

# 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 hearth 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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