# Individuation criteria and copredication: modification in context[1]

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**Abstract.** When instances of copredication (e.g., *damaged, insightful book*) are combined with quantification such as that provided by numerals (e.g., *three damaged, insightful books*), it has been argued that the result is a *double-distinctness* interpretation. For instance, 'three damaged insightful books, each of which are physically distinct and informationally distinct from the others' (see, e.g, Gotham, 2017; Chatzikyriakidis and Luo, 2018). However, doubt has been cast on this view by Liebesman and Magidor (2017, 2019), who provide examples where the double distinctness reading does not arise. The challenge that is taken up in this paper is to explain, in a systematic way, why quantified copredication constructions seem to have double-distinctness interpretations in simple and/or minimal contexts, and also why and on what basis these can be overridden in more elaborate contexts.

**Keywords:** countability, copredication, mereology, polysemy, Type Theory with Records

## 1. Introduction

Polysemous nouns such as *book* and *lunch* have multiple interrelated senses across domains typically assumed to be distinct. For instance, *lunch* can denote an EVevtuality as in (1a), or a PHYSical entity as in (1b), and *book* can denote a PHYSical entity as in (2a), or an INFormational entity as in (2b), and the domains for physical things, eventualities, and informational entities (e.g., propositions), are typically considered to be distinct, as encoded, for instance, in assumptions about entities in these domains being of distinct semantic types, viz., $e$, $v$, and $\langle s,t\rangle$. In addition, such nouns can license copredication as in (1c), based on Asher and Pustejovsky 2006, and (2c).

(1) a. Lunch lasted two hours. (EV)
b. Lunch was delicious. (PHYS)
c. Lunch lasted two hours and was delicious. (EV, PHYS)

(2) a. That book is too big for the shelf. (PHYS)
b. That book is insightful. (INF)
c. That book is insightful, but too big for the shelf. (INF, PHYS)

When quantification and plurality are combined with copredication, it has been argued that this necessitates so-called *double distinctness* readings (Gotham, 2014, 2017, 2021). For instance, sentences such as (3) are assumed to require that the three books are not only physically distinct, but also informationally distinct (no duplicate copies), which, if true, demands a compositional analysis such as those provided by Gotham (2017) and Chatzikyriakidis and Luo (2018).[2]

[1]I would like to thank Robin Cooper for his indispensable advice in the early stages of preparing this paper, and Louise McNally for her very helpful comments on earlier versions of my proposal. Any errors are entirely my own.

Peter Sutton received funding from the Beatriu de Pinós postdoctoral fellowships programme, funded by the Secretary of Universities and research (Government of Catalonia) and from the Horizon 2020 programme of research and innovation of the European Union under the Marie Skłodowska-Curie grant agreement no 801370.

[2]Some reports in the literature are that constructions such as *two insightful books* can be used to refer to, say, two informationally distinct books in a multi-work volume (Asher, 2011; Gotham, 2014). I tend to side with Chatzikyriakidis and Luo (2018) in finding this reading at the very least highly contextually restricted.

(3) Alex bought three insightful, thick books.

However, in recent work stemming from the philosophical metaphysics literature, it has been denied that double-distinctness readings are semantically derived (Liebesman and Magidor, 2017, 2019), given that in some cases, quantified copredication does not seem to require double distinctness. For instance that, in the right context, *Three informative books are heavy* can mean that, of some contextually salient pile of informative books, three of them are heavy (even if this includes duplicate copies). Gotham (2021) responds by arguing that such constructions have a strict reading that requires double distinctness, and a looser (pragmatic halo) reading in which such readings can be pragmatically cancelled. In essence, the debate can be summarised as whether we need a semantics to derive double distinctness readings, and a theory of pragmatic weakening to account for counter-instances, or whether all double-distinctness readings are pragmatically derived. In either case, however, we have a theoretical challenge, which can be formulated as the main question that concerns this paper:

**Main Question:** What mechanisms, semantic or pragmatic, underpin when double-distinctness readings arise, and when they do not?

My proposal is to balance a combination of semantic factors (what is lexically encoded), with more general pragmatic factors (reasoning about plausible readings in context). Semantically, I make use of Gotham's insights into the way that modifiers such as *thick* and *informative* as well as verbal predicates such as *memorise* can affect the way common nouns are individuated. However, rather than hard-coding this in the semantics of modifiers, I instead propose that they constrain the contexts via which the domains and individuation criteria of common nouns can be restricted. In a nutshell, I propose that polysemous common nouns lexically introduce a question under discussion (QUD, see e.g., Ginzburg 2012; Roberts 2012). For instance, *book* introduces a QUD that can be paraphrased as *How are we individuating books, as informational entities, physical entities, or both?*. The possible answers to this QUD can be characterised in terms of properties that restrict the individuation conditions of the polysemous noun. These properties compete, as updates to the contextual domain restriction of the common noun, with properties that are (partial) answers to any contextually specified QUDs such as *Which contextually salient pile of books is being referred to?*. Given that one QUD can be higher on the 'stack' than the other, meaning that it has priority when it comes to being answered, the contribution of modifiers can depend on which QUD is being addressed (first). Modifiers and verbal predicates constrain, in a systematic way, the available answers to these questions. The account makes the following predictions, all of which, I argue, are borne out:

Prediction 1: Double distinctness readings arise for quantified copredication utterances in neutral contexts.

Prediction 2: Double distinctness readings do not arise when there is a more prominent QUD where the use of at least one modifier in the utterance provides a (partial) answer to this QUD.

Prediction 3: Adding extra modifiers can restrict readings further, such that double distinctness readings can reemerge, depending on the restrictions introduced by the additional modifiers.

This paper is structured as follows. In section 2, I introduce the main data and and my hy-

potheses. In section 3, I give a high-level summary of the analysis in informal terms. Section 4 constitutes the majority of this paper. I briefly introduce a version of a richly typed semantic theory, Type Theory with Records (TTR, Cooper 2012, 2023), and define a family of types of properties that will be needed to articulate my account: properties of physical entities, informational entities and eventualities. Then, building on Cooper 2023, I provide a simplified notion of Kaplanian contexts such that common nouns denote characters, functions from contexts to properties. I define an extra parameter for these contexts that governs nominal contextual domain restriction in the spirit of the indexical account of Stanley and Gendler Szabó (2000) and Stanley (2002), and also include in lexical entries for common nouns a counting base (cb) field that, in this paper, governs the individuation criteria of the noun relative to a context (for related notions, see, Rothstein 2010; Landman 2011, 2016; Sutton and Filip 2019, 2020; Gotham 2017; Chatzikyriakidis and Luo 2018). My analysis of modifiers follows in which modifiers can constrain choices of answers to QUDs, either in referential terms (*Which of the salient sets of books matters for this utterance?*) or in terms of individuation, prompted by the fact that polysemous common nouns underspecify their individuation criteria (*How are we individuating books?*). Finally, I show that this approach derives the above predictions. I conclude in section 5.

## 2. Data and hypotheses

### 2.1. Main data

The main question addressed in this paper are the admissible interpretations of sentences like (4). Gotham (2014, 2017, 2021) judges that the only reading, at least strictly speaking, for such constructions is the *double distinctness* reading, which, in this case is that there are (at least) three physically distinct books that are each damaged and the contents of each is insightful such that there are no duplicate copies (each have a different contents).

(4) Three insightful books are damaged.

However, Liebesman and Magidor (2017, 2019) argue that the double distinctness reading is only one reading, and, in context, weaker readings are available. For instance, the context in (5):[3]

(5) Librarians Alex and Billie are looking for insightful books to put in a prominent display to recommend to readers. Billie sorts the books into two piles: those potentially for the display, and those that would not be suitable. Alex examines the books in the display pile and says (4) to Billie.

In such contexts, the intuition is that (4) could be true even if there are duplicate books (e.g., three copies of the same insightful book). Liebesman and Magidor (2017) rightly, in my view,

[3]The examples I use are adjusted from the one in the literature, which uses *heavy*, and *informative*. Given that *heavy* can also refer to the contents of a book (as in *heavy going*, and *informative* can be slightly awkward as a modifier of *book*, I opt for alternative modifiers. Indeed, in searching for examples to test for double distinctness readings, it is important to control for whether modifiers can themselves be polysemous. A clear example is with the abstract noun *statement*, that can be used to denote stating eventualities and the informational contents stated. (It also has a reading in which it denotes physical artefacts such as written statements, which I set aside here.) Prima facie, one might think that *defamatory* at least suggests an informational entity reading, however (i) also has a reading in which Ronald says the same thing on different occasions, but defames someone twice.

(i) Ronald made two short defamatory statements during the trial.

suggest that the reading here relates to contextual domain restriction. In this case, *insightful* can serve as a modifier that restricts the domain of quantification to those books that Billie pulled down from other shelves in the library, and seemingly does not require that they are informationally distinct from one another.

The example and context presented closely follow the exchange between Liebesman and Magidor and Gotham. However, on closer inspection, the data are more slippery and complex in at least two ways that have not, to my knowledge, been discussed in the literature. First, word order and structure matter. In the context given in (5), (6) does not so easily get the domain restriction reading (if it does at all).

(6) Three damaged books are insightful.

Furthermore, similar examples can be given with both of the modifiers in attributive position. Were Alex to instead say (7), this would seem to behave the same as (4) with respect to use on its own and also in the context given in (5).

(7) There are three damaged, insightful books.

However, reversing the order as in (8) or introducing a coordinated conjunction as in (9), again, seems to make the reading where *insightful* restricts *book* to some set of insightful books in the context less available.

(8) There are three insightful, damaged books.

(9) There are three damaged and insightful books.

At the very least this suggests the need for a dynamic approach that is sensitive to compositional structure such that contextual domain restriction, for instance, can be resolved or at least updated sub-sententially.

Second, additional modifiers can reinstate the double distinctness reading relative to the context in (5). For instance, (10) only has the double distinctness reading, since, if the two books are duplicates, Alex would not have memorised the first page of two books. That is to say that even if *insightful* can serve, not to individuate books by their distinct contents, but as a contributor to fixing a restricted domain for quantification, then additional modifier that concerns the informational contents of books such as *memorised* can re-introduce an informational distinctness requirement.

(10) I memorised the first page of three damaged, insightful books.

Notably, it matters that the extra modifier (*memorised*) concerns the informational contents of the books, for if we minimally adjust the example as in (11), where we now have additional physically relevant information, then the double distinctness reading is no longer the only one.

(11) I tore out the first page of three damaged, insightful books.

### 2.2. Hypotheses

I propose the following three hypotheses that can explain these effects. I assume that there can be multiple QUDs in a discourse context that are ordered such that the most pressing question to be addressed is 'on top of the stack' (see, e.g., Roberts, 2012; Ginzburg, 2012: and references

therein).

> **Common nouns underspecify their contextual domains:** Stanley and Gendler Szabó (2000) and Stanley (2002) analyse contextual nominal domain restriction in terms of indexicality. This means that when someone uses a common noun, N, one must determine whether there is some salient contextual parameter that restricts the extension of N. The choice of contextual domain restriction can be constrained by the QUD at the top of the stack.
>
> **Priority for QUDs first in the stack:** By default, the information in an utterance will be used to select a contextual nominal restriction for the relevant noun that (at least partially) addresses the QUD at the top of the stack. Only information in the utterance not relevant to this QUD may then be used to select a contextual restriction on the noun that (at least partially) addresses QUDs lower in the stack.
>
> **Polysemous common nouns lexically introduce an additional QUD:** When someone uses a polysemous noun, N, I propose that this introduces a QUD into the conversation along the lines of *How are we individuating Ns?* For instance, a use of *book* introduces a question: *Are we individuating books in terms of physical entities, contents, or both?*

More generally, I also assume the following condition on grammatical counting: Counting in natural languages requires identifying a quantized set of entities relative to the context (e.g., Sutton and Filip 2020, see also Krifka 1989). For instance, if Alex has read one volume containing *The Trial* and *The Metamorphosis* and Billie has read a single volume copy of *The Trial* and a single volume copy of *The Metamorphosis*, then relative to the informational reading of *book* they have read two books, and relative to he physical copy reading, they have read three books.

## 3. Analysis: informal summary

An informal analysis of the above examples with *books* runs as follows.

Deriving prediction 1: First suppose that someone utters (4), or, for that matter, (7), in a neutral context where there are no salient groups of books sorted by being insightful/not-insightful or damaged/not-damaged in the context, and neither *insightful* nor *damaged* address any overarching QUD. In this case, both *insightful* and *damaged* constrain the answer to the lexically introduced QUD (*How are we individuating books?*). The result is the double distinctness interpretation.

Deriving prediction 2: While Alex and Billie are engaged in their book search, presumably the most pressing (and top of the stack) QUD in this context is *Which books shall we put on the display?* Subquestions involved in making this decision include: *Which books are insightful?* and *Which books would look good on the display?* When Alex utters (4) while examining the piles of books Billies has made, the *Common nouns underspecify their contextual domains* assumption attaches to Alex's use of *book(s)*. In this context, both the pile of books considered insightful and the pile of books not considered insightful are salient. Since the lexically introduced QUD is lower in the stack, *insightful* does not partially answer the lexically introduced QUD (*How are we individuating books?*). Instead, Alex's use of the modifier *insightful* contributes to restricting the domain of quantification to those books in the insightful pile and, in so-doing,

addresses one subquestion of the main QUD. The use of *damaged* does not straightforwardly select a salient group of books in the wider context and so alternative nominal restriction property can be employed. One such is that introduced as an answer to the QUD lexically introduced by *book*: books that are being individuated in terms of physical distinctness, or in terms of both physical and informational distinctness. In other words, *informative* constrains which salient pile of books is being referred to, and *damaged* constrains how books are being individuated. The plausible reading of (4) is therefore: *Of the books we are considering informative, three physically distinct copies of them are damaged.* This allows for informational duplicates, in line with the reported intuitions about such cases.

Deriving prediction 3: If Alex utters (10) instead of (4) in context (5), two informationally relevant modifiers are used: *memorise* and *insightful*. Of these only the latter is relevant to the QUD set up by the context, and so *three damaged insightful books* gets the same reading as (4) does in the context: that three of the books in the insightful pile are damaged. I.e., *book* is individuated in terms of physical distinctness or both physical and informational distinctness. The use of *memorise* then further restricts this to the latter reading. Since *memorised the first page of* is not relevant to the main QUD (*Which books would look good on the display?*), this instead addresses the lexically introduced QUD (*How are we individuating books?*) and thereby restricts the individuation conditions of *three damaged insightful books* to ones that are also informationally distinct. I.e., we get the double distinctness interpretation.

If Alex utters (11) instead of (4) in context (5), again *three damaged insightful books* gets the same interpretation as in the original case. I.e., *book* is individuated in terms of physical distinctness or both physical and informational distinctness. Now, however, instead of *memorise*, Alex has used *tear out (a page from)*. Although providing extra information about what Alex does to these books, *tear out* does not further restrict the individuation criteria of *book* and so the double distinctness interpretation is not enforced.

## 4. Formal Analysis

### 4.1. Formal background: From simple type theory to a rich theory of types

Data such as (1) and (2) are taken to indicate that polysemous nouns denote not just one sense or the other in any given context, but can also denote both (see, e.g., Collins 2017). Given this distinctness of domains and types, polysemy and copredication are a challenge for semantic theories built upon the simply typed $\lambda$-calculus. For instance, in (12), assuming that types $e$ and $v$ have disjoint domains, there is no type $\tau$ (the type for variable $x$) definable in the simply typed $\lambda$-calculus that can apply to entities of type $e$ and/or of type $v$, since the only type constructor in the simply typed $\lambda$-calculus forms functional types. (See e.g., Chomsky 2000 for informal remarks to this effect and e.g. Pustejovsky 1994; Asher and Pustejovsky 2006; Asher 2011, amongst many others for a discussion of the technical challenges involved.)

(12) $[\![\text{lunch}]\!] = \lambda w.\lambda x_{\tau}\texttt{lunch}(w)(x)$ $\leftarrow$ No type $\tau$ that subsumes $e$ and/or $v$!

In short, polysemy and copredication provide a challenge for any formal semantics based upon the simply typed $\lambda$-calculus in which the referents of polysemous common nouns are entities in discrete domains. For instance, eventualities and physical entities for *lunch* and *informational entities* and physical entities for *book*.[4]

[4]I will use the broad term *informational entity* to include e..g., the denotations of CPs, the contents of books etc. I

The analysis I put forward follows in the tradition of responding to this challenge with the adoption of a semantics built upon a theory of types that is richer than the simply typed $\lambda$-calculus, namely Rich Type Theories (RTTs), examples of which include Ranta's seminal work (Ranta, 1994), Modern Type Theories (MTT, Chatzikyriakidis and Luo 2020), and Type Theory with Records (TTR, Cooper 2012, 2023). (See Sutton 2024 for an overview.) RTTs deviate from simple type theories (STTs) in two key respects:

(13) a. Types are part of the object language, not just metalanguage annotations on object language expressions.
b. Propositions are types.

The assumption of (13a) has a major impact on compositional semantics. In model theoretic semantics built upon STTs, natural language expressions are mapped to typed (basic or complex) expressions in the $\lambda$-calculus, and complex expressions are constructed compositionally, where these expressions have a set theoretic interpretation relative to a model. In RTTs, one assumes that natural language expressions are interpreted as types (basic or complex), and formal semantics relates to constructing types. Via composition, types can be arbitrarily complex, and the interpretations of declarative sentences are also thereby types. In compositionally deriving the interpretation of e.g., (utterances of) two distinct declarative sentences, we may end up with two types that share some super type (e.g., a type of situations or events), but are distinguishable not only in terms of what situations/events are of this type, but also in terms of their structure (and the way they were constructed). For instance, if *lunch_was_delicious* and *lunch_lasted_two_hours* are types, they will differ not only with respect to what situations are of this type, but also with respect to the types that they are. We thus have, not only a justification for (13b), but also a fine-grained conception of intensionality.

4.2. Type Theory with Records (TTR)

The richly typed semantics I use is Type Theory with Records (TTR, e.g., Cooper 2012, 2023). TTR distinguishes between *records* (that model situations), and *record types*, where, for some record type $T$, and record $r$, it is either the case or not that $r : T$. For example, the record in (14) represents a situation that contains an individual $a$ and some piece of the world/potential truthmaker $s_{37}$. Such entities are *values* in record. These values are labelled x and $\mathrm{c}_{\mathrm{cat}}$ respectively. Labels are used in TTR similarly to discourse referent labels in DRT (e.g., Kamp and Reyle, 1993). Labels can be used to access/pick out values.

(14) $$\begin{bmatrix} \mathrm{x} & = & a \\ \mathrm{c}_{\mathrm{cat}} & = & s_{37} \end{bmatrix}$$

The frame in (15) is a *Record Type*. Record types are used in TTR as the interpretations of e.g., declarative sentences (propositions as types). The proposition in (15) is that the value of the label x is of type *Phys* (for physical entity), and that the bit of the world labelled $\mathrm{c}_{\mathrm{cat}}$ is of the type $\mathrm{cat}(x)$. $\mathrm{cat}(x)$ is an abbreviated form of $\langle \lambda v : \mathit{Phys}(\mathrm{cat}(v)), \langle \mathrm{x} \rangle \rangle$, a type constructor that takes the value of label x, and, if that value is of type *Phys*, returns the type of situation in which the value of x is a cat. In other words, the proposition that there is some cat.

use the term *physical entity* to refer both to objects or animate individuals such as balls and cats and stuff such as air and oil.

(15) $\begin{bmatrix} \text{x} & : & \textit{Phys} \\ \text{c}_{\text{cat}} & : & \text{cat}(\text{x}) \end{bmatrix}$

The record in (14) is of the type in (15) iff $a : \textit{Phys}$ and $s_{37}$ is of type $\text{cat}(a)$.

Setting contexts aside for a moment, common nouns in TTR can interpreted as functions from records to record types, i.e. as *properties*.[5] (As shall be outlined below, following Cooper (2023), here common nouns will be analysed as functions from contexts to properties.) As a simplified example:

(16) $\lambda r : [\text{x} : \textit{Phys}]. \begin{bmatrix} \text{c}_{\text{cat}} & : & \text{cat}(r.\text{x}) \end{bmatrix}$

This function applies to any record that witnesses (i.e. contains) a physical entity, and returns the proposition that that entity is a cat. $r.\text{x}$ specifies a path that retrieves the value of the label x in $r$. The type $\text{cat}(r.\text{x})$ is therefore a dependent type: the type it is depends on the value of x in $r$. Were we to apply the record in (15) to the function in (16), this would yield the following proposition, that $a$ is a cat:

(17) $\begin{bmatrix} \text{c}_{\text{cat}} & : & \text{cat}(a) \end{bmatrix}$

4.3. Properties for polysemous nouns in TTR

Modelling polysemous nouns in TTR will require describing situations that contain not just physical entities, but also eventualities and informational entities. This requires a bit of housekeeping in defining types. I will use the labels x, i and e for *Phys*, *Inf*, and *Ev*, respectively. In order to define types of properties of entities of entities of types *Phys*, *Inf*, and *Ev*, I define the types *PhysType*, *InfType* and *EvType* ($\sqsubseteq$ is the subtype relation):

(18) $T : \textit{PhysType}$ iff $T \sqsubseteq [\text{x} : \textit{Phys}]$

(19) $T : \textit{EvType}$ iff $T \sqsubseteq [\text{e} : \textit{Ev}]$

(20) $T : \textit{InfType}$ iff $T \sqsubseteq [\text{i} : \textit{Inf}]$

For example, the type in (15) is of type *PhysType*, because it is a subtype of type $[\text{x} : \textit{Phys}]$. Since I am assuming that Ns and NPs can, minimally, be used to refer to entities of types *Phys*, *Inf*, and *Ev*, it will be convenient to define a type that is a subtype of either $[\text{x} : \textit{Phys}]$, $[\text{e} : \textit{Ev}]$, or $[\text{i} : \textit{Inf}]$.

(21) $T : \textit{OntType}$ iff $T : \textit{PhysType} \vee \textit{EvType} \vee \textit{InfType}$

These types of properties are given in (22a), (23a), and (24a), instances of properties of these types are given in (22b), (23b), and (24b), and the abbreviated notation is given in (22c), (23c), and (24c) such that (22-b,c): *PhysPpty*, (23-b,c): *EvPpty*, and (24-b,c): *InfPpty*. Similarly to Cooper 2023, I will use a notational convention for properties using $\ulcorner \ldots \urcorner$. For example, (22c) is a notational abbreviation of (22b). Notice that we are now representing properties as records with labels 'background' (bg) and 'foreground' (fg). The background allows us to access the type of the argument of the property and the foreground is the property as defined above.

[5] Properties in simply typed semantics are usually of type $\langle s, \langle e, t \rangle \rangle$. Since record types in TTR are anyway intensional, properties are treated as functions from records to record types.

(22) a. $\mathit{PhysPpty} := \begin{bmatrix} \text{bg} & : & \mathit{PhysType} \\ \text{fg} & : & (\text{bg} \rightarrow \mathit{RecType}) \end{bmatrix}$

b. $\begin{bmatrix} \text{bg} & = & [\text{x} : \mathit{Phys}] \\ \text{fg} & = & \lambda r : [\text{x} : \mathit{Phys}].[\text{c}_{\text{cat}} : \text{cat}(r.\text{x})] \end{bmatrix}$

c. $\ulcorner \lambda r : [\text{x} : \mathit{Phys}].[\text{c}_{\text{cat}} : \text{cat}(r.\text{x})] \urcorner$

(23) a. $\mathit{EvPpty} := \begin{bmatrix} \text{bg} & : & \mathit{EvType} \\ \text{fg} & : & (\text{bg} \rightarrow \mathit{RecType}) \end{bmatrix}$

b. $\begin{bmatrix} \text{bg} & = & [\text{e} : \mathit{Ev}] \\ \text{fg} & = & \lambda r : [\text{e} : \mathit{Ev}].[\text{c}_{\text{eat}} : \text{eat}(r.\text{e})] \end{bmatrix}$

c. $\ulcorner \lambda r : [\text{e} : \mathit{Ev}].[\text{c}_{\text{eat}} : \text{eat}(r.\text{e})] \urcorner$

(24) a. $\mathit{InfPpty} := \begin{bmatrix} \text{bg} & : & \mathit{InfType} \\ \text{fg} & : & (\text{bg} \rightarrow \mathit{RecType}) \end{bmatrix}$

b. $\begin{bmatrix} \text{bg} & = & [\text{i} : \mathit{Inf}] \\ \text{fg} & = & \lambda r : [\text{i} : \mathit{Inf}].[\text{c}_{\text{inf}} : \text{information}(r.\text{i})] \end{bmatrix}$

c. $\ulcorner \lambda r : [\text{i} : \mathit{Inf}].[\text{c}_{\text{inf}} : \text{information}(r.\text{i})] \urcorner$

The advantage of this approach is that, via the label bg, one can access and thereby modify the restriction on the argument for any property.

Following Sutton 2022, we can now give a first-pass lexical entry for the polysemous noun *book*:

(25) $[\![\text{book}_{\text{first pass}}]\!] = \ulcorner \lambda r : \begin{bmatrix} \text{x} & : & \mathit{Phys} \\ \text{i} & : & \mathit{Inf} \end{bmatrix} . \begin{bmatrix} \text{c}_{\text{pbook}} & : & \text{phys\_book}(r.\text{x}) \\ \text{c}_{\text{ibook}} & : & \text{inf\_book}(r.\text{i}) \\ \text{c}_{\text{theme}} & : & \text{contains}(r.\text{x}, r.\text{i}) \end{bmatrix} \urcorner$

On this analysis, *book* denotes a property of situations that contain both a physical and an informational entity. Applied to such a situation, it returns the proposition that the physical entity is a physical book, the informational entity is an informational book, and the latter is the contents of the former.[6,7]

4.4. Contextual domain restriction for common nouns

Following, e.g., Stanley and Gendler Szabó (2000) and Stanley (2002), I will treat contextual domain restriction for common nouns as a feature of the lexical entries of common nouns. Namely, that nouns denote functions from contexts to properties. As an example, *every cat*, in context, may be used to mean *every cat in my garden*. Following Cooper 2023, contexts

[6]I am somewhat sceptical about claims in the literature that something can be a book without a contents or that something can be a book without *any* physical manifestation. Of course, we can quantify over, say, informational books, and leave underspecified how, exactly, they are physically manifested.

[7]In Sutton 2022, I also claim that neo-Davidsonian-like relations such as *contents*, *theme* etc. license copredication. For instance, this is used to explain why *five-minute, two-page statement* is marked out of context, since the semantics of *statement* does not specify a relation between physical statements and stating eventualities, but only between stating eventualities and informational contents and between physical statements and informational contents.

are treated as records (i.e., situations) of some type. For the purposes of this paper, I use a somewhat simpler notion of context than Cooper 2023. For instance, a context, $c_{654}$ that only specifies the speaker as *a* and the addressee as *b* would be:

(26) a. $c_{654} = \left[\begin{array}{lcl} \text{sp} & = & a \\ \text{ad} & = & b \end{array}\right]$

b. $c_{654} : \left[\begin{array}{lcl} \text{sp} & : & \mathit{Phys} \\ \text{ad} & : & \mathit{Phys} \end{array}\right]$

I will treat contexts as containing these fields, plus one extra field labelled *domr*. This field will contain a property, namely an salient property that can intersect with the denotation of a noun yielding a contextual domain restriction. The type in (27b) is of type *CntxtType*.

(27) a. $c_{247} = \left[\begin{array}{lcl} \text{sp} & = & a \\ \text{ad} & = & b \\ \text{domr} & = & \ulcorner \lambda r : [\text{x} : \mathit{Phys}].[\text{c}_{\text{ingar}} : \text{in\_garden\_of}(\text{sp}, r.\text{x})] \urcorner \end{array}\right]$

b. $c_{247} : \left[\begin{array}{lcl} \text{sp} & : & \mathit{Phys} \\ \text{ad} & : & \mathit{Phys} \\ \text{domr} & : & \mathit{PhysPpty} \end{array}\right]$

We can use this contextually available property to model the above assumption that *Common nouns underspecify their contextual domains*. That is to say that we can define characters in the sense of Kaplan (1989). Character types have an additional field for the context type compared to property types and the foreground (fg) is a function from contexts of some type to a property. For example, for characters of physical entities (mapping to properties of physical things):

(28) a. $\mathit{PhysChar} := \left[\begin{array}{lcl} \text{cx} & : & \mathit{CntxtType} \\ \text{bg} & : & \mathit{PhysType} \\ \text{fg} & : & (\text{cx} \rightarrow (\text{bg} \rightarrow \mathit{RecType})) \end{array}\right]$

b. $\left[\begin{array}{lcl} \text{cx} & = & \left[\begin{array}{lcl} \text{domr} & : & \mathit{PhysPpty} \end{array}\right] \\ \text{bg} & = & [\text{x} : \mathit{Phys}] \\ \text{fg} & = & \lambda c : [\text{domr} : \mathit{PhysPpty}].\lambda r : [\text{x} : \mathit{Phys}].[\text{c}_{\text{cat}} : \text{cat}(r.\text{x})] \wedge c.\text{domr}(r) \end{array}\right]$

c. $\ulcorner \lambda c : [\text{domr} : \mathit{PhysPpty}].\lambda r : [\text{x} : \mathit{Phys}].[\text{c}_{\text{cat}} : \text{cat}(r.\text{x})] \wedge_{\cdot} c.\text{domr}(r) \urcorner$

In (28c), we have a function from contexts to a property of situations containing a physical entity, where this physical entity is a cat. However, if the some other property is salient in the context (e.g., that of being in the garden of the speaker), then the use of *cat* in this context can be contextually restricted to only pick out any cat that is in the speaker's garden.

4.5. Counting bases for common nouns

Finally, following e.g., Rothstein 2010; Landman 2011, 2016; Sutton and Filip 2019, 2020; Gotham 2017; Chatzikyriakidis and Luo 2018, we also assume that common nouns record their individuation conditions. The field specifying these conditions is labelled 'cb' for *counting base*.[8]

[8]Unlike the literature on the mass/count distinction, I will not, here, address context sensitivity of the kind displayed by nouns like *fence* and *sequence*. For instance, the fencing around a square field can count as one fence

For a polysemous noun such as *book*, I assume that the counting base property is underspecified with respect to being a physical property, and informational property, or both. This underspecification models the assumption above that *polysemous common nouns lexically introduce an additional QUD*.

We can now give a final lexical entry for *book*: it is a function from contexts to a property of situations containing physical and informational entities. This property can be contextually restricted and it underspecifies the basis for counting (i.e. whether we are counting informational books, physical books, or pairs of informational and physical books).

(29) $$[\![\text{book}_{\text{final}}]\!] = {}^{\ulcorner}\lambda c : [\text{domr} : \mathit{PhysPpty} \vee \mathit{InfPpty}]. \lambda r : \begin{bmatrix} \text{x} & : & \mathit{Phys} \\ \text{i} & : & \mathit{Inf} \end{bmatrix}. \begin{bmatrix} \text{c}_{\text{pbook}} & : & \text{phys\_book}(r.\text{x}) \\ \text{c}_{\text{ibook}} & : & \text{inf\_book}(r.\text{i}) \\ \text{c}_{\text{theme}} & : & \text{contains}(r.\text{x}, r.\text{i}) \\ \text{cb} & : & \mathit{PhysPpty} \vee \mathit{InfPpty} \end{bmatrix} \wedge_{\cdot} c.\text{domr}(r)^{\urcorner}$$

Although I will not formally encode my mereological assumptions here (however see e.g., Sutton and Filip 2017, 2019, 2020), I also assume that the counting base property is restricted to be a property of situations that contain only a quantized set of the relevant individuals (i.e. no individuals that stand in proper part relations to one another):

(30)
a. If the counting base property is of type *PhysPpty*, then records of this type may only specify a quantized set of physical entities.
b. If the counting base property is of type *InfPpty*, then records of this type may only specify a quantized set of informational entities.
c. If the counting base property is of type $\mathit{PhysPpty} \wedge \mathit{InfPpty}$, then records of this type may only specify a quantized set of informational entities and a quantized set of physical entities.

This encodes the above assumption regarding the *condition on grammatical counting*.

### 4.6. Adjectival modification

For adjective such as *insightful*, I propose that their function, semantically, is twofold.

(31) Semantic role of intersective adjectives:
a. Restrict the truth-conditions (by modifying the record type in the range of the function of the NP)
b. Restrict the possibilities for contextual domain restriction (by modifying the type of the *domr* field).

Regarding (31a), for *insightful book*, this simply means that *insightful* adds a condition that the content of the book is insightful (as with any regular account of intersective modification). Regarding (31b), given that *insightful* concerns informational content, when used to modify an noun, the interpretation of the NP is still a function from contexts to properties, but any

or as four fences depending on one's perspective (see, e.g., Krifka 1989: fn. 5 in relation to Partee p.c., as well as Zucchi and White 1996, 2001; Rothstein 2010).

contextual domain restriction must be of type *InfPpty*. This means, for example, that, given that *book* can be contextually restricted by properties of type *InfPpty* or *PhysPpty*, *insightful book* can be evaluated relative to a property that restricts its domain, but this property must either be solely information-related, or both informationally and physically related.

This is formalised in (32). This is a function from a property to a function from a context, to a property. I have not restricted the input property semantically, but this could be done if needed. A restriction on the context is added such that any property used for nominal domain restriction is required to be an informational property (domr : *InfPpty*), since $(PhysPpty \vee InfPpty) \wedge InfPpty$ is equivalent to $InfPpty$. The resulting property is that of a book that has an insightful contents (that can be restricted, contextually, by a property of informational things or a property of physical and informational things).

(32) $[\![\text{insightful}]\!] =$

$$\ulcorner \lambda \mathfrak{P}.\lambda c : \mathfrak{P}.cx \wedge_{:} \left[\text{domr} : \mathit{InfPpty}\right].\ \lambda r : \mathfrak{P}.\text{bg}.\ \mathfrak{P}(c)(r) \wedge [\text{s}_{\text{inf}} : \text{insightful}(r.\text{p})] \urcorner$$

This straightforwardly composes with the lexical entry for *book*. The result is a context-indexed property of insightful books, where the contextual domain restriction must in some way be informationally related. Notice that the cb field is still underspecified. This makes the proposal here substantially different from, for instance Gotham 2017 and Chatzikyriakidis and Luo 2018. In those analyses, adjectives such as *informative* constrain, directly, how we count entities that the relevant noun denotes. My proposal places a different and substantially weaker condition that the property *insightful book* denotes requires that any contextual domain restriction is, minimally informationally based. (This is consistent with one that is, e.g., informationally and physically based.)

(33) $[\![\text{insightful book}]\!] = [\![\text{insightful}]\!]([\![\text{book}]\!]) =$

$$\ulcorner \lambda c : \left[\text{domr} : \mathit{InfPpty}\right].\lambda r : \begin{bmatrix} \text{x} : \mathit{Phys} \\ \text{p} : \mathit{Inf} \end{bmatrix}.\ \begin{bmatrix} \text{s}_{\text{pb}} : \text{phys\_book}(r.\text{x}) \\ \text{s}_{\text{ib}} : \text{inf\_book}(r.\text{p}) \\ \text{s}_{\text{co}} : \text{contents}(r.\text{x}, r.\text{p}) \\ \text{cb} : \mathit{PhysPpty} \vee \mathit{InfPpty} \\ \text{s}_{\text{inf}} : \text{insightful}(r.\text{p}) \end{bmatrix} \wedge_{:} c.\text{restr}(r) \urcorner$$

Physically relevant adjectives such as *damaged* are similar to their informationally relevant cousins save for two differences: the restriction they place on the context is that any contextual domain restriction is, minimally, a physical property (where this is consistent with it being, e.g., a physical and informational property); and the restriction on the resulting property is that the physical entities that the noun denotes are damaged.

(34) $[\![\text{damaged}]\!] =$

$$\ulcorner \lambda \mathfrak{P}.\lambda c : \mathfrak{P}.cx \wedge_{:} \left[\text{domr} : \mathit{PhysPpty}\right].\ \lambda r : \mathfrak{P}.\text{bg}.\ \mathfrak{P}(c)(r) \wedge [\text{s}_{\text{dam}} : \text{damaged}(r.\text{x})] \urcorner$$

Now, we compose *damaged* with *insightful book*, the resulting property is one of books that are informationally insightful and physically damaged. Importantly, however, any property in the context that acts as a contextual domain restriction must now be one that relates to situations that witness both informational and physical entities.

(35) $[\![\text{damaged insightful book}]\!] = [\![\text{damaged}]\!]([\![\text{insightful book}]\!]) =$

$$\ulcorner \lambda c : \left[\text{domr} : \mathit{InfPpty} \wedge \mathit{PhysPpty}\right] . \lambda r : \begin{bmatrix} \text{x} : \mathit{Phys} \\ \text{p} : \mathit{Inf} \end{bmatrix} . \begin{bmatrix} \text{s}_{\text{pb}} : \text{phys\_book}(r.\text{x}) \\ \text{s}_{\text{ib}} : \text{inf\_book}(r.\text{p}) \\ \text{s}_{\text{co}} : \text{contents}(r.\text{x}, r.\text{p}) \\ \text{cb} : \mathit{PhysPpty} \vee \mathit{InfPpty} \\ \text{s}_{\text{inf}} : \text{insightful}(r.\text{p}) \\ \text{s}_{\text{dam}} : \text{damaged}(r.\text{x}) \end{bmatrix} \dot{\wedge}\, c.\text{restr}(r) \urcorner$$

4.7. Polysemous nouns lexically introduce QUDs

One of the main claims in this paper is that polysemous nouns lexically introduce QUDs of the form *how are we individuating N?*. For a noun such as *book*, for instance, there are three possible answers to this question: informationally, physically, and both informationally and physically. We can represent the lexically introduced QUD for *book* as a set of possible answers, namely the set containing (36a), (36b), and (36c). These properties are each restrictions on the cb field (the counting base field), and encode that we count informationally, physically, and both informationally and physically respectively.

(36) a. $\lambda r : \left[\ \text{p} : \mathit{Inf}\ \right] . \left[\ \text{cb} : \mathit{InfPpty}\ \right]$

b. $\lambda r : \left[\ \text{x} : \mathit{Phys}\ \right] . \left[\ \text{cb} : \mathit{PhysPpty}\ \right]$

c. $\lambda r : \begin{bmatrix} \text{x} : \mathit{Phys} \\ \text{p} : \mathit{Inf} \end{bmatrix} . \left[\ \text{cb} : \mathit{InfPpty} \wedge \mathit{PhysPpty}\ \right]$

4.8. Double distinctness readings arise in neutral contexts

Given the semantic analysis above, this makes predications about the available readings of *book*, *insightful book* and *damaged insightful book* where no other QUD is higher on the stack than the lexically introduced one, as in, e.g., out of the blue utterances of *damaged insightful book*, namely, that the only answers to the QUD given (36a)-(36c) that are available are those that are consistent with the constraints put on the 'domr' field in the context.

For *book*, that has a counting base that is underspecified with respect to informational and physical entities, any of (36a)-(36c) are available as contextual domain restrictions, and so a use of *book*, absent any other modification or contextual restriction is underspecified with respect to whether we are counting informational books, physical books, or both.

For *insightful book*, there is a stricter constraint on the context, any domain restriction must minimally relate to informational entities (see (33) above). This rules out (36b) as a possible domain restriction, and so the prediction is that, absent any overriding QUD, *insightful book* is underspecified with respect to whether entities it denotes are to be individuated on a solely informational basis, or on one that is both physical and informational, the correct restriction.

For *damaged insightful book*, there is a a yet stricter constraint on the context, any domain restriction must relate to a property of situations that witness informational and physical entities (see (35) above). This rules out (36a) and (36b) as a possible domain restriction, and so the prediction is that, absent any overriding QUD, *damaged insightful book* is not underspecified with respect to individuation: it should be individuated in terms of both informational and physical books: the double distinctness reading. With (36c) as the domain restriction property for *damaged insightful book*, we get the following where the counting base (cb) field is a meet type that ensures a double distinctness reading:

$$(37) \qquad \lambda r : \begin{bmatrix} \mathrm{x} : \mathit{Phys} \\ \mathrm{p} : \mathit{Inf} \end{bmatrix} . \begin{bmatrix} \mathrm{s_{pb}} : \mathrm{phys\_book}(r.\mathrm{x}) \\ \mathrm{s_{ib}} : \mathrm{inf\_book}(r.\mathrm{p}) \\ \mathrm{s_{co}} : \mathrm{contents}(r.\mathrm{x}, r.\mathrm{p}) \\ \mathrm{cb} : \mathit{PhysPpty} \wedge \mathit{InfPpty} \\ \mathrm{s_{inf}} : \mathrm{insightful}(r.\mathrm{p}) \\ \mathrm{s_{dam}} : \mathrm{damaged}(r.\mathrm{x}) \end{bmatrix}$$

This result captures Gotham's intuitions that restrictions on individuation are semantically encoded by modifiers. However, unlike Gotham, on my analysis, there is a caveat: this restriction only kicks in absent any QUD that overrides the one lexically introduced by the polysemous noun. This leaves room for the kinds of case discussed by Liebesman and Magidor (2017) which is one precisely where there is an overriding QUD.

4.9. Double distinctness readings do not arise when there is a more prominent QUD

The context described in (5) intuitively introduces a QUD along the lines of *Which books shall we put on the display?* Clearly, the librarians want to put insightful books on display, but not if they are damaged, since this would not look good. A partial answer to this QUD would therefore be to identify any books that are damaged, even though they are insightful. This is what Alex's utterance of *Three insightful books are damaged* in the context seems to be addressing.

Now, the context specifies that Alex says *Three insightful books are damaged* in relation to the two piles of books Billie has made. Therefore, there are at least the following two salient properties that could serve as a contextual domain restriction such that Alex's utterance would partially address the contextually set-up QUD: books in the insightful pile and books in the non-insightful pile. A simplified representation of these properties is given in (38).

$$(38) \quad \text{a.} \quad \lambda r : \begin{bmatrix} \mathrm{x} : \mathit{Phys} \\ \mathrm{p} : \mathit{Inf} \end{bmatrix} . \begin{bmatrix} \mathrm{s_{inl}} : \mathrm{in\_pile\_1}(r.\mathrm{x}) \\ \mathrm{s_{inf}} : \mathrm{insightful}(r.\mathrm{p}) \end{bmatrix}$$

$$\text{b.} \quad \lambda r : \begin{bmatrix} \mathrm{x} : \mathit{Phys} \\ \mathrm{p} : \mathit{Inf} \end{bmatrix} . \begin{bmatrix} \mathrm{s_{inl}} : \mathrm{in\_pile\_2}(r.\mathrm{x}) \\ \mathrm{s_{ninf}} : \neg\mathrm{insightful}(r.\mathrm{p}) \end{bmatrix}$$

We are assuming that it is possible for a contextually specified QUD to be higher on the stack than the QUD lexically introduced by a polysemous noun. Both of the properties in (38) are consistent with restriction on the context placed by *insightful book(s)*, since both are properties of situations that witness something physical and informational. However, only (38a) is consistent with the truth conditions of this construction, Alex has clearly ruled out that they are referring to books in the non-insightful pile. However, we also must account for the contribution of *damaged*. If there are no salient piles/quantities of, say, damaged or not damaged books in the context, then the contribution of *damaged* will not select between contextually provided quantities of books. Therefore *damaged* can instead contribute towards the lexically introduced QUD (*How are we individuating books*?) With (38a) as the contextual domain restriction added by *insightful* and (36b) as the contextual update provided by *damaged*, we get the following:

$$(39) \qquad \lambda r : \begin{bmatrix} \mathrm{x} : \mathit{Phys} \\ \mathrm{p} : \mathit{Inf} \end{bmatrix} . \begin{bmatrix} \mathrm{s_{pb}} : \phi\_\mathrm{book}(r.\mathrm{x}) \\ \mathrm{s_{ib}} : \iota\_\mathrm{book}(r.\mathrm{p}) \\ \mathrm{s_{co}} : \mathrm{contents}(r.\mathrm{x}, r.\mathrm{p}) \\ \mathrm{cb} : \mathit{PhysPpty} \\ \mathrm{s_{inf}} : \mathrm{insightful}(r.\mathrm{p}) \\ \mathrm{s_{dam}} : \mathrm{damaged}(r.\mathrm{x}) \\ \mathrm{s_{inl}} : \mathrm{in\_pile\_1}(r.\mathrm{x}) \end{bmatrix}$$

Since the contribution of *damaged* has updated the counting base (cb) field to be of type *PhysPpty*, the books must be physically distinct (i.e., single multi-volume editions are ruled out). However, the individuation conditions for (39) are still underspecified, between the double distinctness reading and one that allows for informational duplicates. In other words, we have captured the intuitions of Liebesman and Magidor (2019) that in appropriate contexts, the double distinctness reading does not arise. That is to say, for a two-ways polysemous noun like *book*, even if we have a information-relevant modifier and a physical object-relevant modifier, context can allow for weaker readings than the double-distinctness reading. It should be stressed, however, that the proposal here differs substantially from that in Liebesman and Magidor 2017, 2019. I retain standard assumptions regarding selectional criteria for modifiers and so do not need to assume their metaphysical hypothesis of *property inheritance*.

4.10. Adding extra modifiers can restrict readings further

Finally, let us consider the cases where Alex gives more information to Billie as with the utterances in (10) and (11) repeated below.

(10) I memorised the first page of three damaged, insightful books.

(11) I tore out the first page of three damaged, insightful books.

In order to explain these cases, I will need to make some further (pragmatic) assumptions about how Billie is likely to reason about Alex's contributions. For both (10) and (11), we may first assume that the interpretation of *(three) damaged insightful books* is as above. In other words, Billie assumes that (at least) three books from the informative pile are damaged, but that these might be informational duplicates. In (10), Alex also says that they have memorised the first page of these three books. Crucially, memorisation information has no bearing on the main QUD (*Which books shall we put on the display?*), however, it does have a bearing on the lexically introduced QUD. I.e., Billie can infer that *damaged, insightful book(s)* is also being individuated in terms of informational contents. Formally, this means that the counting base (cb) field is updated from cb : *InfPpty* to cb : $\mathit{InfPpty} \wedge \mathit{PhysPpty}$. This counting base is incompatible with counting informational duplicates and physical duplicates. The prediction, then, is that (10) should have only the following double distinctness reading:

(40) Of the books in the informative pile, Alex memorised the first page of three informationally distinct books, each of which was damaged.

In (11), Alex says, in addition to three insightful books being damaged, that they have torn out the first page of these three books. This action clearly further damages the books, but since they are already damaged, it does not add any further to the main QUD (*Which books shall we put on the display?*). Also, this extra information does not further restrict the counting base (cb) field, since this has already been updated to *PhysPpty* via the contribution of *damaged insightful*

*books*. All the page tearing information does, therefore, is update the truth conditions of Alex's utterance. The prediction, then, is that (10) should have one of the following two readings:

(41) a. Of the books in the informative pile, Alex tore out the first page of three informationally distinct books, each of which was (anyway) damaged.
b. Of the books in the informative pile, Alex tore out the first page of three informationally duplicate books, each of which was (anyway) damaged.

In other words, no double-distinctness reading is enforced, the correct prediction.

## 5. Summary and conclusion

The proposal I have set out here provides a means of generating predictions about available readings of copredication constructions, relative to an ordering of the QUDs: Given a context and an ordering of QUDs, I have shown how one can predict what readings different combinations of modifiers applied to a common noun should have. A central part of this proposal was to characterise in detail how compositional semantic processes interact with the QUD via placing constraints on what properties can be employed as restrictions to the interpretations of common nouns.

One novel part of this proposal is the hypothesis that polysemous common nouns, which underspecify their individuation criteria, lexically introduce a QUD. For instance, for *book*, this was *How are we individuating books?* If this QUD is first in the stack, then modifiers in copredication constructions will constrain the individuation conditions of the relevant noun. Importantly, however, this was not semantically hard-coded as in Gotham 2017, but articulated as a constraint on a parameter of a Kaplanian context that governs nominal domain restriction. This means that if the lexically introduced QUD is not on top of the stack, then modifiers may instead make salient other nominal domain restrictions. In our running example, for instance, *insightful* dod not constrain the individuation criteria of *book(s)*, but instead selected between two contextually salient piles of books: the insightful ones and the non-insightful ones.

In terms of opting for a more pragmatics-driven approach, my proposal is, in a sense, in the spirit of Liebesman and Magidor's (2017) discussion of a structurally similar example (from which I took inspiration). However, it is better seen as one that lies between their view and Gotham's semantic analysis. I assume that modifiers can restrict individuation criteria (but unlike Gotham, that this contribution is pragmatically driven). However, unlike Liebesman and Magidor, the semantics I give for modifiers and also my account of polysemous common nouns is far closer to other semantic analyses (e.g., Cooper 2011, 2007; Chatzikyriakidis and Luo 2018) insofar as I use a richly typed semantic theory in order to account for the challenges made acute by polysemy and copredication to simply-typed approaches. Liebesman and Magidor claim that, even in copredication constructions, one only ever refers either to an informational book, or to a physical book (and the apparent clashes with selectional restrictions are explained away via their metaphysical account of property inheritance). I have developed the proposal in Sutton 2022, which is placed within the situation theoretic tradition of semantics. In this tradition, common nouns denote situations that witness (i.e., contain) individuals of some type. Polysemous nouns such as *book* typically denote situations that witness a physical book and an informational book, such that these two stand in a *contents* relation.

My use of TTR, and specifically the developments within this theory in Cooper 2023, is motivated first my my situation theoretic proposal regarding polysemy, and second by the ability

one has in TTR to modify and update the arguments to functions (or more accurately, the types of those arguments). Indeed, this was a central component of the semantics I gave for intersective modifiers such as *damaged* and *insightful*: they constrain the types of properties than can be employed as restrictions on the nominal domain.

This initial analysis of contextual effects on readings of quantified copredication utterances leaves open many avenues for future research. First, the subtle compositional differences generated by the constructions in (6), (8), (9) are still to be accounted for. Second, the account has only addressed a few examples with a single common noun (*book*). However, the proposal in this paper should be viewed as a formula for extending this account of the semantics-pragmatics interface for polysemous nouns to a much wider range of cases.

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