

Abstracta are Causal

Abstract

Many philosophers think all abstract objects are causally inert. Here, focusing on novels, I argue that some abstracta are causally efficacious. First, I defend a straightforward argument for this view. Second, I outline an account of object causation—an account of how objects (as opposed to events) cause effects. This account further supports the view that some abstracta are causally efficacious.

1. Introduction

When Harriet Beecher Stowe's novel *Uncle Tom's Cabin* was published in 1852, "its effect," wrote Frederick Douglass, was "amazing, instantaneous, and universal." (1892/2003: 202) Although it was banned throughout much of the South, Stowe's readers in the North swelled the abolitionist cause. The story spread that President Lincoln had told Stowe that she was "the little lady who started this great war" (although sources differ on whether he actually did). It would be philosophically interesting, however, if the novel had any effect. For, the novel is abstract. It has no spatial location.¹ Its copies are located in space, but the novel itself is nowhere. At least, I will suppose this is true. Moreover, the orthodox view is that all abstracta are causally inert—that they neither cause effects nor are causally affected.² I will argue against this orthodoxy. Focusing

¹ I offer no account here of what makes abstract objects abstract. Although I assume that abstract objects have no spatial location, there are issues with positing this as a full account of abstractness. For instance, mental objects (and God according to some theists) are neither abstract nor spatially located.

² See, for instance, Bach (1987: 12), Balaguer (2001: 1), Dodd (2000: 431), Dummett (1973: 493), Friedman (2005: 288), van Inwagen (2007: 200), Juvshik (2018), Linsky and Zalta (1995: 252), and Parsons (2008: 1). Note that Dodd (2007) changed his mind and argued that some abstracta are causal.

on *Uncle Tom's Cabin*, I will argue, in agreement with Julian Dodd (2007: 13-15), that some abstracta cause effects.

There are three main places in the literature where philosophers argue that abstracta are causal. First, some philosophers argue that abstract artifacts are causal in virtue of being artifacts. Abstract artifacts, unlike eternal abstracta (e.g. numbers), come into existence when people create them. Potential examples of abstract artifacts include novels, words, languages, fictional characters, musical works, corporations, chess teams, and reggae bands.³ Stuart Brock, Cei Maslen, and Justin Ngai (2013), as well as Martin Lin (2017), argue that if there are abstract artifacts, then people causally affect them. This is plausible. After all, if there are abstract artifacts, then people presumably *cause* them to exist.

The second place where philosophers argue that abstracta are causal is in response to Paul Benacerraf's (1973) puzzle about how we can have mathematical knowledge, given a causal theory of knowledge. Max Cresswell (2010), for instance, argues that propositions, conceived as abstracta, are causal. He claims, roughly, that a proposition's being true makes it causal.⁴ Penelope Maddy (1990: 59-67) responds to Benacerraf, in part, by arguing that we perceive certain sets, such as a set of eggs in a carton.⁵

The third key part of the literature is Julian Dodd's argument that musical works and films, conceived as abstracta, are causal (Dodd 2007: 13-15). Roughly, he claims that intuitively these things have effects (e.g. when a film causes a riot) and that no objection shows otherwise.

³ See, for instance, Thomasson (1999), Salmon (1998), and Zsvolensky (2015) for defenses of fictional characters being abstract artifacts, Kaplan (1990) for a defense of words being such, Levinson (1980) and Evnine (2007) for a defense of musical works being such, and Cole (2004) for a defense of corporations being such. See, for instance, Dodd (2000) and Kivy (1987) for defenses of the view that musical works are discovered rather than created.

⁴ More precisely, Cresswell thinks propositions are causal in some sense but non-causal in another sense.

⁵ Maddy no longer endorses this view of sets. See, for instance, Maddy (2007), especially Part IV.

My discussion differs from these approaches in the following ways. First, although I will focus on *Uncle Tom's Cabin*, which is plausibly an artifact, I will not rely on it being an artifact. I will not claim it was created and thereby causally affected (although I am sympathetic to this claim). Indeed, I will not argue that any abstracta are causally *affected*. I will argue instead that they are causally *efficacious*—that they cause effects. When I say something causes an effect, this is consistent with it being a partial cause. It need not wholly cause the effect.

Second, my argument is broader than Cresswell's and Maddy's arguments about propositions and sets, respectively. My argument applies to all, or almost all, abstract objects, including Stevie Wonder's album *Songs in the Key of Life* and the number π . I should note also that Maddy's argument that certain sets are perceptible relies on those sets being spatially located. Understood in this way, such sets are not abstract, at least given how I use the term.

Third, though Dodd's approach and mine are similar, a difference lies in our argumentation. Dodd and I agree that abstracta intuitively cause effects and that no objection shows otherwise.⁶ Whereas Dodd (2007: 15) quickly concludes that no objection shows that abstracta are not causal, I will argue against several objections (Sections 3 and 4).

Fourth, and finally, unlike any theorist mentioned thus far, I will give an account of what it is for an object, abstract or concrete, to cause an effect (Section 5). This account explains object causation in terms of event causation and causal explanation. Hopefully the account will interest even theorists who deny that abstracta are causal.

The paper will proceed as follows. Focusing on *Uncle Tom's Cabin*, I will defend a straightforward argument for the view that some abstracta are causally efficacious (Sections 2-4). Next, I will explain my account of object causation (Section 5). This account will further support

⁶ Dodd and I agree also that objects are causal in virtue of events being causal. Dodd (2007: 13-14) discusses this view. I employ this view in Section 5.

the view that some abstracta are causally efficacious. I will close by showing how my argument applies to abstracta other than novels (Section 6).

2. The Straightforward Argument

Consider (1):

(1) *Uncle Tom's Cabin* caused many Americans to support abolition.

(1) ostensibly means *Uncle Tom's Cabin*—the abstract novel—caused many Americans to support abolition. Accordingly, (1) ostensibly implies that some abstracta are causally efficacious. Supposing that certain historical facts obtain (e.g. facts about antebellum attitudes toward slavery), there is a commonsense intuition that (1) is true. These considerations motivate an argument:

P1: (1) is true.

P2: If (1) is true, then some abstracta are causally efficacious.

C: Some abstracta are causally efficacious.

Many people won't be persuaded by this argument. It is natural to think something like the following: "I accept that people say things like (1), but that doesn't show that some abstracta are causal. Perhaps (1) is, strictly speaking, false—in which case P1 is false. Or, perhaps (1) is true but, contrary to appearances, doesn't imply that some abstracta are causal—in which case P2 is false. I'm unsure which premise is false, but I suspect one of them is. We shouldn't infer such a bold metaphysical claim from the fact that we talk in a certain way."

This response doesn't say which premise is false. Ultimately, in order to evaluate the argument we must examine the premises individually. To this end I will consider opponents who take a stand on which premise is false. I will call those who reject P1 'error theorists.' They think

(1) is false, despite seeming true. I will call those who reject P2 ‘paraphrasers.’ They think (1) should be paraphrased in such a way that it does not imply that some abstracta are causal.

3. Error Theorists

Error theorists grant that things that are related to *Uncle Tom’s Cabin* caused many Americans to support abolition. The event of *Uncle Tom’s Cabin* being published, events of people reading it, and maybe even physical copies of the novel all had this effect. But *Uncle Tom’s Cabin* itself did not cause anything to happen. (1) might seem true but is false. So the error theorists say.

Error theorists should try to justify their counterintuitive claim that (1) is false. They could adopt a strict view of causation, according to which only events are causal. On this strict view, rocks never cause windows to break. Instead, *events* of rocks hitting windows have this effect. This strict view implies that novels aren’t causal and thus that (1) is false.

I reject this strict view. I think concrete objects, in addition to events, are causes.⁷ Note that at least some of my opponents, including Mark Balaguer (2001: 1) and Joel Friedman (2005: 288), think that what it *is* to be abstract is, at least in part, to be causally inefficacious. Consequently, they would face a problem were they to claim that concrete objects are causally inefficacious. Anyone who nonetheless rejects object causation may interpret me as arguing for a conditional: if concrete objects are causes, then some abstract objects are, too.

Error theorists, then, should try to justify their claim that (1) is false, while accepting that concrete objects are causes. I will consider four ways they can try to do this. First, error theorists may appeal to a view that in order for an object to cause an effect it must push or touch, directly or indirectly, an object that is part of the effect. I will call this *the pushing-touching view*. If this view were correct, then abstracta—since they cannot push or touch anything—would be causally

⁷ For rhetorical purposes I am talking as if events are not objects.

inefficacious. (1) would be false. Second, error theorists may claim that in order for an object to cause an effect the object must transfer energy (or momentum) to an object that is part of the effect.⁸ I will call this *the energy transfer view*. It also conflicts with (1), since abstracta cannot transfer energy. Third, error theorists may argue that (1) is false by arguing that it implies causal overdetermination. Fourth, error theorists may appeal to an intuition that (1) is false.

I will first criticize the pushing-touching view and the energy transfer view. Neither view handles what Jonathan Schaffer (2000) calls “causation by disconnection.” This occurs when a cause stops something from preventing an effect. Here is an example. A closed living room window is preventing rain from damaging my television. Foolishly, I open the window. This enables rain to damage my television. Intuitively, I cause my television to get wet. This result conflicts with the pushing-touching view. For, I neither push nor touch, directly or indirectly, the television. The result conflicts also with the energy transfer view. For, I do not transfer energy to the television. Causal omissions raise similar problems. I cause my plant to die by not watering it. But I don’t push or touch it, directly or indirectly. Nor do I transfer energy to it. For these reasons, I reject the pushing-touching view and the energy transfer view.⁹

The pushing-touching view and the energy transfer view potentially face another problem. They both contradict interpretations of quantum mechanics that include causation at a distance—a phenomenon that occurs when two causally connected objects are too far apart to have directly or indirectly come into contact or for there to have been energy transfer.¹⁰

⁸ Fair (1979) offers a seminal defense of this view.

⁹ Brock, Maslen, and Ngai (2013: 76) offer very similar criticisms to those I have offered here. See Callard (2007) for further criticisms. See, for instance, Dowe (2004) and Beebe (2004) for criticisms of causation by disconnection and causal omissions.

¹⁰ Granted, some interpretations of quantum mechanics (and alternatives to quantum mechanics) are, at least arguably, consistent with there being no causation at a distance. See, for instance, Price (1996) for related discussion of many-worlds interpretations, many-minds interpretations, and retrocausal interpretations. Proponents of the energy transfer view may insist we eschew interpretations that include causation at a distance. This raises

This brings us to the third strategy listed above: arguing that (1) is false, since it implies causal overdetermination. Error theorists may argue as follows. Many Americans read concrete copies of *Uncle Tom's Cabin* and subsequently supported abolition. If the abstract novel were a cause in addition to its concrete copies, then the effect would be overdetermined. Error theorists who think overdetermination is metaphysically impossible may conclude that novels are not causal and that (1) is false. This causal exclusion argument resembles those of Jaegwon Kim (1993) and Trenton Merricks (2001). There is a key difference. Kim argues against the existence of irreducibly mental properties. Merricks argues against the existence of medium-sized objects (e.g. tables and baseballs). The current argument accepts that abstract novels exist but argues they are not causal.

My response to this argument is that I accept overdetermination. A baseball and its microphysical parts may both cause a window to break. Likewise, an abstract novel and its concrete copies caused Americans to support abolition. Following Ted Sider (2003), I suspect nothing is metaphysically problematic with overdetermination.¹¹

Tim Juvshik (2018) thinks overdetermination presents an epistemic, rather than metaphysical, problem. He claims, "There is no reason to attribute causal efficacy to abstract objects because all the causal work is done by concreta." He would claim we don't need to appeal to the abstract novel *Uncle Tom's Cabin* to explain why Americans supported abolition. We can appeal instead merely to concrete copies of the novel. Error theorists may conclude, not that there is anything metaphysically problematic about (1) being true, but simply that we have

methodological questions about whether a metaphysical theory of causation should influence how we interpret quantum mechanics.

¹¹ Alternatively, one could argue that these cases do not genuinely involve causal overdetermination. See Thomasson (2007), especially Chapter 1, for related discussion.

no reason to think it is true.¹²

My response to this line is that we have a reason to think (1) is true. It is *intuitively* true. This provides a reason. Granted, it's a defeasible reason, but error theorists need to defeat it. No objection considered on their behalf thus far suffices. Moreover, I will give another reason to accept (1) in Section 5. There I will show that an independently plausible account of object causation gives evidence for (1).

This brings us to the fourth strategy listed above. Error theorists may argue that (1) is false, because they have an intuition that it is false. I have two concerns with this approach. First, I wonder whether people have pre-theoretical intuitions that (1) is false. Among error theorists I have surveyed, some have claimed that (1) seems false. I think at least some error theorists who claim that (1) seems false are relying on theoretical commitments, such as the view that causation requires energy transfer. Such error theorists should clarify and defend their theoretical commitments. I have explained why I reject three candidates: the pushing-touching view, the energy transfer view, and causal exclusion arguments. Second, if some error theorists have a pre-theoretical intuition that (1) is false, then, unless they have further objections, they and I are merely at an impasse. As mentioned above, in Section 5 I will show that a plausible account of object causation gives evidence for (1). This may break the impasse, if there is one.

I will consider no other way for error theorists to justify their claim that (1) is false. It looks like P1 is true. At least, it is hard for error theorists to refute P1.

4. Paraphrasers

¹² Juvshik himself is likely not an error theorist. He is ostensibly more sympathetic to the paraphrasing strategy considered in Section 4.

Paraphrasers accept P1 but reject P2. P2 states that if (1) is true, then some abstracta are causally efficacious. (1) ostensibly means that *Uncle Tom's Cabin*—the abstract novel—caused many Americans to support abolition. Paraphrasers, however, deny that (1) should be interpreted in this straightforward way. One way they may deny this is by claiming that '*Uncle Tom's Cabin*' in (1) is a metonym. (2) and (3) contain paradigmatic examples of metonyms.

(2) The ham sandwich forgot to pay the bill.

(3) The sax has the flu.

On natural readings of these sentences 'the ham sandwich' and 'the sax' are metonyms. These terms denote a different sort of thing from what they normally denote. Instead of denoting a sandwich, 'the ham sandwich' in (2) denotes a person who ordered one. 'The sax' in (3) denotes a saxophonist instead of a saxophone. Paraphrasers may argue that '*Uncle Tom's Cabin*' behaves similarly in (1). On this line, in (1) '*Uncle Tom's Cabin*' does not denote the abstract novel *Uncle Tom's Cabin*. It instead denotes copies of the novel. Although (1) ostensibly attributes causal powers to an abstract object, it attributes them to concreta.

Anaphoric data, however, suggests that '*Uncle Tom's Cabin*' is not a metonym:

#(2a) The ham sandwich left a big tip; it was delicious.

(2b) The ham sandwich left a big tip; she won the lottery recently.

#(3a) The sax has the flu; it's covered in bacteria.

(3b) The sax has the flu; she'll be back next week.

In (2a) 'the ham sandwich' is metonymous, and it's infelicitous to follow it with a pronoun ('it') that purportedly denotes a sandwich. It's fine, however, to follow it with a pronoun ('she') that denotes a person who ordered a sandwich. (3a) and (3b) exemplify a similar trend. To put the point generally: it is felicitous for an anaphoric pronoun to denote what its metonymous

antecedent *presently* denotes; it is *infelicitous* for an anaphoric pronoun to denote the sort of object its metonymous antecedent *normally* denotes.

Contrast the above data with the following:

(1a) *Uncle Tom's Cabin* caused many Americans to support abolition; it was the most popular novel of the 19th Century.

#(1b) *Uncle Tom's Cabin* caused many Americans to support abolition; many of them have been lost and will never be found.

In (1a) 'it' clearly denotes the novel *Uncle Tom's Cabin*. In (1b) 'them' purportedly denotes copies of the novel. If '*Uncle Tom's Cabin*' in (1) denoted copies, we would expect (1a) to be *infelicitous* and (1b) to be *felicitous*. The opposite is true. This suggests that '*Uncle Tom's Cabin*' in (1) denotes the novel itself.¹³

Paraphrasers face another problem. According to the current proposal, (1) is synonymous with (1c).

(1c) Copies of *Uncle Tom's Cabin* caused many Americans to support abolition.

(1c), however, has different truth conditions from (1). For example, imagine an earthquake made copies of *Uncle Tom's Cabin* hit someone in the head. The victim, unaware of the copies' content and merely as a result of the injury, suddenly opposed slavery and persuaded many Americans to support abolition. (1c) in such a scenario would be true, but (1) would not. Copies of *Uncle Tom's Cabin* would have caused many Americans to support abolition, but *Uncle Tom's Cabin* wouldn't have. This is another reason to think '*Uncle Tom's Cabin*' in (1) does not denote copies.

¹³ One might think the culprit in (1b) is the plural pronoun 'them', given that its antecedent, '*Uncle Tom's Cabin*', is a singular term. But it will not help to replace 'them' with a singular pronoun that purportedly denotes anything other than the novel. For instance, '*Uncle Tom's Cabin* caused many Americans to support abolition; much of it (=the total collection of copies of *Uncle Tom's Cabin*) has been lost' is *infelicitous*, even though the anaphoric pronoun purportedly denotes a single object (the *collection* of copies of the novel).

For all of these reasons, it still looks like P2 is true. I hope to have shown at least that it's hard for paraphrasers to refute P2. This concludes my defense of both premises of the straightforward argument.

5. Object Causation

Here, I will show that my conclusion—that some abstracta are causally efficacious—is consistent with a plausible account of object causation. In doing so I will explain object causation in terms of event causation and causal explanation. I will not give an account of these more fundamental notions.¹⁴

Let us start with a paradigmatic case of object causation. Alia throws a rock at a window, resulting in the window's breaking. Plausibly, the rock is causally efficacious in virtue of the fact that the event of Alia throwing the rock at the window caused it to break. This suggests the following account of object causation:

(4) An object *o* causes an effect iff there is an event involving *o* that causes the effect.¹⁵

(4), however, provides an insufficient condition for object causation. Suppose Alia holds a hammer in her left hand and throws a rock at a window with her right hand, resulting in a window's breaking. (4) predicts, incorrectly, that the hammer causes the window to break, since the event of *Alia holding the hammer and throwing the rock at the window* involves the hammer and causes the window to break.

¹⁴ See Burgess and Rosen (1997: 23-25), Caplan and Matheson (2004: 118-121), and Rosen (2017) for discussion about why it is hard to give an account of object causation that allows for concreta, but not abstracta, to be causal. These texts inspired this section of the paper.

¹⁵ Recall that when I talk of objects causing an effect, this is consistent with them being merely partial causes.

Intuitively, the hammer, unlike the rock, does not play a *relevant* role in the event of Alia holding the hammer and throwing the rock at the window; the hammer's involvement in that event is not relevant to the window's breaking. This suggests another account of object causation.

OC: An object *o* causes an effect iff

there is a causal explanation of the form *E, because C*, where *E* describes an effect and *C* describes an event that causes the effect, such that *o* is involved in that event and *C* relevantly denotes *o* (where *C* relevantly denotes *o* iff its denoting *o* adds to the explanatory value of the causal explanation).¹⁶

OC predicts, correctly, that the rock causes the window to break. There's a causal explanation—namely, 'the window broke, because Alia threw the rock at the window'—that meets the criteria outlined in OC. The explanation describes the event of Alia throwing a rock. The rock is involved in this event. And, the explanation *relevantly* denotes the rock, since its denotation of the rock adds to the explanatory value of the explanation. In other words, the denotation of the rock helps to explain why the window broke. OC predicts correctly that the hammer does *not* cause the window to break. For, the causal explanation 'the window broke, because Alia held the hammer and threw the rock at the window' does not relevantly denote the hammer; its denotation of the hammer does not help to explain why the window broke.

OC covers causation by disconnection. It predicts, correctly, that I cause my television to get wet when I open a window that allows rain to hit the television. For, the causal explanation 'The television got wet, because I opened the window' relevantly denotes me.

Given how well OC handles these cases it seems to be at least a good start at explaining object causation. OC bolsters my case for the causal efficacy of abstracta. OC predicts that *Uncle Tom's Cabin* caused many Americans to support abolition. For, the causal explanation 'Many

¹⁶ I assume all causal explanations are true. This is purely terminological.

Americans supported abolition, because they read *Uncle Tom's Cabin*' relevantly denotes the novel. The same is true of 'Many Americans supported abolition, because Harriet Beecher Stowe wrote *Uncle Tom's Cabin*.'

6. Conclusion

I have argued that some abstracta are causal, focusing on novels. In doing so I have placed pressure on my opponents, specifically error theorists and paraphrasers. I have also outlined an independently plausible account of object causation that supports my conclusion. For these reasons, we should doubt the orthodox view that all abstracta are causally inert.

I will close by noting that my argument extends to many other abstracta. Take Stevie Wonder's album *Songs in the Key of Life*. Listening to the album—an abstract object—inspired Mary J. Blige and George Michael to record a cover of the song "As." This motivates a straightforward argument:

Premise: *Songs in the Key of Life* caused Mary J. Blige and George Michael to record a duet.

Premise: If *Songs in the Key of Life* caused Mary. J. Blige and George Michael to record a duet, then some abstracta are causally efficacious.

Conclusion: Some abstracta are causally efficacious.

We can give similar arguments about mathematical abstracta. Suppose, as is likely true, that some mathematicians have lost sleep thinking about π . Call one such mathematician "Taylor." Suppose Taylor lost sleep, because she tried to find a new proof that π is irrational. We may give the following argument.

Premise: π caused Taylor to lose sleep.

Premise: If π caused Taylor to lose sleep, then some abstracta are causally efficacious.

Conclusion: Some abstracta are causally efficacious.

Error theorists may reject the first premise. They may claim that π didn't cause Taylor to lose sleep; it was merely her attempt to find a proof that had this effect. Paraphrasers may reject the second premise. They may claim that ' π caused Taylor to lose sleep ' implies merely that Taylor's thoughts about π caused her to lose sleep. The objections I raised to error theorists and paraphrasers regarding *Uncle Tom's Cabin* apply here, *mutatis mutandis*. Moreover, we can give similar arguments for any abstract object, at least for any that people think about.¹⁷

References

- Bach, Kent (1987). *Thought and Reference*. Oxford: Oxford University Press.
- Balaguer, Mark. (2001). *Platonism and Anti-Platonism in Mathematics*. Oxford: Oxford University Press.
- Beebe, Helen. (2004). "Causing and Nothingness." In J. Collins, N. Hall, and L. Paul (eds.), *Causation and Counterfactuals*. MIT Press, 291-308.
- Benacerraf, Paul. (1973). "Mathematical Truth," *Journal of Philosophy*, 70: 661–79
- Brock, Stuart, Cei Maslen, and Justin Ngai. (2013). "A Puzzle About Fictional Characters" in *Fictionalism to Realism: Fictional and Other Social Entities*, Carola Barbero, Maurizio Ferraris, and Alberto Voltolini (eds.), Cambridge: Cambridge University Press.

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- Burgess, John P. and Gideon Rosen. (1997). *A Subject With No Object: Strategies for Nominalistic Interpretation of Mathematics*. Oxford: Clarendon Press.
- Callard, Ben. (2007). "The Conceivability of Platonism." *Philosophia Mathematica* 15(3): 347-356.
- Caplan, Ben and Carl Matheson. (2004). "Can A Musical Work Be Created." *British Journal of Aesthetics* 44(2): 113-134.
- Cole, Julian. (2004). "An Abstract Status Function Account of Corporations." *Philosophy of the Social Sciences* 44(1):23-44.
- Cresswell, Max. (2010). "Abstract entities in the causal order." *Theoria* 76: 249-265.
- Dodd, Julian. (2000). "Musical Works as Eternal Types." *British Journal of Aesthetics* 40(4).
- Dodd, Julian. (2007). "Works of Music: An Essay in Ontology." Oxford: Oxford University Press.
- Douglass, Frederick (2003). *The Life and Times of Frederick Douglass*. Dover Publications.
- Dowe, Phil. (2004). "Causes are Physically Connected to their Effects: Why Preventers and Omissions are not Causes." In Hitchcock, Christopher. (ed) *Contemporary Debates in Philosophy of Science*, chapter 9, Blackwell, 2004.
- Dummett, Michael A. E. (1973). *Frege: Philosophy of Language*. Harper & Row.
- Evnine, Simon. (2009). "Constitution and Qua Objects in the Ontology of Music." *British Journal of Aesthetics* 49(3): 203-217.
- Fair, David. (1979). "Causation and the Flow of Energy." *Erkenntnis* 14: 219-250.
- Friedman, Joel. (2005) "Modal Platonism, An Easy Way To Avoid Ontological Commitment To Abstract Entities." *Journal of Philosophical Logic* 34(4).

- van Inwagen, Peter. (2007). "A Materialist Ontology of the Human Person". *Persons: Human and Divine* (van Inwagen, Zimmerman, eds.): 199-215. Oxford: Oxford University Press.
- Juvshik, Tim. (2018). "Abstract Objects, Causal Efficacy, and Causal Exclusion." *Erkenntnis* 83 (4): 805-827.
- Kaplan, David. (1990). "Words," *Aristotelian Society Supplementary Volume* 64 (1): 93-119.
- Kivy, Peter. (1987). "Platonism in Music: Another Kind of Defense." *American Philosophical Quarterly* 24: 3, 233-244.
- Kim, Jaegwon. (1993). *Supervenience and Mind*. Cambridge: Cambridge University Press.
- Levinson, Jerrold. (1980). "What a Musical Work is." *Journal of Philosophy* 70:1, 5-28.
- Lin, Martin. (2017). "Time, Causation, and Abstract Objects." Unpublished Manuscript.
- Linsky, Bernard and Edward Zalta. (1995). "Naturalized Platonism versus Platonized Naturalism." *The Journal of Philosophy*. 92:10, 525-555.
- Maddy, Penelope. (1990). *Realism in Mathematics*. Oxford: Oxford University Press.
- Maddy, Penelope. (2007). *Second Philosophy: A Naturalistic Method*. Oxford: Oxford University Press.
- Merricks, Trenton. (2001). *Objects and Persons*. Oxford: Oxford University Press.
- Parsons, Charles. (2008). *Mathematical Thoughts and Its Object*. Cambridge: Cambridge University Press.
- Price, Huw. (1996). *Time's Arrow and Archimedes' Point: New Directions for the Physics of Time*. Oxford: Oxford University Press.
- Rosen, Gideon. (2017). "Abstract Objects." *The Stanford Encyclopedia of Philosophy*. Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/spr2017/entries/abstract-objects/>>.

Schaffer, Jonathan. (2000). "Causation by Disconnection" *Philosophy of Science* 67(2): 285-300.

Sider, Theodore. (2003). "What's so Bad About Overdetermination?" *Philosophy and Phenomenology Research*. 719-726.

Thomasson, Amie. (1999). *Fiction and Metaphysics*. Cambridge: Cambridge University Press.

Thomasson, Amie. (2007). *Ordinary Objects*. Oxford: Oxford University Press.

Zsvolensky, Zsófia. (2015). "An Argument for Authorial Creation." *Organon F* 22 (4): 461-487.