**Ontological Dependence, Spatial Location, and Part Structure**

Friederike Moltmann

 CNRS

November 2018

There are various standard views about objects in contemporary metaphysics, one of them being that concrete objects come with a spatial location and a physical part structure. Such metaphysical views can be seriously challenged when we think about what our actual intuitions about objects are. Given a perspective of descriptive metaphysics, such challenges may require revising our metaphysical theories in view of what we actually, though implicitly, accept. One such challenge, which this paper will discuss, concerns the spatial location and the part structure of certain ontologically dependent concrete objects. The relevant class of ontologically dependent objects simply lack an independent (non-object-dependent) spatial location or the sort of part structure they are expected to have as concrete objects. Such objects thus challenge the standard view according to which concrete objects by nature come with a specification of a spatial location and of a physical part structure. I will call objects of this sort *attributively limited objects* and their peculiarity *attributive limitation*. Attributive limitation is more familiar from abstract objects as entities introduced by a form of Fregean abstraction, such as numbers or directions on the Fregan account. This paper will suggest that the attributive limitations of the relevant class of concrete objects be accounted by a form of abstraction as well. It will do so by drawing on a notion of an abstract state that is already an entity somewhat between abstract and concrete, with an important role in natural language semantics (or so it has been argued).

 I will first present standard assumptions regarding the distinction between concrete and abstract objects as well as particular views about the inheritance of properties of objects from more fundamental ones. I then present the central issue of the paper, intuitions about the spatial location and part structure of certain ontologically dependent concrete objects. Finally, I will outline a way of applying the abstractionist accounts of abstract objects to the relevant types of ontologically dependent concrete objects.

**1. The abstract-concrete distinction**

The distinction between abstract and concrete objects is a central distinction in metaphysics, and according to the standard view, concrete objects and abstract objects are distinguished by different sorts of properties they may have, without there being agreement as to what sorts of properties best characterize the distinction. Properties that have been proposed as characteristic of abstract objects are being non-mental, nonphysical, being causally inefficacious, and not having a spatio-temporal location (Rosen 2018). Whether abstract objects have a temporal duration is a matter of controversy: abstract artifacts are abstract in the sense of not being physical, but they come into being at some point in time and may go out of being at some point in time as well. Having a spatial location, by contrast, is a less controversial characteristic that concrete objects are taken to have, but abstract objects lack.[[1]](#footnote-1)

 While the distinction between abstract and concrete objects is generally based on general conditions on what sorts of properties concrete and abstract objects may have, there is also an approach according to which objects do not come to bear properties directly, but derivatively, by inheritance from more fundamental entities (Fine 1999, Koslicki 2008).

 This particularly applies to material objects and the material that constitutes them. Entities individuated by their shape such as artifacts, for example, inherit, on that view, color, texture, weight from the material constituting it (Fine 1982, Koslicki 2008). Also the spatial location of artifacts can be considered inherited from the spatial location of their material manifestation at a time.

 Fine (1982) applies property inheritance to another relevant case, qua-objects (which includes non-basic actions). A qua object such as John qua being a father is an object individuated by particularly restricted condition of property inheritance from its base (John). John qua being father inherits only those properties from John that John has while being a father (Fine 1982) or, better, that John has in virtue of being a father (Moltmann 1997). John qua being a father thus comes out as an attributively limited object, displaying a lack of specification for all properties that are not based on John being a father. Making use of property inheritance conditions thus deviates from the standard view according to which concrete objects comes with the same types of property specifications characteristic of concrete objects.

**3. The intuition about some ontologically dependent entities**

**3.1. Spatial location**

We can now turn to the central issue of this paper, intuitions about the spatial location and part structure of ontologically dependent concrete objects. Let us first consider entities like holes, folds, flaws and scratches. Entities of this sort are based on regular or irregular gestalt conditions in material objects, and are generally called *disturbances* (Karmo 1977, Simons 1987, Casati/Varzi 1994). We clearly treat disturbances as entities: they generally are countable and come into existence and go out of existence at particular points in time. Thus we can say that a hole, fold, flaw, or scratch exists or no longer exist, and that there are several of them.

 Disturbances are ontologically dependent objects par excellence. They exist only if the object in which they are located are exists. Also, for their identity, they require the identity of the object in which they are located. They are thus ontologically dependent in the sense of existence dependence and identity dependence.

 Linguistically, the ontological dependence of disturbances is reflected in the applicability of the *have*-construction: *the bag has a whole, the cloth has a fold, the paper has a flaw,* and *the surface has a scratch*.

 Disturbances have a location relative to the object on which they depend, requiring a suitable spatial preposition. Thus, a hole is *in* the bag, a fold *in* the cloth, a flaw or a scratch *on* the surface. Now what is remarkable is that disturbances do not have an object-independent (absolute) location. If the bag is on the table and the hole is in the bag, it does not follow that the hole is on the table. In fact, the hole is nowhere but in the bag; it lacks a location independent of the bag.[[2]](#footnote-2) Similarly, a fold cannot be on the table even if the cloth is that has the fold. The fold is nowhere in fact but in a particular place in the cloth. A flaw or scratch on the screen is not on the table even if the screen is; the flaw or scratch is nowhere in fact but (in a particular place) on the screen. Thus disturbances do not inherit their location from the object on which they depend: they just do not have an object-independent location.

 Disturbances also cannot move, even when the object on which they depend moves. If the flag has a hole and the flag moves in the wind, the hole would not move in the wind. If the surface has a scratch and the surface moves, the scratch does not move (it can be said to move only when it is not clear that it is something on a particular surface). If Mary moved the bag, she did not thereby move the hole that the bag has. The hole cannot move, unless it does so within the object that has it.

 Tropes display the same sort of behavior as disturbances with respect to a spatial location. Tropes in recent one-category reductionist ontologies have been considered entities more fundamental than individuals and properties coming with two fundamental relations: similarity and co-location (Williams 1953). On such a view tropes would not be ontologically dependent, but rather individuals and properties would be constituted by tropes. However, on the older, Aristotelian tradition, tropes are ontologically dependent objects par excellence. A trope exists only if its bearer exists and a trope is identical to another trope only if their bearers are identical, or so the standard view.

 Again the ontological dependence of tropes is reflected in the *have*-construction, though with more restrictions: Socrates has wisdom, the painting has an unusual quality, though the apple does not really ‘have’ redness, and the pillow does not really ‘have’ softness.

 Clearly, tropes clearly do not inherit a location from their bearer. If Socrates is in Athens and Socrates has wisdom, Socrates’ wisdom is not in Athens. The painting may on the bass and there may be an unusual quality in the painting, but the unusual quality of the painting is not on the wall. If the stone has an enormous weight (a quantitative tropes), and the stone is on the table, the enormous weight of the stone is not on the table. Tropes have no independent location, and at least a great range of tropes cannot even be attributed a dependent location. Despite locutions Aristotle may have used, Socrates’ wisdom is not ‘in’ Socrates, Socrates just has it, and the weight of the stone is not ‘in’ or ‘on’ the stone.

 Not all ontologically dependent objects, though, behave that way with respect to their spatial location. Shadows, for example are generally considered ontologically dependent on the object throwing the shadow, but they can be attributed an object-independent location and movement. The shadow may be here and there and now moves across the wall etc.

 Also artifacts, which one might view as ontologically dependent on the material that constitutes them (Karmo 1977), have object-independent locations and permit movement, and so for groups constituted by group members.

 What then are the conditions on objects unable to have object-independent locations? The condition appears to be that such objects need to be constituted by features of the base object whose location is properly included in that of the base object. This condition is not satisfied for the relation between material and the objects they constitute.

 Tropes, it appears, require a separate condition. A trope (such as the quality of the painting) need not be limited to a location properly included within the bearer (the paining). Thus, I will say that the relevant class of ontologically dependent objects should be have a location properly within the object on which they depend on or else be a trope with the object as its bearer.

**3.2. Part structure**

There is another important case of attributive limitation that I want to mention, and that concerns the part structure of objects. Sometimes an object is expected to have part structures in different ‘dimensions’, but displays just a single part structure.

 Some objects come with a part structure based on partial content. Yet those objects may be physical objects at the same time and thus have two part structures, in two dimensions. An example is a book. A book is an entity that comes with two distinct facets, as a material object and as an information object, and they involve two part structures. ‘Part of the book’ can mean a material part of the physical object or else a partial content. However, there are also physical objects that lack a physical part structure. Entities of the sort of claims, requests, and offers are of this sort, that is, the non-enduring products of illocutionary acts (Twardowski 1911, Moltmann 2014).[[3]](#footnote-3) A claim can be overheard and cause uproar and it is made at a particular point in time, at a particular place. Thus a claim has a range of features of concrete objects. But part of a claim can never be a physical part, say a temporal part of an action of claiming. Part of a claim can only be a partial content. A claim, intuitively, has only parts that are partial content of what is claimed. Thus, claims are peculiar in that they clearly display features of concreteness, but yet cannot have physical parts. They are thus what I will call *mereologically restricted objects*.

 Tropes in a way are also mereologically restricted. Tropes are particular property manifestations in objects, their bearer. The bearer may have a spatial part structure, yet tropes will never inherit a spatial part structure. The parts of tropes can only be features constitutive of the (complex) trope or perhaps a temporal part. For example, part of John’s happiness can be features of John constitutive of his happiness or else a perhaps a period of his happiness. This is different for events. Events may have several part structures in different dimensions at once, say a temporal part structures, a participant-related part structure, and a spatial part structure. Part of the battle, for example, can be a temporal part of the event or a spatial part or a subevent constitutive of the battle at the time and place of the battle. Tropes are thus mereologically restricted in a way events are not. [[4]](#footnote-4)

**4. Towards an account of attributive limitations of disturbances and tropes**

Disturbances and tropes thus are entities that are attributively limited. The question then is, how are such attributive limitations to be accounted for? I want to suggest an approach to the puzzle by drawing a connection to one particular ontological theory about abstract objects, namely abstractionism, the theory of an object being introduced by a form of Fregean abstraction (Frege 1884, Dummett 1973, Hale 1987, Wright 1983). Frege proposed that numbers be introduced by the abstractionist principle below, which gives identity conditions for objects obtained by the abstraction function g from entities *o* and *o’* that stand in some equivalence relation *R*:

(1) For an equivalence relation R, g(o) = g(o’) ↔ R(o, o’).

Frege applied (1) to introduce natural numbers as entities obtained by abstraction from concepts whose extensions stand in a one-to-one correspondence.

 What is special about an abstractionist theory of an object type is that it introduces an object as an object that will have only those properties specified by the method employed for its introduction. Thus numbers introduced by the principle in (1) do not have other properties than could not be derived from the condition of their identity with other numbers introduced in the same way. The abstractionist account introduces a number as an object that is not specified as to whether it is identical to a non-number, the individual Cesar say, or has any properties of concreteness.

 Abstractionist theories have not only been proposed for abstract objects in the context of the philosophy of mathematics. There is also an abstractionist theory of states (and of nonworldly facts).[[5]](#footnote-5) This is what Kim’s (1976) account of events amount to. Kim’s account, it is generally agreed, is not an account of events, but an account of states, more specifically of ‘Kimean states’ as Maienborn (2007) calls them or ‘abstract states’ (Moltmann 2013b), as I prefer to call them. On the Kimian account of states, states will have identity conditions and a temporal duration, but no other intrinsic properties. Kim’s theory as a theory of states (of a property holding of an object) is given below, where *s* is the function mapping an object *o* and a property *P* onto the state of *o* having *P*:

(2) The Kimian theory of states

 a. For a property P, an object o, the state s(o, P) obtains at a time t iff P holds of o at t.

 b. For properties P and P’ and objects o and o’, s(o, P) = s(o’, P) iff P = P’ and o = o’.

Kim’s account is an abstractionist account: (17) can be generalized to n-place abstraction functions applying to *n* objects that stand in respective equivalence relations to each other. Kim’s account then introduces states on the basis of a two-place abstraction function applying to objects and properties and the equivalence relation of identity.

 Kimean or abstract states are not on a par ontologically with events. Events involve a particular manifestation, a spatial location and can act as relata of causal relations (Moltmann 2007, Maienborn 2007). By contrast, states as entities introduced by abstraction as in (2) will carry only properties specified for them by the method of introduction. This means that they have a particular temporal duration and that their identity depends strictly on the property and object from which they are abstracted. It also means that such states have no spatial location, won’t not stand in causal relations, and will involve no particular manifestation etc. They may act, though, as objects of mental attitudes.

 States in that sense play an important role in natural language semantics, as Davidsonian, implicit arguments of (most) stative verbs (*own, owe, know, weigh, have*), or so it has been argued (Maienborn 2007). The states described by most stative verbs accept only a very restricted set of adverbial modifiers. They resist in particular location modifiers, manner adverbials, instrumentals, and causal and perceptual predicates, representing the sorts of properties that states introduced by abstraction as in (2) should not be specified for. This means that such states have only a temporal duration, but no other intrinsic properties. In particular, they won’t involve a particular way of manifestation, and they won’t stand in causal relations and act as objects of perception, and they won’t have a spatial location, just as predicated on the abstractionist account. The relevant stative verbs include *own, know, resemble, weigh, measure*, as well as copula *be.* [[6]](#footnote-6) Thus, ‘Kimian states’ or ‘abstract states’ play a semantic role as implicit arguments of (most) stative verbs. They also play a role as referents of gerundive nominalizations of such stative verbs such as *John’s owning the house, Mary’s owing an amount of money, John’s knowing French, Mary’s being happy*. Yet abstract states are also in time and they obtain (at a time) on the basis of what is going on in the world. Even though they do not contain the individual and the property from which they abstracted as parts, their identity and existence depends on them. States in that sense have features of concreteness, yet they clearly display attributive limitations.

 I want to propose that ontologically dependent objects that are disturbances be viewed similarly, as entities obtained in a particular way by abstraction from relevant properties of their base. The abstraction principles however will be different from that of abstract states n that they should not involve a particular property, but rather respects of properties. Disturbances will be entities based on features of the base object that together meet certain gestalt conditions. They will then be individuated as objects having only properties strictly pertaining to those features and their location within the base object and nothing else. Unlike abstract states, such objects do involve a very particular manifestation of the particular gestalt conditions in question. But they will not be specified with properties in respects that are not related to the manifestation of those gestalt conditions; and thus in particular they will lack an independent spatial location. Disturbances then come out as fully specific, though only in certain respects (the shape and size of a hole or fold, for example, as well as the location with respect to the base object).

 Tropes have often been viewed as entities obtained by abstraction in a psychological sense, the act of attending to only one property. But the relation between a trope and its bearer need not be understood in a psychological sense. It can be viewed rather in the same sense of a formal ontological operation of abstraction as in the case of disturbances. The relation of abstraction obtaining between the bearer and the trope means that the trope consists in features of the bearer fulfilling a particular condition (or perhaps several, if it is a complex trope), and the tropes will have properties only pertaining to those features of the bearer. Tropes will thus lack a specification with respect to other types of properties, including an independent, spatial location. Like disturbances, tropes will be fully specific with respect to some types of property attributions, but lack other types of property attributions.[[7]](#footnote-7)

**Conclusion**

In this paper, I have pointed out that particular sorts of ontologically dependent concrete objects are attributively limited and challenge standard ontological views about the spatial location and the physical part structure of concrete objects. I have suggested that a version of an abstractionist account applies to such concrete objects as well and can explain their attributive limitations.

**References**

Casati, R. / A. C. Varzi (1994): Holes and Other Superficialities, Cambridge, MA, MIT

 Press.

Hale, B. (1987): *Abstract Objects*. Blackwell, Oxford.

Davidson, D. (1967): 'The logical form of action sentences'. In N. Rescher (ed.): *The Logic of*

 *Decision and Action*. Pittsburgh University Press, Pittsburgh, 81–95. Reprinted in D.

 Davidson: *Essays on Actions and Events.*

------------- (1969): ‘The individuation of events'. In N. Rescher (ed*.)*: *Essays in Honour of*

 *Carl Hempel*. Reidel, Dordrecht.

Fine, K. (1982): ‘Acts, Events and Things.’ In *Language and Ontology: Proceedings of the 6th*

 *International Wittgenstein Symposium,* Vienna, Hölder-Pichler-Tempsky, 97-105.

--------- (1999): ‘Things and Their Parts’*. Midwest Studies in Philosophy* 23, 61-74.

Frege, G. (1884): *Die Grundlagen der Arithmetik: eine logisch-mathematische*

 *Untersuchung uber den Begriff der Zahl.* Translated by J. L. Austin as *The Foundations of*

 *Arithmetic*. Blackwell, 1950.

Kim, J. (1976): 'Events as property exemplifications'. In M. Brand / D. Walton (eds.):

 *Action Theory*. Reidel, Dordrecht.

Katz, G. (2003): ‘Events as Aguments, Adverb Selection, and the Stative Adverb Gap’. In E.

 Lang eds. (eds.): *Modifying Adjuncts*, de Gruyter.

Karmo, T. (1977): ‘Disturbances’. *Analysis* 37, 147–148

Koslicki, K. (2008): *The Structure of Objects*. Oxford University Press, New York.

Maienborn, C. (2007): ‘On Davidsonian and Kimian States’. In I. Comorovski / K. von

 Heusinger (eds.). *Existence: Semantics and Syntax*. Dordrecht, Springer, 107–130.

Moltmann, F. (1997): *Parts and Wholes in Semantics*. Oxford UP, Oxford.

---------------- (2007): ‘Events, Tropes and Truthmaking’. *Philosophical Studies* 134, 2007,

 363-403.

--------------- (2009): ‘Degree Structure as Trope Structure A Trope-Based Analysis of

 Comparative and Positive Adjectives’. *Linguistics and Philosophy* 32, pp. 51-94.

---------------- (2013a): *Abstract Objects and the Semantics of Natural Language*. Oxford:

 Oxford UP.

---------------- (2013b): ‘On the Distinction between Abstract States, Concrete States, and

 Tropes’. A. Mari / C. Beyssade / F. Del Prete (eds.): *Genericity*, edited by, Oxford UP,

 Oxford, 2013, 292-311.

--------------- (2014): ‘Propositions, Attitudinal Objects, and the Distinction between

 Actions and Products’. *Canadian Journal of Philosophy* 43 (5-6), 679-701.

---------------- (2017): ‘Cognitive Products and the Semantics of Attitude Reports and

 Deontic Modals’. In Moltmann, F. / M. Textor (eds.) (2017): *Act-Based Conceptions of*

 *Propositions: Contemporary and Historical Contributions.* Oxford UP, Oxford, 254-290.

Rosen, G. (2018): ‘Abstract Objects’, The Stanford Encyclopedia of Philosophy (Fall 2018

 Edition), Edward N. Zalta (ed.), URL

 <https://plato.stanford.edu/archives/fall2018/entries/abstract-objects/>.

Simons, P. (1987): *Parts. A Study in Ontology*. Oxford UP, Oxford.

Varzi, A. (1995): ‘Reasoning about Space. The Hole Story.’ *Logic and Logical Philosophy* 4,

 3-39.

Williams, D. C. (1953): 'On the Elements of Being'. *Review of Metaphysics* 7, 3-18.

 Reprinted in Mellor/Oliver (eds.), 112-124.

Woltersdorff, N. (1960): ‘Qualities’. *Philosophical Review* 69. Reprinted in A.

 Schoedinger (ed.): *The Problem of Universals*. Humanities Press, New Jersey, 1992.

------------------- (1970): *On Universals*. Chicago UP, Chicago.

Wright, C. (1983): *Frege's Conception of Numbers as Objects*. Aberdeen UP, Aberdeen.

1. There is some controversy, though, regarding the spatial location of sets of concrete objects (see Rosen 2018). [↑](#footnote-ref-1)
2. See Varzi (1995) for observations about the non-monotonicity of *is in* for holes. [↑](#footnote-ref-2)
3. In Moltmann (2017), I argued that such objects belong to a broader class of attitudinal objects, which also include state-like objects of the sort of beliefs. [↑](#footnote-ref-3)
4. One might also mention enduring material objects as mereologically restricted. Enduring material objects are in space and time, but have only a temporal part structure, according to our intuitive notion of them. (Temporal stages of material objects just do not intuitively count as parts of enduring objects.) However, what plays a role for enduring objects is what is constitutive of their identity at a time. Enduring objects exist in time, which basically means they need to be completely present at each moment of the time. [↑](#footnote-ref-4)
5. Frege also proposed an abstractionist account of direction (the direction of a is identical to the direction of b iff a is parallel to b). [↑](#footnote-ref-5)
6. This is known as the Stative Adverb Gap. Some researchers have taken this ‘Stative Adverb Gap’, as it is called, to mean that stative verbs lack a Davidsonian event argument position (Katz 2003). [↑](#footnote-ref-6)
7. Note that tropes do not actually inherit properties from their base. A redness trope is not itself red. But it is in virtue of redness that a redness trope stands in a similarity relation to other redness tropes. [↑](#footnote-ref-7)