

Such a behavior is in sharp contrast with other items. On the one hand, there are lower numerals (“one” to “four”), which always agree in case with the counted noun, and the counted noun has a nominative form in the subject position (unlike what we see in (1a)). On the other hand, there are “group” nouns (denoting various collections of individuals). The subject form of such phrases is shown in (3a), and it has an “expected” genitive case on the complement. Crucially, the genitive is preserved in oblique cases, as (3b) demonstrates. It is impossible to use the numerical pattern where the dependent noun is marked by the relevant oblique case, see (3c).

- (3) a. skupin-a chlap-ů
 group-NOM guys-GEN.PL
 “a group of guys”
- b. Dal to skupin-ě chlap-ů
 he gave it group-DAT guys-GEN.PL
- c. *Dal to skupin-ě chlap-ům
 he gave it group-DAT guys-DAT
 “He gave it to a group of guys.”
 (both (b) and (c))

These facts taken together suggest that it is impossible to analyze numerals as ordinary nouns, because they do not assign GEN in oblique cases, recall (2). Similarly, they cannot be analyzed as ordinary adjectives (because they do assign genitive in (1), and Czech adjectives never do). Consequently (and correctly, I believe), numerals are treated as objects of a special type in a number of works. Most prominently, numerals are considered to be a category *sui generis*, generated either as the head of a dedicated functional projection, or as a phrase in its Spec (or both) (Babby 1987; Franks 1994; Rutkowski 2006; Pereltsveig 2007; Braticco 2011; Danon 2012; Pesetsky 2013). In what follows, I will refer to this as the standard view.

The standard view reflects the state of the art in theoretical research into categorization of expressions. Specifically, it is assumed that an item cannot simultaneously belong to two categories. Applied to our specific case, belonging to the special class of numerals is incompatible with belonging at the same time to the class of nouns. I will refer to this idea as the single-category view. Such a stand plausibly reflects the idea that lexical items may only occur as terminals of the syntactic tree. With such a view in mind, the only way to express the fact that an element differs in some grammatical aspect from a run-of-the-mill noun is to say that it is not a noun, but the exponent of an altogether distinct grammatical category (Num).

At the same time, there has been a constant tension between the single-category view and the observation that many items stand somewhere in between two prototypical categories. The Czech numerals I focus on here, for instance, require (in NOM/ACC environments) a case on the counted noun that is typical for nominal dependents. They also keep to a large extent nominal declension: the

dative *-i* in (2b) is homophonous with a DAT marker that appears with a class of nouns. It is distinct from an ordinary agreement marker.

Items similar to the Czech numerals have been sometimes called semilexical categories, and their investigation has received some focus in the literature. Van Riemsdijk (1998), for example, proposes that all functional categories share a categorial feature matrix with the lexical head, making them functional and lexical (nominal, in our case) at the same time. In a different line of research inspired by Kayne's work (see, e.g., Kayne 2005), Zweig (2006) proposes that some numerals—even if not nouns themselves—modify a silent noun NUMBER. These approaches share the conviction that insertion targets only terminals, and look for solutions that would make justice to the existence of semilexical items.

However, the “items as terminals” view has alternatives. In a theory like Nanosyntax (Starke 2009; Caha 2009), lexical items may spell out a whole set of projections, provided these projections form a constituent. If that is so, numerals (and semilexical categories in general) may be understood as items whose lexical specification overlaps with nouns, but includes additional functional projections. Specifically, numerals may be conceived of as a special noun that spells out a non-trivial syntactic phrase: a NumP. This is depicted in (4).⁴

(4) /numeral/ \Leftrightarrow [Num [N]] \Leftrightarrow Value

To be more explicit: (4) is an entry for a numeral, pronounced /numeral/, which spells out a phrasal node composed of a nominal bottom (something like Zweig's silent NUMBER) and a projection where precise numerical quantity is encoded in the functional sequence (Num). The exact value is not relevant for syntax (seven and eight have the same syntax in Czech), and I will be assuming that this aspect of the meaning is specified as that part of the lexical entry that is accessed by the conceptual system (represented by “Value”).

Possessing the tool of phrasal spell out thus enriches our expressive power: we are able to directly encode the fact that numerals are nounlike in some aspects, but that they are special in other respects. In this paper, I set out to explore this view, formally expressed in (4).

2 No Bundling

Let me begin by invoking some theoretical considerations that support (4). The main point is this: if we take numerals to be altogether unrelated to nouns (not

⁴ Other alternative solutions have been proposed. Corbett (1978) suggests that the numerals have a hybrid category he notates as ADJ/N. Similarly, Giusti and Leko (2005) claim that such higher numerals are sometimes merged as nouns (when they assign genitive), and sometimes as adjectives (when they don't).

to include an N in their specification), we create a problem for the so-called No Bundling hypothesis. The hypothesis says that each morphosyntactic feature is a head in the tree (see Kayne 2005; Starke 2009; Cinque and Rizzi 2010 for suggestions along these lines).

To see why the standard view on numerals is incompatible with No Bundling, consider what structure we arrive at assuming No Bundling and the standard theory at the same time. The starting point is that sometimes there are two distinct cases in numerical constructions: one on the numeral, and a distinct case on the counted noun, see (1a). As a consequence of No Bundling, we need one case projection above the numeral (it has an ambiguous NOM/ACC form), and another one above the noun (it bears GEN). Combining this with the proposal that Numerals sit in the Num head (or its Spec) leads to the structure given in (5).

(5) [K [Num [K [NP]]]]

But (5) is incompatible with what we know independently about the nature of the functional sequence (extended projection). Specifically, the functional sequence is an irreflexive ordering of elements, such that A may never dominate A. Equivalently, whenever A dominates A, we look at two (distinct) functional sequences (extended projections). Because the irreflexive nature of the ordering is violated in (5), one of the assumptions that lead to the structure has to be wrong (i.e., either numerals are not pure functional heads, or No Bundling is wrong).⁵

Partly as a consequence of this state of affairs, most approaches to numerals in Slavic implicitly give up the No Bundling hypothesis, and consider case a feature of the noun, which is never granted the capacity to project. When the feature is hidden from the main projecting line, no issue arises for the irreflexive nature of the functional sequence.

By contrast, the “phrasal numeral” proposal in (4) is compatible with No Bundling. Specifically, if numerals are a special class of phrasal nouns, then there are actually two nouns in the structure, each noun the head of its own extended projection. With two independent functional sequences (/extended projections), each K projection is unique within its own sequence, and there is no issue for the irreflexive ordering of the two K heads. I show this in (6); the subscripts highlight

⁵ The argument rests on the assumption that the two cases are of the same category. That assumption is too simplistic, but the issue is quite likely real all the same. For example, in Bayer et al. (2001) or Caha (2009), GEN (the lower K) and ACC (the higher K) correspond to a distinct syntactic projection. However, there are features they share, and these shared features will lead to the same problem even under the arguably more accurate conception.

However, it should be mentioned that an alternative is pursued in Pesetsky (2013). For him, the genitive case is actually of the category N, and the nominative found on the numeral is of the category D.

the fact that we are dealing with two extended functional sequences (each subscript for the whole extended sequence).⁶

(6) [K2 [Numerical Noun2 [K1 [Counted Noun₁]]]

Consequently, the current proposal is easily compatible with No Bundling. To the extent that the hypothesis is right, (4) has a point in its favor.

The “phrasal numeral” hypothesis also holds the promise of explaining the peculiar case distribution in the numerical phrases. In order to show that, the next two sections abstract away from the Czech-specific situation, and focus on some interesting phenomena found in binominal constructions in the languages of the world. The idea behind this move is to gain a general understanding of the syntax of binominal expressions without making case-specific stipulations about the Czech numerical construction. Once we understand how things work at a general level, I argue that the “phrasal numeral” hypothesis yields the Czech-specific empirical facts as a consequence.

3 Case attraction: the data

As highlighted in the preceding text, the main empirical reason for analyzing Czech (and more broadly Slavic) higher numerals as something else than nouns is the fact that they contrast with nouns in oblique contexts, recall (2) and (3). As Rutkowski (2006) summarizes the argument, the “claim that numerals are nouns makes it impossible to distinguish between the two case patterns.” In this section, I want to turn the argument on its head, and claim that the pattern in fact provides evidence that numerals are nouns. In order to show that, I turn to a phenomenon known as case attraction, which is illustrated in (7). The data are taken from Classical Armenian, and they show that Classical Armenian has two ways of marking possessors: the possessor is either marked genitive (7a), or it is “attracted” (7b). Attraction consists in replacing the genitive of the possessor by the case borne by the head.

(7) Classical Armenian (Plank 1995)

a. i	knoj-ê	t’agawor-i-n	b. i	knoj-ê	t’agawor-ê-n
	by wife-ABL.SG	king-GEN.SG-DEF		by wife-ABL.SG	king-ABL.SG-DEF
				“by the wife of the king”	

The important point is that the distribution of case markers in attraction structures (7b) is indistinguishable from the pattern we have seen in (2b) (the oblique

⁶ I will further adopt the hypothesis that the counted noun is in fact generated in a Spec of the numerical noun, but that is orthogonal to the main point.

case replaces the expected genitive). And because (7b) is uncontroversially a binominal structure, it is not possible to use an identical distribution of case markers in (2b) to back up the conclusion that items that exhibit the pattern are not nouns.

In fact, we reach a conclusion that is quite opposite to Rutkowski's: because there must be a way to generate the case pattern in (7b) with *knoj*- "wife" a noun, there must also be a way to generate the apparently peculiar pattern (2b) in the same way (i.e., with "five" a type of a noun). And because that is so, it seems superfluous to generate exactly the same pattern in a different way.

The parallel between Czech numerical phrases and clearly binominal case-attraction structures is strengthened by the observation that the Classical Armenian attraction pattern (7b) is unattested in NOM and ACC (Plank 1995:43); in these cases, genitive marking is the only option:⁷

- | | |
|-----------------------------------|-----------------------------------|
| (8) No Attraction in ACC (or NOM) | b. *nšanagir-s alp'abet-s |
| a. nšanagir-s alp'abet-ac' | letters-ACC.PL alphabet-ACC.PL |
| letters-ACC.PL alphabet-GEN.PL | "letters of the alphabet" |

This should be considered in parallel to the fact that NOM/ACC environments also block attraction in the relevant type of Czech numerical phrases, recall (1). In other words, if the Czech numerical pattern is an instance of case attraction (a type of a binominal construction), then the distinction between structural and oblique cases is just an expected consequence of this classification.

Let me also make explicit a distinction between Armenian and Czech that has appeared in the data. In particular, on the basis of the example in (7), attraction seems optional (at the first glance). However, the Czech numeral "five" enters only the attraction pattern, see (2). And conversely, ordinary nouns cannot exhibit case attraction in Czech, see (3). In sum, while the two Armenian binominal patterns each find an analogue in Czech, each type appears to be dedicated to a particular class of items.

However, there are at least two items in Czech that appear in both patterns: "hundred" and "thousand." These allow for their complement to appear either in the genitive, or in the relevant oblique case, see (9).⁸

⁷ Because Classical Armenian is a dead language, the star in front of the example means that such examples are simply unattested. Their ungrammaticality can only be extrapolated on the basis of the known facts.

⁸ They still permit only GEN in NOM/ACC environments.

- | | | | |
|-----|----------------|-------------|-------------|
| (i) | st-o | { chlap-ú | /*chlap-i } |
| | hundred-NOM.SG | guys-GEN.PL | guys-NOM.PL |
| | "hundred guys" | | |

- (9) a. Dal to st-u chlap-ů
 he gave it hundred-DAT guys-GEN
 b. Dal to st-u chlap-ům
 he gave it hundred-DAT guys-DAT
 “He gave it to hundred guys.”

In order to understand these issues, we need to have an analysis of the mechanics underlying case attraction. In the next section, I explore case attraction and related phenomena in order to gain insight into the syntax of the Czech numerical phrases.

4 Case attraction: an analysis

The analysis of case attraction has two logically independent parts. One is to understand the process that targets specifically the dependent noun (prototypically the possessor), and replaces its expected genitive marking by an agreement-like marker. The other part concerns the external conditions that control whether a given dependent noun is going to be subject to the process (attraction sometimes must and sometimes mustn't occur). I take these up in turn.

4.1 THE INTERNAL MECHANICS OF ATTRACTION

Caha (2013) argues that attraction should be analyzed as a combination of two processes: (1) possessor agreement (2) followed by an ellipsis of the regular genitive marking. The ellipsis is licensed by the agreement marker, which remains present in the string. Let me now highlight the two steps in turn.

The first part of the proposal says that case attraction is related to a construction that is sometimes referred to as *Suffixaufnahme* (Plank 1995) or case stacking (see, e.g., Richards 2013). An example is shown in (10). What is most relevant: the possessor (“Dick”) carries two case markers. The first one (*-ndamun*) is a genitive, which marks the possessor function of the noun “Dick.” The second one (*-du*) is an ergative marker, which reflects the case of the head noun (“dog”). The second case marker is thus an agreement/concord type of marker.

- (10) Dicki-ndamun-du kaya-ngka
 Dick-GEN-ERG dog-ERG
 “Dick’s dog” (Guugu Jalañji, Plank 1995)

There are many proposals for adjectival agreement in the literature, and I cannot do any justice to the topic here. However, for concreteness, let me briefly mention what I assume. The proposal I adopt is that possessors (and adjectives) that are

marked for concord are in fact reduced relative clauses, a proposal recently advocated by Leu (2008). If that is so, the agreement marker corresponds in one way or another to a relative clause internal representation of the head.

This basic line of analysis is still open to a number of possible interpretations due to the multitude of approaches available for analyzing relative clauses (whether reduced or not). According to Leu (2008), the agreement marker arises as a consequence of a Spec-Head agreement formed inside the relative clause, out of which the head noun extracts later on (the head-raising analysis of relative clauses). However, this is not the only option. For example, the so-called matching analysis (see, e.g., Salzmann 2006) proposes that relative clauses contain an identical copy of the external head. Under such an approach, the agreement marker may correspond to a remnant of the noun in the relative clause, a part of which has been elided.

In any event, I assume that the structure of an agreeing possessor contains a projection which represents the features of the head noun. The proposal for case attraction says that such a structure is the input to step (2), where the genitive is obligatorily deleted, and only the agreement marker survives:

- (11) Case attraction as agreement plus ellipsis
 head noun-case_i [[dependent noun-~~GEN~~] AGR=case_i]

Crucially, the ellipsis of the genitive case must be recoverable. This allows us to explain the fact that case attraction applies in oblique cases, but it does not happen in NOM and ACC. In particular, the idea is that in terms of feature content, all oblique cases contain the genitive case at their core (licensing the ellipsis), while NOM and ACC do not (and fail to license it). Such containment relations among cases are abstract: they hold of the feature structure associated to the cases (and not necessarily of the actual morphemes). Such abstract containment relations may be independently motivated by various considerations (see Caha 2009 for a detailed cross-linguistic discussion with Czech-specific section in ch. 8), but I cannot reproduce the discussion here for reasons of space.

What I will do instead is just provide an illustration of the general logic. I start with the paradigm in (12), which corresponds to a subset of cases in Ingush (Caucasian, Blevins 2009:203, attributed to Nichols 1994).

- (12) Singular noun paradigm from Ingush

“hen”	
NOM	kuotam
GEN	kuotam-a
DAT	kuotam-a-a
INS	kuotam-a-ca

What is to be noted is the fact that the oblique cases in Ingush are based on the form of the genitive, but the nominative is not. Under the assumption that the morphology actually reflects the underlying feature composition, it is expected that all oblique cases may license the ellipsis of a genitive, because the genitive may be recovered on their basis (i.e., *-a* may be recovered on the basis of *-a-a* and *-a-ca*). However, the nominative does not contain the genitive, and hence, it may not license such an ellipsis (i.e., *-a* may not be recovered on the basis of \emptyset). The idea is that exactly the same containment relations hold for Czech and elsewhere, but they are opaque due to the existence of portmanteau morphemes (e.g., the Czech *INS* is a portmanteau for the features underlying the Ingush agglutinative sequence *a-ca*).

Assuming an account along these lines, a question to be tackled is what happens in structural cases. Here, the genitive marking of the counted noun cannot be elided, because *NOM/ACC* have fewer features than *GEN*. Therefore, the genitive has to surface (which it does, recall (1)). However, unlike in *suffixaufnahme* structures, see (10), the genitive is never followed by an overt agreement marker. The question arises how to analyze its apparent absence, and the following options come to mind. (1) The structure of the structural cases is different: the genitive marking is a reflex of an ordinary binominal structure, and no additional agreement is ever present on the genitive; (2) the syntax of the structural cases is the same as in the oblique cases: there is an agreement marker in the syntax, but it is either phonologically null, or elided. I suggest here that one of the options given in (2) is correct.

The first reason to explore such a path is the uniformity of the analysis: we know that in oblique cases, numerals like “five” undergo attraction (and hence agreement) obligatorily. It seems theoretically complicated to make sure that agreement does not apply in structural cases, while it has to apply in oblique cases.

The second reason is empirical, and it has to do with demonstrative agreement. The following observation is relevant: in Czech numerical phrases without attraction, demonstratives have to agree with the numeral, and not the counted noun. I illustrate this on the numeral “hundred.” Recall from (9) that with this particular numeral, the counted noun may be marked *GEN* also in oblique cases (the non-attraction pattern). In this pattern, the demonstrative has to agree with the numeral, see (13a), and it cannot agree with the counted noun, see (13b).

- (13) a. Dal to **t-omu** **st-u** **chlap-ů**
 he gave it that-DAT.SG hundred-DAT.SG guys-GEN.PL
 b. *Dal to **t-ěch** **st-u** **chlap-ů**
 he gave it that-GEN.PL hundred-DAT.SG guys-GEN.PL
 “He gave it to those hundred guys.”

By contrast, in structural cases, the demonstrative may agree either with the numeral, see (14a), or the counted noun, see (14b):

- (14) a. **t-o** **st-o** **chlap-û**
 that-NOM.SG hundred-NOM.SG guys-GEN.PL
 b. **t-ěch** **st-o** **chlap-û**
 that-GEN.PL hundred-NOM.SG guys-GEN.PL
 “those hundred guys”

Starting from (14a), it seems reasonable to conclude that it represents the counterpart to (13a): it is an ordinary binominal structure, and the demonstrative agrees with the numeral. However, the fact that (14b) is possible (in fact, preferred) may come as a surprise: recall that (13b) was out. The only way out of the puzzle seems to be admitting that (14b) is not an ordinary binominal structure: it is a “case-attraction structure.”⁹

In sum, the claim of this subsection is that case attraction is a process very similar to possessor agreement, and differs from it only in that it adds an additional process of genitive ellipsis (under recoverability). As a consequence, the difference between structures with attraction and simple binominal structures (with a regular genitive) is a difference between an agreeing-possessor construction (attraction) and a nonagreeing-possessor construction (plain genitive).

In the next section, I set out to explore the external conditions that allow/ban attraction structures to be generated. In doing so, I take the parallel between attraction and possessor agreement seriously. Specifically, I look at the conditions governing possessor agreement in Old Georgian, with the intention to extrapolate the results for attraction structures.¹⁰

4.2 EXTERNAL CONDITIONS ON ATTRACTION

There are languages where agreeing and nonagreeing genitives differ in their syntactic position. Before I get into the fine-grained details, let me say that I am going to assume a view according to which dependent nouns with various interpretations sit in a specifier of the head noun; or, more precisely, in the Spec of one of its functional projections. It may be that they are base-generated there (see Adger 2013) or move there (Kayne 2004; Cinque 2005), a question that is not crucial for my current concerns. What matters is that the particular position of the genitive seems to vary depending on whether it agrees with the head or not. A language where this may be well observed is Old Georgian. In this language,

⁹ I put case attraction in scare quotes to signal the fact that no attraction (genitive ellipsis) actually takes place.

¹⁰ I do this because I am not aware of any study that looks at the difference between attraction/non-attraction in Armenian, or other languages with case attraction.

as the evidence suggests, nonagreeing possessors have to be low, while agreeing possessors are located high.

In order to present the relevant facts clearly, let me start by giving some relevant background. In Old Georgian, adjectives, numerals, demonstratives, and articles agree with the head noun, see (15) for an example. For these items, agreement is obligatory.

- (15) *or-n-i* *brma-n-i*
 two-PL-NOM men-PL-NOM
 “two men” (Boeder 1995:155)

In binominal constructions, agreement may target also genitive constituents, see (16a). As (16b) shows, such agreement marking is present only once in the whole genitive phrase: the adjective “holy,” modifying the head of the genitive phrase, does not show double case marking.

- (16) Old Georgian (Boeder 1995:159) b. *šecevn-ita* [*cmid-isa sameb-isa*]-*jta*
 a. *šroša-n-i* *vel-isa-n-i* *help-INS* *holy-GEN* *trinity-GEN-INS*
 lily-PL-NOM *field-GEN-PL-NOM* “with the help of the holy trinity”
 “the lilies of the field”

Under certain conditions, agreement marking of the genitives is absent. The specific conditions are what interests me here. A basic contrast is that while postnominal possessors always have to agree, prenominal ones do not have to do so. This is shown in the following pair of examples (17). In both of them, the head noun “womb” receives the instrumental case from the postposition *gan* “from.” In the first example, see (17a), the genitive phrase “his mother” follows the head, and receives an additional instrumental marking, occurring at the right edge of the whole genitive constituent. In (17b), the genitive phrase precedes the head, and receives no agreement.

- (17) Old Georgian (Boeder 1995:179, 157)
 a. *mucl-it-gan* [*ded-isa* *tws* *-isa*]-*jt*
 womb-INS-from *mother-GEN* *her own* *-GEN-INS*
 “from the womb of his [*sic*] mother”
 b. *ded-is* *mucl-it-gan*
 mother-GEN *womb-INS-from*
 “from the mother’s womb”

Interestingly, the precise conditions that determine whether a particular genitive phrase is or is not marked by agreement are more intricate than the simple

prenominal versus postnominal distinction. That is shown by the following example, where a prenominal genitive agrees with the head:

- (18) Iesu-is-i xilva-j
 jesus-GEN-NOM seeing-NOM
 “[we want to] see Jesus” (lit. [we want] seeing of Jesus) (Boeder 1995: 163)

Focussing now on the class of prenominal genitives, an interesting contrast emerges between agreeing and nonagreeing items. Specifically, as Boeder (1995: 164) argues, “genitives without Suffixaufnahme appear never to be separated from their heads by any modifiers.” As highlighted at the outset, I believe that this fact tells us that while nonagreeing genitives sit low in the extended NP, agreeing genitives are located higher up.

The most obvious piece of evidence for the claim would be such that when additional modifiers (adjectives, numerals, demonstratives) are present in the extended NP, nonagreeing genitives follow them, while agreeing ones precede them. As much as this seems to be true, the textual evidence provides little material in terms of minimal pairs. The closest one can get is to juxtapose examples such as (19a,b):

- (19) Old Georgian (Boeder 1995:164)
- a. xul-ta ma-t [krtil-isa] pur-ta-gan
 five-PL.OBL art-PL.OBL barley-GEN bread-PL.OBL-from
 “of the five barley loaves”
- b. [mqec-ta-j ma-t] u3ʒeb-i igi m3wnvareba-j
 beasts-GEN-NOM ART-PL insatiable-NOM ART.NOM raging-NOM
 “the insatiable raging of the beasts”

In the example (19a), we have a nonagreeing genitive “of barley” (boldfaced). It is located in between the initial numeral “five,” and the head noun “bread.” This indicates its relatively low position in the extended NP (lower than numerals). In the example, we also see a clitic article *ma-t* (belonging with the head noun “bread”), on which I comment in more detail later on.

In (19b), we see a complex agreeing genitive phrase “of the beasts” (boldfaced), which includes a definite article in the position following its head (i.e., “beasts”). The whole agreeing genitive phrase is separated from the head by an adjective (insatiable), suggesting the genitive phrase is located higher than the adjectival modifier. It is also separated from the head by the clitic definite article *igi*, to which I turn later on.

The examples (19a, b) illustrate the fact that agreeing genitives may—and nonagreeing genitives may not—be separated from the head. However, because one of the examples involves an adjective and the other one a numeral, they are not a minimal pair, and strictly speaking, tell us little about the precise height of the possessor.

However, agreeing and nonagreeing pronominal genitives behave differently also with respect to the placement of their head's clitic definite article. In order to be able to interpret the facts and their implications, let me first provide a brief background on the location of the article in phrases that do not include any genitives. Put briefly, the article is a second position clitic. This means that in phrases where there is just the noun, the article comes after the noun; see (20a). If a modifier precedes the noun, the article attaches after the first one of these modifiers (20b).

(20) Old Georgian (Boeder 1995:154)

- a. mter-i **igi**
 enemy ART.NOM
 “the enemy”
- b. cmida-j **igi** mcire-j eklesia-j
 holy-NOM ART.NOM little-NOM church-NOM
 “the holy little church”

From this perspective, agreeing pronominal genitives present no puzzle. The boldfaced clitic article follows the bracketed pronominal genitive (with the agreement marker factored out), see (21a). By contrast, as (21b) shows, the location of the (boldfaced) article with a nonagreeing pronominal genitive (in brackets) is slightly more surprising. The article treats the nonagreeing genitive and its head as a single constituent, and appears in a position following the head, see (21b):

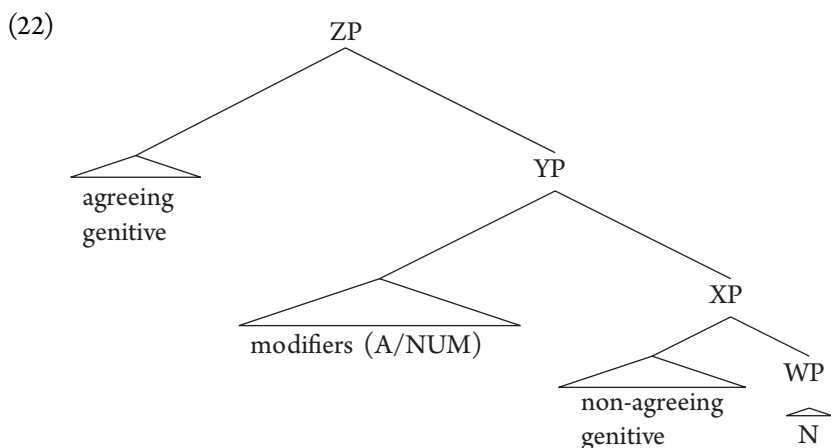
(21) Old Georgian (Boeder 1995:163)

- a. [xuro-]sa-j **igi** ze-j
 carpenter-GEN-NOM ART.NOM son-NOM
 “the son of the carpenter”
- b. [cmid-isa m-is] zma-n-i **igi**
 holy-GEN ART-GEN brother-PL-NOM ART.NOM
 “the brothers of the saint”

Correctly to my mind, Boeder (1995) interprets this in a way such that the nonagreeing genitival modifier differs from all other agreeing modifiers (including agreeing genitives) and forms a low-level tight-knit constituent with the noun (perhaps a sort of a compound), whose inside is inaccessible for the clitic (just like the inside of a compound would be).¹¹

¹¹ Hypothetically, it could also be so that the nonagreeing modifier is actually located very high — above the base-generated site of the clitic, and the clitic simply goes to a second position within a domain that includes only the head noun. However, this “high” interpretation of nonagreeing genitives does not square well with the facts of (19a), where the nonagreeing genitive is clearly located inside the domain within which the second position is determined.

What then emerges from the discussion can be structurally represented in the following way:



In words: nonagreeing genitives are low, agreeing genitives are high.¹² Equipped with this conclusion, I turn:

5 Back to Czech

Let me briefly sum up the relevant points. I started exploring the view that Czech numerals are a special type of a lexical item that spells out a phrasal constituent that includes a nominal projection at the bottom as well as a relatively high functional projection (Num). This leads to a binominal analysis of Czech numerical phrases, an analysis that (unlike many alternatives) turns out to be compatible with No Bundling. An empirical support for this analytical decision is provided by the fact that numerical phrases strongly resemble case attraction structures, a clear instance of a binominal structure.

I have further sketched an analysis of attraction in terms of agreement marking of the dependent genitive plus a subsequent ellipsis of the genitive marking. From this perspective, the difference between attraction and nonattraction is whether the genitive noun has an additional agreement marker or not. Then, in order to see what conditions may govern such variation, I have turned to Old Georgian. In this language, we find relatively good evidence that nonagreeing genitives form a tight-knit constituent with the noun, whereas agreeing genitives are located higher up.

¹² The postnominal position of the agreeing genitives comes about as a result of moving a large projection of the noun across the agreeing genitive. Apparently, this movement is unavailable for the low NP node, and hence, nonagreeing genitives never end up after the noun.

There are reasons to believe that similar principles are at work in Czech, still independently of the particular numerical construction. To see that, consider the fact that in Czech, there are two basic ways of realizing additional nominal arguments in an extended NP. A nonagreeing genitive, and an agreeing genitive-like phrase.¹³ With a class of nouns, the two can be combined, see (23). The interpretation makes it clear that the nonagreeing genitive (interpreted as the person depicted) must be lower than the agreeing nominal (interpreted as the possessor or author). The fact that the agreeing “genitive” may serve as an antecedent for the nonagreeing one likewise points in the same direction.

- (23) [Petr-ov-y [obrazy seb-e]]
 Petr-poss-agr pictures self-GEN
 “Petr’s pictures of himself”

5.1 WHY NUMERICAL NOUNS REQUIRE AGREEING GENITIVES

With the general conclusions in place, I turn to the numerical construction. Let me start by an analysis of numerals like “five,” where the counted noun undergoes attraction obligatorily (see (2)). If attraction in these structures requires an agreeing genitive construction as its input, this means that at some level of representation, the counted noun must be an agreeing genitive (and cannot be a nonagreeing genitive). This in turn means that the counted noun must be located high (and not low) in the functional spine of the numeral, which acts as the head noun. Why should this be so?

The answer, I believe, emanates from the initial analysis of numerals in (4), repeated in (24a), according to which numerals spell out a relatively large phrasal constituent.

- (24) a. /numeral/ \leftrightarrow [Num [N]]
 b. [GEN] outside of [Num N]

If we now further adopt the proposal that spell out is restricted to constituents (Neeleman and Szendrői 2007; Starke 2009; Radkevich 2009; Caha 2013; cf. Starke 2011; Caha 2011; Pantcheva 2011), then we derive the effect depicted in (24b): the dependent genitive must be located no lower than Num. If it were lower, inside NumP, it would be impossible for the numeral to spell out NumP.

This relatively high position corresponds to the agreeing genitive construction. Why? Recall from (22) that nonagreeing genitives must be local to the noun (lower than Num, recall also (19a)). However, because genitive dependents of

¹³ The agreeing nominal is not strictly speaking an agreeing genitive, even though it shares a number of traits with genitives (see Corbett 1987; 1995).

numerals must be high (in order not to break the needed constituency), we correctly expect them to be of the agreeing sort.

5.2 WHY ORDINARY NOUNS TAKE NONAGREEING GENITIVES

Unlike numerals (i.e., numerical nouns), ordinary nouns spell out only a relatively low NP node. Their genitive dependents may therefore be located lower than Num, right above the NP.

(25) [Num [GEN [NP]]]

As a result of their low position, they will be of the nonagreeing (and consequently, nonattracting) type. In effect, we derive the distribution of attracting/nonattracting dependent genitives from the lexical entry of the nominal head.

5.3 AMBIGUOUS ITEMS

This basic outline of the analysis faces a challenge in the form of numerals like “hundred” and “thousand” that allow both patterns (recall (9), repeated in (26)):

- (26) a. Dal to st-u chlap- ů
 he gave it hundred-DAT guys-GEN
 b. Dal to st-u chlap- ům
 he gave it hundred-DAT guys-DAT
 “He gave it to hundred guys.”

In this aspect, “hundred” and “thousand” diverge from other numerals (“five” to “ten”). Interestingly, it is not the only place where they diverge from these numerals. Their second special property is that they may be counted without undergoing any sort of morphological modification (cf. Kayne 2006). I show this in (27c, d). By contrast, (27a, b) give examples where “five” and “ten” are counted, and the result is ungrammatical.¹⁴

- (27) a. *dvě pět c. dvě st-a
 two five two hundred-PL
 b. *dvě deset “two hundred”
 two ten d. dva tisíc-e
 two thousand-PL
 “two thousand”

¹⁴ The variation between *dva/dvě* is conditioned by the gender of the head noun (*-a* for the masculine gender, *-ě* for the rest). Both forms are out in the ungrammatical examples.

This contrast is particularly striking in the case of “ten.” As shown in (27b), the numeral cannot be counted. Correlating with it is the fact that its complement undergoes obligatory attraction:

- (28) a. *Dal to deset-i chlap- ů
 he gave it ten-DAT guys-GEN
 b. Dal to deset-i chlap- ům
 he gave it ten-DAT guys-DAT
 “He gave it to hundred guys.”

This is so despite the fact that the number ten is used in Czech to form complex numerals like “twenty.” However, these formations involve a different lexical item (just like English has *ten* versus *-ty*), see (29).

- (29) dva-cet
 two-ty
 “twenty”

Thus, there are reasons to believe in the existence of a nontrivial correlation between two properties of Czech numerals (the particular lexical items, not the actual number it represents): the possibility to take complements with no attraction, and the ability to be counted. “Hundred” and “thousand” can be counted, and may take nonattracting genitive complements, other numerals have neither property.

Similarly, the numerals “hundred” and “thousand” may take plural morphology in a type of approximative reading (cf. Kayne 2006); I give an example with *sto* “hundred” in (30a). *Deset* “ten” cannot occur in this environment, as shown in (30b). Thus, we have an additional correlation between the ability of a numeral to take plural morphology, and its ability to take a nonagreeing genitive dependent.

- (30) a. Ve článku byly st-a a st-a chyb
 In article were hundred-PL and hundred-PL mistakes.GEN
 “There were hundreds and hundreds of mistakes in the article”
 b. *Ve článku byly deset-y a deset-y chyb
 in article were ten-PL and ten-PL mistakes.GEN
 “lit. There were tens and tens of mistakes in the article”

Such type of data are usually taken to indicate that “hundred” and “thousand” are ambiguous between nouns (when they take a nonattracting genitive dependent, plural morphology, or when they are counted) and numerals (when their complement undergoes case attraction). By contrast, the current account makes it possible to handle the data with just a single lexical entry. I turn to this now.

First, let me say that the possibility to rely on a single lexical entry is attractive because ambiguous behavior of semilexical items is quite typical. To illustrate the point, consider some examples from English. *Front* has both a prepositional and a nominal use (*in the front of the car* versus *in front of the car*; see Svenonius 2006); *head* has a classifier use (as in *three head cattle*) as well as a purely nominal use; English *hundred* has a numerical use (as in *three hundred mistakes* — note the absence of plural and *of*) as well as a nominal use (*hundreds of mistakes* where both plural and *of* are there; see Kayne 2006).

From this perspective, “hundred” and “thousand” are actually well behaved semilexical items. In the Nanosyntactic framework, their behavior may be accounted for straightforwardly by appeal to the so called Superset Principle:

- (31) *The Superset Principle* (Starke 2009): A lexically stored tree matches a syntactic node iff the lexically stored tree contains the syntactic node.

In general terms, the rule says that an entry may spell out structures that correspond to its full specification, or a subset thereof. In the case of semilexical categories as understood here, (31) entails that such an item may behave as a functional element (using its full specification), or an ordinary noun (using a subset of it). In our particular case, a numeral like (24a) may use its full specification (and behave as a special grammatical object, a numeral), or use only its lower NP part, and behave as an ordinary noun. Thus, the ambiguous behavior of “hundred” and “thousand” is in fact predicted by the theory: they may shrink down to spell out the syntactic N node, and behave as regular nouns. When they shrink, they may combine with nonattracting genitive dependents, because these no longer intervene in the constituent to be lexicalized.

From that perspective, what is problematic is not the behavior of “hundred,” but the pattern of *pět* “five” and its kin; according to The Superset Principle (31), these numerals too should be “shrinkable”—but they are not. A possible (rather tentative) explanation for that follows.

Items that cannot shrink have been reported various places in the literature (Starke 2010; Dékány 2011:131–3). The prototypical instance of such items are idioms. To see this on an example, consider the expression *kick the bucket* in the interpretation of “die.” Because the meaning is not compositional, we need to state it in the lexicon. One way to achieve that is to rely on a large phrasal lexical entry encoding the fact that a constituent composed of the particular lexical items ([KICK [THE BUCKET]]) is interpreted as “die.” However, no part of the idiom means “die:” the entry is unshrinkable.

Theoretically (drawing here on Starke’s unpublished work), unshrinkability has been attributed to the fact that idioms are phrasal lexical entries that make reference to other entries (e.g., the independent entry of *bucket*). Such a reference

is encoded by a special device called “pointer” (see Pantcheva and Caha 2012 for a more detailed presentation). By the definition of a pointer, an entry that has it may only be inserted if the particular entry pointed to has been inserted first in the structure. As a consequence, the entry for *kick the bucket* cannot insert the meaning of “die” for *kick*, because it may only be used if all the other entries pointed to have been inserted first. Having a pointer in the entry may then be the reason why some numerals cannot shrink.

The following entry shows one possible way to encode the unshrinkability of “five.” It preserves the basic idea of this paper (numerals are phrasal), and adds beyond this the proposal that the entry for “unshrinkable” numerals includes a pointer (\rightarrow) to the lexical entry for “number,” recalling Zweig’s (2006) proposal.

(32) /pět/ \leftrightarrow [Num \rightarrow [NUMBER]] \leftrightarrow 5

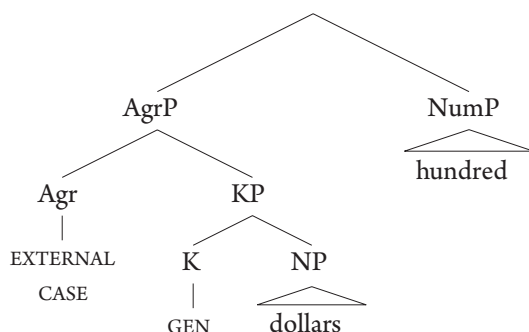
As a consequence of such an entry, the numeral cannot shrink down to the low NP node; this node would be spelled out as the noun *number* (as in *a number of examples*). It is only when such structure is augmented by Num, that the numeral *pět* may be inserted.

To conclude: the phrasal-numeral hypothesis predicts that the counted noun must sit higher than Num. This high position leads to the presence of agreement on the counted noun, and subsequently to attraction. If the counted noun is low, the numeral cannot spell out the whole NumP. Two options arise: either the numeral makes use only of a subset of its specification, and starts behaving as a noun, taking an ordinary nonagreeing genitive, accepting plural, etc. This is what we find with “hundred” and “thousand.” Alternatively, if the numeral cannot shrink (because of a pointer), ungrammaticality arises. This is what we find with the numerals “five” to “ten.”

6 Ordering

According to the current proposal, numerals are phrasal nouns, and the whole construction that includes the numeral and the counted noun is a binominal construction. The numeral (a phrasal noun) acts as the head of the whole binominal complex, and the counted noun is generated in its Spec, see (33). The counted noun bears the genitive case, just like other noun phrases embedded inside a larger NP do in Czech. Unlike other such noun phrases, the counted nouns are generated with an accompanying agreement marker that tracks the case of the whole binominal phrase. The reason for that, recall, is the relatively high position of the genitive in the functional structure. The relevant structure is shown in (33), with movements omitted.

(33)



There are two additional issues to take into consideration concerning this structure. Both of them revolve around ordering. In particular, it seems that the proposal (33) allows the generation of the sequence Num-Dem-A-N. However, Cinque (2005) observes in his typological study that such a sequence does not seem to be attested in any language, and hence, something should be said about this.

Let me start from the fact that the actual surface ordering between the genitive and the numeral is Num > GEN. This is not reflected in the structure (33) (which yields GEN > Num). The simplest solution is to assume in addition that the (phrasal projection of the) numeral moves across the agreeing genitive. The general worry about this proposal is the following: if we allow numerals to move, we open a way for deriving the unattested order Num-Dem-A-N. To see that, suppose that we add a demonstrative on top of (33); then, allowing numerals to move across Dem would yield Num-Dem-A-N. Ruling out such an option ad hoc for Czech is certainly possible, but it hides a more serious issue: the order Num-Dem-A-N is one of those that are cross-linguistically unattested (Cinque 2005).

Apart from movement, there is a second way to generate such an unattested order. Specifically, if we base generate a demonstrative inside the projection of the counted noun in (33), and move the numeral across the agreeing genitive, we again have the order Num-[Dem-A-N], which is cross-linguistically unattested.

One way to approach the problem would be to look for ways to (1) restrict the movement of the numeral in some way, and (2) stipulate a restriction on the size of the counted noun. However, I follow a different track: I am going to suggest that at least one of these derivations is in fact attested, but it yields a different meaning. If that is so, then the current approach easily deals with examples that would require a special mechanism under the standard account.

I start from the observation that there are in fact sequences in Czech that have the shape Num-Dem-A-N, an example of which is in (34).

- (34) pět těch chlap-ů
 five.NOM/ACC those.GEN guys-GEN.PL
 “five of those guys”

However, as the translation makes it clear, this sequence has a partitive reading. For this reason, it is not considered in the typological literature (including Cinque's contribution) as an instance of a basic ordering between Dem, Num and N. Note that examples of this type are also subject to attraction, see (35), and hence, there are reasons to believe that they have a similar base structure as the nonpartitive examples (with the counted noun an agreeing genitive).

- (35) pětì těm chlap-ům
 five.DAT those.DAT guys-DAT.PL
 "to five of those guys"

Given the existence of such examples, it seems advantageous to consider the option that at least one of the apparently problematic derivations is in fact needed (perhaps both), and yields a partitive effect. Given the page limit, I cannot elaborate on this in detail, but there are reasons to think that the movement derivation might be on the right track. The reasons are two: (1) Examples such as *five those-gen six-gen men-gen* "five out of those six men" are ungrammatical in Czech (in that morphosyntactic shape). This is compatible with the idea that we are moving the numeral high across a "small" counted noun and a demonstrative that sits on the main projection line, but it seems difficult to exclude if the counted noun may correspond to a full DP (with a demonstrative inside its projection). (2) With low numerals, one finds also *three-nom those-nom men-nom* "three of those men." The relevance of this fact is that presumably, such numerical phrases have a distinct structure. However, if the construction involves the fronting of a numeral across a demonstrative, the two constructions can be unified no matter the difference in their base structures.

7 Conclusions

This paper has argued that if Czech numerals are analyzed as phrasal lexical items, with a noun at the bottom, we go a long way toward understanding their peculiar behavior when it comes to the case marking of the counted noun. One of the interesting aspects of the proposal is its compatibility with the No Bundling hypothesis. Using the Superset Principle, we further gain an understanding of why some numerals (hundred and thousand) are ambiguous between nouns and numerals. Finally, taking numerals to be nominal increases their movement options (in the system of Cinque 2005). It turns out that this is a welcome result, which allows us to capture the existence of certain noncanonical orders.

The larger ambition of the paper is to contribute to our understanding of semi-lexical categories. In virtually all conceptions of syntax, lexical items occupy the terminal nodes of syntactic trees. If, in addition, such terminals have a unique

label, then each lexical item is expected to have a unique category. This view seems too restrictive particularly in the case of semilexical categories, which (by definition) mix the characteristics of more than one category. The new tool of phrasal spell out, however, changes our analytical options. If lexical items may correspond to nontrivial chunks of structure, lexical items may combine several categorial labels (one for each node). Such a model thus predicts that we are going to encounter lexical items with mixed behavior, semilexical items corresponding to one of the predicted types of expressions.

References

- Adger, David. 2013. *A Syntax of Substance*. Linguistic inquiry monographs. MIT Press, Cambridge, MA.
- Babby, Leonard H. 1987. Case, pre-quantifiers, and discontinuous agreement in Russian. *Natural Language and Linguistic Theory* 5: 91–138.
- Bayer, Joseph, Markus Bader, and Michael Meng. 2001. Morphological underspecification meets oblique case: Syntactic and processing effects in German. *Lingua* 111: 465–514.
- Blevins, James P. 2009. Case and declensional paradigm. In *The Oxford Handbook of Case*, edited by Andrej Malchukov and Andrew Spencer, pp. 200–18. Oxford University Press, Oxford.
- Boeder, Winfried. 1995. Suffixaufnahme in Kartvelian. In *Double Case: Agreement by Suffixaufnahme*, edited by Frans Plank, pp. 151–215. Oxford University Press, Oxford.
- Brattico, Pauli. 2011. Case assignment, case concord, and the quantificational case construction. *Lingua* 121 6: 1042–66.
- Caha, Pavel. 2009. *The Nanosyntax of Case*. Ph.D. thesis, CASTL, University of Tromsø.
- Caha, Pavel. 2011. The parameters of case marking and spell out driven movement. *Linguistic variation yearbook 2010* 10: 33–78.
- Caha, Pavel. 2013. Explaining the structure of case paradigms through the mechanisms of Nanosyn- tax. *Natural Language and Linguistic Theory* 31: 1015–66.
- Cinque, Guglielmo. 2005. Deriving Greenberg's universal 20 and its exceptions. *Linguistic Inquiry* 36: 315–332.
- Cinque, Guglielmo and Luigi Rizzi. 2010. The cartography of syntactic structures. In *The Oxford Handbook of Linguistic Analysis*, edited by Bernd Heine and Heiko Narrog, pp. 51–65. Oxford University Press, Oxford.
- Corbett, Greville G. 1978. Universals in the syntax of cardinal numerals. *Lingua* 46 4: 355–68.
- Corbett, Greville G. 1987. The morphology-syntax interface. *Language* 63: 299–345.
- Corbett, Greville G. 1995. Slavonic's closest approach to suffix copying: the possessive adjective. In *Double Case: Agreement by Suffixaufnahme*, edited by Frans Plank, pp. 265–82. Oxford University Press, Oxford.
- Danon, Gabi. 2012. Two structures for numeral-noun constructions. *Lingua* 122 12: 1282–307.
- Dékány, Éva. 2011. *A profile of the Hungarian DP. The interaction of lexicalization, agreement and linearization with the functional sequence*. Ph.D. thesis, CASTL, University of Tromsø.
- Franks, Steven. 1994. Parametric properties of numeral phrases in Slavic. *Natural Language and Linguistic Theory* 12: 597–674.
- Giusti, Giuliana and Nedžad Leko. 2005. The categorial status of quantity expressions. *Lingvistički vidici* 34: 121–83.
- Ionin, Tania and Ora Matushansky. 2006. The composition of complex cardinals. *Journal of Semantics* 23: 315–60.

- Kayne, Richard S. 2004. Prepositions as probes. In *Structures and Beyond: The Cartography of Syntactic Structures*, edited by Adriana Belletti, pp. 192–212. Oxford University Press, New York.
- Kayne, Richard S. 2005. Some notes on comparative syntax, with special reference to English and French. In *The Oxford Handbook of Comparative Syntax*, edited by Guglielmo Cinque and Richard S. Kayne, pp. 3–69. Oxford University Press, Oxford.
- Kayne, Richard S. 2006. A note on the syntax of numerical bases. In *In Search of the Essence of Language Science: Festschrift for Professor Heizo Nakajima on the Occasion of his Sixtieth Birthday*, edited by Y. Suzuki, pp. 21–41. Hituzi Syobo, Tokyo.
- Leu, Thomas. 2008. *The Internal Syntax of Determiners*. Ph.D. thesis, NYU.
- Neeleman, Ad and Kriszta Szendrői. 2007. Radical pro-drop and the morphology of pronouns. *Linguistic Inquiry* 38: 671–714.
- Nichols, Johanna. 1994. Ingush. In *The Indigenous Languages of the Caucasus, Vol. 4: Northeast Caucasian Languages*, edited by Rieks Smeets, pp. 79–145. Caravan Books, Delmar, NY.
- Pantcheva, Marina. 2011. *Decomposing Path. The nanosyntax of directional expressions*. Ph.D. thesis, CASTL, Tromsø.
- Pantcheva, Marina and Pavel Caha. 2012. Contiguity beyond linearity. Talk at Worse, University of Tromsø, June.
- Pereltsveig, Asya. 2007. On the universality of DP: A view from Russian. *Studia Linguistica* 61: 59–94.
- Pesetsky, David. 2013. *Russian case morphology and the syntactic categories*. MIT Press, Cambridge, MA.
- Plank, Frans. 1995. (Re-)introducing suffixaufnahme. In *Double Case: Agreement by Suffixaufnahme*, edited by Frans Plank, pp. 3–112. Oxford University Press, Oxford.
- Radkevich, Nina. 2009. Vocabulary insertion and the geometry of local cases. Unpublished manuscript, UConn, <<http://ling.auf.net/lingBuzz/000958>>.
- Richards, Norvin. 2013. Lardil “case stacking” and the timing of case assignment. *Syntax* 16 1: 42–76.
- van Riemsdijk, Henk. 1998. Categorial feature magnetism: The endocentricity and distribution of projections. *The Journal of Comparative Germanic Linguistics* 5: 1–48.
- Rutkowski, Pavel. 2006. Why Polish numerals should not be analyzed as nouns. In *Minimalist Views on Language Design: Proceedings of the 8th Seoul International Conference on Generative Grammar*, edited by Steven Franks, Frank Gladney, and Mila Tasseva-Kurktchieva, pp. 249–63. Hankook/Korean Generative Grammar Circle, Seoul.
- Salzmann, Martin. 2006. *Resumptive Prolepsis. A Study in indirect A'-dependencies*. LOT, Utrecht.
- Starke, Michal. 2009. Nanosyntax. A short primer to a new approach to language. In *Nordlyd 36: Special issue on Nanosyntax*, edited by Peter Svenonius, Gillian Ramchand, Michal Starke, and Tarald Taraldsen, pp. 1–6. University of Tromsø, Tromsø.
- Starke, Michal. 2010. Universal grammar vs. lexically driven derivations, once more. Talk at the SmaSh workshop, University of South Bohemia, České Budějovice, June 23.
- Starke, Michal. 2014. Towards elegant parameters: Language variation reduces to the size of lexically stored trees. In *Linguistic variation in the Minimalist framework*, edited by Carme M. Picallo, pp. 140–54. Oxford University Press, Oxford.
- Svenonius, Peter. 2006. The emergence of axial parts. In *Nordlyd, special issue on Adpositions*, edited by Peter Svenonius and Marina Pantcheva, no. 33 in Tromsø Working Papers in Linguistics, pp. 1–22. CASTL, University of Tromsø, Tromsø.
- Zweig, Eytan. 2006. Nouns and Adjectives in Numeral NPs. In *NELS 35: Proceedings of the thirty-fifth annual meeting of the North East Linguistic Society*, edited by L. Bateman and C. Ussery, pp. 663–75. Amherst, MA, GLSA Publications.

