Natural Language & Linguistic Theory manuscript No.
(will be inserted by the editor)

The explicative genitive and close apposition

Kjell Johan Sæbø

Abstract The genitive in languages like Czech, German, Japanese or Latin is notoriously multiply ambiguous. Some senses (partitive, possessive, relational, objective) are more or less well-studied, but one, in particular, is understudied: the *explicative* genitive (also called the genitive of apposition or of definition). I discuss this genitive across several languages and argue that it encodes the inverse of the function that the definite article is standardly taken to encode. Like the definite article, the explicative genitive (also: the EG) is polymorphic, taking arguments of a wide range of logical types. I further argue that many cases of apposition involve the EG meaning, more specifically, that so-called close apposition should be modeled in terms of a covert EG.

Keywords genitive; apposition; ident; type-shifting

1 Introduction

Adnominal genitives are multiply ambiguous, or, perhaps better, polysemous. Although the polysemy assumes somewhat different forms cross-linguistically, certain patterns tend to recur. Thus we typically encounter at least the senses exemplified and labeled in (1)–(4) (in German, Japanese, Russian and Czech):

(1) ein Flugzeug der Lufthansa[1] **possessive**
an airplane the-GEN Lufthansa

(2) Nihon no shuto[2] **relational**
Japan GEN capital

Kjell Johan Sæbø
University of Oslo, Box 1003, 0315 Oslo
E-mail: k.j.sabo@ilos.uio.no

[1] Source: simone-m-neumann.de/tags/flugzeug/ All web sources last accessed April 2018
[2] Source: patents.google.com/patent/US20030083859

(3) lozhka mjoda[3] **(pseudo-)partitive**
spoon(ful) honey-GEN

(4) zničení Říma barbary[4] **objective**
destruction Rome-GEN barbarians-INSTR

These four variants are all relatively well-studied (if not yet fully understood) in theoretical linguistics.[5]

But one genitive has remained largely unstudied in theoretical linguistics: the **explicative** genitive. (5) is a much-cited English example of what Latin grammars (e.g., Menge 2005) call *genetivus appositivus*, *genetivus definitivus*, *genetivus epexegeticus*, or *genetivus explicativus* (henceforth also: EG).[6]

(5) Dublin's fair city[7]

(6)–(8) are parallel examples from Finnish, Japanese and Latin:[8]

(6) Savonlinnan kaupunki[9]
Savonlinna-GEN town
'the town of Savonlinna'

(7) Fuji no yama[10]
Fuji GEN mountain
'Mount Fuji'

(8) urbs eboraci vastatur[11]
town York-GEN devastate-PASS
'the town of York is destroyed'

The literature contains numerous informal descriptions of this construction, but formal analyses, specifying its compositional semantics, are missing. This is somewhat paradoxical, for the conveyed meaning seems to be clear enough; in contrast to, say, the notion of possession, there is nothing vague or variable about the implied relation between *Dublin* and *fair city*: Dublin *is* a fair city, and whatever is predicated of *Dublin's fair city* is predicated of *Dublin* alone.

Indeed, the apparent transparency of the explicative genitive construction may make it seem uninteresting. I want to show, however, that the analysis is not obvious and that the search for it is worth the effort. What I propose in Section 2 is to ascribe to the EG the inverse of definiteness: a mapping from

[3] Source: mrpl.city/blogs/view/lozhka-mjoda

[4] Bošković 2012: 188

[5] On (1)/(2), see Barker 1995, Partee and Borschev 2003, Peters and Westerståhl 2013; on (3), see Partee and Borschev 2012; on (4), see Hartmann and Zimmermann 2002.

[6] (5) is a so-called Saxon genitive construction, and as such a rare case of EG in English; as in (pseudo-)partitive constructions, the prepositional *of* genitive is the normal form.

[7] Source: en.wikisource.org/wiki/molly_malone

[8] As applying to a name, *genetivus explicativus* is only attested in post-Republican Latin.

[9] Source: Mahieu 2013: 23

[10] Source: en.wikipedia.org/wiki/Genitive_case

[11] Leland 1539–43, Volume IV, Appendix II

something to the singleton set containing it. This mapping has been posited for primarily theoretical reasons (Partee (1987): *ident* as the inverse of *iota*); here I identify a natural language expression for it.

The examples in (5)–(8) only represent a fragment of the picture, though, and in Section 3, I generalize the analysis along two axes:

– Often, the EG competes with a plain binominal construction and loses; in Russian or in German, parallel examples do not exhibit an (overt) EG but a so-called **close apposition**.[12] I argue that they exhibit a covert EG.

– Like definite markers, the EG is polymorphic, operating on different sorts at different levels of logical types. In Section 3.2, the analysis is extended from objects to events, properties of either sort, kinds, and propositions.

Section 4 brings conclusions.

2 The analysis

As far as can be told from the – largely or exclusively descriptive – literature, there are three hallmark facts about the explicative genitive:[13]

1. In the construction 'D B of C', only D='the' makes sense.
2. The construction 'the B of C' carries the presupposition that C is a B.
3. In the context of the sentence, 'C' alone makes equally good sense.

The first fact is evidenced by contrasts such as in (9):

(9) a. √the vice of adultery[14]
b. #one vice of adultery
c. #every vice of adultery
d. #many vices of adultery

In (10), on the other hand, all four determiners are felicitous, because here, the genitive is not of the explicative kind; rather, it is a so-called qualitative genitive (genitive of quality, *genetivus qualitatis*):

(10) a. the act of adultery
b. one act of adultery
c. every act of adultery
d. many acts of adultery[15]

Fact 2 is attested by pairs like (11a–b), where the usual negation test confirms that both sentences presuppose that Palestine is a state (unless the negation is taken in a metalinguistic sense; see, for example, Eco and Violi 1987: 11ff.):

[12] Cf. Burton-Roberts 1975, Jackendoff 1984, Lasersohn 1986, McCawley 1996.
[13] As to representative literature, see, in particular, Carlier and Verstraete (eds.) (2013).
[14] Source: onlinelibrary.wiley.com/doi/pdf/10.1111/1468-229X.00025
[15] Source: www.reasonablefaith.org/question-answer/title/faith-and-works

(11) a. More than a million Israelis live in the state of Palestine.[16]
b. At most a million Israelis live in the state of Palestine.

Fact 3, finally, is a generalization over data like the pair in (12) or (13), where the first member is judged to entail the second:

(12) a. In Dublin's fair city, where girls are so pretty, I first laid my eyes on sweet Molly Malone.
b. In Dublin, where girls are so pretty, I first laid my eyes on sweet Molly Malone.

(13) a. Great grandpa was skilled in the ancient craft of cooperage.[17]
b. Great grandpa was skilled in cooperage.

All three facts must be accounted for by an adequate analysis. In section 2.1, I survey some relatively well-described genitive types and their descriptions to demonstrate that the explicative type does not fit smoothly into those frames. Then, in Section 2.2, I present an analysis which does justice to the distinctive properties of this type of genitive, while being embeddable in a general theory. Section 2.3 addresses some issues left open by this analysis, issues concerning what nouns can or cannot enter into the construction and what it can convey, and discusses an alternative proposal, the one due to Rieppel (2013).

First, however, it is necessary to delimit the construction at issue from a family of constructions which may seem related, the so-called Qualitative Binominal NPs (see Aarts 1998, den Dikken 2006, Matushansky 2002, i.a.), also called the 'N of an N' construction, as in (14). There are similarities, particularly when the second N is definite, as it can be in Spanish, for example (see, e.g., Villalba 2008), cf. (15):

(14) Yaxchilan is a jewel of an archaeological site . . . [18]

(15) . . . el granuja del marido se divierta con una pindonga.[19]
. . . the rascal of-the husband himself diverted with a trollop
'. . . the scoundrel of a husband diverted himself with a trollop.'

But there are also significant differences: Qualitative 'N1 of N2' constructions (i) allow N1 to be indefinite, so Fact 1 about EG constructions does not hold, (ii) allow N2 to be indefinite, something which EG constructions do not, and (iii) require N1 to be evaluative, or affective, something which is not generally true of EG constructions. As a consequence of these dissimilarities, qualitative constructions do not fall within the scope of the present paper.

[16] Adapted from www.brookings.edu/wp-content/uploads/2016/07/Appendix-T.pdf
[17] Adapted from redheadoakbarrels.com/a-cooper-is-a-highly-skilled-craftsman/
[18] Source: www.princeton.edu/news/2017/07/10/rock-stars-exploring-ruins-and-royalty-ancient-maya-courts
[19] Source: archive.org/stream/elrosaldelastres3044lina/elrosaldelastres3044lina_djvu.txt

2.1 Three theories of genitives: unitary-1, unitary-2, split

As noted in Section 1, genitive constructions can convey a variety of relations. The theorist is thus faced with a choice between, on the one hand, accepting a greater or lesser degree of ambiguity and, on the other, trying to unify some or all variants under a single, relatively abstract relation.

One basic division is that between

- constructions where the head noun is (interpreted as) a **sortal** noun, and
- constructions where the head noun is (interpreted as) a **relational** noun.

In the latter case, since the head noun already provides a relation, the genitive need not be ascribed a meaning of its own (beyond licensing that relation); it can be viewed as vacuous. But in the former case, it is natural to attribute an underspecified relation to it, maybe more than one.[20]

Some theorists seek to assimilate the two cases, by coercing sortal nouns as occurring in constructions like (16) into relational nouns or, conversely, by shifting relational nouns as occurring in (17) to sortal ones. Proponents of the first strategy are Vikner and Jensen (2002) and Partee and Borschev (1998); proponents of the second strategy are Hellan (1980) and Adger (2013).

(16) ein Mensch einer niederen Kaste[21] (German)
a human a-GEN low-GEN caste
'a person of a low caste'

(17) ein Mitglied einer niederen Kaste[22] (German)
a member a-GEN low-GEN caste
'a member of a low caste'

A third strategy consists in a 'split approach' (Partee and Borschev 2003), where the relevant relation may come from the head noun (it is 'inherent') or it may come from somewhere else in the construction, for example, the genitive morpheme (it is 'free').[23] In the theory of Adger (2013) (not a split approach), it consistently resides in a relational root just above the genitive phrase.

In accordance with such a 'split approach', a simple 'split' semantics for a two-way ambiguous genitive (case or preposition) – at type e level, where its first argument denotes an individual – could be defined as in (18-a)/(18-b):

(18) a. **Inherent relation genitive**
$[\![\mathcal{G}_I]\!]^w = \lambda x_e \; x$

[20] This case comprises the traditional categories of the genitive of **possession**, the genitive of **quality** and the genitive of **substance**; the case where the head noun provides the relation comprise, beside core 'argumental' genitives as in (17), 'picture noun' genitive constructions and generally the **objective** and the **subjective** genitive, as well as the (pseudo-)**partitive** genitive (the genitive of **measure**, see Partee and Borschev 2012).

[21] Source: forum.golem.de/kommentare/internet/79593,3627342,3627342,read.html

[22] Source: lebendom.com/article/yerukala-menschen

[23] In the approach of Asher and Denis (2004), the free relation, by default set to possession, originates in an empty determiner.

b. **Free relation genitive**
$[\![\mathcal{G}_F]\!]^w = \lambda x_e \lambda y_e \ \mathbf{R}^w(y)(x)$

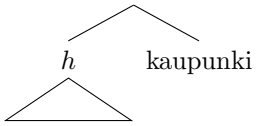
The first variant denotes the identity function, it is vacuous; the individual it leaves unaltered eventually serves as the first argument of a relational noun. The second variant introduces a free variable or a non-logical constant – **R** – whose closer specification will depend on contextual and/or pragmatic factors; the resulting predicate will serve to intersectively modify a sortal head noun.

How does an explicative genitive as in (19) fit in with these two patterns?

(19) Helsingin kaupunki[24] (Finnish)
Helsinki-GEN city
'the city of Helsinki'

With (18-a) it does not fit in at all. The head noun 'city' is strictly sortal, so if the genitive does not do any semantic work, type-driven semantic composition, invoking Functional Application, will produce a truth value where the genitive phrase and the head noun merge – clearly an unwelcome consequence:

(20) 1 iff $h \in [\![\text{kaupunki}]\!]^w$



(16-b) is a better fit – but only if, to account for the three facts 1.–3. above, **R** is set to a specific relation disjoint from even the widest notion of possession. This relation is defined and discussed below.

2.2 The meaning of the explicative genitive: *ident* expressed

Let me recount the three facts about the EG that must be accounted for:

1. In the construction 'D B of C', only D='the' makes sense.
2. The construction 'the B of C' carries the presupposition that C is a B.
3. In the context of the sentence, 'C' alone makes equally good sense.

Let us first focus on the case where C denotes an individual, as it does when it is a name (in Section 3.2, we will see that it can have many different types). To account for the facts 1, 2, and 3 above, we need an analysis which, from a top-down perspective, satisfies this equation:[25]

(21) $[\![\text{the B of C}]\!] = \lambda w : [\![\text{C}]\!]^w \in [\![\text{B}]\!]^w . [\![\text{C}]\!]^w$

[24] Source: www.hel.fi/helsinki/fi

[25] When it comes to higher orders than individuals, the intension $[\![\text{C}]\!]$ can be relevant; see Section 3.2.

The condition between : and . is the presupposition which is stated in Fact 2. If and only if that is given, the whole construction denotes something, and in fact, what the genitive DP denotes, in accordance with Fact 3. The task now is to derive this result in a bottom-up way; then Fact 1 also should follow.

It turns out that the criterion (21) can be met, under common assumptions about proper names and other referential terms and about the definite article, if the meaning of the genitive is defined as the opposite of that of the latter: if, as opposed to a mapping from a singleton set to the individual it contains, it is a mapping from an individual to the singleton set containing it.

In fact, this amounts to attributing to the genitive a meaning equal to the type-shifting mapping *ident* which Partee (1987) defined as the inverse of *iota*:

(22) *iota*: $P \rightarrow \iota x\, P(x)$

(23) *ident*: $x \rightarrow \lambda y\ y = x$

The function *iota* is a good candidate for the meaning of the definite article. Its inverse *ident*, however, has not yet been linked to any specific expression. It has been employed as a rule of composition triggered by coercion, or as the meaning of a covert functor, primarily in 'identificational' or 'specificational' copular clauses (see Mikkelsen 2005: 58ff., 2011; Partee 1986), e.g. (24), (25).[26]

(24) Gdańsk is the home of the trade union Solidarność.[27]

(25) ... and the winner is – Estonia![28]

The close relationship between the two functions becomes especially evident in relational notation:

(26) $\{\langle X, x\rangle |\, X = \{x\}\}$ (*iota*)

(27) $\{\langle x, X\rangle |\, X = \{x\}\}$ (*ident*)

Here is a direct definition of the meaning of the explicative genitive, $\mathcal{G}_E$:

(28) $[\![\, \mathcal{G}_E \,]\!]^w = \lambda x\, \{x\}$

In a case like *the beautiful city of Constance*, this function will apply to the individual c (for Constance) to yield the singleton set containing c:

(29) $[\![\, \mathcal{G}_E \text{ Constance} \,]\!]^w = [\![\, \mathcal{G}_E \,]\!]^w([\![\text{Constance}]\!]^w) = \lambda x\, \{x\}(c) = \{c\}$

Composition of *beautiful city* and *of Constance* will proceed by intersection, or Predicate Modification (Heim and Kratzer 1998: 65). Now if Constance is indeed a beautiful city, the result will be the same singleton set, otherwise it

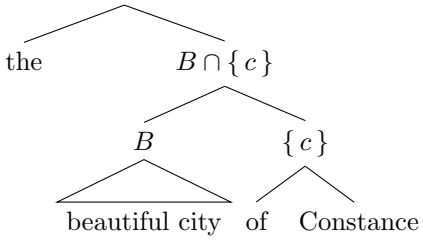
[26] See Uegaki (2016: 632) for an application to propositions.

[27] Adapted from www.incentivetravel.co.uk/3288-strictly-come-gdansk-ing

[28] Adapted from news.bbc.co.uk/2/hi/entertainment/1323459.stm

will be the empty set. In, and only in, the former case, the third composition step will be defined, reducing the singleton set to its member:[29]

(30) c if $c \in B$, undefined else



Note that this analysis amounts to the same as analyzing *city of Constance* as a relative clause construction 'city which is (equal to) Constance', on common assumptions about the meaning of relative clauses (Heim and Kratzer 1998).

It can be read directly off the composition scheme in (30) that this analysis satisfies the equation (21) and thus that Fact 2 and Fact 3 are accounted for. As for Fact 1, note that 'B of C' will denote a singleton set or the empty set; in this regard, it is like *present King of France*, for which no other determiner than the definite article makes much sense.

The EG meaning defined in (28) corresponds to the 'free relation genitive' defined in (18-b) in case **R** is set to $=$. Here it is natural to draw a parallel to existing analyses of phenomena in other domains where identity serves as the default setting of a free relation variable, such as Elbourne's (2008) analysis of indexicals and Aloni's and Roelofsen's (2011) analysis of concealed questions. In this light, the explicative genitive emerges as the default variant of the free relation genitive on a 'split' approach to adnominal genitives (cf. Section 2.1).

Under this analysis, an EG phrase is a predicate denoting a (singleton) set, yet it cannot function syntactically as a predicate in its own right:

(31) #The city of Chemnitz was formerly of Karl-Marx-Stadt.[30]

But this is nothing exclusive to the explicative genitive, it is also true of, say, possessive genitive phrases like the one in (1) or that in (32), which are also set-denoting predicates under the 'free relation' definition in (18-b):

[29] It is assumed here that the adjective combines with the common noun before the merge combines with the genitive phrase, though the other order would make just as much sense; in fact, in Finnish, where genitives and adjectives are preposed, both surface orders occur:

(i) Suomen kaunis maa
Finland-GEN beautiful country
(Source: www.kotimaa24.fi/blogit/mannerheimin-kotinatsi/)

(ii) kaunis Suomen maa
beautiful Finland-GEN country
(Source: merenkainalossa.com/oi-nouse-suominosta-korkealla/)

[30] Adapted and modified from www.upi.com/Archives/1990/04/17/Karl-Marx-Stadt-residents-vote-on-city-name/8139640324800/

(32) #The schooner Casco was of Robert Louis Stevenson.[31]

This suggests that some 'free relation' genitives, including but not limited to explicative genitives, are essentially adnominal and that their ban from predicate position has a syntactic source.[32]

2.3 Discussion: Names, descriptions, informativity

As it has been described and analyzed up to now, the explicative genitive has a limited distribution, and the analysis would seem to overgenerate because it does not offer a ready explanation for these limitations. In this connection, it is also relevant to discuss the analysis proposed by Rieppel (2013).

First, note that when the genitive term is a name (as it usually is when it denotes an individual, but see below), it cannot denote every sort of individual; in English or French, for instance, it may seem restricted to geographical names (as in all relevant examples so far) or to calendrical or astronomical names:

(33) Le mois de novembre a été très humide.[33] (French)
the month of November has been very wet

(34) L'étoile de Sirius est située à 8.6 années-lumière de nous.[34]
the-star of Sirius is situated at 8.6 years-light from us

If we try to substitute names of humans, as in (35), we must drop the genitive, resulting in a so-called close apposition.

(35) the Swedish playwright (#of) Strindberg[35]

Why this should be so is not obvious. Now in Section 3.1, close apposition will be analyzed as a covert explicative genitive, so the generalization will be that while an overt EG can be used for toponyms etc., a covert EG must be used for anthroponyms; an explanation for this must await further study.

Another constraint not predicted by the analysis presented in Section 2.2 is the apparent ban on definite descriptions as explicative genitive terms. As we have seen, proper names are common, but even though proper names and definite descriptions are standardly assumed to share the same logical type, type e, constructions like (36) are infelicitous:

(36) # the beautiful city of the capital of Finland

This is independent of whether there is a genitive in the construction or not; compare (37) to (35):

[31] Adapted and modified from www.nauticapedia.ca/Articles/PH_Vessels_Ships.php

[32] See also the discussion in Partee and Borschev 2003: 69ff.

[33] Source: www.canada.ca/fr/environnement-changement-climatique/services/eau-apercu/publications/bulletin-trimestriel-impacts-apercu-golfe-maine/decembre-2014.html

[34] Adapted from www.ilephysique.net/sujet-ordre-de-grandeur-160789.html

[35] Source: everyhistory.org/literature/history1Strindberg1.html

(37) # the Swedish playwright the author of Miss Julie

This constraint is in fact predicted by the one existing explicit analysis of the explicative genitive construction, the one proposed by Rieppel (2013). Here,

- the genitive is assumed to be semantically vacuous,
- the proper name is assumed to denote a singleton set.

This analysis predicts that no referential expression, such as a demonstrative or definite description or a demonstrative or personal pronoun, can figure as C in the "identifying description" 'the B of C'. Such an expression has the type e, and if it were to figure as C, then (the genitive being vacuous) the type (et) NP B would apply to it by Functional Application, so 'B of C' would receive

> . . . the saturated type t. As such, it would . . . be incapable of combining with the definite article, since *the* requires a complement of type $\langle e, t\rangle$. (Rieppel 2013: 430)

Citing a case parallel to (36), Rieppel notes that this prediction is borne out.

What Rieppel's analysis and mine have in common is the assumption that 'of C' denotes a singleton set. But while under his analysis, this results from *of* not affecting the singleton set already denoted by C, under mine it results from *of* forming a singleton set from the individual (or other type of entity) denoted by C. That a name is a referential term is a standard assumption in line with a predominant view in the literature, but Rieppel's alternative view that a name denotes a singleton set is also fairly well-represented.[36]

As for his assumption that the explicative genitive is semantically vacuous, it has a precedent in so-called inherent relation genitives (Section 2.1). So on balance, negative evidence like (36) or (37) would seem to provide an argument for Rieppel's analysis and against mine.

However, two observations have the potential to turn this picture around.

First, if expressions denoting singleton sets are good C constituents in the 'the B of C' construction, we would expect saturated functional noun phrases like *capital of Finland* or *author of Miss Julie* to figure felicitously, since such phrases are standardly assumed to denote singleton sets.[37] Yet both (38) and (39) (a close apposition construction modeled on (35)) are infelicitous:

(38) # the beautiful city of capital of Finland

(39) # the Swedish playwright author of Miss Julie

Second, there are signs that the ban on definite descriptions as C terms is an overgeneralization. Here are three cases that look like counterexamples:

(40) The road crew removed the obstacle of the fallen tree limb.[38]

[36] See Schoubye (2016) for a critical survey and Chierchia (2010: 137) for a defense of this version of 'Predicativism'.

[37] See, e.g., Zimmermann and Sternefeld 2013: 98ff.

[38] Source: ahdictionary.com/word/search.html?q=obstacle

(41) A fish ladder is used to help fish continue their migration patterns instead of being stopped by the barrier of the dam.[39]

(42) . . . the eyesore of the capsized Concordia lay on her side at the port . . . [40]

One feature sets these cases somewhat apart from the cases considered so far: the B noun is essentially perspectival in nature and thus in a sense relational; obstacles, barriers, and eyesores are relative to a certain point of view. In (42), this relativity goes along with an evaluative meaning (an eyesore is an eyesore in somebody's subjective judgment). In addition, in (40) and (42), the B noun is a stage-level, not, like *city*, an individual-level predicate.

But note that the B nouns are not relational in the sense that the relation between the head noun B and the genitive term C is inherent in the former and the latter fills its internal argument, as it does in cases like (17) or (43).

(43) the capital of Finland [41]

Rather, the internal arguments of the B nouns in (40)–(42) are implicitly given (the motorists on the road, the fish running the river, the locals). In fact, all three examples conform to the three criteria characterizing EG constructions:

- 'the' is the only determiner that makes sense;
- the sentence presupposes that the fallen tree limb was an obstacle, etc.;
- the sentence without 'the obstacle of', etc., makes equally good sense.

Once definite descriptions are possible in EG constructions, a way is open for such constructions to enter into recursive structures:

(44) This leaves the hidden gem of the town of Bathsheba . . . on the eastern side of the island in the hands of those in the know.[42]

Again, the higher B NP, *hidden gem*, is perspective-sensitive and subjective.

Now if (40)–(42) provide evidence that definite descriptions are possible in explicative genitive constructions, then clearly, the genitive marker cannot be semantically vacuous; if it were, 'B of C' would end up denoting a truth value. Rather, the genitive marker should be ascribed the meaning encoded in (28). Indeed, the fact that a sentence like (40) intuitively presupposes (45) (Fact 2) and entails (46) (Fact 3) rather strongly argues that the analysis proposed in Section 2.2 is on the right track.

(45) The fallen tree limb was an obstacle.

(46) The road crew removed the fallen tree limb.

Additional support will come from EG constructions with definite descriptions of other sorts and types (than e) in them, in Section 3.2.

[39] Source: www.nationalgeographic.org/media/bonneville-dam-columbia-river-gorge/
[40] Source: www.cruiselawnews.com/2013/09/
[41] Source: en.wikipedia.org/wiki/Helsinki
[42] Source: www.homeaway.co.uk/d/2198/bathsheba

It is notable that when the genitive term is a definite DP and not a name, the head noun tends to be perspectival and stage-level rather than narrowly sortal and individual-level. Why this should be so is an interesting question, and I can only hint at an answer, in terms of informational utility:

A proper name is arbitrary in the sense that, in Peirce's words, it has "no signification; that is, its applicability to a given object is not contingent on that object's fulfilling this or that general condition" (Peirce 1905), and thus, the attribution of a run-of-the-mill sortal noun will supply it with some such "signification", which may be useful for resolving its reference. By contrast, a definite is already a description, and the ascription of another property to its referent will tend to be more useful if this is a different kind of property, – stage-level instead of individual-level, or subjective or otherwise perpectival instead of objective and strictly sortal; in short, a relatively abstract property.

This reasoning may explain that B and the C noun should be asymmetric, but not why it is the former that should express a relatively abstract property and not the latter, as in (47), coming from (41) by interchanging the nouns:

(47) #A fish ladder is used to help fish continue their migration patterns instead of being stopped by the dam of the barrier.

A rather radical move offering such an explanation, suggested by a reviewer, might be to build the asymmetry between C and B into the relation encoded by the explicative genitive: retain the general format from (18-b) but replace the relation of identity by one of explication, exemplification, or constitution. The presupposition of 'the B of C' would not be that C is identical to a B but that C (say) constitutes a B, and the infelicity of (47) would be accounted for insofar as it would presuppose that the barrier constitutes a dam, in contrast to the felicitous (41) presupposing that the dam constitutes a barrier.

Note, however, that because the set of things constituted by a thing is not necessarily a singleton, Fact 1 would not be accounted for if identity were to be replaced by constitution: it would be predicted that there could be another determiner than the definite article on top of the construction. (48) bears out a relevant contrast between a modifier spelling out the putative EG meaning and the EG itself: the indefinite article is felicitous in (48-a) but not in (48-b).

(48) a. The spreading fire meets a barrier constituted by the air gap bounded in two steel bulkheads.[43]

b. #The spreading fire meets a barrier of the air gap bounded in two steel bulkheads.

Note, too, that the analysis as it stands does imply an asymmetry between B and D in 'the B of the D', inasmuch as the definiteness of 'the D' must be justified through familiarity or uniqueness, while the definiteness of the whole is given by 'of the D' denoting a singleton set. It is reasonable to assume that familiarity or uniqueness is more easily established when D is objective and

[43] Source: rcin.org.pl/Content/39806/WA727_29222_56174_Krystosik-16.pdf

concrete than when it is abstract and subjective. This is borne out by (49), preserving the contrast between (41) and (47) when the EG phrase is replaced by a relative clause spelling out the EG meaning in terms of identity:

(49) a. ... instead of being stopped by the barrier that is the dam.
b. #... instead of being stopped by the dam that is the barrier.

Thus on balance, it would seem that the theory laid out in the previous section, where the relation underlying explication is identity, is to be preferred.

The way that EG constructions ascribe a(nother) property to the referent, as in (50-a), is circumspect; they do not proffer it as a piece of at-issue content. This they share with nominal appositives and non-restrictive relative clauses (see, e.g., Schlenker 2017), as in (50-b).

(50) a. The stunning flower island of Mainau is one of the lake's top attractions along with the beautiful city of Constance, ...[44]
b. Mainau, (which is) a stunning flower island, is one of the lake's top attractions along with Constance, (which is) a beautiful city.

While appositives are usually analyzed in terms of conventional implicatures or 'impositions' (AnderBois, Brasoveanu and Henderson 2015), according to the analysis of EG constructions proposed in Section 2.2, the proposition that the referent has the (extra) property comes out as a presupposition, in fact, as the existence presupposition associated with definiteness.

Presuppositions now should follow from the common ground, though they can be accommodated if they do not; "appositive content", however, "is not presumed to be known" (AnderBois, Brasoveanu and Henderson 2015: 108). (50-a) and (50-b) seem to differ along these lines: while the latter presents the proposition that Mainau is a stunning flower island and the proposition that Constance is a beautiful city as pieces of non-negotiable, but new information, the former communicates this as though it were old information. This can be taken as a sign that the two classes of constructions indeed differ in how they encode non-at-issue content, by way of presupposition or 'post-supposition'.

3 Generalizations and extensions

The analysis given above may seem small and insignificant, but below I try to show that there is more to it than has so far come to light. For one thing, it is not only an analysis of a certain underexposed variant of genitive, it is at the same time an analysis of a certain underexposed variant of apposition, 'close apposition', which I propose to assimilate to that genitive. Secondly, far from operating only at the most basic level of logical types, the type of individuals, explicative genitives are at play at a range of higher, partly intensional levels. Here, it turns out that the analysis of the construction can throw new light on the relationship between properties and kinds, of individuals as well as events.

[44] www.inghams.co.uk/about-us/press-releases/2016/april/beyond-garda-and-como

3.1 Close apposition as covert $\mathcal{G}_E$

In Russian or German, what corresponds to the explicative genitive in English at the type level of individuals is a so-called close apposition.

(51) krasivyj gorod konstants[45] (Russian)
beautiful city Constance-NOM
'the beautiful city (of) Constance'

Fabricius-Hansen and von Stechow (1989) treat cases like (52) as special cases of what Gunnar Bech (1957: §254ff.) termed *explicative constructions*.

(52) Die schöne Stadt (*von) Konstanz liegt am Bodensee. (German)
the beautiful city of Constance lies at Bodensee
'The beautiful city of Constance is situated on the Lake of Constance.'

Such constructions include (i) binominal constructions as in (52) and (53-a), (ii) genitive constructions as in (53-b) (note that German sometimes wavers between close apposition and genitive), and also constructions like (54).

(53) a. Ich habe 1989 das Wunder Mauerfall erleben dürfen.[46]
I have 1989 the miracle wallfall experience may

b. 1989 . . . habe ich das Wunder des Mauerfalls erlebt.[47]
1989 . . . have I the miracle the-GEN wallfall-GEN experienced
'In 1989, I witnessed the miracle of the fall of the Berlin Wall.'

(54) Die Fähigkeit, dichten zu können, ist eine große Gabe.[48]
the ability versify to can is a great gift
'The ability to compose poetry is a great gift.'

These are examples where C does not have the type e of individuals; the next subsection surveys the different types that can be at play in the genitive or the genitive-less explicative construction. Let me first motivate the view that genitive and genitive-less constructions are two sides to the same coin.

Seen in isolation, the appositive construction poses a composition problem – the same as that which would arise for the genitive construction if the case marker were regarded as semantically vacuous (as noted in Section 2.1): by all indications, a sortal noun like *Stadt* 'city' of type (et) forms a constituent with a referential expression like *Konstanz* of type e, and type-driven composition will, by Functional Application, result in a truth value, whereas what should result is another (a singleton) set of individuals.

This illustrates a common dilemma in the face of a composition problem. On the one hand, the case may seem to call for a novel composition principle,

[45] Source: gavrilova-deutsch.narod.ru/index.files/page0007.htm

[46] Validated by Ruprecht von Waldenfels, p.c.

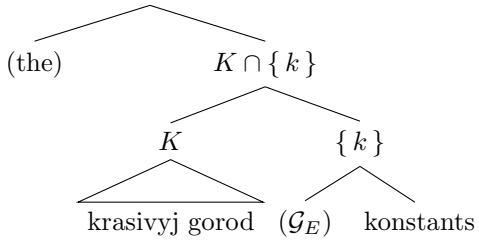
[47] Source: www.weser-kurier.de/bremen/stadtteile_artikel,-Kritik-an-Israel-gilt-nicht-mehr-als-Antisemitismus-_arid,106618.html

[48] Validated by Ruprecht von Waldenfels, p.c.

or a syncategorematic type-shifting procedure.[49] On the other hand, a solution may lie in positing a covert operator. The choice between these two strategies, complicating the composition and assuming hidden structure, can be difficult. However, in the situation at hand, there is a reason to opt for the latter: the explicative genitive, $\mathcal{G}_E$, already exists and has the meaning defined in (28).

The upshot is that $\mathcal{G}_E$ has a silent variant, which I will write as $(\mathcal{G}_E)$. (55) shows how the Russian example (51) can receive the same semantic analysis as the English example that was analyzed in (30).

(55) k if $k \in K$, undefined else



It may seem unnatural to posit a covert *the* here, and it should not be taken to imply that Russian has a projection for an unpronounced definite article. Rather, following Chierchia (1998: 360) and Coppock and Beaver (2015: 378), I assume that the *iota* operation is chosen in response to contextual demands – in a case like (55), because the set is singleton so uniqueness is guaranteed. The covert $\mathcal{G}_E$ operator expressing the *ident* operation, on the other hand, is often enough (if not in (55)) overtly realized in Russian, for instance in (56).

(56) čudo padenija berlinskoj steny[50]
miracle fall-GEN Berlin-GEN wall-GEN
'the miracle of the fall of the Berlin Wall'

Henceforth, I will treat the overt $\mathcal{G}_E$ and the covert $(\mathcal{G}_E)$ indiscriminately as an operator with the semantics defined in (28), – although this semantics will presently have to be generalized to cover a wide range of different logical types.

Ideally, perhaps, it should be possible to predict when this meaning can or must be overtly or covertly expressed. However, an overt $\mathcal{G}_E$ in one language can correspond to a covert $(\mathcal{G}_E)$ in another, and vice versa. This is shown by (52) in one direction and by (57) in the other, versus the English translations. Therefore, we cannot expect there to be a universal explanation for why the EG is sometimes pronounced and sometimes not. To a certain extent at least, the selection seems to be a matter of language-specific convention.

(57) die seltene Rasse des norwegischen Elchhundes[51] (German)
the rare breed the-GEN Norwegian elkdog-GEN

[49] Thus Fabricius-Hansen and Sæbø (2004: 244) formulate a principle of 'explicative composition', and Matushansky (2012) suggests that "the proper name may turn into a semantic predicate as a result of the IDENT type-shifting rule".

[50] Anonymous reviewer, p.c.

'the rare breed Norwegian elk hound'

In fact, there can also be alternations within a language, as when in English, the genitive could be absent/present in the translation of (52)/(57), or when the different versions of (58) alternate with each other without a difference in meaning; this is explained on the hypothesis that *of* is there even if silent.[52]

(58) The rare breed (of (the)) Suffolk punch horse could be saved if a joint research project is successful.[53]

Note that the explicative genitive is not the only genitive which alternates with an appositive across languages or even within one language: notably the measure, or pseudo-partitive genitive (see Partee and Borschev 2012) does too; thus the Russian genitive in (59) is matched by the German appositive in (60).

(59) lozhka mjoda (=(3))
spoon(ful) honey-GEN

(60) ein Löffel Honig[54]
a-NOM spoon(ful) honey-NOM

When the C expression in the explicative construction is not a nominal but an infinitive or complementizer phrase, as in (54) above or (62) below, then (in the languages under consideration here) the genitive cannot be marked so a close apposition is the only alternative. Indeed, de Cuba (2017) proposes to analyze noun complement clauses (NCCs) as standing in close apposition to content nouns like *fact* or *rumor*.[55] His claim that the clause is coreferential with its content noun can be explicated in compositional semantic terms, in parallel to (55), on a notion of explicative genitive generalized (i) from overt genitives to appositives and in a next step (ii) from objects to propositions.

3.2 Generalizing $\mathcal{G}_E$

The level of individuals is not the only level the explicative genitive operates at. The definite article, which I take to express the inverse operation, can have several other types of semantic objects in its range of values, and the same is true of the explicative genitive and its domain of arguments. For one thing, as suggested by (53-b) and (61), we must take events into account; for another, as suggested by (62), we must reckon with propositions.

[51] Source: archive.li/J6qcc

[52] The second definite article in (57) and (58) is the so-called generic definite article, which tends to correlate with the overt EG; see Section 3.2 for discussion of a similar case, (66).

[53] Source: news.bbc.co.uk/2/hi/uk_news/england/suffolk/8218216.stm

[54] Source: bessergesundleben.de/honigwasser-auf-nuechternen-magen/

[55] A different analysis, sharing, however, the assumption that the CP modifies the noun, is proposed by Moulton (2015).

(61) After the calamity of the Battle of Hastings, England became French.[56]

(62) . . . the sad fact that women earn less than men for doing the same work . . . [57]

In between the level of individual or event tokens and the level of propositions, ($\mathcal{G}_E$) is evidently also at play at the level of individual or event properties, or, additionally or alternatively, kinds. (63) exemplifies the level of properties, or kinds, of individuals, and (64) suggests that we are at the level of properties, or kinds, of (habitual) events, more precisely, activities.

(63) The cool colour blue can slow the heart rate.[58]

(64) You will learn the fine craft of milking cows by hand.[59]

In the below tabular overview, the right column lists five sort-type possibilities for the definite article, the arrow representing the *iota* function (Section 2.2) transforming a set of individuals, events, properties of individuals or events, or propositions into an individual, *et cetera*; examples are in the left column.[60]

1. the city	$(et) \rightarrow e$
2. the calamity	$(vt) \rightarrow v$
3. the cool colour	$(s(et))t \rightarrow s(et)$
4. the fine craft	$(s(vt))t \rightarrow s(vt)$
5. the sad fact	$(st)t \rightarrow st$

In parallel, $\mathcal{G}_E$, whether overt or covert, ranges over five logical types as well, as a mirror image: here, the arrow represents the *ident* function (Section 2.2) transforming an individual, an event, a property of individuals or events, or a proposition into a set of such objects; examples are in the left column.[61]

1. of Constance	$e \rightarrow (et)$
2. of the Battle of Hastings	$v \rightarrow (vt)$
3. ($\mathcal{G}_E$) blue	$s(et) \rightarrow (s(et))t$
4. of milking cows by hand	$s(vt) \rightarrow (s(vt))t$
5. ($\mathcal{G}_E$) that women earn less	$st \rightarrow (st)t$

[56] Validated by Kevin Steinman, p.c.

[57] Source: abortion.ws/category/pro-life-lies/

[58] Validated by Kevin Steinman, p.c.

[59] Validated by Kevin Steinman, p.c.

[60] In accordance with common practice, s, e, v and t are the types of worlds, individuals, events, and truth values, respectively; any type (ab) is the type of functions from objects of type a to objects of type b, so that, for instance, (vt) is the type of functions from events to truth values, equivalently, that of sets of events.

[61] In cases 3 and 4 the type of the example is (under standard assumptions) (et) and (vt), but because $\mathcal{G}_E$ can invoke the composition principle of Intensional Functional Application (Heim and Kratzer 1998: 308), the type of its argument can still be $s(et)$ and $s(vt)$.

I will refer to these different cases as "case 1", "case 2", etc. It should be clear that in type terms, one functor, be it *the* or $\mathcal{G}_E$, will generally undo what the other does, concretely, that the former can take a noun phrase intersectively modified by the output of the latter as its input and return to start as far as the logical type is concerned.

Case 3 and case 4 stand out in two respects. First, Moltmann (2013: 210) draws attention to an asymmetry between, on the one hand, *the poet Goethe* (case 1) and, on the other hand, *the colour green* (case 3): in *the poet Goethe*, the constituent *Goethe* contributes its **extension** to that of the whole term, but in *the colour green*, *green* contributes its **intension**. Thus, as anticipated in footnote 61, in case 3 one needs to use Intensional Functional Application for the semantic composition of $(\mathcal{G}_E)$ with its sister, as this constituent does not strictly denote a property (a function from worlds to sets of individuals) but simply a set (the same holds for case 4, with events for individuals).

This means that the equation (21), repeated here for convenience, must be rewritten as (65) for the two cases where $(\mathcal{G}_E)$ 'intensionalizes' its argument:

(21) $\llbracket \text{the B of C} \rrbracket = \lambda w : \llbracket \text{C} \rrbracket^w \in \llbracket \text{B} \rrbracket^w . \llbracket \text{C} \rrbracket^w$

(65) $\llbracket \text{the B of C} \rrbracket = \lambda w : \llbracket \text{C} \rrbracket \in \llbracket \text{B} \rrbracket^w . \llbracket \text{C} \rrbracket$ (cases 3 and 4)

The meaning of $\mathcal{G}_E$ as defined in (28), however, is general enough; it just needs to be paired with a list of admissible argument types.[62]

(28) $\llbracket \mathcal{G}_E \rrbracket^w = \lambda x \{x\}$

Second, as hinted above, there may be reason to treat case 3 and case 4 in terms of **kinds** – of individuals or events – rather than in terms of properties. Particularly examples like (66) or (67) would appear to lend themselves to a conception of the C phrase (*the corgi*, *fencing*) as contributing an individual or event kind to the extension of the whole construction, a kind as well; the B phrase (*ancient dog breed*, *sport*) would denote a set of kinds. Specifically, the generic nature of the verb (*be developed*, *evolve*) and the presence of the 'generic definite article' in the C phrase of (66) strongly indicate that we are dealing with so-called D-generics (see Dayal 2004 and Krifka 2004) and thus that we should choose to model these cases with kind-level semantic objects. (Note that if *corgi* denotes a kind, the generic definite article in *the corgi* must be semantically vacuous or at any rate cannot perform its customary function of transforming a singleton set into its member; cf. also the discussion in the next subsection, in connection with (77), about the alternative of treating a noun as basically denoting a set of kinds and the definite article as picking out the maximal sum kind from such a set.)

[62] This list may in fact need to be long, longer even than 5 + 2 for kinds of individuals or events, to faithfully represent the diversity of sorts and types noted by Jackendoff (1984) and Moltmann (2013), some of which may seem to involve a 'mention' rather than a 'use'.

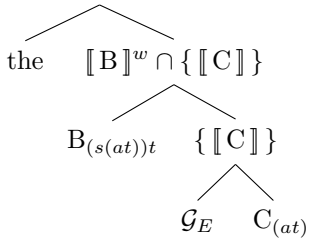
(66) The ancient dog breed of the corgi was developed in Wales.[63]

(67) The sport of fencing evolved from 16th century sword dueling.[64]

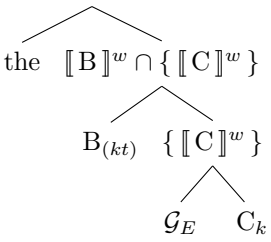
There is no need to make a categorical choice, though: kinds can be modeled as entity correlates of properties (Chierchia 1998 and McNally 2009), and this correlation can carry over to the sort of events (Grimm and McNally 2015). Kinds may form a proper subset of properties' entity correlates, but barring evidence that case 3 or case 4 is constrained to kinds (or to properties that have kind correlates), both conceptions of the $\mathcal{G}_E$ argument – as a kind or a property – seem viable, alongside each other. In fact, as we will see in Section 3.4, the conception of it as a property may prove useful in its own right.

These two conceptions give rise to the two composition schemes in (68), (68-a) for properties and (68-b) for kinds as intensions/extensions of C.[65]

(68) a. $[\![\mathrm{C}]\!]$ if $[\![\mathrm{C}]\!] \in [\![\mathrm{B}]\!]^w$, undefined else



b. $[\![\mathrm{C}]\!]^w$ if $[\![\mathrm{C}]\!]^w \in [\![\mathrm{B}]\!]^w$, undefined else



3.3 Kinds and objects, superkinds and subkinds

Both the property approach and the kind approach offer an explanation, each in its own way, for a contrast like the one seen between (69) and (70), where the substitution of 'the B of C' for 'C' fails to preserve meaningfulness.[66]

[63] Adapted from www.sallymorganpt.com/2016/04/23/what-not-a-single-mention-of-a-corgi-in-shakespeare/

[64] Adapted from www.caliburnfencing.com/fencint.html

[65] In (68-a), the subscript a stands for the type e for individuals or the type v for events, as the case may be; in (68-b), k designates the type of kinds (of individuals or of events; a subscripted e or v would specify one or the other sort).

[66] In (69), *the corgi* denotes an individual and *corgi* denotes a set of individuals, whether from the outset or after being shifted from denoting a kind.

(69) On hind legs, the corgi bounced up and down, was rewarded with some hot dog and looked expectantly at Amelia for further instructions.[67]

(70) #On hind legs, the ancient dog breed of the corgi bounced up and down, was rewarded with some hot dog and looked expectantly at Amelia for further instructions.

Note that this is not a violation of what was introduced as Fact 3 in Section 2, *viz*., that in the context of the sentence where 'the B of C' occurs, 'C' makes equally good sense; the negative evidence in (70) results from a substitution in the other direction, showing that the latter is not generally interchangeable with the former. Consider the property approach first.

The extension of the subject DP in (70) is a property, a set in intension. What the extension of the verb *bounce* in this episodic context needs, however, is an individual (or a quantifier), which only the subject DP in (69) can denote, and this type conflict causes the semantic composition to fail.[68]

Now consider the option to let $\mathcal{G}_E$ apply to kinds. In the theory proposed by Zamparelli (2000), common nouns basically denote kinds in the innermost layer of a 3-layered DP structure, and two type-shifting operators can convert the common noun into (i) an expression denoting the set of objects realizing the kind (KO), or (ii) an expression denoting the set of its sub-kinds (KSK). Crucially, these type-shifters must apply before determiners do.

Again, for the composition with the episodic verb to succeed, the subject in (70) must denote an individual (or a quantifier). This means that KO must apply at some level in its derivation. There are two levels it could apply at as far as the input, a kind, is concerned. First, at the level of the noun *corgi*; but then the genitive phrase *of the corgi* would denote a set of objects too, which could not intersect with the denotation of *ancient dog breed*, a set of kinds.

The second level where the denotation is a kind is at the level of the whole DP *the ancient dog breed of the corgi* – but here it would be too late, because the definite determiner has applied already. In this way, the EG construction 'freezes' the kind denotation once the B constituent denotes a set of kinds, as *ancient dog breed*, *sport* and *fine craft* do.

Analyzing cases 3 and 4 in terms of kinds has an additional advantage. Sometimes, the head noun B does not, like *breed* and *craft*, basically denote a set of kinds or properties, it rather seems to itself denote a kind or a property, being what we would usually call a **hyperonym** of the C expression:

[67] Source: journalstar.com/news/state-and-regional/nebraska/louisville-girl-seeks-to-become-top-dog-at-westminster/article_222f461b-7573-5447-b65f-5274de2ecb92.html

[68] Note, though, that if the verb is intensional, as in (i), the theory of Zimmermann (1993) says that it composes semantically with a set in intension (a property), which an indefinite like *a unicorn* can express, and thus it predicts that (ii) is acceptable, which is borne out:

(i) The knight departs for Africa in search of a unicorn.
(ii) The knight departs for Africa in search of the mythical animal unicorn.

(Source: https://www.amazon.com/product-reviews/8408071742?reviewerType=all_reviews)

(71) La baie de framboise est une véritable source de santé.[69] (French)
the berry of raspberry is a true source of health

(72) The crime of treason is punishable by 10 to 25 years in prison.[70]

Note that *baie* can act like an ordinary sortal noun, denoting a set of objects, and that *crime* can act like an ordinary event noun, denoting a set of events:

(73) J'ai mangé une baie / une framboise.[71]
I've eaten a berry / a raspberry

(74) Misery, uncreated till the crime Of thy rebellion!
(Milton, *Paradise Lost*, Book VI)

But according to the two composition schemes in (68), (68-a) for properties and (68-b) for kinds as the intensions or extensions of C nouns like *framboise*, B nouns like *baie* must denote a **set** of such things as C denotes or expresses: a set of properties, alternatively, not a kind but a set of kinds.

The second type-shifting operation introduced by Zamparelli (2000), KSK (shifting kinds to sub-kinds) offers a ready way to accomplish this and so to account for cases like (71) and (72). Applied to *baie*, 'berry' as a kind is, as it were, shifted to 'kind of berry' – a set, as required in (68-b). To be specific:

(75) $[\![\text{KSK}(\textit{baie})]\!]^w = \{[\![\textit{fraise}]\!]^w, [\![\textit{framboise}]\!]^w, [\![\textit{mûre}]\!]^w, \dots\}$

This result rests on interpreting the construction according to the scheme (68-b), in terms of kinds. To replicate it according to the scheme in (68-a), in terms of properties, it would be necessary to assume a type-lifter that makes an expression like *baie* denote the set of its hyponym intensions, like $^{\Uparrow}$ here:

(76) $[\![\text{B}^{\Uparrow}_{et}]\!]^w = \{P_{s(et)} \mid \text{for all } w', P_{w'} \subset [\![\text{B}]\!]^{w'}\}$[72]

Returning to the picture where the B noun should denote a set of kinds, we may note that many scholars (like Dayal 2004, McNally and Boleda 2004, Aguilar-Guevara and Zwarts 2010, Espinal 2010, Gehrke and McNally 2015, Borik and Espinal 2015) assume that a noun basically denotes a set of kinds (and can be converted to denoting the set of objects realizing some member). On such a theory, it is not necessary to shift a B noun like *baie* in (71), but the C noun must be manipulated to denote a kind instead of a set of kinds. One way to achieve this in the sort of theory under consideration is to add a definite article, which can pick out the maximally general (sum) kind.

Now although there is no such definite article in the genitive phrase in (71) (*de framboise*), there is one in that in (77) (*du frêne*):

[69] Adapted from www.fr.rowland98.com/fitnes/56866-polza-maliny-dlya-zdorovya.html
[70] Source: countervortex.org/taxonomy/term/505
[71] Source: sequehart.canalblog.com/archives/2015/12/23/33107705.html
[72] Possibly, P should also be required to be the intension of a noun in the language.

(77) Dans les légendes, les anciens Germains attribuaient à
in the legends the ancient Germans attributed to
l'arbre du frêne des pouvoirs magiques.[73]
the-tree of-the ash ART powers magic
'The ancient Germans attributed magic powers to the ash tree.'

The facts of French thus appear to lend support to both the view that nouns basically denote kind sets and the view that they basically denote just kinds.

Constructions like (71) or (77) tend to correspond to (definite) compound nouns in Germanic languages, but examples like (78-a) and (78-b), where the kind is a kind of (habitual) events, show that a definite article alternates with no article in German too, the genitive correlating with the former:[74]

(78) a. ...dass das Hobby Briefmarkensammeln keineswegs tot ist.[75]
...that the hobby stampcollect noway dead is
'that the hobby of collecting stamps is in no way dead'

b. ...dass das Hobby des Briefmarkensammelns ausstirbt.[76]
that the hobby the-GEN stampcollect-GEN perishes
'that the hobby of collecting stamps is dying'

Thus again, the evidence would seem to go both ways in regard to the choice between assuming nouns to basically denote kinds, shiftable to sets of kinds, or to denote sets of kinds at the outset, be they (sets of) kinds of individuals or (sets of) kinds of eventualities.

Independently of how cases like (71), (72) or (77) are modeled, they raise an interesting issue: that *framboise* 'raspberry' is a berry, *treason* is a crime, and *frêne* 'ash' is a tree will, we must assume, belong to any common ground, so these pieces of information would seem to be totally redundant. Hyponymy relations are considered to be 'in the language' rather than 'in the world' in the sense that they are independent of the point of evaluation (indeed, in (76) the relativization to w is vacuous). And since what 'the B of C' adds to 'C' is the condition that C is a B, and this condition is not contingent but necessary, it is an open question what justifies choosing 'the B of C' over simply 'C'.

Three answers suggest themselves.

– Sometimes, we are unfamiliar with specialized terminology:

[73] Source: aljoimour.com/blog/2011/04/08/frene.html

[74] The reason for this correlation is not clear; in particular, it is difficult to explain why (i), where there is definiteness marking but no genitive marking on C, is infelicitous, even though the same definite nominative DP is felicitous in subject position on its own.

(i) #...dass das Hobby das Briefmarkensammeln keineswegs so eintönig ist
...that the hobby the stampcollect noway so monotonous is

(Source: www.vn.at/dornbirn/2017/11/21/briefmarkensammeln-ist-nicht-eintoenig.vn)

[75] Validated by Ruprecht von Waldenfels, p.c.

[76] Validated by Ruprecht von Waldenfels, p.c.

(79) The mineral thorite occurs in syenite near Brevik, Norway.[77]

Everyone is aware that gold is a mineral, but few are familiar with thorite, and thus the taxonomic fact that it is a mineral is likely to be informative. Depending on the audience, many terms may be more or less a part of the language, and the EG construction can then help explicate the meaning.

– The C term may be polysemous, and then the B noun can serve to resolve the polysemy. For example, the fact that *white* can refer to an ethnic group (*or* a colour) can be a reason for using the corresponding EG construction. This is likely to be a common pattern if polysemy is taken in a wide sense; many activities, say, can be conceived of as a hobby or as a profession, cf.:

(80) If you're new to the hobby of beekeeping (as opposed to commercial beekeeping) this is where you should begin . . .[78]

– Particularly regarding nouns that (can) denote sets of event properties or kinds, the membership in that set is not invariably an analytic matter. For example, what kinds of acts count as sins varies, and the EG construction will convey that the frame of reference is one that makes the action a sin.

(81) . . . that the sin of refusing such medication is akin to and perhaps even worse than the sin of eating non-Kosher food.[79]

It can be added that the B noun, whether it is basically a hyperonym or a noun denoting a set containing the kind denoted by the C noun, is often modified; (63) and (64) were cases in point, as are (82), (83) and (84).

(82) From 1979 to 1982, she trained in the rare craft of ivory carving.[80]

(83) . . . , including the endangered carnivore lynx.[81]

(84) . . . in das herrliche Hobby des Schiffsmodellbaus.[82] (German)
. . . in the glorious hobby the-GEN shipmodelbuild-GEN
'. . . into the wonderful hobby of ship modeling'

This restores informativity to the construction and provides a motivation for choosing it: it may be in any common ground that, say, the lynx is a carnivore, but that this carnivore is endangered is a matter of contingent fact.

[77] Source: www.britannica.com/science/thorite
[78] Source: www.amazon.com/Complete-Idiots-Guide-Beekeeping-ebook/dp/B00AR199WC
[79] Source: mobile.askmoses.com/article/555,2092854/Do-Oral-Medications-Need-To-Be-Kosher.html
[80] Source: Halat 2008: 61
[81] Source: Buseth and Saunders 2014: 5
[82] Source: www.krick-modell.de/Endkunden/elkat/highlights_2012/html/10010.html

3.4 'Reification'

The issue of how to analyze explicative constructions, especially as concerning propositions, properties, eventualities, or other 'abstract objects', has contact points with issues in the philosophy of language. In particular, it is natural to consider the analysis given above in the perspective articulated by Moltmann (2013: 202ff.), who discusses a wide variety of DPs of the form 'the B (of) C' under the label of **reifying terms**.

Reifying terms are to be understood as referential terms that introduce an object on the basis of a non-referential term (the 'denominative complement'). Thus in (85), the noun *colour* maps the meaning or use of *blue* onto an object.

(85) the colour blue

The background for this perspective on explicative constructions goes back to Frege (1892), who discussed a problem arising from cases like (86), one which has become known as 'the concept horse paradox' and is still vividly debated (cf., e.g., Hale and Wright 2012).

(86) der Begriff *Pferd* (ist ein leicht gewinnbarer Begriff.)
the concept *horse* (is an easily acquirable concept)

The problem is grounded in the premiss that any singular definite description denotes an object (Frege 1892: 195ff.).[83] This leads to the conclusion that the concept *horse* is not a concept so sentences like (86) emerge as contradictory:

> Es kann ja nicht verkannt werden, daß hier eine freilich unvermeidbare sprachliche Härte vorliegt, wenn wir behaupten: der Begriff P f e r d ist kein Begriff, während doch z.B. ... der Vulkan Vesuv ein Vulkan ist.
>
> 'We must recognize that there is here an (unavoidable) inflexibility in language when we claim that the concept horse is not a concept while, say, the volcano Vesuvius is a volcano.'

In order to occur as the subject in a sentence like (86), the concept must first be transformed into an object, or, more exactly, it must be represented by an object which we designate with the two words *der Begriff* (Frege 1892: 197).

Moltmann's treatment of explicative constructions in terms of 'reification' can be viewed as a way to execute this 'Fregean' strategy and to generalize it. An explicit compositional semantics for reifying terms is not offered, however, and it is in fact not easy to see how this could be provided. But in any case, it is interesting to compare the predictions that are made under Moltmann's theory to those that are made under the theory developed in this paper.

[83] "Die drei Worte "der Begriff 'Pferd'" bezeichnen einen Gegenstand, aber eben darum keinen Begriff... Dies stimmt vollkommen mit dem von mir gegebenen Kennzeichen überein, wonach beim Singular der bestimmte Artikel immer auf einen Gegenstand hinweist ..."

'The three words "the concept 'horse'" denote an object, but precisely therefore no concept. This accords with my notion that the singular definite article always refers to an object.'

Reification effects a change in referential status and thus in logical type: it transforms the denominative complement, C, from a non-referential into a referential expression, and in consequence, 'the B of C' receives a logical type which differs from that of C. This gives rise to the prediction that these two expressions will differ markedly in distribution: in principle, C will not make sense in the environments where 'the B of C' makes sense, and vice versa.

By contrast, under the analysis introduced here, the reifying term, that is, 'the B of C', basically inherits its logical type from C. The prediction arising from this is that the two expressions will have roughly the same distribution, or that differences must be accounted for in other than purely semantic terms. Indeed, that it should be generally possible to substitute C for 'the B (of) C' has been considered a characteristic fact (Fact 3) about the EG construction.

Now to be sure, differences in distribution can be observed, particularly in the other direction, from C to 'the B of C'. There are three possible sources for such differences. First, the C expression can be susceptible to a shift from one logical type, say, that of kinds, to another, say, that of sets of individuals, and one context can trigger such a shift while the context 'the B of' blocks it. The contrast between (69) and (70) discussed in Section 3.3 is a case in point, as is the contrast between (83) and (87).

(87) #... after her dog was suddenly attacked by the endangered carnivore lynx on Monday evening.[84]

Specifically, in terms of the 3-layered DP in the theory of Zamparelli (2000), it cannot be read off a surface noun form *lynx* whether in the second layer, it is just *lynx* or KO(*lynx*) (KO is the type-shifter from kinds to sets of objects); but in the context *the endangered carnivore lynx*, only the bare *lynx*, denoting a kind, makes sense. Importantly, this does not mean that C differs in logical type from 'the B of C', only that the surface form of C is ambivalent between two (or more) types and shifts from one to another are generally available – at that level but not at the level of 'the B of C', which is not ambivalent.

A second possible source for observed differences in distribution between C and 'the B of C' is closely related to the first, but concerns cases like (85) (*the colour blue*) if we assume that C denotes a set while 'the B of C' denotes a property (a set in intension), so that ($\mathcal{G}_E$) 'intensionalizes' its C argument. In fact, this is the one exception to the generalization that 'the B of C' retains the type of C: ($\mathcal{G}_E$) composes with C by Intensional Functional Application, so 'the B of C' will be of type $s(et)$ while C is of type (et). However, whether this difference can be held responsible for actual contrasts is unclear.

One more possible source for observed differences in distribution between C and 'the B of C' is syntax. Substitutions of 'the B of C' for C may fail for one of the two reasons just outlined, but in addition, there may be a syntactic reason, such as if the syntactic category of C differs from that of 'the B of C', which will be the case whenever C is not, or cannot be interpreted as, a DP.

[84] Adapted and modified from www.cbc.ca/news/canada/thunder-bay/thunder-bay-lynx-update-1.4544765

It is not unreasonable to suppose that a failure of substitution *salva felicitate* like the ones in (88) and (89) – violations of Fact 3 – can be attributed to the fact that the verb requires a DP, which the gerund phrase is not.

(88) Something that is superficially like gold in appearance but lacks *(the property of) having atomic number 79, would not be gold.[85]

(89) In The Good Soul of Szechuan by Bertolt Brecht, three gods descend to Earth to search for ??(the quality of) being good.[86]

On the whole, however, the contrasts that can be found between 'the B of C' and C regarding what contexts the two expressions can felicitously appear in are much more limited than one would expect if, as argued by Moltmann, the latter were systematically non-referential and the former regularly referential. In particular, the expectation would be the opposite of Fact 3: it should not be possible for C to replace the term 'the B of C' on its own. But in fact, the overall picture is in line with Fact 3. Below are three pairs of attested examples where syntactic and semantic felicity are preserved regardless of the presence or absence of the overt or covert genitive, a B noun and the definite article.

(90) a. If a mineral splits easily and evenly along one or more planes, it has the property of cleavage, ...[87]

b. Whether a mineral has cleavage or fracture depends on how the mineral's atoms are bonded.[88]

(91) a. Our eyes are most sensitive to the color yellow just before and during dusk.[89]

b. Our eyes are most sensitive to yellow during dusk.[90]

(92) a. Athena's ... action of transforming ... Medusa into a monster as punishment for the "crime" of being raped in her temple ...[91]

b. Athena turned Medusa into a monster as punishment for being raped by Poseidon.[92]

It can be added that in regard to what was introduced as case 1 and case 2 in Section 3.2, where C has the logical type e (individuals) or v (eventualities), it should be clear that both C and 'the B (of) C' are referential expressions. I conclude that the analysis I have proposed appears to make more accurate predictions about the relationship between 'the B (of) C' (the 'reifying term') and C (the 'denominative complement') than the one proposed by Moltmann.

[85] Source: plato.stanford.edu/entries/natural-kinds/
[86] Based on Xu 2007: 91
[87] Source: quizlet.com/117563376/section-41-flash-cards/
[88] Source: education.seattlepi.com/cleavage-mean-earth-science-5622.html
[89] Source: www.noxgear.com/component/content/?view=featured
[90] Source: runsignup.com/Race/MoonlightMiles/Page-6
[91] Source: www.ncbi.nlm.nih.gov/pubmed/12204171
[92] Source: rebrn.com/re/actual-summary-of-greek-mythology-v-384876/

Besides, as a compositional analysis, it is explicit about each step in building the meaning from those of the parts; by contrast, on Moltmann's proposal, it remains unclear in what sense 'the B of C' is invariably a referential term, as opposed to the general non-referentiality of the denominative complement. It can hardly be in the standard sense of denoting an individual, but as long as logical types are not stated, the notion of referentiality is difficult to assess.

What remains underdetermined on my proposal is just what logical type should be assumed for C, and thus for 'the B of C', in each and every case (recall the discussion of properties vs. kinds in Section 3.2), as well as more generally how many types, with what granularity, are to be reckoned with.

These considerations bring us back to Frege's example (86).

(86) der Begriff *Pferd* (ist ein leicht gewinnbarer Begriff.)
the concept *horse* (is an easily acquirable concept)

As a close apposition construction, it should be analyzable in terms of $(\mathcal{G}_E)$, the unpronounced explicative genitive, according to the general scheme in (93):

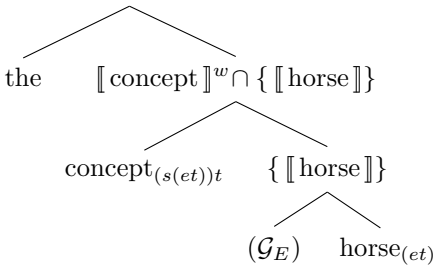
(93) [the [concept [$(\mathcal{G}_E)$ [horse]]]]

This is yet unspecified for the logical types involved and for whether it is the extension $[\![\,\text{horse}\,]\!]^w$ or the intension $[\![\,\text{horse}\,]\!]$ which is relevant. It seems clear, though, that the closest kin among the cases considered in Section 3.2 is case 3 – cf. (68-a), where $[\![\,\text{C}\,]\!]$ as a set in intension, a **property**, is what is relevant, as compared to (68-b), where what is relevant is $[\![\,\text{C}\,]\!]^w$ as a **kind**. This latter option would seem to be more appropriate for examples like (94):

(94) Das Huftier Pferd ist ein typisches Herdentier.[93] (German)
'The ungulate horse is a typical herd animal.'

The concept horse can hardly be said to be a herd animal; on the other hand, the ungulate horse can hardly be said to be easily acquirable. This indicates that the semantic value of the C term can be relevant as a property or as a kind, as the case may be, and that in (86), it is the property expressed by the noun *horse* that contributes to the construction, as specified in (95):

(95) $[\![\,\text{horse}\,]\!]$ if $[\![\,\text{horse}\,]\!] \in [\![\,\text{concept}\,]\!]^w$, undefined else



[93] Validated by Ruprecht von Waldenfels, p.c.

This hypothesis does not seem unreasonable. After all, it makes sense to say that what we acquire when we acquire the concept 'horse' is the function that yields, for any world and any object x, the answer to the question whether x is a horse in the world – a fair paraphrase of the meaning of the word *horse*.

The hypothesis needs to be more precise, though. Quite possibly, the word *concept* should be taken to denote a restricted set of properties, for example, properties with a form of psychological reality. This restriction could cause a noun like *horse*, while retaining the logical type $s(et)$, to be reinterpreted in terms of, say, whether x corresponds to the generic mental image of a horse.

Alternatively, the case of the concept 'horse' could (along with other cases, alluded to in footnote 20) motivate employing a richer system of types than standardly assumed, as argued on independent grounds by, e.g., Asher (2012). But which way one ought to go to arrive at a full and final treatment of this and other complex cases is a question that must be left for future work. It is clear, though, that whichever way is chosen will entail a break with Frege's dictum that "beim Singular der bestimmte Artikel immer auf einen Gegenstand hinweist" – the singular definite article always refers to an object. The definite article is radically underspecified with respect to logical types, and the same holds for its inverse, the overt or covert explicative genitive.

4 Conclusions

The morpheme under study in this article may seem simple and insignificant, and in a sense, simple it is: its meaning is arguably that of the definite article, analyzed in terms of the *iota* operator (Reichenbach 1947), turned inside out, making it a morpheme that overtly realizes the *ident* operation (Partee 1987). But its significance is far greater than what could be concluded from taking only one language or only one logical type into consideration.

An explicative genitive in one language can have a non-genitive appositive counterpart in another, while what is not a genitive in one language may have a counterpart which is in another: say, a Finnish toponym in the genitive case can correspond to a Russian one in the nominative, and an English kind noun in close apposition can correspond to one in a genitive construction in French. These observations open a broader perspective on explicative genitives, in two dimensions: first, the explicative genitive can be covert and coincide with the close appositive, and second, what can enter into an explicative construction are not only individuals, but also events, kinds or properties of individuals or events, and propositions. While the present paper may be far from providing last words on any aspect of this subject, I hope to have made a case that the operation $\lambda x\,\{x\}$, simple as it is, is the meaning of a morpheme which does a considerable amount of work in natural languages.

Acknowledgements I am deeply indebted to fellow linguists in the SynSem group at the University of Oslo and to former colleagues in the Department of Linguistics at the University of Chicago, as well as to three anonymous reviewers for Natural Language and Linguistic Theory, for very helpful comments and suggestions along the way.

References

Aarts, Bas. 1998. The syntax of binominal noun phrases in English. *Transactions of the Philological Society* 96: 117–158.

Adger, David. 2013. *A Syntax of Substance*. Cambridge, MA: MIT Press.

Aguilar-Guevara, Ana, and Joost Zwarts. 2010. Weak definites and reference to kinds. In *Proceedings of Semantics and Linguistic Theory XX*, ed. Nan Li and David Lutz, 179–196. LSA Open Journal Systems.

Aloni, Maria, and Floris Roelofsen. 2011. Interpreting concealed questions. *Linguistics and Philosophy* 34: 443–478.

AnderBois, Scott, Adrian Brasoveanu and Robert Henderson. 2015. At-issue proposals and impositive impositions in discourse. *Journal of Semantics* 32: 93–138.

Asher, Nicholas. 2012. Context in content composition. In *Philosophy of Linguistics*, eds. Ruth Kempson, Tim Fernando and Nicholas Asher, 229–269. Amsterdam: North-Holland Elsevier.

Asher, Nicholas, and Pascal Denis. 2004. Dynamic typing for lexical semantics: a case study: the genitive construction. In *Proceedings of the third international conference on formal ontology in information systems*, ed. Achille Varzi and Laure Vieu, 165–176. Amsterdam: IOS Press.

Barker, Chris. 1995. *Possessive Descriptions*. Stanford: CSLI Publications.

Bech, Gunnar. 1957. *Studien über das deutsche verbum infinitum Band 2*. Copenhagen: Det Kongelige Danske Videnskabernes Selskab.

Borik, Olga and M. Teresa Espinal. 2015. Reference to kinds and to other generic expressions in Spanish: definiteness and number. *The Linguistic Review* 32: 167–225.

Bošković, Željko. 2012. On NPs and Clauses. In *Discourse and Grammar: From Sentence Types to Lexical Categories*, eds. Günter Grewendorf and Thomas Ede Zimmermann, 179–242. Berlin: Mouton de Gruyter.

Buseth, Marit and Richard Saunders. 2014. *Rabbit Behaviour, Health and Care*. Wallingford: CABI Publishing.

Carlier, Anne and Jean-Christophe Verstraete (eds.). 2013. *The Genitive* (= Case and Grammatical Relations across Languages 5). Amsterdam: John Benjamins.

Chierchia, Gennaro. 1998. Reference to kinds across languages. *Natural Language Semantics* 6: 339–405.

Chierchia, Gennaro. 2010. Mass nouns, vagueness and semantic variation. *Synthese* 174: 99–149.

Coppock, Elizabeth and David Beaver. 2015. Definiteness and determinacy. *Linguistics and Philosophy* 38: 377–435.

de Cuba, Carlos. 2017. Noun complement clauses as referential modifiers. *Glossa* 2(1):3. DOI: 10.5334/gjgl.53.

Dayal, Veneeta. 2004. Number marking and (in)definiteness in kind terms. *Linguistics and Philosophy* 27: 393–450.

den Dikken, Marcel. 2006. *Relators and Linkers*. Cambridge, MA: MIT Press.

Eco, Umberto and Patrizia Violi. 1987. Instructional semantics for presuppositions. *Semiotica* 64(1/2): 1–39.

Elbourne, Paul. 2008. Demonstratives as individual concepts. *Linguistics and Philosophy* 31: 409–466.

Espinal, M. Teresa. 2010. Bare nominals in Catalan and Spanish: Their structure and meaning. *Lingua* 120: 984–1009.

Fabricius-Hansen, Cathrine and Arnim von Stechow. 1989. Explikative und implikative Nominalerweiterungen im Deutschen. *Zeitschrift für Sprachwissenschaft* 8: 173–205.

Fabricius-Hansen, Cathrine and Kjell Johan Sæbø. 2004. In a mediative mood: the semantics of the German reportive subjunctive. *Natural Language Semantics* 12: 213–257.

Frege, Gottlob. 1892. Über Begriff und Gegenstand. *Vierteljahresschrift für wissenschaftliche Philosophie* 16: 192–205.

Gehrke, Berit and Louise McNally. 2015. Distributional modification: the case of frequency adjectives. *Language* 91(4): 837–868.

Grimm, Scott and Louise McNally. 2015. The *-ing* dynasty: Rebuilding the semantics of nominalizations. In *Proceedings of Semantics and Linguistic Theory XXV*, ed. Sarah D'Antonio, Mary Moroney, and Carol Rose Little, 82–102. LSA Open Journal Systems.

Halat, Eva. 2008. *Contemporary Scrimshaw.* Atglen, PA: Schiffer Publishing.
Hale, Bob and Crispin Wright. 2012. Horse sense. *The Journal of Philosophy* 109: 85–131.
Hartmann, Katharina and Malte Zimmermann. 2002. Syntactic and semantic genitive. In *(A)Symmetrien – (A)Symmetries*, ed. Claudia Maienborn, 171–202. Tübingen: Stauffenburg.
Heim, Irene and Angelika Kratzer. 1998. *Semantics in Generative Grammar*. Oxford: Blackwell.
Hellan, Lars. 1980. *Toward an Integrated Theory of Noun Phrases*. Dr. philos. dissertation, University of Trondheim.
Jackendoff, Ray. 1984. On the phrase *the phrase 'the phrase'*. *Natural Language and Linguistic Theory* 2: 25–37.
Krifka, Manfred. 2004. Bare NPs: kind-referring, indefinites, both, or neither? In *Proceedings of Semantics and Linguistic Theory XIII*, ed. Robert Young and Yuping Zhou, 180–203. Cornell: CLC Publications.
Lasersohn, Peter. 1986. The semantics of appositive and pseudo-appositive NPs. In *Proceedings of the Third Eastern States Conference on Linguistics*, ed. F. Marshall, A. Miller, and Z. S. Zhang, 311–322. Pittsburgh, PA: The University of Pittsburgh.
Leland, John. 1539–43. *Itinerary of England and Wales*.
Mahieu, Marc-Antoine. 2013. The genitive case and the possessive construction in Finnish. In *The Genitive* (= Case and Grammatical Relations across Languages 5), ed. Anne Carlier and Jean-Christophe Verstraete, 19–54. Amsterdam: John Benjamins.
Matushansky, Ora. 2002. A beauty of a construction. In *Proceedings of WCCFL 21*, ed. L. Mikkelsen and Ch. Potts, 264–277. Somerville, MA: Cascadilla Press.
Matushansky, Ora. 2012. The case of close apposition. Manuscript, CNRS/Université Paris 8.
McCawley, James D.. 1996. An overview of 'appositive' constructions in English. In *Proceedings of the Twelfth Eastern States Conference on Linguistics*, ed. M. Przezdziecki and L.J. Whaley, 195–211. Ithaca, NY: Cornell University.
McNally, Louise. 2009. Properties, entity correlates of properties, and existentials. In *Quantification, Definiteness, and Nominalization*, ed. Anastasia Giannakidou and Monika Rathert, 163–187. Oxford: OUP.
McNally, Louise and Gemma Boleda. 2004. Relational adjectives as properties of kinds. In *Empirical Issues in Formal Syntax and Semantics 5*, ed. Olivier Bonami and Patricia Cabredo Hofherr, 179–196. Paris: CNRS.
Mikkelsen, Line. 2005. *Copular Clauses: Specification, Predication, Equation*. Amsterdam: John Benjamins.
Moltmann, Friederike. 2013. *Abstract Objects and the Semantics of Natural Language*. Oxford: Oxford University Press.
Moulton, Keir. 2015. CPs: Copies and compositionality. *Linguistic Inquiry* 46(2): 305–342. DOI: 10.1162/LING_a_00183.
Partee, Barbara. 1986. Ambiguous pseudoclefts with unambiguous *be*. In *Proceedings of NELS XVI*, ed. Steve Berman, Jae-Woong Choe and Joyce McDonough, 354–366. Amherst, MA: University of Massachusetts at Amherst.
Partee, Barbara. 1987. NP Interpretation and Type-Shifting Principles. In *Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers*, ed. Jeroen Groenendijk, Dick de Jongh, and Martin Stokhof, 115–143. Dordrecht: Foris.
Partee, Barbara and Vladimir Borschev. 1998. Integrating lexical and formal semantics: Genitives, relational nouns, and type-shifting. In *Proceedings of the Second Tbilisi Symposium on Language, Logic, and Computation*, ed. Robin Cooper and Thomas Gamkrelidze, 229–241. Tbilisi: Center on Language, Logic, Speech, Tbilisi State University.
Partee, Barbara and Vladimir Borschev. 2003. Genitives, relational nouns, and argument-modifier ambiguity. In *Modifying Adjuncts*, ed. Ewald Lang, Claudia Maienborn, and Cathrine Fabricius-Hansen, 67–112. Berlin: Mouton de Gruyter.
Partee, Barbara and Vladimir Borschev. 2012. Sortal, relational, and functional interpretations of nouns and Russian container constructions. *Journal of Semantics* 29: 445–486.
Peirce, Charles S. 1905. The basis of Pragmaticism. Unpublished manuscript.
Peters, Stanley and Dag Westerståhl. 2013. The semantics of possessives. *Language* 89(4): 713–759.

Reichenbach, Hans. 1947. *Elements of Symbolic Logic*. New York: Dover.
Rieppel, Michael. 2013. The double life of 'The mayor of Oakland'. *Linguistics and Philosophy* 36: 417–446.
Schlenker, Philippe. 2017. The semantics and pragmatics of appositives. Forthcoming in *The Companion to Semantics*, London: Wiley-Blackwell.
Schoubye, Anders. 2016. The predicative predicament. *Philosophy and Phenomenological Research*. DOI: 10.1111/phpr.12336.
Uegaki, Wataru. 2016. Content nouns and the semantics of question-embedding. *Journal of Semantics* 33(4): 623–660. DOI: 10.1093/jos/ffv009.
Vikner, Carl and Per Anker Jensen. 2002. A semantic analysis of the English genitive. Interaction of lexical and formal semantics. *Studia linguistica* 56: 191–226.
Villalba, Xavier. 2008. The focus-background articulation in Spanish qualitative binominal NPs. *Journal of Portuguese Linguistics* 7(2): 131–149.
Xu, Anne Lijing. 2007. *The Sublime Writer and the Lure of Action: Malraux, Brecht, and Lu Xun on China and beyond*. PhD dissertation, Rutgers University.
Zamparelli, Roberto. 2000. *Layers in the Determiner Phrase*. New York: Garland.
Zimmermann, Ede. 1993. On the proper treatment of opacity in certain verbs. *Natural Language Semantics* 1: 149–179.
Zimmermann, Ede and Wolfgang Sternefeld. 2013. *Introduction to Semantics: An Essential Guide to the Composition of Meaning*. Berlin: de Gruyter Mouton.