TALOS ERA CHAIR IN ARTIFICIAL INTELLIGENCE FOR HUMANITIES AND SOCIAL SCIENCES

○ Welcome!

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
UNIVERSITY OF CRETE

Knowledge Graph for SSH

Dr. Maria Papadopoulou
Assistant Professor in Digital Humanities & Classics
University of Crete

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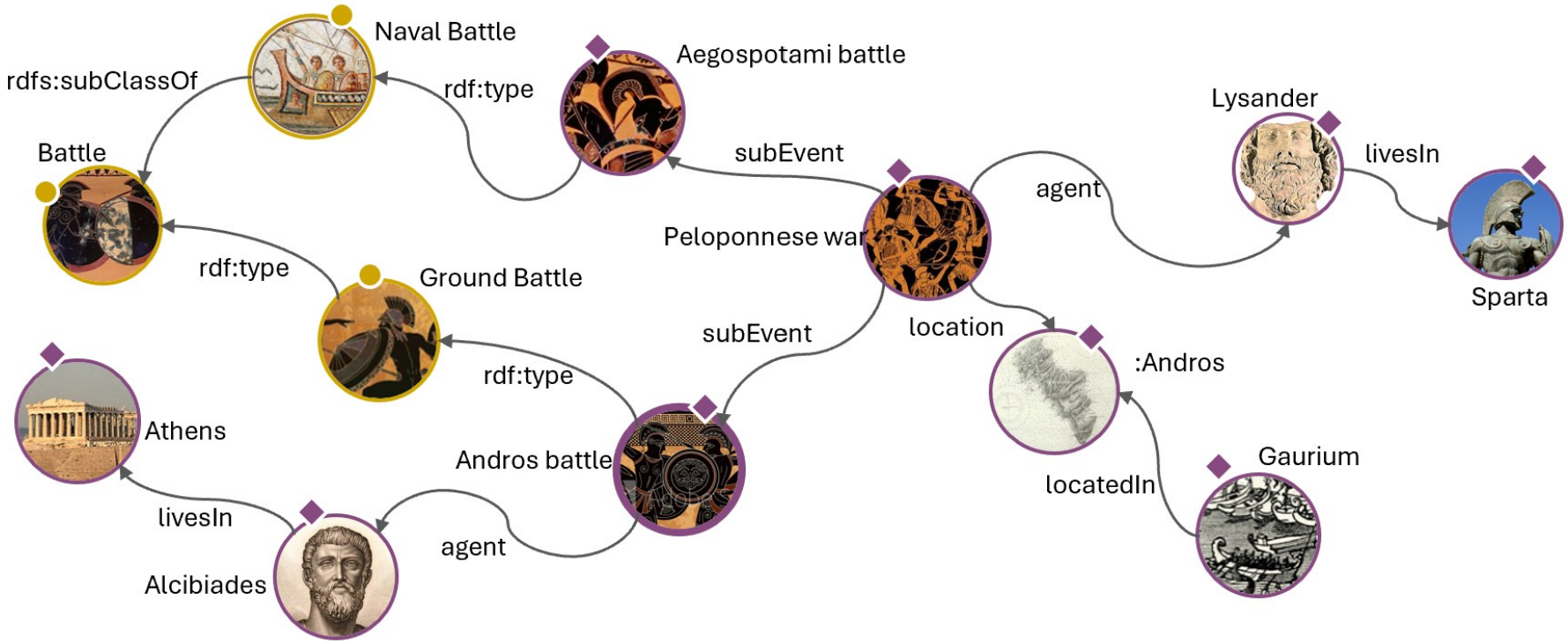
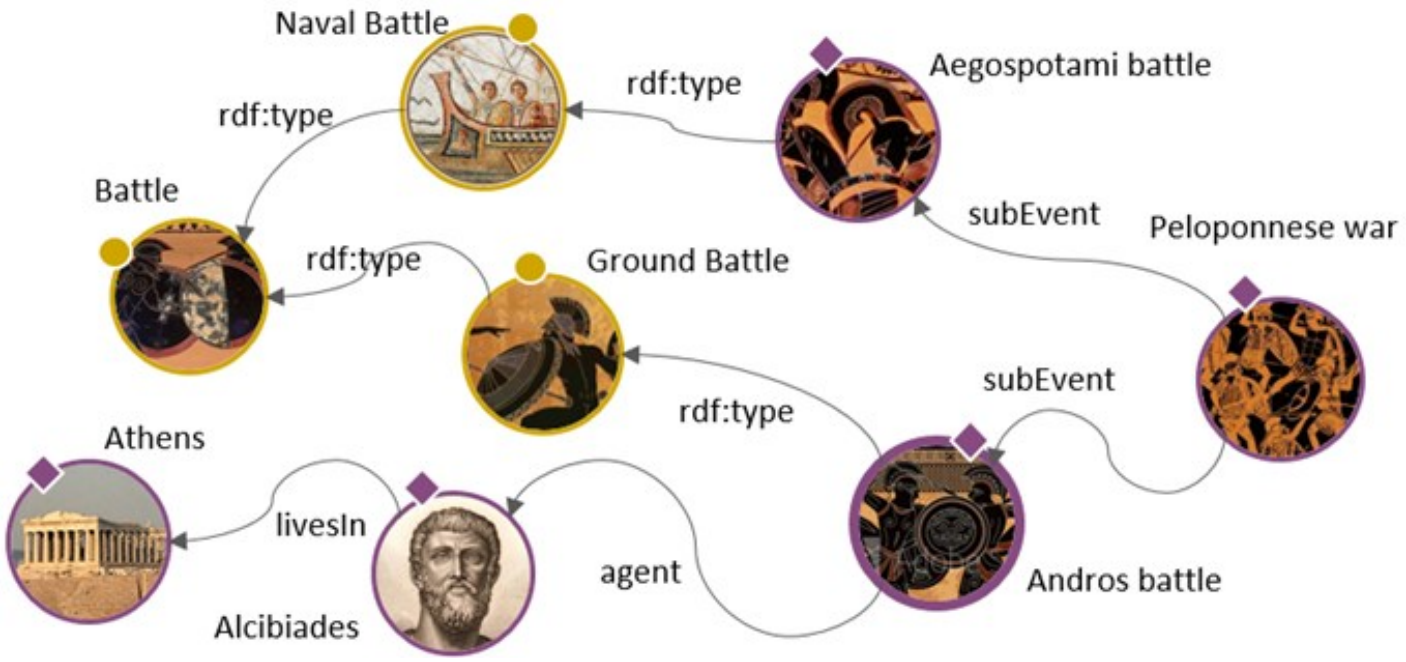
Knowledge Graph for SSH

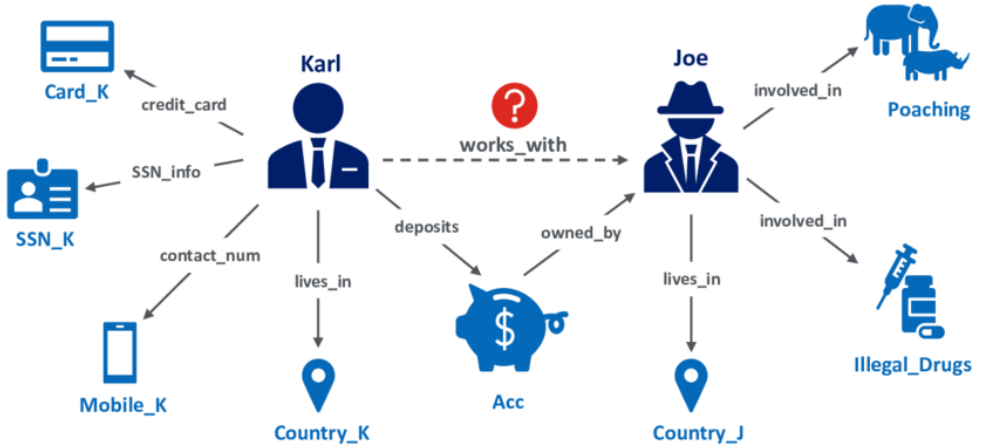
This module will present the fundamentals of Knowledge Graphs:

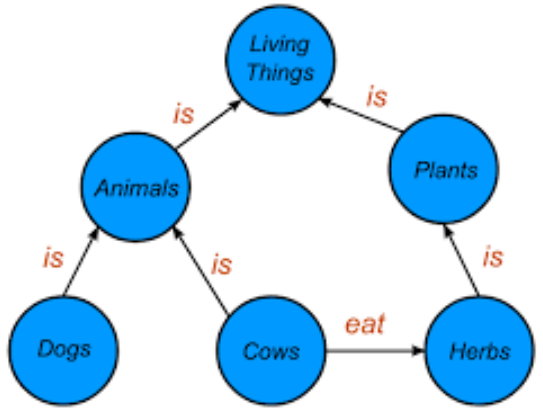
- What?
- Who for?
- What for?
- How to build them?
- How to query them?



Knowledge Graph for SSH







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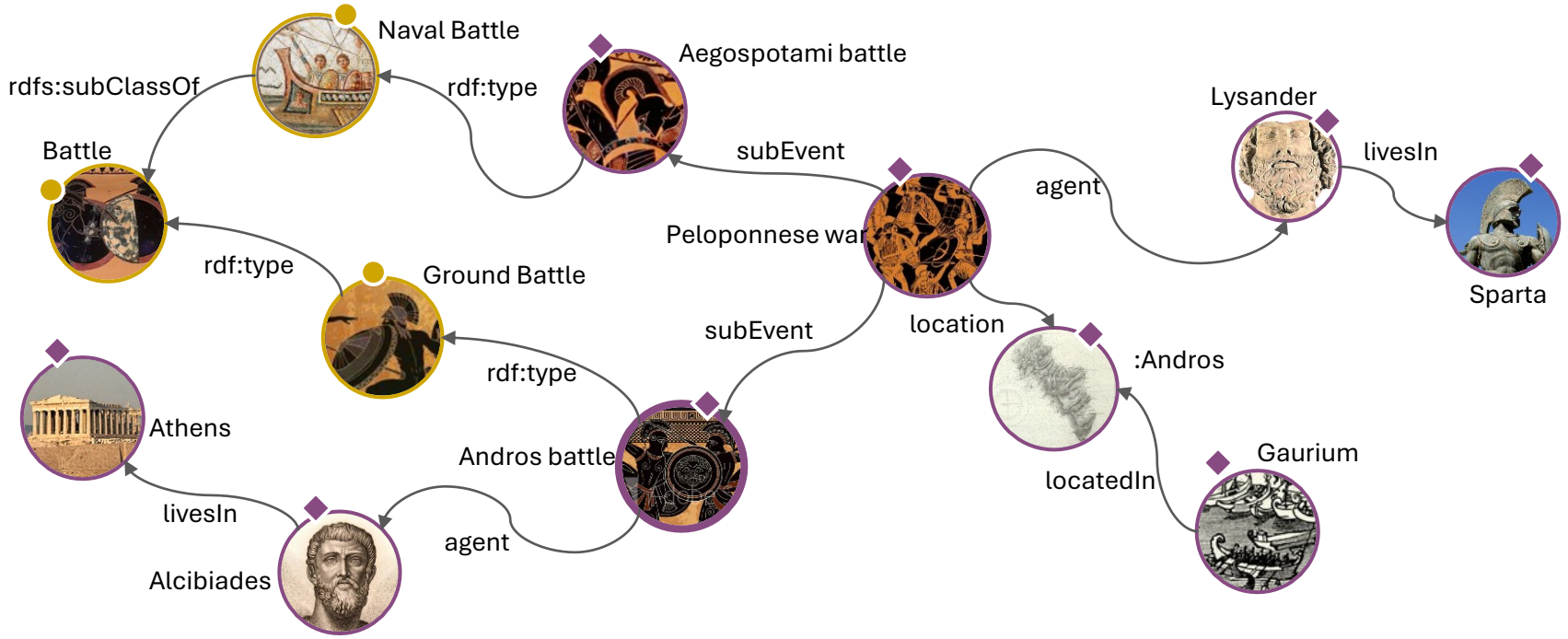

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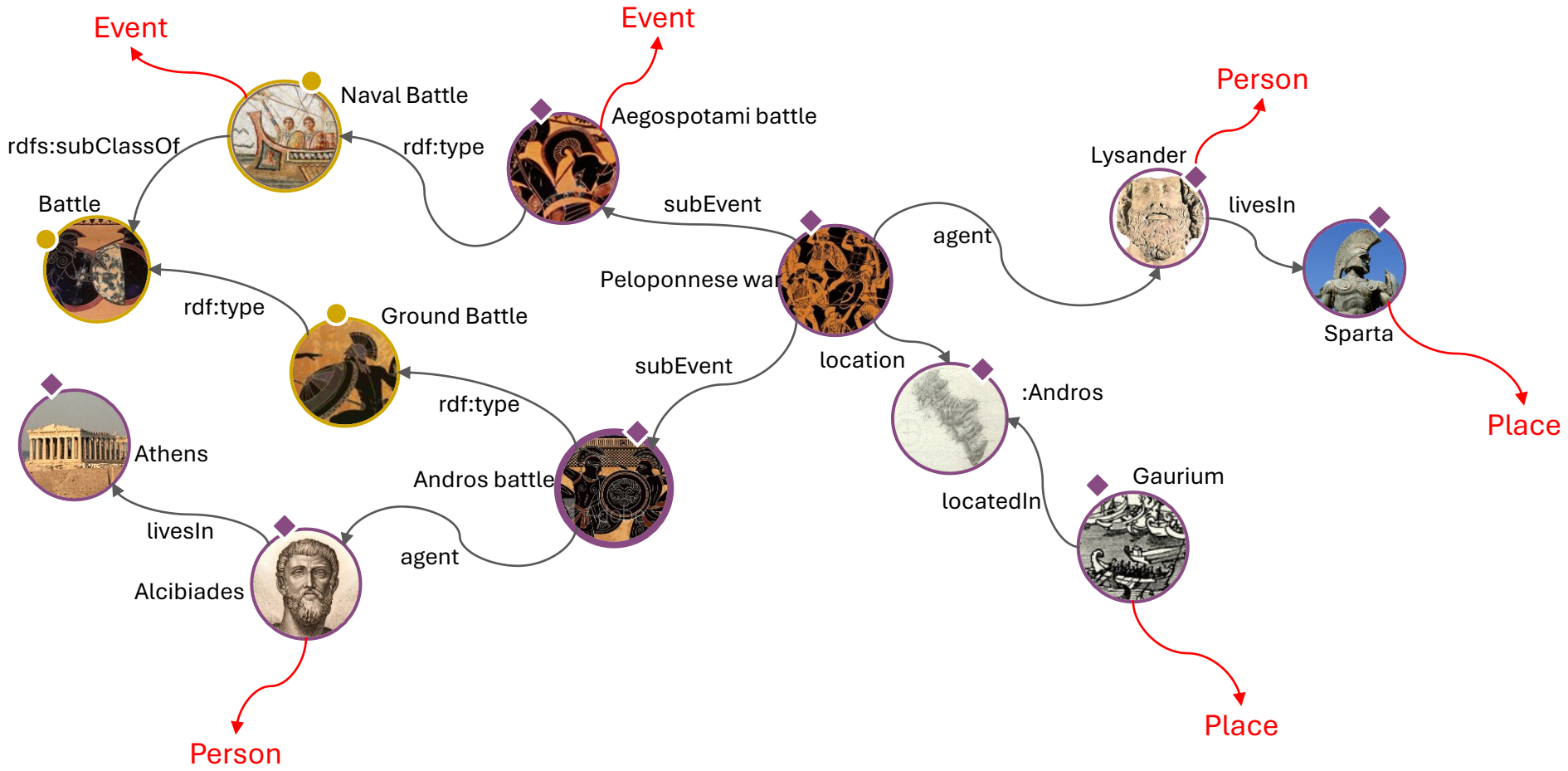
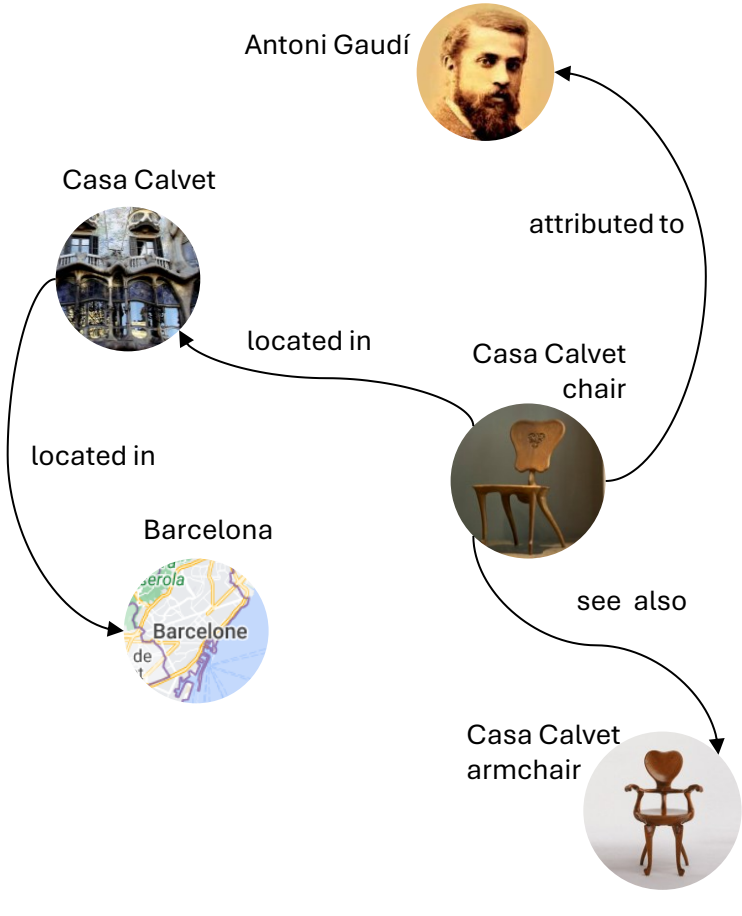


Knowledge Graph for SSH

A knowledge graph is a directed labeled graph in which the labels have well-defined meanings.

A directed labeled graph consists of nodes, edges, and labels. Anything can act as a node, for example, people, buildings, cities, objects, etc.

An edge connects a pair of nodes and captures the relationship of interest between them, for example, friendship relationship between two people, customer relationship between a company and person, or a network connection between two computers.

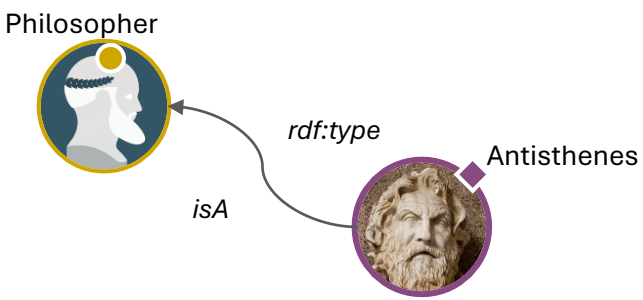


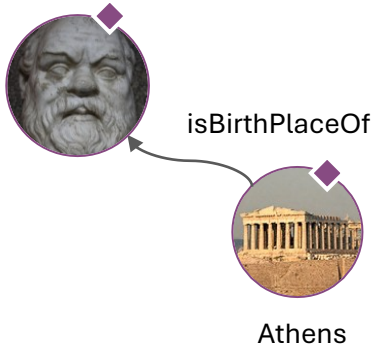
Knowledge Graph for SSH

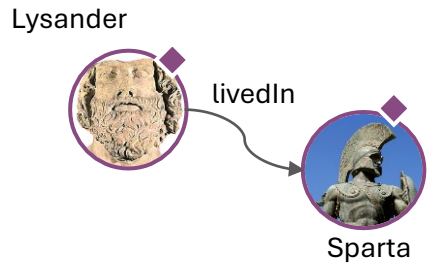
A **Knowledge Graph (KG)** is a special kind of database (a knowledge base) which stores knowledge in a machine-readable form and provides a means for information to be collected, organised, shared, searched and utilised. Knowledge is represented as a graph where nodes represent concepts, objects, actions, events, situations, etc. and links the relationships between nodes.

A **Knowledge Graph (KG)** is a structured representation of facts and relationships between real-world entities such as people, places, events, or concepts. These facts are organized in a graph format, where:

- **Nodes** represent entities (e.g., *Socrates*, *Athens*, *Philosopher*)
- **Edges** represent relationships between entities (e.g., *livedIn*, *isA*, *isBirthPlaceOf*)







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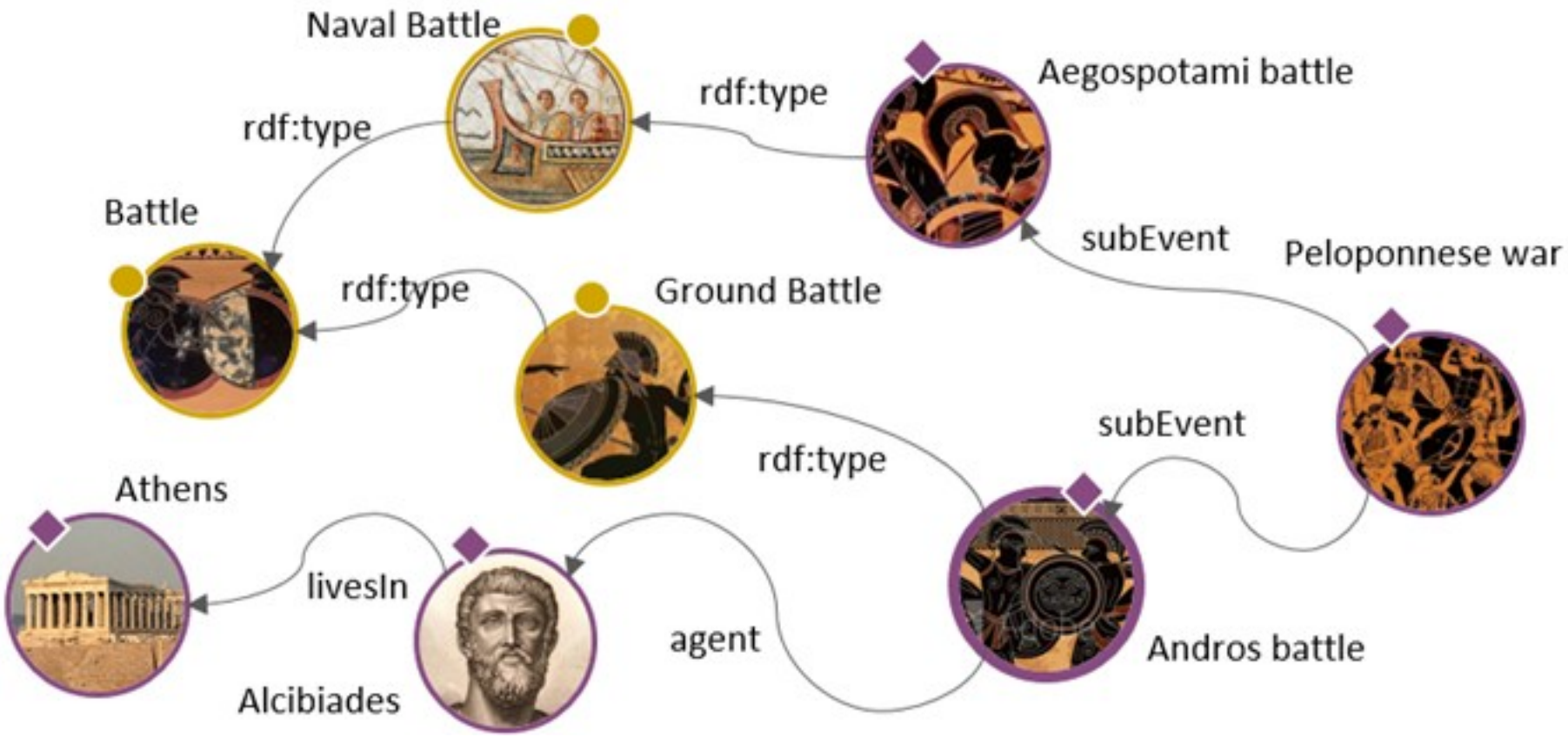
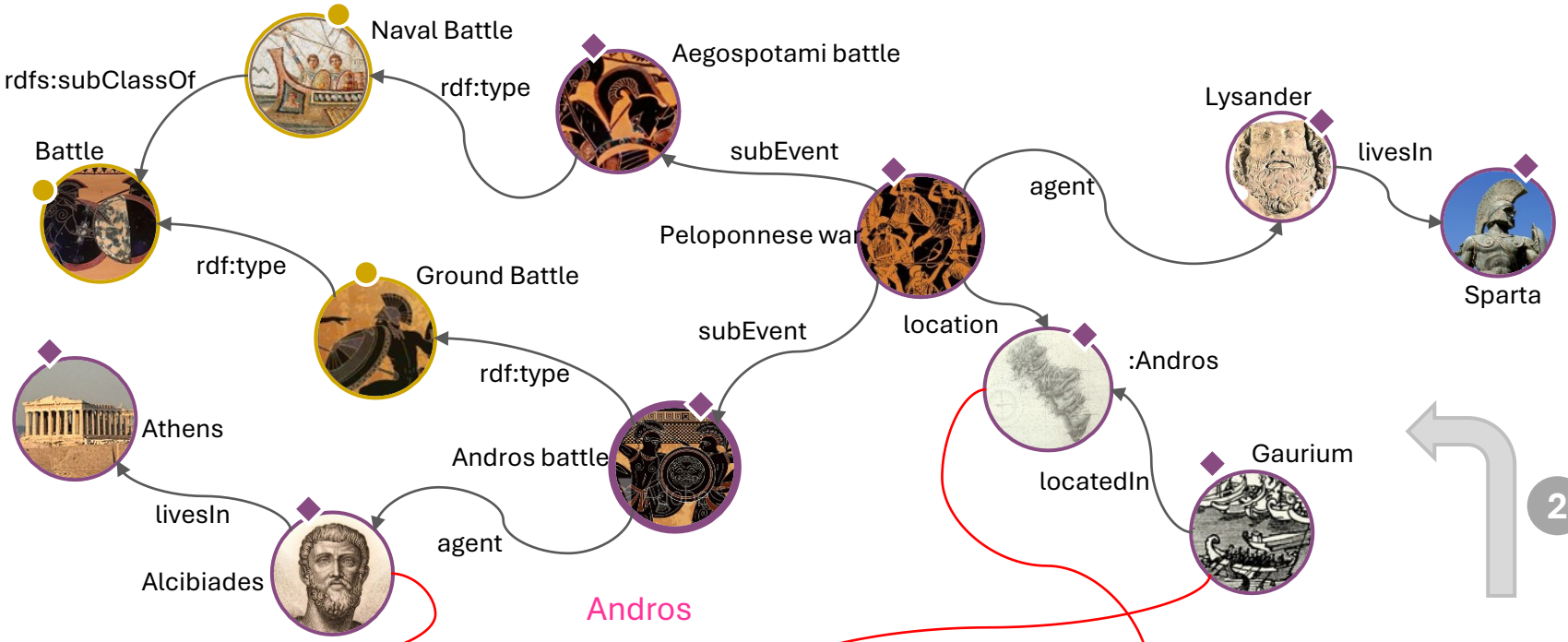


Knowledge Graph for SSH



Knowledge Graph

Xen. Hell. 1.4 Alcibiades disembarked his army at Gaurium in the territory of Andros; and when the men of Andros and the Laconians who were there came forth to meet him, the Athenians routed them, shut them up in their city, and killed some few of them.
http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.01.0206%3Abook%3D1%3Achapter%3D4

Ἀλκιβιάδης δὲ τὸ στράτευμα ἀπεβίβασε τῆς Ἀνδρίας χώρας εἰς Γαύριον: ἐκβοηθήσαντας δὲ τοὺς Ἀνδρίους ἐτρέψαντο καὶ κατέκλεισαν εἰς τὴν πόλιν καί τινας ἀπέκτειναν οὐ πολλούς, καὶ τοὺς Λάκωνας οἳ αὐτόθι ἦσαν.
http://www.perseus.tufts.edu/hopper/text?doc=urn:cts:greekLit:tlg0032.tlg001.perseus-grc1:1.4

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- Alcibiades
- Gaurium
- Andros
- Laconians
- Athenians

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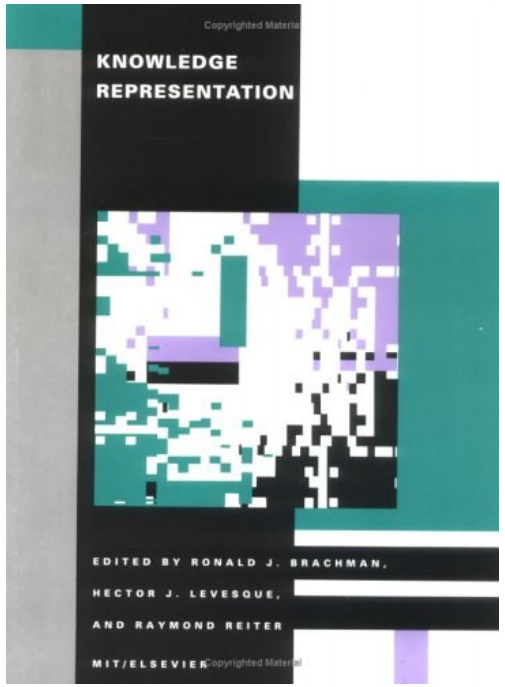
Knowledge Graph for SSH

A **knowledge graph** is an advanced data structure that represents information in a network of interlinked entities. It's connected to a long history of research in an area of artificial intelligence called **knowledge representation**.



Brachman, R. J., Levesque, H. J., & Reiter, R. (1992). *Knowledge representation*. In **Special issues of Artificial Intelligence**. The MIT Press.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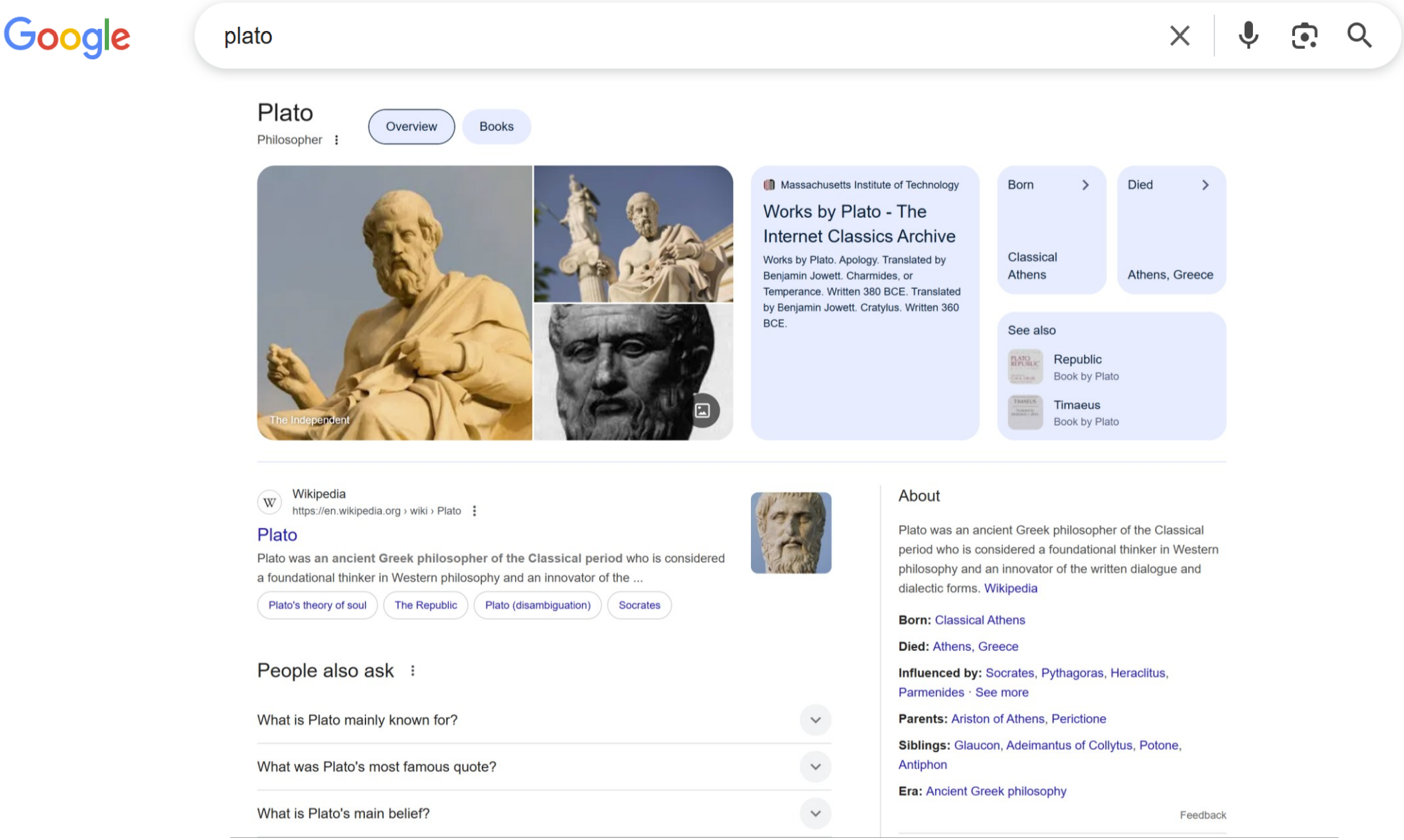
Knowledge Graph for SSH



References

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