

# Ontology

## What is an ontology?

In philosophy,

- “ontology is the study of being or existence. It seeks to describe or posit the basic categories and relationships of being or existence to define entities and types of entities.”<sup>1)</sup>

In **modern computer science** and information science basic definitions consider an ontology to be:

- “a data model that represents **a set of concepts within a domain, and the relationships between those concepts**”<sup>2)</sup>
- “**an explicit specification of a conceptualization.**”<sup>3)</sup>
- “**an explicit formal specification of the terms in the domain and relations among them**”<sup>4)</sup>

In more details, an ontology can be described as:

- a formal explicit description of **concepts** or *classes* in a domain of discourse, with
- **properties of each concept** describing various features and attributes of the concept (*slots, roles or properties*), and
- **restrictions on concept slots (facets or role restrictions).**<sup>5)</sup>

An ontology has the following properties:<sup>6)</sup>

- it is used to reason about the objects in a domain;
- specifies the classes of concepts and their relations at a higher level than relevant to the domain;
- captures the intrinsic conceptual structure of a domain;
- forms the heart of the knowledge representation within a domain.

## Why do we need an ontology?

An ontology can be used to:<sup>7)</sup>

- share common understanding of the structure of information among people or software agents
- enable reuse of domain knowledge
- make domain assumptions explicit
- separate domain knowledge from the operational knowledge
- analyze domain knowledge

## So how do you create an ontology?

You can follow this brief guide or a more detailed description with examples named [Ontology Development 101: A Guide to Creating Your First Ontology](#).

1) , 2) , 6)

Rana, Noman. *Small Business - The Art of the Start*. Self-Help Publishers, 2009.

3)

Gruber, Thomas R. A translation approach to portable ontology specifications. *Knowledge acquisition*, 5: 199-220, 1993.

4)

Gruber, Thomas R. A translation approach to portable ontology specifications. *Knowledge acquisition*, 5: 199-220, 1993. cited by Noy, Natalya F., and Deborah L. McGuinness. *Ontology Development 101: A Guide to Creating Your First Ontology*, 2001.

5) , 7)

Noy, Natalya F., and Deborah L. McGuinness. *Ontology Development 101: A Guide to Creating Your First Ontology*, 2001.

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