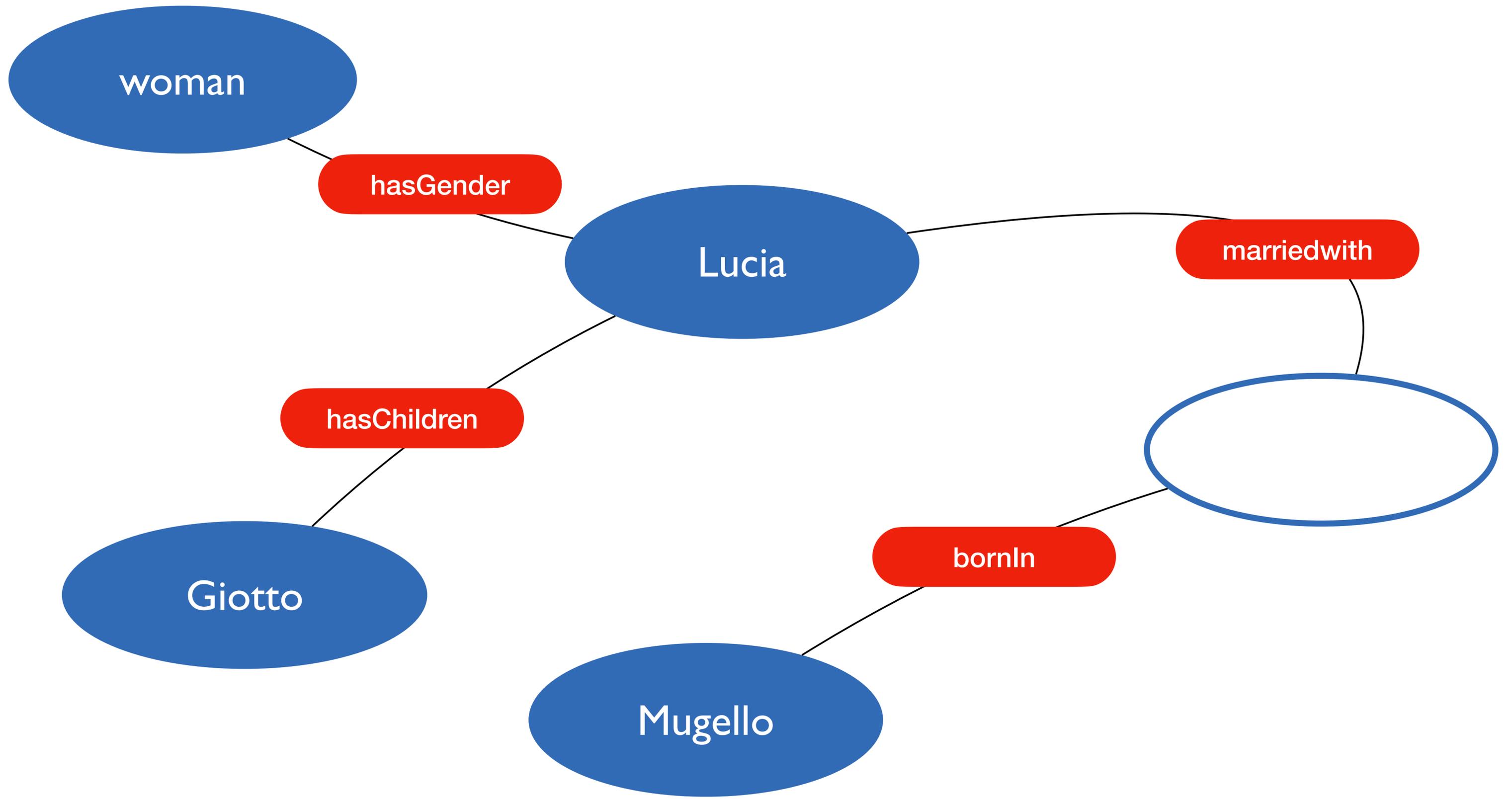






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  - dates - “1982-08-30”<sup>^^</sup>`<http://www.w3.org/2001/XMLSchema#date>`
  - String - “Giotto”



## **RDF: Resource Description Framework**

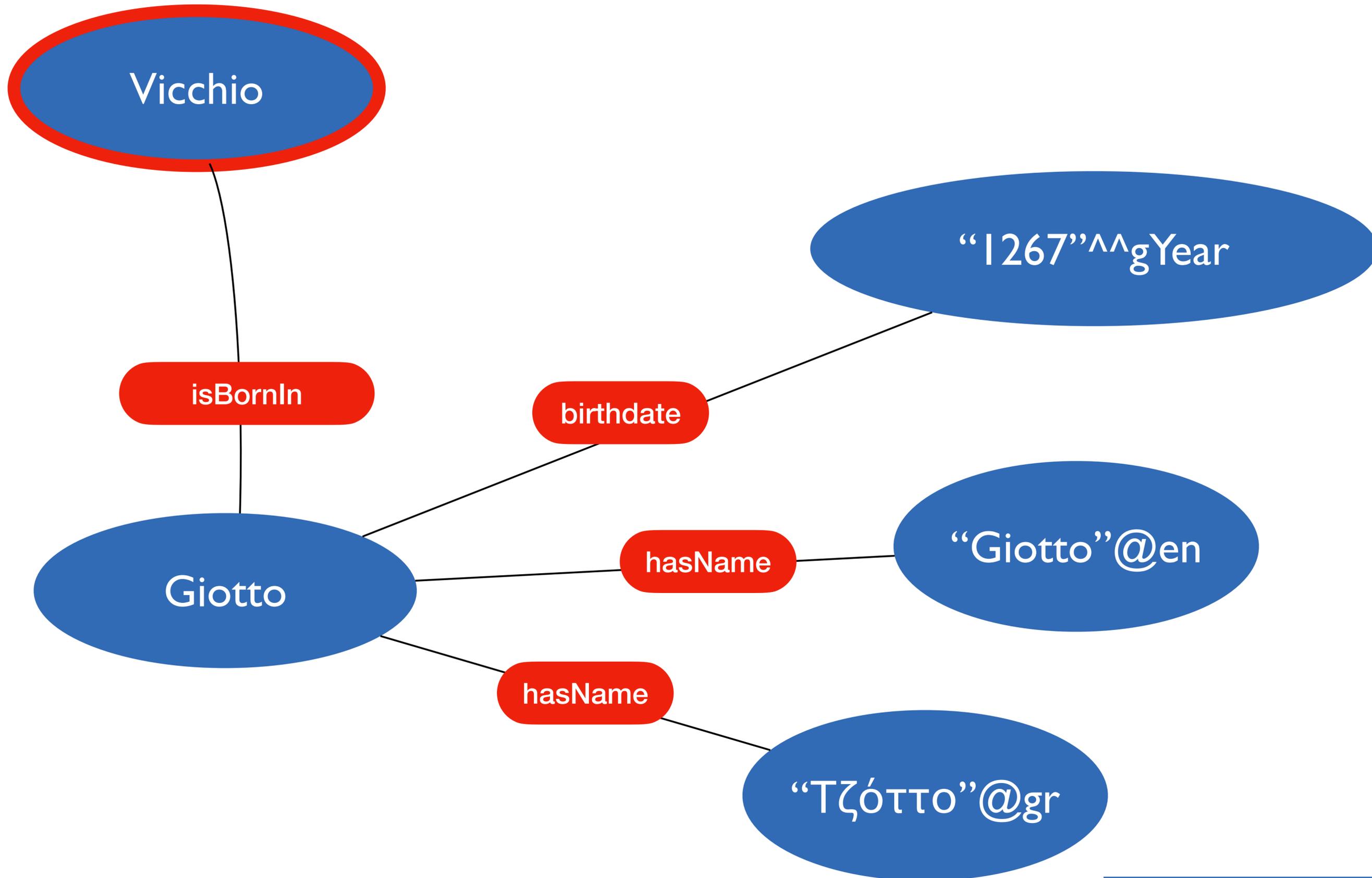
- Subject have to be a URI or a blank node
- Object can be a URI or a Literal (string) or a blank node
- Predicate have to be URI

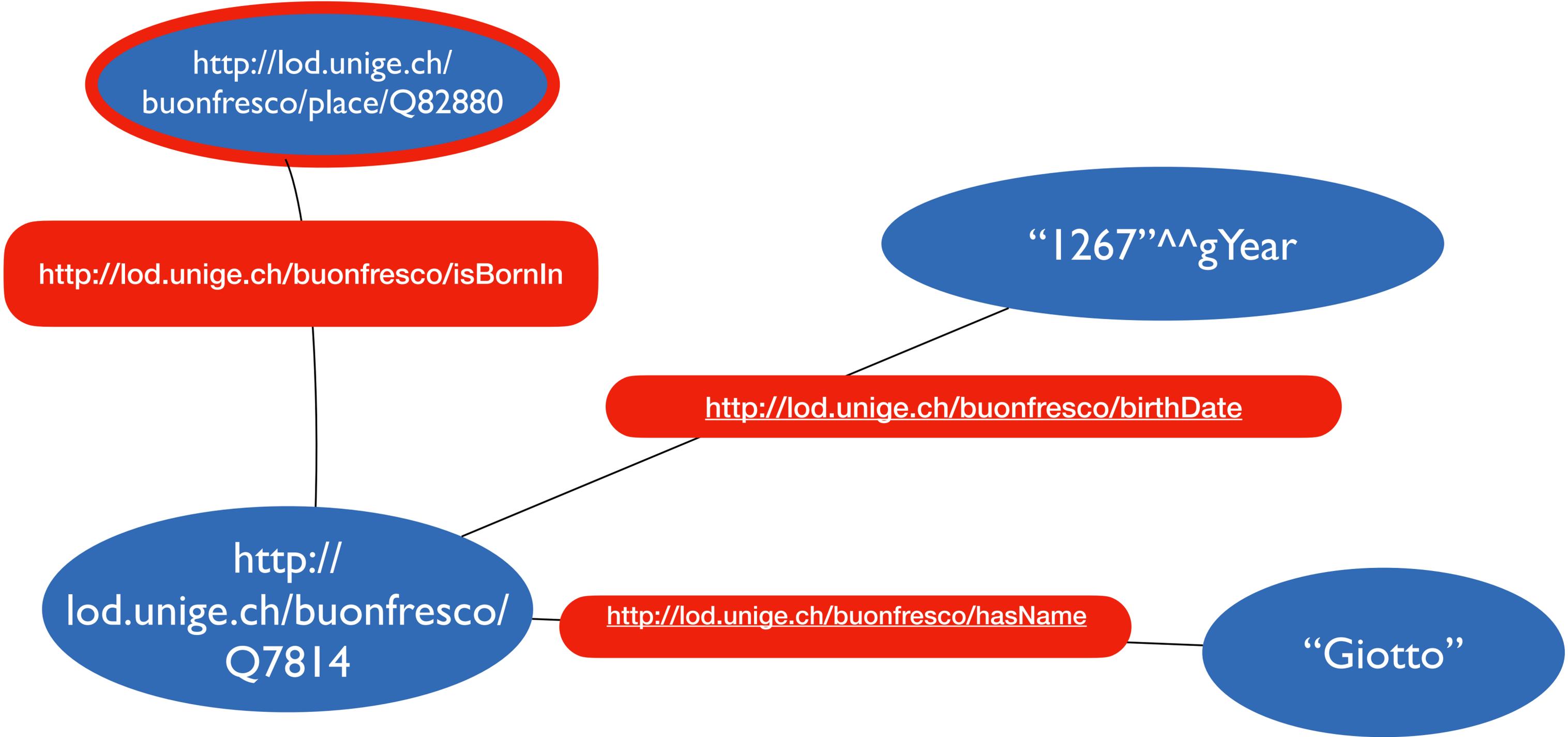
## **RDF: Resource Description Framework**

- Blank nodes
- Subject and object can be blank nodes
- Blank nodes are difficult to work with
- Blank nodes are difficult to work with!
- Blank nodes are difficult to work with because it is difficult to refer to them outside the local data. How can we merge data with blank nodes?  
We assign them fake identity.
- Please be kind, assign fake identity to blank nodes.

# RDF

- Structure in triples <subject, predicate, object>
- concept of property (predicate)
- Using Literals
- reification...





[http://lod.unige.ch/  
buonfresco/place/Q82880](http://lod.unige.ch/buonfresco/place/Q82880)



[http://lod.unige.ch/  
buonfresco/place/Q82880](http://lod.unige.ch/buonfresco/place/Q82880)

[https://  
sws.geonames.org/3164422/](https://sws.geonames.org/3164422/)



<http://lod.unige.ch/buonfresco/place/Q82880>

<https://sws.geonames.org/3164422/>

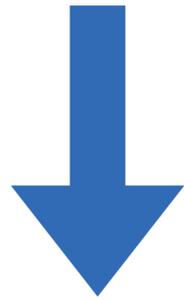
<http://resource.swissartresearch.net/place/1655383555>



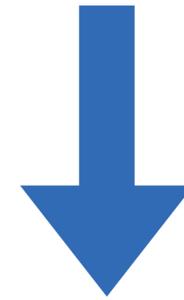
same



[http://lod.unige.ch/  
buonfresco/place/Q82880](http://lod.unige.ch/buonfresco/place/Q82880)



[http://  
lod.unige.ch/buonfresco/  
person/Q37567429](http://lod.unige.ch/buonfresco/person/Q37567429)



Input interpretation

**Vicchio** (surname)

Basic information for the United States

rank	126 400 <sup>th</sup>
fraction	1 in 2 million people ( $5 \times 10^{-5}\%$ )
number	125 people

(based on 2000 United States Census)

Ethnic fractions Pie chart

white	98.4%
Amerindian	0
black	0
mixed	0

Sources Download Page

POWERED BY THE WOLFRAM LANGUAGE

[http://lod.unige.ch/  
buonfresco/place/Q82880](http://lod.unige.ch/buonfresco/place/Q82880)

<http://lod.unige.ch/buonfresco/indicate>

“place”@en

[http://  
lod.unige.ch/buonfresco/  
person/Q37567429](http://lod.unige.ch/buonfresco/person/Q37567429)

<http://lod.unige.ch/buonfresco/indicate>

“family name”  
@en

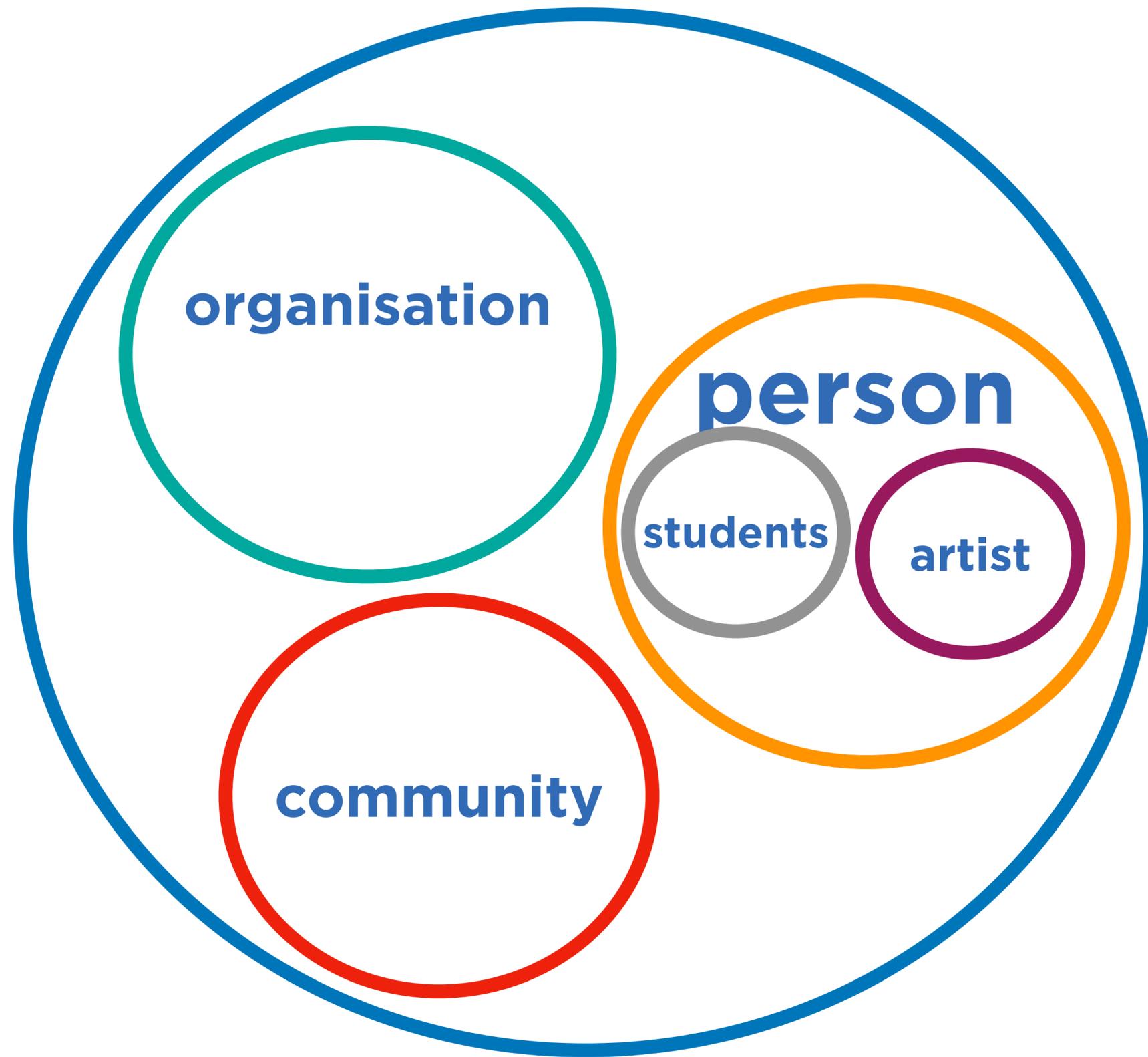


# RDF Schema

# RDFS

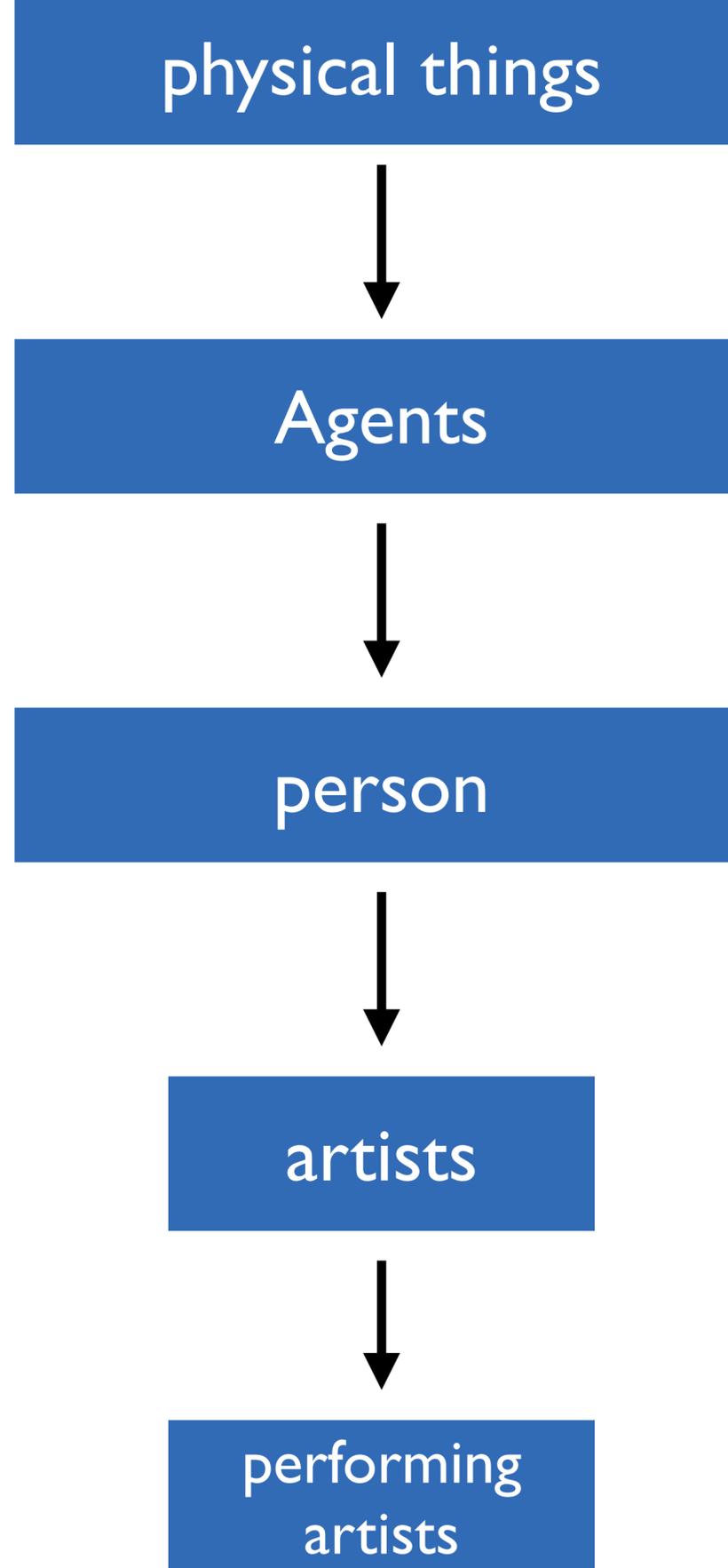
- **Classes**
- **Subclasses**
- Subproperty
- label
- range / domain

# Agents

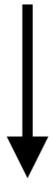


# Agents

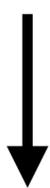




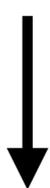
physical things



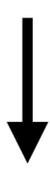
Agents



person

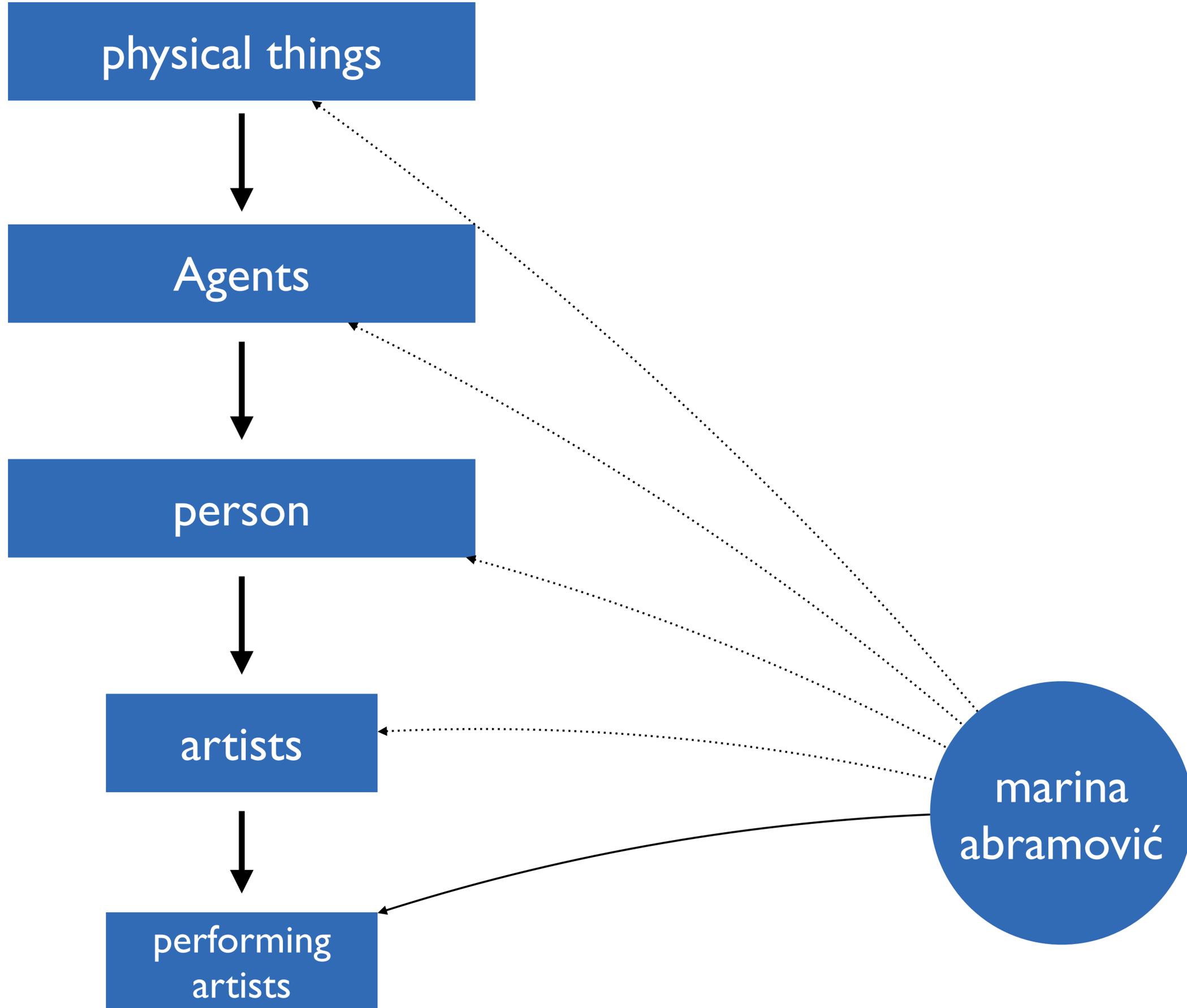


artists

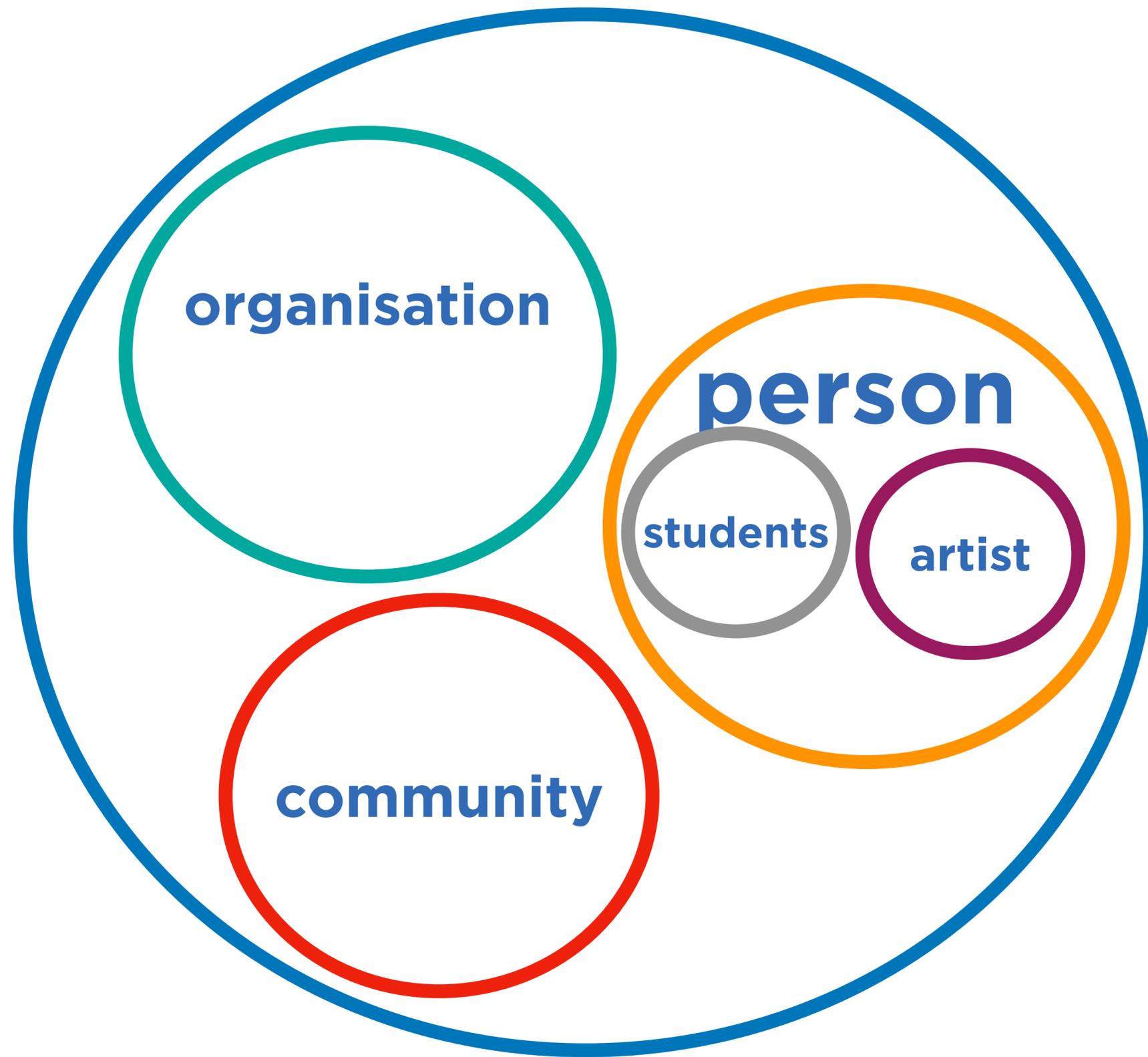


performing artists



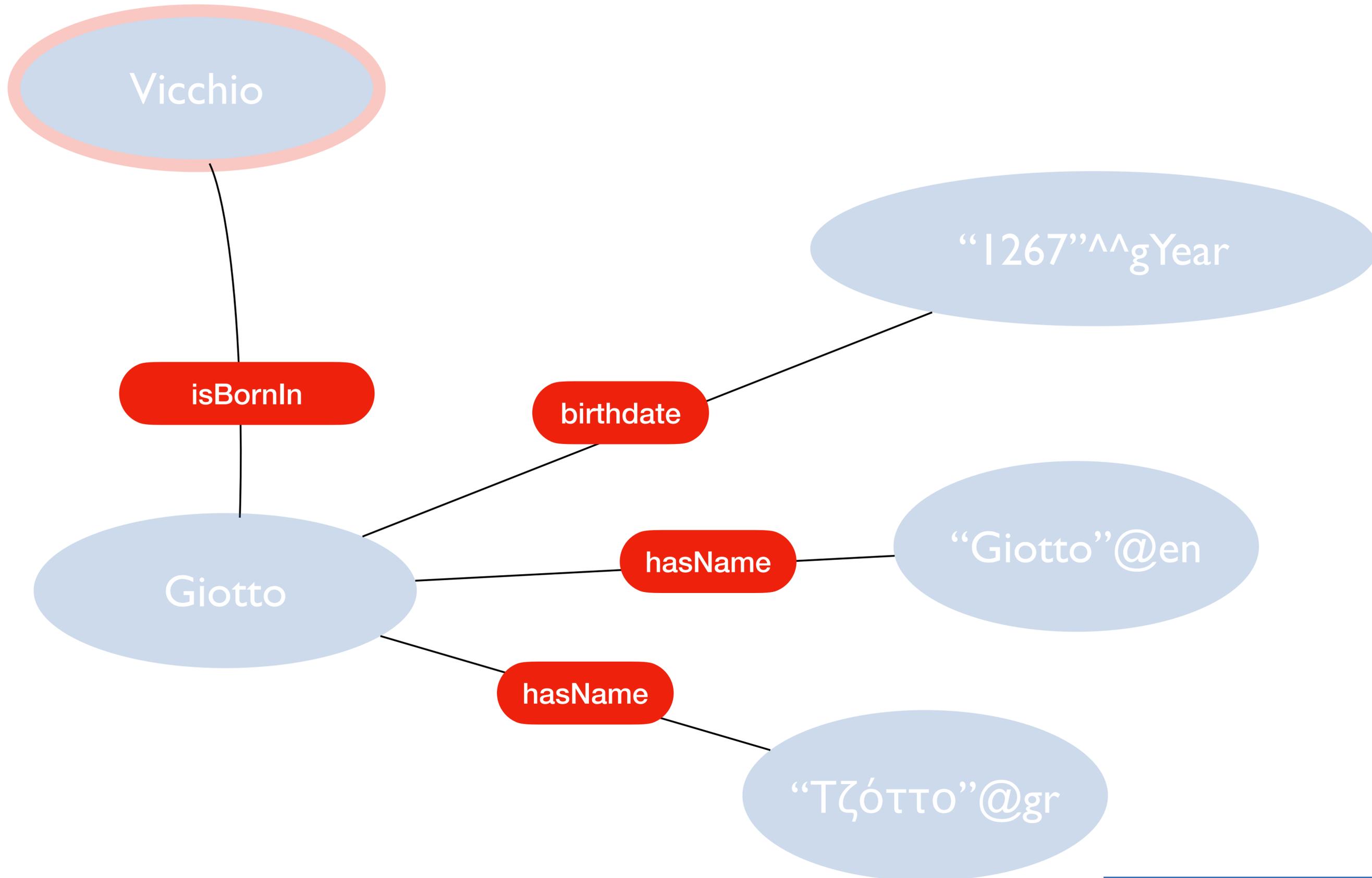


# Agents



# RDFS

- Classes
- Subclasses
- **Subproperty**
- label
- **range / domain**



**domain**

property

**range**

person

isBornIn

Place

**domain**

property

**range**

person

isBornIn

Place

physical object

isBornIn

Place

**domain**

property

**range**

person

isBornIn

Place



physical object



Place

# domain

physical object

startToExist

# range

Place



person

isBornIn

Place

---

physical object

startToExist

Place



physical object

startToExist

Place

person

isBornIn

Place



person

startToExist

Place



# Modelling exercise

*miro and protégé edition*