# ON THE GRAMMATICALITY STATUS OF NUMERALS IN ROMANIAN

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**Abstract.** The formation of cardinal numerals in Romanian implies a compositional process, developed at a syntactic level, the reanalysis of structures as syntactically unitary and also their interpretation on the basis of the rules of semantic compounding. The grammaticalization of compound cardinal numerals is reflected in their degree of formal unity, and also in their syntactic properties. The numerals belonging to the series 11–19 have an internal structure of a numeral phrase. Cardinal numerals higher than *nouăsprezece* 'nineteen' attach to the noun by means of the preposition *de.* The structure *douăzeci* 'twenty' has the internal structure of a quantified noun phrase as it is formally transparent. Therefore, it has the syntactic properties of nouns, which, in Romanian, attach syntactical determinatives introduced by the preposition *de*. The selection of the preposition *de* is a parametric property of the Romanian numerals.

## 1. INTRODUCTION

### 1.1. The evolution of numerical expressions from Latin to Romanian

The system of numerals in late Vulgar Latin was much simpler than that in Classical Latin. This was a consequence of the almost complete disappearance of the "species" or semantical-grammatical types of numerals less used such as the ordinal, distributive, or multiplicative numeral. These types of numerals were replaced by other numerals in use (especially by cardinal ones) and by prepositional phrases (ILR I: 164–165; II: 67).

Thus, the Romanian language inherited from Danubian Latin a small number of numerals (ILR I: 160–166 and bibliography, II: 64–67; Graur 1968: 68; Dimitrescu 1978: 242–247 and bibliography), that formed a **minimal system**.

**The basis of the entire counting system,** comprised of the simple **cardinal** numerals from *one* to *ten* has been preserved. (In fact the Latin adj. *cardinalis, -e* meant 'main, serving as a base for everything'; the expression *cardinales numeri* is attested at the end of the Roman Age, in Priscian's grammar – see Theil 1887 s.v. *cardinalis, cardo*.)

RRL, **LV**, *3*, p. 237–246, Bucureşti, 2010

From the series of cardinal numerals, Romanian also inherited, the singular form *mie* 'thousand' (< Lat. *milia*, Rom. pl. *mii* 'thousands' being reconstructed from the singular form on the Romanian field, during the evolution from Latin to Romanian), but Macedoromanian also inherited the term *yigi(n)ți* 'twenty' (< Lat. *viginti*). Only some forms of the rest of numerals were inherited, those having low numerical value, probably used more frequently, for instance: **ordinal** numerals *întâi* 'first' (preserved only in Romanian), *primă* 'primary', the ordinal adjective *primar* 'primary' (used in collocations, such as *văr primar* 'first cousin'), collective numerals *îmbi/îmbe* 'the two of them', *amândoi/amândouă* 'the two of them'. Some prepositional structures such as the one used with the distributive preposition *câte* (< Lat. prep. *cata* < Old Gr. prep. *κατά;* see CDDE, §. 362; ILR I: 165, 205, II: 67, 160): *câte doi* were also preserved.

### 1.2. Numerical Expressions in Romanian

Based on this minimal inherited system, Romanian has developed since long time ago a **complex quantification system** and diversified the means of numerical quantification. The patterns of the Romanian numerals are Old Slavic calques (generally explained by reference to the substratum) or internal formations.

The oldest Romanian texts we have nowadays (belonging to the 16th century, a relatively late period), attest the fact that a system of numerals very similar to the one used today, based on two fundamental semantical-grammatical patterns was employed at the time:

(1) **cardinal** numerals – *10 bani* '10 groats' (DÎ, XIII, [Dâmbovița], 1595–1596)
**ordinal** numerals – ***întâiul*** *împarat* 'the first emperor' (DÎ, LXXI, [Moldovia], 1587–1588); *vama negoțului* ***al doozecilea*** 'the customs of the twentieth trade' (DÎ, Țara Românească/[Transylvania, 1599])

Besides these the following types of numerals were also used:

(2) **collective** floating numerals (Kobuchi-Philip, M., 2007) – *amândouo* 'the two of them' (DÎ, VI, [Oltenia], 1579–1580); ***tute patru*** *unghiurele* 'all the four angles' (CS: 23r/12); *tuspatru* 'all four' (Coresi, in DLR); ***câte 3*** *frații* 'the three brothers together' (DÎ, XVIII, [Târgovişte, 1599]) [= *câteşitrei, tustrei*]
**distributive** numerals – ***câte 3*** *aspri* 'three coins per person' (DÎ, LXXXVIII, Moldovia/[Poland, 1593])
**cardinal adverbial** numerals (*de trei ori* 'three times' – CS: 14r/13, 41r/14), as well as **ordinal** numerals (*a doara* "a doua oară" 'the second time' – CT: 103r/1–2)
some **multiplicative** numerals – *îndoit* 'twice more' (*Pravila* ritorului Lucaci, 1581: 235r)

**The fractions** appeared more recently, in the modern time:

(3) *o doime* 'a half', etc.

Previously, fractional quantification (in partitive constructions) had been represented by nominal phrases with quantitative meaning: *jumătate* 'half' (*jumătate d*[*in*]*tr-o fune* 'half of a rope'*,* DÎ, [Gorj], 1563–1564); *sfert* 'quarter'*, pătrar* 'fourth', the regional form *fârtai* coming from Hungarian, etc. (DA s.v.); this type of quantification was also expressed by structures containing a cardinal or an ordinal numeral and a generic noun, such as *parte* 'part', which may be expressed or may be implicit: *doua părți* [*din ocină*] 'two parts [of the property]' (DÎ, XI, [Argeș], 1595), *dentr-o 150 000 de oi, ce să iau de* ***a dzeacea*** *domnești* [*a dzeacea parte* sau *zeciuială* 'princely tax representing the tenth part of the ship number'] (DÎ, LXXXVIII, Moldavia/[Poland, 1593]).

Furthermore, in a somehow similar fashion to this situation inherited from Latin, the current Romanian use tends to simplify the numeral system by generalising cardinal numerals in contexts that are specific to other numerals (see also Iordan 1947: 302–304; $GLR_2$ I: 181–201; $GALR_2$ I: 289–322). This tendency is common to other modern languages as well (Jaberg, in ILR II: 67).

### 1.3. The categorial status of cardinals

An interesting issue regarding the topic of the current analysis is the origin and the evolution of cardinal numerals in Romanian. This issue can be partially analysed from the point of view of the grammaticalization process.

In the present article, the concept of grammaticalization will be enlarged in comparison to its traditional definition as a process through which an independent word becomes a grammatical morpheme (Meillet 1912: 133), a lexical element assumes (in general, unidirectionally and gradually) a grammatical function (Heine, Claudi, Hünnemeyer 1991: 2; Haspelmath 1998: 344; Hopper, Traugott $2003_2$: XV; Ungerer, Schmid $2006_2$: 321–327, 341–342) or a grammatical element assumes another grammatical function (Croft $2003_2$: 253–272). According to the current definition of grammaticalization in the actual bibliography on the topic, expressed in terms of the distinction lexical/functional (see bibliography *apud* Roberts 2007: 141–142), we adopted Roberts/Roussou's model (1999), according to which grammaticalization involves the reanalysis of lexical material as functional (i.e., grammatical) material, leading to structural simplification. Therefore, grammaticalization supposes a reinterpretation or a diachronic reanalysis (see the concept in Roberts 2007: 131).

The formation of cardinal numerals in Romanian implies a compositional process, developed at a syntactic level, the reanalysis of structures as syntactically unitary and also their interpretation on the basis of the rules of semantic compounding (see Ionin, Matushansky 2005). Thus, as we have already mentioned, the formation of cardinal numerals is, in a large sense, a *grammaticalization* process, considering cardinal numeral quantifiers not a functional category (as it

was considered in Jackendoff 1977 or Giusti 1991), but a hybrid semi-lexical category, in the sense that they display both functional and lexical characteristics (see Corver, van Riemsdijk 2001; see also $GALR_2$ I, *ib.,* where numerals are considered a lexical-grammatical class). The Romanian system of cardinal numerals also includes a small number of loan words: the numeral *sută* 'hundred', replacing the Lat. *centum*, was considered an Old Slavic loan word, but was also analysed with reference to the substratum (Rosetti 1947: 312; Puşcariu 1940: 279; Dimitrescu 1978: 243–244 and bibliography); some modern Latin Romance loan words (*milion, miliard, zero*, etc.). (For the origin of the Romanian numerals see Bourciez $1956_4$: 582; Sandfeld 1930: 148; Coteanu 1969: 155–156; Bolocan 1969: 133–135; ILR II: 64–67, 236–238, 325 and bibliography; FC I: 204–208; Brâncuş 1973: 507–510; Dimitrescu 1978: 243–247 and bibliography; Reinheimer Rîpeanu, in Sala 1989: 20, 54–55, 64, 103, 114, 203, 225).

## 2. COMPLEX NUMERICAL EXPRESSIONS IN ROMANIAN

Compound cardinal numerals are formed from Latin elements (except for the numeral *sută* 'hundred'), but the patterns partially reflect a Balkan counting system. On account of lack of linguistic evidence, it is not known how the numeral system was organized until the 9th century, before the Old Slavic influence started to manifest itself (Coteanu, în ILR II: 236). The following stages of evolution, until the 15th century, are also little known (Densusianu 1938: 177–179).

### 2.1. Internal structure

Compound numerals display **three types of internal syntactic organization**.

(i) Numerals from the **series 11–19** are formed on the model of either an Old Slavic pattern or the substratum pattern, the same system of counting (by addition) being also used in Albanian. The units are positioned before the base *zece* 'ten', being linked to it by the preposition *spre* 'towards':

(4) Num[eral] + P[reposition] (*spre* 'towards') + Num[eral] (*zece* 'ten')
*unsprezece, nouăsprezece*
'eleven', 'nineteen'

The pattern is also extended to the series of numerals from 21 to 29 in Macedoromanian.

(ii) The numerals expressing **tens, hundreds, thousands, millions** are formed by multiplication, from the simple cardinal numeral and the plural form of the noun-like numerals *zeci* 'tens', *sute* 'hundreds', *mii* 'thousands', *milioane* 'millions' (their noun value having been accepted since the 19th century, see, for e.g., Bălăşescu 1850: 42):

(5) Num + N[oun] [+ pl.]

*douăzeci, treizeci; două sute, trei sute; două mii, trei mii; două milioane, trei milioane*
'twenty', 'thirty'; 'two hundred', 'three hundred'; 'two thousand', 'three thousand'; 'two million', 'three million'

Different explanations were given for the structure of numerals expressing tens: such as a linguistic calque of an Old Slavic structure, by substratum influence, or by analogy with the numerals that express hundreds, which display a pattern that may be compared to the one of Late Latin compound structures with *centum*.

(iii) **Units** are linked to tens, being coordinated in postposition with the conjunction *şi*:

(6) Num + *şi* 'and' + Num
*douăzeci şi unu, treizeci şi patru*
twenty and one, thirty and four
'twenty one', 'thirty four'

This structure is based on a pattern which was probably characteristic of Danubian Latin, consolidated by the influence of Old Slavic; alternatively it may be an internal creation (having equivalents in different non Romance languages such as Old Greek or German).

The coordination with hundreds or thousands is also possible in postposition by parataxis or by a (familiar) pattern including the conjunction *şi* that expresses addition (see Iordan 1956: 357):

(7) Num (+ *şi* 'and') + Num
*două sute doi, două sute douăzeci, o mie una, două mii trei sute, o mie şi una*
'two hundred two', 'two hundred twenty', 'a thousand one', 'two thousand three hundred', 'a thousand and one'

### 2.2. Grammatical behaviour

**The grammaticalization** of compound cardinal numerals is reflected in their **degree of formal unity,** and also in their **syntactic properties.**

The cardinal numerals from **11** to **19** and the terms for tens (*douăzeci* 'twenty'*, treizeci* 'thirty') had an advanced degree of fusion even since the 16th century. The compounds that include in their structure the elements *sută, mie*, etc., or the conjunction *şi* 'and' are more independent, even in the current stage of the language (FC I: 204).

#### 2.2.1. Transparent/opaque forms

Some linguistic evidence for the unity of some formations is represented by the modification suffered by certain numerals.

(8) a. ***pai****sprezece* (instead of ***patru****sprezece*), ***şai****sprezece, **şai**zeci* (instead of ***şase****sprezece, **şase**zeci*); in spoken language, *un**şpe,** doi**şpe***, etc. (instead of *un**sprezece,** doi**sprezece,*** etc.) (FC I: 204)

b. ***şase*** *sute,* ***şase*** *mii*
'six hundred', 'six thousand'

One has to mention though that the new forms with an opaque structure, appeared only in the second part of the old stage of the language (in the second half of the 17th century ) and that they developed alongside the etymological forms which they gradually replaced (ILRL: 130, 332):

(9) a. ***şase****sprădzeace* (PO: 303), ***şease****sprădzece* (Miron Costin, in ILRL: 332)
six towards ten
'sixteen'

b. but ***şai****sprezece, **şai**sprăzece* 'sixteen' (Radu Greceanu, in ILRL, *ib.* or in the first grammar of the Romanian language, elaborated by Dimitrie Eustatievici Braşoveanul – *Gramatica românească,* 1757: 37r)

The extension of the opaque forms attests a higher degree of formal unity of these numerals starting with 17th century. Some of the more conservative grammars continued to recommend the transparent old forms, even in the modern time (i.e., in the 19th century):

(10) ***şése****-zeci* (Bălăşescu 1850: 40)
six tens
'sixty'

### 2.2.2. A parametric property of cardinals

I believe that in the old language as well as in Modern Romanian, there is a difference with respect to the formal unity between the series 11–19 and the numerals expressing tens. This difference is indicated by their syntactic behaviour within the quantified noun phrases.

The numerals belonging to the series 11–19 have an internal structure of a numeral phrase – see (4) –, a quasi-opaque structure, making them behave more like simple numerals, which, are not formally analysable. Probably that is why the numerals ranging from 11 to 19 are attached directly to nouns in anteposition, just like simple numerals:

(11) [$_N$ [$_{Num}$ *nouăsprezece*] [$_N$ *oameni*]], as well as [$_N$ [$_{Num}$ *nouă*] [$_N$ *oameni*]]
'nineteen people' 'nine people'

For the present-day speaker, the form *unsprezece* 'eleven', in comparison to *douăzeci* 'twenty', is, if not less formally transparent, then less semantically 'justified', the preposition *spre* having here the archaic meaning of *pe* 'on'.

Cardinal numerals higher than *nouăsprezece* 'nineteen' attach to the noun by means of the preposition *de:*

(12) *douăzeci de oameni*
twenty DE people
'twenty people'

The structure *douăzeci* ‘twenty’ has the internal structure of a quantified noun phrase as it is formally transparent:

(13)/(5) [$_{N}$ [$_{Num}$ *două*][$_{N}$ *zeci*]]
two tens
‘twenty’

Therefore, it has the syntactic properties of nouns, which, in Romanian, attach syntactical determinatives introduced by the preposition *de*.

The pattern containing a numeral followed by the preposition *de* is **specific to Romanian** due to the general and obligatory nature of the preposition. The selection of the preposition *de* is a **parametric property** of the Romanian numerals. This structure with *de* also exists in other Romance languages where it is, however, limited to certain numerals:

(14) Fr. *un million d’étudiants* (Reinheimer Rîpeanu, in Sala 1989: 55), *trois millions de chômeurs* (Wilmet 2003$_3$: 187–188).

The Romanian construction was explained as a calque of Slavic (Sandfeld *ap.* Rosetti 1986: 279). The recent researches on modern Slavic languages emphasize the differences between the adjectival status of the numerals that agree in case with the quantified noun and the noun status of the numerals that, irrespective of their case feature, impose the genitive case on the quantified noun (see, among others, Franks 1995, 2002; Boskovics 2005 *ap.* Cornilescu 2006; Rutkowski, Maliszewska 2007: 785–786).

In a similar way, in Romanian, the numerals in the series 1–19 might be perceived as having an adjectival status. The agreement in case is marked only for the numeral *unu* ‘one’, the only one that expresses the case inflectionally:

(15) ***o*** *fată* [N-Ac], ***unei*** *fete* [G-D]
‘a girl’ to a.GEN/DAT girl

For the other numerals from the series the case is prepositional:

(16) *mamă* ***a două*** *fete* [G], *răspund* ***la două*** *fete* [D]
‘mother of two girls’, ‘I answer to two girls’

Numerals above 20 may be considered as having noun status. In the structure similar to the one expressing the Slavic genitive, *de* is a grammaticalized preposition, a functional head. Irrespective of the noun case, the noun that comes after *de* has an inflectionally unmarked case form, which is treated as an accusative form by the grammatical tradition. In my opinion, the *de* structure has, rather, an intensional interpretation, indicating the referent nature from the extension class quantified by numeral. The similar French structure was interpreted as having a partitive meaning (Wilmet 2003$_3$, *ib*.).

The construction employing *de* was already grammaticalized in Old Romanian as it was generally used ever since the first texts were attested (original texts and translations as well):

(17) *va chema Dumnedzău* ***şeaptedzeci de*** *apostoli şi proroci şi măcenici şi pre agătiții lui* (CS: 47v/2–4)
seventy DE apostles
‘seventy apostles’

The rule of selecting the preposition *de* was, therefore, extended to other quantified structures, such as the ones containing the archaic numeral *întunerec* 'ten thousand' (old calque of Sl. *tima* 'lack of light; big number 10.000'):

(18) ***întunerece de*** *talanți* (Varlaam, *Cazania,* 1643, in ILRL: 333)
10000 DE talents
'10000 talents'

The structure without preposition has been also attested since the existence of the old original documents (inventories or price lists, notes regarding the expenses, wills, donation acts, etc.), this being explained by the simplification of the construction. The phenomenon is still current: ***20*** *lei* '20 lei'. The old documents came from different regions: ***340*** *bani* '340 groats' (DÎ, [Oltenia], 1579–1580; cf. DÎ, [Prahova], 1597–1600; DÎ, Iași, 1588; DÎ, [Bistrița], 1600). Sometimes the writer pendulates between the structure with preposition and the structure without it in the same document: ***20*** *zili* '20 days', ***162 de*** *zili* '162 days' (DÎ, Moldavia/[Bozen, 1593–1594]), ***60*** *florinți* '60 greenfinches', ***60 de*** *florinți* '60 greenfinches' (DÎ, [Brașov, 1587]). There are also old examples where the preposition *de* is present even if the syntactical norm of the time would have imposed its absence : ***114 de*** *curteani* ['114 courtiers']; ***14 de*** *vătaşi* ['14 bailiffs'] (DÎ, [Moldovia], 1591).

The pattern with *de* is attested in the normative grammars of the Romanian language beginning with the premodern time: see, among others, Diaconovici Loga (1822: 64), Heliade Rădulescu (1828: 22). The rule for the selection of the preposition *de* is also applied to compound numerals that include a numeral from the series 1–19 in final position, or a numeral above 20:

(19) *o sută nouăsprezece cărți, o sută douăzeci* ***de*** *cărți*
a hundred nineteen books, a hundred twenty DE books
'a hundred nineteen books', 'a hundred twenty books'

The fact that simple numerals preserve their syntactic properties is a proof that the compound numerals they belong to display a lower degree of fusion.

### 2.2.3. Gender agreement

Gender agreement with the quantified noun, realized inflectionally, is another indicator of the formal unity of compound numerals. The numerals *un*(*u*) (masc.), *una* (*o*) (fem.) loses gender variation when they are placed in first position, but preserve it in more independent structures, where it is placed in final position :

(20) ***un****sprezece*, *douăzeci şi* ***unu*** *de băieți, douăzeci şi* ***una*** *de fete*
eleven, twenty one MASC DE boys, twenty one FEM DE girls
'eleven, twenty one boys', 'twenty one girls'

The numerals *doi* (masc.), *două* (fem.) do not mark agreement with the quantified noun in a structure such as (21), but mark agreement within the compound, with the noun numeral incorporated (*zeci, sute*), and this works as evidence for the unity of the compound:

(21) ***două****zeci* (***două*** *sute*, etc.) *de băieți/fete*
two tens (two hundred, etc.) DE boys/girls

'twenty (two hundred, etc.) boys/girls'

*Doi/două* preserves gender variation in first position (22), but, in spoken language, the tendency is to become invariable (23). It stays variable in final position (24):

(22) ***doi****sprezece băieți,* ***două****sprezece fete*
twelve.MASC boys, twelve.FEM girls
'twelve boys', 'twelve girls'

(23) ***doi****sprezece fete*
'twelve.MASC girls'

(24) *douăzeci şi* ***doi*** *de băieți, douăzeci şi* ***două*** *de fete*, etc.
twenty two.MASC DE boys, twenty two.FEM DE girls
'twenty two boys', 'twenty two girls'

The other numerals do not have inflectional variation in gender.

## 3. GRAMMATICAL HIERARCHY

According to their degree of formal unity, Romanian compound numerals organize hierarchically as follows:

(25) 11, 13–19 >> 12 >> 20, 30... >> 21..., 100...

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