INFO 202 – Final Project

Implementation Project

Ontology of the Early Roman Empire

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Introduction

In the Fall 2022 semester classes of INFO202 course the topic of Ontologies was taught in Class 16. We realised how Ontology is different from simple taxonomy and how it is taxonomy combined with relationships, constraints and rules. Ontology became more fascinating when we came to realise that the popular movie database website IMDB is a classic example for an Ontology.

Recollecting how many times IMDB helped me in finding interesting relationships between different actors and movies I clearly understood the transformative power of Ontologies in world of information systems. Then I also realised who easy an ontology can explain the relationships between people in a political establishment.

So, when the task of preparing a final project for the INFO202 class was assigned to us I decided to make an ontology for the Early Roman Empire to better understand the relationships between the various players of the game for the imperial throne of Rome. I always tried to link the present-day reality to the causative factors years ago and I found that the Roman empire still influences most of the world. The script we use for English is derived from Latin, the Greco-Roman style Doe library welcomes all with a bronze figure of Greco-Roman Goddess Athena and many others. Thus, I started this implementation project of bringing 21st century technology to the 1st century.

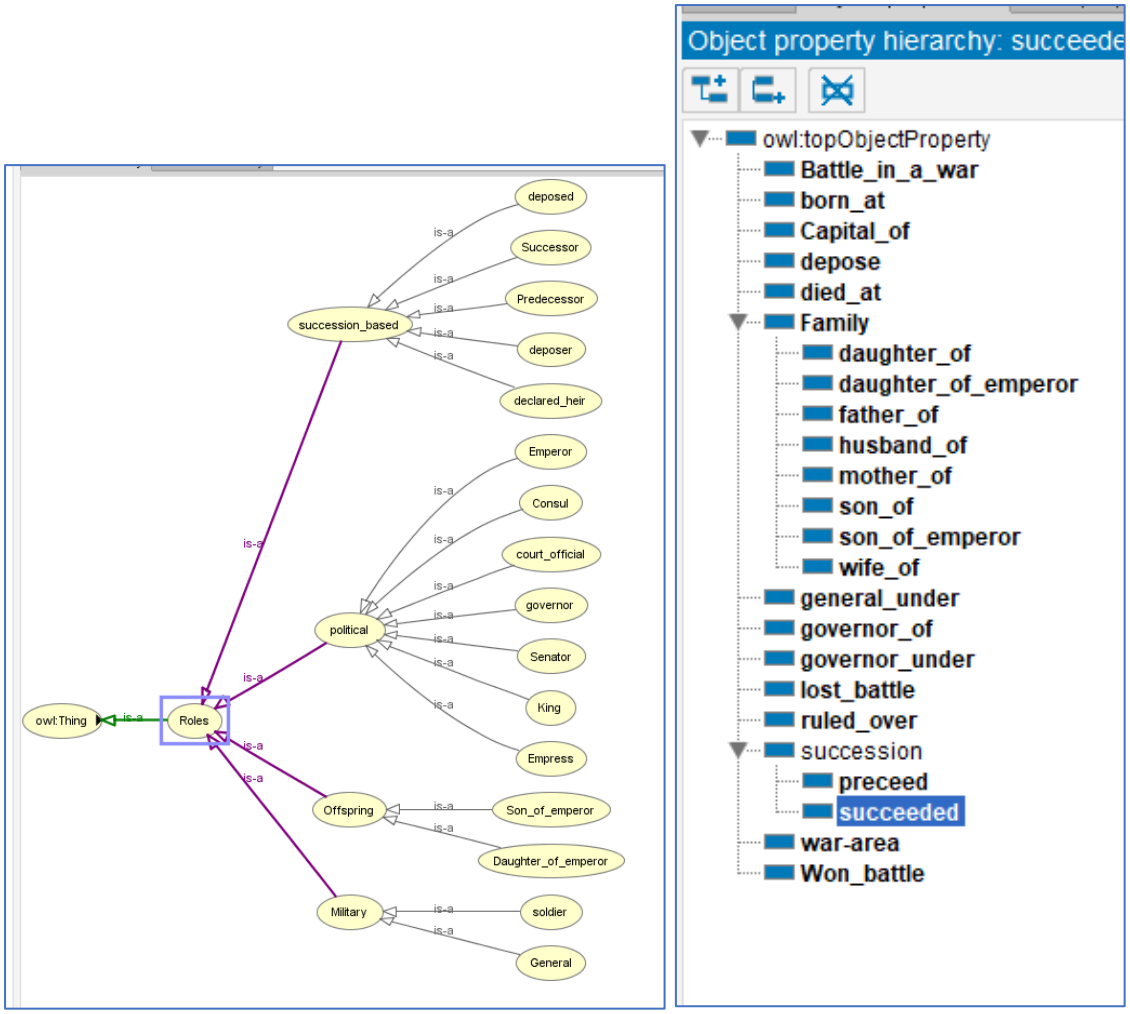
Methodology

The first step was deciding on what to include and what to exclude. The Roman empire was founded in 27BC by Augustus after dissolving the Roman Republic and existed till the fall of the Western Roman empire in AD 476 , whereas the Eastern Roman empire persisted till 1453 AD. For the purpose of this implementation project, we will be studying the Early Roman Empire from 27BC under Augustus to 211 AD under Septimius Severus. The study will focus on the various emperors, their offspring, their spouses, their reign period and other related information.

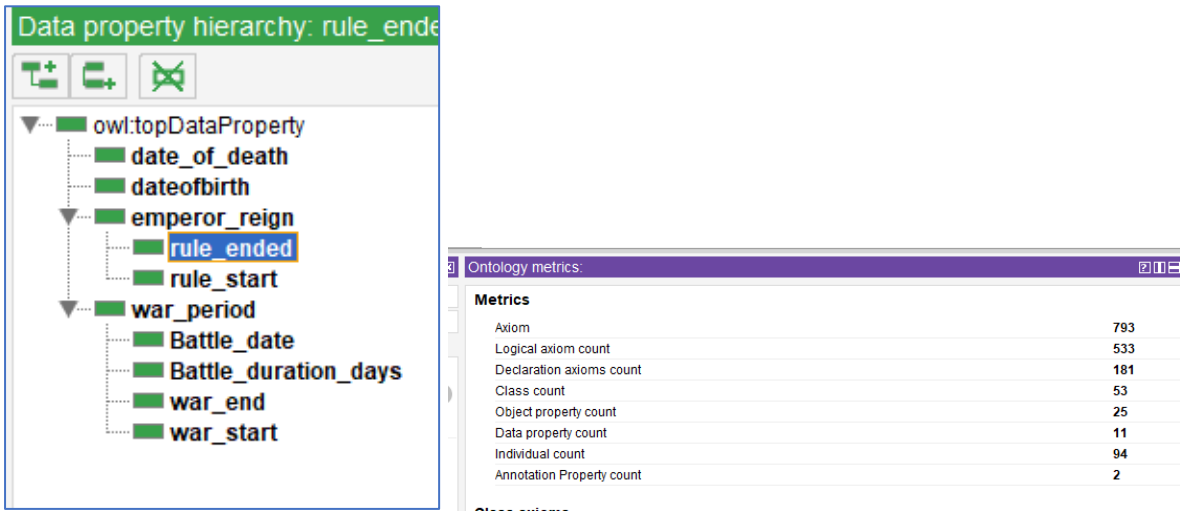
The Roman empire being vast also had contacts with several foreign nations like the Greeks, Parthians, Egyptians etc. Initially there was a consideration to include information of the various kings ruling these neighbouring countries also to depict the international complexities of the Roman world. But after careful consideration it was decided to restrict this project only to the political players within the Roman empire.

Regarding the selection of the source of information for this project many options were considered like Britannica Encyclopaedia and various other popular websites dedicated to Roman History. But after careful consideration it was decided to use Wikipedia (https://en.wikipedia.org/) the only source of information for this project due to its inherent advantages.

The next major step in the creation of ontology was the review of the information. The information of the Roman emperors available in Wikipedia starting with Augustus till Trajan was checked to understand the various types of information available. The collection of preliminary information proved valuable for deciding the entities like classes, object properties and data properties of the ontology.



Figures-(Clockwise from top left)- Class , Object property and Data property hierarchies; Ontology metrics

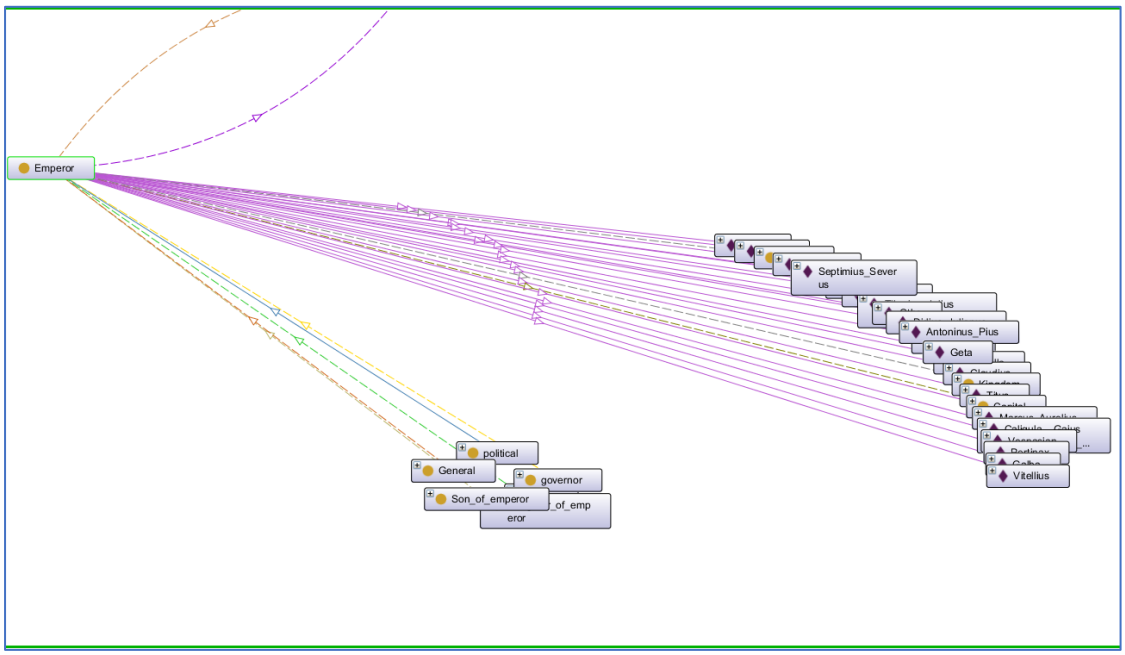


Technical specifications

This project utilized the OWL -Web Ontology language and is stored in the RDF/XML format. It was prepared using Protégé software. Hermit OWL reasoner was used for checking the correctness of the project. The project has 53 classes, 25 object properties, 11 data properties and 94 individuals.

Utilization of class concepts

The project has utilized the class concepts of Ontologies , faceted search and grounded coding during the implementation. The grounded coding and faceted search were very useful in rationalizing the numbers of classes for the various types of information.



Figure(above)- Individuals in the “Emperor” sub-class and the various related sub-classes in the ontology

References

Wikipedia- https://en.wikipedia.org/

Protégé Software - https://protege.stanford.edu/