Heterogeneous Simples and Potential Parts
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1 Holden and Pasnau on Potential Parts

Here is a question familiar to anyone who has read Pasnau (2011), ch. 4 or ch. 26:

- If something is divisible, does that mean that is has actual parts? Or can we say that it has potential parts, but deny that it has actual parts? What could such a distinction come to?

Holden (2007) suggests that, when it comes to divisible substances, there are two views:

**The Doctrine of Potential Parts (DPP)** All divisible substances are simple: they have no actual parts, only potential parts.

**The Doctrine of Actual Parts (DAP)** All divisible substances are composite: they have actual parts corresponding to every way they could be divided.

...if the early moderns' adoption of the actual parts metaphysic and rejection of potential parts was rooted more in unreflective prejudice than well-grounded argument, it is surely worth considering whether the current presumption among metaphysicians in favour of actual parts is itself justified. Reaching beyond the purview of this historical study, perhaps we should ask whether the affinity for actual parts systems in current analytic mereology and metaphysics is itself simply a prejudice inherited from our early modern forebears. (Holden 2007, 278)

Pasnau (2011, 619, n. 10):

- Holden's conception of potential parts is confused and unstable, and reflects ignorance of scholastic thought.
- given DPP, “it would seem to be nonsense to talk about the substantial form as what causes and individuates [a substance's] parts” (p. 610).

The Mixed View  Some of the integral parts of a divisible substance are actual, and some are potential.

John of Jandun (Pasnau (2011) 615):

- actual parts: “taken in themselves and separately, can participate in the form of the whole”
- potential parts: “would dissolve into what contains them”
- minima: the smallest actual parts
  - example: a bit of flesh that, if you sliced in half, you would no longer have flesh, and it would dissolve into the air.
2 Extended Simples in Current Analytic Mereology and Metaphysics

A simple is an object that has no (integral) (proper) parts.\(^1\) So an extended simple is a simple that has extension.

2.1 Markosian on Extended Simples

The Simple Question What are the necessary and sufficient conditions for an object’s being simple?\(^2\)

- The Pointy View of Simples Necessarily, \(x\) is a simple iff \(x\) exactly occupies a point-sized region (Markosian 1998, 216).
- The Indivisible View of Simples Necessarily, \(x\) is a simple iff \(x\) is (physically|metaphysically) indivisible (Markosian 1998, 220–221).
- The Maximally Continuous View of Simples (MaxCon) Necessarily, \(x\) is a simple iff \(x\) is a maximally continuous object.

MaxCon simples extended, divisible, heterogenous.

Objection:

1. If an object has extension, then it has two halves.
2. If an object has two halves, it has at least two proper parts.
3. Therefore, if an object has extension, it is not simple.

First Reply: reject (1), because it would lead us to the Doctrine of Arbitary Undetached Parts—the principle, roughly, that an object has proper parts corresponding to every proper sub-region of the region it exactly occupies.

Second Reply: distinguish actual parts from ‘conceptual parts’. Actual parts are “things that actually compose composite objects, and each of which is a genuine object in its own right”. Conceptual parts:

- for each sub-region of the region occupied by the object, the portion of matter or stuff that fills that sub-region.

Objection:\(^3\)

1. If an object has extension, then it can be different in one place from how it is in another place (e.g., smooth in one place, rough in another).
2. If an object is different in one place from how it is in another, then it must have at least two proper parts—one that is smooth and the other that is rough.
3. So if an object has extension, it is not simple.

First Response: relativize the properties to places: the object is not rough or smooth simpliciter, but rough-at-p and smooth-at-q.

Objection: a heterogenous extended object could occupy an extended simple region (Spencer (2010)).

Second Response: attribute the properties to the portions of stuff, not the extended object: the matter in this place is smooth; the matter in that place is rough.

Objection: same as above. A portion of stuff is some stuff that occupies a region. So only one portion of stuff occupies an extended simple region.

Objection: Portions of stuff are actual parts (see for example Steen (2011)).

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\(^1\) Two points of terminology. First, in the contemporary literature, a proper part is a part that is not identical to the whole. Medieval metaphysicians quite sensibly held that no part is identical to the whole, and so held, in effect, that all parts are proper parts. This is just a matter of terminology. I am going to take the liberty of adopting the medieval usage here. Second, my focus here will be on integral parts, not “metaphysical” parts. So I won’t be worried so much about partitioning an object into matter and form, or partitioning a substance from its accidents or anything like this.

\(^2\) Markosian: “I do not know a single philosopher, recent or otherwise, who has explicitly addressed the Simple Question.” This includes, he says, Democritus, Locke, Leibniz, Russell, Wittgenstein “and every other philosopher whose writings I am aware of” (p. 215).

\(^3\) This argument can be found everywhere. See Holden (2007) (110) for early modern sources; Pasnau (2011) (609), Sider (2001) (89), McDaniel (2003), among others. Contemporary metaphysicians often associate this with the argument from temporary intrinsics for temporal parts found in Lewis (1986) (p. 202ff).
2.2 Casati and Varzi on Countermereology

Casati and Varzi (1999) attempt to provide an account of potential parts that makes use of resources borrowed from counterpart theory. The basic analysis looks like this:

- $x$ is a potential part of $y$ = there exists (in some possible world) an object, $x$ that is a partial counterpart of $y$.

This “partial counterpart” relation is meant to be a relation of similarity. But instead of being a relation of inexact all-over similarity, it is a relation of exact partial similarity.

So consider the extended simple, $s$, that is both rough and smooth. It has two potential parts, $a$ and $b$. $a$ is rough (in its possible world), and $b$ is smooth (in its possible world). So $s$ has both a smooth part and a rough part, but these are only potential parts.

I don’t think the superstructure of counterpart theory and modal realism is the essential idea here. I think the essential idea is this idea of exact partial similarity.

Limitations:

- this might give us an account of the intrinsic properties of the potential parts, but it does not give us an account of their extrinsic properties.
- I don’t see how this account could be applied to heterogeneous minima.

2.3 Potential Parts as Features

Holden (2007, 113) slides between at least two ways of thinking about potential parts, in hope of accounting for the problem of heterogeneity. Both involve the claim that potential parts are subjects but not substances:

1. potential parts are dependent material individuals (perhaps portions of stuff); they are not substances because substances are independent material individuals.
2. potential parts are not material individuals at all, but features or aspects of substances.

(1) looks a lot like what Markosian says. Pasnau (614) argues that, at least for the scholastics, mere dependence is not enough to make a part of a substance a potential part; that many defenders of actual parts would happily admit that those actual parts depend on the whole they compose.

But what about (2)? There are at least two ways (2) might be developed.

One idea is that, instead of talking about potential parts, we should talk about potentialities for division. And it seems to me that, given a suitably rich geometry, we could carefully individuate all the different ways that a given object could be partitioned. But how does this help with the problem of heterogeneity?

You’d have to say something like:

- there is a potentiality to divide the object to two parts, one smooth and the other rough

So we’d need to build into each potentiality not just the geometric facts about how the object could be partitioned, but also the facts about what the objects that would result from this partition would be like.

But here is another idea, building off of Casati and Varzi. Consider the familiar way that a Resemblance Nominalist “divides” an object into its “properties”, by making use of inexact all-over similarity. Can we mirror that method, but use exact partial similarity instead, and so claim a kind of ontological parity for both cases? If so, we get a picture where we might say that potential parts are “features” that we can abstract from the object, not separate material individuals.
3 Partial Thoughts

1. Point-sized heterogeneous simples?
2. An austere modal operator based account of potential parts: what exactly are its limits?
4. Potential parts as items with diminished being (e.g., Smith (1994), ch. 3, §5)
5. Simons (2004): spatial difference for an extended simple is a matter of different “intensities of occupation”