On the nature of prenumeral adjectives*
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0. Introduction

In this paper we discuss a group of adjectives that appear in unexpected positions: adjectives preceding numerals prenominally. We argue that these adjectives violate cross-linguistic generalizations only apparently, as the noun phrases with such adjectives actually contain additional covert structure – structure that is not realized phonologically/phonetically.

It has been noted already by Greenberg (1963) that in prenominal position numerals universally precede adjectives; finding prenumeral adjectives prenominally would thus be unexpected. Greenberg’s generalization 20 states that elements inside the DP come in a certain order: when a demonstrative, numeral and adjective precede the noun, the order is always Dem > Num > Adj > N, and when a demonstrative, numeral and adjective follow the noun, they are found either in the same or in the opposite order, so the string is either N > Dem > Num > Adj or N > Adj > Num > Dem.1

Cinque (2005) shows that of the 24 logically possible ordering combinations of the four elements Dem, Num, Adj, and N, only 14 orders are attested in natural languages. He further claims that in the probed languages, the prenominal position never exhibits adjectives preceding the numerals. Moreover, Cinque (2005) argues that if we posit a fixed sequence of functional projections with the order in (1) and two further restrictions on movement (which are not relevant for our purposes at this point), we will be able to derive all of the attested orders of these elements, and we will also rule out all of the unattested orders as underivable (cf. also Abels & Neeleman 2009 for a simpler solution of this cross-linguistic puzzle that also relies on the same underlying order of merge of these four elements).

(1) [ DemP [ NumP [ AdjP [ NP ]]]]

Therefore, adjectives preceding numerals are unexpected not only because they violate a well-established cross-linguistic generalization, but also because they should, assuming the universal hierarchy of functional projections, simply not be derivable.

1. Prenumeral adjectives

The existence of several cases of prenumeral adjectives has already been noted for various languages. Babby (1985) mentions the examples in (2) from Russian, Ionin & Matushansky (2006) mention the English example in (3) (see also Jackendoff 1977).

(2) a. predstojashačie pjat’ novyx вопросов
comingACC.PL fIVEACC newGEN.PL questionSGEN.PL
‘coming five new questions’ (Babby 1985: 5, (12))

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1 The actual generalization states “When any or all of the items (demonstrative, numeral, and descriptive adjective) precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite.” (Greenberg 1963: 87).
b. *Ja vypil* (I drank): (Russian)

\[\text{dobryx}_{\text{GEN,PL}} \quad \text{pjet’}_{\text{ACC}} \quad \text{bol’šix}_{\text{big,GEN,PL}} \quad \text{butylok}_{\text{GEN,PL}} \quad \text{vina}_{\text{GEN}}\]

‘I drank a good five big bottles of wine.’ (Babby 1985: 6, (11a))

(3)  a stunning one thousand/twenty five books  (Ionin & Matushansky 2006: 324, (18))

For the most part, these mentions involve cases in which the adjective is seen as modifying the numeral alone. Solt (2007) notes that there are two types of “modified cardinals”. The adjective can modify either the following nominal expression (quality reading), as in (4a), or it can modify the quantity or amount of the following nominal expression (quantity reading), (4b).

(4)  

a. *A lucky three students got fellowships.*  
	(Solt 2007, 2, (1a))

b. *An incredible eight thousand soldiers died at Gettysburg.*  
	(Solt 2007, 2, (1c))

Cinque (2010) notes the possibility that in English, the adjectives *possible* and *wrong* can be located higher than NumP, the projection of cardinal numerals (Cinque 2010: p. 131, fn 1).

(5)  

a. *She always goes to see every possible first two games.*  
	(Cinque 2010)

b. *She always goes to see every first two possible games.*  
	(Cinque 2010)

(6)  

a. *We discussed the wrong two answers (= which it was wrong for us to discuss)*  
	(both Cinque 2010)

b. *We discussed the two wrong (= incorrect) answers.*  
	(both Cinque 2010)

More examples of this type are presented in Marušič (2011), who shows that the class of prenumeral adjectives is not uniform (contra Cinque 2010, who claims that these are all adjectives from reduced relative clauses), as well as in Keenan (2013), (8a-b), and Maekawa (2013), (8c-d).

(7)  

a. *the left three columns*  
	(= the three columns which are on the left (side))

b. *the upper three rows*  
	(= the three rows which are on the upper end)

(8)  

a. *a pleasant three days in Philadelphia*

b. *He held his breath underwater for a staggering ten minutes.*

c. *a beautiful four days in Berlin*

d. *An estimated 3.3 million people have died as a result of the war making it the “tragedy of modern times”, according to a report issued by the International Rescue Committee aid agency.*

In what follows, we will show that the group of adjectives which can appear in front of numerals is actually quite diverse and larger than the above-mentioned observations from the previous literature would seem to suggest.

2. Indirect or direct modifiers?

Cinque (2010) divides adjectives in two classes and shows that they are located in two different structural positions, merged into the structure in two different ways. Direct-modification adjectives (DM As) are APs merged in the specifiers of functional heads, while
indirect-modification adjectives (IM As) are reduced relative clauses (reduced RC) merged in a functional projection hosting only reduced RCs. IM adjectives are argued to be merged higher in the structure than DM adjectives (Cinque 2010), as shown in (9).

(9)  
```
  DP
    D
  NumP
    IP
    PRO
  (IM) AP
  F1P
    F1
    (DM) AP
  F2P
    F2
    NP
```

As both (5a) and (6a) are supposedly derived from reduced RCs, Cinque suggests that IM As might have more than one merging point in the structural frame of the noun phrase, and moreover, that one of these merging points is located even higher than the merging point of the numeral phrases.

Adjectives that express some sort of location/position, such as left, right, upper, lower, northern, western, etc., easily appear to the left of cardinal numerals in English and Slovenian, (10). At least in some cases, these adjectives can also be used with ordinal numerals, in which case they seem to be located even higher than ordinal numerals, (11).

(10)  
a.  
```
  levi trije stolpci
  [from www]  (Slovenian)²
  left three columns
```
b.  
```
  zgornje tri vrstice
  [from www]
  upper three rows
```

(11)  
a.  
```
  leve prve tri knjige
  [from www]
  left first three books
```
b.  
```
  zgornje prve tri alineje
  [from www]
  upper first three bullets
```
c.  
```
  the upper first four rows
  [from www]
```

When occurring to the right of the numeral, these As typically receive a different interpretation. It can still be related directly to location, as in (12a-b), but it is always related to a fixed idiomatic expression or a type interpretation of the adjective. Similarly, when the Slovenian desni “right” and levi “left” are used after the numeral with a noun like politician, they are interpreted as ‘right-wing’ and ‘left-wing’, respectively, (12c-d).³

² All subsequent non-English examples are from Slovenian, unless marked otherwise.
³ In addition, ‘left’ also has the meaning ‘incompetent’, so that (12b) can also mean ‘three incompetent politicians’.
These adjectives cannot appear in predicative positions with their location interpretation; when used predicatively, they receive their non-locational interpretation, (13a-b). On their non-locational reading, they are acceptable in predicative position only when preceded by TA, (13c), which—in predicative position—signals the presence of a null N (cf. Marušič and Žaucer 2006, 2008). Therefore, they behave like DM As, they are not predicative adjectives, and can only modify a noun, but given their location high inside the DP—higher than cardinal and ordinal numerals—they should behave like reduced-RC adjectives.

Leaning closely on Cinque (2010: 6-16), the following subsections will go through several properties which should help us determine more systematically whether the prenumeral adjectives are merged into the structure directly like APs or through a reduced RC.

2.1 Stage-level vs. Individual-level interpretation (Cinque 2010: 6)
As noted already in Bolinger (1967), when adjectives such as visible, invisible, navigable, etc., are used attributively, they are ambiguous between stage-level and individual-level interpretation, but when such adjectives are used predicatively, they only receive the stage-level interpretation. When we combine two adjectives of this type in prenominal position, the one receiving individual-level interpretation is located closer to the noun, (14). This leads us to conclude that the individual-level interpretation is associated with DM adjectives, which are merged closer to the noun than IM adjectives, which yield stage-level interpretation.

(14) the invisible visible stars
‘the (inherently) visible stars that are currently invisible due to e.g. murky sky’

4 In these cases, the adjective most likely precedes a null N. The more common way of saying ‘he is right-wing’ is with a nominalized adjective: On je desničar ‘He is a right-winger’.
When we apply this test to the class of adjectives under observation, we find that the adjectives preceding numerals seem to pattern with IM, receiving stage-level interpretation, while the post-numeral adjectives receive individual-level interpretation, thus patterning with DM. (15). Interestingly, as seen in (16), the readings for Slovenian change if we use adjectives preceded by the adjectival definite article TA (see Marušič and Žaucer 2006, 2008, 2014 for details about TA). Both pre- and postnumeral adjectives receive both types of readings, which means that we find both IM and DM adjectives in both positions, i.e., both preceding and following the numerals.

(15) a. the wrong three answers - stage-level – IM
b. the three wrong answers - individual-level – DM

(16) a. leva dva čevlja - stage-level – IM
   left two shoes
   “two shoes on the left side”

b. dva leva čevlja - individual-level – DM
   “two left shoes”

c. dva ta leva čevlja - stage-level or individual-level – IM&DM
   two TA left shoes

d. ta leva dva čevlja - stage-level or individual-level – IM&DM

2.2 Restrictive vs. Non-restrictive interpretation (Cinque 2010: 7)
As also noted already in Bolinger (1967), certain adjectives are ambiguous between the restrictive and the non-restrictive interpretation when used in prenominal position. When used postnominally, these adjectives only allow a restrictive reading, and the latter is also associated with the same adjectives used in relative clauses; therefore, restrictive interpretation suggests IM, non-restrictive interpretation suggests DM. If we apply this test to our adjectives, (17), we see that when occurring prenumerally, they pattern with IM, while they seem to be ambiguous when occurring postnumerically. We found the presence of the adjectival definite article TA to have no influence on these readings.

(17) a. Kupil je dva leva čevlja. - restrictive & non-restrictive
   bought aux two left shoes
   ‘He bought the two shoes that were left shoes.’
   ‘He bought two shoes, they were left shoes.’

b. Kupil je leva dva čevlja. - restrictive
   ‘He bought the two shoes which were on the left.’

c. Kupil je dva ta leva čevlja. - restrictive & non-restrictive
   bought aux three TA left shoes

2.3 Modal vs. implicit relative clause reading (Cinque 2010: 8)
It had been noted that when used prenominally, adjectives like possible are ambiguous between a modal reading (‘potential’) and an implicit relative clause reading with antecedent contained deletion; postnominally, these adjectives only allow the implicit relative clause reading, (18a-b).

(18) a. Mary interviewed every possible candidate.
   i. ‘every potential candidate’
   ii. ‘every candidate that it was possible for her to interview’
b. Mary interviewed every candidate possible.
i. # ‘every potential candidate’
ii. ‘every candidate that it was possible for her to interview’ (Cinque 2010)

Testing for this distinction within the prenominal context with respect to prenumeral vs. postnumeral positions, Cinque claims that possible receives an implicit relative clause interpretation only prenumerally, as in (19a), suggesting that we find IM adjectives preceding numerals and DM adjectives following numerals.

(19) a. She always goes to see every possible first two games.  
b. She always goes to see every first two possible games.  

(Cinque 2010)

We find these judgements to be less clearly distinct in Slovenian. As shown in (20), both the prenumeral and postnumeral position seems to license both IM and DM adjectives.5

(20) a. Marija je izprašala možne prve tri kandidate. DM & IM  
Marija aux interviewed possible first three candidates  
i. ‘M. interviewed the first 3 candidates that it was possible for her to interv.’  
ii. ‘M. interviewed the first 3 potential candidates.’

b. Marija je izprašala prve tri možne kandidate. DM & IM  
Marija aux interviewed first three possible candidates  
i. ‘M. interviewed the first 3 candidates that it was possible for her to interv.’  
ii. ‘M. interviewed the first 3 potential candidates.’

2.4 Intersective (IM) vs. Nonintersective (DM) (Cinque 2010: 9)

Another familiar ambiguity of attributive adjectives is that of intersective and nonintersective interpretations. In (21), beautiful can either have the intersective interpretation (Olga is both a dancer and she is beautiful) from (i) or the non-intersective interpretation (Olga need not be beautiful, beautiful refers to her dancing) from (ii).

(21) Olga is a beautiful dancer.  
i. ‘Olga dances beautifully’ - non-intersective = DM  
ii. ‘Olga is a dancer and she is beautiful’ - intersective = IM

Testing for this property on prenumeral adjectives, we can see that prenumerally, the only interpretation available is the intersective one, while postnumerally, both are available, (22).

(22) a. Videl sem tri (ta) čudovite plesalce. - IM & DM  
saw-I aux three TA wonderful dancers  
‘I saw three beautiful dancers.’

b. Videl sem ta čudovite tri plesalce. - IM  
saw-I aux TA wonderful three dancers  
‘I saw the beautiful three dancers.’

5 A reviewer notes that the implicit relative clause reading is never available in Serbo-Croatian. At this point our focus is on Slovenian, so we will not explore the observed cross-linguistic differences.

6 Both reviewers point out that in Serbo-Croatian, a prenumeral adjective can also get the non-intersective reading, as in (i). As noted above in fn5, we are limiting the discussion to Slovenian and leaving the cross-linguistic aspects for future research.

(i) fenomenalna tri plesača  
‘the phenomenal three dancers’/’three phenomenal dancers’
2.5 Relative to a comparison class (IM) vs. Absolute (DM) (Cinque 2010: 10)
As described by Cinque (2010), attributive adjectives are ambiguous in that they can receive either an absolute interpretation, or else can be understood relative to a comparison class. The noun phrase in (23) can thus refer to an elephant that is small for elephants (relative to a comparison class) or it can refer to an elephant that is small in absolute terms (e.g. a toy elephant).

(23) a small elephant

Looking at prenumeral adjectives, we observe that both interpretations are available in both positions. With the adjective ‘big’ following the numeral, as in (24b), the noun phrase can either refer to a group of 4 persimmons that are big for persimmons or to a group of four persimmons that are big in absolute terms. Similarly, with the adjective preceding the numeral, as in (24a), we can either be referring to a big unit of 4 persimmons or to a unit of four persimmons that is big for units of four persimmons.

(24) a. veliki štirje kakiji  
    big four persimmons  
    IM & DM
b. štirje veliki kakiji  
    four big persimmons  
    IM & DM

2.6 Evaluative (DM) vs. Epistemic (IM) reading of ‘unknown’ (Cinque 2010: 14)
Cinque discusses the difference between evaluative and epistemic readings of the adjective ‘unknown’. He observes that the sentence in (25) has both the reading from (i) and the reading from (ii). The reading in (i) is associated with indirect modification, while the reading in (ii) is associated with direct modification.

(25) Mary lives in some unknown village.
    i. ‘It is not known in which village’ – IM
    ii. ‘The village, where she lives is not well-known’ – DM

As shown in (26), when Slovenian neznan “unknown” follows the numeral, it is ambiguous between the two readings, so the postnumeral position—as expected—hosts both indirect and direct modifiers. But when neznan appears prenumerally, only the indirect modification reading seems to survive. If using neznan “unknown” with ta, the direct modification interpretation is the only one available in both prenumeral and postnumeral positions.

(26) a. prebrala je neznane tri romane  
    read aux unknown three novels  
    IM
b. prebrala je tri neznane romane  
    read aux unknown three novels  
    IM or DM
c. prebrala je ta neznane tri romane  
    read aux TA unknown three novels  
    DM
d. prebrala je tri ta neznane romane  
    read aux TA unknown three novels  
    DM

2.7 NP-dependent (DM) vs. Discourse Anaphoric (IM) reading of ‘different’ (Cinque 2010: 15)
Another adjective that has two readings associated with two types of modification, according to Cinque (2010), is different. The so-called NP-dependent reading from (27i) is a result of
direct modification, whereas the discourse Anaphoric reading from (27ii) arises from indirect modification.

(27) *Detmar and Kordula live in different cities.*
   i. ‘Detmar lives in a different city from Kordula’ DM
   ii. ‘D & K live in a city that is different from some salient city’ IM

The same ambiguity is observed with Slovenian adjectives *drugačen* “different” and *isti* “same”, as shown in (28).

(28) a. *Peter in Metka bereta drugačne knjige.*
   Peter and Metka read different books
   i. ‘Peter reads different books from Metka.’
   ii. ‘P&M read books that are different from some salient books.’

b. *Peter in Metka bereta iste knjige.*
   Peter and Metka read same books
   i. ‘Peter reads the same books as Metka.’
   ii. ‘P&M read books that are the same as some salient books.’

Going to prenumeral adjectives, we observe that ‘different’ and ‘same’ reveal this ambiguity both in prenumeral and postnumeral positions.

(29) a. *Peter in Metka sta prebrala tri drugačne knjige.*
   Peter & Metka aux read 3 different books
   ‘Peter and Metka read 3 different books.’

b. *Peter in Metka sta prebrala drugačne tri knjige.*
   Peter & Metka aux read different 3 books
   ‘Peter and Metka read 3 different books.’

c. *Peter in Metka sta prebrala iste tri knjige.*
   Peter & Metka aux read same 3 books
   ‘Peter and Metka read 3 different books.’

d. *Peter in Metka sta prebrala ta iste tri knjige.*
   Peter & Metka aux read TA same 3 books
   ‘Peter and Metka read 3 different books.’

2.8 Recap
In the preceding subsections we saw that for the most part prenumeral adjectives behaved like indirect modifiers while postnumeral adjectives were ambiguous as expected. In some cases, direct modifiers also preceded the numeral; this was observed in sections 2.3, 2.5, 2.6, and 2.7. In these cases both pre- and postnumeral positions were able to host both direct and indirect modification adjectives. Unlike what is concluded about such adjectives in Cinque (2010), we take the availability of both types of adjectives in both positions as the norm.7

Finding direct modification adjectives in prenumeral positions is not surprising if they are hosted in their expected positions within a (partially) repeated *f*-sequence, i.e. a binominal structure. Obviously, if we are talking about a binominal structure with two *f*-sequences and

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7 In most sections we gave two sets of examples, one set with a bare adjective and another with the adjectival definite article added to the adjective. In our view, TA only affects the internal structure of the AP, but has no direct influence on the external syntax, i.e. the merging point of the AP (cf. Marušič and Žaucer 2014). Thus, we see no reason to treat these two sets of examples separately. This further means that we are providing both types of examples wherever they are possible primarily to get the widest possible arrange of readings.
thus two positions for both direct and indirect modifiers, we will need to explain why we do find cases where direct modification adjectives in prenumeral position do not seem to be available, as is the case in 2.4. We believe that the absence of prenumeral direct modification adjectives in those cases is not unexpected on our proposal, although for reasons of space, we will have to leave a demonstration of this claim for another occasion.

Two further issues (one of them brought up by the reviewers) need to be addressed. In our discussion of the various readings we sometimes simplified the presentation of the facts by not describing some of the expected readings in enough detail. If, as we claim, prenumeral adjectives actually modify the entire “nominalized” compound of the number and the noun, the expected readings should always be about the group of items described by the combination of the numeral and the noun. In some cases, e.g. in sections 2.1 and 2.5, this is clearly the case, but in some other cases, like in section 2.6, this becomes difficult to appropriately test and thus more difficult to control for. And secondly, our initial observation was that spatial adjectives like left do not get spatial interpretation when they are positioned prenumerally, which suggests that the two positions are really different. If all prenumeral adjectives were positioned inside the repeated f-sequence, and the two readings depended on different locations inside the f-sequence (and the way adjectives were merged into the nominal phrase), we would expect to get both spatial and non-spatial interpretations both prenumerally and postnumerically. Given that we do not (we will return to this point later), there is still ground to claim that we are dealing with two different types of prenumeral adjectives, those that appear inside a repeated f-seq and those whose location inside the f-sequence is simply higher than that of the numeral.

3. Adjectives to the left of numerals are ...

3.1 Detour: Possessive Adjectives
Before we proceed to our proposal, let us have a look at another class of adjectives that can appear both before and after the numeral with a clear interpretational difference. When a possessive adjective, such as Martini “Marta’s”, appears after the numeral, as in (30a), the entire noun phrase refers to three children that are all in some way related to Marta (say, Marta is their mother, their school teacher, their baby-sitter, etc.). But when such a possessive adjective appears before the numeral, as in (30b), there is an additional presupposition that Marta only has three children (i.e., she is the mother/school teacher/baby-sitter/etc. of three and only three).

(30) a. trije Martini otroci  
    three Marta’s kids
b. Martini trije otroci
   ‘three kids of Marta’s’
   ‘Marta’s three kids’

This “exhaustive” reading is not absolute but linked to a context, so for example, in a context where Marta has three kids, (31) below is nevertheless perfectly fine as long as Marta’s third kid no longer goes to school and is thus outside of the relevant context.

(31) V šoli sta manjkala Martina dva otroka.
    In school aux lacked Marta’s two kids
   ‘Marta’s two kids were absent from school.’
   = ‘The two kids of Marta’s that go to school were absent from school.’
As shown in (32), the same interpretational difference is observed also with possessive pronouns. When a possessive pronoun like svaj “one’s own” precedes a numeral like ‘two’, as in (32b), the presupposition is that Peter only has two classmates. When it follows the numeral, however, there is no such presupposition.

(32)  
a.  
\[ \text{Peter je srečal dve svoji sošolki.} \]  
Peter aux met two one’s-own classmates  
‘Peter met two classmates of his.’  
b.  
\[ \text{Peter je srečal svoji dve sošolki.} \]  
Peter aux met one’s-own two classmates  
‘Peter met his two classmates.’

Interestingly, the same type of interpretational difference is also found in cases like (33), where the quantity is not expressed with a numeral but with a noun (the numeral in (33) is a noun). Here too the interpretation of (33b) is that Marta is the mother of three kids, while in the case of (33a), she could have more than three kids.

(33)  
a.  
\[ \text{trojica Martinih otrok} \]  
triplet Marta’s kids  
‘A triplet of Marta’s kids’  
b.  
\[ \text{Martina trojica otrok} \]  
Marta’s triplet kids  
‘Marta’s triplet of kids’

We believe that (30b) and (33b) are not comparable only in their interpretation but also in their structure. We submit that in (30b), the numeral-noun complex essentially acts as a noun. The structure we propose involves a null noun, as shown in (34). This null noun takes the lower noun phrase as its complement. This proposal is quite close to Keenan (2013), although as we will explain in subsequent sections, some of the details differ.

(34)  
\[ \text{Marta’s [NP N\textsc{null} [three kids]]} \]

3.2 Locational and other similar adjectives

We said above that locational adjectives like ‘left’ or ‘right’ appear before the numeral. This is just part of the story, however, since they can in fact also appear after the numeral, (35).

(35)  
a.  
\[ \text{levi trije stolpci} \]  
left three columns  
b.  
\[ \text{trije levi stolpci} \]  
three left columns  
c.  
\[ \text{zgornja dva zobka} \]  
upper two teeth  
d.  
\[ \text{dva zgornja zobka} \]  
two upper teeth

Again, the two orders show a clear interpretational difference, comparable to the one observed above with possessives. When the adjective precedes the numeral, we get the exhaustive interpretation: in (35c) there are only two teeth that are upper. On the other hand, when the adjective is used after the numeral, there can be other upper teeth. In this case the adjective is interpreted as a type adjective.

(36)  
a.  
\[ \text{ta zgornja dva kozarca} \]  
TA upper two glasses  
‘the two unique glasses that are somewhere high’
b.  
\[dva \ za\ gornja\ kozarca\]
\[two\ TA\ upper\ glasses\]
‘two glasses that have some sort of a predefined property of being ‘gornji’’ – no uniqueness involved

Again in parallel to what we saw above with possessives, the uniqueness/exhaustive reading is linked to context, so that (37) is fine in a context where the person has more than the two upper teeth as long as we had agreed to extract only two (and some lower ones). In parallel to the structure proposed in the context of possessive adjectives in (34), these cases will thus have the structure in (38).

\[(37)\]  
\[Zgornja\ dva\ zoba\ smo\ že\ spulili.\]
upper\ two\ teeth\ aux\ already\ extracted
‘We have already extracted the upper two teeth.’

\[(38)\]  
upper\ [NP\ N\ NULL\ [two\ teeth]]

3.3 The wrong GROUP OF
A parallel situation holds with other similar cases. As shown in (39) below, these examples are easily paraphrasable with a noun like group between the adjective and the following numeral. So if the adjective wrong precedes the two numerals, we are talking about the group of first three answers. If the adjective wrong follows first and precedes three, the appropriate paraphrase involves the noun group again following wrong and preceding the second numeral.

\[(39)\]
\[a.\]  
\[the\ wrong\ GROUP\ OF\ first\ three\ answers\]
\[b.\]  
\[the\ first\ wrong\ GROUP\ OF\ three\ answers\]
\[c.\]  
\[the\ first\ three\ wrong\ answers\]

3.4 Partitives and pseudopartitives
Keenan (2013), among others, discusses a set of examples that is close to the ones presented above, such as (40), dubbing the construction AANN (Article + Adjective + Number + Noun).

\[(40)\]
\[a.\]  
a\ pleasant\ three\ days\ in\ Philadelphia
\[b.\]  
I\ ate\ a\ delicious\ three\ courses\ at\ my\ friend’s\ restaurant\ this\ evening.
(Keenan 2013: 87-89)

According to Keenan (2013), examples of her construction obligatorily exhibit an indefinite article (which is not a D element), an adjective and an internal indefinite number phrase, and the construction is said to (typically) occur with nouns that measure. Keenan claims that these cases represent a pseudopartitive construction and proposes the structure in (41).
The construction seems comparable to the Slovenian cases we presented in the previous sections, although its properties—at least as they are reported in Keenan (2013)—partly differ from those of the Slovenian cases from above. Specifically, unlike what is reported by Keenan for her AANN, the Slovenian cases do not require the entire DP to be indefinite, the internal NP does not need to have a noun that measures, and when the noun-modifying numeral is ‘two’, ‘three’ or ‘four’, singular agreement on the verb is impossible.

Although Keenan’s (2013) intuition that the higher adjective modifies a null N appears to be on the right track also for the Slovenian cases, trying to simply apply her proposal proves problematic. In Slovenian partitive and pseudopartitive constructions, the lower noun always carries genitive, (42). As shown in (43), this holds even when the partitive element is not present in overt syntax.

(42) a. **zbirka unih zgodbic**
collection those stories
‘a collection of those stories’
b. **zbirka zgodbic**
collection stories
‘a collection of stories’
c. **zbirka desetih zgodbic**
collection ten stories
‘a collection of ten stories’

(43) a. **Prinesel mi je kave.**
brought me aux coffee
‘He brought me some coffee.’
b. **Črt je prinesel ta malo košaro breskev, Jan pa ta veliko hrušk.**
Črt aux brought TA small basket peaches Jan PTCL TA big pears
‘Črt brought a small basket of peaches, while Jan brought a big basket of pears.’

In contrast, prenumeral adjectives do not trigger genitive on the following noun, as shown in (44), so the close parallel between the prenumeral-adjective construction and (pseudo)partitives that the application of Keenan’s (2013) analysis would establish does not appear to hold up.

(44) a. **napačni prvi trije odgovor**
wrongNOM.PL firstNOM.PL threeNOM.PL answersNOM.PL
‘the wrong first three answers’
b. * **napačni prvi treh odgovorov**
wrongNOM.PL firstNOM.PL threeGEN.PL answersGEN.PL

We should note that Keenan (2013: 95) does mention that even in English, her constructions with prenumeral adjectives lack *of*, the usual case marker from partitive and pseudopartitive constructions, suggesting that *of* is a “case marker between two overt nominals” and that with the upper nominal unpronounced, there is no need for an overt mediator. However, as we have shown in (44), absence of an overt partitive element does not void the requirement for genitive on the lower noun in Slovenian, which suggests that the structure of our prenumeral-adjective construction must be at least minimally different from the structure of standard
(pseudo)partitives. In 3.6 below, we will propose a binominal structure with a partially repeating \(f\)-seq under a single DP.

### 3.5 More on case and agreement

Agreement properties of our construction can be seen as a piece of evidence for the claim that the construction has a mono-DP structure. Looking at our adjectives that precede the numeral, we see that they agree with the noun, just like adjectives following a numeral, (45)-(46). In addition to adjectives, other elements that precede the numeral, such as demonstratives and the universal quantifier, exhibit such agreement as well, (47).

| 45 | a. šest levih stolpcev | b. levih šest stolpcev |
| 46 | a. trije zgornji zobki | b. zgornji trije zobki |
| 47 | a. tistih pet rdečih avtomobilov | b. vsih 7 dirkalnih biciklov |
|     | c. vsi trije dirkalni konji |  |

Assuming, uncontroversially, that the postnumeral adjectives above are part of the noun phrase of the head noun, we take this parallelism between agreement in prenumeral and postnumeral adjectives as suggestive of the fact that the cases with prenumeral adjectives also represent constructions with a single set of the higher parts of the extended nominal projection.8

### 4 The structure

To capture the characteristics of our prenumeral-adjective construction described in the previous sections, we propose a binominal structure with a partially repeating \(f\)-seq under a single DP, as in (48). The two instatiations of the \(f\)-seq are connected by a null noun; given

8 There exist cases where agreement does not carry from the noun over the numeral to the adjective, (i), with the prenumeral adjective exhibiting a constant, nonagreeing adverbial-like morphology. From what we can tell, there is no semantic difference between cases where prenumeral adjectives carry this type of "adverbial" agreement and their counterparts in which the adjective agrees with the noun, (ii). This type of "adverbial" agreement can also be found with other type of prenumeral elements, and has also been noticed in Russian (Babby 1985). At this point, we do not know what to make of this pattern.
that our prenumeral-adjective cases do not seem to be limited to meanings of measure, we do not encode this by making the null noun a quantity/measure noun (unlike Keenan (2013)), but rather see it as carrying a broader meaning close to that of ‘group’. This null noun selects for the #P, which is the top projection of the lower f-seq. Whereas both f-seqs seem incomplete, they nonetheless both have number marking and both have the relevant adjective-hosting projections (as we saw that both types of adjectives are possible both before and after the numeral).

As has been amply demonstrated above, the construction can exhibit a numeral between the two sets of adjectives; indeed, this type of data constituted our point of departure. In the proposed structure, this numeral is hosted in the #P between the two sets of adjective-hosting FPs. If above the #P, the f-seq restarts with a new adjective-hosting F2P, we expect that (unless there is further restarting) it will then continue with all the F2P-dominating projections of the f-seq, including a #P dominating the second set of adjective-hosting FPs. If so, we predict that it will be possible to have a numeral above the higher set of adjectives as well. Whereas this may not be obviously the case, it seems to us that the ‘problem’ with such cases is more one of imagining a suitable context for the use of such a string; but if a suitable context is invoked, this does seem to be possible. Imagine a stack of ten bookshelves, from which I want to get the leftmost three books from three of the shelves; or imagine an excel file with multiple spreadsheets for two of which, or for the first two of which I want the leftmost two columns filled in. In such contexts, (49) and (50) seem possible.9

(49) A mi daš tri ta levé tri knjige?
   Q I_DAT give2P threeACC TA leftACC threeACC booksACC
   ‘Can you pass me three of the left three-book sets?’

(50) a. V excel fajlu moraš izpolniti dva leva dva stolcev.
    in Excel file must2P fill-inNF twoACC leftACC twoACC columnsACC
    ‘You need to fill in the left two columns in two of the spreadsheets.’

9 For some speakers, the first numeral in (46) would preferably be substituted for by troje ‘three’, which is a form of the numeral used for counting the groups when partitioning regular plurals into groups, as in troji stoli (threePL.NOM chairPL.NOM) ‘three (contextually defined) groups of chairs’ vs. trije stoli (threePL.NOM chairPL.NOM) ‘three chairs’, or troji čevlji (threePL.NOM shoePL.NOM) ‘three pairs of shoes’ vs. trije čevlji (threePL.NOM shoePL.NOM) ‘three shoes’ (for many speakers, this is also the only numeral form used with pluralia-tantum nouns, such as vrata ‘door’). If the meaning of the bottom part of our prenumeral-adjective construction is, as we suggest, always something along the lines of group, such a preference is not surprising.
b. *V excel fajlu moraš izpolniti prva dva leva dva stolpca.*
    in Excel file must fill-in first two left two columns
    ‘You need to fill in the left two columns in the first two spreadsheets.’

We should also mention that as can be seen from (49)-(50), the two numerals must be of the same grammatical number; in (49), both numerals are plural, and in (50), they are both dual. Although all three examples in (49)-(50) in fact contain two instances of the very same numeral, the restriction is actually to the same grammatical number, not to the same numeral, so that a combination of, say, ‘four’ and ‘three’, which both require plural agreement, is fine: for example, (49) is fine also with štiri ta leve tri knjige ‘four left three books’. However, a combination such as *tri leva dva stolpca* ‘three left two columns’, in which ‘three’ requires plural and ‘two’ requires dual, is not possible. Given that the proposed structure contains just one DP, the fact that the construction exhibits the restriction on agreeing grammatical number need not be surprising; it is in line with the fact that there must be concord/agreeing gender, number and case throughout any DP.

One aspect of our proposed structure that may leave doubts is the fact, mentioned in section 3.4 above, that unlike in (pseudo)partitives, the overt/bottom noun of our prenumeral-adjective construction does not surface in the genitive. As section 3.4 showed, the bottom noun of Slovenian (pseudo)partitives is genitive-marked even when the partitive element is covert. Given that the structure in (48) contains a null noun, we might expect the overt/bottom noun to surface in genitive case, contrary to fact. We see two avenues that can be pursued in order to find an answer to this puzzle. One is related to the nature of the null noun, that is, to the claim that unlike in the proposal advanced for her AANN in Keenan (2013), the null noun in (48) is not a measure noun whose complement would naturally be expected (in Slovenian) to carry genitive, the standard case of quantification, but rather a noun with a broader meaning close to that of ‘group’. This may do the trick, although we acknowledge the worry that regardless of quantification, the default case of noun complements is also genitive and so regardless of the nature of the null noun in (48), we might expect the overt noun to surface in the genitive. The other option that comes to mind is a version of (48) that does away with the null noun, and retains only a restarted *f-seq,* along the lines of the “inflectional shells” that Bjorkman and Cowper (2013) have proposed in their analysis of the English causative *have,* with a restarted *f-seq* above VoiceP: **[TP [EventP [VoiceP [EventP [VoiceP [VP]]]]]]**. The fact that the interpretation turns out to be one of ‘group’ may not be problematic, such an interpretation may actually be derivable from the mere fact that there is a higher-level adjective modifying a lower part comprising a quantified structure of numeral and noun. We must leave this issue for future work.

5 Conclusion

We discussed a group of adjectives which precede numerals in prenominal position and thus challenge both Greenberg’s (1963) crosslinguistic generalizations and Cinque’s (2005) influential theory. Leaning closely on tests from Cinque (2005), we argued that in general both prenumeral and postnumeral positions allow direct and indirect modification, and proposed to account for this by positing a partially restarted *f-seq.* Although we said that our proposal is different from Keenan’s (2013) proposal for AANN, they share many similarities. Both propose an essentially binominal structure with two nouns (one null) heading two *f-seqs,* though under a single DP. Keenan’s higher, null noun is deficient and does not even sit in a regular NP but in a *Measure* phrase, and so the *f-seq* above it also does not contain all of the FPs that are found in the lower *f-seq.* In our version, the *f-seq* dominating the null noun is not
deficient. The basic possibility for deriving prenumeral adjectives is shared by both version, though having a deficient versus a full-fledged higher $f$-seq results in different predictions. We showed that our account is supported by data even with respect to some predictions that at first sight seem false, such as the co-occurrence of two numerals. On both analyses, we may be faced with the problem of why the lower noun of our prenumeral-adjective construction does not surface in the genitive.

References


