

## Two structures for numeral-noun constructions

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### Abstract

This paper has two main goals: to argue that crosslinguistically there are two major types of numeral-noun constructions, one in which a projection of the numeral occupies a specifier position and one in which the numeral heads a recursive nominal structure; and to show that the choice between these two structures is partially constrained by the presence of number features and case. It is shown that numerals bearing nominal number morphology display a cluster of properties that often distinguishes them from other numerals in the same language; I claim that presence of morphosyntactic number makes the numeral sufficiently 'noun-like' to be subject to general principles of case theory.

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### 1. Introduction

A common assumption in the literature on cardinal numerals is that, with few exceptions, the structural relation between the numeral and the noun that it combines with is uniform, both cross-linguistically and language-internally. Thus, the debate whether numerals are heads that select a projection of the noun as their complements (see e.g., [Ionin and Matushansky, 2006](#)), or specifiers of a (functional) projection of the noun (see e.g., [Corver and Zwarts, 2006](#)), has usually been carried out under the assumption that there is just one analysis that applies to (almost) all numerals, with the possible exception of the often-noticed differences between 'adjectival' and 'nominal' numerals ([Zweig, 2006](#)). Recently, for instance, [Ionin and Matushansky \(2006\)](#) (henceforth IM) argued convincingly that the case-related properties of (some) numerals in Russian, Finnish and Inari Sami provide strong evidence for viewing them as nominal heads that recursively take another nominal projection as a complement; they then generalize this analysis to represent the universal syntax of numerals. The first goal of this paper is to show that this kind of reasoning is not valid; using data from a variety of languages, I argue that numerals combine with nouns in at least two distinct ways, and that IM's head-complement analysis is compatible only with some numeral-noun constructions (henceforth, NNCs).<sup>1</sup>

If there are two distinct configurations for NNCs, the question is whether there is any systematic rule governing the choice between them. The second goal of this paper is to argue that these two configurations are restricted by universal constraints related to number features and case. Specifically, I argue that numerals in specifier position may not carry morphosyntactic number which is independent of the number feature of the noun (i.e., non-agreeing number); while numerals as heads are possible only if the numeral or some other element is able to assign case to an embedded nominal

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<sup>1</sup> Abbreviations used in this article: NNC = numeral-noun construction; CS = construct state; NOM = nominative; ACC = accusative; GEN = genitive; INSTR = instrumental; DAT = dative; PART = partitive; ABL = ablative; FEM = feminine; MASC = masculine; SG = singular; PL = plural; DEF = definite; 1 = 1st person; POSS = possessive; PF = perfective.

projection, which is minimally a NumP. Thus, this paper aims to show that assuming a uniform structure for all numeral-noun constructions is not only wrong but also misses important generalizations regarding the role of features in constraining syntactic configurations.

## 2. Overview of previous work

Interest in the structural position of cardinal numerals can be traced back to early works on phrase-structure, due to a large extent to what looks like a high degree of irregularity within the relatively small class of numerals and ‘determiners’ in general. In two influential early works, Jackendoff (1977) and Selkirk (1977) argue for viewing numerals as maximal projections that serve as specifiers of NP (see also Corbett, 1978, who argues in a pre-X-bar framework that cardinals project an NP that is dominated by a larger headless NP, which also dominates a projection of the noun). In later works that adopt various forms of the DP hypothesis, two major approaches have emerged: according to one view (see e.g., Franks, 1994; Giusti, 1997, 2002; Kayne, 2010), numerals are specifiers of a functional projection dominating NP, an approach adopted and elaborated on in much of the work on the cartography of functional projections within the noun phrase (Cinque, 2005). Alternatively, it has also been proposed (often within the ‘QP hypothesis’, following Sportiche, 1988) that at least in some cases, numerals (as well as other quantifiers) are heads that select a nominal projection as their complement (Borer, 2005; Cardinaletti and Giusti, 2006; Giusti, 1997; Longobardi, 2001; Shlonsky, 2004). Recently, this debate has received renewed interest, with new facts brought forward to support each of the two approaches. According to Corver and Zwarts (2006), the properties of complex ‘prepositional numerals’ like *between ten and fifteen* support a specifier analysis; while Ionin and Matushansky (2006) use mostly data from case marking with simple and complex numerals in Russian, Finnish and Inari Sami to argue that numerals are nouns that recursively select another nominal projection as their complement.

Many of these works make the implicit assumption that the structure of numeral-noun constructions is mostly uniform, both within a single language and across languages. Variability in the area of cardinals has been discussed mostly in connection to their categorial status: it has often been noted that many languages have both ‘adjectival’ and ‘nominal’ numerals, which differ in their morphosyntactic properties (Corbett, 1978; Zweig, 2006). In Modern Hebrew, for instance, the numeral *exad* (‘one’), differs from all higher numerals in being post-nominal and showing strict gender (and number) agreement with the noun, even in colloquial speech where gender agreement with other numerals is often not preserved (see e.g., Borer, 2005); *exad* thus matches the properties of adjectives, and contrasts with all other, pre-nominal numerals, which do not pattern with adjectives. The division between adjectival and non-adjectival numerals, however, is not always entirely clear, and it seems to have a somewhat gradient nature (Corbett, 1978). Despite this gradience, it has often been assumed that postulating two distinct syntactic analyses for adjectival and nominal numerals is an unavoidable step (but see Zweig, 2006, who argues that the difference in structure is quite minimal); this conclusion appears also in earlier descriptive work, such as Greenberg (1978), who distinguishes between two major types of constructions, ‘adjective-noun’ constructions and partitive constructions. In this paper I mostly ignore those numerals that display unequivocally adjectival properties; the question that I focus on is whether more than one structure can be justified for numerals that are not prototypically adjectives.

For non-adjectival numerals, the possibility that more than one structure exists has not often been discussed, with the exception of several language-specific analyses that distinguish two types of constructions (see, however, Borer, 2005, who explicitly considers both options and argues that both can indeed be found in natural language). Danon (1996, 1998), for instance, argues that some numerals in Hebrew are specifiers and others are heads. This correlates with a morphophonological alternation available in this language: numerals, like nouns, adjectives and participles, can occur either in a ‘free’ form or in a bound one, where the latter gives rise to what is known as the Construct State (CS).<sup>2</sup> This alternation is illustrated in (1) for numerals, and in (2) for nouns<sup>3,4</sup>:

- (1) a. *šlošà* (*sfarim*)  
 three(FREE) books  
 ‘three (books)’  
 b. *šlòšet* \*(*ha-sfarim*)  
 three(BOUND) the-books  
 ‘the three books’

<sup>2</sup> A construct state is a preposition-less genitival structure in which a phonologically weak element is immediately followed by what is apparently a full embedded DP. See Borer (1999) and Ritter (1991), among others.

<sup>3</sup> Throughout this paper, data for which no source is cited is data that has been collected from native speakers by the author.

<sup>4</sup> While the alternation in (1) is conditioned by definiteness, this is not always the case; we return to this issue in section 3.1.

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