

## Material Constitution

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### INTRODUCTION

Material constitution is a relation that obtains between two material objects when one is made up of the other, as when a statue is made up of a lump of clay or a coin is made up of a piece of copper.

(Constitution is often contrasted with *composition*, a relation obtaining between one object and a plurality of objects that are the parts of that object.) Much of the philosophical interest in constitution involves the question of whether the constituted object is identical to the object that constitutes it. *Monists* say that they are identical, often citing the fact that the objects coincide spatially and/or mereologically. *Pluralists* say that they are (numerically) distinct, often citing differences in their modal or temporal properties. Since there are powerful reasons for accepting each of these views, the issue is sometimes framed as the “puzzle”, “paradox”, or “problem” of material constitution.

### OVERVIEWS AND REFERENCE WORKS

Rea 1997a is an excellent collection of contemporary classics from the literature. For overviews of the problem of material constitution and possible responses, see Hawley 2001, Sider 2001, Paul 2010, and Wasserman 2017. See Rea 1995 for an attempt to unify different versions of the problem of material constitution. See Hirsch 2005 and Bennett 2009 on metaontological reactions to the problem. See Baker 2007 for general discussion of the nature of the constitution relation.

Baker, Lynne Rudder (2007), *The Metaphysics of Everyday Life* (Cambridge: Cambridge University Press).

Provides a defense of pluralism as well as general discussion of the nature of the constitution relation.

Bennett, Karen (2009), ‘Composition, Colocation, and Metaontology’, in David Chalmers, David Manley, and Ryan Wasserman (eds.), *Metametaphysics* (Oxford: Oxford University Press), pp. 38-76.

Addresses the question of whether the dispute between monists and pluralists it is somehow defective. She criticizes views on which the dispute is merely verbal, and defends an “epistemicist” thesis on which one cannot be justified in accepting either monism or pluralism, insofar as prominent defenses of these views end up minimizing the differences between them.

Hirsch, Eli (2005), 'Physical-Object Ontology, Verbal Disputes, and Common Sense', *Philosophy and Phenomenological Research* 70: 67-97.

Argues that disputes about composition and coincidence and merely verbal.

Paul, L. A. (2010), 'The Puzzles of Material Constitution', *Philosophy Compass* 5: 579-590.

Enumerates a number of problems that arise for pluralist accounts of material constitution, some familiar (e.g. the grounding problem), and others that are less widely discussed (e.g. accounting for the asymmetry of the constitution relation).

Rea, Michael C. (1995), 'The Problem of Material Constitution', *Philosophical Review* 104: 525-552.

Discusses a variety of puzzles of material constitution—including the puzzle of the statue and clay, the Dion/Theon puzzle (a.k.a. the Body-Minus puzzle), the Ship of Theseus puzzle, and the paradox of increase—with the aim of showing that they have a common structure and providing a taxonomy of possible solutions.

Rea, Michael C. (1997a), *Material Constitution* (Lanham: Rowman & Littlefield).

An anthology that includes many of the now-classic 20<sup>th</sup>-century discussions of material constitution. The introduction to the volume is especially illuminating, covering some of the same ground as Rea 1995 in a more condensed form.

Wasserman, Ryan (2017), '\*Material Constitution', *The Stanford Encyclopedia of Philosophy* (Fall 2018 Edition), Edward N. Zalta (ed.)

Provides an overview of the different solutions to the problem of material constitution, with extensive citations.

## **PLURALISM**

Pluralists maintain that the constituted object (e.g. the statue) is numerically distinct from the constituting object (e.g. the lump of clay). The primary motivation for pluralism is the apparent differences between the constituted and constituting objects, for instance modal and temporal differences. Pluralists are often criticized for “double-counting” objects (by e.g. Lewis 1986), violating plausible principles that prohibit material objects from being exactly colocated (by e.g. van Inwagen 1990), and—most importantly—lacking an explanation of how these otherwise indiscernible objects can differ in their modal properties (the so-called “grounding problem”). Texts by pluralists include Wiggins 1968, Thomson 1983, Baker 1997, Fine 2003, Koslicki 2004, Johnston 2006, Thomasson 2006, Fine 2008, Koslicki 2008, Paul 2010, and Korman 2015. Kleinschmidt 2007 explores a view in the vicinity. Wiggins 2001 argues that there is an ‘is’-of-constitution, allowing pluralists to consistently affirm that the statue is the lump of clay; see Pickel 2010 for criticism. The labels ‘monism’ and ‘pluralism’ are due to Fine 2003.

Baker, Lynne Rudder (1997), 'Why Constitution is not Identity,' *Journal of Philosophy* 94: 599-621.

Defends pluralism against objections from Gibbard 1975, advances arguments against Gibbard's contingent-identity solution, and invokes differences in creative intentions to answer the grounding problem.

Kleinschmidt, Shieva (2007), 'Some Things About Stuff', *Philosophical Studies* 135: 407-423.

Raises a number of challenges for a view that is pluralist in spirit, on which the statue is not colocated with any other *object* (e.g. a lump of clay) but is colocated with some stuff (e.g. some clay), thereby respecting prohibitions on colocated objects.

Korman, Daniel Z. (2015), *Objects: Nothing out of the Ordinary* (Oxford: Oxford University Press).

Challenges a variety of different monist strategies, advances a solution to the grounding problem, and argues that pluralists should not invoke an 'is' of constitution.

Koslicki, Kathrin (2004), 'Constitution and Similarity', *Philosophical Studies* 117: 327-364.

Advances an account of which sorts of properties constituted objects do and don't inherit from their constituters.

Pickel, Bryan (2010), 'There is no 'Is' of Constitution', *Philosophical Studies* 147: 193-211.

Criticizes a common pluralist strategy—most prominently advocated by Wiggins 2001—of insisting that the 'is' in 'the statue is the lump' is not an 'is'-of-identity but rather an 'is'-of-constitution.

Thomasson, Amie (2006), 'Metaphysical Arguments Against Ordinary Objects', *Philosophical Quarterly* 56: 340-359.

Advances a pluralist view on which the existence of a statue analytically entails the existence of a lump constituting it, and addresses a variety of objections to pluralism, for instance that it treats the statue as "something over and above" the lump and that it requires "double counting" the number of objects in any given situation.

van Inwagen, Peter (1990), *Material Beings* (Ithaca: Cornell).

A seminal work on questions of composition, which also touches on material constitution, arguing against endorsing the existence of artifacts and/or the mereological universalist thesis that any plurality of objects together compose a further object on the grounds that one is thereby committed to pluralism.

Wiggins, David (2001), *Sameness and Substance Renewed* (New York: Cambridge University Press).

An extended defense of pluralism, including (among other things) a classic response to relative identity solutions and a defense of the 'is'-of-constitution. This is a slightly expanded version of his 1980 *Sameness and Substance*.

### ***Perdurantism***

According to perdurantism, the constituted and constituting objects are four-dimensional objects, composed of three-dimensional "temporal parts". Accordingly, if the constituted object was made from a pre-existing constituting object, the two don't coincide after all: they have different temporal parts and different spatiotemporal locations. Other strategies are needed for cases in which objects permanently coincide (as in Gibbard 1975); here, perdurantists, following Lewis 1986, typically provide a monist counterpart-theoretic treatment (see \*Contingent Identity, Counterpart Theory, and Abelardianism\*). Texts by perdurantists include Quine 1950, Heller 1984 and 1990, and Lewis 1986; texts by critics include van Inwagen 1981, Thomson 1983, and McGrath 2007.

Heller, Mark (1984), 'Temporal Parts of Four Dimensional Objects', *Philosophical Studies* 46: 323-334.

Advances a perdurantist solution to the problem of material constitution and responds to criticisms from van Inwagen 1981 and Thomson 1983.

Heller, Mark (1990), *The Ontology of Physical Objects: Four-Dimensional Hunks of Matter* (New York: Cambridge University Press).

Argues that all material objects are four-dimensional objects, advances a version of the grounding problem for coinciding entities, and resolves the problem of material constitution by denying the existence of ordinary objects like statues, holding that there is only the hunk of matter and that neither it nor anything where it is is a statue.

McGrath, Matthew (2007), 'Four-Dimensionalism and the Puzzles of Coincidence', *Oxford Studies in Metaphysics* 3: 143-176.

Argues that perdurantism does not yield an adequate solution to the problem of material constitution.

Quine, W. V. (1950), 'Identity, Ostension and Hypostasis', *The Journal of Philosophy* 47: 621-633.

Advances a perdurantist account of the persistence of material objects, and puts it to work in blocking Heraclitus's argument that one cannot bathe in the same river twice.

Thomson, Judith Jarvis (1983), 'Parthood and Identity Across Time', *The Journal of Philosophy* 80: 201-220.

Defends a non-perdurantist pluralist response to the puzzles; develops a pluralist-friendly theory of the parthood relation; and advances her famous "crazy metaphysic" objection to perdurantism.

van Inwagen, Peter (1981), 'The Doctrine of Arbitrary Undetached Parts', *Pacific Philosophical Quarterly* 62: 123-137.

Argues that defenders of the doctrine of arbitrary undetached parts (i.e., that an object has a part exactly filling every subregion of the region it occupies), if they are to avoid commitment to coinciding objects, must deny that objects can ever lose parts. He argues that perdurantism, for similar reasons, must deny that objects can have different temporal extents than they actually have.

### ***The Grounding Problem***

Pluralists often cite the modal differences between the constituting and constituted object as a reason for affirming their distinctness. Pluralists therefore face the challenge of accounting for these differences: what could possibly explain, say, why the lump of clay but not the statue can survive being squashed? This (or something in the vicinity) is what's called "the grounding problem" for pluralism. The grounding problem is advanced in Heller 1990, Burke 1992, Zimmerman 1995, Olson 2001, and Sidelle 2014. Responses have been offered in Rea 1997b, Bennett 2004, Hawley 2006, deRosset 2011, Einheuser 2011, Sutton 2012, and Saenz 2015.

Bennett, Karen (2004), 'Spatio-Temporal Coincidence and the Grounding Problem', *Philosophical Studies* 118: 339-71.

Argues that the grounding problem should not be formulated in terms of supervenience, raises problems for conceptualist responses to the grounding problem, and defends a "brutalist" response, according to which there is nothing that explains the modal and sortal differences between coinciding objects.

Burke, Michael B. (1992), 'Copper Statues and Pieces of Copper: A Challenge to the Standard Account', *Analysis* 52: 12-17.

An early statement of the grounding problem, construed as a challenge to explain why the statue and lump belong to different kinds.

deRosset, Louis (2011), 'What is the Grounding Problem?', *Philosophical Studies* 156: 173-197.

Argues that the grounding problem should not be formulated in terms of supervenience, and that the strongest legitimate version of the grounding problem—viz. explaining the disparate modal and sortal properties of coinciding objects in other terms—can be answered by appeal to differences in identity properties (e.g., Goliath the statue but not Lump the lump has the property of being Goliath).

Einheuser, Iris (2011), 'Toward a Conceptualist Solution of the Grounding Problem', *Noûs* 45: 300-314.

Advances a conceptualist solution to the grounding problem, according to which the modal differences between coinciding objects are explained by differences in how we conceptualize them.

Hawley, Katherine (2006), 'Principles of Composition and Criteria of Identity', *Australasian Journal of Philosophy* 83: 481-493.

Advances a solution to the grounding problem according to which modal differences are grounded in the different mereological relations that constituted and constituting objects bear to their parts.

Olson, Eric T. (2001), 'Material Coincidence and the Indiscernibility Problem', *Philosophical Quarterly* 51: 337-355.

Argues that the grounding problem should be understood in terms of explanation, not supervenience, and challenges a number of early responses to the grounding problem. Also challenges the claim that there is an 'is' of constitution.

Rea, Michael C. (1997b), 'Supervenience and Co-Location', *American Philosophical Quarterly* 34: 367-375.

Articulates a supervenience principle that allows coinciding objects to differ modally, and advances a solution to the grounding problem according to which differences in the supervenience bases of coinciding objects explains their modal differences. Also addresses the too many thinkers problem (that anything coinciding with a thinking person must likewise be thinking), and the weighing problem (that if the 50 pound statue is distinct from the 50 pound lump, they should together weigh 100 pounds).

Saenz, Noël B. (2015), 'A Grounding Solution to the Grounding Problem', *Philosophical Studies* 172: 2193-2214.

Advances a solution to the grounding problem according to which the modal differences between coinciding objects are explained by differences in what grounds them.

Sutton, C. S. (2012), 'Colocated Objects, Tally-Ho: A Solution to the Grounding Problem', *Mind* 121: 703-730.

Advances a solution to the grounding problem that appeals to differences in extrinsic properties between coinciding objects (e.g., creative intentions and species membership).

Zimmerman, Dean W. (1995), 'Theories of Masses and Problems of Constitution', *The Philosophical Review* 104: 53-110.

Advances a version of the grounding problem, the too many thinkers problem (that anything coinciding with a thinking person must likewise be thinking), and the weighing problem (that if the 50 pound statue is distinct from the 50 pound lump, they should together weigh 100 pounds).

### ***Hylomorphism and Formal Parts***

Aristotle advanced a "hylomorphic" view of material objects on which they are in some sense "compounds" of form and matter, and many pluralists align themselves with this Aristotelian tradition. Some such pluralists embrace a *mereological* hylomorphism, according to which the constituted object has formal parts that the constituting object does not share. For defenses, see Fine 2008, Koslicki 2008, Sattig 2015, and Korman and Carmichael 2016. See McDaniel 2001 and Paul 2006 for neighboring views on which constituted objects have nonmaterial parts not shared by their constituters. Johnston 2006 and Evnine 2016 place themselves in the Aristotelian hylomorphic tradition while denying that constituted objects have forms as parts. Texts from critics of hylomorphism include Sidelle 2014 and Fairchild 2017.

Evnine, Simon J. (2016), *Making Objects and Events* (Oxford: Oxford University Press).

Defends a version of hylomorphism without forms, applying it to artifacts (both material and abstract), organisms, and events.

Fairchild, Maegan (2017), 'A Paradox of Matter and Form', *Thought* 6: 33-42.

Argues that plenitudinous versions of hylomorphism (like Fine 2008) are subject to a version of Russell's paradox, forcing hylomorphists to look elsewhere for a non-arbitrary account of which forms combine with matter to generate an object.

Fine, Kit (2008), 'Coincidence and Form', *Proceedings of the Aristotelian Society* 82: 101-118.

Defends a mereological hylomorphic account of coinciding objects.

Johnston, Mark (2006), 'Hylomorphism', *The Journal of Philosophy* 103: 652-698.

Defends a non-mereological hylomorphism according to which both the matter and a "principle of unity" enter into the real definition of the constituted object, and argues that this yields a solution to the grounding problem.

Korman, Daniel Z. and Carmichael, Chad (2016), 'Composition', *Oxford Handbooks Online*. DOI: 10.1093/oxfordhb/9780199935314.013.9

Argues, pace Sidelle 2014, that mereological hylomorphism (if true) provides an adequate response to the grounding problem.

Koslicki, Kathrin (2008), *The Structure of Objects* (Oxford: Oxford University Press).

An extended defense of a mereological hylomorphic account of coinciding objects

McDaniel, Kris (2001), 'Tropes and Ordinary Physical Objects', *Philosophical Studies* 104: 269-290.

Defends a view according to which objects are partly composed of tropes, and shows how the view can help solve the problem of material constitution.

Paul, L. A. (2006), 'Coincidence as Overlap', *Noûs* 40: 623-659.

Advances a view in the neighborhood of mereological hylomorphism on which constituted objects and the objects that constitute them have different de re modal properties as parts.

Sattig, Thomas (2015), *The Double Lives of Objects* (Oxford: Oxford University Press).

Advances a "quasi-hylomorphic" view according to which a constituted object is a mereological fusion of a hunk of matter that has all its parts essentially and a special kind of fact, and argues that this view—together with a distinction between different modes of predication—can resolve the problem of material constitution without having to deny any intuitive claims about the identity or modal features of constituting and constituted objects.

Sidelle, Alan (2014), 'Does Hylomorphism Offer a Distinctive Solution to the Grounding Problem?', *Analysis* 74: 397-404.

Argues that the grounding problem cannot be solved by appeal to differences in form.



### *Same-Kind Coincidence*

Pluralism is sometimes rejected on the grounds that it violates intuitive principles prohibiting material objects from being co-located. In response to this objection, Wiggins 1968 contends that it is only objects *of the same kind* that are prohibited from being colocated. Putative counterexamples have been raised in Fine 2000 and Spolaore 2012. The restriction to same-kind coincidence is sometimes traced back to Locke 1979; Gordon-Roth 2015 discusses competing interpretations of Locke's remarks. Lewis 1976 defends the possibility of distinct but coinciding persons.

Fine, Kit (2000), 'A Counter-example to Locke's Thesis', *Monist* 83: 357-61.

Presents a case of same-kind coincidence involving two letters written on opposite sides of a piece of stationary.

Gordon-Roth, Jessica (2015), 'Locke's Place-Time-Kind Principle', *Philosophy Compass* 10: 264-74.

Provides a critical overview of the different interpretations of Locke's prohibition on same-kind coincidence.

Lewis, David (1976), 'Survival and Identity', in Amelie O. Rorty (ed.), *The Identities of Persons* (Berkeley: University of California Press), pp. 17-40.

Advances a response to puzzles of personal identity involving fission according to which they involve distinct but temporarily coinciding persons.

Locke, John (1979), *An Essay Concerning Human Understanding* (Oxford: Oxford University Press).

Endorses a prohibition on coinciding objects, at least when they belong to the "same kind": "For we never finding, nor conceiving it possible, that two things of the same kind should exist in the same place at the same time, we rightly conclude, that whatever exists any where at any time, excludes all of the same kind, and is there it self alone" (II.xxvii.1). Originally published in 1689.

Spolaore, Giuseppe (2012), 'Not Just a Coincidence: Conditional Counter-examples to Locke's Thesis', *Thought* 1: 108-115.

Criticizes a number of putative examples of same-kind coincidence, and advances a counterexample of his own that is meant to improve on them, involving a large thin net rolled into a rope, which is then woven into a small thick net.

Wiggins, David (1968), 'On Being in the Same Place at the Same Time', *The Philosophical Review* 77: 90-95.

Argues that pluralism is compatible with anti-coincidence constraints since, correctly understood, they prohibit only objects of the same kind from coinciding.

## **MONISM**

Monists maintain that the constituted object (e.g. the statue) is identical to the constituting object (e.g. the lump of clay). Monists face the problem of accounting for the apparent differences between the constituted and constituting object, particularly the apparent temporal and modal differences. Monist strategies can be divided up in terms of whether they reject intuitive characterizations of the modal and temporal profiles of constituting objects; reject intuitive characterizations of the modal and temporal profiles of constituted objects; or affirm both (apparently incompatible) characterizations.

### ***Phasalism and Mereological Essentialism***

One option for addressing the apparent differences between the statue and lump is to deny that statues have the temporal and modal profiles that we ordinarily associate with statues, and to affirm that they have the profiles that we ordinarily associate with lumps. *Phasalists* say that statuehood is merely a temporary phase of the lump: the statue did exist before the lump came to be statue-shaped but it was not a statue at the time, and it will survive squashing but will at that point cease to be a statue. Phasalism has been defended in Price 1977 and Della Rocca 1996 and is challenged in Sidelle 1998. *Mereological essentialists* deny that statues are capable of surviving the loss of any of their parts. Mereological essentialism has been defended in Chisholm 1976 and Van Cleve 1986 and is challenged in Sider 2001.

Chisholm, Roderick M. (1976), *Person and Object* (London, George Allen and Unwin).

Advances a mereological essentialist response to the "growing problem" of material constitution and develops a paraphrase strategy to account for the intuitive mereological flexibility of objects.

Della Rocca, Michael (1996), 'Essentialists and Essentialism', *The Journal of Philosophy* 93: 186-202.

Deploys Kripke-style rephrasal strategies to reconcile monism with intuitions about the modal profiles of statues and lumps.

Price, Marjorie S. (1977), 'Identity Through Time', *The Journal of Philosophy* 74: 201-217.

Advances a phasalist response to the puzzles of material constitution, and develops a paraphrase strategy to account for the apparent inability of constituted entities to survive squashing.

Sidelle, Alan (1998), 'A Sweater Unraveled: Following One Thread of Thought for Avoiding Coincident Entities', *Noûs*, 32: 423–448.

Exposes the difficulties of developing a satisfactory phasalist account.

Van Cleve, James (1986), 'Mereological Essentialism, Mereological Conjunctivism, and Identity Through Time', *Midwest Studies in Philosophy* 11: 141-156.

Explores different versions of mereological essentialism and its relationship to the thesis of mereological universalism, and argues for mereological essentialism on the strength of its ability to address coincidence puzzles.

### ***Dominant Kinds***

Another option for the monist in addressing the apparent differences between the statue and lump is to deny that statue-shaped lumps have the temporal and modal profiles that we ordinarily associate with lumps, and affirm that they have those that we ordinarily associate with statues. According to the *doctrine of dominant kinds*, the lump that now coincides with (and is identical to) the statue did not exist before the sculpting began and cannot survive squashing. The lump the sculptor purchased to make the statue ceased to exist once the statue was made, and the lump that would be left behind were the statue crushed would be a different lump from the one that now constitutes the statue. The doctrine is defended in Burke 1994 and Rea 2000, and has been challenged in Lowe 1995 and Sider 2001.

Burke, Michael B. (1994), 'Preserving the Principle of One Object to a Place: A Novel Account of the Relations Among Objects, Sorts, Sortals, and Persistence Conditions', *Philosophy and Phenomenological Research* 54: 591-624.

Introduces and defends the dominant kinds solution to the problem of material constitution.

Lowe, E.J. (1995), 'Coinciding Objects: In Defence of the "Standard Account"', *Analysis* 55: 171-8.

Challenges Burke's dominant kinds solution to the problem of material constitution.

Rea, Michael C. (2000), 'Constitution and Kind Membership', *Philosophical Studies* 97: 169-193.

Builds on Burke 1994, developing the dominant kinds solution, showing that it generalizes to a wider range of material constitution puzzles, and improving on Burke's original account of what it is to be a dominant kind.

### ***Contingent Identity, Counterpart Theory, and Abelardianism***

Some monists try to have it all. They affirm that the lump can survive squashing, they deny that the statue can survive squashing, but they insist that the lump and statue do not differ in any of their properties (and therefore are not in violation of Leibniz's Law). The idea is that 'can survive squashing' is context-sensitive, and the property being attributed to the lump in 'the lump can survive squashing' is different from the property that the statue is said not to have in 'the statue cannot survive squashing'. This enables monists to hold that the constituted and constituting object are identical but only contingently so. Noonan 1991 dubs these *Abelardian* approaches. Lewis 1986 develops the Abelardian approach in terms of counterpart theory: modal attributions express different counterpart relations in different contexts. Gibbard 1975 and Noonan 1991 defend alternative Abelardian approaches. Such approaches are criticized in Sidelle 2010, Barker and Jago 2014, and Cray 2014.

Barker, Stephen and Mark Jago (2014), 'Monism and Material Constitution', *Pacific Philosophical Quarterly* 95: 189-204.

Argues that Abelardians cannot account for the asymmetry of the constitution relation: the lump constitutes the statue, but not vice versa. (A version of the objection can also be found in Paul 2010.)

Cray, Wesley (2014), 'Inconstancy and Content', *Dialectica* 68: 337-353.

Argues that Abelardians cannot account for certain linguistic data involving disagreement across contexts, and advances a (non-indexical contextualist) monist alternative to Abelardianism, on which *de re* modal predicates express the same property across contexts.

Gibbard, Allan (1975), 'Contingent Identity', *Journal of Philosophical Logic* 4: 187-221.

Presents the classic case of Lump1 and Goliath—a statue and lump that permanently coincide—and advances a monist solution to the problem of material constitution on which Lump1 and Goliath are contingently identical.

Lewis, David (1986), *On the Plurality of Worlds* (Malden: Blackwell).

Advances a counterpart-theoretic account of the apparent modal differences between coinciding objects, as well as an argument from temporary intrinsics for perdurantism.

Noonan, Harold W. (1991), 'Indeterminate Identity, Contingent Identity and Abelardian Predicates', *Philosophical Quarterly* 41: 183-193.

Advances an Abelardian treatment of the problem of material constitution.

Sidelle, Alan (2010), 'Modality and Objects', *Philosophical Quarterly* 60: 109-125.

Criticizes counterpart-theoretic and other Abelardian resolutions of the problem of material constitution.

### ***Stage Theory and Temporal Counterpart Theory***

According to four-dimensionalism, the three-dimensional objects that we see exist only for an instant. Whereas perdurantists (see \*Perdurantism\*) hold that these three-dimensional objects are mere temporal parts of ordinary objects like statues and lumps, stage theorists (a.k.a. exdurantists) hold that such ordinary objects are themselves instantaneous three-dimensional objects. Stage theorists often deploy a temporal counterpart theory to reconcile apparently conflicting attributions of temporal properties, for instance that the lump but not the statue used to be ball-shaped, and to accommodate the intuition that both have been around for longer than an instant. Texts by stage theorists include Sider 1996, Hawley 2001, and Sider 2001; see Moyer 2008 for criticism. Fara 2008 and Fara 2012 further develop a temporal (and modal) counterpart theory.

Fara, Delia Graff (2008), 'Relative-Sameness Counterpart Theory', *The Review of Symbolic Logic* 1: 167-189.

Develops an alternative to the standard Lewisian counterpart-theoretic treatment of the statue and clay.

Fara, Delia Graff (2012), 'Possibility Relative to a Sortal', *Oxford Studies in Metaphysics* 7: 3-40.

A more informal companion piece to Fara 2008.

Hawley, Katherine (2001), *How Things Persist* (Oxford: Oxford University Press).

A book-length defense of stage theory, including a stage-theoretic treatment of the problem of material constitution.

Moyer, Mark (2008), 'Why We Shouldn't Swallow Worm Slides: A Case Study in Semantic Accommodation', *Noûs* 42: 109-138.

Challenges stage theorists' attempts to reconcile their metaphysics of instantaneous objects with ordinary judgments about the identity of those objects across time.

Sider, Theodore (1996), 'All the World's a Stage', *The Australasian Journal of Philosophy* 74: 433-453.

Advances a stage-theoretic response to the problem of material constitution, supplemented by a defense of temporal counterpart theory.

Sider, Theodore (2001), *Four-Dimensionalism* (Oxford: Clarendon).

Defends a stage-theoretic response to the problem of material constitution—supplemented by a defense of temporal counterpart theory—and criticizes a variety of other responses to the problem.

### ***Nonmodal Differences***

Monist treatments of the apparent differences between constituted and constituting objects are often tailor-made to handle modal and temporal differences between them. But these are not the only apparent differences between them. First, the statue but not the lump has arms and legs as parts. Second, the statue but not the lump has the property of being constituted by the lump. Third, the statue may be well made, valuable, and Romanesque, while the lump has none of these features. The first sort of difference is discussed in Baker 2000 and Wasserman 2002; the second, in Paul 2010 and Barker and Jago 2014; the third in Fine 2003, Fine 2006, Frances 2006, and King 2006.

Fine, Kit (2003), 'The Non-identity of a Thing and its Matter', *Mind* 112: 195-234.

Challenges Abelardian treatments of de re modal predications, and identifies a number of nonmodal differences between constituting and constituted objects that resist Abelardian treatment.

Fine, Kit (2006), 'Arguing for Non-identity: A Response to King and Frances', *Mind* 115: 1059-1082.

Defends his arguments from Fine 2003 against the objections from Frances 2006 and King 2006.

Frances, Bryan (2006), 'The New Leibniz's Law Arguments for Pluralism', *Mind* 115: 1007-1021.

Develops a monist response, which is phasalist in spirit, to Fine's putative nonmodal and nonsortal differences between constituted and constituting objects.

King, Jeffrey C. (2006), 'Semantics for Monists', *Mind* 115: 1023-1058.

Develops a monist response, which is Abelardian in spirit, to Fine's putative nonmodal and nonsortal differences between constituted and constituting objects.

Wasserman, Ryan (2002), 'The Standard Objection to the Standard Account', *Philosophical Studies* 111: 197-216.

Critically assesses the suggestion that the statue and lump do not share all of their ordinary spatial parts (e.g. ears and arms) and examines the prospects of invoking mereological differences between them to solve the grounding problem.

## RELATIVE AND TEMPORARY IDENTITY

A remaining range of responses to the problem of material constitution, which resist neat classification as either monist or pluralist, maintain that there is no absolute answer to the question of whether the constituting and constituted object are identical. According to the relative identity theory advanced in Geach 1980, an object  $o_1$  may be the same lump as an object  $o_2$  and yet may not be the same statue as  $o_2$ . According to the temporary identity theories advanced in Myro 1997 and Gallois 1998, a lump and statue may be identical at one time and distinct at a later time. Texts critical of these “deviant” accounts of identity include Perry 1970, Sider 2001, Wiggins 2001, and Hawthorne 2006.

Gallois, André (1998), *Occasions of Identity* (Oxford: Clarendon Press).

An extended defense of a temporary identity approach.

Geach, Peter T. (1980), *Reference and Generality*, 3<sup>rd</sup> edition (Ithaca: Cornell).

Advances a relative identity approach to the problem of material constitution as well as the problem of the many. Originally published in 1962, but the discussion of the problem of the many appears only in the 1980 edition.

Hawthorne, John (2006), ‘Identity’, in his *Metaphysical Essays* (Oxford: Oxford University Press), pp.1-30.

Criticizes both Geach 1980 and Myro 1997.

Myro, George (1997), ‘Identity and Time’ in Rea 1997a, pp.148-172.

Advances a temporary identity approach to the problem of material constitution. Originally published in 1986.

Perry, John (1970), ‘The Same F’, *Philosophical Review* 79: 181-200.

A classic critique of Geach’s relative identity theory.

## PERSONS AND BODIES

Problems of material constitution also arise for persons and their bodies (or organisms): we would seem to have the same parts and locations as our bodies, and yet persons and bodies seem to have different persistence conditions (as evidenced by well-known thought experiments from the personal identity literature). Some extend their treatment of the statue/lump case to the case of persons, for instance Lewis 1971, Baker 2000, Hawley 2001, and Sider 2001. Others don’t: Chisholm 1976, for instance, argues that the mereological essentialist treatment of material constitution shouldn’t be extended to the case of persons. See Olson 2003, Zimmerman 2003, and Carmichael forthcoming for special versions of the problem that arise in connection with persons.

Baker, Lynne Rudder (2000), *Persons and Bodies* (Cambridge: Cambridge University Press).

A book-length defense of a constitutionalist (pluralist) treatment of persons and their bodies.

Carmichael, Chad (forthcoming), 'How to Solve the Problem of Dion and Theon Without Losing Your Head', *Mind*. <https://doi.org/10.1093/mind/fzy021>

Responds to the Dion/Theon problem, in which a man (Dion) loses a foot and thereby comes to be entirely colocated with what was once a large proper part of him (Theon) consisting of all of him minus the foot. Carmichael argues that the problem can be solved by denying the existence of Theon but without having to deny the existence of such ordinary parts of Dion as his head.

Lewis, David (1971), 'Counterparts of Persons and Their Bodies', *The Journal of Philosophy* 68: 203-211.

Advances a counterpart-theoretic account of the apparent modal differences between persons and their bodies.

Olson, Eric T. (2003), 'An Argument for Animalism', in Raymond Martin and John Barresi (eds.), *Personal Identity* (Oxford: Blackwell), pp. 318-334.

Argues that persons must be identical to organisms, on pain of the too many thinkers problem that arises for pluralists about persons and organisms.

Zimmerman, Dean W. (2003), 'Material People' in Michael Loux and Dean W. Zimmerman (eds.), *The Oxford Handbook of Metaphysics* (Oxford: Oxford University Press).

Argues that persons must be immaterial objects, on pain of the too many thinkers problem that arises for pluralists about persons and organisms.