TUTORIAL: THE ONTOLOGY OF PARTS, WHOLES, AND SUMS

Antony Galton

In the first part of this tutorial we will discuss the notions of “whole”, “part”, and “sum”, and look at the many different forms taken by these notions in everyday language and thought, reviewing a number of proposals for classifying the varieties of the part/whole relation. We follow this with a look at dependency relations between parts and wholes, with reference to theories such as monism, pluralism, and atomism, as well as the distinction between particular and general parthood relations.

The second part of the tutorial focuses specifically on physical parts and wholes, and explores the classification of parts in terms of the roles they play in both the history and functioning of a physical whole. These ideas are then applied to a range of different types of physical wholes such as organisms, artefacts, aggregates, and collections.

The orientation of this tutorial is more philosophical/foundational than practical, but much of what is covered is relevant to anyone seeking to apply ontological principles in the design of information systems. This is not a course in formal mereology, and formal notations will be kept to a minimum; while some prior familiarity with such notations would be useful, it is not essential.

A selection of relevant references:


