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The Priority of the Whole in Ontology and Semantics

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The idea of the priority of the whole:

- Ways of understanding the idea
- The application of the view to objects in ordinary ontology:
- Contemporary mereological theories and ways to spell out the priority of the whole
- The operationalist view and
- Realization-based approaches and the priority of the whole
- Manifestations of the view in natural language

Why the interest in natural language?
Descriptive metaphysics:

- Its subject matter is the metaphysics reflected in our ordinary judgments or intuitions, which may be brought out particularly we through language.
- Linguistic data about part-whole structure can significantly enrich the range of data descriptive metaphysics should deal with.

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1. The priority of the whole

1.1. The historic view of the priority of the whole

<u>The view or different versions of it</u>
Entities are ontologically dependent on the whole of which they are parts
The whole determines what the parts are.

The idea of the priority of the whole also connected to

Monism (Schaffer 2010):

There is a single whole, the cosmos, which is prior to everything else.

Idealism

Everything is mind-dependent, and the mind starts with the whole and conceives of things as dependent on the whole.

Entities as results of dividing up the world

1.2. The priority of the whole for certain types of ordinary objects

Aristotle's view of the parts of organisms and artefacts

What a part of an organism or artifact is depends on its function within the whole

Legs, heart, doors, windows, …

Aristotle view of the parts of geometric figures

The parts of a geometrical figugre depends on its function within the whole

Semicircle, hypotenuse, sides (of a triangle)

Types of entities individuated by overall form and / or function:

Residence, seat, circle, triangle, book, body

Parts are individuated through their form-related or function related contribution to the whole

Circle – semicircle, triangle – sides, book – pages, body – organs

Linguistic observation:

Nouns for specific parts a generally nouns for parts that play a particular function within the whole (Langacker 1993)

Circle – semicircle, triangle – sides, book – pages, body – organs

Ontological dependence on the whole

1. Identity dependence:

The identity of the entities that are parts depends on the whole or the kind of whole.

A door can be part of different houses and stay the same.

2. Existence dependence?

Ontological dependence on nonexistents? e. g. a door, wheel, handle (as an isolated object)

For an entity to be a door it need not be part of a particular house.

A door is an entity whose nature can only be understood as part of a building, but for a door to exist the building need not exist.

Doors are existence-dependent on types of wholes (artifactual kind) without having to be part of a particular whole

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2. Contemporary mereology and the view of the priority of the whole

2.1. Classical mereology

The whole is nothing but the sum of its parts
Transitivity and closure under sum formation
Extensionality: Entities are the same just in case they have the same parts

The standard view about more mereology more generally:
Wholes are built from parts; the parts are prior to the whole (Simons 1987, Cotnoir/Varzi 2020)

2.2. Hylomorphism

Aristotle
Entities are constituted by matter and form
Contemporary hylomorphism:
Koslicki (2008)
Form as a part of a structured object
But what brings form and matter / material parts together?
Johnston (2006)
Form as the 'glue' among the parts of a structured object.

Does hylomorphism imply the priority of the whole?
No: wholes may still be viewed as built from parts and structure-building operations

2.3. Constructional pluralist mereology

Fine (2010): 'Towards a Theory of Part'
Mereology based on operations, rather than relations

Objects are built from others through ontological operations

- operations building complex objects from simpler ones (composition)
- operations obtaining smaller objects from larger ones (decomposition)
- operations obtaining objects from equivalence relations among other objects (abstraction)

Advantages of mereology based on operations rather than relations (according to Fine):

- allows both sum formation and set formation
- allows introducting null element (operations applying to empty set)
- allows for the composition of abstract objects with entities occurring as parts more than once.

Mereological monism (standard view)

There is a single operation building entities from parts, e.g., sum formation.

Mereological pluralism (Fine 2010)

There are different operations of building entities from parts (or obtaining parts from entities)

Examples

- Entities built from time-relative parts or from time-independent parts
- Sums and sets as entities obtained from different types of composition

More generally:

Form as a result of structure-building operations

Decomposition

Linked to the view of the priority of the whole (Schaeffer 2010)

Types of Decomposition

- Gunk: infinitely divisible matter
- Temporal slices of material objects (Fine 2010)

2.4. Realizable-based approaches

Fine's (1999) notion of a 'variable embodiment'

Captures a notion of the priority of the whole

A variable embodiment is an object /F/ obtained from a 'principle' or 'form':

a function F from times to realizations, subject to a range of postulates.

The motivation for variable embodiments

Replacement of parts or matter

The ‘form’, ‘principle’ determines realizations at a circumstance

Critique of the notion of variable embodiment

Variable objects are much too unconstrainted.

The formal notion does not actually capture ‘form’.

Does not allow for multiple relations (or artifacts) at a given time

An alternative based on a positionalist view about relations

Neutral relations are completed relative to positions.

Not only relations come with positions, but also operations.

(Structure-building) operations apply to entities or open positions to yield abstract wholes.

Abstract wholes are realized at time by filling open slots by concrete entities at the time.

A recent realization-based approach to artifacts: Toyoshima eta al. (2026)

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3. Part-whole structure in linguistics

3.1. Extensional mereology (Link 1983, Champollion/Krifka 2017)

Applications: semantics of plurals and mass nouns, events

Count nouns denote atoms in an extensional mereology.

3.2. Mereotopology (Moltmann 1997, Grimm 2012)

Part-whole relations plus conditions of maximal connectedness under a suitable relation R (e.g. spatial or temporal closeness)

Applications: the mass-count distinction, expressions like *frequently, several times, whole.*

Count nouns describe integrated wholes.

3.3. Cognitive semantics (Langacker 1993)

Boundedness as a central (cognitive) notion.
Count nouns denote regions bounded in a dimension.

Priority of the whole as a cognitive notion
The whole is a reference point from which an agent takes a mental trajectory to identity the parts.
The whole may be a merely conceived whole.

'Part of' as a reference point construction.
Have and the possessor construction as reference-point constructions:
(1) a. The house has a door.
b. The door has a handle
c. ??? The house has a handle
(2) a. the house's door
b. the door's handle
c. ??? the house's handle

3.4. Types and kinds for expressions of partiality and completion

Liebesman (2025):
a partial house: interpreted relative to a kind (house)
Moltmann (1997) *completely* and *partially* are interpreted with respect to an event type
(3) John partially / completely destroyed the painting.
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4. Applications of the view of the priority of the whole

4.1. Cases of failure of the transitivity of the part relation (Cruse 1979, Moltmann 1997).

Invalid:
(4) John is part of the class
John's leg is part of John.
John's leg is part of the class.
Valid:

(5) The arm is part of the body.
The hand is part of the arm.
The hand is part of the body.

Invalid:

(6) The page is part of the book.
The book is part of the library.
The page part of the library.

Valid:

(7) The page is part of Goethe's written work.
The book is part of Goethe's written work
The page part of Goethe's written work.

Written work allows for transitivity, to some extent, but not for inferences with 'the empty pages of the book', 'the margins of the page', etc.
It is not the integrity of the intermediary entity that may block transitivity (pace Moltmann 1997).

Potential ways of dismissing problems for transitivity

1. dismiss functional parts as the only parts or take them to be special cases of parts

'Part of' vs. containment
But what is the intuitive basis for the part relation, if not the applicability of *part of*?

2. distinguish different part relations, for different ontological levels:

Part relation for individuals, part relation for pluralities, part relation for stuff
But the failure of transitivity also arises within the levels of individuals (structured individuals)

An account in terms of the priority of the whole
The whole determines what its parts are (Moltmann 1998).

An account in terms of pluralist operationalism
'The written work' is obtained by an operation applying to pages and books
'The library is obtained' by an operation applying to books only
The parts of an object depend on the operation by which the object was obtained (not ancestral relation as in Fine 2010).

4.2. Expressions of completion

Abstract wholes as plans, designs, musical compositions are part of our ordinary ontology and the ontology of natural language.
E.g. they act as arguments of the verb *to complete*:
(8) John completed the task.

Complete and *partial* as noun modifiers
(9) the complete / partial destruction of the church

Serve to describe a concrete event or entity as a complete or partial manifestation of an abstract whole.
The abstract whole itself may have a particular modal status given the various readings available for *partial* in (9) (Carrara / Landau 2025):
(10) This wall is a partial house.

The adverbials *completely* and *partially*
(11) They completely / partially destroyed the church.

Measure a concrete event with respect to the abstract event whole described by the verbal complex they modify (Moltmann 1997):

Fractional modifiers such as *half* (Salmon 1997).
(12) half a house, she put one and a half oranges into the mixer)
Abstract wholes, in a mass or count sense serve to measure concrete entities or portions.

Expressions of completion may make reference to particular kinds of wholes.

Two words for 'complete' in German: *voellig* and *vollstaendig*
(13) a. die vollstaendige Uebersetzung
'the complete translation'
b. ??? die voellige Ubersetzung
(14) a. die voellige Dunkelheit

‘the complete darkness‘

b. ??? die vollstaendige Dunkelheit

Vollstaendig relates to discrete part structure; *voellig* to a homogenous part structure.

4.3. Verbs of completion-related absence

Absence of something that should be there in order for something else to be complete.

Completion-related verbs of absence in English:

lack, be missing,

German: *mangeln, fehlen*, French: *manquer*, Italian: *mancare*

(15) a. The house has a door

b. The house lacks a door

(16) a. John has a mother / a car / a friend.

b. John lacks a mother / a car / a friend.

Lack is a modal notion: lack ≠ not have:

(17) a. The house does not have a balcony.

b. The house lacks a balcony.

Application condition for *lack*

Lack relates to an abstract whole and presupposes that it is not fully realized.

The abstract whole need not have single objects as its realizations

The whole may be constituted instead by relations of possession, kinship, friendship

Abstract wholes may depend on the context and speakers may disagree about them.

They may also be conceived along with the process of realizing them:

Example: spontaneous artistic creation

(18) The painting lacks some final touches.

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5. Further developments of realizable centered approach

The ordinary noun part vs the bare root part

(19) a. the boy was part / * a part of the ceremony. (Ardisson et al. 2025)

b. The folds are part / * parts of the couture dress.

c. Critique of the Soviet Unition was part / a part of the Archipel Gulag.

d. The base is part / a part of the statue.

Bare part makes reference to parts of the abstract whole that has been realized.

Generalization

All artefacts that come with a physical realization have a dual part structure.

(20) Composition of artefacts

An artefact is a composition C(r, w) of an abstract whole w and a realization r, whereby w is the content of an abstract artifact p and r realizes w.

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