

# REMARKS ON KOSLICKI'S THEORY OF MEREOLOGICAL HYLOMORPHISM

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Kathrin Koslicki. *The Structure of Objects*. Oxford: Oxford University Press 2008. 288 pages.

Mereology is a formal theory of parts and wholes. In its classical form, first systematized by Stanislaw Leśniewski and by the joint efforts of Henry Leonard and Nelson Goodman, Classical Extensional Mereology (CEM) endeavors to describe ordinary material objects, those quotidian things we all pre-philosophically believe to exist (e.g. cars, tables, laptops, et cetera). In fact some philosophers like David Lewis (1986) claim that CEM is the *only* formal system equipped to tell us anything about ordinary material objects. In *The Structure of Objects*, Kathrin Koslicki argues that classical mereological theories have neglected a crucial aspect of material objects: they take no note of the structural arrangement of the parts that constitute wholes. More controversially (and interestingly) Koslicki argues that not only is structure fundamental to the existence of ordinary material objects, but structure is just as much part of objects as the material constituents are. Thus, Koslicki defends a neo-Aristotelian theory of composition that regards ordinary material objects as 'structured wholes'.

The book is partitioned into four parts, the first of which provides an overview of classical mereological concepts and Koslicki's attempt to undermine arguments for controversial mereological principles like *Unrestricted Composition* and *Composition as Identity*. Part Two examines and endorses Kit Fine's arguments against CEM and Part Three gives an historical treatment on theories of parts and wholes found in the works of Plato and Aristotle. In the final part Koslicki develops her own positive account of material objects, one that claims to accommodate the structural deficiency of the classical approaches. While the discussion of the nature of structure is rather lacking in specificity, Koslicki's book makes many interesting points that contemporary metaphysicians will find engaging.

Those working on the problems of composition are no doubt familiar with the controversial principle of *Unrestricted Composition*, which entails the existence of counterintuitive, gerrymandered objects. In Chapter 2 Koslicki considers two approaches to composition that build off of CEM, Judith Thom-

son's temporalized *three-dimensionalist* theory, and David Lewis and Theodore Sider's brand of *four-dimensionalism*. She concludes that the three-dimensionalist need not be persuaded by the Lewis-Sider arguments, which we're told ultimately beg the question. Such a serious accusation warrants closer inspection:

It is a vague matter whether a given class satisfies our intuitive desiderata for composition. Each desideratum taken by itself is vague, and we get still more vagueness by trading them off against each other. To restrict composition in accordance with our intuitions would require a vague restriction... But if composition obeys a vague restriction, then it must sometimes be a vague matter whether composition takes place or not. And that is impossible (Lewis 1986, p. 112).

Koslicki challenges the assumption that composition can never be vague. As if anticipating dissatisfaction with this premise Lewis offers a justification for it, which goes something like this. Since vagueness is a matter of semantic indecision, and since there are bits of language that aren't vague (e.g. the truth-functional connectives, the identity predicate, and the mereological operations), we can articulate a notion of composition in non-vague language. But as Koslicki points out, since what is at issue is whether composition can be vague, it would appear circular to assume that the operations by which composition is defined are non-circular.

From this criticism it certainly would appear that Lewis' argument begs the question. However, in his defense, he asks a powerful rhetorical question at the end of the argument: "How could any of these be vague?" The puzzling thing about Koslicki's criticism is that it only extends to pointing out the apparent circularity, not bothering to answer Lewis' question. Given the question's intuitive plausibility, one would expect Koslicki to demonstrate how exactly mereological relations admit of vagueness. Furthermore, one also wonders why Lewis isn't challenged for assuming that vagueness is a purely linguistic matter, for it is at least arguable that there is genuine *metaphysical* vagueness.

I suspect that these issues aren't pursued further because the proceeding chapter contains Kit Fine's objections to CEM, objections Koslicki thinks demonstrate the inadequacy of the classical theories. Koslicki discusses the Thomson and the Lewis-Sider positions because she wants to elaborate on contemporary theories that regard material objects as mereological sums. So if Fine's objections are cogent, there's no need to continue modifying the classical approach.

Perhaps the most controversial position Koslicki defends is the neo-Aristotelian Thesis, which states that both material and formal components of an object

are proper parts of the whole they compose (Koslicki, p. 181). The argument for this thesis invokes the classic case involving a statue and a lump of clay of which the statue is composed: (1) The lump of clay constituting the statue is numerically distinct from the statue; (2) The lump and statue share the same material constituent (i.e. the lump of clay); (3) The lump is a proper part of the statue; (4) If  $x$  is a proper part of  $y$ , then there must be another thing  $z$  such that  $z$  is a proper part of  $y$ , yet is *disjoint* (i.e. shares no proper part) from  $x$ ; (5) Thus, there must be a formal, non-material part of the statue disjoint from the lump of clay, namely a structural part. From here we're told that we may extend the conclusion of this argument to cases involving more than one material constituent. Now, (1) is established by defending the soundness of 'Leibniz's Law-style' arguments that yield the numerical distinctness of objects whenever those things have different properties. I've been told that (3) is controversial, though I'm not sure I see this since if one grants (1), what relationship would the lump of clay bear to the statue it composes other than *proper parthood*? Finally (4) is known as the *Weak Supplementation Principle*, which is arguably a necessary principle for any mereological system.

One of the upshots to this argument (if correct) is it gives Koslicki a nice answer to the *Grounding Problem*. This problem challenges so-called co-locationists, those who think two numerically distinct objects can occupy the same spatiotemporal location, to specify what grounds the two objects' distinctness. Those who claim that the lump and the statue share all of the same constituents face a particularly difficult task. To answer this difficulty Koslicki claims that, in spite of sharing the same material constituent, the statue has *formal* constituents the lump of clay lacks. Hence, their distinctness is grounded in having different proper parts.

Such an outcome is certainly a welcome result, but only if the argument withstands criticism and there are two main things I'm concerned about. First, we're told very little about the nature of these structural constituents. Following Verity Harte's (2002) suggestion that the structure of objects makes available "slots" that certain types of constituents may occupy, Koslicki lists several areas where the notion of structure plays a key role. What we are told about structure is that it's something like that found in, for example, a musical composition, a chemical molecule, or the syntax of an expression. As if to add more force to her neo-Aristotelian Thesis, we're also told that structure is regarded as something like a component rather than a property or relation. While these suggestions make for a good starting point, discussion on the nature of Koslicki's formal components is severely wanting, a topic one hopes will be revisited in subsequent work.

Second, there seems to be a tension between this argument and several other theoretical commitments, in particular the commitment to a pre-philosophical, ‘commonsense’ ontology of kinds. Early in the seventh chapter we’re told that mereology isn’t in the business of telling us what kinds of things exist, but rather the question is “...to be resolved elsewhere within metaphysics or outside of philosophy altogether” (Koslicki, p. 171). In other words, we only start using mereology as a way to theorize about the material objects most of us, prior to being corrupted by a philosophical argument, already believe to exist. The tension arises with the claim that kinds have formal constituents “associated” with them, these formal constituents playing a two-fold role. On the one hand they’re literally proper parts of material objects and so they play a role in composing material objects. On the other hand these formal constituents play a ‘selective’ role in specifying what sorts of material constituents can compose objects of a certain kind. To illustrate, think of a water molecule, which consists of hydrogen and oxygen atoms in a specific ratio of two to one respectively. If we think of the structure of a water molecule, one might reasonably suggest that the structure specifies certain types of material constituents that can compose it; only hydrogen and oxygen atoms will do. At this point, one might wonder whether there are formal components associated with all kinds, say with the kinds *proton*, *electron* and *neutron*, or even beyond kinds at the subatomic level. If we suppose there is an ultimate, fundamental material constituent of everything, will that thing have formal components associated with it? If so, that will spell problems for the *Weak Supplementation Principle*, and subsequently the argument for the neo-Aristotelian Thesis.

It does seem to me that Koslicki leaves many questions unanswered. Does her system allow for mereological atoms? Presumably since material objects consist of both material and formal components, the answer will be negative. What about the role structure plays in individuating kinds? Shouldn’t the structural arrangement of material constituents bear a stronger relationship to the kinds of which they’re parts than merely being ‘associated’ with those kinds? How come certain kinds require very rigid structure (e.g. water molecules) while others don’t (a table perhaps)?

In spite of leaving us with many unanswered questions, there are several things about Koslicki’s project I find attractive, including her attempt to restrict composition, her defense of a commonsense ontology of ordinary kinds, and of course the exhortation to bring structure into the mereological conversation. Thus, even if one finds Koslicki’s main arguments difficult to accept, this book contains a number of noteworthy observations, making it worth investigating.

## References

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