

# Word Order and Prosody in the Adnominal Modification Structures

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**ABSTRACT.** This paper argues that word order in the adnominal modification structure is determined by prosody. We propose a constraint which states that a modifying phrase and the modified noun must be in the same prosodic phrase or a phrase. The proposed constraint seems to apply to prenominal modifiers but not to postnominal ones such as relative clauses. We argue that a relative pronoun in a relative clause, which identifies the antecedent by morphological agreement, enables the modification by the relative clause to fulfill the constraint. It is argued that our analysis can do away with the head-to-head adjacency condition in syntax.

**Keywords:** adjacency, boundary, extraposition, participial, relative clause

## 1. Introduction

In this paper, we discuss word order variation in the adnominal modification structures of languages. As already noted in the literature (cf. Escibano 2004, Cinque 2010), languages differ with respect to whether the modifiers appear prenominally or postnominally, as well as whether the modifying phrases are head-initial or head-final. Furthermore, some modifying phrases can appear in a position separated from the modified noun, while some others can appear only in the position adjacent to the noun. In what follows, we discuss a variety of modifiers including compounds, phrases, participials and relative clauses. We first propose a prosodic constraint which states that a modifying phrase and the modified noun must be located in the same prosodic phrase. We then observe that the proposed constraint applies to prenominal modifiers but not to postnominal ones, and argue that this gives rise to the difference in the acceptability of extraposition. Finally, we try to provide an explanation for the observed facts in terms of the syntax-prosody interface; why the prosodic constraint applies only to the prenominal modifiers and what brings about the difference in the

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adnominal modification structures of languages.

## 2. Prosodic constraint in adnominal modification

In this section, we propose a prosodic constraint that regulates the occurrence of modifying elements; i.e. that the noun and its modifier are located in the same prosodic phrase. Let us first look at prenominal modification structures in English and German:

- (1) a. the [playing] child  
 b. \* the [playing [in the garden]] child  
 c. \* the [[in the garden] playing] child  
 d. the child [playing [in the garden]]  
 e. \* the child [[in the garden] playing]
- (2) a. *das [spielende] Kind*  
 the playing child  
 b. \* *das [spielende [in dem Garten]] Kind*  
 the playing in the garden child  
 c. *das [[in dem Garten] spielende] Kind*  
 the in the garden playing child  
 d. \* *das Kind [spielende [in dem Garten]]*  
 the child playing in the garden  
 e. \* *das Kind [[in dem Garten] spielende]*  
 the child in the garden playing

In both languages, simplex participials are placed before the head noun (cf. (1a)/(2a)). When the modifier contains a PP, it must occur postnominally in English (cf. (1d)) but prenominally in German (cf. (2c)). In order to account for this fact, an adjacency constraint like the following might well be postulated:

- (3) The head of a modifying phrase must be adjacent to the modified noun.

Haider (2010: 194) in fact proposed what he calls “edge effect” (cf. Haider 2013: 207):

- (4) The head of the phrase adjoined to a head-initial phrase must be adjacent to the target phrase.

According to Haider, (1b) and (2b) are correctly ruled out because the prenominal modifiers each contain a PP and the head of the former is not adjacent to the modified nominal head (cf.

also Hawkins 1994). Such an adjacency requirement, however, cannot be maintained within the minimalist framework, where only the hierarchical structure matters in syntax and the linear order should play a role only in the phonological component. We thus propose as a working hypothesis the following prosodic constraint:

- (5) The noun and its modifier must be in the same prosodic phrase.

In (1b) and (2b), the prenominal modifiers, being head-initial, give rise to prosodic boundaries at their right edge. The underlying idea is that the syntactic boundaries, as represented in (6), are interpreted as prosodic boundaries (cf. Selkirk 1986, Tokizaki 1999, 2008, Ackema and Neeleman 2004, Wagner 2005, etc.).

- (6) a. \*the [playing [in the garden]] / child (= (1b))  
 b. \**das* [*spielende* [*in dem Garten*]] / *Kind* (= (2b))  
     the playing in the garden child

(1b) and (2b) are thus excluded because there is a prosodic boundary between the modifier and the modified noun, owing to (5). Conversely, in (2c), which contains a head-final participial phrase as a modifier, there are more syntactic boundaries at its left edge than at its right edge, and accordingly, fewer prosodic boundaries between the modifier and the noun than in (2b=6b):

- (7) *das* / [[*in dem Garten*] *spielende*] *Kind* (= (2c))  
     the in the garden playing child

This representation is in conformity with (5). Also, (1c) could be excluded because the participial phrases in English cannot be head-final. Within the current framework, the “head parameter” is to be reduced to a prosodic constraint, as argued by Tokizaki (2011) and Tokizaki and Kuwana (2013).

### 3. Word order in the adnominal modification and a prosodic constraint

In this section we observe that the prosodic constraint in (5), which has been applied to regulate the prenominal modification, need not operate in the case of postnominal modification, which brings about the difference in the applicability of extraposition. Constraint (5) at first seems to be operative not only in the case of prenominal modification, as observed in (6) and (7), but also in the case of postnominal modification; in (2e), the postnominal participial phrase, being head-final, gives rise to a prosodic boundary at its left

edge and thus militates against (5):

- (8) \**das Kind* / [[*in dem Garten*] *spielende*] (= (2e))  
 the child in the garden playing

Relative clauses, however, are in principle separated prosodically by their preceding antecedent, both in English and in German:

- (9) a. I love the child / [who is playing in the garden]  
 b. *Ich liebe das Kind* / [*das in dem Garten spielt*]  
 I love the child who in the garden plays

The well-formedness of (9) should lead to the consequence that the constraint in (5) does not apply to postnominal modification structures. Within the present theoretical framework in which the so-called multiple Spell-out is assumed (cf. Uriagereka 1999), the relative clause, being of the category CP, should be sent to the SM-interface as a prosodically independent unit or a phase. It is therefore to be expected that the relative clause has a prosodic boundary at its left edge (cf. Dobashi 2003). It remains to be explained, however, how the modification relation between the antecedent noun and the relative clause can be guaranteed.

If we assume that postnominal modification structures are exempt from the constraint in (5), acceptability of the relative clause extraposition is deduced:

- (10) a. Something [that caused concern] / came up  
 b. Something came up / [that caused concern]  
 (11) a. *Etwas, das Besorgnis erregte, passierte.*  
 something which concern aroused happened  
 b. *Etwas passierte, das Besorgnis erregte.*  
 something happened which concern aroused

Despite the prosodic boundary between the antecedent noun and the relative clause, all the above examples are acceptable. Conversely, if the relative clause precedes the antecedent noun, the resulting structures are correctly ruled out owing to (5):

- (12) a. \* [that [caused concern]] / something came up  
 b. \* [*das [Besorgnis erregte]*] / *etwas passierte.*

#### 4. Postnominal modification and the prosodic constraint

In this section we consider the question of why the proposed prosodic constraint holds for the prenominal structures, but not for the postnominal ones. We also try to provide an account for the cross-linguistic difference in the constituent order in the adnominal structures from the viewpoint of the syntax-prosody interface.

The constraint in (5), as we proposed in section 2, is not genuinely of a prosodic nature: the modified noun and the modifying element are required to be located in a certain domain, and the prosody can hardly be considered responsible for this kind of restriction. It seems rather to be the semantic component that is relevant for the required modification relationship within a phase. Along this line, we reword the aforementioned constraint in the following way:

- (13) Noun and its modifier must be located in the same phase.

Let us assume here that the Spell-Out into the semantic and the phonological component takes place at the same time (Chomsky 2001). In the case of modification by the relative clause, the relative pronoun has a certain grammatical function, such as subject, object, adjunct, etc in the clause. The relative pronoun can identify the nominal antecedent thanks to the (morphological) agreement with the antecedent beyond the phase boundary. This identification by agreement, we claim, enables the modification by the relative clause to fulfill the constraint in (13), albeit indirectly.

Let us next turn to modification by postnominal participial phrases:

- (14) a. That man [cleaning the table] / has a nice shirt.  
 b. \* That man has a nice shirt / [cleaning the table]. (Emonds 1985: 94)
- (15) a. *weil ich das [im Garten spielende] Kind liebe*  
 because I the in-the garden playing child love  
 b. \* *weil ich das Kind liebe [im Garten spielende]*  
 because I the child love in-the garden playing

As shown by (14b) and (15b), extraposition is not permitted. The same holds for modification by adjectival phrases:

- (16) a. A [blond-haired] man / came into the room.  
 b. \* A man came into the room / [blond-haired].

- (17) a. *Ein [blondhaariger] Mann kam ins Zimmer.*  
           a    blond-haired    man    came into-the room  
       b. \* *Ein Mann kam ins Zimmer [blondhaariger]*

The participial and the adjectival phrases are different from the relative clauses in that the former contain no element that could establish an agreement relation with the head noun to be modified. Thus, they cannot occur in the extraposed position as shown above. What remains problematic here is the extraposition of PPs like the following:

- (18) a. A man [with blond hair] / came into the room.  
       b. A man came into the room / [with blond hair].  
 (19) a. ... *dass eine Frau [mit blauen Augen] den Raum betreten hat*  
           that a    woman with blue    eyes    the room entered has  
           ‘that a woman with blue eyes entered the room’  
       b. *dass eine Frau den Raum betreten hat [mit blauen Augen]*    (Müller 1995: 216)

Although the PPs, like the participial and the adjectival phrases, do not contain any element agreeing with the head noun, they can occur in the extraposed position.<sup>1</sup> At this point, we just speculate that the extraposed PPs are licensed differently from the relative clauses (cf. De Kuthy 2002). A further investigation of this topic is left to future research.

## 5. Concluding remarks

We claimed in this paper that the word order in adnominal modification structures is to be determined so that the representation in question observes the constraint that there be no prosodic boundary between the modifying and the modified elements. This enables us to do away with such syntactic requirements as the one that would require linear adjacency between the two elements. If the analysis presented here is on the right track, it is in line with one of the minimalist theses, i.e. that word order is not regulated by the (narrow) syntactic component but is rather determined in (the interface with) the phonological component.

In this paper, we were only able to deal with data from two of the Germanic languages, namely English and German. As is well known, other languages exhibit different types of

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<sup>1</sup> It should be noted that the acceptability of extraposition of PP decreases when verbs other than verbs of appearance are used, as shown in (ib).

- (i) a. A man [with blond hair] / disappeared.  
       b. \* A man disappeared / [with blond hair].

word order; some Slavic languages like Russian, for example, allow for modification by a prenominal phrase which is head-initial (cf. Grosu and Horvath 2006) :

- (20) a. [polnaja solnca] komnata  
 full sun.GEN room  
 ‘a room full of sunlight’ (Babby 1975)
- b. [gotovyj na vse] student  
 ready on everything student  
 ‘a student ready for anything’ (Babby 1975)

This word order pattern, as it is, militates against the constraint (5), but the examples presented here are well-formed. One might well attribute it to the observation that Russian does not have articles or that the language is not subject to the Left Branch Condition (cf. Bošković 2008). Also in English and German, we find phrasal compounds like the following, which show a similar pattern:

- (21) a. [over-the-fence] gossip  
 b. der [‘Fit-statt-fett’]-Bürowettbewerb  
 the fit-over-fat office-contest  
 ‘the fit-over-fat office contest’ (Wiese 1996)

It seems that the prenominal modifier here, because of its status as a compound, cancels the occurrence of prosodic boundaries. Further and more thorough research is called for which will enable us to handle a wider range of data in this area.

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