

Approaches to Parts and Wholes in Semantics

Friederike Moltmann

ESSLLI 2025

Advanced Course

Abstract

The course will give an overview of extensional and non-extensional mereological theories of parts and wholes, their historical predecessors and recent and new applications to natural language. It will discuss empirical and conceptual challenges for extensional mereological theories (in the tradition of Link 1983) as well as various approaches that makes use of a notion of an integrated whole (Langacker, Moltmann, Grimm, Filip, and others) or other notions of unity (Priest). The course will discuss key topics relating to the mass-count distinction and the various attempts by philosophers and linguists of clarifying the notion unity (or of being a single thing) that appears to be at the center of that distinction. It will also discuss other topics where the issue of unity arises, such as apparent polysemies (of nouns like 'book' and 'lunch'). The course aims to build a bridge between philosophical and linguistic traditions regarding mereology.

Motivation and description

It is generally agreed that part structures and notion of a whole or unity play an important role in the semantics of natural language. For example, mereology is standardly used for the semantics of plurals and mass nouns, and the notion of unity or being a single thing appears to be at the core of the content of the mass-count distinction. For a long time, the standard approach to part-whole relations and the mass-count distinction has been that of extensional mereology, largely due to the influential work of Link (1983). That is, part-whole structures consist in a partial order among entities that is closed under sum formation. The notion of a whole or having unity has usually been understood as that of being an atom (relative to a set or concept or specific part relation). There is an alternative tradition, though, on which a notion of boundary, structure, form, integrated whole or unifying function plays an important role for part-whole structures as well, especially for the notion of unity or being a single thing. Such notions have been argued to constitute the content of the mass-count distinction itself (Langacker, Jackendoff, Moltmann). A lot of recent empirical research has shown that conditions of integrity govern the choice of mass or count with nominalizations of various

sorts (Barner, Grimm, Filip, Sutton). Extensional mereological theories not only seem to impoverish to account for a range of linguistic facts; they also face various conceptual challenges. For example, they require distinguishing three different part relations, corresponding to the domains of singular count, mass, and plural nouns, without those being grounded in ontology itself (rather than being associated with syntactic category). The notion of an atom, as a construal of the notion of unity or a single thing is far from unproblematic, since atomicity itself has little to do with countability as such. But integrity-based approaches to part-whole structure also face challenges. There is the general issue of how the notion of an integrated whole is to be defined in the first place. Moreover, integrity in any worldly or cognitive sense seems absent when talking about ‘quantities’, ‘amounts’, ‘sums’, ‘loose collections’, ‘beings’ and alike, using singular count nouns.

The notion of unity pertains not only to the mass-count distinction, but to a broader range of issues, some of which have received considerably more attention in philosophy than linguistics, such as the unity of form and matter, the unity of the proposition, and the issue whether there can be a single thing, say a variable object, that apparently polysemous nouns stand for (*book, lunch, college*).

The course will give an overview of extensional and integrity-based theories of part-whole structure and critically discuss various unifying notions of integrity or function, including Aristotelian notions of form and structure, notions of boundary in the cognitive semantic literature, and the notion of integrated whole as part of situated part structures of my own previous work. It will discuss applications of the notion of integrated whole as part of situated part structures (the semantics of *whole, entire, wholly, completely, together, time(s)*) as well as recent applications of such notions to mass-count related phenomena by Grimm, Filip and Sutton and others. It will discuss approaches on which unity is considered a primitive, such as that of Link’s 1983 proposal, Priest’s account of unity in terms of a primitive notion of a gluon, McKay’s distinction between singular and mass reference, as well as some recent proposals of my own. In particular, it will address conceptual challenges for such views, as well as their empirical adequacy with respect to the relevant range of semantic issues. Finally, the course will address the question whether there can be a single notion of unity applying to the range of semantic and philosophical issues for which such a notion has been invoked. The course will aim to highlight the relevance of philosophical traditions for current semantic debates and to show the fruitfulness of employing lesser known notions from philosophical ontology for semantic analysis.

Tentative schedule

Session 1:

Extensional mereology, its applications, and its challenges

Session 2:

Unifying notions of integrity and function: historical views (Aristotle, Langacker, Jackendoff, Simons, and others)

Session 3:

Recent and new research using notions of integrated whole 1:

The theory of situated part structures and the semantics of *whole, together, time, etc.*

Session 4:

Recent and new research using notions of integrated whole 2:

Choices of mass and count for nominalizations, apparent polysemies

Session 5:

Unity as a primitive: proposals and their applications, prospects and challenges.

References

Moltmann, F. (ed.): *Mass and Count in Linguistics, Philosophy, and Cognitive Science*. Benjamins, Amsterdam.

Carrara, M., A. Arapinis, and F. Moltmann (eds.) (2017): *Unity and Plurality. Logic, Philosophy, and Semantics*. Oxford UP, Oxford.

Champollion, L. and M. Krifka (2017): *Mereology*. In P. Dekker and M. Aloni (eds): *Cambridge Handbook of Semantics*. Cambridge UP, Cambridge.

Chierchia, G. (1998): 'Plurality of Mass Nouns and the Notion of 'Semantic Parameter''. In S. Rothstein (ed.): *Events and Grammar*, Kluwer, Dordrecht, 53–103.

----- (2015): 'How Universal is the Mass/Count Distinction? Three grammars of counting'. In A. Li, A. Simpson, and W.-T. Tsai (eds.): *Chinese Syntax in a Cross-linguistic Perspective*. Oxford UP, New York.

Doetjes J. (2012): 'Count/Mass Distinctions across Languages'. In C. Maienborn, K. v. Heusinger, and P. Portner (eds.): *Semantics: an International Handbook of Natural Language Meaning, Part III*. De Gruyter. Berlin, 2559-2580.

Filip, H. (2021): *Countability in Natural Language*. Cambridge UP, Cambridge.

Grimm, S. (2018): 'Grammatical Number and the Scale of Individuation'. *Language* 94.3, 527-574.

Jackendoff, R. (1991): 'Parts and Boundaries'. *Cognition* 41, 9-45.

- Kiss, T. et al. 2021. *Things and Stuff. The Semantics of the Mass-Count Distinction*. Cambridge UP, Cambridge.
- Koslicki, K. (2008): *The Structure of Objects*, Oxford UP, Oxford.
- Langacker, R. (1987): 'Nouns and Verbs'. *Language* 63.1., 53-94.
- Link, G. (1983): 'The Logical Analysis of Plurals and Mass Terms: A Lattice-theoretical Approach'. In R. Bäuerle et al. (eds): *Meaning, Use and Interpretation of Language*. De Gruyter, Berlin, 303–323.
- Nicolas, D. (2008): 'Mass Nouns and Plural Logic'. *Linguistics and Philosophy* 31(2), 211–244
- McKay, T. (2017): *From Mass to Plural*. In Carrara et al. (eds): *Unity and Plurality*. Oxford UP, Oxford.
- Moltmann, F. (1997): *Parts and Wholes in Semantics*. Oxford UP, Oxford.
- (1998): 'Part Structures, Integrity, and the Mass-Count Distinction'. *Synthese* 116(1), 75–111.
- (2005): 'Part Structures in Situations: The Semantics of *Individual* and *Whole*'. *Linguistics and Philosophy* 28(5), 599-641
- (2021): 'Levels of Ontology and Natural Language: The Case of the Ontology of Parts and Wholes'. In J. Miller (ed.): *The Language of Ontology*. Oxford University Press, Oxford.
- (to appear): 'Metaphysics First or Language First? The Notion of a Single Object'. In R. Gaskin (ed.): *The Question of Linguistic Idealism*. Oxford UP, Oxford
- (to appear): 'The Semantics and Ontology of the Mass-Count Distinction'. *Philosophy Compass*.
- Ojeda, A. (1993): *Linguistic Individuals*. CSLI Publications, Stanford.
- Priest, G. (2015): *One*. Oxford UP, New York.
- Rothstein, S. (2017): *Semantics for Counting and Measuring*. Cambridge, Cambridge UP, Cambridge.
- Pelletier, F. and L. Schubert (2012): 'Mass Expressions'. In F. Guentner and D. Gabbay (eds.): *Handbook of Philosophical Logic*, 2nd edition. Vol. 10. Kluwer, Dordrecht, 249– 336.
- Steen, M. (2016): 'The Metaphysics of Mass Expressions', *The Stanford Encyclopedia of Philosophy* (Winter 2016 Edition), Edward N. Zalta (ed.).