



MOVIES ONTOLOGY

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Movies Ontology

➤ **Topic:**

“Movies Ontology”

➤ **Field:**

Entertainment industry

➤ **Problem Statement:**

“Movies ontology should be based on the movies, their subcategories, their types, subclasses, relationships between them and provide the information to intended users about their concerned questions”

➤ **Abstract:**

The term "ontology" refers to a clearly specified reference model of application domains that strives to enhance information consistency and collaborative learning. It provides a human- and computer-processable representation of the semantics of a domain. We suggest an ontology-based method for movie searching, which is motivated by its success in the field of information extraction (IE). At a finer level, movie search is mostly domain dependent and very context-sensitive. The ontology structure is used as a crucial component in movie search by taking into account the relationships between concepts in this paper's introduction of a good technique for movie search. The outcome of the experiment demonstrates the advantages of using ontology framework for opinion mining.

➤ **Introduction:**

An ontology offers a machine-to-machine foundation for connecting the many data systems that make up the media world. It serves as the foundation and architecture for a data-driven future. As a result, it differs from the several different schemas that have been used throughout the industry for data organization. An easy choice for data organization is to develop a schema. Adopting an ontology is a tactical move to support the core infrastructure that aids in the development of suitable schemas in the market. It aims to limit effort duplication both inside and across businesses. And when content creators, distribution platforms, and service providers embrace it more widely throughout the sector, it also serves as a basis for faster and more scalable creation of new business applications.

Therefore, in order to facilitate the movie search process, we constructed an ontology rather than relying on any schema. To aid in all facets of searching, the suggested ontology has a wealth of classes and data properties. Given below is the description of classes.

1. Movie: This class is a generic class that contains information on movies, such as their title, budget, and where they were shot.

2. Genre: This essentially identifies the categories of movies. The movies are categorized according to their genre. This class comprises a wide variety of subclasses that define different types of movies, such as romantic comedies, action dramas, and horror films.

Subclasses: Action, Fiction, Fantasy, Comedy, Horror, Romance.

3. Awards: The awards class refers to accolades bestowed on performers and motion pictures. This is a standard class that specifies the kind of awards granted to the specified entity as well as their date for both performers and films.

4. Person: Another generic class with four subclasses and its own data attributes is Person. The person class itself includes characteristics of a typical person, such as name, gender, age, and nationality, as well as subclasses that specify the roles in producing a film, such as director, writer, producer, or actor.

Subclasses: Director, Actor, Producer, Writer.

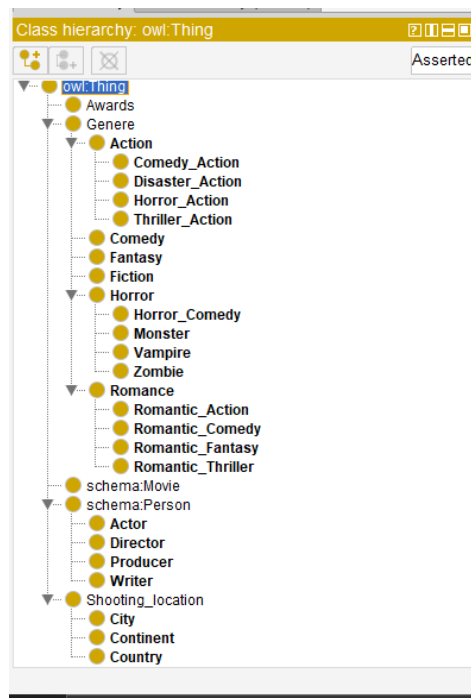
5. Shooting Location: This class describes the setting used to film a movie. In addition to subclasses, it also includes other attributes, such as shoot start and finish date, which specify the beginning and ending dates of a movie's filming. Subclasses also have their own data characteristics, such as names, codes, and so on.

Subclasses: Continent, Country, City.

➤ Ontology Formulation:

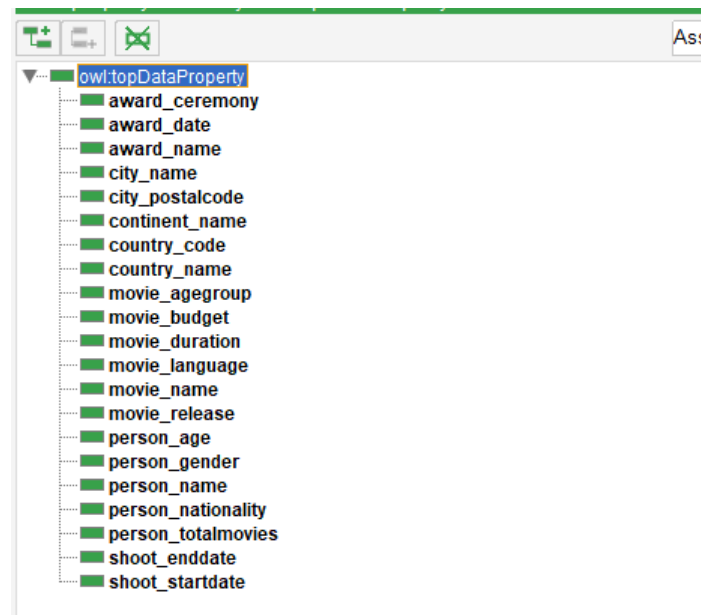
1. Ontology Class Hierarchy:

Following is the ontology classes hierarchy:



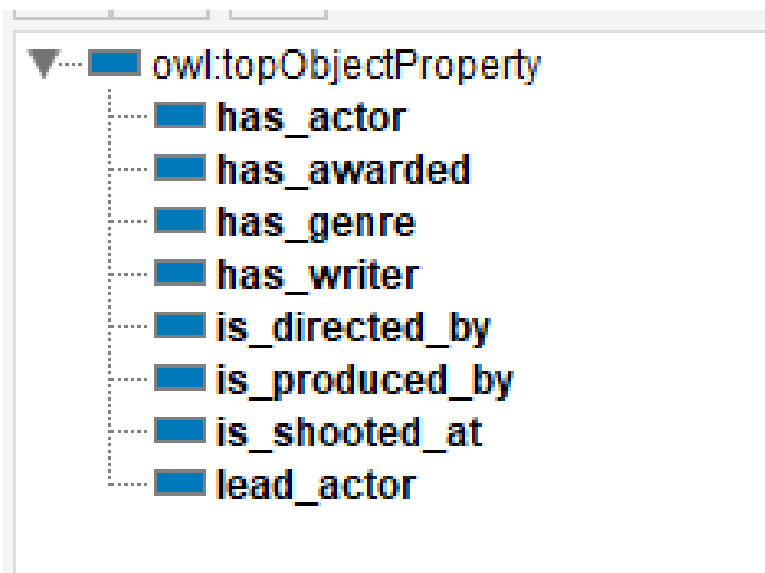
2. Ontology Data properties:

Following is an overview of data objects:

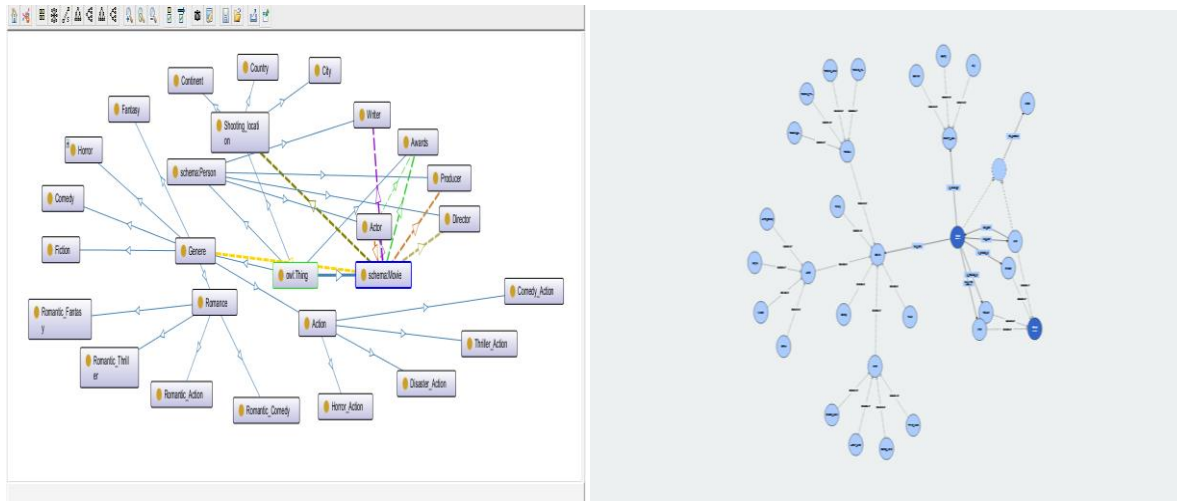


3. Ontology Object Properties:

Following are movies ontology object properties:



4. Movies Ontology OntoGraph and Graphviz overview:



➤ Movies Ontology ORSD:

OSRD	
1	Purpose
	The aim of this ontology is to provide assistance to not only users but also machines which are searching information regarding movies based on their queries.
2	Scope
	This ontology covers data related to movies, actors, their locations, directors etc. It strictly covers the information regarding movies only.
3	Implemented Language
	The ontology has to be implemented in OWL.
4	Intended End Users
	<ul style="list-style-type: none"> • People who want to watch different types of movies • People who want to watch movie etc based on genre • People who want to watch movie of a specific actor • People who want to know about a particular movie • People who want to know about movies based on specific dates
5	Intended Uses:
	Movies Searching
6	Ontology Requirements:
a.	Non-Functional Requirements:
	NFR1: The ontology must have complete data regarding movies. NFR2: The ontology must include movies from all over the world. NFR3: The ontology must support English language.
b.	Functional Requirements:
	1. Who were the actors in a movie? 2. Who produced the movie? 3. Who was the writer of the movie? 4. Where was the movie shot?

	5. Was the movie nominated for any award? 6. Did the movie win any award? 7. What is the genre of the movie? 8. Is the movie a family movie? 9. Which age group can watch the movie? 10. Where was the movie shot? 11. What was the budget of the movie? 12. How many movies has a certain actor acted in? 13. What are the total number of movies directed by a direction house? 14. What are the total number of movies produced by a production House? 15. What is the language of movie? 16. Is the movie dubbed? 17. How many movies are written by a writer? 18. When was the movie released? 19. How many movies of a genre were released in a particular year? 20. How many total awards has an actor won? 21. How many awards has he been nominated for? 22. Who is the lead actor of movie? 23. What is the duration of movie? 24. When was the shooting started of movie? 25. When was shooting ended of movie?
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➤ Competency questions with SPARQL QUERIES

Some competency questions with their SPARQL queries are given here:

1. When was the movie released?

Query:

```
SELECT ?date
WHERE {
    :movie_name :Movie ?movie_release .
}
```

2. What is the language of the movie?

Query:

```
SELECT ?language
WHERE {
    :movie_name :Movie ?movie_langauge .
}
```

3. Who is the lead actor of the movie?

Query:

```
SELECT ?actor
WHERE {
    :moviename :actor ?actor;
    :lead ?actor .
}
```

4. What is the duration of the movie?

Query:

```
SELECT ?time
WHERE {
    :movie_name :Movie ?movie_duration .
}
```

5. Who is the director of the movie?

Query:

```
SELECT ?director
WHERE {
    :movie_name :Movie :Person_name ;
    :has_Director ?Person_name .
}
```

6. What is the genre of the movie?

Query:

```
SELECT ?genre
WHERE {
    :movie_name :is_genre ?genre .
}
```

7. Who is the writer of the movie?

Query:

```
SELECT *
WHERE {
    :movie_name :Movie :Person_name .
}
```

```
}
```

8. Where was the movie shot?

Query:

```
SELECT *  
WHERE {  
    :moviename :Movie :Location;  
    :has_location ?location .  
}
```

9. Who is the producer of the movie?

Query:

```
SELECT *  
WHERE {  
    movie_name :Movie :Person_name ;  
    :has_producer ?Person_name .  
}
```

10. What is the total budget of the movie?

Query:

```
SELECT *  
WHERE {  
    :moviename :Movie ?movie_budget .  
}
```

➤ **Conclusion:**

In today's modern technologies, we don't only need to structure data for users but also for machines too. Ontologies have become the solution to this problem. These not only make data structured for human beings but also makes the information machine readable. This report aims to develop an ontology that assists the search regarding movies all over the world. It includes all the data that could probably be searched about a movie. The intended users could be any person that wants to know about movies, actors, directors etc. Movies ontology is just a small example of vast and growing implementation of this concept. The ontologies not only in this field but could be implemented in almost

every field of world now. Only we have to define the right classes, hierarchies and their relationships to get the best out of it.