A response to Liebesman and Magidor on copredication

Matthew Gotham
University of Oxford

11th Semantics and Philosophy in Europe Colloquium,
University of Warsaw, 22 September 2019

Outline

Introduction

Copredication: the phenomenon

(1)   Nobody understood the lecture, which lasted an hour.

(2)   Lunch was delicious but took forever.   (Asher 2011: 11)

(3)   The bank was vandalized after calling in Bob's debt.

(4)   London is so unhappy, ugly and polluted that it should be destroyed and rebuilt 100 miles away.

(Chomsky 2000: 37).

Characterization

- Using two (or more) senses of a polysemous word 'at the same time', e.g. a single instance of *lecture* to mean information and event, *bank* to mean institution and building, etc.
- Predicates with apparently conflicting requirements applied to the same argument (felicitously), e.g. *delicious* requiring its argument to denote food while *took forever* requiring its argument to denote an event, etc.

We'll work with elements of both characterizations.

- Philosophical

  What (if anything) is the referent of nouns supporting copredication (NSCs) like *lecture*, *lunch* and *bank*?

- Compositional

  How can a treatment of copredication square with an account of semantic (in)felicity?

- Individuation and counting

Issues of counting and individuation

> *Suppose the library has two copies of Tolstoy's* War and
> Peace*, Peter takes out one, and John the other. Did
> Peter and John take out the same book, or different
> books? If we attend to the material factor of the lexi-
> cal item, they took out different books; if we focus on
> its abstract component, they took out the same book.
> We can attend to both material and abstract factors
> simultaneously...*

<div align="right">(Chomsky 2000: 16)</div>

- If copredication involves using more than one sense of a word at once, which sense (or what else) is used for quantification?
- Concretely, ...

Suppose we have the situation shown in Figure 1. Is (5) true? How about (6), and (7)?

Figure 1: Three copies of *Miracles* on a shelf

(5)   There are three books on the shelf.

(6)   There are three books by C.S. Lewis.

(7)   There are three books by C.S. Lewis on the shelf.

And what about the situation shown in Figure 2?

C.S. Lewis
Space Trilogy:

*Out of the
Silent Planet*

Perelandra

*That Hideous
Strength*

Figure 2: One copy of the *Space Trilogy* on a shelf

(5) There are three books on the shelf.

(6) There are three books by C.S. Lewis.

(7) There are three books by C.S. Lewis on the shelf.

- *Book* is an NSC, which can simultaneously designate a physical volume and informational content.
- If we count physical copies, then (5)–(7) are true in Figure 1, but false in Figure 2. If we count informational content, it's the other way around.
- My own judgement is that, out of the blue, (5) is true but (6) and (7) are false in Figure 1, and that this has to do with the selectional requirements of the predicate *by C.S. Lewis*.
- Contrast with the situation shown in Figure 2. My own judgement is that, out of the blue, (6) is true but (5) and (7) are false in that situation, and that this has to do with the selectional requirements of the predicate *on the shelf*.

Theories to introduce

Figure 1

$[\![book]\!]^{\mathrm{Fig.\,1}} =$

$\{\text{vol. } 1 + \text{Miracles}, \text{vol. } 2 + \text{Miracles},$

$\text{vol. } 3 + \text{Miracles}\}$

$[\![on\ the\ shelf]\!]^{\mathrm{Fig.\,1}} =$

$\{\text{vol. } 1, \text{vol. } 2, \text{vol. } 3, \text{vol. } 1 + \text{Miracles},$

$\text{vol. } 2 + \text{Miracles}, \text{vol. } 3 + \text{Miracles}\}$

$[\![by\ C.S.\ Lewis]\!]^{\mathrm{Fig.\,1}} =$

$\{\text{Miracles}, \text{vol. } 1 + \text{Miracles},$

$\text{vol. } 2 + \text{Miracles}, \text{vol. } 3 + \text{Miracles}\}$

Figure 2

C.S. Lewis
Space Trilogy:
Out of the Silent Planet
Perelandra
That Hideous Strength

$\llbracket book \rrbracket^{\text{Fig. 2}} =$

{vol. $1 + $ *Out of the Silent Planet*,

vol. $1 + $ *Perelandra*,

vol. $1 + $ *That Hideous Strength*}

$\llbracket on\ the\ shelf \rrbracket^{\text{Fig. 2}} =$

{vol. 1, vol. $1 + $ *Out of the Silent Planet*,

vol. $1 + $ *Perelandra*,

vol. $1 + $ *That Hideous Strength*}

$\llbracket by\ C.S.\ Lewis \rrbracket^{\text{Fig. 2}} =$

{*Out of the Silent Planet*, *Perelandra*, *That Hideous Strength*,

vol. $1 + $ *Out of the Silent Planet*, vol. $1 + $ *Perelandra*,

vol. $1 + $ *That Hideous Strength*}

- $+$ is mereological fusion.
- Books *qua* physical+informational composites have the properties of their components–e.g. vol. 1+*Miracles* is on the shelf by virtue of vol. 1 being on the shelf, and is by C.S. Lewis by virtue of *Miracles* being by C.S. Lewis.
- *X* and *Y* are physically (informationally) equivalent iff they share a physical (informational) component. E.g.:
    - vol. $1 +$ *Perelandra* and vol. $1 +$ *That Hideous Strength* are physically, but not informationally, equivalent.
    - vol. $1 +$ *Miracles* and vol. $2 +$ *Miracles* are informationally, but not physically, equivalent.

Interpretations

⟦(5) *There are three books on the shelf*⟧ ≡
There is a plurality of three books, all of which are on the shelf
and no two of which are physically equivalent to each other.
(True in Figure 1, false in Figure 2.)

⟦(6) *There are three books by C.S. Lewis*⟧ ≡
There is a plurality of three books, all of which are by C.S. Lewis
and no two of which are informationally equivalent to each
other.   (True in Figure 2, false in Figure 1.)

⟦(7) *There are three books by C.S. Lewis on the shelf*⟧ ≡
There is a plurality of three books, all of which are on the shelf
and by C.S. Lewis and no two of which are physically or
informationally equivalent to each other.
                                  (False both in Figure 1 and Figure 2.)

- Compositionally, in these interpretations the physical equivalence condition is contributed by the predicate *on the shelf* and the informational equivalence condition by the predicate *by C.S. Lewis*.
- I'll henceforth call *on the shelf* a **physical indicator** and *by C.S. Lewis* an **informational indicator**.

- A distinctive of L&M's approach is that, contrary to a commonly-held assumption, informational objects **can** have physical properties (and vice versa), by 'property inheritance'.
- There's no general theory of when property inheritance happens, i.e. no theory that tells you,
  - for an arbitrary physical property *P*, how many copies of an informational book *b* have to have *P* for *b* to have *P*, or
  - for an arbitrary informational property *P* and informational book *b* such that *b* has *P*, which (if any) copies of *b* have *P*,
- but it's clear from their writings that in Figure 1 *Miracles* can be on the shelf by virtue of vol. 1, which instantiates it, being on the shelf.

Interpretations

Figure 1

$[\![book]\!]^{\text{Fig. 1}} = [\![on\ the\ shelf]\!]^{\text{Fig. 1}} =$
$[\![by\ C.S.\ Lewis]\!]^{\text{Fig. 1}} = \{\text{vol. 1}, \text{vol. 2}, \text{vol. 3},$
$$Miracles\}$$

(It's actually debatable whether L&M would take the physical volumes to be in
$[\![by\ C.S.\ Lewis]\!]$, but that's incidental to my point.)

Figure 2

| C.S. Lewis |
| *Space Trilogy*: |
| *Out of the* |
| *Silent Planet* |
| *Perelandra* |
| *That Hideous* |
| *Strength* |

$\llbracket book \rrbracket^{\text{Fig. 2}} = \llbracket on\ the\ shelf \rrbracket^{\text{Fig. 2}} =$
$\llbracket by\ C.S.\ Lewis \rrbracket^{\text{Fig. 2}} =$
$\{\text{vol. } 1, Out\ of\ the\ Silent\ Planet,$
$\ Perelandra, That\ Hideous\ Strength\}$

Individuation by domain restriction

An obvious objection to this account is that it seems to predict that (8) is true in both situations.

(8)   Four books are on the shelf.

- L&M's response is that this objection doesn't take account of contextual restriction, which is ultimately the explanation for the judgements we get.
- In any given context, *Miracles* and two copies of *Miracles* are not counted as three books for the same (or a similar) reason that in any given context, red and two shades of red are not counted as three colours.
- Which books **do** get counted in any given context is a matter of pragmatics (and L&M don't provide a detailed theory of this).
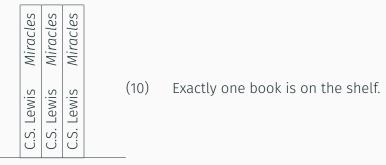
More on property inheritance

L&M also offer a further positive argument that (e.g.) informational books **can** be on shelves, based on (9) and (T1–T3) (Liebesman & Magidor 2017: 138–141).

(9)   *War and Peace* is on the top shelf.

(T1)   *[(9)] has the simple subject/predicate form of atomic sentences, in which "War and Peace" is the subject and "is on the top shelf" is the predicate.*

(T2)   *"War and Peace" in [(9)], in the envisioned context, designates an informational book.*

(T3)   *"is on the top shelf" in [(9)], in the envisioned context, designates the same property as when it is used to ascribe a property to a physical entity.*

Critique of L&M's theory...

According to the proposal in Gotham 2014, 2017, (10) is false in
Figure 1.

(10)   Exactly one book is on the shelf.

- But according to L&M it 'has a true reading', namely one in
  which ⟦*book*⟧ is contextually restricted to {*Miracles*}.
- The claim is that books can be individuated (purely)
  informationally even in a context where the only indicator
  is physical (in my terms): *on the shelf*.

Outline of a response

- L&M claim that sentences like (10) have readings that I don't allow for, and their 'property inheritance' theory does.
- I respond: to the extent these readings exist, they're the result of meaning transfer.
    - Therefore, they're not evidence of property inheritance.
    - There is, furthermore, linguistic evidence **against** property inheritance from very similar sentences, which can be accounted for if we suppose that meaning transfer is going on.
- I'll also argue that L&M's positive argument for property inheritance doesn't go through.

'Property inheritance' is not an answer to copredication

- Recall that for L&M, there is no categorial conflict between physical (informational) properties and informational (physical) objects.
- For example, (10) 'has a true reading' in Figure 1 because *Miracles* really is on the shelf.
- But then, what is wrong with (11) in Figure 3?

(11)   Exactly one book is on the shelf. #It is (also) on the floor.

(10)   Exactly one book is on the shelf.

(12)   Exactly one book is on the floor.

Figure 3: Three copies of *Miracles* on a shelf, and two on the floor

Although L&M don't offer a general theory of property inheritance, it's clear enough from these examples that (in their terms):

- It's sufficient for a single copy of an informational book *b* to be on the shelf for *b* to be on the shelf–surely (10) 'has a true reading' in Figure 3 it if has one in Figure 1.
- It's sufficient for a single copy of an informational book *b* to be on the floor for *b* to be on the floor–surely (12) 'has a true reading' in Figure 3 if (10) does.

So if *Miracles* can inherit the property of being on the shelf from any copy of it on the shelf, and the property of being on the floor from any copy of it on the floor, what's wrong with (11)?

A disanalogy

Note that this kind of puzzle doesn't arise from other examples of property inheritance that L&M give. For example, they draw the following analogy (Liebesman & Magidor 2017: 138):

> *Complex objects can inherit properties from their proper parts [...] For a table to have the property of touching a wall it suffices for just some of its parts to touch the wall. By contrast, a person may be animate even though each of their proper parts is inanimate.*

But in the case of complex objects, anaphoric reference invoking a property inherited from a different part doesn't cause anomaly, as (13) shows.

(13)   The table is touching the wall. It is also touching the floor.

A reviewer offers the following possible counterargument:
> *[I]t feels to me that it [(11)] improves greatly if you dis-*
> *ambiguate and specify that it's in virtue of there being*
> *one informational book.*

> *(14)   Exactly one book is on the shelf: [*Miracles*]. It is*
> *   also on the floor.*

To me, it seems that (14) is acceptable because of the extra
discourse referent; *Miracles* (and not *exactly one book*) is now
the antecedent for *it*.

A claim

> There **is** a categorial conflict between (e.g.) physical properties and informational objects.

That takes us back to the question of why (15) should be acceptable, if *Miracles* denotes an informational object (which can't be on a shelf).

(15)   *Miracles* is on the shelf.

It also raises the question of why (16) should be at least better than (11). And what should we make of (10) in Figure 1?

(16)   *Miracles* is on the shelf. ?It is also on the floor.

(10)   Exactly one book is on the shelf.

Copredication and meaning transfer

> To the extent that (10) or (15) can be true in Figure 1, this is the result of 'meaning transfer' (Nunberg 1995).

The poster case of this phenomenon is (17) (Nunberg 1995: 110).

(17)   I am parked out back.

- Nunberg's analysis is that in (17) the predicate *parked out back* has undergone a contextually-induced meaning transfer so that it no longer means 'parked out back' but (roughly) 'the driver of a vehicle that is parked out back'.
- Semi-formally, the property *P* is mapped onto the property of being $f(x)$, where $x \in P$ and f is some contextually-salient function.

Back to our examples

- By the same token, in the reading of (10) understood as true in Figure 1, as in (15), *on the shelf* has has undergone a contextually-induced meaning transfer so that it no longer means 'on the shelf' but 'instantiated by a physical object on the shelf'.
- In other words, (10) can be true in Figure 1 for essentially the same reason that (18)–(19) can be felicitous, and true in Figure 1.

(18)   Lewis is on the shelf.

(19)   Exactly one author is on the shelf.

Presumably L&M would agree that (18)–(19) involve meaning transfer or something similar.

L&M also need meaning transfer or something like it in any case; they appeal to 'deferred reference' to account for why (20) can be true if uttered by someone who had picked up a blue copy of *War and Peace* the previous week, when the copy being pointed to is red (Liebesman & Magidor 2017: 153–154):

(20)   Hey, I picked up that read book from the library last week!

But then, why can't meaning transfer see to it that (11) is interpreted as shown in (21)?

(11)   Exactly one book is on the shelf. It is also on the floor.

(21)   a.   Exactly one (informational) book is {instantiated by a volume that's [on the shelf]}.
         b.   The unique (informational) book that's {instantiated by a volume that's [on the shelf]} is also {instantiated by a volume that's [on the floor]}.

(Brandtner's (2011) notation for meaning transfer)

Constraints

Meaning transfer is obviously constrained. Nunberg (1995) suggests the following constraints:

- **Salience**: The function f is salient.
- **Noteworthiness**: The bearer becomes contextually noteworthy by virtue of begin $f(x)$.

Brandtner (2011: §8.3) gets us closer with a constraint that applies specifically to cases of predicate conjunction, where (on her assumptions) the first predicate is interpreted in its original sense and the second undergoes meaning transfer.

- **Coherence**: The original and derived predicates must in a predicate coherence relation (based on Kehler 2004).

Restricted coherence

Instead I'll make the following related suggestion:

> If two predicates apply to the same argument, then they may not **both** undergo meaning transfer unless the discourse that results from applying meaning transfer is coherent in a restricted sense.

I won't attempt, here, to work out in detail what this restricted sense of coherence amounts to. Instead, I'll just point to what I take to be the relevant difference between (16) and (11).

Look at the interpretations of the two clauses of (16), using Brandtner's notation for meaning transfer.

(22)   a.   *Miracles* is {instantiated by a volume that's [on the shelf]}.

          b.   *Miracles* is also {instantiated by a volume that's [on the floor]}.

(22a–b) can both be taken to be answers to the same question under discussion (QUD, Roberts 2012), namely 'Where can I find a copy of *Miracles*?'. The resulting discourse therefore meets quite a stringent coherence requirement.

In contrast, look at the interpretations of the two clauses of (11).

(23)   a.   Exactly one (informational) book is {instantiated by a volume that's [on the shelf]}.

       b.   The unique (informational) book that's {instantiated by a volume that's [on the shelf]} is also {instantiated by a volume that's [on the floor]}.

- (23a–b) are not parallel in the way that (22a–b) are: (23a) is most naturally interpreted as the answer to the QUD 'How many informational books are instantiated by a volume on the shelf?'.
- That being the case, the two predicates cannot both undergo meaning transfer; therefore, at least one of them has to be interpreted in the original sense.

Coherence in the general case

It's important to see that (11) is not infelicitous because of a general principle of discourse coherence independent of the constraint proposed above: (24) is felicitous, and would be true in Figure 2 if the one physical volume is tattered. Nevertheless, it doesn't seem to meet whatever stingent coherence requirement rules (22a–b) in but (23a–b) out.

(24)   Exactly one book is on the shelf. It is tattered.

So if informational books really could be on shelves just like physical books can, then we should expect (11) to be felicitous in the way that (24) is. But it's not, so informational books are not on shelves.

But what of L&M's positive argument that informational books can be on shelves? Recall that this depends on (T3).

(T3)   "is on the top shelf" in [War and Peace *is on the top shelf*], in the envisioned context, designates the same property as when it is used to ascribe a property to a physical entity.

L&M defend (T3) by pointing to examples of ellipsis like (25) (Liebesman & Magidor 2017: 141),

(25)   *War and Peace* is on the top shelf, as is Ofra's blue pencil.

and arguing...

(26) *War and Peace* is on the top shelf, as is Ofra's blue
      pencil.

In [(26)] we attribute the very same property to War and Peace as we do to Ofra's blue pencil. Since the latter is a physical entity, then the property we attribute to War and Peace is the very same property we can attribute to physical entities.

Ellipsis and meaning transfer

But it seems to be possible in an ellipsis sentence for the phonologically null VP to have the **original** interpretation of the VP it depends on, while the VP it depends on has a **transferred** meaning.

(27)   I'm parked on a double-yellow line. But then, several other cars are, too.

(28)   Lewis is on the top shelf, as are several old posters I haven't gotten rid of yet.

Sentences like (26) don't show that informational books can be on shelves, any more than (27) shows that people can be parked on lines, or (28) shows that authors can be on shelves.

- Recall that in L&M's system, you count (some combination of) physical and informational books.
- There's no reading of a copredication sentence that **requires** that you count different copies of different books (both physically and informationally distinct).
- Liebesman & Magidor (2017: 154–156) deny that such readings exist.

A scenario

In the world of the novel *Fahrenheit 451* by Ray Bradbury, suppose the resistance divide up the book memorization task by colour. When asked how it's going, you're told

(29)   Granger has memorized three red books already.

This can't be three (red) copies of the same book, or three books in one (red) volume.

...And a concession

Double distinctness always?

- The theory of Gotham 2014, 2017 enforces double distinctness as **the** reading for **all** copredication sentences.
- In Gotham 2014: §3.6.1 I acknowledge the problem for sentences like (30a–b), and L&M press home the point.

(30)   a.   Three informative books are heavy.
        b.   Three heavy books are informative.

Imagine that a certain library has a project of dusting each of its (physical) books. Moreover, since the informative books are much more popular among readers than the uninformative ones, they decide to start the project by dusting all the informative (physical) books in the library. Now, in that context, one can appropriately utter [(30a)]   *(Liebesman & Magidor 2017:*
155)

Gotham 2014, 2017:

Expression	Equiv relation
books	PHYS ⊓ INFO
heavy books	(PHYS ⊓ INFO) ⊔ PHYS = PHYS
n *heavy books are informative*	PHYS ⊔ INFO

'There are *n* heavy and informative books, no two of which are PHYS ⊔ INFO-equivalent to each other'

Expression	Equiv relations
books	$\{\text{PHYS} \sqcap \text{INFO}\}$
heavy books	$\{\text{PHYS} \sqcap \text{INFO}, \text{PHYS}\}$
n *heavy books* *are informative*	$\{\text{PHYS} \sqcap \text{INFO}, \text{PHYS}, \text{INFO}, \text{PHYS} \sqcup \text{INFO}\}$

- 'There are *n* heavy and informative books, no two of which are f ($\{\text{PHYS} \sqcap \text{INFO}, \text{PHYS}, \text{INFO}, \text{PHYS} \sqcup \text{INFO}\}$)-equivalent to each other'
- f is a contextually-determined choice function
- In the default case, $f = \sqcup$

Conclusion

Summary

- Copredication is a philosophical and compositional-semantic puzzle.
- 'Property inheritance' is a wrong turn in addressing it.
- Some apparent cases of copredication could be instances of meaning transfer (Brandtner 2011), but not all (Gotham 2014: §4.4).
- The truth conditions of sentences involving NSCs are sensitive to the indicators in them…
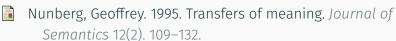- …but that effect can be pragmatically overriden.

This research is funded by the

References

📄 Asher, Nicholas. 2011. *Lexical meaning in context: A web of words*. Cambridge: Cambridge University Press.

📄 Brandtner, Regine. 2011. *Deverbal nominals in context: Meaning variation and copredication*. University of Stuttgart dissertation. https://doi.org/10.18419/opus-5722.

📄 Chomsky, Noam. 2000. *New horizons in the study of language and mind*. Cambridge: Cambridge University Press.

📄 Gotham, Matthew. 2014. *Copredication, quantification and individuation*. University College London dissertation.

Gotham, Matthew. 2017. Composing criteria of individuation in copredication. *Journal of Semantics* 34(2). 333–371. https://doi.org/10.1093/jos/ffw008.

Kehler, Andrew. 2004. Discourse coherence. In Laurence R. Horn & Gregory Ward (eds.), *The handbook of pragmatics*, 241–265. Oxford: Blackwell.

Liebesman, David & Ofra Magidor. 2017. Copredication and property inheritance. *Philosophical Issues* 27. 131–166. https://doi.org/10.1111/phis.12104.

Liebesman, David & Ofra Magidor. 2019. Copredication, counting, and criteria of individuation: A response to Gotham. *Journal of Semantics*. https://doi.org/10.1093/jos/ffz002.

Nunberg, Geoffrey. 1995. Transfers of meaning. *Journal of Semantics* 12(2). 109–132.

Roberts, Craige. 2012. Information stucture in discourse: Towards an integrated formal theory of pragmatics. *Semantics and Pragmatics* 5(6). 1–69. https://doi.org/10.3765/sp.5.6.