ON THE TWO TYPES OF CARDINAL-NOUN CONSTRUCTIONS IN ROMANIAN

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Abstract. The paper aims to distinguish syntactically between lower cardinals in Romanian (1–19) and higher cardinals in Romanian (19–). Lower cardinals in Romanian will be shown to sit in the specifier position of the noun, while higher cardinals will be shown to enter a head-complement relation with the noun. The paper will also show that lower cardinals in Romanian enter two types of syntactic configurations; more precisely, when nouns designating language units are involved, lower cardinals may behave both adjectivally and nominally. Finally, the paper will hypothesize that the prepositional construction with cardinals in Romanian is a type of prepositional-genitive construction.

Key words: lower cardinals, higher cardinals, preposition, genitive.

1. LOWER VS. HIGHER CARDINALS ACROSS (UNRELATED) LANGUAGES

An observation that holds across many languages is that there are syntactic differences between lower and higher cardinals (see Franks 1994, Hurford 2003, Zweig 2006 a.o.). While lower cardinals behave 'adjectivally', higher cardinals seem to behave 'nominally', which entails different syntactic structures for lower and higher cardinals (see Danon 2011)

In Slavic languages, cardinals above 'five' assign plural genitive case to the nominals they quantify (see Franks 2004, Bošković 2005), while the cardinal 'one' assigns accusative and paucal cardinals assign genitive singular:

(1) a. pjat' mašin pod" exalo k vokzalu (Russian)
five cars.gen drove-up.nsg to station.
'Five cars drove up to the train station'

b. Deset žena je kupilo ovu haljinu. (Serbo-Croatian)
ten women-Gen aux.3sg bought this dress.
'Ten women bought this dress'

c. Těch pět hezkych dívek upeklo dort. (Czech)
these-Gen five beautiful.Gen girls.Gen baked cake
'These five beautiful girls baked a cake'.

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d. Tych pięć kobiet poszło do domu. (Polish)
these.Gen five women.Gen went to home
'These five women went home'

However, in oblique case positions, the cardinal shows case agreement with the quantified noun, therefore behaving as an adjective:

(2) a. Ivan vladeet odnoj fabrikoj. (Russian, Franks 1994)
Ivan owns one-Inst.sg factory-Inst.sg
'Ivan owns one factory'
b. Ivan vladeet tremja fabrikami.
Ivan owns three-Inst factories-Inst.pl
'Ivan owns three factories'
c. Ivan vladeet pjat'ju fabrikami.
Ivan owns five-Inst factories-Inst.pl
'Ivan owns five factories'

Research on Slavic languages has emphasized the difference between the adjectival status of cardinals that show case-agreement with the quantified noun (3b) and the nominal status of the cardinals that, irrespective of their case feature, assign genitive case on the quantified noun (3a): (see Franks 1994, Bošković 2005, Rutkowski & Maliszewska 2007)

(3) a. čitat pjat' interesny knig (Russian, Franks 1994)
to read five.Acc interesting-Gen.pl books-Gen.pl
b. vladet' pjat'ju starymi fabrikami
to own five-Inst old-Inst.pl factories-Inst.pl

In Modern Hebrew, cardinals up to 19 agree in gender with the head noun (4b), but higher cardinals do not (4a):

(4) a. šlošim yeladim/yeladot
thirty boys/girls
'thirty boys/girls
b. šloša yeladim / *yeladot
three-masc boys/*girls
'three boys'

What is also interesting for the relation between cardinals and genitive case crosslinguistically is that In Modern Hebrew, cardinals can occur either in a free form or in a bound one, the latter giving rise to the 'construct state' (5b), which is also used to express genitive relations in Modern Hebrew (5c) (Danon 1996, 1998, 2011):

(5) a. šlošà (sfarim)
three(free) books
'three books'

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b. šlòšet *(ha-sfarim)
three (bound) the-books
'the three books'
c. minharà / minhèret *(ha-zman)
tunnel(free) / tunnel(bound) the-time
'tunnel / the time tunnel'

Therefore, Modern Hebrew lower cardinals behave adjectivally, i.e. they enter a spec-head relation with the quantified nominal while higher cardinals in this language behave nominally, i.e. they enter a head-complement relation.

In many Bantu languages, cardinals lower than 5 or 10 agree with the noun they modify, featuring adjectival or enumerative agreement prefixes, as in example (6a) from Luganda. Higher cardinals do not agree, instead featuring their own nominal class prefixes (6b) (see Zweig 2006):

(6) a. emi-dumu e-biri
mi-jug AGRmi-two
'two jugs'
b. emi-dumu mu-sanvu
mi-jug mu-seven
'seven jugs'

In Romanian, cardinals above 'twenty' select a de-complement as in (7a), while lower cardinals are seen as 'adjectival' (see GALR 2005), in the sense that morphosyntactic agreement in gender is visible on the cardinal (7b); even though cardinals higher that 'two' and lower that 'twenty' do not display morphosyntactic agreement, they can still be seen as directly merged in the specifier of NP:

(7) a. douăzeci de studenți
twenty of students
'twenty students'
b. două studente / doi studenți
two.fem students.fem / two.masc students.masc
'two female students / two male students'
c. trei studente
three students

To conclude the discussion of cardinal-noun constructions across unrelated languages, cardinals display 'dual' behavior, i.e. they are either adjectival (specifiers) or nominal (head-compl). Similarly, across unrelated languages, there is a connection between cardinal+noun constructions and genitive case.

The next section will review available analyses of Romanian lower and higher cardinals.

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2. PREVIOUS ANALYSES OF THE LOWER/ADJECTIVAL AND HIGHER/NOMINAL CARDINALS IN ROMANIAN

Romanian grammars treat the construction in (8a) as [[Num(eral) + de] NP] sequences, where the [Num + de] is a 'functional unit' behaving as a determiner of the NP (GALR 2005: 296).

The agreement facts in (8a,b) are interpreted as indicating that NP is the head of the [[Num(eral) + de] NP], while [Num + de] is a determiner/adjunct:

(8) a. douăzeci şi doi de elevi
twenty and two-masc of pupils-masc
'twenty-two pupils'
b. douăzeci şi două de eleve
twenty and two-fem of pupils-fem
'twenty-two pupils'

Cardinals below 'twenty' are also treated as adjuncts; the lack of the preposition *de* and the presence of (gender) agreement between the cardinal and the noun are taken as indication of these cardinals behaving as adjectives:

(9) a. doi studenți
two-masc students-masc
b. două cărți
two-fem books-fem

Therefore, the [Num+de] sequence is taken to occupy the specifier position of the cardinal; there is no distinction between the syntactic treatment of lower and higher cardinals

Stan (2010) takes the distinction between adjectival lower cardinals and higher nominal cardinals in Romanian to indicate that the selection of the preposition *de* with higher cardinals is a parametric property of Romanian.

The cardinals in the series 1-19 have adjectival status; case-agreement is marked only for the cardinal *unu*, the only one displaying case inflections:

(10) a. o fată, unei fete
a/one girl to a-Gen/Dat girl

For the other cardinals in the series, the case is prepositional:

(11) a. mama a două fete, răspund la două fete
'mother of two girls', 'I answer to two girls'

Cardinals above 20 have nominal status; *de* is seen as a grammaticalized preposition, a functional head. The quantified nominal always has an inflectionally unmarked case form (treated as an Acc form by the grammatical tradition), which is taken to have an intensional interpretation, indicating the referent from the extension class quantified by the cardinal.

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In conclusion, cardinals in Romanian are either seen as adjectival, i.e. specifiers of the quantified nominal or as entering a dual pattern, i.e. either specifiers or heads. It will be seen that the second hypothesis is the better one.
The next section investigates different syntactic structures for nominal and adjectival cardinals in Romanian.

3. LOWER VS. HIGHER CARDINALS IN ROMANIAN – THE SYNTACTIC STRUCTURE

Researchers generally assume one structure for higher, i.e. nominal and lower, i.e. adjectival cardinals; cardinal+noun constructions are taken to display a uniform structure, both language-internally and cross-linguistically

- either a projection of the cardinal is the specifier of an XP in an extended projection of the noun (see Corver & Zwarts 2006, Giusti 1997)
- or the cardinal is a head that takes as its complement an extended projection of the noun (see Borer 2005, Cardinaletti & Giusti 1991, Giusti 1997, Ionin & Matushansky 2006)

The paper proposes that Romanian cardinals evince two different types of syntactic structures (apud Danon 2009, 2011, Stan 2010).
The first type of structure is one in which a projection of the numeral occupies a specifier position, this being the case of Romanian cardinals from 1 to 19 (12):

(12) zece cărți
ten books

The second type of structure is one in which the cardinal heads a recursive DP structure, this being the case of Romanian cardinals from 19 onwards (13):

(13) douăzeci de cărți
twenty of books
twenty books

The two types of numeral-noun constructions become manifest both cross-linguistically and language-internally (see Danon 2009, 2011).
Irrelevant details aside, the (simplified) syntactic structure for (12) will look like (14), while the structure of (13) will be that in (15):

(14) [NP [CardP zece] cărți]]
(15) [CardP douăzeci [PP de [NP cărți]]]

Danon (2011) suggests that the choice between these two structures is constrained by the presence of morphological number on the numeral. Data from Romanian corroborate his assumption, in the sense that morphosyntactic plurality on the numeral has an effect on the type of syntactic structure (cf. Kayne 2005, 2010):

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(16) a. zece caiete
ten notebooks
b. treizeci de caiete
three-tens of notebooks
'thirty notebooks'
c. zeci de caiete
tens of notebooks

In (16b) the presence of plural morphology on the multiplicative cardinal forces the use of a prepositional structure, in contrast with (16a), where the cardinal has no plural morphology.

The next section will look at metalinguistic nouns in trying to see what type of configurations they enter with lower cardinals in Romanian. Another aim of the section is a cursory glance at what lower cardinals tell us about the relation with the genitive case in Romanian.

4. LOWER CARDINALS AND THE GENITIVE IN ROMANIAN

4.1. With 'metalinguistic' nouns, i.e. language units (see GALR 2005), lower cardinals in Romanian may appear either with a *de*-complement (17a,b) or in a spec-head configuration (18a,b).

(17) a. doi de 'l'
two of 'l'
'two l's'
b. trei de zece
three of ten
'three ten's'

(18) a. doi 'l'
two 'l'
'two l's'
b. ??trei zece
three ten
'three ten's'

If the nouns take plural morphemes, there is agreement between the cardinal and the noun (19a) and *de* is blocked (19b):

(19) a. două e-uri
two$_{\text{-neut}}$ e$_{\text{-neut}}$
'two e's'
b. *două de e-uri
*two$_{\text{-neut}}$ of e$_{\text{-neut}}$
'two e's'
c. *doi e-uri
two$_{\text{-masc}}$ e's$_{\text{-neut}}$
'two e's'

Nouns referring to digits are less natural in the construction, because Romanian cardinals cannot carry morphosyntactic number (20):

(20) a. ??trei zece
'three ten'
'three ten's'
b. *trei zece-uri
three ten$_{\text{.pl.neut}}$
c. trei de zece
three of ten
'three tens'

This may be taken to indicate that nouns designating letters are 'nounier' than those designating digits.

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Where there is gender agreement between the cardinal and the noun, we are dealing a spec-head 'adjectival' configuration; the *de*-construction signals a head-complement configuration.

(21) a. două e-uri
two.$_{\text{neut}}$ e.$_{\text{neut}}$
'two e's'
b. [NP [CardP două] e-uri]]

(22) a. doi de 'e'
two of 'e'
'two 'e's'
b. [CardP doi [PP de [NP e]]]

As interim conclusions, the facts reviewed so far indicate that there is both crosslinguistic and intralinguistic variation between the spec-head and the head-complement constructions. Moreover, there is variation within the same category of numeral constructions between the spec-head and the head-complement constructions.
In what follows, we will take a closer look at the relation between cardinals and genitive case.

4.2. Romanian disposes of an inflectional Gen, while in other Romance languages the Gen is prepositional, marked by *de* 'of' (Grosu 1988, Cornilescu 2004 a. o.). If the genitive DP is a bare NP, the assigner is the preposition *de* (23):

(23) acordarea de burse studenților
giving-the of scholarships students-the-Gen (Cornilescu 2004)

In (24a,b) the genitive is inflectional, i.e. morphologically marked; is the de-phrase in (24c) a genitive at all, since it is not morphologically marked?

(24)	a	câştigător al *unui* premiu	gagneur d'*un* prix
	b	câştigător a *două* premii	gagneur de *deux* prix
	c	câştigător de premii	gagneur *de* prix

If we interpret Case as *abstract case,* i.e. syntactic case, which subsumes morphological case, the function of the abstract case is to license an argument of a predicate (cf. Sigurdson 2000, Cornilescu 2010) so the role of the genitive is to license an argument within the noun phrase.

The Genitive obligatorily marks the internal argument of event nominalizations, corresponding to the Accusative case of the verb (25):

(25) a cumpărarea maşinii
buying-the car-the-Gen
'the buying of the car'
b. au cumpărat maşina
bought-3-Pl car-the
'they bought the car'

The genitive has its own semantic associations in UG: possession (26a) and partitivity (26b):

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(26) a. rochia Mariei
dress-the Maria-the-Gen
'Maria's dress'
b. pervazul ferestrei
sill-the window-the-Gen
'the sill of the window'

Romanian developed an inflectional Gen and the prepositional Gen, based on the same preposition DE as in all Romance, became very limited and specialized (see Cornilescu 2004 and Tănase-Dogaru 2011a,b for details).

In Old Romanian, the inflectional and the DE Gen are in free distribution (at least in post-nominal position where both occur) as shown by Pană Dindelegan (2008).

Romanian has developed a *morphological distinction* between "anchoring Gens", always DPs, and "non-anchoring (Prepositional) Gens", always syntactic NPs (in the sense of Koptjevskaya-Tamm 2001), (verifying the typological generalization that only languages that have articles may develop specialized forms for anchoring vs. non-anchoring Gen).

The morphosyntactic specialization of the genitive in Romanian led to the disappearance of partitive *de* in constructions like *unul de noi* and to the demotion of *de* to pseudopartitive constructions.

In Old Romanian, partitive *de* was used with any type of DP/NP, as in all other Romance languages. In particular, partitive *de* was used with personal pronouns, which are category D (Cornilescu 2006):

(27) a. Neceuria de voi păru din capu nu-i va cădea.
b. Unu de [$_{DP}$ noi] trebe să merem în târg.

In Modern Romanian, *de* is no longer partitive but pseudopartitive; this *de* is a realization of abstract Genitive case (see Tănase-Dogaru 2009, 2010, 2011 a,b)

Since the embedded nominal in cardinal prepositional constructions, i.e. head-complement structures, needs case, the case-assigner in Romanian is *de*, which assigns (abstract) genitive case.

To conclude the section, the prepositional construction with higher cardinals in Romanian may be seen as a realization of abstract genitive case.

5. CONCLUSIONS

Romanian evinces both a head-complement and spec-head syntactic structures for cardinal-noun sequences. The main factor in determining the type of syntax is presence of number morphology on the cardinal in conjunction with case-assignment. The Romanian prepositional construction with higher numerals is a realization of abstract genitive case.

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