

# Minimal Projections: evidence from defective constructions in European Portuguese

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## Abstract

This article discusses some of the problems generated by the proliferation of functional categories. Empirical evidence is presented favoring approaches according to which functional categories are only projected if necessary either to create hosts for lexical nuclei or to satisfy subcategorization properties of specific verb classes. The empirical arguments come from the following defective constructions in European Portuguese: adverbs in simple declarative sentences; complements of causative verbs in clause-union contexts; and topicalization constructions.

**Key words:** functional categories, causatives, adverbs, topicalization.

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**Resum.** *Projeccions mínimes: evidència de les construccions defectives en portuguès europeu*

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Aquest article discuteix alguns dels problemes generats per la proliferació de categories funcionals. Es presenta evidència empírica en favor d'anàlisis segons les quals les categories funcionals només es projecten quan són necessàries, sigui per crear hostes per als nuclis lèxics o per satisfer les propietats de subcategorització de classes específiques de verbs. Els arguments empírics provenen de les següents construccions defectives del portuguès europeu: adverbis en oracions declaratives simples; complements de verbs causatius en contextos d'unió de clàusula; i construccions de topicalització.

**Paraules clau:** categories funcionals, causatives, adverbis, topicalització.

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## 1. Introduction and goals

Since Pollock (1989), many functional categories have been proposed. In (1), a small subset of the functional categories available in the literature is listed:

- (1) T  
 AgrS  
 AgrO  
 Asp  
 Mood  
 Voice  
 Clitic  
 Neg  
 Pol  
 Pred  
 $\Sigma$   
 Be  
 Num  
 Gender  
 Color  
 Event  
 Have

This proliferation of functional categories raises a number of questions, among which (cf. Costa, to appear):

- Is the clause functional structure uniformly projected across languages and across constructions?

There are two potential approaches to functional categories. Either they are always projected in all constructions of one language, or there may be language-internal variation with respect to the relevant functional categories for each specific construction. Likewise, the inventory of functional categories may be considered universal or there may be cross-linguistic variation with respect to the array of categories that is projected in each language. The answer to this question must be empirical. Only if evidence is found for a uniform treatment of languages may it be assumed that functional categories are universal.

- If the clause functional structure is not universal, which categories must be projected and why?

Related to the previous question, it is important to know which categories are available for each language. In other words, if it is proven that functional categories are not universally projected, the question arises as to which of the existent categories are relevant for each language. Moreover, if it is proven that functional categories are not uniformly projected across constructions within one language, it must be shown which categories are relevant for each construction.

- Which empirical tests are there available to determine the exact nature of the relevant functional categories?

For testing the exact label of the functional categories available, precise tests must be determined. Sometimes, the evidence presented for the postulation of a functional category is quite circular. For instance, this circularity is evident when it is argued that a functional category has label X, because elements of type X may occupy its nucleus (or its specifier, as in Cinque's (1999) analysis of adverbs), and it is, at the same time, claimed that these elements may occupy this position because it is of type X.

- How to evaluate and compare analyses that are equivalent except for the name of the functional categories involved?

Many times, analyses are equivalent in terms of number of functional categories and types of movement involved. However, they differ with respect to the label of the set of categories proposed. Given the important role of functional categories in the recent syntactic literature, there must be ways of comparing and evaluating the adequacy of such competing proposals.

In order to shed some light on the issues raised by the proliferation of functional categories, in this article, we hope to achieve the following goals:

- a) To present competing theories regarding the availability of functional categories (Cinque 1997, Grimshaw 1991, Thráinsson 1996);
- b) To present data that favor the approach according to which functional categories are not uniformly and universally projected.

The evidence for the approach mentioned in b) will come from constructions in European Portuguese that we will argue to be defective. These data include: the distribution of adverbs in simple declarative sentences; the behavior of complements of causative verbs in clause-union contexts; and topicalization constructions in non-finite complementizerless contexts.

## 2. Functional categories: competing proposals

The problems raised above are partly due to the fact that there is no theory of functional categories. In recent literature, in order to try to minimize this lack of proposals, some authors made some specific claims about the way functional categories are projected. These claims are contradictory. Therefore, empirical evidence must be presented in order to compare them.

Cinque (1999) suggests that the functional structure of the clause follows a universal hierarchy and is always projected. This means that there is neither cross-linguistic variation nor language-internal variation in terms of the list of projected functional categories. Evidence for his proposal comes from the comparison of a vast number of languages, in which it is shown that both adverbs and auxiliary heads follow a constant hierarchy, independently of the language.

Grimshaw (1991) and Thráinsson (1996) have a radically different view from Cinque's. According to both authors, functional categories are not universally nor uniformly projected.

Grimshaw (1991) claims that functional categories do not have an autonomous status. They are the extension of lexical categories, and they are only projected if it is necessary to create hosts for movement of lexical constituents (heads or XPs).

Thráinsson (1996) presents data suggesting that there may be crosslinguistic variation with respect to the inventory of functional categories. According to this author, empirical evidence coming from word order facts is the key to determine whether functional categories are projected or not.

Since all these proposals attempt to systematize ideas regarding the behavior of functional categories, it seems to be important to look for empirical evidence favoring one of them. As mentioned in the introduction, this is the goal of this paper.

### 3. Proposal

Departing from the observation of constructions in European Portuguese that we will argue to be defective with respect to the set of functional categories projected (causatives, adverbs and topicalization), we will put forward the following proposal, in the spirit of Grimshaw (1991) and Thráinsson (1996):

- A. Functional categories are only projected when necessary.
- B. Clause functional structure varies not only crosslinguistically but also language internally, across constructions.
- C. Projection of functional structure is determined by properties of lexical items (causatives) or by the need for creating head positions for nuclei (adverbs and topicalization).

### 4. Empirical support for the non-universality of the functional structure of the clause

In this section, we will present arguments favoring Grimshaw's and Thráinsson's proposals, according to which functional categories are not universally projected.

#### 4.1. *Causative verbs*

Causative verbs in European Portuguese may be found in two types of constructions: its complement may be an embedded clause with SVO word order and optional subject-verb agreement or there may be V-V adjacency between the causative verb and the embedded verb. In the latter case, traditionally referred to as clause-union context in the spirit of the terminology of Relational Grammar, the embedded subject surfaces postverbally as a DP or PP depending on the transitivity of the embedded verb. In this context, subject-verb agreement is forbidden. The two above mentioned constructions are exemplified below:

a) SVO in the embedded clause:

- (2) Os pais mandaram os meninos comprar(em) os livros.  
 the parents made the children buy-(3pl) the books

b) Clause-union context:

- (3) a. Os pais mandaram sair os meninos.  
 the parents made go-out-INF the children  
 b. Os pais mandaram comprar os livros aos meninos.  
 the parents made buy-INF the books to the children

Gonçalves (in preparation) studies the properties of the complement of causative verbs in clause-union context, presenting the following arguments for the defectivity of the clause-union context:

**A. Clitic climbing:** as illustrated in (4) and (5), both the embedded subject and direct object cliticize obligatorily on the main verb:

- (4) a. Eu mandei-lhes comer a sopa.  
 I made them<sub>DAT</sub> eat(inf) the soup  
 b. \*Eu mandei comer-lhes a sopa.  
 (5) a. Eu mandei-a comer aos meninos.  
 I made it<sub>ACC</sub> eat(inf) to the children  
 b. ??Eu mandei comê-la aos meninos.

Assuming that clitics are hosted by functional categories (Kayne 1991, Duarte and Matos 1996 for EP), the ungrammaticality of clitic climbing may be interpreted as a consequence of the unavailability of the relevant functional category for hosting the clitic in the embedded domain (see also Martins 1995 for a similar analysis).

**B. Long object movement:** The second argument comes from long object movement constructions, in the spirit of Rizzi's (1982) analysis of restructuring verbs. Like in restructuring constructions, in clause-union contexts, the embedded object may be the subject of the main verb in constructions with passive SE:

- (6) Mandaram-se comprar vários livros aos meninos.  
 made-3pl SE buy-INF several books to the children  
 'Someone made the children buy several books'

For the raising (overt or covert) of the DP to subject position to occur, it must be assumed that there is no intervening sentential category. Otherwise, given the economy principles assumed in most frameworks, raising should be forbidden,

as in (7), in which the main verb is not causative. Transparency effects do not arise in (7).

- (7) \*Disseram-se comprar vários livros.  
said-3pl SE buy-INF several books

**C. Embedded sentential negation:** Gonçalves shows that sentential negation is impossible in the complement of a causative verb in this context:

- (8) \*Os pais mandaram não ler o livro aos meninos.  
the parents made not read the book to the children

Assuming that negation is dependent on the availability of a specific functional projection (see Laka 1990, Zanuttini 1997, Matos 1999 for discussion), the non-occurrence of negation may be explained if the complement of the causative is lacking this functional projection.

**D. Lack of subject-verb agreement:** In European Portuguese, an inflected infinitive may occur in the complement of a causative verb, but only if there is no clause-union context (cf. 9a). In clause-union contexts, subject-verb agreement is impossible (cf. 9b).

- (9) a. Eu mandei os meninos comerem a sopa.  
I made the children eat-3pl(inf) the soup  
b. Eu mandei comer(\*em) a sopa aos meninos.  
I made eat(3ppl) the soup to the children

Given that it is generally assumed that AgrS is the functional category allowing for checking of the agreement features of the subject, the unavailability of verbal agreement may be interpreted as evidence against the projection of AgrS.

**E. no perfective auxiliary verbs:** Assuming that perfective auxiliaries are in T, the unavailability of perfective auxiliaries in the complement of causative verbs attested in (10) may be explained if T is not projected.

- (10) \*Eu mandei ter comido a sopa à Maria.  
I made have(inf) eaten the soup to Maria

Note that the unavailability of the auxiliary verb may not be attributed to the semantic prospective character of the main verb alone, since in other defective constructions in which there is implicit anteriority, such as in absolute participle constructions, no perfective auxiliaries may be found either (cf. Santos to appear):

- (11) (\*Ter) comido o bolo, a Maria foi para casa.  
 have-INF eaten the cake, Maria went home

Concluding, the behavior of the complements of causative verbs in clause-union context, discussed in Gonçalves (1998, in preparation) favors hypotheses according to which the functional domain is not always projected (e.g. Grimshaw 1991 and Thráinsson 1996), since it provides evidence against the availability of several functional projections. If they were projected, their role would be null, which goes against the principle of economy of representations.

If the functional structure of embedded domains may vary depending on the subcategorization properties of the main verb, it is predicted that variation is found across constructions within one language.

**F. No embedded wh-movement:** if C were projected, wh-movement internal to the embedded domain might be available.

- (12) \*Eu mandei onde pôr o livro ao João?  
 I made where put(inf) the book to João

As (12) illustrates, in the complement of a causative verb, wh-movement is not allowed. Note that the ungrammaticality of (12) may also be explained if it is assumed that the (projected) embedded C does not have any wh-features. In this case, movement of a wh-phrase to Spec,CP is not motivated, and, therefore, ruled out by economy principles. Since it must not have wh-features, and since it may not host a lexical complementizer, its function is null. In other words, there is no empirical argument in favor of its existence. Following Thráinsson and Grimshaw's type of argumentation, if there is no empirical evidence favoring its projection, it is more economical to assume that C is not projected in this context.

Concluding, the behavior of the complements of causative verbs in clause-union context favors the hypotheses of Grimshaw and Thráinsson, since it provides evidence against the availability of several functional projections. If they were projected, their role would be null, which goes against the principle of economy of representations.

It seems, thus, that a causative verb is a verb subcategorizing a defective clause. It is defective, since, as shown above, C, AgrS, T and Neg are not projected.<sup>1</sup> If the functional structure of embedded domains may vary depending on the subcategorization properties of the main verb, it is predicted that variation is found across constructions within one language.

1. See Gonçalves (in preparation) for the exact nature of the categorial status of the complement of the causative verb in clause-union context.

4.2. *Adverbs*

As predicted by Cinque's (1999) analysis of the distribution of adverbs, it is possible that many adverbs co-occur in a single sentence.

- (13) O Paulo cuidadosamente tinha simpaticamente lido bem o livro  
 Paulo carefully had nicely read well the book  
 à avó.  
 to the grandmother

This possibility of stacking adverbs is not always available. In some contexts, the occurrence of adverbs seems to be dependent on the existence of a lexical head (Costa 1998, 1999). This may be seen when (13) is contrasted with (14).

- (14) \*O Paulo leu cuidadosamente simpaticamente bem o livro  
 Paulo read carefully nicely well the book  
 à avó.  
 to the grandmother

The difference between these two sentences is that (14), unlike (13), does not have any auxiliary verb. If the functional categories hosting the verbal nuclei in (13) were always projected, they should be available as adjunction sites, even if their heads are not occupied by any lexical item.

Note that each of the adverbs may appear by itself in a sentence with only one verbal head:

- (15) a. O Paulo leu cuidadosamente o livro à avó.  
 Paulo read carefully the book to the grandmother  
 b. O Paulo leu simpaticamente o livro à avó.  
 Paulo read nicely the book to the grandmother  
 c. O Paulo leu bem o livro à avó.  
 Paulo read well the book to the grandmother

The only possibility for these adverbs to co-occur in a sentence with one verbal head is for them to be coordinated, as in (16):

- (16) O Paulo leu bem, cuidadosamente e simpaticamente o livro  
 Paulo read well carefully and nicely the book  
 à avó.  
 to the grandmother

The fact that the adverbs must be coordinated may be interpreted as evidence in favor of an analysis according to which the functional categories they adjoin to are not projected when their heads are empty. Arguably, an adverb may be only



adjoined to an existing category. If the functional categories of the clause are only projected when there is a lexical head, it is predicted that the occurrence of adverbs depends on the existence of lexical heads. If there is only one lexical head, there is only one adjunction site. In this case, multiple adverbs are forced to be coordinated.

The coordination of adverbs in this context is possible even if the adverbs belong to different semantic classes. This is shown in (17), where an aspectual adverb is coordinated with a manner adverb:

- (17) O Paulo lê frequentemente e simpaticamente o livro à  
 Paulo reads often and nicely the book to the  
 avó.  
 grandmother

Note that this is true coordination. As in common cases of coordination, the order of the conjoined elements may be reversed:<sup>2</sup>

- (18) O Paulo lê simpaticamente e frequentemente o livro à avó.

The coordination of adverbs belonging to different semantic classes is problematic for Cinque's system, in which the reading of the adverbs is a consequence of their being at the specifier of a meaning-related functional category.

Concluding, if functional projections were always projected, independently of the lexical realization of the head, the adjunction sites should be always available.

If the functional structure is only projected when necessary for the lexicalization of verbal nuclei (as in Grimshaw 1991), it is predicted that the adjunction of adverbs is parasitic on the lexicalization of the heads.

#### 4.3. *Topicalization*

Marked topics appear adjoined or at the specifier position of a left-peripheral functional projection (Chomsky 1977, Cinque 1990, Duarte 1996, among others).

In European Portuguese, in embedded contexts, dislocated topics appear to the right of the lexical complementizer, as illustrated in (19):

- (19) a. Eu disse \*(que) tu leste o livro.  
 I said that you read the book  
 b. Eu disse que, o livro, tu leste.  
 I said that the book you read

2. For some reason, this type of coordination is not universally available. Elena Anagnostopoulou and Artemis Alexiadou (p.c.) report that it is ungrammatical in Greek. Carmen Dobrovie-Sorin (p.c.) reports that Romanian behaves like Portuguese.

In some non-finite subordinate clauses, there is no lexical complementizer:

- (20) Eu disse (\*que) terem os meninos lido o livro.  
I said that have-3pl(inf) the children read the book

In these cases, topicalization is impossible:

- (21) \*Eu disse o livro terem os meninos lido.  
I said the book have-3pl(inf) the children read

The impossibility of adjoining a topic in this context may be interpreted as another case of functional defectivity. If the position of marked topics involves the left-periphery of the clause, as defended in Rizzi (1997), it may be assumed that, whenever C is not present, the left-periphery domain is not activated. Therefore, since non-finite subordinate clauses do not have lexical complementizers, it is predicted that marked topics are impossible, because the left-periphery functional categories they adjoin to are not activated or projected.<sup>3</sup>

Note that the ungrammaticality of topicalization discussed above is not due to the principle that forbids adjunction to complements (Chomsky 1986), since topics may not occur adjoined to a sentence-internal projection that is not leftmost:

- (22) \*Eu disse terem o livro os meninos lido.  
I said have-3pl(inf) the book the children read

Concluding, the possibility of dislocating topics is related to the existence of certain positions at the left-periphery of the clause. If these positions were always projected, dislocation of topics should not be dependent on the finiteness of the clause or on the lexical realization of the complementizer.

The fact that topicalization is only available when the complementizer is lexical provides evidence in favor of an analysis in which the activation of the left-periphery is contingent on the lexicalization of the nucleus Comp.

## 5. Conclusions

The empirical arguments discussed above provide evidence for a theory along the lines of Grimshaw (1991) and Thráinsson (1996), according to which functional categories are only projected when necessary. They may be projected to host lexical nuclei (as in the discussion of the distribution of adverbs and topicalization) or as a consequence of the subcategorization properties of specific verb classes (as in the discussion of the complements of causative verbs in clause-union contexts).

3. For comments concerning the availability of topicalization in root contexts, in which C is not projected either, see Costa (1999).

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