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ADVANCES IN FUNCTIONAL DISCOURSE GRAMMAR: INTRODUCTION

Marize Mattos Dall'Aglio Hattnher[1]
Kees Hengeveld[2]

Functional Discourse Grammar (FDG, HENGEVELD; MACKENZIE, 2006, in which the following outline is based; HENGEVELD; MACKENZIE, 2008, Forthcoming) is a new version of Functional Grammar (DIK, 1997). It is characterized by the following properties:

(i) FDG constitutes the grammatical component of an overall model of the natural language user. This overall model furthermore contains a conceptual, a contextual, and an output component;

(ii) FDG takes the discourse act as its basic unit of analysis. It is thus a discourse rather than a sentence grammar and is capable of handling discourse acts both larger and smaller than a sentence;

(iii) FDG distinguishes an interpersonal, a representational, a structural, and a phonological level of linguistic organization;

(iv) FDG orders these levels in a top-down fashion. It starts with the representation of the linguistic manifestations of the speaker's intentions at the interpersonal level, and gradually works down to the phonological level;

(v) Internally, FDG structures each of these levels hierarchically.

The general architecture of FDG is shown in Figure 1. In this figure, within the grammatical component, the boxes represent sets of primitives relevant for the respective level of analysis, the circles represent operations combining these primitives, and the rectangular forms represent the results of those operations.

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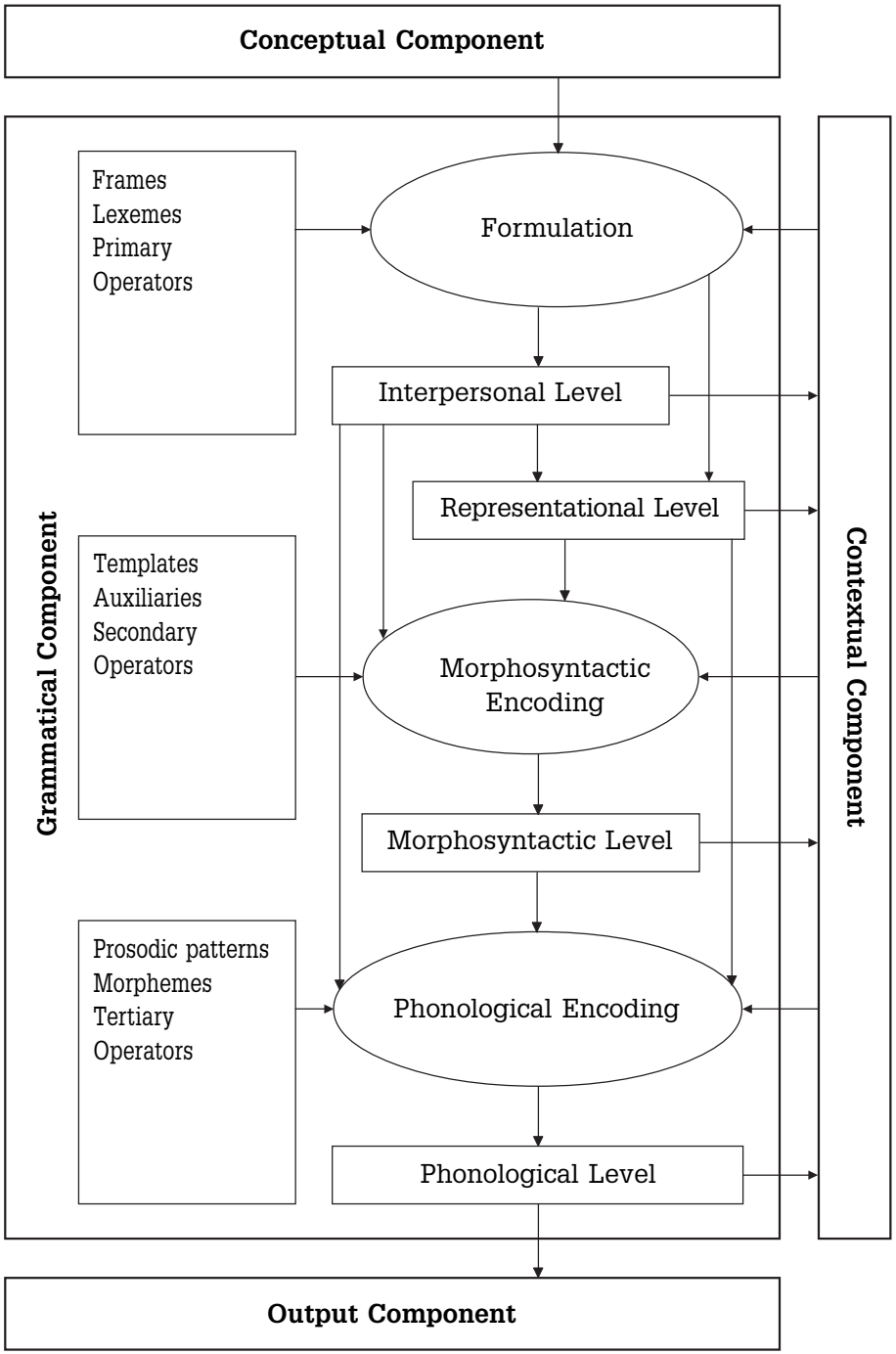

Figure 1 – General layout of FDG

By organizing the grammar in this way, FDG takes the functional approach to language to its logical extreme: within the top-down organization of the grammar, pragmatics governs semantics, pragmatics and semantics govern morphosyntax, and pragmatics, semantics and morphosyntax govern phonology. The organization furthermore enables FDG to be a discourse grammar rather than a sentence grammar, since the relevant units of communicative behaviour form its point of departure, whether they are expressed as sentences or not.

A further advantage of this architecture is that it allows FDG to take the typological approach to language to its logical extreme: since the model carefully distinguishes, for every discourse act, its interpersonal, representational, morphosyntactic, and phonological characteristics, languages can be compared for each of these aspects separately. A few examples may help to illustrate this point. At the interpersonal level, the question of which basic communicative intentions receive special treatment in the language is of interest (pragmatic typology). At the representational level the ways in which languages represent event types is of interest (semantic typology). At the morphopsyntactic level topics like the organization of paragraphs in languages ask for attention in a discourse oriented approach (syntactic typology). Finally, at the phonological level the organization of prosodic systems poses new challenges when considered from the perspective of the discourse act rather than the sentence (phonological typology).

The contributions in this volume study a variety of aspects of the FDG model outlined above, and are grouped in relation to the various components and levels that are distinguished in the model as represented in Figure 1.

The first paper, by John Connolly, concerns the organization of the CONTEXTUAL COMPONENT. The next one, by Evelien Keizer studies the dividing line between lexical and grammatical elements, an issue that is relevant to various aspects of the GRAMMATICAL COMPONENT. The other papers address questions that pertain to one of the levels of organization within this component, and are ordered following the top-down organization of the model.

Four papers concern the INTERPERSONAL LEVEL: Ahmed Moutaouakil studies the ways in which interpersonal units can be coordinated; Kees Hengeveld et al. present a typological view on the distribution of basic illocutions; and the papers by Niels Smit and Elena Martínez Caro address the issue of information structure in FDG.

The REPRESENTATIONAL LEVEL is targeted in the next four papers: Miriam van Staden and Niels Smit propose a revised formalism for the representational level; Daniel García Velasco studies the place of the lexicon in FDG; Sandra Gasparini Bastos et al. go into the distribution of modal categories; and Roberto Gomes

Camacho analyzes nominalizations and their underlying semantic representation.

Finally, three articles address issues related to the MORPHOSYNTACTIC LEVEL: Christopher Butler discusses the general organization of this level and compares it with the approach defended in Role and Reference Grammar. Dik Bakker and Anna Siewierska analyze the place of grammatical relations in FDG; and Erotilde Goreti Pezatti discusses adjunct order in Brazilian Portugues within an FDG approach.

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CONTEXT IN FUNCTIONAL DISCOURSE GRAMMAR

John H. CONNOLLY[1]

- ABSTRACT: An important and admirable characteristic of the FDG framework is that it takes very seriously the fact that utterances are produced and understood in context. Given this fact, the aim of the present paper is to articulate, in more detail than hitherto, how context may be treated and described within FDG, and to provide FDG with a more comprehensive contextual framework than has previously been available. At the beginning of the paper some general principles of context are established. It is then shown how context may be internally categorised, to reveal a complex multidimensional structure. In the light of this, a modified version of the FDG framework is proposed. The proposed model is then applied to the functional description of some aspects of Modern English, with a view to showing how the application of the framework enables a more analytical and perspicuous description of the pragmatics involved. The areas illustrated are constituent order, fragmentary text, clauses with unexpressed elements, and the inferencing of information. It is concluded that the framework makes possible a more exact and detailed treatment of the role played by context in language-use than would otherwise be feasible.

- KEYWORDS: Context; discourse; Functional Discourse Grammar; pragmatics; text.

1 Introduction

Any approach to language that merits the epithet 'functional' has to take into account not only the lexical, morphosyntactic and semantic resources afforded by the language system, but also the ways in which those resources may be deployed for the purposes of communication. An important fact about communication is that it always takes place in a context; and such contextually-situated use of language constitutes the essential concern of pragmatics.

Functional Discourse Grammar (FDG) represents a pragmatically-oriented approach to language of the kind just outlined. Therefore, in accordance with

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the principles established for by Dik (1997, p.6) in respect of Functional Grammar (FG), from which it derives, FDG needs to take seriously the situated nature of language-based communication and hence to provide for an account of the interplay between language and context.

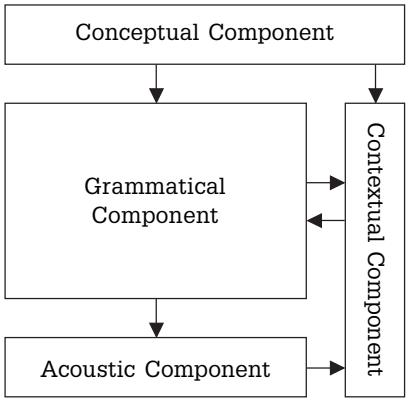

Figure 1 – Outline of FDG as proposed by Hengeveld (2005)

It is argued in Connolly (2004) that in order to offer an explicit account of this interplay, it is helpful to treat context as a level of description. This principle is recognised in the framework for FDG proposed by Hengeveld (2005, p.60-62) and summarised in Figure 1. The core element in this framework is the grammatical component, but the other three elements are vital also. The output component is concerned with the articulation of spoken language, the conceptual component with communicative intention, and the contextual component with what Dik (1997, p.410-12) calls the 'pragmatic information' that lies behind and serves to facilitate the development of communicative intentions by the speaker and the interpretation of discourse by the listener.

The aim of the present paper is to attempt to advance our understanding of the treatment of context in FDG. First of all, we shall consider the nature and structure of context. Next, we shall suggest how such theoretical considerations may inform the treatment of context in FDG, leading to a more detailed analysis of the context of discourse. Finally, we shall provide some examples of how this analysis may be exploited in an FDG-based account of contextually situated language.

2 The Phenomenon of Context

2.1 The Nature of Context

Let us begin, then, with some general comments about the nature of context. Suppose that we are interested in giving a functional account of a particular discourse or discourse-fragment, which we may denote as D. In that case, as pointed out above, our account will need to be sensitive to the context in which D occurs. But what do we actually mean by 'context'?

The context consists in whatever surrounds D and is relevant to its production and interpretation.[2] It is essential to restrict context to what is relevant, for if we were to attempt to treat it as consisting of everything in the universe outside of D, then it would be completely intractable; cf. Cook (1990, p.6). Admittedly, what is deemed relevant is to some extent a matter of judgment on the part of the analyst. This implies, as Shailor (1997, p.97) remarks, that context is not an objective phenomenon but an analytical construct.

We should not think of context as forming a static backdrop to discourse; cf. Goodwin and Duranti (1992, p.5). Rather, as the discourse proceeds, the context also changes. Once the initial utterance has been produced, every subsequent utterance occurs in the context of what has been said up till that point; and this 'preceding context' is added to with each new utterance. Moreover, utterances may have perlocutionary effects, whereby they make an impact upon the context; and conversely, context will exert an influence upon discourse. For instance, suppose that Bill has the radio on too loud for Ann's liking, so she says, 'Please turn that down!' and Bill complies. Here, the noisy radio was a contextual factor which had an effect on the language behaviour of Ann, who was thus motivated to utter the request to Bill, whose compliance ensured that her utterance had the desired perlocutionary effect. As a result, the context changed and Ann no longer had the motivation to ask for the radio to be turned down.

This is not, of course, to say that the entire context will change during the course of a discourse; cf. House (2006, p.342-343). In the example just given, Ann and Bill's location in the physical universe may not have altered at all. Nevertheless, some aspects of the context will inevitably be dynamic, and there will typically be interplay between discourse and context, such that each will have an effect upon the other.

Another essential property of context is that it is structured. This fact is reflected in the various attempts that have been made to classify context

[2] The relationship between relevance and context is a key issue in Relevance Theory (RT) as proposed by Sperber and Wilson (1986). However, in the present paper the term 'relevance' is employed in its everyday sense, without any implied commitment to RT.

internally it in terms of categories; see in particular Firth (1957, p.203), Hymes (1972, p.58-65), Harris (1988, p.78-81), Devlin (1991, p.33, 217-221), Goodwin and Duranti (1992, p.6-9) and Cook (1992, p.1-2). The structure of context is the next issue that we shall consider.

2.2 The Categorisation of Context

In the light of existing work on the analysis of context, it is proposed in Connolly (2007, p.195-197) that the following broad distinctions should be drawn:

(1) (a) Discoursal context versus situational context.
(b) Physical context versus socio-cultural context.
(c) Narrower context versus broader context.
(d) Mental context versus extra-mental context.

These dichotomies will now be explained.

It is commonplace in linguistics to distinguish between 'linguistic context' and 'situational context'.[3] If D represents the discourse or discourse-fragment at the centre of our analysis, then any relevant surrounding discourse constitutes D's linguistic context. The remainder of the context, for instance the time and place of utterance (assuming these to be relevant), is situational in character. Linguistic context consists purely of language, and so any contextual phenomenon that is not linguistic must be situational. Consequently, non-verbal aspects of communication are excluded from the linguistic context.

The above dichotomy is satisfactory if one is happy with a purely unimodal view of discourse, in which the non-verbal accompaniments of language are treated not as part of the discourse but as extraneous to it. However, as Kress and van Leeuwen (1996, p.39) remind us, discourse is inherently multimodal. In the contemporary world within which, thanks to modern information technology, multimedia is ubiquitous, the multimodal nature of discourse cannot reasonably be ignored. Consequently, we need to operate with a slightly different distinction, namely between situational context and what we are calling 'discoursal context'. Situational context remains defined as the part of context that falls outside of the current (or any other) discourse, while 'discoursal context' lies in the surrounding (relevant) multimodal discourse, including both the linguistic and non-verbal aspects of the latter.

[3] Terminology varies, but the essential point is not affected.

Nevertheless, the term 'linguistic context' is still available if needed, but it is now to be regarded as a proper subset of discoursal context. In other words, discoursal context is divisible into two parts, namely linguistic and non-verbal context.

The situational context may be divided into the 'physical context' and the 'socio-cultural context'. The physical context is supplied by the material universe, and includes such contextual factors as time and space. The socio-cultural context, on the other hand, lies in non-material phenomena, notably social organisation and norms of thought and behaviour.

Both discoursal and situational context may be divided into 'broader' and 'narrower' aspects. Given a discourse-fragment D, the narrower discoursal context of D is supplied by the remainder of the discourse in question, and is termed the 'co-text' of D; see for instance Lyons (1995, p.271) and Halliday (1999, p.3). However, sometimes the context of a discourse or discourse-fragment is supplied by some other discourse or discourses, for which the term 'inter-text' has been coined; cf. Cook (1992, p.1). The inter-text thus comprises the broader discoursal context. Both co-text and inter-text may be subdivided into 'linguistic' and 'non-verbal' parts.

The narrower situational context of a discourse or fragment is supplied by the immediate surroundings, for instance the room in which a conversation takes place. If the production of a discourse and its perception and interpretation by its audience are not co-located, then the narrower situational context is said to be 'distributed' over the two or more spatio-temporal locations concerned.

To employ some terminology from Hymes (1972), the narrower physical context may be termed the 'setting' and the narrower socio-cultural context the 'scene'. The same setting may host different scenes. For instance, a hall could be used either for a meeting or for the counting of ballot papers during an election, these being very different 'occasions' in socio-cultural terms.

The analysis of the setting typically focuses the factors in (2), and that of the scene on those in (3).

(2) (a) The animate and inanimate entities present, together with their physical attributes and activities.

(b) The location in time.

(c) The location in space

(3) (a) The discourse participants, together with their social and psychological attributes and activities, including their social relationship with one another. (Participants include the speaker or writer and the intended audience, these being termed the 'ratified' participants by Goffman (1981, p.131-137). However, unratified participants

may also be present and have an effect on what is said, by virtue of the fact that they are in a position to overhear.)

(b) The occasion (in the sense just exemplified), characterised in terms of properties such as the degree of formality and seriousness.[4]

(c) The purpose and outcome of the discourse.

As Bunt (2000, p.28) points out, it is useful to distinguish between the immediate purpose of the discourse, which is to evince the intended interpretation in the audience, and the ulterior purpose, which is to affect the world in some (perlocutionary) way, for instance by making someone aware of certain information or persuading them to take a certain course action. Of course, the intended outcome may or may not match the actual outcome, as misinterpretations are always a possibility.

As for the broader situational context, this is supplied by the physical and social universe outside of the immediate context. For instance, when standing in a travel agency and booking a flight abroad, the geographical destination would be a relevant physical consideration and the currency-system in which the cost was presented would be a relevant socio-cultural factor in the conversation. Neither the destination nor the currency-system would lie (at least entirely) within the immediate context.

The state-of-affairs described in a discourse or fragment constitutes the 'described context'. This may either coincide with the narrower situational context or it may relate to some other spatio-temporal location, in which case it constitutes what Martinec (2000, p.244) terms a 'displaced context', or it may range over both.

Given that the terms in the above exposition are familiar from the literature, it will suffice to illustrate them here with the aid of a brief example, in which a man called Michael is sitting at home, in Newport (South Wales, UK), talking to his friend James, who is paying him a visit.

(4) I'm going on a slightly unusual railway journey two weeks from today. *Opens an atlas.* If you look at this map, you can see that there's a line from Llanelli to Briton Ferry via Felin Fran, which is normally only used by goods trains, but the special train I'm travelling on will be going along it. I found out about this train from an advert I came across in a magazine that I now seem to have thrown away, unfortunately.

In this example, the narrower physical context is supplied by Michael's abode on the day of the conversation, where the relevant animate entities are Michael

[4] Note that we are referring here to the formality of the *occasion* rather than the formality of the language used. The formality of the *language* will depend partly on the formality of the occasion and partly on the social relationship of the participants.

and James and the relevant inanimate entity is the railway atlas, while the relevant actions are those of conversing and of opening and looking at the book. The narrower socio-cultural context is characterised by Michael's role as speaker and James's as listener on an informal occasion, and by the fact that, being friends, they have a mutual interest in each other's activities and a relaxed social relationship. Michael's intention is to share with James the news of his planned trip, and assuming (as is overwhelmingly likely) that James understands what Michael is trying to communicate, then a successful outcome will result.

Michael's reading of the magazine and his anticipated journey, which constitute the described contexts of the discourse-excerpt, both take place outside of the narrower situational context and therefore constitute displaced contexts. As for the broader physical context, this includes the railway system and vehicles on which Michael is to travel, while the inclusion of the Welsh place-names, Llanelli and Felin Fran, attests to the use of two language systems within the broader socio-cultural context of Welsh society.

With regard to the discoursal context, the narrower part of this is supplied by the current conversation. For instance, the phrase 'this train' in the final sentence relies on the preceding linguistic context for its interpretation. The map is also brought into the discoursal context, in providing additional content relating to the course of the railway line; and being essentially a graphical representation, it belongs to the non-verbal context. The magazine containing the advertisement supplies the inter-text for the current conversation.

2.3 The Structure of Context

It emerges from what we have seen so far that context has a multidimensional hierarchical structure. In the first place, it is divided into discoursal and situational parts. Then discoursal context is subdivided into narrower and broader aspects (co-text and inter-text) and also, orthogonally, into linguistic and non-verbal aspects. Situational context, too, is subdivided into narrower and broader aspects and also, orthogonally, into physical and socio-cultural aspects.

Insofar as it is helpful to the purposes of contextual analysis, it is possible to identify further elements of hierarchy in addition to the above, as is done, for instance, by Devlin (1991, p.33, 217-221). For example, the broader situational context is supplied by the universe, within which we may identify the world, which may be divided into successively smaller areas, such as continents, countries, regions, settlements (such as towns), districts, individual properties… or other units (for instance, language and dialect areas), depending on whatever is relevant to the analysis.

Another concept that should be mentioned here is that of 'genre' (in the sense of 'discourse-type').[5,6] This is relevant to the subject of context, given that certain ways of speaking or writing can be acceptable or otherwise, depending on the context involved. For example, a sentence like 'The squirrel scolded the rabbit' would be acceptable in the context of a fairy story but not in the context of a scientific paper. It is possible to classify (spoken and written) texts into genres, such as novels, plays, letters, and so on, and to subclassify these further, for instance subdividing plays into comedies and tragedies, or letters, into personal and professional. Of course, the classification is not watertight, and not all texts fit neatly into one type or sub-type. However, insofar as the classification is serviceable, it shows that genre has a hierarchical structure.

If we are interested in some discourse D, then the inter-text of D is supplied (subject to the criterion of relevance) by the texts other than D. Insofar as these other texts can be classified by genre, the hierarchical organisation of this classification provides a structure to the inter-text.

2.4 Mental Context

The final distinction drawn in (1) above is that between 'mental' and 'extra-mental' context. The mental context constitutes the part of the context that resides in the minds of the producers and the interpreters (including analysts) of a discourse or fragment, while the extra-mental context is supplied by the outside universe. This subdivision of context into mental and extra-mental parts adds a further dimension to the hierarchical structure of context that has just been expounded.

It is inevitable that each discourse-participant will have his or her own particular mental representation of, or 'viewpoint' on, the context, and so the mental context includes all these viewpoints. Typically there exists a considerable degree of overlap among the different viewpoints, and thus of shared knowledge among the different participants, at the outset of a discourse,

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5 Genre is a concept which has been the subject of various approaches and definitions; see Swales (1990, p.33-63) for an overview. Space does not permit detailed discussion here, but suffice to say that the definition of 'genre' offered by Kress (1988, p.182-183), as a type of discourse that 'derives its form from the structure of a (frequently repeated) social occasion, with its characteristic participants and their purposes', will serve our current needs.

6 It should be noted that the term 'genre' is employed, along with the term 'register', in the approach to context associated with Systemic Functional Linguistics (SFL), where both terms are used in particular senses: in the account offered by Eggins (2004, p. 9-11, 54-112), register relates especially to the narrower situational context, while genre is associated with teleological social processes. SFL also recognises three 'register variables': 'field', 'mode' and 'tenor'; see Eggins (2004, p. 90). Whether these, or something similar, could usefully be adopted by FDG is not clear at present.

and the discourse then serves to increase the amount of common ground. See further Clark and Carlson (1992, p.67-71) and Givón (2005, p.91-92).

Of course, we do not pretend to understand the mental representation of context in detail. However, van Dijk (2006, p.168-173) makes the interesting suggestion that it takes the form of a mental model in the sense of Johnson-Laird (1983). The exploration of this idea will be left as a question for further research.

But whatever the cognitive details, it must be recognised that from the pragmatic perspective of the analysis of situated discourse, mental context is an extremely important consideration, because the only way in which contextual factors may directly affect the production and interpretation of discourse is through their presence in the mind of those individuals. (The complication raised by the possibility of non-human discourse-participants, particularly computers, is set aside in the present paper; see, however, Connolly (2001) and Connolly, Chamberlain and Phillips (Forthcoming).)

What has been stated so far about the categorisation and structure of context has been formulated with particular reference to the extra-mental context. However, insofar as these external aspects of context are represented within the minds of discourse participants (as indeed they need to be), it is reasonable to posit a basically similar structure for both mental and extra-mental context. Nevertheless, there are at least two important differences.

Firstly, the scope of mental context is broader than that of extra-mental context, since mental context extends to imaginary as well as real phenomena and events, which are not found in the actual universe that supplies the extra-mental context. Secondly, the participants' mental representations of the discourse in which they engage are not an exact counterpart of the extra-mental co-text. When we take part in discourse activity, we are not always able to recall verbatim what has been said prior to the current moment. Rather, we build up a memory of the gist of what has gone before, based partly on the preceding utterances, but also partly on inferences that we have drawn in the light of the context.

3 Context in FDG

Given that context has a complex multi-dimensional structure, it is not simple to incorporate it into a block diagram such as Figure 1 above. One possible and justifiable approach would be to incorporate into the diagram a single contextual element — a super-component encompassing all aspects of context — and to describe its complicated internal structure separately. However, Figure 1 contains

not one but two components that accommodate what have here been treated as aspects of context, namely the contextual component and the conceptual component. This issue requires some discussion.

Dik (1997, p.4) envisaged that a functional model of grammar should be incorporated into a broader model of verbal interaction, in order to offer a full functional account of language-based communication. Hengeveld's FDG framework, summarised in Figure 1, represents an important and welcome step towards that broader model of verbal interaction, particularly on the production side, even though, as is clear from Butler (2003, p.454-459), there is still a long way to go.

Let us first consider the conceptual component of the framework. Butler (Forthcoming) argues that this component has, to date, been too narrowly conceived, and that it should be broadened into a 'content component'. The latter would retain a conceptual sub-component, but would also contain a sub-component concerned with 'affective/interactional content', including the attitudes, emotions and speech act forces that are expressible through language. This proposal is attractive, since it extends the coverage of communicative phenomena in an appropriate manner, and it will therefore be adopted here.

However, Butler does not regard the content component as contextual in nature, stating that context "need not (...) be part of what the speaker wishes to express", but serves to determine content and expression. In the present paper, on the other hand, a very wide-ranging view of context is taken, in which the content component must indeed be considered contextual in character, for three reasons. Firstly, the content of a discourse or discourse-fragment coincides with the 'described context' (as defined above), which constitutes a highly relevant state-of-affairs while not being part of the discourse itself. Secondly, the situational context includes the discourse-participants, together with their social and psychological attributes and activities; and these activities plainly include generating the content underlying discourse. Thirdly, pre-linguistic intentions (which belong to the conceptual sub-component) are clearly part of the mental context; they are not part of discourse, but they could hardly be more relevant to the circumstances surrounding it.

Next, let us consider the contextual component. This encompasses all the rest of the context, and therefore has a potentially vast range. However, Butler (Forthcoming) and Rijkhoff (Forthcoming) argue that it should be split into two parts, one relating to the surrounding discourse and the other relating to the situation external to the discourse, as has traditionally been done in linguistics, given that when one is dealing with communication, the difference between what is internal to and what is external to discourse is highly significant. In

terms of the categorisation set out earlier in the present paper, this would lead us to distinguish between a 'discoursal context' component and a 'situational context' component.

The FDG framework, as summarised in Figure 1, is described by Hengeveld as a simplification, insofar as it adopts the production-oriented perspective of the speaker or writer rather than the interpretation-oriented perspective of the listener or reader. However, ideally a model of verbal interaction should be neutral between these two perspectives. To this end, let us change the term 'output component', which is clearly production-oriented, to 'empiric component' (borrowing nomenclature from Stamper's (1991) six-level semiotic framework), which is neutral between producer and addressee, and also neutral between speech and writing, and which reflects the fact that at this level we are concerned with physically observable phenomena (acoustic or optical, depending on the medium).

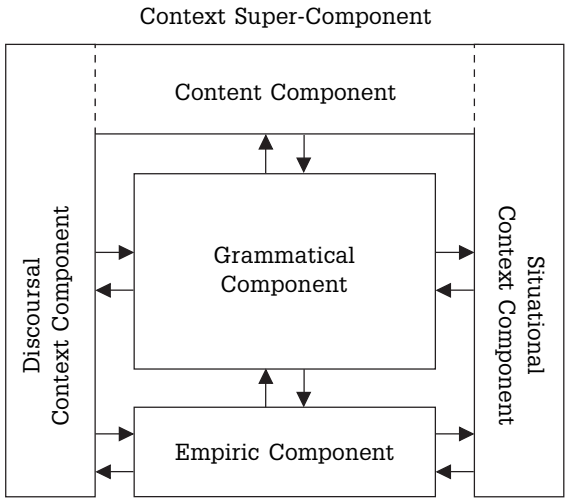

Figure 2 – A modified outline of FDG

Incorporating these various proposals, we may replace Figure 1 by Figure 2. Here, context is presented in terms of a super-component, partitioned into three divisions: a content component, a discoursal context component and a situational context component. The content component represents a very special part of the context, namely what the speaker or writer actually decides to express in language; and this is the reason why it has been picked out and accorded a separate status and not simply subsumed into the situational context component.

It is hoped that the model portrayed in Figure 2 offers a comprehensive and serviceable framework for FDG, doing justice to the treatment of both language and context. Of course, much more work will need to be done on the details of the internal structure and workings of the contextual super-component, but this must be left as a matter for future research.

4 Contextual Factors in the Functional Description of Language

4.1 Refining the Treatment of Pragmatics

Although the influence of context in the production and interpretation of language is widely acknowledged in linguistic pragmatics, often the term 'context' is employed in a rather vague and undifferentiated manner. However, if we are serious about understanding language in use, then we need to work with a more refined concept of context. The framework presented above is intended to help in this endeavour.

The next stage is to illustrate the application of the framework for such a purpose. We shall focus on some selected aspects of Modern English, with a view to showing how the influence of context upon language can be made more precise than if context were treated as a monolithic concept. Although space does not permit an overly elaborate or ramified treatment, it is nevertheless hoped that the essential idea will be clear.

4.2 Constituent Order

Let us begin with constituent order. The FG approach to this phenomenon was laid down in Dik (1978, p.171-212) and received a detailed treatment in Connolly (1991). A somewhat different treatment of expression rules is proposed by Bakker (1999, 2001) and assimilated into FDG by Hengeveld (2005). However, it is argued in Connolly (2005) that the handling of constituent order can and should remain much as in the original model. Importantly, constituent order is highly dependent on context.

Consider the following brief text, spoken by a person called Ann, who is bilingual in English and Welsh, to her friend Beth, who knows English only. The transcript has been divided up, purely for the sake of expository convenience:

(5) (a) Cath informed us
(b) about the new post of senior tutor at the meeting we had here last week.
(c) She's received applications from Dave and from Ewan.

(d) Ewan she's rejected, but

(e) Dave she's interviewed.

In (5a) we find the standard declarative order of subject + verbal element + object (SVO). Why is this order chosen? The answer involves a number of contextual factors, including the following.[7]

(6) (a) Broader socio-cultural factors:

(i) English is available as a vehicle of communication.

(ii) In English the unmarked declarative constituent order is SVO. (In Welsh, by contrast, it is VSO.)

(b) Immediate socio-cultural factor:

Ann and Beth have English as a common language.

(c) Immediate physical factor:

Ann and Beth are co-located in place and time.

(d) Socio-cultural factor in the described context:

Cath informed an audience including Ann about the new post of senior tutor.

(e) Mental context:

(i) Ann knows all the facts in (6a-d).

(ii) Ann believes that Beth does not know (6d).

(iii) Ann wants Beth to know (6d). This is her purpose in communicating the fact concerned.

(iv) Ann therefore chooses to utter a statement (rather than a question). In linguistic terms, this motivates a representative (or declarative) illocutionary force on the part of the clause.

(v) Ann chooses to use English rather than Welsh, knowing that it will be intelligible to Beth.

(vi) Ann portrays Cath rather than Cath's audience as the announcer of the vacancy, in order faithfully to describe (6d). In linguistic terms, this warrants the assignment to Cath of the semantic role of agent and to Cath's audience the semantic role of goal.

(vii) Ann decides to present (6d) from the perspective of Cath rather than her audience. This motivates the assignment to Cath of the function of subject of the clause.

(viii) Cath makes the subject the point-of-departure for her utterance. In other words, the utterance is going to say something about Cath. This warrants the assignment to Cath of the function of topic.[8]

(ix) Ann feels that the most salient piece of information is 'the post of senior tutor'. This motivates the assignment of the function of focus of information to that term.

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7 These are couched in FDG-derived linguistic terminology, without of course claiming that this is actually employed by speakers during the psycholinguistic process of producing utterances.

8 It is acknowledged that there is a lack of unanimity as to whether the description of English needs to include a topic function; cf. Mackenzie and Keizer (1991).

In FDG the linearisation procedure is based on placement rules and templates. A template sufficient to accommodate example (5a) is as follows:

(7) P1 N1 N2 N3 N4

Placement rules would allocate the subject to N2, the verbal element to N3 and the object to N4. N1 would be left vacant, though it would have been filled if there had been an auxiliary before the subject. P1 would also be left unfilled, as it is a special position for constituents that need to be placed at the beginning of the clause, for example question-words. The effect of all this is to generate the correct order, namely SVO.

The analytical description in (6) does not, of course, add to our understanding of the *syntactic* description of constituent order; nor is it intended to do so. Rather, it makes for a more detailed and explicit account of the *pragmatics* of constituent order in relation to the surrounding context; and within the terms-of-reference of any truly functional linguistic theory, the latter is no less essential than the former. As we can see, the description serves to ground the structure of the utterance in the context from which it sprang; and thus forges an explicit (but generally missing) connection between language and context.

A principle illustrated by (6) is that individual contextual facts may be seen as links in a chain of factors influencing the form of the language produced. For instance, the occurrence of the sequence SVO in (5a) is determined by the fact that it is the unmarked order in English, and by the fact that this was the language chosen by Ann. Ann's choice of English depends, in turn, on its being common to Ann and Beth, and this itself depends on its being available as a means of communication in the society concerned. Clearly, it is only through the analysis context that such dependency chains come to light.

Whereas the unmarked SVO order appears in (5a), in (5d,e) we find the marked sequence OSV. Let us consider (5e) for illustrative purposes. The contextual factors at play here include the following:

(8) (a) Mental context:

(i) Dave is made the point of departure. Linguistically, this motivates the assignment of the topic function to Dave.

(ii) Dave is presented as the most salient piece of information. This warrants the assignment of the function of focus of information to Dave.

(b) Co-text:

The preceding clause (5d) exhibits the order OSV and there is a clear parallel in their content. This motivates using the same pattern in (5e), thus reflecting the parallelism in content through a corresponding parallelism in structure.

These considerations conspire to cause the object to be placed in P1 rather than its unmarked position of N4, thus preceding the subject (in N2) and the verbal element (in N3). The outcome is the sequence OSV.

When the role of context is spelt out in some detail, as in (6), the description may perhaps appear a little laborious. After all, we are so used to making use of context in our use of language that it intuitively seems a matter of common sense. However, the application of an analytical apparatus to language often delivers a description which contains a lot of information — one has only to think of a full syntactic or semantic analysis of a sentence to appreciate this point.

Furthermore, it is worth remembering here that since the early days of FG there has been a strong interest in the subject of computational implementation; see for instance Kwee (1979,1994), Connolly and Dik (1989), Dik (1992) and Bakker (1994). In this field the explicit formulation of what humans regard as common sense is a well-known problem, and solutions are positively welcomed. As it happens, the computational modelling of context has, in recent years, been given impetus through the development of what are known as 'context-aware' systems, which have a more elaborate means of sensing and internally representing their environment than computers generally do; see, for example, Abowd and Mynatt (2000). However, within computational linguistics there is much scope for improvement, especially in relation to the handling of situational context; and it is hoped that the work set out in the present paper may in the future be applied within that field.

4.3 Fragmentary Text

The account just given of context in relation to constituent order was oriented to the production rather than the interpretation of language. Accordingly, let us now consider context in relation to interpretation, taking as an example the understanding of the title of an image within a multimodal document.

Imagine a photograph of the constellation Orion, with a line drawn upon it in such a way as to enclose a particular subset of the stars in the constellation. Immediately below the photograph is the title 'The Sword of Orion'.

As is often the case with titles, the expression is fragmentary, in the sense that it does not constitute a full sentence. Consequently, there are few linguistic cues to its interpretation, which must therefore draw on the context in order to be achieved successfully.

First of all, the expression needs to be recognised as the title of an image, rather than, for instance, a section heading, which could easily have the same syntactic structure. This will be cued by its position on the page — a feature of the document layout, which is an aspect of the (multimodal) discoursal co-text.[9]

As for the interpretation of the content of the title, this relies partly on the actual stars depicted, an aspect of the broader physical context. However, the metaphor of the 'sword' has to be understood in relation to classical mythology, where Orion was a hunter and therefore would have been be equipped with a lethal weapon. The mythological sources accordingly act as inter-text here.

In short, then, three aspects of context are at play in the present example:

(9) (a) Physical context: universe
(b) Co-text.
(c) Inter-text.

This example also demonstrates, of course, the applicability of our framework to multimodal discourse.

4.4 Supplying Unexpressed Content

Another situation when the context plays an important role is when it is needed to supply information that is not actually expressed. For instance, (10a) can be spelt out more fully as (10b), but is nevertheless quite acceptable as it stands:

(10) (a) The boy washed.
(b) The boy washed himself.

In FDG the clause underlying (10a) would be represented as containing an agent but no patient (as shown below). The implication of this is that the addressee would be left to infer the patient as part of the process of interpreting the utterance. This would be done on the basis of a convention, which may be stated informally as follows:

(11) If the patient of a verb like 'wash' is not explicitly stated, then by default it should be taken to be co-referential with the agent.

The existence of conventions of this nature affect both the formulation and the interpretation of utterances. Clearly, an addressee hearing (10a) can use (11)

[9] See further the treatment of 'pragmatic rules' in Connolly (Forthcoming).

to arrive at an understanding that the boy is both the agent and the patient of the process of washing. However, the speaker, too, can exploit (11), which allows him/her to anticipate that the addressee will be able readily to understand who the patient is, even if the latter is left unexpressed; this enables the speaker (if he/she wishes) to employ the intransitive (10a) rather than the longer transitive reflexive (10b) without endangering the communicative success of the interaction.

Suppose, then that Bill addresses (10a) to Chris. In omitting the patient of 'wash', Bill relies on (11), which Chris (we shall assume) duly applies to its interpretation. The convention (11) is known to both participants and is therefore part of the mental context, while the recovery of the identity of the patient of the verb 'wash' depends on the identification of its agent, the boy, in the co-text. Thus, in short, the aspects of context at play here are:

(12) (a) Mental context.
(b) Co-text.

As pointed out in Connolly (2007, p.199-202), in relation to the treatment of ellipsis in FDG, it is feasible to omit unexpressed material from the underlying linguistic structure of examples like (10a), while at the same time including it within the contextual description.[10] The representational formulation underlying (10a) would be along the lines of (13a), while that of (10b) would be along the lines of (13b):

(13) (a) $(ep_i: [(p_i: [(past\ e_i: [(f_i: wash_V\ (f_i))\ (1\ x_i: boy_N\ (x_i))_{Ag}]\ (e_i))]\ (p_i))]\ (ep_i))$
(b) $(ep_i: [(p_i: [(past\ e_i: [(f_i: wash_V\ (f_i))\ (1\ x_i: boy_N\ (x_i))_{Ag}\ (x_i)_{Pat}]\ (e_i))]\ (p_i))]\ (ep_i))$

As will be apparent, the patient term $(x_i)_{Pat}$ is present in (13b) but absent from (13a). However, within the content component (representing part of the mental context), both (10a) and (10b) would share the same description, along the lines of (14b), given the facts set out in (14a,c):

(14) (a) Relevant entities and circumstances:
p_1 = Bill (discourse participant)
p_2 = Chris (discourse participant)
x_1 = boy (a particular individual in the described state-of-affairs)
t_1 = a particular time in the past

10 In this respect the approach proposed here differs from that of García Velasco and Portero Muñoz (2002, p.22).

(b) Content:

wash(x_1, x_1, t_1)

(c) P_1's state of mind:

believe(p_1, not (know(p_2, wash(x_1, x_1, t_1))))

want(p_1, know(p_2, wash(x_1, x_1, t_1)))

The notation is provisional. (14c) means that prior to expressing the content in (14b), Bill believed that Bill did not already know it, but wished him to know it.

This method of representation is very helpful. It enables us to keep track of the full meaning conveyed by utterances without overloading the semantic representation of utterances with elements that are unwarranted by their structure.

4.5 Inferencing

The fact that discourse interpretation involves combining expressed and unexpressed information is well known. It also serves to highlight another important aspect of the context in relation to FDG, namely the fact that context is relevant not only to grammar (which has been very much the focus of the FG tradition) but also to lexis and to discourse processing *per se*. Let us consider a simple example:

(15) (a) That man's a rat.

(b) I'm going to get my own back on him.

Someone hearing this can be expected to infer certain unstated facts, including the following:

(16) (a) The speaker has a low opinion of the man concerned.

(b) The man has hurt the speaker in some way.

Inference (16a) is warranted by the speaker's choice in (15a) of the pejorative word 'rat' to describe the man, while (16b) is motivated by the fact that (15b) expresses an intention to take revenge, and that in general, people who desire revenge have been aggrieved by someone who has hurt them physically and/or emotionally. Through such inferencing, the facts represented by (16a,b) become part of the interpreter's mental context.[11]

[11] A more formal representation of this mental context would, of course, be possible, but has been omitted for brevity, as it does not affect the argument.

It is to be hoped that in future work on FDG, the contextual apparatus will be more widely employed in the explication of lexical and discoursal, as well as grammatical, phenomena. This will undoubtedly lead to a more comprehensive treatment of language-based communication.

5 Conclusion

In conclusion, it may be seen that, in this paper, a particular theoretical stance has been expounded towards context and its importance for FDG. A framework for the analysis of context has been developed which is more comprehensive and detailed than was previously available, and this has been incorporated into a revised proposed model of situated verbal interaction. The framework has been applied to the production and interpretation of language, and has been shown to allow for a more precise treatment of the role of context than would otherwise have been possible. It will, hopefully, therefore serve as a useful basis for future research within FDG.

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CONNOLLY, J. H. O contexto na Gramática Discursivo-Funcional. *Alfa,* São Paulo, v.51, n.2, p.11-33, 2007.

- RESUMO: Uma característica importante e admirável do modelo da GDF é a de que ele considera muito seriamente o fato enunciados serem produzidos e entendidos em contexto. Dado este fato, o objetivo deste artigo é articular, mais detalhadamente, como o contexto pode ser tratado e descrito na GDF e como prover a GDF com uma estrutura contextual mais abrangente do que a disponível até então. No início do artigo, alguns princípios gerais sobre contexto são estabelecidos. Mostra-se, então, como o contexto pode ser categorizado internamente, para revelar uma complexa estrutura multifuncional. À luz dessas considerações, propõe-se uma versão modificada da estrutura contextual da GDF. O modelo proposto é então aplicado à descrição funcional de alguns aspectos do Inglês Moderno, para mostrar como a aplicação da estrutura proposta permite uma descrição mais analítica e perspicaz da pragmática envolvida. As áreas ilustradas são a ordem de constituintes, o texto fragmentário, as orações com elementos não expressos e a inferência de informações. Conclui-se que a estrutura proposta viabiliza um tratamento mais exato e detalhado do papel desempenhado pelo contexto no uso da língua.

- PALAVRAS-CHAVE: Contexto; discurso; Gramática Discursivo-Funcional; pragmática; texto.

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THE LEXICAL-GRAMMATICAL DICHOTOMY IN FUNCTIONAL DISCOURSE GRAMMAR

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- ABSTRACT: This paper deals with the lexical-grammatical distinction in Functional Discourse Grammar (FDG), addressing such issues as the nature of linguistic categorization (strict versus gradual) and the possibility of representing gradience in underlying representation. It will be shown that both FDG and its predecessor, Functional Grammar (FG), are ambivalent with regard to the lexical-grammatical distinction. On the one hand, both models seem to accept the possibility of strict categorization, making 'a rather sharp distinction between lexical (or content) elements and grammatical (or form) elements in the structure of linguistic expressions' (DIK, 1997, p.159), whereby lexical elements are captured by predicates and grammatical elements are analysed as operators or functions. At the same time, however, it is implicitly accepted that categorization is not always an all-or-nothing affair (e.g. DIK, 1997, p.194). The aim of the present paper is, first, to resolve this ambivalence by offering an inventory of criteria (pragmatic, semantic, morphosyntactic and phonological) for the classification of (English) linguistic elements as lexical or grammatical. Secondly, it is argued that, although both distinctions are useful and justifiable, there is no one-to-one relationship between the lexical-grammatical dichotomy and the distinction between predicates and operators/functions. Finally, a proposal is made for an FDG-representation of a particular group of linguistic elements (including pronouns, demonstratives, numerals and prepositions) which do not clearly belong to either category but combine lexical and grammatical features.

- KEYWORDS: Lexical-grammatical dichotomy; predicate-operator distinction; grammaticalization; linguistic categorization; linguistic prototypes.

1 Introduction

This paper will discuss a fundamental distinction in the theory of Functional Discourse Grammar (henceforth FDG): the lexical-grammatical distinction. Its main aim will be to find a way of defining and representing the categories in question which will be compatible both with the underlying principles and

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general architecture of FDG and with the findings of grammaticalization studies. Particular attention will be paid to the question of how to deal with those linguistic elements that exhibit both lexical and grammatical features. This, of course, takes us back to the much older problem of the nature of linguistic classification – is it strict, with discrete boundaries between classes, or are distinctions fuzzy and boundaries non-discrete? And, if the latter, what are the consequences for a formalistic model like that of FDG?

Strict categorization – the classical or Aristotelian view – was the prevailing view until 1980s, and among certain groups of linguists it still is. It generally results in an attempt to relegate vagueness from linguistics, as illustrated by the following passage: "fuzziness is of interest, but since it has no effect on the behavior of grammatical entities such as words, it is *not* of concern to the linguist, but rather to the psychologist" (BOUCHARD, 1995, p.31).

To functionally or cognitively oriented linguists, such an approach is obviously unacceptable, and an alternative to the classical view has, in fact, been around for quite some time (witness the work of Jespersen (1924), Bolinger (1961), Quirk (1965), Crystal (1967) and Lyons (1968)). More recently cognitive linguists like Langacker (1987) and Lakoff (1987) have developed theories of grammar in which gradience and fuzziness play an essential role. In Langacker (1987, p.14), for instance, we read that:

> Eventually the predilections of the analyst [for all-or-nothing, invariable linguistic categories] must give way to the actual complexity of the empirical data. Non-discrete aspects of language structure must be accommodated organically in the basic design of an adequate linguistic theory.

FDG's predecessor, Functional Grammar (FG; DIK, 1997), does not explicitly address the problem; in actual practice, it pursues a somewhat ambivalent course. On the one hand, it is implicitly accepted that classification is not an all-or-nothing affair. A case in point are the definitions given of the three major syntactic categories: a verbal predicate, for instance, is defined as 'a predicate which is *primarily* used in predicate function' (DIK, 1997, p.194). In other words, there is room for verbal predicates that deviate from the norm, but which can still be regarded as members of the category. At the same time, however, strict categorization has always formed the basis of the FG-formalism. With regard to the lexical-grammatical distinction, for instance, we read that

> FG makes a rather sharp distinction between lexical (or content) elements and grammatical (or form) elements in the structure of linguistic expressions. Lexical elements are captured by the basic predicates listed in the lexicon. Grammatical elements reflect the

> various operators and functions which at different levels can be applied to the underlying constructions… (DIK, 1997, p.159)

However, apart from the fact that lexical elements have semantic content, whereas grammatical elements do not, no criteria are given for determining the status of a linguistic element. Two crucial questions are, therefore, left unanswered: (1) what is the nature of the division between lexical and grammatical elements (discrete or non-discrete)?; (2) on the basis of which criteria are elements assigned to either category?

The need to answer these questions is particularly urgent at this moment, as in FDG certain categories or items are classified differently from standard FG (e.g. pronouns, prepositions and conjunctions). I will therefore start by providing an inventory of criteria that may serve as a basis for the classification of linguistic elements as lexical or grammatical. Next, I will offer some suggestions about where to place the boundary between these categories. Finally, I hope to show that not only straighforwardly lexical and grammatical elements, but also non-prototypical elements can be accommodated by the model of FDG. As it is my belief that the classification in question, and in particular the boundary between the main categories (lexical vs grammatical), are language specific, this paper will be concerned with English only.

2 Definitions, mechanisms and clines

2.1 Definitions and mechanisms

According to Bybee, Perkins and Pagliuca (1994, p.2), grammatical elements – or "grams" as they are sometimes called – may take the form of affixes, stem changes, reduplication, auxiliaries, particles or complex constructions such as English *be going to*. They are seen as descendants of lexical items, i.e. as the result of a process of grammaticalization. The literature abounds with definitions of grammaticalization, three of which are given in (1):

(1) a. Grammaticalization concerns the evolution from lexical to grammatical forms and from grammatical to even more grammatical forms (HEINE; KUTEVA, 2002a, p.377; cf. HEINE; KUTEVA, 2002b, p.2; AUWERA, 2002, p.21)

b. Grammaticalization is usually defined as the process by which a lexical item or a sequence of items becomes a grammatical morpheme, changing its distribution and function in the process (BYBEE, 2003, p.146)

c. Grammaticalization begins with concrete, lexical forms and constructions and ideally ends in zero – that is, grammatical forms increasingly lose in semantic and

phonetic content and, in the end, they may be replaced by new forms (HEINE; KUTEVA, 2002b, p.4-5; cf. HEINE; REH, 1984).

What all definitions of grammaticalization have in common is that they describe grams as resulting from a process. So what exactly happens during this process?; i.e. what kind of changes take place when a lexical item develops into a grammatical item?

Heine and Kuteva (2002a, p.378) describe the changes taking place during the process of grammaticalization in terms of the three mechanisms given in (2):

(2)

desemanticization ('bleaching')	loss of meaning
decategorialization ('downgrading')	loss of categorial properties
erosion ('phonetic reduction')	loss of phonetic substance

These mechanisms can be illustrated by means of the phrase *be going to,* one of the best-described examples in grammaticalization studies:

- *Desemanticization*
  The verb *to go* loses the original meaning element of 'movement', which is gradually replaced by something more abstract: first intention, eventually future.
- *Decategorialization*
  To go loses its verbal properties: it occurs only in progressive form (but without the 'progressive' meaning aspect); its distribution changes (into that of a modal)
- *Erosion*
  From *going to* > *gonna*; a reduction both in number of syllables and in the quality of the sounds.

It seems plausible, however, that the real source of grammaticalization is not the change in the semantics of an item or construction, but a change in use. Various authors have, indeed, recognized this; in Heine and Kuteva (2002b, p.5), for instance, grammaticalization is described as "rooted in cognition and pragmatics", while others stress that it is the result of 'pragmatic inferencing' (e.g. BYBEE; PERKINS; PAGLIUCA, 1994, p.25). This process can again be illustrated by means of *be going to*: if *be going to* is frequently used to talk about intentions, intention may become part of its meaning (BYBEE, 2003, p.156); subsequently there may be an inference from intention to futurity: if one intends to do something, this event will take place in the future (HOPPER; TRAUGOTT, 1993, p.3).

This means that a fourth mechanism needs to be distinguished, resulting in a loss of or change in the pragmatic or discourse function of an element. In the case of *be going to*, the verb *to go* gradually loses its ascriptive function; in terms of FDG, it can no longer be used to express an Subact of Ascription at the Interpersonal Level. Distinguishing a fourth, pragmatic, mechanism thus clearly suits the purposes of FDG, as now grammaticalization can be said to involve (potentially at least) changes at each of the four levels.

Now, one important characteristic of the whole process of grammaticalization is the fact that all these changes are gradual. Nevertheless, even in studies on grammaticalization the existence of distinct categories is continually implied. Heine and Kuteva (2002b, p.4), for instance, speak of items that are "already part of *the inventory of grammatical forms*" (italics added), which clearly suggests that such an inventory exists. In all other grammaticalization studies, too, elements are labelled lexical or grammatical, without any specification, however, of when a lexical item stops being lexical and enters the inventory of grammatical elements.

2.2 Clines and clusters

In grammaticalization studies the process of change is typically represented by means of clines, which are meant to capture the fact that "forms do not change abruptly from one category to another, but go through a series of gradual transitions" (HOPPER; TRAUGOTT, 1993, p.6). On one end of the cline we will find prototypical content items, such as full verbs, nouns and adjectives; on the other end, we find inflectional affixes. Although what lies in between these two categories is really a continuum, it is possible, according to Hopper and Traugott, to recognize certain "clusters" or "focal areas" (HOPPER; TRAUGOTT, 1993, p.4-5). Two of these transitional categories are given in (3):

(3) *Grammatical words*: have relative phonological and syntactic independence (e.g. prepositions).
Clitics: are constrained to occurring next to an autonomous word, known as the host (e.g. *'s* in *it's me* or *'m* in *I'm*).[2]

Although linguists may disagree about which items go where, most of them, Hopper and Traugott (1993, p.7) claim, agree that there is a "cline of grammaticality" of the type given in (4):

2 Hopper and Traugott actually distinguish three in-between categories, the third one being that of derivational forms. However, as these do not form part of the same cline, I will ignore them here (though they are certainly an interesting group to consider).

(4) content item > grammatical word > clitic > inflectional affix

Hopper and Traugott's work exhibits the same ambivalence, however, that characterizes standard FG. On the one hand they stress that it is difficult, impossible even, to establish strict boundaries; on the other hand, they do refer to a lexical and a grammatical area on the cline (HOPPER; TRAUGOTT, 1993, p.7). It will be clear that a formal modal like FDG requires some kind of boundary: to give any underlying representations at all, we need a cut-off point between the two areas. To see if this is – at least to some extent – feasible, let us first consider some of the more concrete criteria put forward in the literature.

3 Criteria

3.1 Criteria from grammaticalization studies

Different studies in grammaticalization focus on different features to distinguish lexical items from grams. What follows is a brief summary of the various criteria applied.

Pragmatic:

- Loss of discourse/pragmatic function. In FDG: loss of ascriptive function[3] and loss of the possibility of Focus assignment
- High frequency of use (BYBEE; PERKINS; PAGLIUCA, 1994, p.8, p.19; BYBEE, 2003, p.147)

Semantic:

- Semantic generalization/reduction (BYBEE; PERKINS; PAGLIUCA, 1994, p.6-7):
  - loss of most if not all of the specificities of lexical meaning
  - generalization of meaning; development of abstract or relational meaning (see also BYBEE, 2003, p.147, p.152)
  - a widening of the domain of applicability
- Growing semantic dependence on surrounding material (interpretation depends more and more on the meaning contained in the context)

[3] In most cases the loss of ascriptive potential of a lexeme will lead to a loss of referential potential for the construction in which they appear; I will consider this as part of the same processs and, as such, as one criterion.

Morphosyntactic:

- Grams are members of a closed class (e.g. BYBEE; PERKINS; PAGLIUCA, 1994, p.2, p.8, p.19; HEINE; KUTEVA, 2002a, p.378)
- Grams are members of a regular syntactic paradigm ("paradigmatization", LEHMANN, 1985; see also LEHMANN, 1989, p.16; 2002, p.1)
- Grams exhibit specific syntactic behaviour; they are characterized by:
  - a fixed position of occurrence (e.g. LEHMANN, 1985; BYBEE; PERKINS; PAGLIUCA, 1994, p.7);
  - co-occurrence restrictions:
    - grams cannot be modified by lexical elements (e.g. BYBEE; PERKINS; PAGLIUCA, 1994, p.7)
    - grams cannot co-occur with members of the same class (e.g. ibid)
  - a tendency to become obligatory, even when redundant in the given context ("obligatorification", LEHMANN, 1985, see also e.g. BYBEE; PERKINS; PAGLIUCA, 1994, p.8, p.19)

Phonology/Phonetics:

- Phonetic reduction (e.g. BYBEE; PERKINS; PAGLIUCA, 1994, p.6; see also BYBEE 2003, p.146, LEHMANN 1985);
- Reduction in length (e.g. BYBEE; PERKINS; PAGLIUCA, 1994, p.19);
- Fusion with other morphemes; ultimately leading to affixation (e.g. LEHMANN, 1985, BYBEE; PERKINS; PAGLIUCA, 1994, p.6);
- Lack of stress (e.g. BYBEE; PERKINS; PAGLIUCA, 1994, p.7).

3.2 FDG: predicate formation

Some of these criteria have been employed within FG and FDG; in particular, the possibility of modification, the absence of semantic meaning and, to a lesser extent, phonetic reduction and mutual exclusivity (e.g. MACKENZIE, 1992 and KEIZER, 2008 (Forthcoming) for prepositions; HENGEVELD and WANDERS, 2007 for conjunctions). There is, however, another criterion that can be claimed to be relevant within an FDG context: the possibility of predicate formation. After all, it is only lexical elements (predicates) that can be input to a predicate formation rule (e.g. DIK, 1997, p.349): such rules typically apply to verbal, nominal and adjectival predicates, whereas elements like articles, pronouns and conjunctions do not normally serve as input. I will therefore add this feature to our list of criteria.

4 Reliability of the criteria

We now seem to have a nice set of criteria for establishing the lexical or grammatical status of a linguistic element, all of which seem to work fine – at least for the clearest cases, i.e. full content words on the one hand an affixes on the other. But how reliable are these criteria really? And are they all independent criteria, or are some characteristics perhaps brought about by others? I will illustrate the kind of problems involved by looking at some of the criteria mentioned.

4.1 Semantic reduction

One of the problems with the criterion of semantic reduction is that even highly grammaticalized forms may retain traces of the meaning of the original item or construction (BYBEE; PERKINS; PAGLIUCA, 1994, p.15, p.17); examples are the complex conjunction like *in case* and the complex preposition like *on top of*. Similarly, it could be argued that certain lexical items are at least as empty of meaning as some grammatical elements: the adverb *possibly*, for instance, does not seem to have more semantic content than the modal *may*.

4.2 Closed class

First of all, this criterion implies that the lexical-grammatical criterion applies to classes and not to individual members. In other words: a class is either lexical or grammatical – this then must hold for all its members. As it turns out, however, this position is difficult to maintain for all classes. Lehmann (2002), for instance, notes that minor word classes, such as adpositions and conjunctions, are not necessarily grammatical but that some of their members will be more grammatical and others more lexical. He further adds that not every newly created (complex) preposition automatically becomes a grammatical element. First, the original construction will lexicalize, yielding a new lexical item. This lexicalized item may grammaticalize and eventually enter the 'grammatical inventory'.

4.3 Modifiability

Here we are faced with two problems. The first concerns the scope of the modifier, which may be difficult to establish (see KEIZER, 2008, Forthcoming). In a phrase like *straight towards the house*, does *straight* modify the preposition (*towards*), or the PP *towards the house*? In some cases we intuitively prefer one interpretation rather than the other: in *precisely in the middle*, most speakers probably feel that *precisely* modifies the PP, whereas in the phrase *in three days before the conference*, *three days* is more likely to be interpreted as modifying just the element *before*. Intuition alone, however, is not enough.

The second problem has to do with the reduction of a construction. Lehmann (2002, p.1) observes that not only grammaticalization but also lexicalization (the creation of a lexical item out of syntactic construction, such as a phrase) may involve semantic reduction. In other words, from the fact that in a complex conjunction like *in the event that* the noun *event* is no longer modifiable, we cannot deduce that the phrase as a whole must be a grammatical element (HENGEVELD; WANDERS, 2007) – this is simply the result of lexicalization. In what follows, the criterion 'not modifiable' will therefore be applied to the construction as a whole, not to any of its component elements.

4.4 Independence of criteria

A further complicating factor concerns the fact that the criteria mentioned are often related to each other (e.g. HEINE; KUTEVA, 2002a, p.378). Thus, in Bybee, Perkins and Pagliuca (1994, p.19) we read that "since the more generalized a gram is, the wider its domain of applicability, we should expect that the more generalized a gram is, the higher its incidence of use." Higher incidence of use may subsequently lead to phonetic reduction (BYBEE; PERKINS; PAGLIUCA, 1994, p.20). As it turns out, however, semantic reduction does not necessarily lead to higher frequency, nor does it always entail phonetic reduction. I will therefore continue to regard them as separate criteria.

Moreover, phonetic reduction can also be claimed to be brought about by lack of stress, which in turn may result from a lack of salience. In other words, it is because certain elements are not (or no longer) used to express salient information that they are never stressed, which in turn leads to phonetic reduction. The clearest examples of this process are bound morphemes. Note, however, that even bound morphemes can be stressed, provided they have syllabic status (*waiTED*, not *waiTING*). In this respect, the recently introduced distinction in FDG between Focus, Emphasis and Contrast becomes relevant. Thus, what distinguishes grams from lexical elements is that they cannot be assigned the pragmatic functions of Focus and Emphasis; they are, however, still available for Contrast – and may therefore still be stressed. In what follows, I will therefore replace the criterion of stress by the criterion of Focus/Emphasis assignment.

5 Applications and boundaries

On the basis of the criteria described so far, and taking into consideration some of the reservations just mentioned, I have tested the degree of lexicality/grammaticality of a number of linguistic elements. The results are give in the matrix in Table 1, which has been drawn up in the spirit of work by Quirk (1965), Crystal (1967), Ross (1973), Quirk et al. (1985) etc. Note that some of these

elements are classes, others individual members; individual members have been selected in those cases where it has been suggested that a particular class may include both lexical and grammatical members (such as prepositions and conjunctions). The criteria have been formulated in such a way that the more pluses, the more grammatical the element in question.

Table 1 – The lexical-grammatical squish for English free morphemes

Criterion / Class/Element	No ascriptive function	Mutually exclusive	Fixed position	Not modifiable	No predicate formation	Closed class	Increased frequency	Little or no Semantic content[4]	Phonetically reduced	Syntactic paradigm	No Focus/Emphasis	Fusion[5]	
lets	+	+	+	+	+	+?	+	+	+	+	+	–	11+/1–:10+
that (compl.)	+	+	+	+	+	+?	+	+	+	+?	+	–	11+/1–: 10+
Articles	+	+	+	+	+	+	+	+	+	+?	–	–	10+/2–: 8+
of (prep./nom.)	+	+	+	+	+	±	+	+	±	+?	+	–	9+/1–: 8+
Modals	+	+	+	+	+	+?	+	+	+	–	–	±	9+/2–: 7+
Demonstratives	+	+	±	+	+	+	dna	±	–	+	–	–	6+/3–: 3+
Pronouns	+	+	-	±	+	+	dna	±	±	+	–	±	5+/2–: 3+
in case (conj)	+	+	+	+	dna	±	±	±	+	–	–	–	5+/3–: 2+
Numerals	+	+	+	–?	–	+	dna	±	–	–	–	–	4+/6–: 2–
in the event that (conj)	+	+	+	+	dna	±	–	–	–	–	–?	–	4+/6–:2–
sort-of/kind-of	+	–?	–	+	dna	-	+	±	±	–	–	–	3+/6–:3–
through (prep.)	±	+	±	±	+?	±	dna	–	–	–	–	–	2+/5–:3–
under (prep.)	+	±	+	?	±[6]	±	dna	–	–	–	–	–	2+/5–:3–

[4] The term semantic reduction presumes the development of an element from a more lexical element. For some items, such as demonstratives or numerals or basic prepositions, this has not been established. The criterion to be applied below will therefore be the degree of semantic content rather than the degree of semantic reduction.

[5] Note that, as applied here, fusion does not relate to the component parts of a grammaticalized phrase, but to the integration of the grammaticalized item as a whole with some other morpheme.

[6] *Under* is quite readily available for predicate formation as a prefix. Question is whether we regard the prefix *under* and the preposition *under* as separate elements.

Let us consider some of these items in some more detail.

Lets

This is a prototypical case of grammaticalization, well described in the literature. It has a lexical source, all four mechanisms are at work, and virtually all the criteria are fulfilled:

- loss of interactive function:
  - *let* is no longer used to ascribe a property
  - *us* is no longer used to refer
  - neither can be assigned Focus or Emphatic function
- desemanticization:
  - *let* has lost its original meaning of permission
  - *us* has lost its semantic features of first person plural
- decategorialization:
  - *let* has lost it verbal properties: the form has become invariable (always imperative form without fulfilling an imperative function)
  - *us* has lost its pronominal properties: it is no longer the objective form; i.e. no alternation between forms (*we/us*)
- phonetic reduction:
  - *let us*: phrase > word. Even further reduced to /les/
  - *us*: word > affix > phoneme (HOPPER; TRAUGOTT, 1993, p.10-14)

Finally, the phrase as a whole has procured a new function: that of an illocution marker, indicating adhortative.

Sort-of

Sort-of can be regarded as a case of incipient grammaticalization. So far, it exhibits features of lexicalization more than grammaticalization, but it may grammaticalize over time (see HOPPER, 1991). The development of *sort-of* in its modifying use is well described:[7]

- loss of interactive function: *sort* loses its ascriptive function; it can no longer be used to evoke an entity.
- desemanticization: *sort* loses its meaning of (particular) type; *of* loses its relational function

[7] It has been argued that in constructions like *these sort of skills*, where *sort-of* does not have a qualifying function (it not 'something like a skill' that is referred to, but 'a set of skills of a particular type'), but where the determiner nevertheless exhibits number agreement with the second noun, the sequence *these sort of* can plausibly be analysed as belonging to the class of postdeterminers (cf. DENISON, 1998; DENISON, 2005; DENISON; KEIZER, Forthcoming; KEIZER, 2008, Forthcoming).

- decategorialization: *sort* loses its nominal properties, becomes invariable (no plural); *of* no longer takes an NP-complement
- phonetic reduction: *of* combines with *sort* to becomes a phoneme: *sorda* (optional).

The phrase as a whole has developed a new function: it qualifies the predicate, typically functioning as a hedge.

However, when we look at Table 1 we see that *sort-of* still exhibits many lexical features as well:

- as a modifier, it can co-occur with other modifiers (not mutually exclusive)
- it does not have a fixed position in the clause; in fact, its position has become more flexible: it may take various positions, and different scopes (over predicates (*sort of embarrassing*), phrases, (*sort of at the same time*) and clauses (*I begged him, sort of*).
- it is not a not member of a closed class nor does it form part of a syntactic paradigm
- the phonetic reduction is optional; it can have Focus function
- the phrase itself is optional
- it does not fuse with adjacent elements.

Numerals

Finally, let us consider the class of numerals. Traditionally, and FG was no exception, these have been regarded as grammatical elements. That they do not have the highest possible degree of grammaticalization is clear from the fact that in English, as well as in many other languages, the cardinal number *one* has grammaticalized into the indefinite article (HEINE; KUTEVA, 2002b, p.8; BYBEE, 2003, p.147). Moreover, we find that:

- they can be claimed to have semantic content
- they can be input to predicate formation rules (*two-seater*, *three-wheeler*, *tenfold*; *firstly*, *secondly* etc.)
- they can be modified (*approximately three*, *almost twenty*)
- they are not phonetically reduced; they can have Focus function
- they do not fuse with adjacent elements.

So, what overall conclusions can we draw from Table 1? First of all, that it is a reasonably well-behaved squish, as Ross (1973) would put it, with clearly emerging prototypes. Note in particular the concentrations of pluses in the top left corner, and minuses in the bottom right corner. The table also clearly identifies

the problematic areas (pronouns and demonstratives) and confirms the heterogeneous nature of prepositions[8] and conjunctions. Thus it seems justified to regard some conjunctions as more lexical than others (e.g. *in the event that* as more lexical than *in case*), even to the extent that some are to be regarded as lexical and others as grammatical. It also seems justified to assume that prepositions are in principle lexical elements, though some may have a grammatical use. Finally, there is reason to assume that numerals are lexical elements.

Next, we come to the question of where to place the boundary. Here we have several options. When we look at the cline in (4), FG would have drawn the line between content items and grammatical words. This may be seen as the "conservative" position, according to which all the items in Table 1 are grammatical. In view of the large number of lexical features of some of these elements, this position does not seem tenable. A more natural place for a boundary seems to be in between numerals and pronouns (this may be considered the "liberal" position). Finally, we may place the cut-off point between demonstratives and modals (the "progressive" position); note that this would mean that not only numerals, but also pronouns and demonstratives are lexical items. The progressive position is represented in the revised cline in Table 2:

Table 2 – Revised cline of grammaticality; major divisions for English

content item		>	grammatical word	>	inflectional affix[9]
primary	secondary	secondary	primary		
full verbs, nouns, adjectives	idioms; lexicalized forms (*in the event that*, *sort-of*)	numerals; demonstratives; pronouns; *through, under*; *in case*	*lets* articles; modals *of* (nom.)/*by* (pass.); *that* (compl.);		*-s* *-ed* *-ing*
restrictors		???	operators/functions		

The top row presents the cline. Here there are no cut-off points, as we are dealing with a continuum. Below the cline the cut-off points for English are specified. The

8 In grammaticalization studies, simple prepositions are generally regarded as grammatical elements; there is no consensus, however, on the status of complex prepositions. Some see these as lexical items (e.g. QUIRK et al., 1985, RAMAT 1992, LEHMANN 2002: 8), others as (unambiguously) grammatical (e.g. HEINE; KUTEVA, 2002b: p.3; BYBEE, 2003: p.145; TRAUGOTT, 2003: p.636; see also BRINTON; TRAUGOTT, 2005: p.64-65).

9 Note that, unlike the cline in (4), the revised cline no longer distinguishes a separate category of clitics. The reason is that – in English anyway – the strong form of a clitic (e.g. *will* for *'ll* or *them 'm*) is always available. I will therefore not distinguish a separate group of clitics: they will be seen as alternative forms of expression, the result of a process of assimilation, which may or may not take place, depending on a combination of factors, including the type of element, presence/absence of salience, position in the clause, syntactic function, style and mode of discourse etc. If anything, cliticization can be seen as a test for grammaticalization, in the sense that the more grammatical an element, the more likely it is to cliticize. However, since cliticization depends on a combination of factors, it will not be used as a separate criterion.

following major groups can be distinguished:

- *'primary' lexical elements*: full or fully lexicalized nouns and verbs, adjectives/adverbs.
- *'secondary' lexical elements*: combinations of lexemes that have come to behave as a single lexeme. This class includes such descriptive elements as idioms[10] as well as non-descriptive elements with traces of the original meaning (lexicalized constructions; see Brinton and Traugott (2005 e.g. p.48-57) and Lehmann (1989, 1995). The latter may be cases of incipient grammaticalization (e.g. *I hear*, *innit*, *sort-of*, *in case*).[11]
- *'secondary' grammatical elements*: prepositions, pronouns, numerals, demonstratives some conjunctions, etc.
- *'primary' grammatical elements*: almost completely grammaticalized: articles, modals, some conjunctions (e.g. *that*; *or*, *and*, *but*), possibly some pronouns (relative pronouns, reflexive pronouns), and some prepositions in certain uses (*of* in nominalizations*/by* in the passive).

6 Representation in FDG

As pointed out before, in FDG, as in FG, a strict distinction is made between restrictors, as lexical elements, and operators, as grammatical elements. Whereas the former are descriptive (describe the property assigned to an entity), the latter are not (they specify properties of an entity). Nevertheless, their relation to the entity described/specified is not so very different. In fact both can be said to have a restrictive function in the sense that they provide additional properties of the entity (or set of entities) in question that help the addressee to pick out this entity (or set of entities). Both operate at all levels and with all types of entity. Moreover, they can be taken to be selected more or less at the same time (see HENGEVELD; SMIT, Forthcoming). The crucial difference seems to be in the nature of the information they provide: restrictors restrict the denotation of an expression by describing a property of the entity/set of entities designated (and as such function as predicates), whereas operators specify more abstract, non-descriptive properties of the entity/set of entities in question.

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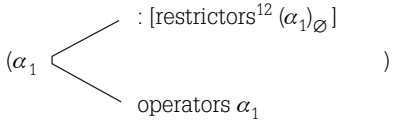
10 Note that idioms exhibit different degrees of transparency and accessibility (e.g. JACKENDOFF, 2002).

11 As pointed Boye and Harder (2007: p.587) point out out in their analysis of complement-taking predicates like *think*, distinguishing a class of secondary lexical predicates 'is indispensable for any theory of grammaticalization', as the process of grammaticalization can only get started when a fully lexical items can be hijacked by a speaker and endowed with 'secondary usage status'.

This close relationship between restrictors and operators does not, however, seem to be fully acknowledged in underlying representation. Restricting ourselves for the moment to the Representational Level, we find that operators are represented by means of abstract markers preceding the variable symbolysing the designated entity, while restrictors are represented as lexemes (only in the case of heads/first restrictors) or as predication frames which are in turn headed by lexemes (in the case of complex primary restrictors or non-primary restrictors). This way of representing the various elements may be claimed to indicate the scope relations between them; i.e. operators are supposed to take all restrictors in their scope (HENGEVELD; SMIT, Forthcoming).

Although the current way of representing the relation between heads, operators and restrictors is certainly justifiable, it will be clear that a two-dimensional model can only present one particular perspective and can, as such, reflect only a limited number of relations. To highlight certain relations, however, a somewhat different perspective may be preferred. Thus, without changing the general principles and architecture of FDG, we can, simply for the purpose of bringing out the similarities between operators and modifiers, choose to represent representational frames as follows:

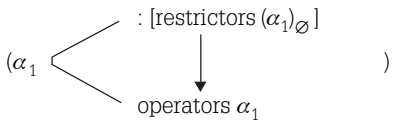
(5)



Restrictors limit the denotation of an expression by assigning a property to the entity designated; i.e. there is a relation of predication between the restrictor (a predicate) and the entity represented by the variable (its argument). Operators, on the other hand, do not restrict a potential set of referents by predicating a property (i.e. they do not restrict the denotation of a set), but specify a more abstract property of the entity (or set of entities) in question (they help to identify the entity/set of entities in question by non-descriptive means). As such, the operator does not take an argument.

This repositioning of restrictors and operators allows us to represent the process of grammaticalization:

(6)

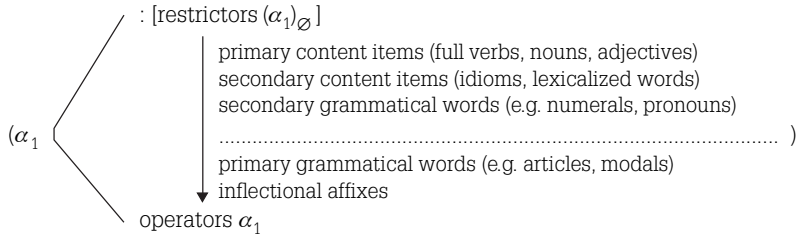


Restrictors are fully lexical, at least in their most prototypical form (nouns, verb, adjectives), while prototypical operators are fully grammatical (e.g. when they

12 Restrictors here include both the head (first restrictor) and modifiers (non-primary restrictors).

are expressed by means of inflectional affixes). In addition, we have now created room in the model to represent the in-between classes – along the cline from fully lexical to fully grammatical (see Table 2).

(7)



For the sake of representation and for ease of reference, a boundary will be needed – in this case, the boundary has been drawn in accordance with the 'progressive' position represented in Table 2.

The representation in (7) does, however, leave a number of questions unanswered. The most important of these is perhaps that of how to represent secondary grammatical words. On the basis of their linguistic behaviour (as represented in Table 1), they have been categorized as lexical items – or at least as more lexical than grammatical. This means that in FDG they will be analysed as restrictors – a practice which has indeed recently been proposed already for certain pronouns. But is such an analysis appropriate for all secondary grammatical words, including those (such as numerals or demonstratives) which (typically) function as determiners? Like pronouns, these clearly do not behave as prototypical operators; at the same time, they also differ considerably – both in form and in function – from fully lexical modifiers.

It might make sense to find a way of representing the in-between status of certain secondary grammatical words in underlying representation. Note that in terms of function, these secondary grammatical words are non-descriptive: as pointed out before, they do not have a predicative function and as such do not restrict the denotation of the expression in question. In fact, they seem to function more like operators, in the sense they are meant to help the addressee in picking out the designated entity by providing non-descriptive semantic information about the entity (proximity, number etc.) – which means that the term 'lexical operator' might be more appropriate. In other words, although both the operator/restrictor distinction and the grammatical/lexical distinction can be assumed to be useful and justifiable, the relationship between them will no longer be taken to be one-to-one. Restrictors serve to restrict the denotation of an expression by *assigning a descriptive property* to the designated entity; operators, on the other hand, *specify a more abstract, non-descriptive property*

of the entity/set of entities, etc. According to these criteria, a demonstrative like *that* is not a restrictor. As it is nevertheless more lexical than grammatical, it will be analysed as a lexical operator:

(8) a. that man

b. (that α_1: [man $(\alpha_1)_{\varnothing}$])

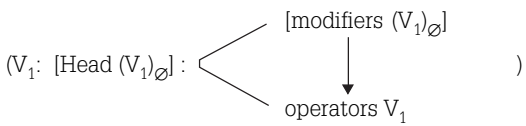
The next issue to be addressed is that of how to deal with semantic functions. These have not been included in the alternative perspective offered in (7). Nevertheless, the findings presented in Table 1 show that some of the linguistic elements traditionally regarded as the realization of a semantic function (e.g. prepositions, conjunctions) may have to be treated on a par with lexical operators. In this case, however, it seems to be more appropriate to analyse the items in question as the head of a linguistic unit; e.g. *under* heading a locational argument in *He put the box under the table*; (see KEIZER, 2008, Forthcoming):

(9) a. under the table

b. (l_1: [$under_P$ (l_1)] ($1x_1$: [$table_N$ (x_1)])$_{Ref}$)

Finally, the question arises of whether this approach can also be applied to other levels, particularly the Interpersonal Level. In principle, there is no reason why this should not be possible, despite the fact that at this level the head is typically of an abstract nature (possibly, though not necessarily, grammaticalized – *lets*, for instance, would be the grammaticalized realization of the abstract head ADHOR(tative)). In that case, the relevant relationship is not that between (primary and non-primary) restrictors on the one hand and operators on the other, but between modifiers (non-primary restrictors) – such as *in short*, *sadly* etc. – and operators (e.g. EXCL):

(10)



7 Conclusions

Some people may wonder whether it might not be preferable to ignore the lexical/grammatical distinction altogether and treat all linguistic items as lexical elements. From the above, it will be clear that I do not believe this to be an

option. If a distinction is relevant to the description and analysis of linguistic utterances, we ought to find a way of employing, and therefore defining, it in the theory. Thus, if we find that the grammatical/lexical distinction can help us to account for certain differences in linguistic behaviour, not reflecting this distinction in the FDG-model would seriously weaken the model's explanatory and psychological adequacy. Therefore, although we know the difference between lexical and grammatical to be non-discrete, we nevertheless need to draw a line; this needs to be done in a principled and consistent way, on the basis of well-defined criteria, and for each language individually.

In this paper I have made start for English. It will have become clear that the problematic area is that of the grammatical words, a highly heterogeneous category, including such diverse elements as auxiliaries, modals, prepositions, demonstratives and conjunctions. It has been shown that it is possible, on the basis of a number of pragmatic, semantic, morphosyntactic and phonological criteria, to classify some of them as lexical (secondary grammatical words, or rather, lexical operators/functions) and others as grammatical (primary grammatical words or grammatical operators/functions). Moreover, it has been argued that classification need not take place on the basis of entire classes; sometimes we need to look at individual items.

In addition a proposal has been made for the representation of the newly distinguished category of lexical operators/functions, such as demonstratives, numerals, pronouns and certain prepositions. For demonstratives and numerals it was suggested that they are represented as operators while taking a lexical form, while pronouns and prepositions will be represented as (semi-)lexical heads of terms.

There are, of course, a number of important issues that need to be addressed in more detail, in particular with regard to the selection and application of the relevant criteria. As indicated in Section 3, for instance, we will have to establish the reliability and independency of some of the proposed criteria (e.g. semantic content, syntactic paradigm, frequency). Moreover, we need to consider the question of how to select the relevant criteria: are all the criteria proposed really relevant, and are there any we have missed? Finally, it may well be that not all (sets of) criteria are equally relevant (in an FDG context) and that some kind of weighing of criteria will have to take place.

But even if we were able to answer all these questions, some items would still remain difficult to classify: language is, after all, characterized by constant change and by an amazing capacity for variation. Equivocality, in other words, is simply inherent to language. This, however, need not be an insurmountable problem for the theory of FDG. After all, if we can categorize elements for the

purpose of talking about them – allowing for a certain measure of equivocality – then there is no reason to assume that such elements cannot be represented meaningfully, though with the same measure of equivocality, in a model like FDG.

KEIZER, E. A dicotomia léxico-gramática na Gramática Discursivo-Funcional. *Alfa*, São Paulo, v.51, n.2, p.35-56, 2007.

- RESUMO: Este artigo trata da distinção léxico-gramática na Gramática Discursivo-Funcional (GFD), abordando questões como a natureza da categorização lingüística (estrita versus gradual) e a possibilidade de expressar a gradiência na representação subjacente. Será mostrado que tanto a GDF como sua predecessora, a FG, são ambivalentes com relação à distinção léxico-gramática. Por um lado, ambos os modelos parecem aceitar a possibilidade de categorização estrita, fazendo "uma clara distinção entre elementos lexicais (ou conteúdo) e gramaticais (ou forma) na estrutura das expressões lingüísticas" (DIK, 1997, p.159), na qual elementos lexicais são captados por predicados e elementos gramaticais são analisados como operadores ou funções. Mas, ao mesmo tempo, aceita-se implicitamente que a categorização não é sempre uma questão de tudo ou nada (ex. DIK, 1997, p.194). O objetivo deste trabalho é, primeiro, resolver a ambivalência por meio da apresentação de um inventário de critérios (pragmáticos, semânticos morfossintáticos e fonológicos) para a classificação de elementos lingüísticos (do inglês) como lexicais ou gramaticais. Em segundo lugar, argumenta-se que, embora ambas as distinções sejam úteis e justificáveis, não há uma relação biunívoca entre a dicotomia léxico-gramática e a distinção entre predicados e operadores/funções. Por fim, apresenta-se uma proposta para uma representação no âmbito da GDF de um grupo específico de elementos lingüísticos (incluindo pronomes, demonstrativos, numerais e preposições) que não pertencem claramente a nenhuma das categorias, mas combinam traços lexicais e gramaticais.

- PALAVRAS-CHAVE: Dicotomia léxico-gramática; distinção operador-predicado; gramaticalização; categorização lingüística; protótipos lingüísticos.

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COORDINATIVE CONSTRUCTIONS IN ARABIC: ASPECTS OF MORPHOSYNTAX AS AN INDICATOR OF INTERPERSONAL STATUS

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- ABSTRACT: From a FDG point of view, a distinction must be made between two kinds of complexity with quite different indicating devices: interpersonal complexity and structural complexity. As regards interpersonal complexity, verb mood, case marking and interrogative particles are some of the specific morphosyntactic means that Standard Modern Arabic provides to express the status of the interpersonal units in coordinative constructions and the different relationships that can obtain between these units. A general unified approach with some implications for other morphosyntactic areas such as non-restrictive term modifiers is proposed.

- KEYWORDS: Coordination; interpersonal status; interpersonal status shift; rhetorical functions; interrogative particles.

1 Introduction

In current linguistic theories, the complexity of linguistic expressions and the dependencies (or lack thereof) between their constituents are generally defined, as is well-known, on the basis of purely formal criteria: a complex expression is an expression which contains more than one clause; a clause member in a complex expression is said to be independent if it is merely juxtaposed or coordinated and dependent if it is linked to the 'matrix clause' by means of an overt formal subordinator.

However, when complexity and (in)dependence are considered from a Functional Discourse Grammar point of view, two crucial facts emerge: (a) a distinction must be made between interpersonally and structurally complex constructions on the one hand and between interpersonally and structurally (in)dependent constituents on the other, and (b) more often than not, there is a discrepancy between interpersonal and structural status in the sense that no parallelism holds between the two kinds of status.

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Elaborating on the description of the interpersonal level given in (HENGEVELD; MACKENZIE, 2006), I will discuss some morpho-syntactic means provided by Standard Modern Arabic (hereafter SMA) to indicate the status of interpersonal units and the different relationships that may hold between them in coordinative constructions. I will concentrate on verb mood, interrogative particles and case marking. Some general implications of the proposed analysis for other morpho-syntactic areas such as non-restrictive term modifiers will be briefly examined.

2 Interpersonal vs structural complexity

Interpersonal complexity differs from structural complexity in the sense that the basis on which the former is defined is semantic and pragmatic rather than morpho-syntactic. More specifically, interpersonal complexity resides not in the number of the clauses a sentence can contain but rather in the number as well as the communicative status of the Acts that a Move can consist of.

Hengeveld and Mackenzie (2008, Forthcoming) give a complete and precise characterization of interpersonal structure and the relationships that can hold between its units. On the basis of this characterization, the following definition of complex Moves can be drawn up:

(1) Complex Move:
'A complex Move is a Move which contains more than one discourse Act.'

As regards the relationships that the elements of a complex Move can entertain, Hengeveld and Mackenzie (2008, Forthcoming) point out that they can be of two kinds: 'equipollence' and 'dependence'.

Two Acts are said to be 'equipollent' when they are given the same 'communicative status' by the speaker. Conversely, two Acts entertain a relationship of dependence when the speaker gives them 'unequal communicative status'. A dependent Act is typically a Non-Nuclear Act bearing a rhetorical function. However, Hengeveld and Mackenzie (2006) show that, in some cases such as non-restrictive relatives, an Act can be both nuclear and dependent at the same time. Moreover, Mackenzie (p. c.) assumes that any parenthesis would have the status of a dependent nuclear Act.

Dependent Acts can be assigned the rhetorical functions Motivation, Concession, Orientation and Correction., the latter two being typically assigned to the Acts expressed by the constituents referred to in FG as Theme and Tail. The list of rhetorical functions can be taken as open since other functions can

also be postulated as well. In this respect, Hannay and Keizer (2006) propose a classification of non-restrictive nominal appositions based on the different rhetorical functions they can fulfil in discourse as autonomous discourse Acts. In this classification three main types of functions are distinguished: 'Reference identification', 'Justification' and 'Labelling'.

In Hengeveld and Mackenzie (2008, Forthcoming), non-restrictive relative clauses are analysed as expressing a dependent Nucleus Act which bears no specific rhetorical function. However, Mackenzie (p. c.) assumes that even a dependent nuclear Act can be labelled with a rhetorical function if it is proven that some formal aspect is relatable to this function.

In the rest of this study, I shall propose assigning specific rhetorical functions to dependent Acts only if the assignment of such functions turns out to be required by the adequate description of the formal characteristics of the relevant constructions.

Interpersonal complexity and structural complexity may coincide but this is far from being a general rule: on the one hand, structurally complex constructions may have a simple underlying interpersonal organization[2]; on the other hand, interpersonally complex structures can surface as simple morpho-syntactic configurations. The reason for this 'discrepancy' between the interpersonal and the structural levels mainly resides in the fact that there is, as established in (KROON, 1997), no one-to-one correspondence between their respective minimal units (i.e. the Act and the Clause respectively).

The interpersonal-structural discrepancy phenomena in coordinative constructions are illustrated in the following sentences:

(2)	mā	Zaydun	faylasūfan	bal	šā'iran.
	NEG	Zayd.NOM	philosopher.ACC	but	poet.ACC
	'Zayd is not a philosopher but a poet.'				

(3)	mā	Zaydun	faylasūfan	bal	šā'irun.
	NEG	Zayd.NOM	philosopher.ACC	but	poet.NOM
	'Zayd is not a philosopher. He is rather a poet.'				

In both (2) and (3), two predicates of the same clause are coordinated. However, as I shall argue below, in (2) the coordination takes place within the same Act while in (4) it involves two full discourse Acts.

2 Examples of structurally complex but interpersonally simple constructions are performative utterances. Such constructions exhibit a surface morpho-syntactic configuration with a matrix and a subordinate clause. They express, however, no more than one discourse Act (HENGEVELD; MACKENZIE, 2008, Forthcoming).

On the basis of the facts exemplified in (2) and (3), we can draw two conclusions. First, interpersonal complexity must be distinguished from structural complexity. Second, languages are expected to provide specific means for the realization of interpersonal complexity features.

In SMA, as in other languages, these features can be signalled by lexical means (i.e. modifiers) as well as morpho-syntactic and/or prosodic means. I shall restrict myself here to some specific features of Arabic morpho-syntax, namely verbal mood, interrogative particles and case marking, as they occur in coordinative constructions

3 Coordinators

SMA, like many other languages worldwide, has several coordinators. The Arab Grammatical Tradition (hereafter AG) mentions *wa* (and), *fa/thumma* (and then), *'aw / 'am* (or), *lâkin* (but), *bal* (but rather), *lâ* (not) and *hattâ* (even). The occurrence properties of these coordinators have been discussed at length in (MOUTAOUAKIL, 1988) within the FG framework. In brief, they are co-determined by the meaning of the coordinators themselves (as sequential/non-sequential, conjunctive/disjunctive, alternative, or adversative) and the number as well as the category of the elements they serve to coordinate. What we will be concerned with here is the coordination of clauses and (nominal/adjectival) predicates.

As is well-known, coordinated structures are thought of in formal grammars as complex constructions consisting of independent elements linked by a coordinative conjunction. Such a characterization is clearly insufficient and partially false: although they are structurally not embedded in each other, the members of a coordination sequence may entertain pragmatic-semantic dependence relationships.

In contrast, the FDG model, in taking underlying interpersonal status into account, allows a more adequate description of coordinative constructions. First, it allows one to determine the exact type of interpersonal complexity as well as the (equipollence vs dependency) relations that can obtain between the coordinated units. Second, it makes it possible to account in a more complete and precise way for the structural properties of coordinative constructions (including the complementary distribution of the coordinators) on the basis of their underlying interpersonal features.

In some languages, the interpersonal status of the coordinated clauses can be mediated through the selected coordinator itself. In this connection, Hengeveld and Mackenzie (2008, Forthcoming) point out that French *car*, for

example, is specialized for the coding of dependent Acts. No such a specialization seems to hold in SMA: all the available coordinators may be used to relate terms, predicates or clauses expressing either full (in)dependent Acts or mere Propositional Contents. As we shall see below, the task of encoding the interpersonal status of the coordinated units is rather fulfilled by verb mood, interrogative particles in clause coordination and case marking in (nominal/adjectival) predicate coordination.

4 Verb mood and equipollence vs dependence status

As proposed by Cuvalay-Haak (1997), there is a morphological opposition in Arabic between two sets of verb forms: suffix verb forms and prefix verb forms. The verb forms belonging to the latter set take one of three endings: Indicative, Subjunctive and Jussive, whose typical surface realizations are *u*, *a* and Ø (absence of vowel) respectively.

Our main aim here is to argue that the verb endings serve not only to realize TMA-categories but also to indicate the interpersonal status of the coordinated clauses.

Let us consider sentences (4a-b):

(4) a. liyarhal Zaydun fa-yaqdimu 'Amrun
PART.leave.OPT.3.SG.M Zayd.NOM and-come.IND.3SG.M 'Amr.NOM
'May Zayd leave! And then 'Amr will come.'

b. liyarhal Zaydun fa-yaqdima 'Amrun
PART.leave.OPT.3SG.M Zayd.NOM and-come.SUBJ.3SG.M. 'Amr.NOM
'May Zayd leave! So 'Amr can come.'

As pointed out above, coordinated Acts can be either equipollent or dependent. In (4a-b), for instance, a DECLarative Act is coordinated with an OPTative Act. In (4a) the two Acts are equipollent while in (4b) the second Act depends, as being the purpose of Zayd's leaving upon the first one.

This difference is expressed by the verb mood: in (4a), the verb in the second clause takes the Indicative mood whereas in (4b) it takes the Subjunctive mood. This supports the claim that the communicative status of the coordinated members determines not the choice of the coordinator but rather the mood of their verbs.

The underlying interpersonal representations of (4a-b) are (5a-b):

(5) a. $(M_1$: $(A_1$: [(OPT F_1) (P_1) $_S$ (P_2) $_A$ (C_1:
[(T_1) $_{NewFoc}$ (dR_1: Zayd (R_1)) $_{Top}$] (C_1))] (A_1)) $_{Nucl}$
< > (A_2 [(DECL F_2) (P_1) $_S$ (P_2) $_A$ (C_2:
[(T_2) $_{NewFoc}$ (dR_2: 'Amr (R_2))] ((C_2))] (A_2)) $_{Nucl}$ (M_1))

b. $(M_1$**:** $(A_1$: [(OPT F_1) (P_1) $_S$ (P_2) $_A$ (C_1:
[(T_1) $_{NewFoc}$ (dR_1: Zayd (R_1)) $_{Top}$] (C_1))] (A_1)) $_{Nucl}$
< (A_2: [(DECL F_2) (P_1) $_S$ (P_2) $_A$ (C_2:
[(T_2) $_{NewFoc}$ (dR_2: 'Amr (R_2))] ((C_2))] (A_2)) $_{Dep}$ (M_1))

5 Verb mood and interpersonal status shift

By 'interpersonal status shift', I mean the phenomenon exhibited by the following sentences:

(6) a. liyarhal Zaydun fa-yaqdima 'Amrun
PART.leave.OPT.3SG.M Zayd.NOM and-come.SUBJ.3SG.M Amr.NOM
wa yuqfal**a** l-bābu.
and close.PASS.SUBJ.3SG.M the-door.NOM
'May Zayd leave ! So, 'Amr will come and the door will be closed.'

b. liyarhal Zaydun fa-yaqdima 'Amrun
PART.leave.OPT.3SG.M Zayd.NOM and-come.SUBJ.3SG.M. 'Amr.NOM
wa yuqfal**u** l-bābu.
and close-PASS.IND.3SG.M the-door.NOM
'May Zayd leave ! So 'Amr can come. And the door will be closed.'

In sentences (6a-b), two coordination processes take place, the first with *fa* and the second with *wa*. In (6a), the last coordinated element has the same interpersonal status as the second one. They are Nuclear Acts relating to each other. With respect to the first element, both are dependent Acts. In sentence (6b), the status of the last coordinated element is different: it no longer expresses a dependent Act as in sentence (6a) but rather a new equipollent nuclear Act with respect to the first and second elements taken as a whole. According to this approach, the analysis of (6a-b) will be (7a-b):

(7) a. **(**M_1: [(A_1: [(OPT F_1) (P_1) $_S$ (P_2) $_A$ (C_1:
[(T_1) $_{NewFoc}$ (dR_1:Zayd (R_1)) $_{Top}$] (C_1))] (A_1:)) $_{Nucl}$
< (A_2: [DECL F_2) (P_1) $_S$ (P_2) $_A$ (C_2:
[(T_2) $_{NewFoc}$ (dR_2: 'Amr (R_2))] ((C_2))] (A_2)) $_{Nucl}$
< > (A_3: [DECL F_3) (P_1) $_S$ (P_2) $_A$ (C_3:
[(T_3) $_{NewFoc}$ (dR_3) $_{Top}$](((C_3))]((A_3)) $_{Nucl}$] $_{Dep}$ (M_1))

b. (M$_1$: [(A$_1$: [(OPT F$_1$) (P$_1$) $_S$ (P$_2$) $_A$ (C$_1$:
[(T$_1$) $_{NewFoc}$ (dR$_1$:Zayd (R$_1$)) $_{Top}$] (C$_1$))] (A$_1$)) $_{Nucl}$
< (A$_2$ [DECL F$_2$) (P$_1$) $_S$ (P$_2$) $_A$ (C$_2$:
[(T$_2$) $_{NewFoc}$ (dR$_2$: 'Amr (R$_2$))](C$_2$))] (A$_2$)) $_{Dep}$] $_{Nucl}$
< > (A$_3$: [DECL F$_3$) (P$_1$) $_S$ (P$_2$) $_A$ (C$_3$:
[(T$_3$) $_{NewFoc}$ (dR$_3$) $_{Top}$](C$_3$))] (A$_3$)) $_{Nucl}$ (M$_1$))

This change in communicative status is reflected by a change in verb mood. As expected, in (6a), the verb *yuqfala* takes the Subjunctive mood which expresses the dependence of the coordinated Acts, whereas in (6b) it takes the Indicative mood which signals that the thid coordinated element is an independent full Act.[3]

6 *'a* and *hal* communicative distribution

In SMA, the expression of INTERrogation is mediated through prosodic and morphological means. Prosodically, interrogative constructions have a specific (rising) intonational contour. Morphologically, they exhibit a clause-initial particle (*'a*/*hal*) or an interrogative pronoun such as *mâ* (what), *man* (who), *matâ* (when) and *'ayna* (where).

Let us concentrate on the particles *'a* and *hal* and, in particular, on their occurrence properties in coordinative constructions like the ones exemplified in (8a-c) and (9a-c):

(8) a. 'a fāzat 'am rasabat l-fatātu
PART succeed.PAST.3SG.F or fail.PAST.3SG.F the-girl.NOM
'Did the girl succeed or fail?

b. 'a kitāban qara'at l-fatātu 'am mažallatan?
PART book.ACC read.PAST.3SG.F the-girl.NOM or journal.ACC
'Was it a book that the girl read or a journal?

c. *'a qara'at l-fatātu l-kitāba
PART read.PAST.3SG.M the-girl.NOM the-book.ACC
'am 'a nāmat?
or PART sleep.PAST.3SG.F

[3] In Arab Grammatical Tradition, this phenomenon is called 'isti'nāf'. In its ordinary use, 'isti'nāf' means that a process is re-starting (possibly in a new, different direction) after a short or long interruption. Ancient Arab grammarians conceive of the conjunction *wa* in constructions like (6b) as a 'shifter' rather than a coordinator

(9) a. Hal qara'at l-fatātu l-kitāba?
PART read.PAST.3SG.M the-girl.NOM the-book.ACC
'am hal nāmat?
or PART sleep.PAST.3SG.F
'Did the girl read the book? Or did she go to bed?'

b. 'ādat Hindun
come.back.PAST3.SG.F Hind.NOM
fa-hal 'uqfila l-bābu?
and-PART close-PASS-PAST.3SG.M the-door-NOM
'Hind came back. And has the door been closed?'

c. *Hal fāzat 'am rasabat l-fatātu?
PART succeed.PAST.3SG.F or fail.PAST.3SG.F the girl-NOM

d. *Hal kitāban qara'at l-fatātu?
PART book.ACC read.PAST.3SG.F the-girl.NOM
'am mažallatan?
or journal-ACC

It becomes clear from these examples that the occurrence of the two particles in coordinative constructions takes place as follows: *'a* appears in interrogative constructions with two coordinated focussed Ascriptive or Referential sub-acts, as in (8a) and (8b) respectively. As for the particle *hal*, it typically initiates interrogative constructions involving two discourse Acts which can be equipollent as in (9a) or entertain a dependence relationship as in (9b) where the first Act functions as a Motivation of the second one.

(8a), (8b), (9a) and (9b) are given the underlying representations in (10a), (10b), (10c) and (10d) respectively:

(10) a. $(A_1$: [(INTER F_1) (P_1) $_S$ (P_2) $_A$ (C_1: [(T_1) $_{ContrFoc}$ (T_2) $_{ContrFoc}$ (dR_1) $_{Top}$] (C_1))](A_1))

b. $(A_1$: [(INTER F_1) (P_1) $_S$ (P_2) $_A$ (C_1:
[(T_1) (dR_1) $_{Top}$ (iR_2) $_{ContrFoc}$ (iR_3)$_{ContrFoc}$] (C_1)) (A_1))

c. $(M_1$: (A_1: [(INTER F_1) (P_1) $_S$ (P_2) $_A$ (C_1:
[(T_1) (dR_1) $_{Top}$ (dR_2)]] (C_1)) $_{NewFoc}$] (A_1)) $_{Nucl}$
< > (A_2: [(INTER F_2) (P_1) $_S$ (P_2) $_A$ [(C_2:
[(T_2) (dR_3)] ((C_2)) $_{NewFoc}$] (A_2)) $_{Nucl}$ (M_1))

d. $(M_1$: (A_1: [(DECL F_1) (P_1) $_S$ (P_2) $_A$ [(C_1:
[(T_1) (dR_1: Hind (dR_1)) $_{Top}$] (C_1)) $_{NewFoc}$ (A_1)) $_{Motiv}$
(A_2: [(INTER F_2) (P_1) $_S$ (P_2) $_A$ (C_2:
[(T_2) (dR_3)] ((C_2)) $_{NewFoc}$]] (A_2)) $_{Nucl}$ (M_1))

The oddity of (8c), where *'a* appears in each of the coordinated clauses, shows that this particle cannot be used to carry out a coordinated full discourse Act. Conversely, the ungrammaticality of (9c-d) makes it clear that *hal* cannot take either an Ascribing or a Referential sub-act in its scope.

Notice that the ungrammaticality of constructions such as (8c) can be related in the FDG framework to the fact that they involve a 'heterogeneous' coordination, i.e. a coordination of non-congruent members (namely a full Act and an Ascriptive sub-act).

The constraint conceived of in FG (MOUTAOUAKIL,1988; DIK,1997) as an illocutionary congruence constraint could be reformulated in FDG as a more general 'Interpersonal Status Congruence Constraint'. In its extended formulation, this constraint could also hold for constructions like (11):

(11)	Sa'usāfiru	l-yawma	wa	bi	s-sayyārati.
	travel.1.SG	the-day.ACC	and	with	the-car.GEN
	'I will travel today. And I will do that by car.'				

Constructions such as (11) are viewed in FG (DIK, 1997, p. 192) as ill-formed since they involve a coordination of two functionally non-equivalent terms, i.e. a Temporal and a Means satellite. Such constructions pose no problem, however, if they are analysed in the FDG framework on the basis that the second member of the coordination is set off from the clause to the extent that it carries out an autonomous discourse Act. In other words, the constructions exemplified in (11) involve a coordination of two equipollent discourse Acts rather than two terms within a single Act, so that it satisfies the 'Interpersonal Status Congruence Constraint'.

7 Case marking in predicate coordination

Coordinated (Nominal/Adjectival) predicates can be linked by the coordinator *wa* in positive clauses as in (12) and by *bal* in negative clauses, as seen in (2) and (3) repeated here for convenience:

(12)	Zaydun	faylasūfun	wa	šā'irun
	Zayd.NOM	philosopher.NOM	and	poet.NOM
	'Zayd is a philosopher and a poet.'			

(2)	mā	Zaydun	faylasūfan	bal	šā'iran.
	NEG	Zayd.NOM	philosopher.ACC	but	poet.ACC
	'Zayd is not a philosopher but a poet.'				

(3) mā Zaydun faylasūfan bal šā'irun.
NEG Zayd.NOM philosopher.ACC but poet.NOM
'Zayd is not a philosopher. He is rather a poet.'

The interesting fact about constructions like (2) and (3) is that the second member of the coordination can take the same case as the first member as in (2) or a different case, namely the Nominative, as becomes clear from example (3).

From the FDG point of view, *bal* in (2) coordinates two Ascriptive sub-acts within one Communicative Content while in (3) it is used to conjoin an autonomous Act and the Act formulated in the host clause, as becomes clear from representations (13a-b):

(13) a. $(A_1: [(DECL\ F_1)\ (P_1)_S\ (P_2)_A\ (C_1: [(T_1)_{ContrFoc}\ (T_2)_{ContrFoc}\ (dR_1: Zayd\ (R_1))_{Top}]\ (C_1))\ (A_1))_{Nucl}$

b. $(M_1: (A_1: [(DECL\ F_1)\ (P_1)_S\ (P_2)_A\ (C_1: [(T_1)_{ContrFoc}\ (dR_1: Zayd\ (dR_1))_{Top}]\ (C_1))\ (A_1))_{Nucl}$
$<>\ (A_2\ [(DECL\ F_2)\ (P_1)_S\ (P_2)_A\ (C_2: [(T_2)_{ContrFoc}]\ ((C_2))]\ (A_2))_{Nucl}\ (M_1))$

The independence of the Act expressed by the predicate *šā'irun* in (3) is signalled by the Nominative case. The case marking at work in the coordination exemplified in (2) and (3) is one of the significant instantiations of the role that case variation can play in encoding the communicative status of interpersonal units, as we will see below.

8 Do we need rhetorical functions?

As mentioned above, dependent Acts and Communicated Contents can be assigned rhetorical functions. Of theoretical importance here is Hannay and Keizer's (2006) observation that although rhetorical functions have an explanatory power which must be taken into account in discourse-oriented grammars like FDG, their assignment should be justified by the influence that they can have on the formal properties of the different kinds of apposition constructions. This requirement relates to the general principle in F(D)G according to which only elements that have impact on the form of linguistic expressions can be represented in their underlying structure.

As far as coordinative constructions in SMA are concerned, the assignment of specific functions turns out to be without any impact on the morpho-syntactic

properties of the coordinated members: dependent Acts take the same formal expression irrespective (of) the function that they could be assigned.

On the basis of these observations, we may represent the underlying interpersonal structure of the coordinative constructions at hand without any function assignment, the dependence status (represented by >) sufficing to determine the Subjunctive mood borne by the verb. More specifically, the general functional indices Nucl and Dep will trigger, during morpho-syntactic encoding, the assignment of the Indicative/Nominative or Subjunctive/Accusative suffixes.

Notice that this position could be taken for all the constructions where the correlation between dependence and the Subjunctive mood holds. However, I would like to leave open the possibility of assigning specific functions to coordinative constructions if it is proven that other formal aspects are sensitive to these functions.

9 Unified interpersonal morphology

It has become clear from the data discussed above that, in SMA, some morphological means such as case marking and verb mood play a role not only in grammar but also in discourse organization.

Case marking expresses syntactic (or semantic) functions, as it is well-known, but it also serves to indicate the interpersonal status of discourse units. Nominative case generally signals independent Acts whereas Accusative case is the typical formal expression of dependent Acts. This is evidenced by the fact that the correlations (Independence with Nominative and Dependence with Accusative) hold for various kinds of constructions. Let us briefly examine the case pattern exhibited by examples (14a-c):

(14) a.	l-taqaytu	bi-r-ražuli	s-samīni	l-'asmari
	meet.PAST.1SG	with-the-man.GEN	the-fat.GEN	the-brown.GEN
	'I met the fat brown man.'			
b.	l-taqaytu	bi-r-ražuli	s-samīni,	l-'asmar**a**
	meet.PAST.1SG	with-the-man.GEN	the-fat.GEN	the-brown.ACC
	'I met the fat man, I mean the brown one.'			
c.	l-taqaytu	bi-r-ražuli	s-samīni,	l-'asmar**u**
	meet.PAST.1SG	with-the-man.GEN	the-fat.GEN	the-brown.NOM
	'I met the fat man. He is the brown one.'			

In sentence (14a), the adjective *l-'asmar* functions as an internal modifier within the NP *r-ražuli s-samīni l-'asmari*. In sentences (14b-c), the same adjective behaves as a detached constituent expressing an autonomous discourse Act different from the one containing the host NP. In other words, while sentence (14a) embodies no more than one Act, sentences (14b-c) express two distinct Acts.

Let us concentrate on the case-marking properties of the modifier *l-'asmar* in examples (14a-c). In (14a), the modifier agrees in case with the head noun of the host NP while in (14b) and (14c) it takes the Accusative and the Nominative cases respectively. One possible way to account for this variation in case is the following: in both examples (14a-c), the detached adjective carries out an autonomous Act with the difference, however, that, in (14c), this Act is independent while in (14b) it depends upon the host Act.

In (14b), the detached adjective embodies a specification of the entity designated by the host NP while in (14c) it rather initiates a completely new discourse Act. In this respect, (14c) is synonymous with (15):

(15) l-taqaytu bi-r-ražuli s-samīni.
meet.PAST.1SG with-the-man.GEN the-fat.GEN
Huwa l-'asmar**u** **l**-ladī…
He the brown.NOM the-who…
'I met the fat man. He is the brown one who…'

If we take into account that Nominative and Accusative cases are assigned in grammar to independent arguments (Subject/Topic) and to dependent modifier terms respectively, we can generalize over the roles of these two cases in grammar and discourse as follows:

(16) 'Nominative case marks independent units; Accusative case marks dependent units.'

The endings of the prefix verb forms are commonly taken as indicating TMA values. What is not mentioned in the modern Arabist literature, as far as I know, is that these endings can also function as discourse markers, in particular, as devices indicating interpersonal status as well as a shift in interpersonal status: the *a* ending expresses dependence while the *u* ending marks equipollence or signals interpersonal status shift.

Interestingly enough, Ancient Arab grammarians do not differentiate these two verb endings from their homonymous forms functioning as Nominative and Accusative case marks, on the basis of the traditional claim that the prefix verb form (unlike the suffix verb form) is a 'hybrid' form displaying some

'nouniness' features including case marking. This claim can be re-interpreted as follows: the same morphemes *a* and *u* function as case marks on nouns and adjectives and as TMA marks on prefix verb forms.

Such a re-interpretation allows us to re-formulate generalization (16) as (17):

(17) "Grammatical/discourse independence is expressed by the (nominal, adjectival or verbal) suffix *u*; grammatical/discourse dependence is expressed by the (nominal, adjectival or verbal) suffix *a*."

Needless to say, the morpho-syntactic sub-component of the FDG of Arabic could be significantly simplified by generalizations like (17).

10 Conclusions

Coordinative constructions can involve a coordination of either equipollent or dependent discourse Acts, the interpersonal status differences being expressed by verb mood or case-marking distinctions and complementary distribution of interrogative particles.

Some generalizations on the relationships between the status of the interpersonal units and their formal expression can be captured. More importantly, interesting correlations between verb mood and case marking, such as those between Indicative and Nominative or between Subjunctive and Accusative, can be taken as relevant in this connection.

The notion of 'complex structure' should be revised on the basis of a clear distinction between interpersonal and structural complexity and the fact that the status of the interpersonal units is not necessarily reflected by the morpho-syntactic configuration in which they are encoded. More specifically, the notion of coordination as well as the traditional sets of coordinators should be re-defined rather on the basis of the interpersonal properties of linguistic expressions.

The organization of the grammatical component of FDG and, in particular, the autonomy of the four levels it involves provide a highly suitable framework for such a revision.

Of considerable interest to (the history of) the epistemology of linguistics is the fact that the treatment of discrepancy phenomena is one of the issues where Arab Grammatical Tradition and FDG converge. This could be taken as an 'external' evidence for the FDG conception of the interpersonal and structural levels and their autonomy.

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MOUTAOUAKIL, A. Construções coordenadas em árabe: aspectos morfossintáticos como indicadores do estatuto interpessoal. *Alfa*, São Paulo, v.51, n.2, p.57-71, 2007.

- RESUMO: Pela perspectiva da GDF, deve-se fazer uma distinção entre dois tipos de construções complexas com mecanismos indicadores bastante diferentes: construções complexas interpessoais e construções complexas estruturais. No que diz respeito às contruções complexas interpessoais, modo verbal, marcação de caso e partículas interrogativas são alguns dos recursos morfossintáticos específicos disponíveis no árabe moderno padrão para expressar o estatuto das unidades interpessoais nas construções coordenadas e as diferentes relações que podem ser estabelecidas entre essas unidades. Uma abordagem geral unificada é proposta, com algumas implicações para outras áreas morfossintáticas, tais como modificadores de termo não-restritivos.

- PALAVRAS-CHAVE: Coordenação; estatuto interpessoal; mudança de estatuto interpessoal; funções retóricas; partículas interrogativas.

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BASIC ILLOCUTIONS IN THE NATIVE LANGUAGES OF BRAZIL

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- ABSTRACT: This paper shows that the distribution of basic illocutions (defined as grammatical structures that can be related to a default communicative intentions) within and across the indigenous languages of Brazil can be described systematically in terms of a set of implicational hierarchies by means of which the existence of certain basic illocutions can be predicted from the existence of others. In doing so, a case is made for a major distinction between propositional and behavioural basic illocutions, the former having to do with the exchange of information, the latter with influencing behaviour.

- KEYWORDS: Typology; illocution; indigenous languages; Functional Discourse Grammar.

1 Introduction

Within Functional Discourse Grammar (HENGEVELD, 2005; HENGEVELD; MACKENZIE, 2008, Forthcoming.) typological research may focus on two different aspects of linguistic organization. Within the model a strict separation is made between formulation on the one hand, and encoding on the other. The process of formulation is concerned with specifying the interpersonal and representational configurations that are allowed within a language, irrespective of their expression. The process of encoding is concerned with the morphosyntactic and phonological

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form that these interpersonal and representational configurations may take in the language. These two steps are represented in Figure 1.

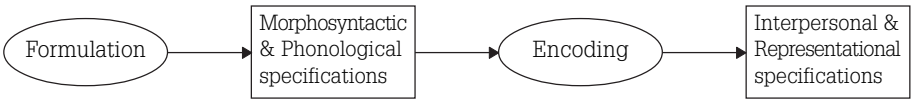

Figure 1 – Major operations in FDG

In terms of Figure 1, two broad types of typological research may be distinguished, the first concerned with semantics and pragmatics, the second with morphosyntax and phonology.

The study reported on in this article belongs to the first type. The question addressed is whether the distribution of basic illocutions within and across the indigenous languages of Brazil can be described systematically in terms of one or more implicational hierarchies, predicting the existence of certain basic illocutions from the existence of others. This question is looked at from the perspective of formulation, generalizing across the expression strategies that languages use to encode their set of basic illocutions. The conclusion will be that implicational hierarchies can indeed be formulated, and that they can be joined together in an implicational map.

As a first illustration of what we mean by basic illocution, consider the following examples:

Desano (MILLER, 1999, p.73)

(1) Yɨ-re karta goha-beo-ke.
1.SG-SPEC.OBJ letter write-send-IMP
'Do write and send me a letter!'

(2) Guʔa-rã wa-rã.
bath-ANIM.PL go-HORT
'Let's go bathe!'

(3) Ĩã-si.
see-SUPPL
'May I see it?'

Desano has various verb suffixes that indicate how the utterance should be interpreted as regards the speaker's communicative goals, i.e. as a speech act. Thus the imperative in (1) is conventionally associated with an order, the hortative

in (2) with an exhortation, and the supplicative in (3) with a request for permission.

In what follows we will first briefly present the language sample used in section 2. In section 3 we refine the notion of basic illocution, and then present the basic illocutions encountered in the sample languages. The data encountered are interpreted and discussed in section 4. We round off with a conclusion in section 5.

2 The sample

Gordon (2005) lists 229 extant and extinct native languages in 22 groups for Brazil. The great majority of these languages have hardly been documented, which makes it difficult to draw up a representative sample. For this reason, all languages for which we had access to a full description at the time of the research are included in the sample. These languages distribute across the aforementioned groups in the way indicated in Table 1.

Table 1 – The sample

Arauan (0/8)	*Paumarí*	Nambiquaran (0/5)	*Nambiquara, Sabanê*
Arawakan (2/22)	*Warekena*	Pankararú (0/1)	—
Arutani-sape (0/1)	—	Panoan (7/17)	*Mayoruna*
Carib (2/21)	*Apalai, Hixkaryana, Macushi, Waiwai*	Ticuna (0/1)	—
		Trumaí (0/1)	—
Chapakura-w. (2/4)	*Wari'*	Tucanoan (2/14)	*Cubeo, Desano, Tucano*
Creole (2/3)	*Karipúna Creole*	Tupi (10/60)	*Kanoé, Kamayurá, Urubu-Kaapor*
Katukinan (0/3)	—		
Macro-ge (13/28)	*Bororo, Canela-Krahô*	Tuxá (0/1)	—
Maku (0/4)	*Dâw*	Unclassified (0/28)	*Kwaza*
Mataco-Guaicuru (0/1)	—	Witotoan (0/1)	—
Mura (0/1)	*Pirahã*	Yanomam (0/4)	*Sanuma*

The figures between brackets in Table 1 give the following information: the number before the slash relates to the number of subnodes, while the number after the slash specifies the number of languages included in the group.

3 Basic illocutions and their manifestation

Languages may exhibit different grammatical (including phonological) structures that are in a default relation with specific communicative goals of the speakers using these structures. Thus, the default interpretation of a declarative sentence is that of an assertion, while the default interpretation of an imperative sentence is that of an order. One has to distinguish between default and non-default interpretations since in the appropriate context the

aforementioned grammatical configurations may be used to convey communicative intentions other than the default ones. A grammatical structure that can be related to a default communicative intention will be said to be the carrier of a BASIC ILLOCUTION. Sadock and Zwicky (1985, p.155) define a basic illocution as "a coincidence of grammatical structure and conventional conversational use", but our use of the term is closer to Dik's (1997, p.232) who defines it as "the illocution to the extent that it is coded in linguistic expressions" One may characterize this situation, as Sadock (2004, p.53) does, as one in which the formal properties of an utterance are directly related to the accomplishment of the speech act it embodies.

Languages differ as regards the extent to which they distinguish between various basic illocutions. Consider the following examples from Sanuma:

Sanuma (BORGMAN, 1990, p.21, p.72)

(4) Kaikana te ku-ki kite-(')
headman 3.SG COP-FOC FUT-(IND)
'He will be a headman.'

(5) Hapoka wa naka kite-Ø
cooking.pot 2.SG ask.for FUT-INT
'Did you ask for a cooking pot?'

In Sanuma declaratives and interrogatives are not distinguishable from each other intonationally. The distinctive sign for a declarative, in contrast with an interrogative basic illocution, is a glottal stop at the end of the utterance. However, when the context would make it impossible for the utterance to be interpreted as an interrogative, the glottal stop may be absent. Thus, in certain circumstances, no formal distinction is made in Sanuma between declarative and interrogative basic illocutions.

For a second illustration, consider the following examples from Kwaza:

Kwaza (VOORT, 2000, p.199, p.158, p.159)

(6) o'ja-da-tsy-'re.
leave-1.SG-POT-INT
'Am I going to leave?'

(7) 'peDro jere'çwa dilɛ-'wã wa'dy-re.
Pedro jaguar someone-OBJ give-INT
'To whom did Pedro give a dog?'

(8) dilɛ-'wã-here aw're-da-tara-tsɛ.
someone-OBJ-think marry-1.SG-PROC-DEC
'I'm going to marry someone.'

In Kwaza, both polar questions (6) and content questions (7) occur in the interrogative mood. What at first sight may seem to be a question word in (7), is also used as an indefinite pronoun, as can be seen in the declarative sentence in (8). Thus, no formal distinction is made in Kwaza between polar and content questions. A content question is simply a polar question containing an indefinite pronoun.[4]

Some categories that at first sight seem to belong to the domain of basic illocution, are actually instances of illocutionary modification (see HENGEVELD, 2004), which serve to reinforce or mitigate the illocutionary value of an utterance. These cases have been excluded from the investigation, since they represent more general communicative strategies than basic illocution itself. This is evident from the fact that mitigation or reinforcement is not limited to a single illocutionary value, but is compatible with declaratives, interrogatives, imperatives, etc. This can be seen in the following examples from Mandarin Chinese, in which the same mitigating particle combines with different types of illocution:

Mandarin Chinese (LI; THOMPSON, 1981, p.313-317)

(9) Wǒ bìng méi zuò-cuò a
1SG on.the.contrary NEG do-wrong MIT
'On the contrary, I didn't do wrong.'

(10) Nǐ xiǎng bu xiǎng tā a
2SG think NEG think 3SG MIT
'Don't you miss her/him?'

(11) Chī-fàn a
Eat-food MIT
'Eat, OK?!'

Basic illocutions may be expressed in a variety of ways, employing syntactic, morphological and phonological means of expression. Since this paper is about the distribution of basic illocutions irrespective of the way in which they are expressed, we refrain from discussing the expression strategies encountered in the sample languages in detail. It may suffice to note that in determining the conventional associations between the formal properties of utterances and their

4 For a similar point, see Evans (2003) on the Australian language Bininj Gun-Wok.

conversational use, the following distinguishing grammatical differences between utterances were taken into account: (i) suprasegmental patterns; (ii) word order; (iii) inflection; (iv) particles; (v) auxiliaries; (vi) differential expression of arguments; (vii) presence of question words; (viii) combinations of the preceding means of expression.

3.1 Basic illocutions in the languages of the sample

Taking the formal differences between utterances listed above as the point of departure, a number of basic illocutions can be detected within the sample that can be grouped together in terms of their communicative use: assertive, questioning, and behavioural.

As regards the group of ASSERTIVE BASIC ILLOCUTIONS, it turns out, unsurprisingly, that all languages in the sample have a basic illocution that is used to pass on information. This DECLARATIVE type is often the most unmarked basic illocution. In some languages the declarative contrasts with another type of basic illocution that is used to inform, the MIRATIVE type (see DELANCEY, 1997). In this type, it is not so much the content of the utterance itself that is being transmitted, but rather the emotional reaction of the speaker with respect to this content, in particular feelings such as surprise and delight. Consider the following examples of a declarative and a mirative basic illocution, respectively:[5]

Kamayurá (SEKI, 2000, p.100, p.156)

(12) kunu'um-a o-ket.
boy-NUCL 3-sleep
'The boy is sleeping.'

(13) h-ajme-ma'e te' an pa.
3SG-have.sharpness.NR FOC PROX MIR.M.S
'Wow, how sharp is this (knife)!'

As regards the group of QUESTIONING BASIC ILLOCUTIONS, the common distinction between POLAR INTERROGATIVES (asking for a yes- or no-answer) and CONTENT INTERROGATIVES (asking to fill in information gaps) is formally reflected in many sample languages. The following examples are from Bororo:

[5] Note that the mirative particle in (13) is the one used by male speakers. Female speakers use *ma'e*.

Bororo (CROWELL, 1979, p.76, p.77)

(14) A-tu-re (na)?
2SG.SBJ-go-NTL Y/NQ
'Did you go?'

(15) Kai-ba kodu-re?
where-CQ go-NTL
'Where did he go?'

As illustrated above in 3 for Kwaza, not all sample languages make a distinction between polar and content interrogatives. Apart from Kwaza, Kanoê and Macushi use a single interrogative strategy for both types of question.

The largest number of basic illocutions is found in the area of speech acts that aim at influencing the behaviour of the addressee and/or others. Within this area of BEHAVIOURAL BASIC ILLOCUTIONS a further distinction should be drawn between positive and negative ones.

The POSITIVE BEHAVIOURAL BASIC ILLOCUTIONS encountered in the languages of the sample can be subdivided into four different types. The IMPERATIVE type is conventionally associated with orders; the HORTATIVE type with exhortations; the ADMONITIVE type with warnings; and the SUPPLICATIVE type with requests for permission. Tucano displays all four positive subtypes, as shown in examples (16)-(19):

Tucano (RAMIREZ, 1997, p.144, p.145, p.147)

(16) apê-ya!
play-IMP.2PL
'Play!'

(17) apê-râ
play-HORT.1PL
'Let's go play!'

(18) ape asá tiro ehâ-gɨ uró wee-ápa!
another people near arrive-IMPL well do-ADMON
'When you arrive (in the house of) another people, behave yourself'

(19) apê-ma
play-SUPPL
'Let me play!'

For two of the four positive behavioural basic illocutions there are negative counterparts in the languages of the sample. These NEGATIVE BEHAVIOURAL BASIC ILLOCUTIONS are of the PROHIBITIVE type,[6] conventionally associated with orders to not do something, and the DISHORTATIVE subtype, for exhortations to not do something. Note that a prohibitive is not the same as a negative imperative, i.e. an imperative containing a regular negation. Similarly, a dishortative is not the same as a negative hortative. The following examples illustrate the two types in contrast with their positive counterparts:

Kamayurá (SEKI, 2000, p.231-233)

(20) pe-karu-Ø.
2PL-eat-IMP
'Eat!'

(21) ere-karu-em.
2SG-eat-PROH
'Do not eat!'

(22) t=a-ha=ne pe-a nupã-me ko'yr=a'e.
HORT=1SG-IRR=ASS DEICT-NUCL beat-GER FS=NON.INT
'Let me beat that.'

(23) t=a-ha-ume=n.
HORT=1SG-go-1SG.NEG=POT
Let me not go!'

Note that the negative affixes *-em-* in (21) and *-um* in (23) are uniquely used in prohibitive and dishortative utterances, respectively, which is why these can be considered separate basic illocutions, rather than compositional negative imperatives and negative exhortatives.

4 Analysis and interpretation

4.1 Introduction

The basic illocutions presented in section 3 manifest themselves in the sample languages as indicated in Table 2, where a '+' indicates that the language uses a special strategy for the basic illocution, and a '-' that it does not. A number

[6] For large-scale typological surveys of prohibitives, see Auwera and Lejeune (2005) and Auwera (2006).

of generalizations emerge from the data in Table 2, most of which can be phrased in terms of implicational hierarchies, which will be specified in the following sections.

4.2 Main types

All languages in the sample have a declarative, a polar interrogative, and an imperative basic illocution. In one language, Sanuma, the distinction between declarative and polar interrogative basic illocutions is not always made, as illustrated in 3 Using the term PROPOSITIONAL BASIC ILLOCUTIONS to cover both assertive and questioning basic illocutions, we might then speculate that the most basic opposition in languages is the one between propositional and behavioural basic illocutions, the next step being a split within propositional between declarative and polar interrogative basic illocutions.

Table 2 – Presence of basic illocutions in the languages of the sample

Language	Declarative	Mirative	Polar Interrogative	Content Interrogative	Imperative	Hortative	Admonitive	Supplicative	Prohibitive	Dishortative
Apalai	+	–	+	+	+	–	–	–	+	–
Bororo	+	–	+	+	+	+	–	–	+	–
Canela–Krahô	+	–	+	+	+	+	–	–	–	–
Cubeo	+	–	+	+	+	+	–	–	–	–
Dâw	+	+	+	+	+	–	–	–	+	–
Desano	+	–	+	+	+	+	+	+	–	–
Hixkaryana	+	–	+	+	+	+	–	–	+	–
Kamayurá	+	+	+	+	+	+	+	+	+	+
Kanoê	+	–	+	–	+	+	–	–	–	–
Karipuna Creole	+	–	+	+	+	+	+	–	–	–
Kwaza	+	+	+	–	+	+	+	–	+	+
Macushi	+	–	+	–	+	+	–	–	+	–
Mayoruna	+	–	+	+	+	+	+	+	+	–
Nambikwara	+	–	+	+	+	+	+	+	+	–
Paumarí	+	–	+	+	+	+	–	–	+	–
Pirahã	+	+	+	+	+	+	–	–	+	–
Sabanê	+	–	+	+	+	+	–	–	+	–
Sanuma	(+)	–	+	+	+	–	–	–	+	–
Tucano	+	+	+	+	+	+	+	+	+	–
Urubu–Kaapor	+	–	+	+	+	+	–	–	–	–
Waiwai	+	+	+	+	+	+	–	–	+	–
Warekena	+	–	+	+	+	+	–	–	+	–
Wari’	+	–	+	+	+	–	–	–	+	–

4.3 Assertive subtypes

Rather trivially given the omnipresence of the declarative subtype, the presence of a mirative basic illocution predicts the presence of a declarative basic illocution, as represented in (24):

(24) Declarative ⊂ Mirative

Table 3 gives a number of examples of languages exhibiting the possible configurations predicted by (24):

Table 3 – Assertive subtypes

Language	Declarative	Mirative
Dâw	+	+
Bororo	+	–
(not attested)	–	–

As Table 3 shows, the presence of a Mirative basic illocution implies the presence of a Declarative subtype, as illustrated by Dâw, while the opposite is not the case, as illustrated by Bororo.

4.4 Questioning subtypes

As Table 2 shows, while polar interrogatives are available in all languages of the sample, content interrogatives are not, so that the presence of a content interrogative predicts the presence of a polar interrogative, as indicated in (25):

(25) Polar Interrogative ⊂ Content Interrogative

Table 4 gives a number of examples of languages exhibiting the possible configurations predicted by (25):

Table 4 – Questioning subtypes

Language	Polar Interrogative	Content Interrogative
Cubeo	+	+
Kanoê	+	–
(not attested)	–	–

As shown in Table 4, the presence of a Content Interrogative basic illocution implies the presence of a Polar Interrogative basic illocution, as illustrated by Cubeo, while the opposite is not the case, as illustrated by Kanoê.

4.5 Behavioural subtypes

Within the behavioural domain, a positive and a negative subgroup have been identified earlier. These groups are analysed here one by one, and after that the role of the positive/negative parameter itself is discussed.

As Table 2 shows, the four positive behavioural subtypes can be related to one another according to the following implicational hierarchy:

(26) Imperative ⊂ Hortative ⊂ Admonitive ⊂ Supplicative

This hierarchy correctly predicts the configurations illustrated in Table 5. No other systems than these are attested within the sample.

Table 5 – Positive behavioural subtypes

Language	Imperative	Hortative	Admonitive	Supplicative
Kamayurá	+	+	+	+
Karipuna Creole	+	+	+	–
Waiwai	+	+	–	–
Sanuma	+	–	–	–
(not attested)	–	–	–	–

Table 5 shows that languages may have all four positive behavioural subtypes (Kamayurá), all but the Supplicative subtype (Karipuna Creole), The Imperative and Hortative subtypes (Waiwai), or the Imperative subtype only (Sanuma).

In the negative domain, counterparts to the first two subtypes from the positive hierarchy in (26) have been attested: the Prohibitive and the Dishortative are the negative counterparts of Imperative and the Hortative. Their distribution confirms the hierarchy in (26), as the examples in Table 6 show.

Table 6 – Negative behavioural subtypes

Language	Prohibitive	Dishortative
Kwaza	+	+
Apalai	+	–
Urubu-Kaapor	–	–

Table 6 shows that the presence of a Dishortative subtype implies the presence of a Prohibitive subtype, as illustrated by-Kwaza, while the opposite does not hold, as illustrated by Urubu-Kaapor.

The preceding observations with respect to positive and negative behavioural subtypes show that no separate hierarchies are needed for the positive and negative behavioural subtypes. Within each domain the same

hierarchy is respected. One further generalization emerges from the data in Table 2, however: the presence of a positive subtype can be predicted from the presence of a negative subtype, as represented in the hierarchy in (27):

(27) Positive ⊂ Negative

This hierarchy is illustrated in Tables 7 and 8 for Imperative/Prohibitive and Hortative/Dishortative basic illocutions respectively.

Table 7 – Imperative and Prohibitive

Language	Imperative	Prohibitive
Sabanê	+	+
Desano	+	–
(not attested)	–	–

Table 8 – Hortative and Dishortative

Language	Hortative	Dishortative
Tucano	+	+
Warekena	+	–
Wari'	–	–

The data in Table 7 show that the presence of an Imperative basic illocution is implied by a Prohibitive basic illocution, as illustrated by Sabanê, while the opposite is not the case, as illustrated by Desano. Similarly, Table 8 shows that the presence of a Dishortative basic illocution implies the presence of a Hortative basic illocution, as in Tucano, while the opposite does not hold, as illustrated by Warekena.

5 Conclusion

The generalizations arrived at in section 4 may now be summarized as in Figure 2:

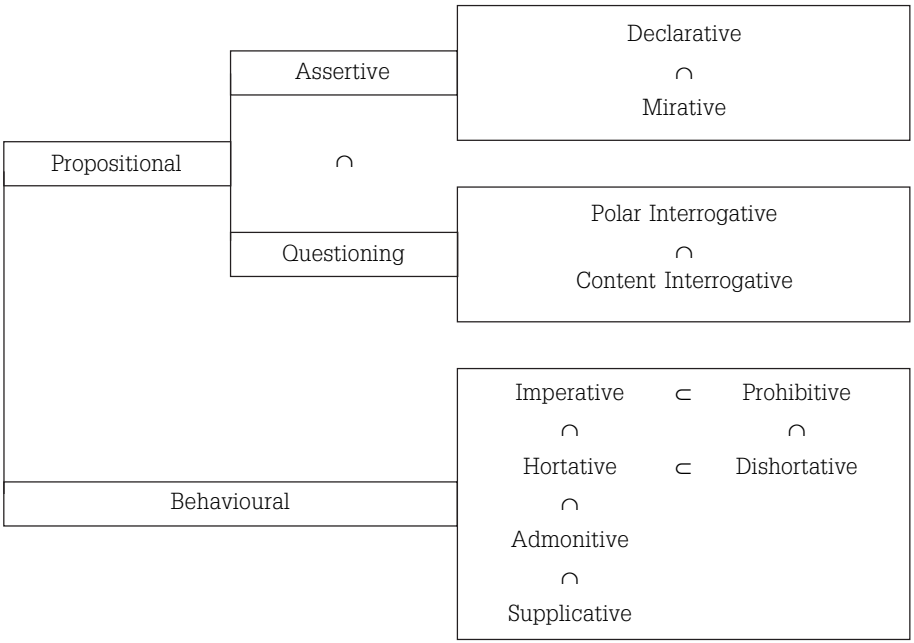

Figure 2 – Implicational relations between basic illocutions

Figure 2 shows that the first major split is between Propositional and Behavioural basic illocutions; the second major split separates Propositional basic illocutions into Assertive and Questioning ones, the former being implied by the latter in highly exceptional cases. The remaining three groups of basic illocutions may each contain various more specific illocutions. Assertive basic illocutions may be separated into Declarative and Mirative ones, the former being implied by the latter. Questioning basic illocutiuons may be separated into Polar and Content interrogatives, the former again being implied by the latter. The greates variety of more specific basic illocutions is found in the domain of Bahavioural basic illocutions. Apart from the distinction between Imperatives, Hortatives, Admonitives and Supplicatives, hierarchically related in that order, the distinction between positive and negative basic illocutions is relevant in this domain, positive values being implied by negative ones.

Although Figure 2 is arrived at on the basis of a restricted sample, both as regards the number of languages and as regards their areal distribution, the

pattern that emerges is a systematic one. The results show that a strict separation in typological research between formulation and encoding, as imposed by Functional Discourse Grammar, leads to new generalizations. They are also useful to help this theory arrive at a systematic treatment of its illocutionary component by providing the parameters for which the grammars of individual languages may be set.

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HENGEVELD, K. et al. Ilocuções básicas nas línguas nativas do Brasil. *Alfa*, São Paulo, v.51, n.2, p.73-90, 2007.

- RESUMO: Este trabalho mostra que a distribuição das ilocuções básicas (definidas como estruturas gramaticais que podem ser relacionadas a intenções comunicativas padrão), dentro das línguas indígenas do Brasil, pode ser sistematicamente descrita em termos do conjunto de hierarquias implicacionais por meio das quais a existência de certas ilocuções básicas pode ser prevista a partir da existência de outras. Ao fazê-lo, este trabalho argumenta a favor de uma distinção significativa entre ilocuções básicas proposicionais e comportamentais, a primeira relacionada com a troca de informações e a última, com a influência no comportamento.

- PALAVRAS-CHAVE: Tipologia; ilocução; línguas indígenas; Gramática Discursivo-Funcional.

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INFORMATION PACKAGING IN FUNCTIONAL DISCOURSE GRAMMAR

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- ABSTRACT: The paper addresses the modelling of information packaging in Functional Discourse Grammar (FDG), in particular the treatment of Topic, Comment and Focus. Current FDG has inherited the traditional Functional Grammar (FG) representation of these categories as functions, which attach to Subacts of evocation. However, arguments of a formal, notional and descriptive nature can be advanced against pragmatic function assignment and in favour of an alternative analysis in which informational and evocational structures are dissociated so as to command their own primitives. In the context of a model of discourse knowledge organisation in which communicated contents are associated with packaging instructions that tell the Addressee how to treat the evoked knowledge, it is argued that focality can be modelled by means of a Focus operator that can attach to various constituents at the Interpersonal Level. Topicality, on the other hand, concerns binomial and monomial modes of presenting communicated contents. This can be rendered by means of the dedicated informational units Topic (Top) and Comment (Cm), that interact in frames.

- KEYWORDS: Information packaging; topic; comment; focus; Functional Discourse Grammar

1 Introduction

Besides the construal of semantic representations, informational structuring of the knowledge contained in these representations is a central task of the Formulator in Functional Discourse Grammar (FDG). Considerations regarding mental activation state, contrastiveness and information packaging play an important role in accounting for differential expression strategies that convey a single semantic structure.

The term information packaging was coined by Chafe (1976). According to Vallduví (1994, p.2), it

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> indicates how information conveyed by linguistic means fits into a (hearer's mental model of the) context or discourse. When communicating a proposition, a speaker may realise it by means of different sentential structures according to his/her beliefs about the hearer's knowledge and attentional state with respect to that proposition.

As such, information packaging is a subdivision of information structure (HALLIDAY, 1967) and comprises notions like Topic, Focus, Comment, Background, Theme, Frame, Rheme, etc. It excludes other informational categories, in particular those pertaining to the activation status of mental extensions (GUNDEL et al., 1993), interpropositional coherence devices (KEHLER, 2002), and inferences related to contrastiveness (UMBACH, 2004).

This paper presents objections against the treatment of information packaging in terms of pragmatic function assignment as is currently advocated in FDG, and proposes an alternative model that dissociates the evocation of mental extensions from information packaging. In addition, it offers separate analyses of its two constituent dimensions, topicality and focality. The proposal furthermore fits the FDG objective to formulate combinatorial primitives (frames) at each level of Grammar that can be stored in the Fund.[2]

The paper is structured as follows. Section 2 discusses the current approach to Topic and Focus in FDG. Section 3 outlines a model of discourse knowledge management, and introduces the crucial distinction between extragrammatical informational relations and the grammatically relevant exponents of these relations. Section 4 gives a critical assessment of pragmatic function assignment in FDG, and argues that the approach has to be abandoned for the analysis of packaging categories. An alternative frame-based proposal is presented in section 5. Section 6 illustrates the working of the proposal on the basis of some examples, before a conclusion is reached in section 7.

2 Information packaging in FDG

The proposals regarding the analysis of information structure found in Dik's first version of Functional Grammar (DIK, 1978, p.129 ff) have exerted a profound influence on all subsequent accounts. Even though some of his specific ideas have been called into question by later authors (e.g. MACKENZIE; KEIZER, 1991

[2] Frames (GARCÍA-VELASO; HENGEVELD, 2002) are lexically stored primitives, consisting of empty slots (and, in the case of predicational frames, functions), into which designating units can be inserted. It is stipulated that the saturated frame has a single, compositional designation, which is 'richer than the sum of its parts' due to the interactions between those parts.

on the status of Topic in English), and notwithstanding more general concerns formulated in De Vries (1993) and Bolkestein (1998), two basic aspects of Dik's original view have been retained through thirty years of theory formation, and have recently been embraced by FDG as well (cf. HENGEVELD; MACKENZIE 2006; 2008, Forthcoming). The first is a strong inclination towards what Vallduví (1992, p.44) calls a "binomial informational division of the sentence". In Dik's view, Topic and Focus are considered mutually exclusive notions belonging to a single dimension of information packaging. Second, all subsequent accounts follow Dik's original decision that these categories are best represented formally as functions assigned to units in the underlying clause structure.

Within the predication as the core unit of analysis, Dik (1978, p.130) distinguishes Topic, which signals that the constituent to which it applies "presents the entity 'about' which the predication predicates something", and Focus, which signals "the relatively most important or salient information". Both are represented as functions, assigned to semantic units in the underlying clause structure. With respect to this particular notational decision, Dik (1978, p.29) observes that "they are functions inasmuch that they can be predicated of constituents only with respect to some wider setting in which they occur". In other words, Topic and Focus are relational notions assigned on the basis of context, and not inherent statuses of denotations.

In FDG, underlying clause structure is split into two orthogonal systems. The representational level (henceforth RL) is concerned with objective, context-independent denotation while the interpersonal level (henceforth IL) designates the evocation of denotations in the context of a communicative situation. Given this division of labour, Hengeveld and Mackenzie (2006) propose to move information packaging to IL, where Topic and Focus are retained as pragmatic functions. Consequently, Topic and Focus now attach to the Subacts that evoke what the communicated content is about and the most salient information it contains, respectively. Assuming 'happy discourse' (REINHART, 1982) in which interlocutors act according to the Cooperative Principle and observe all four conversational maxims (GRICE, 1975), consider the mini-discourse given in (1):[3]

(1) A: (What about the dóg?) Who did it bíte?
B: It bit the póstman

Responding cooperatively to A's question, B provides the identity of the Undergoer in an otherwise presupposed event of which 'the dog' is the referent that the statement 'is about'. In (1'), the pragmatic function assignment to the

[3] In all English examples, acute accent (') is used to indicate rising pitch, grave accent (`) for falling pitch. Emphatic stress is indicated with SMALLCAPS.

interpersonal structure of B's answer reflects the respective statuses of the evocational Subacts concerned:[4]

(1') IL: A_1: [— (C_1: [^{f1}(+id T_1) ^{x1}(+id R_1)$_{Top}$ ^{x2}(+id R_2)$_{Foc}$])$_{Ø}$ —]
RL: pst e_1: [—[(f_1: [—*bite*—]) (x_1)$_A$ (x_2: [—*postman*—])$_U$]—]

The packaging of entities evoked in a given Discourse Act should not be confused with the activation state of their extensions. While there is a strong correlation between Topical status and givenness, and between Focal status and newness, this is far from absolute. For instance, a felicitous Discourse Act may evoke only known entities, but in a combination that is informative for the Addressee. The distinction between packaging status and activation state is formally explicit in FDG, where the latter is captured by means of operators like [±identifiable] that attach to evocational Subacts.

The interplay between packaging status, other informational considerations and semantic function (cf. JASINSKAJA et al, 2004) determines the expression of 'the dog' in (1B) as a weak pronoun, and 'the postman' as a lexical NP with pitch accent, both in their respective dedicated linear positions with respect to the inflected verb.

3 Information packaging and discourse knowledge management

Hengeveld and Mackenzie (2006, p.669) remark that FDG "is the grammatical component of a wider theory of verbal interaction". Since it is one of the central aims of verbal interaction to manipulate the discourse knowledge[5] of one's interlocutor, this means that the question of how to treat information packaging in Grammar is inextricably linked to the interaction between Grammar and the Contextual Component where such knowledge is located.

Since the interlocutor's discourse knowledge P_A is not directly accessible, language users rely on recursive models, reflecting their own assumptions about

[4] In most analyses, RL is included to disambiguate the designations of evocational Subacts. Superscript variables indicate correspondences between IL and RL: they do not have theoretical status, but are merely intended to enhance readability. Em dashes indicate omission of further complexity within layers. Alphanumeric indexation is only used in maximally abstract representations, while numeric indexation is used in concrete cases. Note furthermore that the representations in this paper follow Smit and Van Staden (this volume), who argue that restrictors take the shape of predications. The resulting differences are largely immaterial to the present proposal, however.

[5] Discourse knowledge is subsumed under Dik's (1997, p.10) pragmatic information. It refers to the entire set of semantic presuppositions immediately available to the language user at any point in the interaction. The use of *immediately* in the previous sentence does not mean to indicate that there is a hard divide between 'discourse knowledge' and 'other knowledge', but rather a continuum, to be thought of in terms of spreading activation.

the other's knowledge $(P_A)_S$, their assumptions about the other's assumptions about their knowledge $((P_S)_A)_S$, etc. When performing a DECLarative[6] discourse Act, language users calibrate the information packaging of the message to their model of the interlocutor's knowledge. This model is organised in two orthogonal dimensions, addressation and updating.

Addressation (JACOBS, 2001, p.650) concerns the thematic organisation of presuppositions in discourse knowledge as entries under addresses (r_n) in a metaphorical 'file cabinet' (HEIM, 1983). An address collates entries relevant to a single discourse referent (KARTTUNEN, 1969), which together constitute an incremental domain of evaluation for incoming propositions. This facilitates swift retrieval of presupposed knowledge and efficient evaluation of asserted knowledge. In this process of assessment (REINHART, 1982), updating becomes relevant, because the Addressee must be instructed how the propositional content of the message contributes to his discourse knowledge. An asserted proposition can update an address in two ways: it may add an entire entry to the address, or instantiate empty slots in a pre-existing entry.[7]

Figure 1 illustrates how for an example like (1B), the interaction between communicative intention, Grammar and discourse knowledge determines the shape of the expression. In the case of the question-answer pair in (1), it can be inferred from the shape of B's answer that his own knowledge does not give cause to dispute the assertions implied in A's question, namely the presupposition that 'the dog bit __', and the construal of 'the dog' as the address where this presupposition is assessed and stored. B's communicative intention to update A's presupposition by instantiating the patient slot and his conformation to A's choice of address codetermine the shape of the answer. Also, having provided A with the desired information, B adapts his own model of A's knowledge, and will henceforth assume A to presuppose the full event 'the dog bit the postman'.

6 The scope of the present proposal is limited to information packaging in Acts with DECLarative illocution. Discourse Acts with other illocutions, notably INTERrogatives, are assumed to behave differently in terms of information packaging.

7 (Partial) substitution of one entry for another is excluded, since presuppositions can be cancelled, but not erased. Substitution hence is tantamount to the augmentation of knowledge because the cancelled presupposition remains accessible.

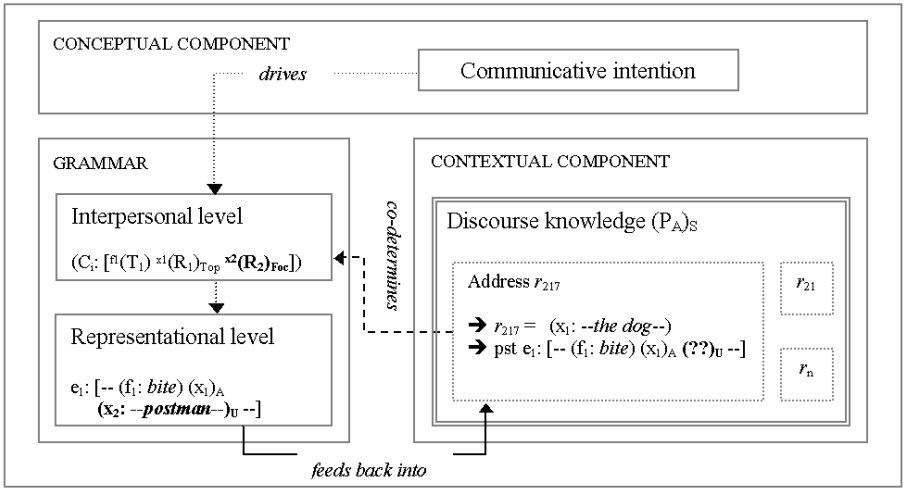

Figure 1 – The interaction of S's communicative intention, Grammar and assumptions about A's discourse knowledge

Such considerations are reflected in Grammar as packaging instructions in the sense of Vallduví (1992, p.4), which tell the addressee how the contents of the message are to affect his discourse knowledge. In line with the two dimensions of information packaging introduced above, the speaker provides three such instructions: a GOTO instruction that specifies under which address the addressee is expected to file the proposition, an ASSESS instruction that tells him to assess the contents of the proposition, and an UPDATE instruction that identifies what part of the incoming proposition differs from what the speaker assumes is already presupposed, and hence constitutes information. Execution of the instructions results in the establishment of informational relations between pieces of knowledge in the contextual component. Between addresses and entries, a durable relation of relevance or aboutness is established, while a momentaneous relation of non-retrievability holds between pieces of knowledge in innovative combinations.[8]

4 Problems with pragmatic function assignment

While it may seem from the analysis in (1') that pragmatic function assignment is a suitable way to model information packaging, I believe that this yields several problems. In what follows, these will be discussed in detail.

[8] The relation of non-retrievability holds between two pieces of knowledge, the combination of which cannot be predicted on the basis of the presuppositional structure of the Addressee at the time of utterance. It is momentaneous, in that the non-retrievability dissolves at the moment of utterance (cf. LAMBRECHT, 1994). Also, while one of the pieces involved is typically new or newly activated, this is not necessarily the case; consider cases like *has the lady kissed the postman? – No, hé kissed* HÉR, where the reply is highly informative even though no new referents are introduced.

4.1 Formal objections

Anstey (2006, p.72) criticises FDG for being a pseudo-formal framework in that its notation is "inconsistently interpreted as formal in some cases and non-formal elsewhere". At least in part, this problem derives from the fact that the ontology (the available classes of primitives) and syntax (the combinatorics governing the members of these classes) of the formal algorithm are underspecified in several respects. In Hengeveld and Smit (Forthcoming) and Smit and Van Staden (this volume), attempts are made to remedy this lack of explicitness. Here, I want to single out the role of functions.

It will be assumed that functions (φ) in FDG operate in predicational configurations of the form $[(\alpha_i)\ (\alpha_j)_\varphi]$ where they specify the quality of the interaction between a relator and its relatum. This follows what has been standing practice throughout Functional Grammar. The prototypical predication is the nuclear predication at RL, where qualified relations (Agent, Undergoer, etc.) obtain between one or more arguments and a predicate.

While the nuclear predication may be the best documented case, it has been argued that predicational configurations abound in Grammar. For instance, Hengeveld (2004, p.375) observes that the head of the Discourse Act in FDG constitutes a predication as well, while Harder (1996) in FG makes a similar argument for conditionals. But more importantly, Hengeveld and Mackenzie (2006, p.671) argue that a single formal algorithm governs the 'general structure of layers' at all levels of Grammar. Although the formalism they use does not cover the role of functions in the interaction between units, it seems a reasonable assumption that, if one part of the ontology and syntax of underlying structure is generally applicable, the same must go for the rest. Therefore I argue that, *mutatis mutandis*, exactly the same characterisation of functions applies at IL as at RL.

The formal syntax of function assignment in predicational configurations is as follows.[9] There must be one and only one relator slot, while all other slots must be relata carrying a function that specifies the quality of their relation to the relator. Furthermore, the relation between relatum and relator can only be of a single quality, since multiple relations between relator and relatum (or a

[9] An anonymous reviewer objects to my portrayal of the head of C as a predicational domain, arguing that it is more appropriate to characterise it as juxtapositional in the sense that all evocational Subacts are simply enumerated there. Although I am highly sympathetic towards this characterisation (see also p.101), it does not in my view resolve the formal inconsistencies related to function assignment. That is, the defining characteristic of a juxtapositional configuration is that all constituents involved in it are equal. They are contiguous, with the relationships between them left to the inferential capacities of the NLU. In my understanding of such a configuration, it is governed by a syntax similar to that in (2), only much simpler: in order to preserve the equipollence of its constituent units, either all units in a juxtaposition carry a function, or none at all. It is easy to see that none of the cases discussed in this section conform to this.

single relation with multiple qualities) lead to ambiguity (cf. FILLMORE, 2003, p.151). Third, a relator cannot enter into the same qualitative relationship with multiple relata, again because this would yield an uninterpretable complex designation (cf. Bohnemeyer's (2003) Argument Uniqueness Constraint). This is summarised in (2):

(2) In predicational configurations
  a. functions come with the slots of the frame in which they occur;
  b. there is one and only one relator slot, which carries no function;
  c. there are one or more relata, all of which carry one and only one function;
  d. the same function cannot be assigned to more than one relatum.

The above syntax has generally been adhered to in the context of semantic analysis at RL, in which all arguments traditionally carry one function and no function ever occurs twice. However, in the assignment of Topic and Focus it appears that virtually every conceivable situation other than the one discussed in (1') constitutes a violation of one or more of the above rules, which makes information packaging by means of function assignment highly problematic. I will now discuss four examples where the intended packaging structure is incompatible with the syntax of function assignment given in (2).

First to discuss are cases that can be loosely described as narrow predicate focus. An example is given in (3):

(3) A: *Did the butcher chóp the meat?*
  B: *Chóp? He shrèdded it*

In (3B), nothing but the denotation of the predicate 'shred' is informative: everything else is presupposed, including the representational frame in which the predicate is to be inserted. Nevertheless, three evocational Subacts are performed; two referential Subacts that re-evoke the accessible discourse referents 'the butcher' and 'the meat', and one ascriptive Subact that evokes the Focal denotation 'shred'. The interpersonal and representational structures of (3B) are given in (3'):

(3') IL: A_1: [— (C_1: [^{f1}(-id T_1)$_{Foc}$ ^{x1}(+id R_1)$_{Top}$ ^{x2}(+R_2)])$_{Ø}$ —]
  RL: pst e_1: [—[(f_1: —*shred*—) (x_1)$_A$ (x_2)$_U$]—]

As can be seen, (3') satisfies the syntax for function assignment, since the head of C_1 contains two units that have been assigned one unique function, and one (R_2) with no function at all. However, this would make R_2 'the meat' the relator in this configuration, which is difficult to reconcile conceptually, because

it seems that neither the non-retrievability of 'shred' nor the topicality of 'the butcher' are assigned by 'the meat'.

While (3), however counterintuitive, still more or less obeys the syntax of function assignment, a real violation occurs in cases where we have multiple evocational Subacts that are unmarked for their packaging function. Consider (4), where both the ascriptive Subact evoking the main predicate, and the referential Subact evoking the Beneficiary referent 'the butcher' are not assigned an informational function:[10]

(4) A: *What did the poulterer sell the bútcher?*

B: *He sold him some èggs*

In the example above, the referent 'some eggs' is the informative part of the assertion and is evoked by means of a Subact with Focus function; 'the poulterer' is the Topic, and is evoked by means of a Subact with that function. This leaves two Subacts with no informational marking; that evoking 'sell', and that evoking 'the butcher'. This violates (2b) because only one Subact (the one that serves as the relator) must be without a function, as (4') illustrates:

(4') IL: A_1: [— (C_1: [^{f1}(+id T_1) ^{x1}(+id R_1)$_{Top}$ ^{x2}(-R_2)$_{Foc}$ ^{x3}(+id R_3)$_{\underline{???}}$])$_{Ø}$ —]

RL: pst e_1: [—[(f_1: —*sell*—) (x_1)$_A$ (x_2: —*some eggs*—)$_U$ (x_3)$_B$]—]

Another class of problematic cases is formed by those in which Topic and Focus are assigned to the same evocational Subact. A case in point are new Topics which, according to Dik (1997, p.316) "combine properties from the dimensions of topicality and focality". Hengeveld and Mackenzie (2008, Forthcoming) propose to abandon NewTop as a separate function, and replace it by a conflation of Top and Foc functions on a single evocational Subact. However, such multiple function assignment to a single unit violates (2c) as it yields an ambiguous (and thereby uninterpretable) configuration. Consider (5):

(5) *(Suddenly,) ìn came the butcher*

IL: A_1: [— (C_1: [^{f1}(-T_1) ^{x1}(-id R_1)$_{\underline{TopFoc}}$])$_{Ø}$ —]

RL: pst e_1: [—[(f_1: —*come.in*—) (x_1: —*the butcher*—)$_A$] —]

Next, there are cases whose interpretation requires that a single function is 'spread' over multiple evocational Subacts. Consider (6):

10 The violation discussed in this example is probably the most pervasive. Especially in conjunction with the idea that evocational Subacts evoking complex denotations are to be represented as a series of juxtaposed rather than layered elements, this problem occurs in virtually every Discourse Act.

(6) A: *what about the bútcher?*
B: *he insulted the cùstomer*

In the context of A's question, B's reply aims to instantiate an apparent gap in (P_A) by supplying a non-retrievable entry for the address identified by 'the butcher', i.e. the past event of him insulting the customer. In the example at hand, a single UPDATE instruction relates 'the butcher' and 'he insulted the customer'. However, the formal algorhitm offers no possibility of 'spreading' a single function over multiple constituents, as (6') illustrates:

(6') IL: A_1: [—(C_1: [^{f1}(-idT_1)$_{Foc}$ ^{x1}(+id R_1)$_{Top}$ ^{x2}(+id R_2)$_{Foc}$])$_{Ø}$ —]
RL: pst e_1: [—[(f_1: —*insult*—) (x_1)$_A$ (x_2: —*customer*—)$_U$]—]

In the interpersonal structure in (6'), Focus is assigned to T_1 and R_2. As will be clear, this analysis violates the syntax of function assignment proposed in (2d). In conjunction with this case, consider now (7):

(7) A: *What about the butcher's insùlting anyone lately?*
B: *He insulted a cústomer yèsterday*

This example illustrates the well-documented issue of multiple Focus assignment. Many languages, notably those that rely on prosodic strategies to express Focus, allow for the evocation of multiple Focal elements in a single assertion. An expression like (7B) instantiates two open slots in the Addressee's presupposition; one concerning the identity of the insultee, the other the temporal specification of the event. Irrespective of additional inferences regarding contrastiveness, set membership, list-readings etc. that such statements may carry (cf. UMBACH, 2004), the fact that *the customer* and *yesterday* are also both focal is generally undisputed. However, since the two evocational Subacts in (7B), represented in (7') as R_2 and R_3, mark two independent Focal relations, its interpersonal structure violates (2d).

(7') IL: A_1: [—(C_1: [^{f1}(+id T_1) ^{x1}(+id R_1)$_{Top}$ ^{x2}(-id R_2)$_{Foc}$ ^{t1}(-id R_3)$_{\underline{Foc}}$])$_{Ø}$ —]
RL: pst e_1: [—[(f_1: —*insult*--) (x_1)$_A$ (x_2: —*customer*—)$_U$]—]:
[(t_1: —*yesterday*—) (e_1)$_{Ø}$]

But apart from this violation, if we compare (6') and (7') we see that the formalism cannot distinguish spreaded assignment of one Focus function to multiple evocational Subacts, from the assignment of multiple Focus functions in a single Communicated Content.

The formal problems discussed so far in my view provide sufficient reason to claim that function assignment is not a suitable way to deal with the modelling of Topic and Focus.

In addition to the formal objections against pragmatic function assignment as a way to model information packaging, there is a deeper problem with this approach. That is, since functions in FDG are not assigned randomly but enter the Formulator as part of frames instead, assigning packaging functions to evocational Subacts presupposes the existence of 'evocational frames', lexically predetermined configurational primitives that govern the possible combinations of evocational Subacts in a Communicated content.

While I will argue in section 5 that we certainly need frames to deal with variation in information packaging, I believe that the concept of **evocational** frames is problematic, because the Fund cannot feasibly be argued to contain an exhaustive list of all possible combinations of evocational Subacts that users of a language may need at some point in time to attain a communicative intention. This inventory would be practically infinite, since the required amount of evocation varies strongly, and depends on a multitude of extralinguistic factors (communicative intention, interlocutors involved, personal communication styles, physical and discourse context, etc.). Also, invoking evocational frames would essentially mean that the Fund, i.e. the Grammar, places constraints on the communicative potential of a language, an assumption that goes against essential functionalist principles such as non-aprioricity (HASPELMATH, 2007).

Therefore, rather than postulating evocational frames, the type and number of Subacts needed must be considered a consequence of contextual and representational choices, and should not be constrained by the availability of *a priori* defined combinatorial primitives. As is also pointed out in Hengeveld and Smit (Forthcoming) and Butler (Forthcoming), the performance of evocational Subacts constitutes the final stage of formulation, and is 'consequential' in the sense that the head of C simply accommodates whatever Subacts of evocation the Speaker requires. Because the performance of evocational Subacts is not a matter of substantiating pre-existing slots in a frame, the option of qualifying relations between them in my view does not apply at all.

4.2 Notional objections

Another set of problems concerns the notional implications of modelling information packaging in terms of function assignment. These problems are twofold, and pertain to the status of topicality and focality as relations within Grammar on the one hand, and the mutual independence of information packaging and evocational structure on the other.

To start with the former, Lambrecht (1994) presents a comprehensive theory for the analysis of sentential information structure, in which Topic and Focus are captured as relations. In Lambrecht's view, Topic conveys a pragmatic relation of relevance holding between a referent and an assertion, while Focus conveys a relation of non-retrievability between what is asserted and what is presupposed. The relational definition of these informational categories enables Lambrecht to make a clear distinction between Topic and Focus as informational relations on the one hand, and non-relational activation state that predictably interacts with it on the other.

However, the relations identified by Lambrecht are not part of Grammar: as was pointed out in section 2, they are relations holding between propositions in discourse knowledge, i.e. in the contextual component. What is part of Grammar are the exponents between which they are established in the course of verbal interaction. Through the successful identification of these exponents in the interpersonal structure of the message, a pragmatically competent language user is able to infer the intended relations that the speaker wants him to construe in his discourse knowledge. In order to avoid terminological confusion, I will use the terms topicality and focality when referring to the 'Lambrechtian' informational relations obtaining in discourse knowledge: for the marking of their exponents in Grammar, I use Topic (identifying the address), Comment (identifying the entry) and Focus (identifying the update).[11]

There are at least two types of statements which indicate that Topic and Focus do not mark relations in Grammar, but non-relational exponents of contextual relations instead. These are all-Focus Acts and elliptical Acts. Regarding the former, consider expressions like (8) in which the entire communicated content of an Act is non-retrievable in the context of presupposed knowledge, and thereby informational. The representation in (8') shows the current FDG treatment of such Acts:

(8) *(Have you heard?) The bútcher died!*

(8') IL: A_1: [(F_1) (P_1)$_S$ (P_2)$_A$ (C_1: [^{f1}(-T_1) ^{x1}(-id R_1)])$_{Foc}$]
RL: pst e_1: [—[(f_1: —*die*—) (x_1: —*butcher*—)$_U$]—]

The assignment of Foc to C_1 in (8') must be taken to establish a focality relation between C_1 and F_1, seen that functions qualify the interaction between equipollent units. But this makes no sense, because the domain of focality is

11 I will not consider the possible linguistic relevance of Background (the logical complement of Focus) in this article. The reason for this is, that a functional rationale to convey presupposed knowledge appears to be missing. It is more attractive in my view to account for Background marking as an epiphenomenon, deriving from requirements at the Structural level.

that of communicated knowledge to which the units outside C_1 do not belong at all. Moreover, (8') does not capture the informational structure that intuitively underlies (8). What an utterance like (8) aims at is the construal of a previously irretrievable relation between the communicated content of A_1 in its entirety, and other discourse knowledge. Since this other discourse knowledge is not part of A_1 but is located in the contextual component, it follows that focality cannot obtain within A_1, but must be construed in the contextual component. Modelling focality as a relation in the discourse Act is not viable.[12]

The relevance of focality as a relation in the communicative content is challenged furthermore by the existence of elliptic single-constituent answers, as exemplified in (9B).

(9) A: *Who did the butcher insúlt?*
B: *A cùstomer*

(9') IL: A_1: [— (C_1: [^{x2}(-id R_1)$_{Foc}$])$_{Ø}$ —]
RL: pst e_1: [—[(f_1) (x_1)$_A$ (x_2: —*customer*—)$_U$]—]

In (9B), only the referent that enriches A's presupposition 'the butcher insulted __' is evoked. But as can be seen in (9'), Focus assignment again would result in the marking of a relation that does not obtain in Grammar: in fact, since the contents of C_1 consist of a single Subact only, a relation cannot be modelled at all. The relation of irretrievability between the referent 'a customer' and A's presupposition obtains in the contextual component and not at IL in Grammar.

Turning now to the relationship between information structuring and evocation, it should be noted that by modelling information packaging by means of functions assigned to evocational Subact, FDG makes the former dependent on the latter. I believe that this is misguided, since evocations are merely instrumental in carrying out the desired manipulation of the addressee's presuppositional state (see also BUTLER, Forthcoming). Hence, information packaging should be dissociated from evocation and be modelled in its own right instead.

Especially for Topical referents, the dependence of information packaging on evocation is problematic. Topical status has a strong correlation with givenness of the corresponding denotatum (CHAFE, 1976; GUNDEL et al., 1993) and is typically governed by special pragmatic presupposition of consciousness (LAMBRECHT, 2001, p.475); as a result, Topical referents are prime candidates

12 Dik's characterisation of functions merely states that functions operate 'in some wider setting' (DIK, 1978, p.129), and does not specify what that setting should be. However, FDG's formalist aspirations in my view necessitate a more stringent definition of its domain of application, namely the equipollent configuration.

for suppression in many languages. But, how can packaging status be assigned to a non-evoked participant, if it is dependent on evocation? The point is that a statement with a non-evoked Topic may behave differently syntactically from one with no Topic at all. Consider the examples from Kinyarwanda in (10)-(11):

(10) (what about the guests?)

(*aba-shyitsi*)	*ba-ra-riríimbir-a*	*mu*	*gisagára*
CL2-guest	CL2-prs-sing-impf	in	village

'they are singing in the village'

(11) (what's that sound?)

ha-ra-riríimbir-a	*aba-shyitsi*	*mu*	*gisagára*
CL16-prs-sing-impf	CL2-guest	in	village

'there are guests singing in the village'

(Kinyarwanda, Bantu. Cited in LAMBRECHT, 2000, p.643)

In (10), where the Topic is omitted, the Subject is cross-referenced on the verb *riríimbir* 'sing' by means of a [+human] classifier. In (11), where there is no relation of aboutness between 'the guests' and the event of singing in the village, a [-human] classifier is used. If we make the Topical status of *shyitsi* 'guests' in (10) dependent on evocation, there is no way that we can account for the different choice of prefix in (10) and (11).

4.3 Descriptive problems: VP

The last objection against information packaging by means of pragmatic function assignment that I want to discuss is descriptive in nature. That is, it seems that many languages make use of syntactic and prosodic constituents for which representational nor interpersonal motivation can be given in the current architecture of FDG. In particular, the Verb Phrase (VP) is relevant here. As is well-documented for a large number of languages, VP figures in a considerable number of syntactic phenomena, illustrated for English in (12):

(12) *The butcher* [*insulted a cùstomer*]$_i$

a. *… and* [*so did*]$_i$ *the poùlterer*

b. *… and the poùlterer* [Ø]$_i$, *too*

c. [*insult a cústomer*]$_i$,
the butcher would never do thát$_i$

d. [*insult a cùstomer*]$_i$ *he did in the pást;*
[*insult a cùstomer*]$_i$ *he will do again*

e. *what the bútcher did was* [*insult a cùstomer*]$_i$

f. (what did the butcher do?) [*insult a customer*]$_i$

As these examples show, *insult the customer* may be anaphorically referred to (12a) and constitutes a gap bound by *too* (12b), both of which clearly show that there must be a corresponding unit at one of the underlying levels of representation. Furthermore, it figures as a constituent in word order permutations (12c-d) and clefting strategies like the the one in (12e). Finally, as shown in (12f), the constituent in isolation is a well-formed reply to certain kinds of questions.

Notwithstanding the phenomena in (12), FG has persistently treated VP as an epiphenomenon with no corresponding unit in underlying clause structure. A prime example of this is found in Mackenzie (1983) where it is shown convincingly that FG, unlike some other frameworks, does not need VP as an underlying notion to account for certain Subject-Object asymmetries, but can relate those to other semantic factors instead. The main reason for this reluctance appears to be that an underlying unit corresponding to VP would lack an obvious motivation in the semantics on which FG is founded.[13] Nevertheless, it seems rather dissatisfying to do away with the order permutations and other constructions illustrated in (12) as mere 'side-effects'. Two cases, (12a-b), are particularly salient in this respect because they show unequivocally that the combination of predicate and undergoer argument can license a gap and serve as an antecedent for anaphora.

In my view, this must be taken to mean that the elements in VP constitute a single unit at some underlying level in Grammar. Since the semantics of FDG are similar to those used by FG, RL is not a likely candidate to accommodate such a layer because the combination of predicate and undergoer argument does not constitute a clear semantic type.[14] But what if the unit motivating VP is not semantic in nature, but interpersonal? In that case, the fact that IL and RL are orthogonal in FDG enables us to invoke a functional correlate of VP at IL. I

[13] FG semantics is extensional, in that it deals with the construal of entities that correspond to some extralinguistic 'reality' and have ontological properties. VP escapes extensional definition in that it does not correspond to a known entity type, and cannot be defined in ontological terms equivalent to those used to define other entity types. By contrast, intensional semantic theories, notably Type Theory (GAMUT, 1991), do have the means to define the semantic analogue of VP.

[14] An anonymous reviewer suggests that VP can be given a semantic motivation in FG, namely that of 'extended predicate'. However, this notion is not part of the inventory of semantic types suggested in Dik (1997), nor does it occur elsewhere in the FG literature.

will return to this idea below, and argue that VP corresponds to a new informational unit at that level.

5 Frame-based information packaging

In this section, I will propose an alternative account of information packaging in FDG. But first, let's sum up the requirements that such a model has to meet.

As has been argued extensively in the previous section, information packaging cannot rely on functions as its formal primitives, and the new model should offer satisfactory solutions to the formal, notional and descriptive problems noted there. In view of the apparent cross-linguistic relevance of certain oppositions in information packaging, in particular that between categorical and non-categorical Acts, it is furthermore desirable that the new approach can account for these in a principled fashion, thus enhancing FDG's typological adequacy. Related to this, the new model should be able to account for apparent constraints on information packaging straightforwardly, such as the cross-linguistically well-attested prohibition on multiple Topics in a single Act.

In what follows, I will first consider the best place in FDG to accommodate information packaging. Then, I will turn to the question of how it can be modelled. Besides functions, the inventory of formal primitives in FDG offers layers and operators as means to do this. I will introduce the idea that the categories belonging to the packaging dimension of addressation are best modelled by means of layers. Focus, on the contrary, is more suitably modelled as an operator. The possible combinations of addressation layers and focus positions can be captured in an elegant fashion by a limited number of packaging frames, reflecting informational articulations (VALLDUVÍ, 1992) or modes of message management (HANNAY, 1991).

5.1 The locus of information packaging

Information packaging seems to be a somewhat hybrid concept in relation to the architecture of FDG. On the one hand, it is unmistakably interpersonal in the sense that language users calibrate their Acts to their assumptions about the interlocutor's state of discourse knowledge. On the other, it is representational in the sense that information packaging targets the denotation rather than the evocation of the Act. This can be seen in cases like (9), where a non-evoked Topic exerts an influence on the structure of the expression.

So, what should be the locus of information packaging in Grammar? Arguably the most principled way to deal with its hybrid nature would be to create an

entirely new level of analysis for information packaging. However, since that would result in massive system redundancy, and seen that the primary motivation of information packaging still is interpersonal, my alternative analysis retains C as its locus in Grammar. In the characterisation by Hengeveld and Mackenzie (2006, p.672), C "contains everything the Speaker wishes to evoke in his or her communication with the Addressee". This should be made somewhat more precise, since language users do not just evoke things, but perform evocations with the purpose of manipulating the interlocutor's discourse knowledge. In other words, C contains an **informationally structured representation** of everything the Speaker wishes to evoke in his or her communication with the Addressee,[15] as is reflected in (13):

(13) A_i: [(F_i) (P_i)$_S$ (P_j)$_A$ (C_i: [informationally structured evocation])$_\emptyset$]

To apply a packaging structure to the communicated content of a DECLarative Act in my view is not an **option** available to the speaker, but a necessary **choice**. Because a DECLarative Act conveys a representational structure, packaging necessarily has to be applied to its communicated content so that it can be processed in the addressee's discourse knowledge. From this it follows that there can be no such thing as a 'pragmatically neutral' statement, a term which frequently occurs in the literature. Rather, as is also pointed out by Lambrecht (1994, p.15 ff), languages use expression strategies that are specialised to a greater or lesser extent for the expression of a particular mode of packaging. However, absence of specific structural markedness does not entail absence of information packaging; instead, I take it to mean that a number of distinct packaging structures is neutralised in the expression. In terms of the 'etic/emic' distinction discussed by De Vries (1993), the model of information packaging that I propose is therefore 'emic', and reflects notional categories that do not necessarily have an 'etic' correlate in surface structure (although they can obviously be identified on the basis of context).

5.2 Layers for addressation

I argued in 4.2. that the packaging dimension of addressation cannot not be made dependent on evocational Subacts because it targets the representational structure of the message as a whole and not just the part that is evoked. Therefore, we need to capture it by means of dedicated primitives, and it appears that layers are a better candidate for this than operators for two reasons.

[15] Incidentally, limiting the domain of information packaging to the head of C also yields correct predictions regarding the impossibility of marking units outside this slot as either Topic or Focus. For instance, neither Topic nor Focus can be assigned to Discourse Act modifiers like *frankly*, or C-modifiers like German *bekanntermassen*, which are outside the scope of C.

First, Hengeveld and Mackenzie (Forthcoming) point to the actional rather than symbolic nature of various units at IL: Moves, Acts and Subacts all designate actions performed by the Speaker. The model of discourse knowledge management outlined in section 2 perceives the packaging instructions involved in addressation, GOTO and ASSESS, in the same fashion. They are actional, in that they instruct the addressee to perform particular manipulations on his discourse knowledge. Hence, it stands to reason to portray the interpersonal correlates of these instructions in a similar fashion, and postulate information packaging layers corresponding to them in the head of C.

Second, a wide array of publications has observed systematic differences in encoding between categorical Acts that provide information about an address in discourse knowledge and non-categorical Acts that do not, but instead just posit new information without construing a topicality relation.[16] Interestingly, the classical terminology used to describe this distinction draws on the concept of predication (cf. CORNISH, 2004). A categorical Act constitutes a 'psychological predication' in which the information is predicated over the 'psychological Subject' (the address), while in a non-categorical Act such predication is absent. I find this a very appealing way to capture what appears a fundamental dichotomy in declarative utterances, and in the formal inventory of FDG layers seem an excellent way to model this. Therefore, I propose a system of layers in the head of C, which may occur in predicational and non-predicational configurations. One of these layers must correspond to the GOTO-instruction, for which I will invoke a Topic layer (Top). The head of Top will typically be either empty if there is no need to re-evoke the discourse referent that instantiates the address, or it will contain a referential Subact.

Turning now to the complement of Top, Lambrecht (1994) presents a slightly different take on the categorical/non-categorical distinction, arguing that it can be captured more elegantly in terms of the size of the Focus domain. That is, rather than speaking of psychogical predication he contends that a non-categorical Act is characterised by the fact that its Focus domain encompasses the entire contents of the statement, including the referent that would otherwise have been the preferred Topic. This reasoning entails that the complement of Topic in categorical statements should be Focus, and this is what we find in Van Valin (2005, p.81) who argues that "VPs, to the extent that they exist in languages, are the grammaticalisation of Focus structure".[17]

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16 Cf. Lambrecht (2000); Lambrecht and Polinsky (1997); Matras and Sasse (1995); Sasse (1987) for extensive discussion of the thetic-categorical opposition in a large number of genetically unrelated languages, including all Romance languages and English.

17 In a canonical English sentence, Topic and Subject (or psychological and syntactic Subject) coincide. By consequence, so do their complements.

Although it is doubtlessly the case that the complement of Topic is typically focal, I believe that there are three reasons why postulating a Focus layer as the complement of Topic is an oversimplification of the facts. First, such an account rules out the possibility that Topic and Focus coincide on a single referent. But in many languages such conflation is perfectly possible, as (14) shows:

(14) (he [turtle] knew that he had not called them)

ìtó	*nɨ̄*	*ādrúpì*	*Ø-ūngwē*	*nɨ̌*
hare	3sg.spec	brother	3(II)-call	foc

'*hare his brother* called (them)'

(Ma'di, Sudanic. BLACKINGS; FABB, 2003, p.676)

In this example, the clause-final *nɨ̌* is a pronominal Focus marker bound to the adjoined Subject NP 'hare his brother', which is the Topic of this and the subsequent clause. If Focus is the complement of Topic, they would be mutually exclusive and examples like this one could not be satisfactorily accounted for.[18] Second, it must be noted that the Focus domain may also be smaller than the entire complement of Topic, as is the case in Narrow Focus constructions. An example of this we have seen in (4), where 'some eggs' constitutes the update of A's presupposition 'the poulterer sold the butcher __'. However, having Focus as the complement of Topic would mean in this case that part of the communicated content would not be packaged at all, and would hence be uninterpretable. Third, if Focus were the complement of Topic, all non-categorical statements would become informationally identical; namely, they would all consist of a Focus layer only. Yet, there seem to be two broad classes of non-categorical statements that are identical in some, but distinct in other respects. I will return to this observation in section 5.4.

For the three reasons mentioned so far, I postulate Comment (Cm) as the complement of Topic. Whereas Top is an actional layer giving the addressee a GOTO instruction, Cm provides the instruction to ASSESS a piece of information. Both layers conform to Hengeveld and Mackenzie's generalised layered structure and command an operator position, needed to accommodate Focality.

5.3 Focus as an operator

The previous section gave three arguments why Focus is not a suitable complement for Top. However, a fourth argument can be advanced, namely that Focus simply cannot have layer status at all. Instead, I will argue in this

[18] Note that Focal Topics, although attested in various languages, are generally considered to violate cognitive principles of information pressure (cf. 5.4). For that reason, many languages eschew or disallow them.

section that Focus should be modelled as an operator that can be attached at various units in the informationally structured communicated content.

The reason that Focus cannot be modelled as a layer has to do with the nature of the packaging relation in which it is involved. I argued in section 3 that UPDATE is momentaneous in that the non-retrievability that characterises the relation dissolves the moment it is established. This is different for the relevance relation between an address and its entries which is stable, and extends over the entire duration of the communicative exchange. Now, if Focus is an actional notion that reflects the instruction to establish a particular non-retrievable relationship between pieces of knowledge, it will be clear that this can be done only once. Although the knowledge involved can be referred back to afterwards, the formerly irretrievable relation cannot be 're-established'. To illustrate this, consider (15):[19]

(15) *hé* [*insulted the cùstomer*]$_i$*, and the poúlterer* [Ø]$_i$ *toò*

(15') IL^1: C_1: [(Top_1: [^{butcher}(+id R_1)]) (Foc_1: [^{insult}(–id T_1) ^{customer}(+id R_2)])]
IL^2: C_2: [(Top_2: [^{poulterer}(+id R_3)]) ~~(Foc_1)~~]

While the gap is indeed bound by the knowledge evoked through T_1 and R_2, in IL^2 this is no longer Focus, and can therefore not be referred to by means of this actional constituent. By contrast, the ASSESS instruction reflected by Cm can be re-issued. consider the following:

(16) *The butcher sells veal chops. He does so every monday*

(16') IL^1: C_1: [(Top_1: [^{butcher}(+id R_1)]) (Cm_1: [^{sell}(-id T_1) $^{veal\ chops}$(R_2)])]
IL^2: C_2: [(Top_1: [^{butcher}(+id R_3)]) (Cm_1: [($^{every\ monday}R_4$)])]

By uttering the second part of (16), the speaker invites the addressee to re-assess the information supplied in the first part, and augment it with the habitual temporal specification 'every Monday'. In other words, the same packaging instruction Cm_1 is issued twice.

Another point concerns the objection raised in section 4 that information packaging should not be made dependent on evocational structure. While this is certainly true for addressation, one exponent of which may be left unevoked on account of the accompanying presupposition of consciousness that Topics typically involves (cf. LAMBRECHT, 2001, p.475), this is different for Focus. Focus, which marks a pragmatic relation of non-retrievability, is crucially dependent

19 The alternative reading of (15), which can be paraphrased as 'he insulted the customer, and he insulted the poulterer as well', is ruled out by the bracketing.

on the expression of its exponent: how else can the non-retrievable relation be construed successfully?

For these reasons, I propose to model Focus as an operator that applies either to individual evocational Subacts, or to one of the layers involved in addressation that I defined in the preceding section. This way, we can distinguish between constructions with a new Topic (Focus on the Topic layer), wide Focus (Focus on the Comment layer), and narrow Focus (Focus on an evocational Subact within the Comment). Whether a Focus operator can be assigned only once per communicated content, or to multiple units, is still considered a matter of typological preference.

5.4 Packaging frames

To sum up the previous sections, I argued that we need dedicated layers in the head of C_i to capture both exponents of the addressation dimension: a Top-layer to capture the GOTO instruction, and a Cm-layer to capture the ASSESS instruction. In addition to that, a Focus operator (Foc) is needed that can attach to whatever constitutes the UPDATE of the Act, be it one of the addressation layers or, in the case of narrow Focus constructions, an evocational Subact. Furthermore, different combinations of Top and Cm are needed to capture the basic distinction between categorical and non-categorical statements. Consider the formalised summary in (17):

(17) a. C_i: [(π Top_i)$_{\Phi}$ (π Cm_i)] categorical
b. C_i: [(π Top_i)] presentational
c. C_i: [(π Cm_i)] thetic

The operator position on the layers Top and Cm is indicated by π, and can be occupied by a Focus operator. In a categorical Act (17a), Top and Cm interact in a predicational configuration where the latter is predicated over the former.[20] It instructs the Addressee to open the discourse address designated by the Topical referent, and assess there the relevant information designated by the Comment. For both non-categorical Acts, such a relation is absent because they contain only one of the addressation layers. Incidentally, note how this representation does justice to the similarities between presentational and thetic statements that are observed in the literature (the absence of 'pyschological predication' and the fact that they are all-focus), without obscuring their

[20] An anonymous reviewer suggests that Top and its complement may be in a juxtapositional rather than a predicational relationship. It is in fact conceivable that the type of configuration is a parameter for cross-linguistic variation, but this will have to be investigated further.

differences. Namely, while a thetic Act posits information in discourse knowledge without instructing the addressee what to relate it to, a presentational Act construes an address without supplying information to assess there. This may explain why thetics and presentationals exhibit similar morphosyntactic properties in some languages, and are expressed differently in others (SASSE, 1987). In an approach like Lambrecht's (1994) Focus Structures that tries to identify packaging configurations entirely in terms of focality, this distinction cannot be made.

The constructs in (17) constitute **packaging frames**, similar to the event frames in the nuclear predication at RL and illocutionary frames in the Act at IL. The basic frames mentioned so far reflect three central informational articulations. These are event-reporting, (re)activating a Topical discourse referent, and commenting on an established Topic. I will assume that these are universal, and can be identified in every language given sufficient discourse or the right elicitation experiment.[21] It will be noted that configurationally speaking, the thetic and presentational frames are both avalent, and do not predicate informational relations, even though both designate different informational units.

Individual languages may require the definition of more complex frames as well, such as frames for multiple Topic statements (attested in Ostyak, cf. NIKOLAEVA, 2001), multiple Comments, etc. Nevertheless, even though data from individual languages may give rise to the definition of such additional frames, it should be noted that their numbers will be limited, and that they can be listed exhaustively with relative ease. In that respect, informational frames do not suffer the 'unboundedness problem' that would present itself with evocational frames, as was noted in p.101, because unlike these, the constraints on possible informational frames are related to cognition and/or processing (cf. CHAFE, 1994 *One New Idea Constraint*), and thus far more restrictive than possible constraints on evocational frames.

6 Some examples

In this last section, I will provide analyses of some English sentences according to the frame-based model of information packaging proposed in this paper. It should be emphasised that these examples merely aim to illustrate

21 This universalist perspective notably deviates from canonical FDG in which the postulation of all underlying elements must lead to an effect in surface structure. The present proposal is more closely allied with the approach to Parts-of-Speech suggested in Hengeveld (1992), where universal functional categories map onto expression in various ways, in the process of which distinctions between such categories may be neutralised.

how the system works, in particular with respect to some cases that proved problematic under pragmatic function assignment.

In section 4, we have seen that the pragmatic function assignment approach leads to a cumbersome analysis for certain cases of narrow predicate Focus. In the framing approach, the use of a Focus operator on the appropriate evocational Subact avoids this problem:

(18) A: (*Did the butcher chóp the meat?*)
B: (*Chóp?*) *He* SHRÈDDED *it*

(18') IL: C_1: [(Top_1: [^{he}(id R_1)]) (Cm_1: [^{shred}(foc T_1) ^{it}(id R_2)])]

Adding a Focus operator to the ascriptive Subact instructs the Addressee to update an extant entry under the appropriate discourse address (identified by 'the butcher') with the information that the relational property involved is 'shred'.

Likewise, multiple unmarked Subacts no longer constitute a problem, either:

(19) A: (*What did the poulterer sell the bútcher?*)
B: *He sold him some èggs*

(19') C_1: [(Top_1: [^{he}(+id R_1)]) (Cm_1: [^{sell}(+id T_1) ^{him}(+id R_2) ^{eggs}(foc -id R_3)])]

Since evocations are not involved in a predicational but a juxtapositional configuration, it is no problem that they carry no functions.

As a third illustration, consider the case of new Topics, which under pragmatic function assignment would simultaneously carry two functions. In the informational frame approach, they can straightforwardly be modelled as Top-layers with a Focus operator:

(20) *Once there was a bùtcher*

(20') C_1: [(foc Top_1: [^{butcher}(-id R_1)])]

Presentational statements typically use semantically 'bleached' verbs of (CORNISH, 2004, p.219), suggesting that these merely serve as place-holders and are not actively evoked and hence do not require corresponding Subacts at IL. The informational function of *there* has long been subject to debate; it has been suggested that it conveys an 'abstract topic' of sorts (cf. ERTESCHIK-SHIR, 2007, among many others). If that were the case, English may be argued not to have Top-only structures; nevertheless, other languages do, and allow for

isolated NPs in this function, thus providing evidence that this frame is required. Another approach would be to attribute the use of *there* to morphosyntax, requiring the presence of a Subject with any inflected verb.

Thetic statements lack a Topic-Comment dichotomy, and are entirely Focal. It was pointed out earlier that assigning a Focus function to C_1 in such cases is formally inconsistent. In the informational frame approach, we can render thetics as Cm-only statements with a foc operator on the Cm-layer:

(21) A: (*What's that nóise?*)
B: *It's the butcher shredding meàt*

(21') C_1: [(foc Cm_1: [^{shred}(-id T_1) $^{the\ butcher}$(+id R_1) ^{meat}(-id R_2)])]

English does not appear to exploit specialised expression strategies for thetic statements, unlike many other languages that somehow make the Subject less 'subjecty' and therefore less prone to a Topical interpretation.

Finally, the framing approach is capable of dealing with non-evoked Topics, making clear that they are not identical to thetic statements in which the Topic unit is lacking altogether. In addition, (22') makes clear that frames can succesfully deal with wide focus constituents.

(22) A: (*What did the butcher dó?*)
B: *insult the cùstomer*

(22') IL: C_1: [(Top_1: Ø) (foc Cm_1: [^{insult}(-id T_1) ^{customer}(+id R_2)])]

In (22'), the categorical structure of the statement is still present, but the Topic referent is not re-evoked, evidently because it is deemed sufficiently identifiable. Since these 'zero-Topic statements' behave differently from thetic statements in many languages, the representation in (22') is not trivial, but captures a key informational feature.

7 Conclusion

The paper has argued against the classical approach to information structure as pragmatic function assignment in Functional Discourse Grammar, and has shown that an alternative model, in which the complementary categories Topic and Comment are portrayed as layers within the head of the communicated content, and orthogonal Focus as an operator attaching to either informational or evocational units, is more adequate descriptively, notionally, and in terms of formalisation.

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SMIT, N. Empacotamento da informação na Gramática Discursivo-Funcional. *Alfa,* São Paulo, v.51, n.2, p.91-118, 2007.

- RESUMO: Este trabalho trata do modelo de empacotamento da informação na Gramática Discursivo-Funcional (GDF), em particular do tratamento de Tópico, Comentário e Foco. A GDF atual herdou da FG a representação dessas categorias como funções, que se ligam a Sub-atos evocativos. No entanto, argumentos de natureza formal, nocional e descritiva podem ser propostos contra a atribuição de função pragmática e em favor de uma análise alternativa na qual as estruturas informacionais e evocativas estão dissociadas, de forma a comandar seus próprios primitivos. No contexto de um modelo de organização do conhecimento discursivo no qual os conteúdos comunicados estão associados às instruções de empacotamento que informam ao ouvinte como ele deve tratar o conhecimento evocado, argumenta-se que a focalidade pode ser modelada por meio de um operador de Foco que pode se ligar a vários constituintes no Nível Interpessoal. A Topicalidade, por outro lado, diz respeito a modos binomiais e monomiais de apresentação do conteúdo comunicado. Isso pode ser expresso por meio das unidades informacionais Tópico e Comentário, que interagem nos esquemas.

- PALAVRAS-CHAVE: Empacotamento da informação; tópico; comentário; foco; Gramática Discursivo-Funcional.

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PRAGMATIC FRAMES, THE THETIC-CATEGORICAL DISTINCTION AND SPANISH CONSTITUENT ORDER

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- ABSTRACT : Spanish constituent ordering has been often characterised as the result of the interplay of discourse-pragmatic, semantic and syntactic factors. The purpose of this paper is to investigate constituent ordering in Spanish taking into account a series of pragmatic and semantic considerations as generally discussed in Functional (Discourse) Grammar. More particularly, constituent ordering in Spanish will be analysed from the perspective of the proposal made by Hannay (1991) on the modes of message management in the framework of Functional Grammar and the related distinction of thetic-categorical judgements, plus other areas in Functional Discourse Grammar such as the assignation of pragmatic functions and the establishment of special positions. The research for this study is based on the analysis of two sets of material of Peninsular Spanish, describing the language of adult educated native speakers.

- KEYWORDS: Peninsular Spanish; constituent order; pragmatic functions; special positions; thetic-categorical distinction.

1 Introduction

Functional Discourse Grammar (FDG) is a functional-typological approach to language which analyses the discourse act (considered as the basic unit of analysis) in terms of independent pragmatic, semantic, morphosyntactic, and phonological modules, which interact to produce the appropriate linguistic forms (HENGEVELD; MACKENZIE, 2006, p.668). These modules are understood as levels of linguistic organisation within the grammar and are called interpersonal, representational, morphosyntactic and phonological levels. A separate morphosyntactic level is thus postulated within the grammar in this model, although given "the functional orientation of FDG, the expectation is that often the ordering properties of languages can be explained in terms of the meaning and use of linguistic units" (HENGEVELD; MACKENZIE, 2006, p.675).

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The purpose of this paper is to look at constituent ordering in Spanish taking into account considerations related to the interpersonal and morphosyntactic levels of linguistic organisation in FDG, and, to a lesser extent, the representational level. In fact, the issue of Spanish constituent ordering has been often characterised as the result of the interplay of discourse-pragmatic, semantic and syntactic factors (LÓPEZ GARCÍA, 1996, p.467). Specifically, the various syntactic configurations in Spanish will be analysed from the perspective of the modes of message management proposed by Hannay (1991) in the framework of Functional Grammar (FG) and the related distinction of thetic-categorical judgements, in addition to other areas in FDG such as the assignation of pragmatic functions and the establishment of special positions. With regard to this area of special positions, Butler (2003, p.174) notes that "much more work needs to be done in FG on the meanings carried by position" and that there is a need in this respect for a dissociation of position and function.

The research for this study is based on the analysis of two sets of material of Peninsular Spanish, describing the language of adult educated native speakers. These materials comprise ten surveys (or interviews) from the corpus *El habla de la ciudad de Madrid* (*The speech of the city of Madrid*, CCM), on the one hand, and a collection of examples taken from the book *Hablemos de la vida* (*Let's talk about life*, HV) based on a series of formal conversations between a Spanish journalist and a philosopher, on the other.[2]

The paper is organised as follows. Section 2 gives a brief overview of FDG considerations concerning the distinction and assignation of pragmatic functions, together with Hannay's proposal of five modes of message organisation, which can be seen as pragmatic frames relevant for formulation within the interpersonal level in FDG. Sections 3 and 4 look at the pragmatic meanings associated with elements which occur in initial and final clause positions, respectively. Section 5 examines Spanish structures which can be characterised either as all-new utterances, with a clausal focus, or as pragmatically neutral utterances with no pragmatic assignation onto any of their constituents. Finally, section 6 considers the distinction between thetic and categorical utterances and how this distinction can explain differences in sentence form in Spanish.

2 Pragmatic functions and pragmatic frames

The interpersonal level, within the grammatical component of FDG, accounts for the choice of strategies the speaker makes, more or less unconsciously, in

[2] The CCM texts are non-surreptitious and include 12 informants (7 men and 5 women) with ages ranging from 16 to 76 (cf. ESGUEVA; CANTARERO, 1981). The coding of the examples includes the page number and, in the CCM Corpus, the dialogue number (E stands for *encuesta*, 'interview' or 'dialogue').

order to achieve his/her communicative aims, with regard to "both the speaker's purposes and to the addressee's likely current state of mind" (HENGEVELD; MACKENZIE, 2006, p.671). Within this level of representation, pragmatic functions such as Topic[3] and Focus are assigned. Focus is understood as 'communicative salience' and is subdivided into three types according to the different factors responsible for this communicative salience:

> The speaker's strategic selection of new information (*New Focus*); the speaker's desire that the addressee should attend particularly to a Subact (*Emphatic Focus*); the speaker's desire to bring out the particular differences and similarities between two or more Communicate Contents (*Contrastive Focus*). (HENGEVELD; MACKENZIE, 2006, p.672-3, my italics, EMC)

Whereas every communicated content will necessarily have a focused subact, not all communicative contents will have a topic.[4] Little discussion can be found yet in the literature of FDG about subdivisions of the Topic function.

Following current practice in FG (see DIK, 1997a, b) and further work within FDG, I take the view that the Topic and Focus functions must be tied to the expression plane so that "only if regular formal evidence can be established for the presence of a pragmatic function is assignment possible" (ANSTEY; MACKENZIE, 2005, p.277).

FDG assumes a set of pragmatic frames relevant for formulation within the interpersonal level. Although these frames have not been developed in detail yet in the model, a possible way to formulate them is in terms of the modes of message management proposed for FG in Hannay (1991) (see also HANNAY; MARTÍNEZ CARO, Forthcoming.). Hannay's proposal implies that underlying the speaker's choice of pragmatic functions and the constituent ordering is the speaker's decision to organise the message according to a specific mode of message management. Hannay (1991) distinguishes five message modes which he calls the all-new mode, the topic mode, the reaction mode, the neutral mode and the presentative mode. I shall come back to each of these modes in the following sections.

In the recognition of his message strategies, Hannay (1991) takes as starting point the syntactic variation in the first constituent of the English clause. In this

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3 Following common practice in FG, initial capitals are used when reference is made specifically to F(D)G pragmatic functions and lower-case letters for general reference to the relevant concepts.

4 As the other levels of linguistic organisation, the interpersonal level is conceived of as a hierarchical structure whose highest layer is the Move, which consists of one or more Acts, which in turn may contain several Communicated Contents, and they in turn may contain multiple Subacts. It is interesting to note about Acts that there is a default correlation between these and clauses. Finally, the Communicated Content is defined as "everything that the speaker wishes to evoke in his or her communication with the addressee" (HENGEVELD; MACKENZIE, 2006, p.672).

paper I look at both initial and final clause positions in Spanish, since both of these can typically house special pragmatic functions. There appears to be a need to consider the clause-final position with the same degree of detail as the clause-initial position. Butler (2003, p.179), along the same lines, comments on the relative lack of work in FG on "what happens at and after the ends of clauses".

3 Pragmatic meanings associated with the initial position in Spanish

The initial position is closely associated in Spanish, as in other languages, with the Topic function. Spanish shows restrictions on the placing of focal information in P_1, and in particular on permitting that the focal information may coincide with the subject phrase (cf. LAMBRECHT, 1987a, p.223 for a discussion of the same restriction in French).[5] In highly marked contexts we may indeed find focus-initial constructions but in these the focus does not normally represent a brand-new or unused entity; rather, it denotes information that can be inferred or somehow related to the framework of the present discussion, and at the same time that the speaker wants to present as the *informational point* of the utterance. In addition to these less representative foci, other prominent elements which do occur more commonly in initial position are contrastive topics, as we shall see in the following section.

The topic initial position normally results in a configuration corresponding to Hannay's (1991) *topic mode*. This involves the selection of a topical element for special treatment as the Topic and providing the new focal information later in the clause.

3.1 Contrast and the topic mode

Particularly frequent in initial position are elements showing *contrast*. Both in the standard model of FG and in FDG, the parameter of contrast is related to the parameter of focality, by the distinction of one subtype of Focus called Contrastive Focus (cf. DIK, 1997a; HENGEVELD; MACKENZIE, 2006, p.672-673). However, although contrastive elements do involve some sort of salience (and thus can be viewed as one type of Focus), it could be similarly argued that the contrast is *also* associated with the Topic function, as the contrasted elements are in fact referents exhibiting high topicality (cf. LAMBRECHT, 1987a), their referent being typically maintained in the subsequent discourse. This partial overlapping between the notions of focality and topicality, and its implications

[5] This is in consonance with a strong tendency to place the main sentence stress in final position, even in contexts of final non-lexical elements (cf. MARTÍNEZ CARO, 1999).

for the recognition of a notion of emphasis, has been the object of study in the FG literature (cf. e.g. HANNAY, 1983; MACKENZIE; KEIZER, 1991; MARTÍNEZ CARO, 1999, p.79-81).

For my purposes in this paper, I will consider the contrastive elements in P_1 in Spanish seen in this section as *Contrastive Topics* for their clearly topical character and the fact that they are placed in P_1, the obvious topic position in this language. The utterances in which they appear are seen as typical exponents of Hannay's *topic mode*, with the focus information associated with (some element of) the rest of the clause, normally in final position. However, as will be seen below, the analysis of the data also suggests that the notion of contrast can indeed be seen to conflate with focality, and, in those cases, it would be more appropriate to refer to Contrastive Focus (cf. section 4.2 below).

Depending on whether the initial element in the utterance, i.e. the topic, is the subject or the object, the resulting order will be SV(O) or (O)VS. Initial objects functioning as topics trigger subject inversion especially in contexts where the postverbal subject is focalised, the verb acting as a kind of pivot or 'fulcrum' between the two arguments and guaranteeing a certain balance in the clause.

Following Dik's requirement that the assignation of pragmatic functions in a language has to be necessarily associated with some clear formal treatment, the data suggest that Spanish exhibits very clear evidence that these contrastive elements are singled out by formal properties. First of all, their initial position in P_1 is already a clear indication of this special treatment, especially with elements such as objects, predicates or adverbials that do not occupy this position in a less pragmatically-conditioned order. In addition to this, one important requirement of non-subject arguments fronted in initial position appears to be that their status as non-subject constituents has to be made explicit (cf. LÓPEZ GARCÍA, 1996, p.477). In the case of objects, their object status is often clearly marked by the presence of the preposition *a* marking the dative case with animate objects or the use of clitics in a later position of the clause, referring back to these initial NPs (cf. 1a). This is however not an absolute requirement of fronted objects showing contrast in Spanish, as can be seen in (1b):

(1) a. B: el único punto que yo veo positivo es que los chiquillos empiecen a hablar francés desde que son..., desde que tienen cuatro años.
A: ¿Y español?

B: Español también,	*además*	***español***	*lo*	*hablan*	*en su casa*,
	besides	Spanish	it:ACCUS	speak:3PL	at their home

(CCM: E18, 317)[6]

[6] Note that the relevant utterance in the examples is marked in italics and the constituent receiving the assignation of pragmatic function in bold type.

'B: The only thing that I find positive is that kids start speaking French from the moment they are…, from the moment they are four years old.

A: And Spanish?

B: Spanish too, besides Spanish is spoken at home/Spanish they speak at home'

b. [El ingenio es una habilidad brillante, muy atractiva, pero muy tramposa.

'Wit is a brilliant, very attractive ability, but very deceitful as well.']

Lo mismo	*pienso*	*yo.* (HV: 22)
The same	think	I

'*I* think the same'

In (1a), the context is a French school in Madrid where the informant works. In this context the language used in the school (French) is contrasted with the language the school children use at home (Spanish). This is a contrast based on a double opposition. In (1b), on the contrary, we have a comparison in the sense of a parallelism (MARTÍNEZ CARO, 1998b, p.233) where *lo mismo* ('the same') directly links up with an idea mentioned in the previous stretch of discourse and in this way is used by the speaker to express agreement.[7]

Apart from prepositional and adverbial phrases (both as adjuncts or prepositional complements of the verb) which are also frequently brought to initial position for contrast, subjects can also be used as contrasting referents. To distinguish these from other, ordinary, subjects which are pragmatically neutral, spoken Spanish needs to single out these subjects with the use of special strategies. Particularly with lexical phrases, this involves separating them from the rest of the clause by some filler or discourse marker such as *pues* (roughly, 'well') or raising them to a main clause from an embedded one in the same sentence, as in (2) (cf. DOWNING, 1997; MARTÍNEZ CARO, 1998b):

(2) A: ¿Cómo es el aeropuerto de Moscú, así…? (…) ¿Hay un aeropuerto sólo o hay varios?

B: Pues no lo sé. No sé… V… pues he visto mejores que el de Moscú, o sea… el,

el de Madrid	*no*	*creo*	*que,*	*que*
the-one in Madrid	NEG	think:1SG	that,	that

sea	*inferior*	*al*	*de Moscú,*	*ni mucho menos ¿no?*
is:SUBJ	inferior	to-the-one	in Moscow	

(CCM: E9, 162)

'A: What is Moscow Airport like…? (…) Is there only one airport or several?

B: Well, I don't know. I don't know… I mean, I have seen better ones than the one in Moscow, for instance… the one in Madrid, I don't think it is any worse than the one in Moscow, do you?'

7 Notice that I am considering the fronted objects that are referred back by a clitic pronoun such as the one in (1a) as integrated in the structure of the clause, and not dislocated in the sense that they belong to a different discourse act (cf. MARTÍNEZ CARO, 2006).

In the case of non-lexical subjects, the appearance of the subject pronoun (i.e. non-lexical subject) is sufficient indication of its topical character, since given (and thus pronominal) subjects are normally non-explicit in Spanish when the context or verb inflections prevent ambiguity:

(3) *Entonces, después de eso, me fui a casa,*
Then, after that PRON went:1SG to home,
él *se marchó a la suya,* allí a llorar su último día de soltero y... y
he PRON left:3SG to his
es, *bueno,* ***yo*** *me fui a la peluquería;* (CCM: E7, 111-12)
well, **I** PRON went:1SG to the hairdresser's
'And then, after that, I went home; *he* went to his, to enjoy his last day as a bachelor and... and, well, *I* went to the hairdresser's'

3.2 Signalling emphatic given topics in Spanish

A common construction in spoken Spanish is that which involves the fronting of a constituent (typically an object) denoting a referent topic introduced previously into the discourse, lending at the same time a certain degree of emphasis or prominence to this topic expression.[8] See the following examples:

(4) a. A: ¿Me puedes hablar de lo que piensas hacer en el futuro con tu carrera?
'Can you tell me about your plans for the future with your degree?'
B: ***Eso*** *actualmente no lo puedo, no lo puedo señalar.*
that:N at_present NEG it:N can:1SG NEG it:N can:1SG say:INF
(CCM: E5, 87)
'That I cannot, I cannot say at the moment'

b. [A: ¿Me puedes hablar un poco de este Madrid que va creciendo tanto?
'Can you tell me something about this city of Madrid which is growing so much?']
B: Pues ***este crecimiento en Madrid*** *yo le veo normal*
Well this growth in Madrid I it:ACCUS see.1SG normal
¿no? (CCM: E5, 91)
don't you think?
'Well, this growth in Madrid, I see it as something natural, don't you think?'

In (4a), for example, the non-lexical topic expression *eso* ('that') represents textually given information, which in Spanish would typically be omitted (in the

[8] See the distinction between topic referent and topic expression in Lambrecht (1987a, p.222).

case of given subjects) or referred to anaphorically by means of a clitic pronoun (in the case of objects representing given information). Thus, in a context of no emphasis a typical answer to A's question in (4a) would simply be: *Actualmente no lo puedo señalar*. The presence of these topic expressions in first position is taken as indication that they receive some degree of emphasis or prominence on the part of the speaker, hence the term *emphatic given topics*[9] (cf. MARTÍNEZ CARO, 1998a; MARTÍNEZ CARO, 1999). Silva-Corvalán (1984, p.2) seems to take a similar view of these preverbal arguments, observing an interesting correlation between intonation and constituent ordering in Spanish: "[C]ertain [complements] are placed in preverbal position because, in this position, the intonation contour of the sentence allows the assignation of prominence to preverbal constituents that do not transmit new information." (my translation, EMC).[10]

The speaker's main motivation in presenting this topic referent in an emphatic way is, just as with the contrastive topics seen above, to make use of a *topic mode* of discourse organisation by which the topic, placed initially, is clearly distinguished from the focus or new information transmitted in the clause, towards the end of the clause. This progression from the given or known information (topic) to the new or unknown information (focus) contributes to the discourse coherence (cf. SILVA-CORVALÁN, 1984, p.6), the preverbal argument functioning as a textual link with preceding discourse. It is, for this reason, a very frequent pattern, which can be represented in the following way:

(5) TOP - FOC
|
EMPTOP - FOC[11]

3.3 The focus marking function and the reaction mode

As has been suggested for spoken French (LAMBRECHT, 1987a, p.223), but unlike English, a principle governing Spanish constituent order is that which states that a preverbal (especially lexical) subject can virtually never be associated with the Focus function. Although exceptional in statistically-frequency terms, there do exist focus-initial constructions but in these the focus is almost never a subject. When these focus-initial constructions occur, governed by what Givón (1988) calls the 'principle of task urgency', they are almost always associated

9 See the discussion of similar examples in English and Dutch in Hannay (1983, p.220).

10 "[C]iertos [complementos] son colocados en posición preverbal porque, en esta posición, el contorno entonacional de la oración permite asignar prominencia a constituyentes preverbales que no comunican información nueva." (SILVA-CORVALÁN, 1984, p.2)

11 This representation follows Daneš' (1974) pattern of simple linear thematic progression.

with the variety of spontaneous spoken Spanish (see SIEWIERSKA, 1998, p.260). This can be best represented by Hannay's *reaction mode*, whereby the speaker decides to present the focal information at the very beginning of the clause, in P_1, and place the topical information at a later position or, alternatively, choose not to mention it at all.

As stated above, the data suggest that these initial elements with a focus status do not normally denote a brand-new or unused entity, but are rather related to information which can be inferred by taking into consideration the framework of the present discussion in the actual discourse, and which, at the same time, the speaker wants to present as the *informational point* of his/her utterance. In the following example, the referent of the phrase *En Cercedilla* denotes a place in the mountains near Madrid which can be related (at least by someone knowledgeable of Madrid and its outskirts) to the discourse topic being talked about at the moment of speaking:

(6) [(About the place where the informant spent the summer in Spain, in the mountains near Madrid)

A: ¿En qué parte de la sierra?

A: 'Where exactly in the mountains?']

B: ***En Cercedilla***	*hemos veraneado*		*cuarenta años.* (CCM: E15, 260-61)
In Cercedilla	have.1PL	spent-the-summer	forty years

'*In Cercedilla* we have spent our summer holidays for forty years.'

As mentioned by Hannay 1991, utterances falling within the reaction mode may contain some sort of given, or at least inferable, information, without the assignation of a Topic function at all. As indicated in the context of (6) (in square brackets), the verbal phrase *hemos veraneado* clearly refers to information that has been mentioned in the preceding discourse (in A's question *¿Y en el verano usted veraneaba, o...?*, 'And in the summer, did you go away, or…?'). In spite of this topical status, however, neither this nor the satellite *for forty years* can be assigned the Topic function since they are not terms.

4 Pragmatic meanings associated with the final position in Spanish

The final position in Spanish, which I see as a special P_0 position, is typically related to focus constituents and, in general, with information which is to be presented as the *informational point of the utterance* by the speaker. Because Spanish exhibits a relatively high degree of syntactic flexibility and its prosody is not generally exploited for indicating information structuring, the speaker may use different constructions for the final placement of focus elements. In this section

I shall be looking at the main pragmatic meanings associated with a number of these final-focus constructions.

4.1 Referent introduction and the presentative mode

Presentative utterances are special in that, on the one hand, they introduce a referent into the discourse, by assigning it a certain degree of prominence (or focus), and on the other, they can also be seen as all-new utterances reporting an event which is presented as a compact piece of information, each of its elements conveying new information. They can thus be seen as predicate focus (or narrow-focus) structures, on the one hand, and as sentence focus (or broad-focus) structures, on the other (cf. LAMBRECHT, 1987b; SIEWIERSKA, 1991, p.160-1; CRUTTENDEN, 1986, p.81). The predicate-focus interpretation is preferred here on the grounds that the introduced referent seems to be clearly singled out for prominence and its reference typically maintained in the subsequent discourse. The whole point of the presentative construction is to introduce the new referent in a prominent position. The act of predicating something about this referent is best carried out independently of this utterance in another act (LAMBRECHT, 1987a, p.254). This follows the requirement that each act should contain one piece of new information or focus.

The referent-introducing function is associated with semantically highly intransitive clauses containing verbs which generally state the existence (or absence) of entities and is typically seen to relate in Spanish to VS structures, as in (7). Looking into the matter in greater detail, in fact, the best syntactic configuration for the expression of this function in Spanish appears to be 'verb + (lexical) phrase, including generally not only bare VS structures, but also (X)VO and XVS structures. This last type of sequence presents an initial preverbal element which serves to set the scene or ties the introduction of the referent to some previous discourse (what HANNAY, 1991 calls 'Stager'), e.g. (8):

(7) *Existen* ***tres mil*** ***especialidades matemáticas***. (HV: 95)
exist:3PL three thousand specialisations mathematic
'There exist three thousand specialisations within mathematics.'

(8) *por eso* *apareció* ***el aburrimiento***. (HV, 25)
for that-reason appeared the boredom
'For that reason, boredom appeared.'

In spite of the possible connective function of this P_1 element, if there is one, referent-introducing constructions typically lack a topic element. These

utterances can easily be characterised as belonging to Hannay's presentative mode.

Apart from impersonal VO constructions with *haber* (lit. 'have', with the sense of 'there + to be'), VO with a referent-introducing function also includes clitic-verb-object sequences where the only lexical phrase is the final noun phrase, as in (9):

(9) (about the wedding presents the informant has received)

me	*han*	*regalado*	*también*	***la cafetera***
me: DAT	have.3pl	given	too	the coffee-machine
de acero	*inoxidable*,	muy bonita, (CCM: E7, 120)		
of steel	stainless	very pretty		

'I was also given the coffee machine made of stainless steel, very pretty.'

A recurrent feature of the postverbal, typically lexical, phrase occurring in these referent-introduction utterances is that it denotes an inanimate entity with a non-agentive role and typically presented as a non-volitional, entirely unaffected participant. On the contrary, if a NP appears initially in these referent-introducing utterances (and in other related structures such as those containing perception verbs), this will typically denote an animate referent, usually human, with dative case coding and frequently representing a clitic pronoun, like in (9). The affectivity status is, however, maintained, as with the final new referent.

In Spanish, the subject is inverted without the need to fill the initial-position slot, as in English or Dutch for instance, since this language allows the verb to occupy the sentence initial position –like other Romance languages (with the notable exception of French). In verb-initial sentences, I take the view that the P_1 remains unfilled, as argued elsewhere (MARTÍNEZ CARO, 2006), (HANNAY; MARTÍNEZ CARO, Forthcoming.), on the grounds that the verb does not possess the pragmatic features typically associated with elements which are placed in this special pragmatic position (like topic or focus).

4.2 Signalling the focus in final position

As several authors have noted, Spanish has a strong preference for a distribution of information in which given (or topical) information typically precedes new (or focal) information (the *theme-rheme* order postulated long ago by Mathesius) (cf., among others, OCAMPO, 1995). A great number of utterances following this basic distribution of information in Spanish can be characterised as belonging to the topic mode. In these the initial element, placed in P_1, is assigned the Topic

function and the new information is found finally in the utterance. In some of these utterances the focus of information 'naturally' comes at the end, since this coincides with an element (or elements) whose unmarked position is the postverbal, and often, final one (like objects or satellites). In other cases, however, the speaker explicitly chooses to postpone an element to final position to create a focus effect on that element (cf. HANNAY; MARTÍNEZ CARO, Forthcoming). Such focus-marking constructions may present, in final position, a New Focus or a Contrastive Focus.

Patterns presenting a typical topic-focus distribution include examples (1a) and (1b) seen in section 3.1 above, where the final elements *en su casa* and *yo* are focalised, by marking the contrasting differences between them and other (explicit or implicit) discourse elements. These are OVS and OVX constructions where, as we saw, the object was brought to initial position to clearly assign it the Topic function.

Other utterances with an element with Focus function do not appear to have an obvious topic element but adopt a pattern which resembles, however, that in presentative or all-new utterances, in semantically intransitive clauses with a single lexical phrase with the Focus function. Examples of this type of utterance with a final New Focus (10) or Contrastive Focus (11) are the following:

(10) [(About the informant's children and their fondness for music)
Pero, ¿toca alguno el piano?
'But, does any of them play the piano?']
Está *estudiando* ***la... la cuarta***. (CCM: E12, 210)
is studying the... the fourth
'My fourth child is studying (piano).'

(11) (About the wedding presents the informant has received)
cuatro bandejas de plata que no te sirven para nada;
te *sirve* *mucho* *mejor* ***el acero*** ***inoxidable*** (CCM: E7, 119)
you:DAT does much better the steel stainless
'four silver trays which aren't useful at all, far more useful is stainless steel'

In (11) there is a clear contrast (in the sense of strict opposition) expressed by the speaker between 'silver' and 'stainless steel'.

5 Sentence focus structures and other related structures

A common feature shared by the structures dealt with in this section is that they lack the bi-partite division of most of the utterances seen in the previous two sections and their starting-point element (P_1) is not typically associated with the Topic function. Some authors characterise them as all-new utterances, where focus can be seen to affect the whole of the utterance; others regard them as 'pragmatically-neutral' utterances with no pragmatic assignation onto any of its constituents.

5.1 The contrary-to-expectation function

As seen above, one of the three subtypes of Focus distinguished in FDG is Contrastive Focus. In the standard model, Contrastive Focus was further subdivided into Parallel Focus and Counter-presuppositional Focus (cf. DIK, 1997a). The latter type involves a contrast between the speaker's and the addressee's pragmatic informations. In the case of confirmation, rather than contrast, between these pragmatic informations one could speak of *Confirmation Focus* (cf. MARTÍNEZ CARO, 1999, p.193ff; LÓPEZ GARCÍA, 1996, p.492).

In Spanish, there appears to be sufficient evidence for a distinction between the two subtypes of Contrastive Focus, in terms of formal treatment. Whereas Parallel Focus is predominantly associated with the placement of the contrastive element in the P_1 initial special position (cf. MARTÍNEZ CARO, 1999, p.112-113), the formal devices used to express a counter-presuppositional focus involve a wider range of strategies, by which the placement of the counter-presuppositional element in the P_0 final position combines with the use of the focus marker *sí*, special focus constructions such as pseudo-clefts and the use of syntactic parallelism (cf. MARTÍNEZ CARO, 1999, p.162, 168ff).

Interestingly, in a great number of utterances expressing counter-presuppositional contrast the scope of the focus is the whole predication (and would be thus characterised by Lambrecht (1987b) as 'sentence focus structures'), especially (but not exclusively) those whose formal treatment involves the use of *sí*. The same tendency, even to a greater extent, was found for utterances expressing Confirmation Focus (MARTÍNEZ CARO, 1999, p.193). López García (1996, p.493) relates sentence-focus utterances with the expression of information which is contrary to expectation, and predicate-focus utterances (in Lambrecht's (1987b) terms) with the expression of a simple contrasting function. However, as he says, the distinction between the two types of utterances is not always easy to establish.

The strong preference in Spanish for the topic-focus distribution can be also seen to apply even in these utterances expressing a counter-presuppositional contrast, involving a whole-predication focus. In a number of these, a common pattern was found with an initial topic element, sometimes separated from the rest of the clause, and thus clearly marking the topic-focus (in this case broad focus) sections in the predication. As an illustration see the following example:

(12) A: ¿Le gusta Francia?

B: Pues..., no me gusta demasiado.

A: ¿París tampoco?

B: Claro, hace muchos años que he estado, en realidad todo esto hace más de cincuenta años, porque luego ya me puse yo enferma y ya...

París	*sí*	*lo*	*recuerdo*	*muy bien*, (CCM: E15, 249)
Paris	FOC	it:ACCUS	remember:1SG	very well

'A: Do you like France?

B: Erm..., I don't like it very much.

A: Not even Paris?

B: Well, I was there a long time ago, in fact all this was more than fifty years ago, because after that I got ill and then... Paris I do remember (it) very well.'

In the preceding context to (12), A asks B what foreign countries she knows, to which A answers that she only knows France, partly because many years ago it was quite uncommon to go abroad. To this she adds (in 12) that she travelled to France about fifty years ago and for that reason she does not recall the places very well. In this context, the utterance containing the referring expression 'Paris' in initial position (marking it as topic) contrasts with this previous assumption.

5.2 The attitude-reporting function and the neutral mode

One common construction in Spanish with subject-verb inversion is that which involves an extraposed (typically clausal) subject in constructions reporting an attitude or stance, often "not overtly attributed to any person" (BIBER et al., 1999, p.661). These are attributive VXS constructions which lack the initial dummy element that is obligatory in languages such as English (dummy *it*) or Dutch (*het*):

(13) a. *Es verdad* *que somos* *seres contradictorios.* (HV: 78)
Is true that are.1PL contradictory beings
'It is true that we are contradictory beings.'

b. *Es curiosa* *la relación con el tiempo.* (HV: 83)
Is curious the relation with time
'The relation with time is curious.'

A large number of these constructions have a clausal subject which tends to be a much more complex element than the initial verb and complement. Following the principle of LIPOC (cf. DIK, 1997a, p.411), this clausal subject gets placed in final position. However, less complex NP subjects also tend to appear finally, as in (13b). The syntactic factor of end weight appears not to be the only motivation for the final position of the subject. Combinations of verb-object (rather than verb-predicate) sequences do also occur in Spanish with the same pragmatic function, where the (delexical) verb and the object show a special bonding which favours their positioning together (cf. TOMLIN 1986, p.73-101ff; LÓPEZ GARCÍA, 1996, p.458), as in *Da miedo la realidad* (lit. gives fear the reality, 'One is frightened by reality') (cf. HANNAY; MARTÍNEZ CARO, Forthcoming).

The motivation for this kind of construction seems to be for the speaker to announce that there is something that s/he has a certain attitude to and then saying what this is (HANNAY, 1991), hence the label 'attitude-reporting' for its function. Similar constructions in English (as *It was absolutely amazing to be there, (wasn't it?)*, cf. HANNAY, 1991, p.144) have been characterised by Hannay (1991) as *neutral mode* utterances. In these, the speaker decides not to make use of the P_1 position for pragmatic purposes, "and just builds up to the Focus", the main clause predicate mainly serving to introduce some kind of speaker attitude (HANNAY, 1991, p.147).

5.3 The event-reporting function

Utterances with this function comprise "reports of events, expressions of single, non-complex pieces of information where none of the discourse referents is imbued with pragmatic saliency" (SIEWIERSKA, 1991, p.161) or seen as utterances where all the information is thus equally salient (HANNAY, 1991, p.146). They have been referred to in the literature as 'neutral descriptions' (by Kuno, cf. SASSE, 1987), 'event-reporting utterances' (SASSE, 1987) or 'all-new predications' (DIK et al., 1981) and they enter into what Hannay calls *all-new mode*.

Depending on the number of referents participating in the event, event-reporting utterances are commonly expressed in Spanish by VS, clitic-VS or clitic-VSO patterns (cf. CASADO VELARDE, 1993, pp.27-28), thus closely associated with VS patterns. See for instance the following examples provided by Casado Velarde (1993, pp.27-28):

(14) a. *Se* *ha* *estropeado* *el ordenador.*
REF has broken_down the computer
'The computer is not working.'

b. *Me* *ha* *dado* *el profesor* *una* *buena* *nota.*
me:DAT has given the teacher a good mark
'The teacher has given me a good mark.'

Some statements expressing background descriptions in which no referent is presented as participating in the event (such as weather expressions) are typically expressed as subject-less impersonal sentences in Spanish, with V or VO structures, e.g. *Llueve* ('it rains') or *Hace calor* ('it is (lit. 'does') hot').

The lack of Topic assignment in these cases is taken as an indication that the primary purpose of the speaker is not to present the referents but rather to establish the event in which the referents are involved (cf. BUTLER, 2003, p. 84; SIEWIERSKA, 1991, p.161).

5.4 Some related structures

Also typically lacking a Topic function and describing a compact event are related structures in Spanish with experiencer predicates, including those involving body parts. These are also frequently expressed by (clitic-)VS patterns where the clitic tends to denote the entity (usually a person) receiving the sensation and the subject is an affected entity. In spite of these obvious similarities, they are not easily characterised as event-reporting utterances, and are therefore treated here as a special group.

In this type of statement, the initial clitic pronoun with dative case marking indicates the animate entity receiving the sensation or inner state (the experiencer participant with predicates involving body parts) or the affectivity process.[12] See for instance (15) and (16), from Casado Velarde (1993, p.27):

(15) *Me* *gusta* *mucho* *la idea de 'entrenamiento'.* (HV: 108)
me:DAT pleases very_much the idea of 'training'.
'I like the idea of 'training' very much.'

(16) *Me* *duelen* *las muelas.*
me:DAT hurt: PRES:3PL the teeth
'My teeth hurt.'

12 This can partly explain the common occurrence in Spanish of IO-V-DO structures (cf. GUTIÉRREZ, 1978, p.40; LÓPEZ GARCÍA, 1996, p.461).

6 Spanish constituent order and the thetic-categorical distinction

Thetic statements appear "at any point in a text where information is not given about someone or something, but about an entire state of affairs" (SASSE, 1987, p.535), presenting the state of affairs as a compact piece of information. Categorical statements, on the contrary, present states of affairs as analysable into different information units, selecting one of the participants in that state of affairs and predicating something about it (SASSE, 1987, p.558). As a defining rule, the defining criterion for thetic sentences is that they present information about situations rather than about entities (LAMBRECHT, 1987b, p.372).

Taking into consideration the pragmatic functions associated with the major types of Spanish constructions seen in sections 3-5 above and putting these in relation with the thetic-categorical distinction, we can observe a number of interesting correlations. In general terms, a *thetic judgement* appears to govern the referent-introducing function, the (so called) attitude-reporting function, the event-reporting function and (generally understood) the contrary-to-expectation function. A *categorical judgement*, on the other hand, generally governs the expression of contrast, utterances with Emphatic Given Topics and syntactic configurations where the speaker wishes to clearly mark the (New or Contrastive) Focus finally after having provided some topical information towards the beginning of the clause.

A correlation can similarly be established between the thetic-categorical distinction and Hannay's message modes. Whereas a *thetic judgement* is seen to capture the presentative, neutral and all-new modes, a *categorical judgement* is basically seen to relate to the topic mode.

There are, however, exceptions in this apparently neat picture. On the one hand, utterances involving a reaction mode, although definitely less important from a statistical point of view, seem difficult to assign to either thetic or categorical types of judgements. They commonly lack a topic element, but they are not easily classified as belonging to the presentative or all-new modes, and thus not to a thetic type of statement either. On the other hand, certain types of utterances seem to share features of both thetic and categorical statements. Thus, utterances with the function of signalling a focus in final position may enter into categorical or thetic types, as we saw in 4.2. And although utterances expressing a counter-presuppositional contrast have been generally classified as sentences with a broad, clausal, focus, in some cases, as we saw, an initial topic element seems to establish a bi-partite division in the sentence. They can be seen as involving a conflation between the topic and the all-new message modes. In the end, as suggested by Casado Velarde (1993), often the same proposition may be expressed thetically or categorically by the speaker, by

choosing to initiate his/her message with a topic and then proceed with the focus information or by presenting the state of affairs as a compact event involving no obvious parts.

Lambrecht (1987b, pp.370-71) identifies two types of *thetic* sentences, associated with two main types of context: (a) those related to sentences with an event-reporting function and others with an experiencer predicate, discussed in sections 5.3 and 5.4 above, and (b) those with a referent-introducing function in presentative constructions. Even though these two types appear to share the same form (in very general terms, VS patterns in Spanish), their discourse function is different:

> While the presentational sentences serve to introduce the NP referent into the discourse and to make it available for future reference, the referents introduced via the S[entence] F[ocus] structures [thus those discussed in 5.3 and 5.4 above] … may be pragmatically non-salient discourse participants which perhaps will never be mentioned again in subsequent discourse. (LAMBRECHT, 1987b, p.370-71. My clarifying comment, EMC)

These two types of thetic utterances are also distinguished by Hannay (1991), who appears to associate each of the two with the *presentative mode* and the *all-new mode*, respectively.

We now turn to the way the thetic-categorical distinction is actually realised in the linearization pattern of the Spanish clause, taking into account some semantic properties of the constituents involved. Thetic judgements are commonly expressed through intransitive clauses or in clauses which appear to have only one lexical NP and where the subject appears postverbally in the prominent final position.[13] These include clitic-verb-Subject sequences where the clitic is typically associated with an animate entity carrying the role of experiencer with verbs denoting sensations and the VXS sequences with the attitude-reporting function mentioned above (cf. 5.2). There seem to be restrictions, therefore, on the occurrence of non-subject NPs in these thetic VS structures (cf. SASSE, 1987, p.537).

That the postverbal position of the subject in presentative utterances is the most obvious reflection of the thetic interpretation associated with these sentences and the focal status of the final NP can be seen by the fact that, in this type of sentence, the speaker may choose to turn the utterance judgement into a categorical one, by merely placing the subject position in P_1, as in:

13 The VO sequence in syntactically-impersonal sentences with *haber* ('have') such as *Hay un hombre en la puerta* ('There's a man at the door') is an exception in Spanish. Interestingly, speakers of some Peninsular dialects seem to treat this postverbal object as a subject, as can be seen by the use of a verbal plural form when the postverbal object is also plural, as evidence of subject-verb agreement:?*Habían dos hombres en la puerta* ('There were two men at the door').

(17) *Entraba* *el coche*, *había* *unos ujieres*,
came_in:IMP:3SG the car there_was:IMP:3SG some porters

que llamaban: «¡Señores de tal!», y ***los señores*** *salían*,
and the Mr_and_Mrs went_out:IMP:3PL

se subían al coche y salían rápidamente. *Venía* *otro coche*,
came:IMP:3PL another car

y llamaban: salían y «¡Señores de tal!», daban la vuelta y salían por el otro lado.

(CCM: E15, 257)

'The car came in, there were some concierges who called out: «Mr and Mrs such and such!», and those Mr and Mrs went out, got into the car and left quickly. Another car came and they called out: they went out and «Mr and Mrs such and such!», they turned round and left by the other side.'

In (17), where the speaker is describing her outings to the opera a long time ago, the two thetic utterances at the beginning of this extract serve to present compact events, part of which are entities (SASSE, 1987, p.559): *Entraba el coche*, *había unos ujieres*. The VS and VO structures in these two utterances, where the single entity involved is presented postverbally, contrast with the SV order chosen for *los señores salían*, which is no longer presented as thetic utterance but as a categorical one (i.e. as a topic mode), in which the entity involved, formally introduced in the previous utterance, is treated here as a topic and thus placed initially, in a preverbal position. Notice also the use of the definite article *los* indicating the definite character of the expression. Therefore, it is not merely the semantic nature of the verb which contributes to the thetic (or more specifically presentative) status of these sentences, but mainly, as Sasse (1987) notes, the discourse-pragmatic criteria associated with the referent introduced (in this case, the characterisation of *los señores* as a given topic) and the choice of the appropriate syntactic configuration.

Categorical judgements, in turn, tend to be expressed through more obvious transitive clauses with often more than one NP. Typical syntactic configurations are SVO and OVS, or even SVX. The OVS sequences comprise the grammaticalised construction with fronted objects placed in P_1 and referred to anaphorically by means of an unstressed pronominal form in the rest of the clause (cf. section 3.1). In sum, as noted by Lambrecht (1987a) for spoken French and by López García (1996) for Spanish, it appears that one of the criteria conditioning Spanish constituent order, and indeed the VS/SV alternative, is the relative number of lexical arguments of the verb.

Although VS can be used in categorical statements as we have seen, it is only generally in thetic statements that the VS with an intransitive verb and

with a single lexical phrase (representing an argument) is found. Considering Spanish a dominant SVO language[14] and one in which the SV(O) order generally signals the normal type of categorical expression, one finds VS thus ideally suited for expressing theticity "because it moves the subject away from a position where it is most naturally interpreted as the 'theme' (or 'topic') of the utterance" (SASSE, 1987, p.542).

Both the thetic and categorical type of utterances mentioned can generally be captured by the dominant functional pattern proposed elsewhere for Spanish: P_1 cVSOX $P_Ø$ (see MARTÍNEZ CARO, 2006; HANNAY; MARTÍNEZ CARO, Forthcoming).[15] A subgroup of categorical statements, those which present a preverbal element in P_1 and still keep the preverbal subject, like in (18), cannot be captured by the functional pattern presented above:

(18) *En la escuela,* *los profesores* *debemos intentar* *que el alumno* *sepa*
in the school, the teachers must:1PL try:INF that the student knows:SBJV
que va *progresando* (HV, 81)
that goes progressing
'At school, teachers have to try and make the student know that s/he is making progress'

In order to cover these syntactic configurations, an alternative and supplementary pattern was proposed for Spanish: P_1 ScVOX $P_Ø$.

There does not seem to be a one-to-one relationship in Spanish between the type of statement in terms of the thetic/categorical distinction and the syntactic form of the construction. Thetic statements are generally expressed via a VS order in Spanish but not all VS constructions in this language are in fact instances of clear thetic statements. Likewise categorical statements are commonly expressed by SV(O) patterns in Spanish but other patterns like OV(S) do also occur (cf. HANNAY; MARTÍNEZ CARO, Forthcoming). The different pragmatic meanings expressed may result in different types of formal treatment, although, as Lambrecht (1987b, p.369) notes, the contrast between categorical and thetic judgements is not necessarily expressed in grammatical form.

7 Summary and conclusion

In this paper I have attempted to account for certain considerations belonging to the interpersonal and representational levels in FDG which condition Spanish

14 See, for instance, Siewierska (1997, p.551); Delbecque (1991); Gutiérrez (1978).

15 In this pattern, *c* stands for clitic and P Ø is understood as a final special pragmatic position with Focus function.

constituent ordering. Looking at the correlation between special positions in this language (the initial and the final positions) and the semantic-pragmatic status of the elements which can occur in them, the pragmatic functions which appear to mainly condition syntactic variation in Spanish are: the contrasting function, the signalling of emphatic topics, the focus marking function, the referent-introducing function and the contrary-to-expectation function. Two further functions with a thetic character are the attitude-reporting function and the event-reporting function, more pragmatically neutral.

Putting this in relation to Hannay's (1991) work on the modes of message management in the framework of Functional Grammar and the related distinction of thetic-categorical judgements, a *thetic judgement* appears to govern the referent introduction function, the (so called) attitude-reporting function, the event-reporting function and (generally understood) the contrary to expectation function. A *categorical judgement*, on the other hand, generally governs the expression of contrast, utterances with Emphatic Given Topics and syntactic configurations where the speaker wishes to clearly mark the (New or Contrastive) Focus finally, after having provided some topical information towards the beginning of the clause.

One of the purposes of this paper has been to contribute to the consideration that Spanish constituent ordering is characterised as the result of the interplay of discourse-pragmatic, semantic and syntactic factors. Inasmuch some of the considerations discussed in this paper touch upon aspects concerning the informative status of the terms and predicates in the linguistic expression (situational, contextual and interactional factors), they may seem to belong to the contextual component. However, given that the discourse-pragmatic functions considered here are directly responsible for formal aspects of the utterances in Spanish, I would propose that information concerning these functions and the type of judgement involved should be located, as much as possible, within the grammatical component of FDG itself. Hannay's modes of message management are seen as pragmatic frames relevant for formulation within the interpersonal level in FDG. Likewise, in a FDG of Spanish, the topical or focal status of subacts will be reflected in the encoding of these subacts at the morphosyntactic (and, presumably, phonological) levels. Pragmatic functions such as New Focus, Contrastive Focus or Emphatic Given Topic and Contrastive Topic need to be assigned at this interpersonal level. Finally, the templates relevant for the morphosyntactic encoding in this language would need to specify, in addition to slot positions for other elements, special positions such as P_1 and P_0 for elements which are pragmatically relevant for some of these pragmatic frames.

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MARTÍNEZ CARO, E. Estruturas pragmáticas, distinção tético-categorial e a ordenação de constituintes no espanhol. *Alfa,* São Paulo, v.51, n.2, p.119-142, 2007.

- RESUMO: A ordenação de constituintes no espanhol tem sido freqüentemente caracterizada como o resultado de um jogo entre fatores discursivo-pragmáticos, semânticos e sintáticos. O propósito deste trabalho é investigar a ordenação de constituintes no espanhol levando em conta uma série de considerações semânticas e pragmáticas discutidas na Gramática (Discursivo-)Funcional. Mais particularmente, a ordenação de constituintes em espanhol será analisada pela perspectiva da proposta feita por Hannay (1991) sobre as formas de gerenciamento da informação no arcabouço da Gramática Funcional e a distinção relacionada entre julgamentos téticos e categoriais, além de outras áreas da GDF, tais como a atribuição de função pragmática e o estabelecimento de posições especiais. A pesquisa para este estudo baseia-se na análise de duas amostras do espanhol peninsular, descritivas da linguagem de falantes nativos escolarizados adultos.

- PALAVRAS-CHAVE: Espanhol peninsular; ordem de constituintes; funções pragmáticas; posições especiais; distinção tético-categorial.

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REPRESENTATIONAL LAYERING IN FUNCTIONAL DISCOURSE GRAMMAR

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- ABSTRACT: The paper addresses the internal structure of layers at the Representational level in Functional Discourse Grammar (FDG), and proposes three adaptations of the representation of frames with respect to what is now standing practice (HENGEVELD; MACKENZIE, 2006; Forthcoming). Our main concern is a reappraisal of Dik's (1989, 1997) original argumentation for the endocentric use of argument variables within restrictors of terms, which we argue are fundamental to FDG theory and should be generalised over all representational layers. Based on this view, we propose a transparent usage of square brackets, which embrace equipollent configurations of which the argument variable is part. This in turn reveals problems in the representation of the nuclear event description – the verb and its arguments – as an identifiable entity, which is an old problem in FG, as well as in the representation of reference modification. As a unified solution, we invoke exocentric layers to account for the special structural properties of these units. The result is a more consistent and transparent structure of representational frames in FDG.

- KEYWORDS: Representational level; Functional Discourse Grammar formalism; restriction; predication.

1 Introduction: Layered structure in FDG

In recent years, the Theory of Functional Grammar (DIK, 1978; 1987, 1997) has been thoroughly revised so to be able to describe discourse in terms of the interaction between pragmatic, semantic, morpho-syntactic and phonological modules. In its overall conception, Functional Grammar (FG) was designed so that pragmatic considerations take precedence over semantic ones, which again come before morphosyntactic and phonological encoding. However, in FG pragmatic, semantic and syntactic aspects of a linguistic form were all described

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in a single representational structure. This meant that for instance denotational aspects and aspects of use had to be accounted for in a single representation, which obscured the different possible uses to which particular denotations may be put. In Functional Discourse Grammar (HENGEVELD; MACKENZIE, 2006; Forthcoming), these different mapping possibilities are now accounted for as the interaction between modules. The result is that the outer layers of FG's Underlying Clause Structure are relocated at the pragmatically driven interpersonal level.

The formal representations (HENGEVELD; MACKENZIE, 2006) have, however, remained faithful to the LAYERED STRUCTURE OF THE CLAUSE (henceforth LSC).[3] First put forward in Hengeveld (1989) and incorporated into FG (DIK, 1997), this algorithm proposes the following unified analysis for all layers (HENGEVELD; MACKENZIE, 2006, p.671):

(1) $(\pi\ \alpha_1$: [(complex) head] (α_1): $\sigma\ (\alpha_1))_{\varphi}$

In what follows, we will concentrate exclusively on the representational level, but this algorithm is used also to form interpersonal units of different detail and complexity.

It is important to realise that, in order to do so, the LSC relies on two fundamentally different structural configurations in which the constituent elements that determine the denotation of the overall layer can be combined: HIERARCHICAL and EQUIPOLLENT configurations. Although implicit in earlier FG, in FDG they are formally characterised for the first time. In section 2 below we discuss these configurations in detail, since their characterisation has consequences for the way the underlying representations are formalised.

Functional Discourse Grammar has also remained faithful to the way restrictors are represented in terms of open predications. In the earliest FG, restriction was limited to the denotation of individuals, but in FDG this has been generalised to all entity types. The algorithm in (1) shows α_1 is described in terms of one or more predications in which it is the argument of the predicate that further specifies its identity. However, the entity variable in these open predications has over time lost much of its status as an argument of a predicate. Arguments to drop the variable for principled reasons did not make it into the recent proposals for an FDG, but in actual use the variable is often reduced to a scope marker rather than an argument.

In this paper we address the status of this 'closing variable' in an attempt to come to a more consistent representation of denotational content in FDG. This

[3] The LSC was designed specifically for the Underlying Clause Structure in FG, which was predominantly oriented towards representational semantics. In FDG, the same algorithm is used to derive structures at the interpersonal level (and arguably, the morphosyntactic level) as well.

involves a reassessment of the use of brackets, a reconsideration of the status of the nuclear predication as well as the modification possibilities of properties, and the formalisation of exocentric in addition to endocentric layers in FDG.

2 Hierarchical and equipollent configurations

The defining characteristic of hierarchical configurations is that their constituent elements together form a single LAYER, i.e. a structure to which integral reference can be made.[4] It is hierarchical in the sense that when reference is made to this single layer, the denotations of all constituent elements are by necessity included. Layers are delineated by round brackets ( ) in the representations.

The most important hierarchical operation employed in the LSC is RESTRICTION, represented by the colon (:). Restriction is used to obtain a sufficient degree of identifiability for an ENTITY ($_i$) of a certain TYPE (α).[5] The type-tagged entity α_i can be conceived of as having at the outset a heavily underspecified inherent denotation, i.e. as defining a large set of potential denotations. This set would normally be too large to be useful in successfully identifying a referent, and therefore it is typically restricted through the specification of additional features of the entity.[6] Restriction then results in a subset of entities that have all the properties specified by the superset, enriched with the property that defines the subset. Thus, while the extension of a hierarchical configuration decreases, its denotation increases. This procedure can be applied recursively, so that sub-subsets, sub-sub-subsets etc. are formed. The constructs declaring subsets are called restrictors, the internal constitution of which is discussed in section 5.

The primary restrictor is generally considered to be of special importance. It typically determines the entity type and it also brings about the largest degree of restriction (JESPERSEN, 1924, p.108). In the LSC, it is called the HEAD. Non-primary restrictors, which subsequently serve to define further subsets, are called

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4 Referentiality as we use it here is not the same as a Subact of Reference, which is an interpersonal decision by a speaker to evoke a certain piece of denotation to a certain end. Rather, one could say that (representational) referentiality, i.e. the 'declaration' of a denotational element, is a prerequisite for (interpersonal) reference.

5 The subscript may also be taken as an index pointing to an address in the contextual component. Whether the address and the entity that occupies the address should be distinguished or not is beyond the present discussion. What is important to us is that the one-letter variable denotes essential ontological and configurational properties of entities or classes of entities, rather than the entities themselves.

6 An alternative way of making denotations more specific is the use of an OPERATOR (π) designating non-relational, auxiliary features of the entity (typically, semantic dimensions such as number, mood, aspect etc.). Operators will not be considered in this paper.

MODIFIERS (σ). It should be stressed that, configurationally speaking, heads and modifiers are identical; they have the exact same relationship with their immediate superset. The relation of restriction is represented by the colon. A paraphrase of the general structure of layers in FDG as given in (1) is then 'an entity 1 of type α, such that HEAD applies to it, such that MODIFIER applies to it'. Restrictors can either consist of lexical nuclei taken from the fund, or of other representational entities, commanding their own layers with their own internal complexity. This latter mechanism of layers-inside-layers ensures that recursion has its place in the model as in (2) (HENGEVELD; MACKENZIE, 2006, p.674):

(2) $(1\ x_i: (f_i:boy_N\ (f_i)_\varphi)\ (x_i)_\varphi)$
'a boy'

In (2), one specific entity i of type x is denoted, restricted by another entity i of type f, the property *boy*; the overall representation can be paraphrased as 'one entity i of type x, such that an entity i of type f, such that *boy* applies to f_i and f_i applies to x_i'.

It should be noted that layers do not necessarily denote mental extensions (i.e., 'mental images'); rather, their key function is that they serve as phoric domains. That is, it is conceivable that a speaker wants to refer to something mentioned earlier that does not correspond to a 'mental image'; in fact, this happens regularly at the interpersonal, morphosyntactic and phonological levels, as demonstrated in (3):

(3) That's not how you pronounce 'orangutan'

In (3), the anaphor *that* does not refer to the entity denoted, nor to the referential Subact used to evoke it, but to the phonological form used in the original speaker's expression. The phoric domain in this case hence has no denotation, but is a layer at the phonological level.

While hierarchical configurations form a single layer, this does not exclude the possibility of making reference to its constituent layers in turn. This is demonstrated in (4); the phoric elements used may be different for layers in different positions in the LSC:[7]

[7] Sources of the examples, all on 4 July and 1 October 2007:
- http://news.bbc.co.uk/1/hi/world/africa/988265.stm
- http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B7GWS-4KPX95P-H&_user=496085&_coverDate=01%2F31%2F2007&_rdoc=1&_fmt=&_orig=search&_sort=d&view=c&_acct=C000024218&_version=1&_urlVersion=0&_userid=496085&md5=0e4201be0cadff9ed7ad38ca459fe60e
- http://harmjobinhetwild.blogspot.com/2007_04_01_archive.html

(4) a. The car that runs on air.

b. This reduction is much larger in the rich flame than in the lean one.

c. Het is nog niet bekend hoe de slachtoffers, een onbekend gebleven man en dito vrouw, om het leven zijn gekomen.
'It is yet unknown how the victims, an unidentified$_i$ man and Ø$_i$ woman, perished.'

The anaphor *that* in (4a) refers to the individual (x) *car*; in (4b), the anaphor *one* does not refer to the individual *flame* (indeed there are different flames at stake here), but to the property (f) that is ascribed to this individual as its primary restrictor; in (4c) likewise reference is to a property, but now the anaphor *dito* 'ditto' refers to the non-primary restrictor *onbekend gebleven* 'unidentified'.

Layers are also scope domains, i.e. operators and modifiers have scope over a particular layer in the representation, including all its constituent elements. In this way, the layers account for the differences in scope of modifiers such as *beaming* and *terribly* in (5a-b):

(5) a. A beaming, friendly priest

b. A terribly friendly priest

In (5a) the modifier *beaming* restricts the individual (x) on a par with the other modifier, *friendly* and the head *priest*, while *terribly* in (5b) scopes over the property (f) *friendly* only. In other words, the first example describes an individual that is 'priest', 'friendly' and 'beaming', while the second describes an individual that is 'priest' and 'terribly friendly'. To account for the nesting of restrictors both the individual and the modifying properties must form layers by themselves.

When units are combined non-hierarchically, no scope domains are formed and reference is not possible to the configuration as a whole. Hengeveld and Mackenzie (Forthcoming) call these configurations of elements of equal importance EQUIPOLLENT, and square brackets are used to represent them. The prototypical example of an equipollent configuration is formed by the predicate and its arguments, as in (6), from Hengeveld and Mackenzie (2006, p.674):[8]

(6) (Past e_i: [(f_i: read$_v$ (f_i)) (1 x_i: — boy$_N$ —)$_{Ag}$ (1 x_j: — book$_N$ —)$_{Pat}$] (e_i))
'the boy read the book'

What (6) denotes is a past entity i of type e, restricted by the equipollent configuration of f_i, acting on x_i and x_j. These latter three units, however, do not stand in a mutual relationship of restriction, nor are they otherwise in each

[8] Hyphens are conventionally used to indicate the omission of further internal complexity; x_i and x_j in (6) have the same internal structure as x_i in (2).

other's scope. Rather, they interact 'horizontally', in such a way that their compositional semantics is richer than the mere sum of the constituent layers, because an interaction takes place between them.

Within the class of equipollent configurations, one further subdivision will be made between PREDICATIONAL configurations of the format [(α_i) (α_j)$_\varphi$], and JUXTAPOSITIONAL configurations of the format [(α_i) (α_j)]. As these abstractions make clear, the constituent units in a juxtapositional configuration are just equipollent, with no explicit interaction being specified. Predicational configurations, of which (6) is an example, consist of a unit with a relational denotation, binding a number of other units as its arguments. These arguments are marked for their FUNCTION in the interaction (φ), or more precisely, the quality of their relation with the predicate. In many cases, this function will require no specific qualification and can hence be 'zero' (represented as Ø). Note that we use 'predicate', 'predication', 'argument' and the like as *configurational* notions in this paper, i.e. referring to structural relations between units in a representation. The *representational* construct usually referred to as the (nuclear) predication, which denotes the interaction between a zero-order relation and one or more participants, is just one instantiation of that configuration.

The distinction between hierarchical and equipollent configurations was manifest in FG's differential treatment of modifiers in the term,[9] as in *the fascinating book*, and modifiers of the (nuclear) predication, as in *the boy read the book in the library* (DIK, 1997). The former are analysed as restrictors, while the latter are SATELLITES, which enter into a predicational rather than a hierarchical relationship with the layer they are used to modify. This opposition, however, disappeared after Rijkhoff's (1990; 2002) convincing demonstration of strong parallels between term structure and clause structure. This led to two proposals for unification of the two types of modifiers. Rijkhoff (1990) argues all modifiers are satellites; Hengeveld (1989) and also Hengeveld and Mackenzie (2006; Forthcoming) analyse all modification as restriction.

3 Square brackets

In the previous section, we said that in the FDG formalism hierarchical relations were indicated by round brackets and equipollent relations by square brackets. Both types of bracketing were used in FG, but to our knowledge they have never been introduced explicitly, nor are they accounted for in the lists of

[9] The notion 'term' as used by Dik (1978; 1989; 1997) is a conflation of the configurational notion argument, the denotational notion individual, and the interpersonal notion referent. In the context of this paper, we are referring to the denotational use of the notion. Within the FDG framework, 'term' is no longer used.

'abbreviations used in FG-representations' in Dik's work. Now that they are explicitly characterised, however, some questions arise as to how they were commonly used in representations before and whether they should be relocated. In order to address this, we go back in history a little, to show how the square brackets were used before.

In early work on FG, Dik (1978) uses square brackets to delineate the domain over which satellites such as those with the semantic function Manner had scope, which is the nuclear predication consisting of the verb and its arguments.[10] This relationship between satellite and nuclear predication, as was pointed out above, he considers to be one of predication, and not restriction. That is, in the example below, *cautiously* in Dik's view does not specify a subset of occurrences of Peter removing the lid from the jar (as *friendly* would do in the set of *priests* in (5a)), but rather modifies the whole nuclear predication (cf. DIK, 1997, p.235-36):

(7) e_i: [*remove* (*Peter*) (*the lid*) (*from the jar*)] (*cautiously*)$_{Manner}$
'Peter cautiously removed the lid from the jar'

The representation in (7) makes explicit that the part between square brackets, while not commanding a variable, configurationally acts as a predicate with respect to its Manner argument (i.e. 'cautiously is how Peter removed the lid from the jar'). In later work, Dik remains faithful to this use. As Dik (1997, p.227) puts it, "*cautiously* specifies the way in which the three-place relation *remove* was established between (Peter), (the lid) and (from the jar)".

As mentioned earlier, Hengeveld and Mackenzie (Forthcoming) follow Hengeveld (1989) and generalise term structure over all semantic types, with Dik's satellites in (7) being recast as restrictors. The square brackets are now used to indicate that the argument variable e_i in the restrictor is not itself an argument of the verb. If we apply these changes to (7), the representation in (8) results:

(8) e_i: [—*remove* (*Peter*) (*the lid*) (*from the jar*) —] $(e_i)_{\emptyset}$: (—*cautiously*—) $(e_i)_{\emptyset}$

However different these two conceptions of modification, it will be clear that the relation between on the one hand the equipollent domain [*remove* (*Peter*) (*the lid*) (*from the jar*)] and on the other *cautiously* in (7) and (e_i) in (8) is structurally identical. On both occasions, the bracketed material constitutes a configurational domain, which predicates something over its argument, which in (8) is indeed indicated by the semantic function on the argument variable (e_i). However, this

10 In later publications manner adverbs would be analysed as predicate modifiers, rather than predication modifiers.

entails further equipollent relations in (8): between the nuclear predication and (e_i) in the first restrictor and between *cautiously* and (e_i) in the second. And this should also be captured by square brackets as in (9):

(9) e_i: [[*remove* (*Peter*) (*the lid*) (*from the jar*)] $(e_i)_{\emptyset}$]: [(—*cautiously*—)$_{\text{Manner}}$ $(e_i)_{\emptyset}$]

The double occurrence of square brackets is caused by the presence of a predicative unit that is in itself also an equipollent configuration.

Now, recall the structure of individual-denoting units according to Hengeveld and Mackenzie (2006, p.674), as discussed in (2). In the light of the previous discussion, they can now be rewritten as in (10):

(10) (1 x_i: [(f_i: [boy$_N$ $(f_i)_{\emptyset}$]) $(x_i)_{\emptyset}$])

This formalisation shows an interesting structural parallel between the nuclear predication and (e_i) in (9) and between *boy* and (f_i) in (10): both form predications. This parallel is absent in the formalisations provided in Hengeveld and Mackenzie (2006, p.673).[11] While they rely on two different abstract representational frames, our more consistent bracketing shows that a single schema underlies both, the difference between them being that the former is internally complex while the latter is not.

While in itself a minor notational adjustment, our formalisation sheds new light on two old issues in Functional Grammar: the question whether the nuclear predication (and, by extension, the lexical head) serves as a phoric domain, and should therefore command a variable of its own, and the status and necessity of the argument variable as part of the restrictor.

4 A variable for the nuclear predication?

The status of the nuclear predication as a construct without its own variable has been addressed by several authors. Cuvalay-Haak (1997) and Vet (1990), for instance, have noted the descriptive problem in the representation of events whereby the head of an event that typically consists of an equipollent predication does not serve as a separate domain for anaphoric reference and hence does not command a variable of its own. However, a considerable number of languages have expression strategies that allow for phoric reference to nuclear predications, showing that it must command a variable. Van Staden (In preparation) shows

11 It should be noted that the parallel between layers with complex and simplex heads has been noted by the authors themselves as well, but that their way of bracketing does not capture this.

that nuclear predications may be joined in serial verb constructions, for which this layer is also required.

Hengeveld and Van Lier (Submitted), seeking to establish a unified analysis of lexically specified and complex events, invoke an additional f-layer, which contains the nuclear predication as its head, as exemplified in (11). In this way the head of a complex event is of the same type – $[(f_i)\ (e_i)_{\varnothing}]$ – as the head of a lexical event (12b):

(11) $(e_i\colon (f_i\colon [\ (f_j\colon \text{die}\ (f_j))\ \ (x_i\colon (f_k\colon \text{man}\ (f_k))\ (x_i)\colon (f_l\colon \text{old}\ (f_l))\ (x_i))]\ (f_i))\ (e_i))$
'The old man died'

(12) a. $(e_i\colon (f_i\colon [\text{—nuclear predication—}\ ]\ (f_i))\ (e_i))$ complex event
b. $(e_i\colon (f_i\colon [\text{—lexeme—}\ (f_i)])\ (e_i))$ lexical event

Note that the authors do not formalise the predicational configuration consisting of f_i and e_i in the restrictor of e_i. Using the formalisation proposed above in (10), using square brackets to consistently embrace all equipollent relations, the representation of lexical and complex events is as follows:

(13) a. $(e_i\colon [(f_i\colon [\text{—nuclear predication—}\ (f_i)_{\varphi}])\ (e_i)_{\varphi}])$ complex event
b. $(e_i\colon [(f_i\colon [\text{—lexeme—}\ (f_i)_{\varphi}])\ (e_i)_{\varphi}])$ lexical event

In both examples in (13), the e_i in the restrictor is an argument of the predicate formed by f_i, which is restricted by a nuclear predication in (13a) and by a lexeme in (13b).

Apart from unifying complex and lexical events, Hengeveld and Van Lier's f_i-layer has the added advantage that it offers an opportunity to differentiate between the scope of restrictors specifying the internal duration of an event, and the scope of those that give information about its external position in a wider set of occurrences. Without going into the exact ontological nature of e-type entities and quantified predications, it is vital that duration occurs within the scope of location, and not the other way around (cf. TENNY, 2000 for a discussion). When both types of modifiers were still located at the event layer, this scope relation could not be accounted for, but with the introduction of this added layer, it can.

It should be stressed that the f_i-layer advocated by Hengeveld and Van Lier does not correspond to the nuclear predication, but rather subsumes it as the predicate of the first restrictor. This becomes clear when additional restrictors occur, specifying internal duration. The f_i layer thus does not correspond to the nuclear predication, but to an augmented construct *including* duration modifiers,

which we will call QUANTIFIABLE PREDICATION.[12] In other words, notwithstanding the merits of this new layer for other purposes, this leaves unsolved the problem of the nuclear predication as a phoric domain. In view of the other established parallels between them, we may hypothesise that the attested referentiality of the nuclear predication as a complex head is mirrored in lexical heads. In order to pursue this line of thought, we first examine the internal structure of restrictors in further detail.

5 The structure of restrictors

In section 2, restrictors were discussed without paying attention to their internal constitution. It was stated that the relation between restrictors and variable can be formalised as in (14):

(14) (x_i: HEAD : σ^1 : σ^2 : ...)
'an entity i of type x, such that HEAD, such that σ^1, such that σ^2, ...'

In the original conception of FG, each restrictor in a term x was thought of as an open predication, meaning that it denotes 'things that are the case' about x. Each restrictor takes the form of a predication that takes as its argument the x-type entity i whose denotation it instantiates: 'there is an x_i such that x_i has the property f_i' (DIK, 1997, p.62). The repeated variable is thus part of the restrictor. Since these restrictors are typically states, the semantic function of the argument is typically zero.

It has also been noted in 2 that the formal operation of restriction is equivalent to subset formation: the extension of the entity under construal is constrained by predicating hierarchically ordered sets of properties of the entity. Trivially, in this subset formation, every subset is contained in its superset; the relation between them is ENDOCENTRIC. This is reflected in Dik's notation of restrictors, which accordingly are endocentric predications, crucially predicating properties over an argument coreferential with their superset, rather than over some other entity.

In the case of multiple restrictors, they apply in order. A term like *the old white elephant* in (15) thus denotes 'there is a definite singular entity x_i such that the property ELEPHANT is predicated over x_i, such that (furthermore) the property WHITE is predicated over x_i, such that (furthermore) the property OLD is predicated over x_i':

(15) (d1 x_i: [—*elephant*— $(x_i)_\emptyset$]: [—*white*— $(x_i)_\emptyset$]: [—*old*— $(x_i)_\emptyset$])
'the old white elephant'

12 After Rijkhoff (2002).

Restrictors need to be ordered to rule out the possibility that (17) is expressed as **the elephantine old white (one)*; that is, Dik (1997, p.132 ff) follows Dahl (1971) and argues that ordering of defining properties matters, and that consequently, term instantiation is to be thought of as subset formation rather than set intersection, as is generally claimed in formal semantic theories. The interpretation of (15) is that there is a superset of individuals with the property ELEPHANT, a subset of which is WHITE, and this subset of white elephants then contains a subset of OLD white elephants. In other words, the entity 'picks up' increasingly more denotation as the subsets in which it is contained get smaller yet more specific.

The formalisation of term structure as an ordered set of restrictors that take the shape of endocentric predications is given in (16a) below. However, Dik (1997, p.63) argues that in many cases the representation appears unnecessarily cumbersome, since the restrictors are endocentric and therefore the argument variable is fully predictable. Therefore, he proposes the simplified structure (16b), which has been widely adopted in subsequent literature. Usually, if the argument variable was given at all, its semantic function was omitted since it was always 'zero' (consider e.g. the representations in Hengeveld and van Lier quoted in this paper):

(16) a. $(x_i: (f_i) (x_i)_{\emptyset})$
b. $(x_i: (f_i))$[13]

Note, however, that this is merely a notational simplification; the underlying logic in the argumentation (at least, as far as Dik is concerned) remains unaltered.

In some of the publications in the new FDG framework, while retaining FG's notion of restriction, the function of the argument variable appears to be reduced to that of a marker delimiting scope (HENGEVELD; VAN LIER, submitted): "Note furthermore that the FDG formalism (at all levels of analysis) makes use of a colon to represent a restriction operation, and a 'closing variable' between brackets at the end of each of these restriction operations, to mark off its scope." Such scope issues indeed occur, for instance when restrictors are themselves further restricted, as in *a terribly friendly priest*. In such cases, we need to make sure that independent reference is enabled to all constituent elements separately, and to the complex property *terribly friendly*, but that *terribly* does not have immediate scope over *priest*. However, the formalism already commands means to capture this: the round brackets that delimit layers. Thus, if their function is indeed reduced to scope marking, the argument variable might as well be omitted altogether.

13 Note that Dik (1997) only uses square brackets to delimit nuclear predications, which is why they are absent in this representation.

Mackenzie (1987) argues that the proposal in (16a) should be abandoned in favour of its simpler counterpart not for notational simplicity, but for principled reasons. First, he argues that this representation of terms does not do justice to the referential act that it carries out. Rather than assuming that a speaker carries out a referential act of the form 'there is an individual i such that i applies to f', a speaker in Mackenzie's view simply puts 'there is an i such that I tender f'. In other words, Dik's endocentric conception of term structure is replaced by an EXOCENTRIC alternative in which the layer variable does no longer occur as an argument in the restrictor. It follows that the formal relation between the restrictor and the entity it is applied to is lost.

With the introduction of the Interpersonal Level in FDG and the principled distinction between representational denotation and interpersonal evocation, this is no longer an issue (cf. also fn. 9). Acts of reference are now a matter of the interpersonal level, while the representational level describes the denotation. At the level of the semantics, meanwhile, it would seem preferable to retain Dik's original formalism. Indeed if the formalism is $(x_i: f_i)$, to be paraphrased 'there is an x_i such that f_i', and the defining characteristic of f-type units is their applicability, one may well wonder what it is that f_i applies to.[14] If the answer is x_i, we are back at square one.

A second problem with Dik's account of term structure that Mackenzie points to, is a strange obscurity in representational structure that arises when terms are restricted by so-called β-relational predicates.[15] Consider (17), in which x_i, *government*, takes an argument x_j, *China*:

(17) $(x_i: —$*government*$—)\ (x_i)\ (x_j: —$*China*$—))$
'the government of China'

According to this representation, both x_i and x_j are equal-ranking arguments of a bivalent predicate *government*, which is obviously not in accordance with the intended denotation. With the introduction of square brackets for the various predicational configurations, the event variable e_i, the property variable f_j for the predication contained in it, and f_i for the predicate itself, the problem may be restated as follows:

(18) $e_i: [(f_j: [(f_i: —$*government*$—)\ (x_j: —$*China*$—)_{Ref}\ (f_j)_{\emptyset}])\ (e_i)_{\emptyset}]$

Now it is (x_i) and (f_j) that appear to be equal-ranking arguments of f_i, *government*.

14 In Hengeveld's (1989) analysis, the formalisation of term restriction is paraphrased as 'an individual, such that a property applies', which also leaves the applicant implicit.

15 β-relational predicates are second-order entities that designate relationships between first-order entities; α-relational predicates are zero-order entities that designate relationships. An exacter definition is given in Mackenzie (1987; p.7).

While Mackenzie (1987) confined the discussion to complex nominals, the same problem in fact exists for their verbal counterparts:

(19) $(e_i: [(f_j: [(f_i: \text{—}govern\text{—})\ (x_j: \text{—}China\text{—})_A\ (x_k: \text{—}Taiwan\text{—})_U\ (f_j)_\emptyset]\ (e_i)_\emptyset])$
'China governs Taiwan'

Here, we see ourselves confronted with the exact same problem; as soon as an additional f-layer is added to enable referentiality of the predication contained in the event, as proposed by Hengeveld and van Lier, the endocentric argument variable of that layer causes scope ambiguity. Mackenzie's proposal to omit (rather than suppress) the variable argument does indeed solve this issue. But the resulting formalism is somewhat incongruous with the argumentation underlying it – it would denote 'an individual i such that government of China', without stipulating the relation this description bears to the individual itself. Also, this solution suggests that the problem was one of notation rather than one of representation. We would therefore prefer to find a more principled solution, whereby the argumentation behind the formalism may be retained and which addresses what we believe to be the issue: the aforementioned fundamental distinction between endocentric and exocentric layers. We address this by first examining the representation of simple lexical heads, and then extend our argument to the cases just discussed.

6 Modification of lexical heads

Let us first consider a case in which a first-order entity is restricted by two predications:

(20) $x_i: [(f_i: [priest_N\ (f_i)_\emptyset])\ (x_i)_\emptyset]: [(f_j: [friendly_A\ (f_j)_\emptyset])\ (x_i)_\emptyset]$
'a friendly priest'

In this case the individual i is restricted by two predications: x_i is described as 'being a priest' and as 'being friendly'. But what if the second restrictor does not modify the individual, but rather the property attributed to this individual in the first restrictor? In other words, how is REFERENCE MODIFICATION (cf. BOLINGER, 1967; HENGEVELD, Forthcoming) as opposed to REFERENT MODIFICATION[16] in (20) represented in FDG? Some examples of reference modification are given in (21):

16 It should be noted that, contra FDG terminology, the canonical terms *referent modification* and *reference modification* do not pertain to interpersonal, but to representational notions.

(21) a lousy doctor
a criminal lawyer
a government official
military dress
a civil decoration

Let us consider the last example in detail. A representation analogous to (20) would incorrectly depict the denotation of *civil decoration* as a case of referent modification: an individual such that it has the property *decoration*, such that it has the property *civil*. It means that the entity is *civil* in addition to being a *decoration*, just like in a *friendly priest* the individual is *friendly* in addition to being a *priest*, which is obviously not the intended denotation. To avoid this, the representation has to make explicit that x_i denotes an individual restricted by a single complex property that denotes a particular kind of decoration. In short, *civil* has to restrict f_i, which in turn restricts x_i:

(22) x_i: [(f_i: [*decoration*$_N$ (f_i)$_\emptyset$] : [*civil*$_A$ (f_i)$_\emptyset$]) (x_i)$_\emptyset$]

This representation describes an individual such that the property denoted by f_i is applicable to it, whereby the property f_i is restricted by the subsequent application of *decoration* and *civil*. But neither of these properties now have layer status themselves, which leaves unaccounted for the fact that they may be referred to independently:

(23) The *Légion* is not a civil decoration, nor a military one; it encompasses both.[17]

The same problem turns up in manner expressions, and in further modification of properties as in *a terribly friendly priest*. In each case the scope of the modifiers and the referential potential of the properties show them to be layers in themselves with their own variable.

What we propose, therefore, is that in line with Keizer (2004, p.11) restrictors such as *friendly* and *decoration* have their own variable and constitute an embedded layer within the layer f_i:

(24) x_i: [(f_i: [(f_j: [*decoration*$_N$ (f_j)$_\emptyset$]) (f_i)$_\emptyset$]: [(f_k: [*civil*$_A$ (f_k)$_\emptyset$]) (f_i)$_\emptyset$]) (x_i)$_\emptyset$]

Although this would appear to have solved the non-referentiality of *decoration* and *civil*, it has created a problem of infinite nesting. Namely, as soon as an additional restrictor is added to f_j or f_k, the problem of (22) resurfaces: a layer arises in which separate reference to its constituent elements is impossible.

[17] http://en.wikipedia.org/wiki/Talk:L%C3%A9gion_d'honneur

The only way to solve this would be to add yet another layer for each of its restrictors, which then suffers from the same problem *ad infinitum*.

For cases like (24), it may be argued that the problem of infinite nesting is artificial since languages do not seem to allow further restriction of layers like f_j and f_k, and the ambiguity will therefore never arise. However, if we return to cases in which the first restrictor is internally complex, as in (18) and (19), we find that the same issue is at stake. But now it can no longer be considered trivial. In the case of (24) it could still be argued that reference to f_j is tantamount to reference to the primitive *decoration* and the role of the layer variable as argument in the restrictor is unproblematic. Yet, in (25) it is obvious that f_m cannot be an argument at the same depth as the lexical arguments *China* and *Taiwan*, since that results in denotational ambiguity. The only 'licit' way of solving this ambiguity is to add another layer in which the nuclear predication is embedded, at which point we are back at square one: the only 'innovation' seems to be an increase in complexity that is not warranted by the structure of linguistic expressions (26).

(25) $(e_i\text{: } [(f_j\text{: } [\mathbf{(f_m}\text{: } [(f_i\text{: } —govern—)\ (x_j\text{: } —China—)_A\ (x_k\text{: } —Taiwan—)_U\ \mathbf{(f_m)_{\emptyset}}]\ (f_j)_{\emptyset}]\ (e_i)_{\emptyset}])$

(26) $(e_i\text{: } [(f_j\text{: } [(f_m\text{: } [\mathbf{[}(f_i\text{: } —govern—)\ (x_j\text{: } —China—)_A\ (x_k\text{: } —Taiwan—)_U\mathbf{]}\ (f_m)_{\emptyset}]\ (f_j)_{\emptyset}]\ (e_i)_{\emptyset}])$

What we need, is a principled way to reconcile these two problems, ensuring full referentiality on the one hand, while avoiding ambiguity and unwarranted nesting on the other.

7 The role of exocentric layers in extension construal

In recapitulation, considering the arguments and problems presented thus far we find that:

(27) a. the transparency and simplicity of the LSC is served by reinstating and generalising the proposal by Dik (1978; 1987), regarding the endocentric predicational structure of restrictors, for all layers;

b. certain scope ambiguities and referentiality problems which arose because the nuclear predication / lexical nucleus used not to command a variable can be solved by invoking an additional f-layer;

c. the addition of such a layer causes new referentiality problems, which necessitate the addition of a further layer with the same problem, etc. This entails unwarranted nesting.

In this section, we propose a type of layer that can be anaphorically referred to, thereby resolving the problem pertaining to cases like (26). At the same time,

the problem in (25) appears to call for a representation in which the variable does not occur as an argument in its own restrictors, unlike the other layers discussed so far. The representation of such an EXOCENTRIC layer is given in (28):

(28) α_i: [(α_h) ($\alpha_{\neg i}$)$_\varphi$]

It is stipulated here that the argument in the restrictor of an exocentric layer cannot be coreferential with the layer variable. We argue that exocentric layers serve a special function in the construal of mental extensions: they introduce lexical primitives, either lexemes or frames, from the Fund into the Formulator.

Before elaborating on the distinction between endocentricity and exocentricity, we need to be somewhat more specific on what is meant in FDG by lexical primitives. Following FG, FDG has a strongly lexicalist conception of semantics. There is no abstract set of language independent semantic primitives. Rather, the lexical primitives of a specific language "are contained in the lexicon in a form in which they can actually appear in the expressions" (DIK, 1997, p.23). We take this to be compatible with our view that the Formulator in individual languages never (de)composes to a deeper level of semantic granularity than is reflected by the morphosyntax. Meaning distinctions are treated as lexical if they have no repercussions for grammatical structure. To take a simplistic example, even though *cat* and *dog* have quite different extensions, the semantic features that distinguish them (barking ↔ meowing, social ↔ solitary, scavenger ↔ predator, etc.) do not trigger any differences in grammatical behaviour between the two expressions in English. Therefore, their differences can be captured in two distinct lexical primitives, inserted in identical layered structures.

Given this lexicalist view, we take it as highly significant that languages do not appear to allow for further restriction of layers such as f_j and f_k in (24) which are used to introduce the lexical primitives *decoration* and *civil*. It appears that they represent the lowest possible level of semantic decomposition that still has grammatical relevance. Here, we are dealing with true primitives, to which no further internal structure should be assigned. To explicate the special status of primitives, consider example (29):

(29) x_i: ^{1}[( ) (x_i)$_\varnothing$]: ^{2}[(f_j: —*fat*—) (x_i)$_\varnothing$]: ^{3}[(f_k: —*old*—) (x_i)$_\varnothing$]

f_i: ^{4}[(f_m: —*doctor*—) (f_i)$_\varnothing$]: ^{5}[( ) (f_i)$_\varnothing$]

f_p: ^{6}[(—lousy—) (f_p)$_\varnothing$]

'old fat lousy doctor'

As we said in section 2, language users construe mental extensions by declaring an entity of the appropriate type, and then restrict its extension by predicating characteristics over that entity. This act of predication locates the entity under construal in a so-called POTENTIAL EXTENSION SET, denoted by an open predication. This is the set of all potential entities of which that characteristic is the case.[18] Multiple potential extension sets can be hierarchically related, forming subsets and supersets. Potential extension sets can be nested in which case they are based on a characteristic that is itself again an internally complex representational entity with its own layered structure.

Figure 1 illustrates the construal of x_i in (29). The extension of x_i is constrained by three potential extension sets (1-3). These sets denote all entities to which the properties f_i, f_j and f_k apply, respectively. Further nesting arises from the fact that f_i has internal complexity: it is a complex property, constrained by two potential extension sets (4 and 5) which denote all entities to which the properties f_m and f_p apply. The latter in turn exhibits internal complexity, and is constrained by placement in potential extension set 6.

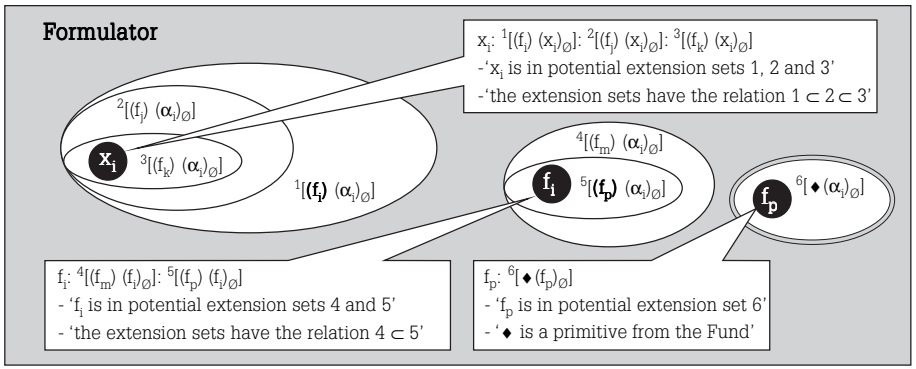

Figure 1 – The construal of *old fat lousy doctor*

Figure 1 brings out the special status of primitives. Whereas the extension sets that are used to restrict x_i and f_i depend themselves on further decomposable representational entities, this is different for the set that is used to restrict the extension of f_p. For the definition of this set, a primitive (represented by $\blacklozenge$) is taken from the fund. It is clear that layer status of $\blacklozenge$ within the restrictor of f_p is required, to ensure the possibility of unambiguous reference to that primitive, should f_p be restricted further (as in *an <u>astonishingly</u> poor doctor*, where *astonishing* modifies *poor* within f_p, and f_p in turn modifies the property *doctor*). However, $\blacklozenge$ is a primitive, and embedding it in an endocentric layer would impose

[18] Other potential entities in a potential extension set turn up in cases like *a lousy doctor*$_i$ *and an excellent <u>one</u>*$_i$, where *one* construes a second entity in the potential extension set that denotes all entities with the property *doctor*.

a false sense of decompositionality on *poor*. Indeed, the essence of an endocentric layer is that an element is defined in terms of something else, where the essence of a primitive is that it is not. It follows that primitives must form exocentric layers, since this does not entail decompositionality.

The question is now whether this approach to lexical primitives also applies to the other type of primitives: the configurational frames. Does the introduction of an exocentric layer also solve the problems in (25) and (26)? If we treat configurational frames in an identical fashion to lexical primitives, we arrive at an analysis that is strikingly similar to Mackenzie's (1987) proposal to omit the layer variable from the closed predication in cases like (18), as is exemplified in (30):

(30) $(e_i: [(f_j: \textbf{[(f}_\textbf{m}\textbf{:} [(f_i: —\textit{govern}—) (x_j: —\textit{China}—)_A (x_k: —\textit{Taiwan}—)_U] (f_j)_\emptyset] (e_i)_\emptyset])$

The difference is that we use it only for the insertion of primitives while retaining endocentricity for other layers. Uninterpretability of the layer variable as in (25) and non-referentiality of the layer as in (26) have now been taken care of, but recall that we noted before how this solution is hard to reconcile with an analysis in terms of subset restriction. The exocentricity of (18) was problematic since it obscured the relation between the restrictor and the entity itself and the same now holds for the relation between f_m and the nuclear predication in (30).

This requires a reconsideration of the cognitive status of exocentric layers. It may be argued that primitives have no mental extensions and hence cannot be considered entities. After all, a layer that denotes the primitive *dog*, *run* or *white* does not activate a corresponding mental image: only once the primitive is used to construe an entity of a specific type (by means of embedding in an endocentrically restricted layer headed by the appropriate entity variable) does the individual or property arise. And because primitives do not denote entities and lack extension, it follows that restriction does not apply to them. Therefore, we argue that lexical and configurational primitives taken from the fund are best represented not with a variable, but by means of an indexed 'placeholder', to reflect their lack of extension. To this end, we introduce $\$_i$.[19] Furthermore, since restriction does not apply in the case of primitives, we propose the use of a new system operator, definition (|).[20] In the most abstract form, these two innovations amount to the following representations:

(31) $\alpha_i: [(\$_m| [(\alpha_h) (\alpha_g)_\varphi]) (\alpha_i)_\varphi] : \ldots$

(32) $\alpha_i: [(\$_m|\blacklozenge) (\alpha_i)_\varphi] : \ldots$

---

19 This is fully compatible with Hengeveld's (p.c.) suggestion that lemmas in the Fund are assigned an index to facilitate lexical retrieval, in which case it would coincide with our use of the subscript $_i$.

20 The alternative is to use the colon to represent two qualitatively distinct operations, which would yield a type of formal inconsistency that is incompatible with the aspirations of the LSC (cf. ANSTEY, 2006, p.70 ff).

In (31), $\$_m$ is an exocentric layer that gives a nuclear predication, 'of α_g, it is the case that α_h'. Being a primitive, $\$_m$ cannot be further restricted within the Formulator. Next, the definition $\$_m$ is endocentrically predicated over α_i; 'there is an entity i of type α, such that $\$_m$ is the case of α_i'. This layer can itself be restricted further. In (32), we see the insertion of a lexical primitive in an identical fashion. Configurational and lexical primitives differ only in the sense that they supply open slots, which are saturated by construing further entities.

To return now to the problem summarised at the start of this section, the inclusion of an exocentric nuclear predication layer solves the non-referentiality problem, while at the same time it makes explicit the relation of definition that exists between the indexed place-holder and the nuclear predication:

(33) $(e_i: [(f_j: [(\$_m| \mathbf{[}(f_i: —govern—) (x_j: —China—)_A (x_k: —Taiwan—)_U\mathbf{]} (f_j)_\emptyset] (e_i)_\emptyset])$

The problem of infinite downward recursion is also resolved. Since elements like $\$_m$ are primitives taken from the fund, there is a natural stop to the decomposition that the formulator is capable of. The layers in which $-units are embedded, all fully conform to the mechanism of restrictors as endocentric predications.

8 Conclusion

In this paper we have proposed a number of modifications to the interpretation and application of the formalism at FDG's representational level. We have introduced an additional layer of property restriction to allow for reference modification, and proposed to apply the square brackets consistently in line with their interpretation as markers of equipollent relations. More importantly, we have proposed to treat the insertion of lexical entries, in analogy to the selection of a predicate-argument frame, not as a restriction operation on a property, but as an operation of definition. In this way, all primitives taken from the fund are treated in equal fashion. This introduces exocentric relations of definition in addition to the established endocentric relations of restriction. We have argued that the matter of centricity must be viewed separately from referentiality and layer status. While layer status is required to ensure referentiality and to interpret scope, the referentiality of a layer does not automatically make it endocentric. In fact, lexical primitives in this respect are on a par with elements like phonological strings and syntactic constituents which, although referential as exemplified in (3), are not decomposable at the representational level either. Interestingly, aspects of the modifications that we propose have long been present in FDG theory, and merely needed to be

amalgamated. Mackenzie (1987) provides the exocentric layer; Dik (1987; 1997) the predicational shape of restrictors, while Hengeveld (1989) generalises its endocentricity.

Although the result might appear to add to the complexity of FDG representations, we believe that it is preferable for four reasons. First, the proposed use of the square brackets is a fully consistent application of their theoretical position in FDG. Second, this proposal retains the original logic underlying the notion of restriction as consisting of the application of a property to an argument. Third, it nevertheless solves the problem noted in Mackenzie (1987). And fourth, the result gives an elegant and theoretically correct parallel between simple and complex heads in representational frames, the former consisting of just a lexeme, and the latter of a predicate-argument structure.

Most importantly, however, the increased 'complexity' is amply compensated for by the much simpler logic now needed to generate representations in the formulator. In essence, all representational layers in FDG are now consistently of one of the following shapes:

(34) a.	$\alpha_i \mid \blacklozenge$	lexeme insertion
b.	$\alpha_i \mid [(\alpha_j)\ (\alpha_k)_\varphi]$	lexical predicate frame insertion
c.	$\alpha_i : [(\alpha_j)\ (\alpha_i)_\varphi]$	subset restriction of α_i

Of these frames only (34c) is generated by the formulator at the representational level, while the other two layers are taken from the Fund. This adapted formalism retains the unified applicability of the Layered Structure of the Clause put forward in Hengeveld (1989), as the same argumentation regarding the nature of restriction applies in equal measure to domains other than denotation. In Smit (this volume) the formal implications of the present proposal for the interpersonal level are explored in more detail. Using a restrictive algorithm that relies on recurrent combinations of restriction and (endocentric) predication, and a fund consisting of simplex primitives and composite ones which obey the same mechanism, we have shown that the full array of denotational complexity can be accounted for.

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SMIT, N.; VAN STADEN, M. A organização em camadas do nível representacional na Gramática Discursivo-Funcional. *Alfa*, São Paulo, v.51, n.2, p.143-164, 2007.

- RESUMO: Este trabalho aborda a estrutura interna de camadas no nível representacional na Gramática Discursivo-Funcional e propõe três adaptações da representação de esquemas no que diz respeito à prática vigente (HENGEVELD; MACKENZIE, 2006; no prelo) O nosso principal interesse é reavaliar a argumentação original de Dik (1989, 1997) a favor do uso endocêntrico de variáveis de argumento no âmbito dos restritores de termos, que acreditamos serem fundamentais para a teoria da GDF e deveriam ser generalizadas para todas as camadas representacionais. Com base nessa pespectiva, propomos um uso transparente de colchetes, que delimitem configurações equipolentes das quais a variável de argumento faz parte. Por sua vez, isto revela problemas na representação da descrição do evento nuclear – o verbo e seus argumentos – como uma entidade identificável, que é um antigo problema na GF, e também na representação de modificação de referência. Como uma solução unificada, nós recorremos a camadas exocêntricas para explicar as proporiedades estruturais especiais dessas unidades. O resultado é uma estrutura mais coerente e transparente dos esquemas representacionais na GDF.

- PALAVRAS-CHAVE: Nível representacional; formalismo na Gramática Discursivo Funcional; restrição; predicação.

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LEXICAL COMPETENCE AND FUNCTIONAL DISCOURSE GRAMMAR

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- ABSTRACT: This article discusses the role of the lexicon component within Functional Discourse Grammar. It argues that the treatment of lexical meaning in most grammatical models is not adequate and proposes an alternative analysis based on Marconi's (1997) notion of *lexical competence*, according to which lexical meaning comprises two different dimensions: referential and inferential lexical knowledge. It is further claimed that decompositional models of lexical meaning do not really capture speakers' inferential knowledge, as it is doubtful that they possess detailed and similar definitions for most lexical items. It is claimed that speakers associate beliefs and specifications with lexical items and that communication emerges when those beliefs converge dynamically in verbal interaction. Finally, the implications of this analysis for FDG are examined. It is suggested that abstract meaning definitions are not really needed in the model and that the lexicon should be in close contact with the conceptual component.

- KEYWORDS: Functional Discourse Grammar; lexical competence; lexicon; conceptual component.

1 Introduction

Although it is true that most contemporary grammatical theories grant the lexicon a prominent role in the generation of linguistic expressions, it is equally true that this component has usually been seen as a mere repository of lexemes, morphological rules and lexical irregularities. At most, authors have devised lexical decomposition systems which, apart from characterizing lexical meaning by means of a limited number of primitive relations, have also been employed to establish systematic links between the lexicon and syntax. This strategy may seem adequate to those who see language as a self-contained autonomous entity (roughly contemporary formal linguistics), but it seems less so from a functionalist point of view, as the role of the lexicon in the characterization of speakers' communicative competence (Functional Grammar's ultimate goal) cannot be

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that exiguous. Apart from minor implementation differences, however, this has also been the characterization of the lexicon component in classical Functional Grammar (FG, DIK, 1997) and Functional Discourse Grammar (FDG, HENGEVELD, 2004; HENGEVELD; MACKENZIE, 2006).

The aim of this article is to lay out the aspects of the lexicon component which are necessary in a functional characterization of communicative competence and to examine the implications for FDG. Consequently, the lexicon will be examined from the point of view of the natural language user and not from a grammar-designing perspective, as has been usually the case in contemporary linguistics. The article is divided in two main sections. The first one will deal with the notion *lexical competence* and will try to characterize the semantic content of lexical items and its relation to the conceptual component. The second section will deal with the implications for the lexicon in the FDG model. Given the complexity of the issues involved, which have vexed philosophers of language for many years, and the obvious restrictions of available space, the conclusions of this paper will necessarily be partial and mostly programmatic and the characterization of the different positions in the semantic arena may be too simplistic at times. However, it is to be expected that it will serve to illuminate directions of future research for FDG in the lexicon component, about which the model has had little to say so far.

2 On lexical competence

Dik (1997, p.5-6) claims that the psychological correlate of a natural language is the notion of *communicative competence* as introduced by Hymes (1972). He explicitly states that communicative competence comprises "not only the ability to construe and interpret linguistic expressions, but also the ability to use these expressions in appropriate and effective ways according to the conventions of verbal interaction prevailing in a linguistic community". It seems natural to suppose that *lexical competence*, which could accordingly be defined as the ability to use words in appropriate and effective ways in verbal interaction, is part of communicative competence as defined above. However, in current linguistic theory there has been an unfortunate tendency to concentrate on the meticulous analysis of lexical meaning in order to account for the structural properties of lexical items, while ignoring significant aspects of the use and behaviour of lexemes in linguistic utterances. The reasons behind this strategy may be the following:

(i) From a purely grammar-designing perspective, all a linguistic model demands from the lexicon is the basic semantic and syntactic properties of

lexical items which are necessary to use them in linguistic expressions. This has been captured in formal theories in standard lexical entries through thematic relations and predicate-argument structures, and, in FG, through classical predicate frames. Thus, from the point of view of the grammar system, many aspects of the meaning of a lexical item are simply irrelevant in the generation of a linguistic expression. As Jackendoff (1997, p.91) observes, the words in (1a) are syntactically identical, since the computational system is only sensitive to their syntactic features; the same is true for the words in (1b), (1c) and (1d):

(1) a. dog, cat, armadillo
b. walk, swim, fly
c. gigantic, slippery, handsome
d. on, in, near

The fact that the word *cat* denotes an entity significantly different from that denoted by the item *dog* is simply irrelevant to the syntactic component, which only needs to know that both lexical items are nouns or that they pluralize in a regular fashion.

(ii) The second reason is aptly expressed by Marconi (1997, p.86-87):

> Ever since Frege, it has seemed that communication and cultural inheritance require uniformity of meanings: if 'cat' did not mean the same for me and you, we could not talk to each other about the same animals; we would forever be equivocating.

If we assume, as it should be obvious to anyone, that members of a linguistic community generally succeed in communicating verbally with each other, it follows that they should possess equivalent meanings/definitions for the lexical items of their language.[2] Most approaches to word meaning assume the classical idea that concepts have definitions, and take standard dictionaries as authoritative sources which reflect the shared meaning of an item available to all competent users. In a way, this is responsible for another factor, which is also cited by Marconi (1997, p.93):

(iii) Individual competences are irrelevant to semantic theories. Objectivistic truth-theoretic semantic theories consider meanings as public entities, and individual semantic competences as particular grasps of those objective entities. However, unlike grammatical knowledge, lexical knowledge is significantly different across speakers. The meaning associated to a given lexical concept

2 This may well be an oversimplification, as not all models of language assume the uniformity of meanings to account for inter-human communication. As a matter of fact, it would be convenient to explore in detail the complex question of what counts as communication, but this is well beyond the scope of the present paper.

may be fragmentary for some speakers and even totally incorrect for others. For example, a speaker might foolishly believe that a 'bicycle' is a type of animal. According to the objectivists, this would only show his ignorance of the meaning or extension of that particular item. No matter what speakers believe, they claim, meanings are 'out there', and the item 'bicycle' only denotes the relevant artefacts. Consequently, semanticists disregard individual lexical competences as irrelevant for semantic theory.[3]

These three assumptions have (implicitly at least) guided most recent work on lexical semantics, as lexical definitions are taken to be similar across speakers of the same language (or, at least, they are taken to represent an ideal speaker's lexical competence). Moreover, as most current linguistic models are lexically driven, the study of word meaning has also resulted in a decompositional modelling of definitions of quite a complex nature in an effort to predict the syntactic behaviour of lexemes. It is undoubtedly true that the different decompositional approaches to lexical meaning offer interesting insights into the nature of lexical knowledge. Indeed, they seem to adequately account for speakers' semantic inferences, and relevant patterns in the lexicon of a language and across languages have been discovered. However, these approaches to word meaning ignore many aspects of lexical behaviour which are surely necessary for a full account of language use. Pragmatic, affective, and stylistic features are obviously associated with lexical items, and all of them are relevant for a proper understanding of their felicitous use in linguistic expressions (LEVELT, 1989, p.183; LEECH, 1974, p.10). At the same time, the selection and interpretation of lexical items may obviously be influenced in crucial ways by contextual factors, as different authors have already noted (e.g. CRUSE, 1986; PUSTEJOVSKI, 1995; EVANS, 2006). These are factors which have not taken a prominent position in most work on lexical semantics in grammar models.

Indeed, as pointed out to me by José Luis G. Escribano (p. c.), this may not be a real problem as long as one assumes a distinction between linguistic and pragmatic competence. Communication would thus emerge from the interaction of both, and all pragmatic aspects of lexical units and contextual meaning construction could be accounted for in a theory of language use (note that this is basically Dik's (1997, p.7) position when he assumes a distinction between grammatical and communicative competence). In a way this strategy is understandable in formal linguistic models, in which aspects of linguistic use can just be swept under the carpet of performance, but, if functional linguistics aims at explaining not only our ability to generate linguistic expressions but also how we can produce expressions complying with the rules that govern

[3] But note that objectivist semantics is rejected by Dik (1997, p.129) in his account of reference.

verbal interaction (Dik's standard of pragmatic adequacy), lexical meaning should be studied from a different perspective.

A sensible strategy to tackle this problem would require examining in detail the structure of lexical competence, including all the factors that contribute to the adequate use of lexical items. Hence, what is needed is a theory of the lexicon that accounts not only for lexical meaning but also lexical use. As my starting point, I will take Marconi's (1997) work on lexical competence. Marconi (1997, p.2) believes that lexical competence comprises two distinct dimensions of knowledge: inferential and referential lexical knowledge:

> It seemed to me that to be able to use a word is, on the one hand, to have access to a network of connections between that word and other words and linguistic expressions: it is to know that cats are animals, that in order to arrive somewhere, one has to move, that an illness is something one may be cured of, and so forth. On the other hand, to be able to use a word is to know how to map lexical items onto the real world (…) The former ability can be called *inferential* (…) the latter may be called *referential*.

Marconi adduces reasons to justify this distinction. For example, although it is not a common situation, it may well be the case that a speaker is referentially competent in the use of a lexical item but inferentially incompetent and vice verse. That is, the two abilities are, to an important extent, independent of each other. Marconi illustrates the situation with the bookish zoologist who knows everything that has to be known about a given type of butterfly but fails to recognize it when he comes across one. Let us examine these two dimensions in more detail.

2.1 Referential knowledge

Marconi defines referential competence as the ability to map lexical items onto the world. In principle, one might think that this is not a linguistic ability, but a cognitive process through which speakers interact with their environment. However, there are reasons to reject such an interpretation.

(i) The relevance of referential competence very much depends on the linguistic community which unconsciously agrees on what counts as knowing the meaning of a lexical item (MARCONI, 1997, p.66). If a speaker cannot tell a dog from a cat, his linguistic community might safely conclude that he does not know what a dog is. However, the same linguistic community might agree that the ability to apply the technical item 'crankset' to the right referent is only available to the expert in the field.

(ii) On many occasions referential competence may be more prominent than inferential competence. When one hears the word 'beer', 'dog', etc. the first thing that comes to mind is possibly a mental image of those entities. Only after considering them in detail might one come up with a characterization of its meaning.

(iii) Many words within the same semantic field are distinguished by average speakers only on the basis of mental representations. Jackendoff makes this very clear in his discussion of the distinction among motion verbs. In particular, he believes that the differences among verbs with a similar conceptual representation should be captured in a complex 3D model structure which, he claims, has no syntactic effects; he says (JACKENDOFF, 1990, p.34):

> how is one to distinguish, say, *running* from *jogging* from *loping*, or *throwing* from *tossing* from *lobbing*? If the lexical entries for these verbs contain a 3D model representation of the action in question, no distinction at all need be made in conceptual structure. The first set of verbs will all simply be treated in conceptual structure as verbs of locomotion, the second set as verbs of propulsion. (...) Differences that appear only in 3D model structure can by hypothesis have no syntactic effects. For example, *run*, *jog* and *lope* are syntactically parallel, as are *throw*, *toss* and *lob*. Thus the members of each set can be identical in conceptual structure and differ only in the associated 3D model.

Unfortunately, the structure of referential knowledge has received very little attention in linguistic theory, certainly as a consequence of its characterization as non-linguistic perceptual knowledge and of the belief that it is irrelevant in the syntactic use of a lexical item. At most, authors have simply assumed that lexical items are attached to mental images (DIK, 1997) or 3D structures (JACKENDOFF, 1990). Although a discussion of this problem is beyond the scope of this paper, I will assume that referential knowledge (or ability) is clearly part of communicative competence and must therefore be accounted for within a theory of lexical use.

2.2 Inferential knowledge

The orthodox treatment of lexical meaning in FG can be found in Dik's (1978) early monograph *Stepwise Lexical Decomposition*. In this work, the author states that defining lexical meaning is a "language internal affair" in which predicates of the object language are employed in the characterization of more complex predicates. Indeed, Dik's approach to lexical semantics leaves aside

non-denotational aspects of meaning, in line with current characterizations of lexical knowledge, which tend to include in lexical entries those aspects of the meaning of an item relevant to account for its use in the construction of linguistic expressions. As mentioned before, this tendency seems a natural strategy in formal grammatical theories which see a clear dividing line between linguistic and non-linguistic or general knowledge, but it seems rather unfortunate that it has also been assumed by some functional theories as FG and, to my knowledge, FDG. The assumption is, therefore, a classical one: words can be defined and speakers possess definitions of lexical items. Let us examine these two hypotheses in more detail.

2.3 Definitions

The assumption that lexical items have definitions is obviously based on the classical idea that concepts can be defined on the basis of a number of sufficient and necessary features which determine the possibility of applying them to the relevant referent. This view has been translated into contemporary linguistics without much discussion. In the case of formal syntactocentric theories, the reason seems quite obvious. Constructing a lexical definition for the computational system is constrained by two basic ideas: first, the definition should contain everything necessary to interpret the word correctly in a linguistic expression and, secondly, if one assumes a powerful linking system between definitions and syntax, then one has to include in the definitions the information required for the system to operate. The field of lexical semantics offers rather complex theories of word meaning such as Jackendoff's (1990) Semantic Structures or, within the functionalist tradition, the so-called Functional Lexematic Model (FABER; MAIRAL, 1999). These models search for systematic relationships among items in the lexicon, as well as principles which predict the syntactic behaviour of an item on the basis of its meaning. Yet, despite the complexity of the systems of representation proposed, they are very far from characterizing speakers' lexical competence as understood here. Classical FG does not propose a linking mechanism between the level of Meaning Definition and Predicate frame,[4] but the construction of definitions is based on Carnap's notion of meaning postulate, a formal system of representation for necessary and sufficient features.

There are obvious problems with the classical view on word meaning, some of which are summarised by Laurence and Margolis (1999) and Rey (1999):

[4] In the course of the years, however, a number of such linking mechanisms have been proposed (SCHACK-RASSMUSSEN, 1994; CORNISH, 2002; GARCÍA VELASCO and HENGEVELD, 2002; BUTLER, Forthcoming)

(i) Many concepts do not have definitions or, at least, many speakers cannot produce them in the form of necessary and sufficient conditions. These include not only grammatical words (sentence connectors, prepositions, articles, demonstratives, etc.), but also, many other abstract terms: adjectives denoting properties are notoriously difficult to define and the same applies to many abstract nouns. The fact that lexicographers can systematically produce definitions for these items does not of course mean that average speakers can also produce those definitions. As Quine (1999, p.155) notes, a lexicographer just reflects people's "general of preferred usage prior to his own work". One might argue, then, that a dictionary definition is the intersection of all individuals' competences, but that possibility would only be acceptable under an objectivist semantic theory, for that intersection would exist in nobody's mental lexicon.[5] This means that linguists making use of dictionaries in the construction of lexical definitions do little more than translating into some formal language those features they consider essential in the definition of a lexical item, but it is doubtful that this is a proper characterization of a speaker's lexical competence.

Of course, the fact that speakers cannot always come up with definitions for common vocabulary does not mean *per se* that lexical items appear in the lexicon devoid of all content, as Fodor (1998) and Sinclair (1996) would have it (for entirely different reasons!). As pointed out to me by an anonymous reviewer, speakers cannot state the grammatical rules of their language and yet they obviously have knowledge of them. However, the nature of grammatical knowledge is significantly different from that of lexical knowledge. All competent English speakers 'know' that the sequence **house the* is ill-formed, but the same competent speakers may have difficulties in deciding whether an ostrich is a bird or not, to cite a classical example. The existence of unclear cases such as these indicates that necessary and sufficient features may not be the stuff lexical meaning is made of (see also (iii) below).

(ii) Even though most speakers cannot produce necessary features for many concepts, still they use lexical items efficiently in verbal interaction. Therefore, having a concept, and that includes lexical concepts, does not necessarily mean possessing all the necessary features which characterize it. Let us illustrate the question with a trivial example. I think we can agree that being a mammal is an essential feature of the concept 'dog'. Yet, speakers need not know that dogs are mammals to be able to refer to them, to identify them, and to use the word

[5] This seems to be Allwood's (2003, p.43) position when he introduces the notion of *meaning potential* as the basic unit of word-meaning: "The meaning potential is all the information that the word has been used to convey either by a single individual or, on the social level, by the language community. The meaning potential, then, does not result from trying to find a generally valid type meaning for a word. Rather, it is the union of individually or collectively remembered uses". It is difficult to see how this proposal could be compatible with a non-objectivistic approach to semantics.

in thousands of well-formed linguistic expressions, such as *I like your dog*, *Dogs are friendly animals* or *Dogs should be forbidden in parks*.

(iii) Prototypicality effects have shown that some elements may be perceived as better examples of a category than others, a possibility which is unexpected in the classical theory: if concepts are well defined, all members of a category should be on a par as long as they satisfy all necessary features. Again, to continue with another classical example, the Pope is not a likely candidate for bachelor even though he satisfies all essential features of the expression (i.e. unmarried & man). Prototypicality effects are difficult to reconcile with the classical view on lexical meaning.

(iv) If concepts consist of necessary features only, there should be a way to distinguishing essential from accidental properties. In principle, this was the job of analytical statements, defined as *a priori* and unrevisable truths, but this possibility was rejected after Quine's attack on the analytic / synthetic distinction and Wittgestein's observations on the basis of the concept 'game', which he used to illustrate the fuzziness of conceptual categories. Carnap introduced meaning postulates precisely to formalize analycity and it seems therefore reasonable to assume that the system of lexical decomposition employed in FG, which is based on meaning postulates, also tries to account for necessary conditions only.

Clearly, all this implies that a characterization of lexical competence should rely on different principles.[6] Given the difficulty in dividing linguistic from enclyclopaedic knowledge, proponents of Cognitive Grammar claim that encyclopaedic specifications should be seen as part of the meaning of lexical items (LANGACKER, 1987, p.154). The basic idea is that lexical items, or linguistic expressions, for that matter, are points of access to different bodies of knowledge against which we can make sense of them. Langacker believes that the part of the meaning of a lexical item which can be called conventional is simply contextual (roughly encyclopaedic) knowledge which has been established "as conventional through repeated occurrence" (LANGACKER, 1987, p.158). The question is then, how is that conventional meaning established?

As it is not reasonable to assume that speakers invoke all their knowledge about a concept to interpret an expression, Langacker (1987, p.159) agrees that some aspects of the meaning of a lexical item are more central than others.

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6 A radical alternative approach is offered in the work of Jerry A. Fodor (FODOR, 1998; FODOR and LEPORE 1998). In Fodor and Lepore's (1998, p.270) review of Pustejovski (1995), we read "We propose to adopt a version of this claim as a sort of null hypothesis: namely, that the only thing a lexical entry specifies is the denotation of the item it describes. Here again we scant the details for the moment. Roughly, though: the lexical entry for *dog* says that it refers to 'dogs'; the lexical entry for *boil* says that it refers to 'boiling'; and so forth." Hence, the valid inferences that obtain from lexical items should be attributed to general knowledge rather than to the meaning of the lexical item in question.

Centrality is seen as a complex notion, not necessarily linked to the fact that an aspect of meaning is a necessary condition.

A more elaborated model along these lines is found in Evans (2006). According to Evans, there is a distinction between *lexical concepts*, which are of linguistic a nature, and *cognitive models*, which would correspond to the "semantic potential that lexical concepts provide access to" (EVANS, 2006, p.496), roughly, encyclopaedic knowledge. Evans argues that meaning construction is a function of language use which arises through the use of lexical concepts in particular communicative situations. In turn, and clearly in line with Langacker's observation above, lexical concepts are "abstractions which language users derive from conceptions" (i.e. constructed meaning). Evans's distinction between lexical knowledge and the encyclopaedia seems to make his thesis incompatible with the allegedly gradual relation between the lexicon and the encyclopedia that cognitive grammarians defend. However, what is relevant in his approach is that conventional lexical meaning is not assumed to be rigid or based upon necessary and sufficient conditions.

Just like Langacker, Marconi (1997, p.41) claims that some of the features associated with a lexical concept are more likely to be considered linguistic; these include **necessary** and **universal** specifications, and those which can be taken as **constitutive** of normal competence by the members of a linguistic community. Crucially, he explicitly denies that lexical knowledge could be equated with the encyclopedia.

Of course, the problem with these notions is that they can offer contradictory results for a given specification. Let us take our previous example again: the feature 'mammal' in the meaning of 'dog'. Undoubtedly, this is both a necessary and universal feature, as it applies to all dogs, but is it constitutive of normal competence? Note that it may not be available to those speakers who have not had the opportunity of receiving primary education. Compare it with the specification 'it has four legs'. This is an observable piece of knowledge probably available to all speakers and clearly constitutive of normal competence. But is it a necessary feature? Not really, as there can be dogs with just three legs. However, what is undeniable is that there cannot be dogs which are not mammals.

This means that it is rather difficult to determine the set of features which can characterize the collective meaning of a given lexeme. Marconi (1997, p.52-53) expresses this neatly:

> two (or more) speakers may be said to share a common language, in the ordinary sense of that phrase, even though they only share some beliefs (...) at the lexical level, individual competence does not

> coincide with encyclopedic knowledge, that is, with the totality of true beliefs that can be ascribed to the linguistic community as a collective entity (…) it is extremely hard to isolate a plausible subset of encyclopaedic knowledge as being constitutive of (lexical) semantic competence, that is, a set of propositions we all ought to know or belief in order to be regarded as lexically competent. As a matter of fact, each of us knows or believes partly different things (partly different subsets of the collective encyclopedia), yet we are all competent in the use of our language (…) We ought to speak not of a unique lexical competence, only of individual competences. In this sense, there is no language, only idiolects.

The question is then, how do we account for inter-human communication if individual competences are so varied? An answer immediately suggests itself if, again, we replace the notion lexical meaning with lexical competence, understood as the ability to use words in efficient communication. A speaker need not possess a 'perfect' definition of a word to be able to communicate efficiently. As long as speakers *share* a number of beliefs about concepts, they can be said to communicate.[7] And, as we well know, communication emerges out of intentions and, by default, users talk to communicate with others. Therefore, many differences in lexical competence across speakers go unnoticed as long as communication is not disrupted. If disruption does take place, discourse might need meta-linguistic repair.

So, speakers need not possess an optimal definition of a concept, not even share the same set of beliefs about a concept. All they need is, in the words of Marconi, to *converge* on a number of beliefs for communication to take place. My personal interpretation of the notion *converge* is a dynamic one. Speakers converge on meanings dynamically, on line. They may adapt their own beliefs on the basis of the contextual information available, and thus modify their previous ideas on concepts. Thus meaning is not merely conveyed, it is constructed cooperatively (EVANS, 2006). But this does not mean that two speakers possess exactly the same concept *a priori*. And from this, it also follows that there are no beliefs that are necessarily shared by all competent users. It is enlightening, however, that both Langacker and Marconi agree that being conventional or constitutive or normal competence is a crucial criterion for a feature to be considered central in the meaning of a lexeme, a notion which fits extremely well in a usage-based theory of meaning.

An important consequence of this approach is the flexibility which is attributed to lexical meaning. Thus, it is possible for a given feature to evolve form being contingent or necessary to being constitutive of normal competence

[7] Of course, the nature of those beliefs is crucial in the approach defended here. As a matter of fact, characterizing speakers' lexical competence is the objective of a research project at the University of Oviedo. At the moment, different and rather exhaustive lexical tests have been applied to 36 Spanish native speakers of different age and education. We hope to provide reports on the results of this project in future work.

and therefore central. Lexical meaning is understood as a dynamic entity, subject to revisions, extensions or adaptations both in context and through time. Secondly, given that the features associated with lexical concepts are in principle open-ended, different aspects of meaning may be highlighted in particular communicative situations. This is what happens in the process called *modulation of senses* (CRUSE, 1986). Consider the following examples (adapted from CRUSE, 1986, p.53):

(2) a. Sue is visiting her cousin
b. Sue is visiting her pregnant cousin

In (2a), *cousin* is general with respect to the distinction male or female. This distinction is neutralized in (2b) where the only possible interpretation is 'female' cousin. Hence, the context crucially contributes to selecting/adding one particular trait of meaning under the shared belief that only female human beings can be pregnant. Consider the following examples, also taken from Cruse (1986):

(3) a. The car needs servicing
b. The car needs washing
c. We can't afford that car
d. Our car couldn't keep up with his

In (3a) and (3b) 'car' highlights different parts of the car, whereas in (3c) and (3d) it is general attributes, the prize and the performance, that are brought to the fore. These interpretations are difficult to explain if one does not assume that certain features (the fact that cars are sold and have a prize or the fact that cars have differences in performance, etc.) are part of speakers' normal lexical competence. They are also difficult to explain in a model claiming that lexical entries are complex bundles which are retrieved in utterances in toto.[8]

Again, it could be argued that modulation of senses or meaning creation in context is a matter of language use which can be accounted for in a theory of meaning which assumes fixed definitions for lexical items. Indeed, the core meanings of *cousin* in (2) and *car* in (3) may be reasonably argued to have remained unaltered and only further constricted in each context. While this may be true from a comprehension perspective, I would think that in the production process speakers select or highlight the relevant meaning specifications from the set associated to a given lexeme in the construction of the message content they wish to convey.

In the following section I will examine the implications of this approach for the selection of lexical items and the start of the formulation process in FDG. As

[8] As I also show in García Velasco (Forthcoming), this system allows for a proper treatment of conversion (zero-derivation) phenomena in English.

the standard view in the theory makes use of decompositional definitions, it will be necessary to propose an alternative approach with, possibly, significant consequences for the overall organization of the model. By examining the influence of general knowledge in the linguistic generation process I will also show that this conception of lexical competence is preferable to an approach which rests on the separation between linguistic and communicative competence.

3 Implications for FDG

As mentioned in the preceding section standard FG has characterized lexical meaning in accordance with the classical view, accepting the possibility that necessary and sufficient features can be identified and that they constitute the meaning of lexical items. Dik accepted Carnap's meaning postulates as an adequate way of formalizing this intuition. Moreover, since he assumed that defining language is "a language-internal affair", he rejected the possibility of including general knowledge as part of speakers' lexical competence.

The view that I have defended here, however, suggests that lexical meaning is conventional information associated to lexical items, and rejects the possibility of proposing static definitions for lexical items. Individual competences are varied and the meaning of lexical items is flexible and can be adapted in context and modified through time. FDG, the successor of Dik's FG, has not been very explicit in its treatment of the lexicon component and the exact role it has in the grammar, but certain crucial differences in its organization with respect to classical FG are obvious and merit some discussion.

First, unlike FG, FDG is a top-down grammatical model which takes the *discourse act*, rather than the *sentence*, as the basic unit of linguistic analysis. The theory is strongly inspired by Levelt's (1989) model of language production, which runs from the speaker's communicative intention to its encoding in an adequate linguistic expression in the target language.[9] Levelt's model of the speaker comprises three different components: a *Conceptualizer*, a *Formulator* and an *Articulator*. Conceptualizing involves creating a communicative intention and constructing a preverbal message: a conceptual structure that will serve as input to the Formulator. The process of Formulation translates this preverbal conceptual structure into a linguistic structure (LEVELT 1989, p.11). Finally, Articulating involves executing an acoustic plan by means of the relevant physiological organs.[10]

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9 See Butler (Forthcoming) for a careful comparison of Levelt's model and FDG.

10 In FDG, as a model of the natural language user rather than a model of the speaker, articulating involves expressing the output of the grammar component according to the medium chosen (written output, acoustic output, etc.).

The process of Formulation is fed by a set of primitives, including frames, lexemes and primary operators. Frames and Lexemes are the result of García Velasco and Hengeveld's (2002) proposal to separate lexemes from argument structures. These authors suggest that the notion of *predicate frame* in FG should be replaced by a combination of *predication frames* on the one hand, lexemes provided with abstract meaning definitions on the other, and a linking mechanism joining them together. The linking mechanism is sensitive to the number of entities present in the abstract meaning definition which, in the default case, will have to be projected onto syntax. By way of illustration, the authors examine a simple case of linking. They propose the following definition for the lexeme *open*:

(4) *open* [V]
[f_1: [CAUSE (x_1) [BECOME **open'** (x_2)]]]

This entry states that *open* designates a relation (as represented by the 'f' variable) between two entities (as represented by the 'x' variables). The presence of these variables guides the linking process towards the selection of a transitive predication frame. Predication frames are assumed to define basic syntactic environments for the insertion of lexemes. Thus, the following is the predication frame for the lexeme *open* in its transitive use:

(5) (π e_1: [(f_1: *open* (f_1)) (x_1)$_{Ag}$ (x_1)$_{Pat}$] (e_1))

One of the obvious consequences of this proposal is that the number of arguments of a given lexical item and their semantic functions can be obtained from the abstract meaning definitions in an on-line fashion. What is more, the system allows the same lexeme to choose different frames, thus offering a new scenario in which to treat syntactic alternations.

This approach fits in nicely with Levelt's model. According to Levelt (1989, p.73), preverbal messages must be constructed on the basis of some propositional language of thought in such a way that they meet the conditions required to be expressible in human language. Lexical selection relies on the existence of a match between the conceptual preverbal message and the conceptual specifications of a given lexical item. If that is the case, the relevant lexeme will be retrieved and will trigger the process of grammatical encoding (see LEVELT, 1989, chapter 7). Given the fact that lexical definitions are usually constructed on the basis of decomposition models of lexical meaning and preverbal messages are assumed to be made of similar constructs, the process of lexical selection is thus easily solved.[11]

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11 According to Bierwish and Schreuder (1992, p.28), lexical decomposition is needed to account for lexical access. At the same time, decomposition models are also useful to link the lexicon with the syntactic system and select syntactic configurations. Hence, all in all, decomposition is useful from a grammar designing perspective and one might even think that its defense relies mostly on theoretical convenience.

In the preceding section, however, I have argued that definitions based on necessary and sufficient features are not valid structures to represent speakers' lexical competence; therefore, the FDG approach just sketched does not seem to be in accordance with the observations on lexical competence presented in the previous sections. In particular, definitions such as (4) should be modified or replaced with structures compatible with the view on lexical meaning here defended. Obviously, this move will also have consequences for the process of lexical selection and the linking between the lexicon and syntax.

Although certain modifications will be necessary, the FDG organization offers a simple solution to the linking issue even if decompositional definitions are dispensed with. Assuming that predication frames (containing the qualitative and the quantitative valency of the lexemes in the language) belong to the primitive inventory of the grammar, there is no need for the system to extract this information from the definitions themselves. Speakers will select a relevant frame on the basis of the specifications or beliefs associated to a lexical item, but the syntactically relevant information will only be present in the frame chosen.

In the preceding section I argued that the meaning of lexical items should be seen as sets of beliefs conventionally attached to lexical items by the members of a linguistic community. I also assumed, following Marconi, that it is not possible to isolate the specific set of beliefs which are shared by all speakers for a given item. Bearing this in mind, the semantic side of a lexical entry should thus be seen as an idealized representation of that partially common knowledge. Let us illustrate the mechanism with an example.

The lexeme 'open' might be linked to the following pieces of information which could be assumed to be part of normal competence:

(6) *Open*:

a. Opening is an event.

b. By opening somebody allows entrance of something.

c. Tins, doors, etc. can be opened.

d. People open doors to enter buildings.

etc.

The representation in (6) states the following: any competent speaker should 'know' that the item 'open' denotes an event (6a). I would assume, therefore, that lexemes are characterized in the lexicon by competent speakers as 'event-denoting', 'thing-denoting', 'property-denoting', etc., as a basic feature. Secondly, speakers should have an intuition of the number of participants typically involved in the bringing about of the event (6b-c). Finally, speakers will have a variable

number of specifications of pragmatic nature which may even relate to their own private experience.

Assuming that (6a-b) are the minimum required to be competent in the use of this lexeme, speakers will have everything necessary for the selection of a predication frame. First, the fact that 'open' is characterized as an event will guide towards the selection of an eventive frame. The fact that participants will be coded as agents, patients or processed entities is part of the grammar of the relevant languages and should not be included in the lexical entry. All that is needed is a representation of the action of 'opening' either in propositional format as in (6b) or in referential format (i.e. images, 3D representations, etc.). The system also allows new specifications from the conceptual component to enter the characterization of the item. Lexical meaning is thus flexible, it can be adapted in context, and parts of it may be highlighted in a specific discourse act.

One important advantage of this model is that it explains how conceptual specifications may influence the selection of predication frames. It is usually assumed that the semantic representations of linguistic expressions are embeddable into wider conceptual structures so that they can be interpreted (BIERWISH; SCHREUDER, 1992, p.33). In other words, linguistic units convey meaning which is further interpreted on the basis of the information provided by speakers' general knowledge and the particulars of the communicative situation. As mentioned earlier, this position may be related to the distinction between grammatical and pragmatic competence.

However, what authors tend to forget is the fact that general knowledge may have consequences not only for the interpretation of expressions in context but also for the generation of linguistic expressions in very specific ways. I mentioned before that referential knowledge may influence syntactic behaviour. Jackendoff argues that verbs in the same semantic domain are only distinguished through a 3D model with no syntactic consequences. Taylor (1996) explicitly argues against this view by showing that there are important differences in meaning between verbs such as *jog* and *run* that one cannot capture in a 3D perceptual format. In particular, he claims that the activity of jogging is characterized against the convention of a certain first-world society lifestyle emphasizing health and fitness. Although jogging may be considered a type of running, the two verbs are not interchangeable in all syntactic contexts, showing the relevance of the different conceptual nature of both activities. Consider the following contrasts:

(7) a. Bruce ran against Phil

b. * Bruce jogged against Phil

(8) a. He ran to get to the airport
b. * He jogged to get to the airport

(9) a. He ran away from the police
b. * He jogged away from the police

According to Taylor, the ungrammaticality of the 'jog' expressions relates to the nature of the activity of jogging as opposed to running. Jogging cannot be conceived as a competitive activity, as in (7b), and its purpose is not to arrive quickly at a specific destination, as in (8b), or to move away from a given position, as in (9b). The pragmatics of jogging, then, has an influence on its syntactic behaviour and should be part of the meaning associated with this lexeme. This observation is a problem for lexical representations which only include those aspects of the meaning of lexical items that are relevant to syntax.

Even syntactic alternations may be motivated by aspects of pragmatic knowledge associated with lexical concepts. Let us illustrate this with the so called causative alternation. As is well-known, there are significant differences among verb classes with respect to the possibility of participating in the alternation: *manner-of-cutting* verbs do not seem to admit the alternation, unlike *change-of-state* verbs such as *break*, as shown in (10) and (11) respectively:

(10) a. Margaret cut the bread
b. * The bread cut

(11) a. Margaret broke the window
b. The window broke

The problem thus lies in determining the factors which forbid the application of the process in one lexical class and allow it in another. Within Generative Grammar, Levin and Rappaport (1994) have tried to identify such a property in their analysis of this alternation. Summarizing their conclusions, it is possible to say that the feature which the verbs participating in the construction share centres on the nature of the instigator of the process. The authors assume that those intransitive verbs which participate in the alternation denote events which are *externally caused*, whereas those intransitive verbs which do not are *internally caused*. Levin and Rappaport (1994, p.49-50) explain these notions in the following way:

> With an intransitive verb denoting an internally caused eventuality, some property inherent to the argument of the verb is 'responsible' for bringing about the eventuality. (...) In contrast to internally caused verbs, verbs which are externally caused inherently imply the

> existence of an external cause with immediate control over bringing about the eventuality denoted by the verb: an agent, an instrument, a natural force, or a circumstance. Thus something breaks because of the existence of some external cause; something does not break solely because of its own properties. Some of these verbs can be used intransitively without the expression of an external cause, but, even when no cause is specified, *our knowledge of the world* tells us that the eventuality these verbs denote could not have happened without an external cause. (emphasis mine)

This explains why internally caused verbs such as verbs of 'emission' cannot participate in the alternation:

(12) a. *The jeweller sparkled the diamond
b. *Max glowed Jenny's face with excitement
c. *We buzzed the bee when we frightened it

According to the authors, those transitive verbs which accept an intransitive variant denote an event which can occur without the intentional intervention of an agent. It is common, therefore, that these verbs may take Forces or Instruments as subjects:

(13) The wind/the key opened the door

However, transitive verbs which require a volitional subject do not take part in the alternation:

(14) a. *The candidate assassinated/murdered
b. *The letter wrote
c. *The house built

As expected, they do not readily accept the presence of an Instrument or Force in subject position:

(15) a. *The knife assassinated/murdered the candidate
b. *The pen wrote the letter
c. ?? The crane built the house

As Levin and Rappaport (1994) suggest, it is our knowledge of the world that tells us when the alternation can be applied. Given its cognitive-pragmatic nature, this alternation can be handled in a much more natural way with an approach to lexical meaning in which pragmatic specifications can be attached to the semantics of lexical items.

Even more crucially, speakers may interpret an internally caused verb as externally caused. Take the verb *disappear* in Spanish. This is, as in English, an intransitive verb which does not allow a causative interpretation:

(16) a. El coche desapareció
The car disappear.PAST
'The car disappeared'

b. * Pepe desapareció el coche
Pepe disappear.PAST the car
'Pepe made the car dissappear'

Yet, for some speakers in certain varieties of Spanish, in particular in the geographical area where I was born, (16b) is possible. A similar situation arises in the following expressions (attributed in Radford (1997, p.420) to Melissa Bowerman) which illustrate common errors produced by children in their use of verbs:

(17) a. Can I glow him? = 'make him glow'
b. It stirs around = 'the ice tea swirls around'
c. Larry knocked down = 'Larry fell down'

Since we cannot assume that children have obtained these forms from their caregivers, we need a system which allows verbs to be used in different syntactic contexts until the correct conventional use of the relevant verb is learnt.

All this shows that general information is not only needed to interpret linguistic expressions, but also to produce them. Within FDG (and any other theory of language), therefore, room must be made to account for the relation between lexemes and pragmatic features associated to lexical concepts which are part of long-term information, but which can clearly influence the choice of a specific predication frame. Lexical meaning, both referential and inferential, is based on speakers' shared beliefs on the nature of concepts. Basic specifications, such as the fact that a given lexical item denotes an event or a thing should obviously be considered linguistic, but the item should also be directly connected to the conceptual component, which provides specifications subject to revisions or validations. To the extent these specifications become conventional (in the sense of constitutive of normal competence) they will become part of the linguistic system. Thus, there are no lexical entries in the traditional sense, but rather, correspondences between conceptual information, i.e. specifications or properties we conventionally apply to concepts, and linguistic primitives used in the construction of linguistic expressions. Of course, each speaker will have

certain values associated to a lexical item, but they may be revised or adapted on the basis of the information in the conceptual component and the needs of convergence in communication. Given the inherent fragmentary nature of lexical knowledge, then, an upsetting conclusion of this approach is that the lexicon component, by its very nature, resists a uniform and elegant characterization in a formal system of representation. To cite Marconi again, that would only be the representation of one speaker's idiolect.

4 Conclusion

In this paper, I have argued that the treatment of the lexicon component in FDG should rely on different principles than those usually assumed in grammatical theory. It should be noted that the shortcomings detected in the treatment of lexical knowledge in contemporary linguistics are not exclusive to FDG. Quite on the contrary, they are common to most grammatical models, but they probably have more serious methodological consequences for functional models of language. Formal models have avoided most of the problems detected here by putting them aside of linguistics proper through the well-known distinction between competence and performance. Unfortunately, this approach may have been unconsciously inherited by functional theories, which employ similar strategies in the characterization of lexical meaning. I hope to have shown that studying lexical knowledge from the point of view of communicative competence shows quite a different picture with significant implications for the organization of linguistic models.

In particular, I have proposed that decompositional models do not capture lexical competence adequately and they should be replaced by specifications or beliefs which permit a more flexible treatment of lexical knowledge and behaviour. I have also shown that this move does not require the introduction of additional machinery into the theory, but just the assumption of a more intimate relation between the lexicon component and the conceptual component.

Of course, I am well aware that the issues discussed in this paper are of such a serious nature and have such profound implications that my exposition may have been too superficial at times. I do hope, however, that these observations may serve to stimulate a necessary discussion on the role and organization of the lexicon component in FDG.

Acknowlegments

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GARCÍA VELASCO, D. Competência lexical e Gramática Discursivo-Funcional. *Alfa,* São Paulo, v.51, n.2, p.165-187, 2007.

- RESUMO: Este artigo discute o papel do componente lexical na Gramática Discursivo-Funcional. Argumenta-se que o tratamento do significado lexical na maioria dos modelos gramaticais é inadequado. Propõe-se uma análise alternativa baseada na noção de competência lexical de Marconi (1997), de acordo com a qual o significado lexical compreende duas dimensões diferentes: conhecimento referencial e inferencial. Argumenta-se a seguir que modelos decomposicionais de significado lexical não captam realmente o conhecimento inferencial do falante, da mesma forma que é questionável a noção de que possuem definições detalhadas e semelhantes para a maioria dos itens lexicais. Os falantes associam crenças e especificações a itens lexicais e a comunicação emerge quando tais crenças convergem dinamicamente em interação verbal. Por fim, as implicações dessa análise para a GDF são examinadas. Sugere-se que definições com significado abstrato não são realmente necessárias para o modelo e que o léxico deveria estar em contato estreito com o componente conceptual.

- PALAVRAS-CHAVE: Gramática Discursivo-Funcional; competência lexical; léxico; componente conceptual.

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THE EXPRESSIBILITY OF MODALITY IN REPRESENTATIONAL COMPLEMENT CLAUSES IN BRAZILIAN PORTUGUESE

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- ABSTRACT: This paper deals with the (im)possibility of expressing a variety of modal categories within the context of the layering approach to complementation in Functional Discourse Grammar (FDG).Our hypothesis is that modal expressions in complement clauses only pertain to operator or modifier classes of the highest layer relevant for that type of embedded construction and for all lower levels. In order to test this hypothesis, occurrences of complement clauses in two databases of spoken Brazilian Portuguese are analyzed. The investigation of this hypothesis is restricted to representational complement clauses.

- KEYWORDS: Complement clauses; representational level; modality; operator; modifier.

1 Introduction

This paper investigates the question to what extent the (im)possibility of expressing a variety of modal categories in complement clauses in Brazilian Portuguese may be explained in terms of the layering approach to complementation in Functional Discourse Grammar (FDG). The data used to answer this question derive from a corpus of oral language. After briefly discussing the corpus that was used for this study in section 2, we summarize the relevant parts of the theory of Functional Discourse Grammar, including its approach to complementation and to modality, in section 3. Section 4 then presents our hypotheses with respect to the distribution of modal elements in the main types

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of complement clause recognized within FDG. The parameters of analysis are established in section 5 and the systematic analysis of the corpus data is presented in section 6, where we also contrast the results of the corpus analysis with grammaticality judgments of constructed examples in order to show that the distribution encountered is not an artifact of the constitution of the corpus. In section 7 we expand the analysis to some phasal predicates. Conclusions are presented in section 8.

2 The corpus

The corpora analysed in this research constitute two databases of spoken Brazilian Portuguese: the NURC corpus and the IBORUNA corpus. NURC is a Corpus of the Spoken Portuguese Grammar Project. This project collected samples of spoken Brazilian Portuguese in five state capitals: São Paulo (SP). Rio de Janeiro (RJ), Porto Alegre (POA), Recife (REC) and Salvador (SSA). Three different types of samples were recorded in each of these cities: formal elocution (EF), dialogues between the speaker and the interviewer (DID) and dialogues between two speakers (D2). The speakers are men and women born in these state capitals with high level of education (completed undergraduation), whose parents are also Brazilian. In order to indicate the source of the examples we use the following coding convention: type of sample (EF, DID or D2), the city in which the data were collected (SP, RJ, POA, REC, SSA) and the number of recording.

IBORUNA is a corpus with samples of spoken Brazilian Portuguese collected in São José do Rio Preto and six adjoining cities. The speakers are men and women born in those cities or living there since they were 5 years old. Although this corpus includes speakers of different levels of education, we analyzed only samples of urban standard pattern, the same kind of data collected in NURC corpus. The coding convention for this corpus is: type of sample (AC – amostra censo, which means, personal interviews collected according to the linguistic census in the São José do Rio Preto area) and the recording number.

The data selected include all representational complements containing at least one modal expression (operators and modifiers). Examples with incomplete and/or unanalyzable propositional and predicational complements and parenthetical uses of complement taking predicates are excluded.

3 Functional Discourse Grammar

Functional Discourse Grammar is the successor of Functional Grammar (DIK, 1997). A summary of the various properties of this model may be found in

Hengeveld (2005) and Hengeveld and Mackenzie (2006); a full presentation of the model is given in Hengeveld and Mackenzie (2008, Forthcoming). A general overview of the FDG model is given in Figure 1, which shows that various levels of analysis are recognized within the grammar: the interpersonal, the representational, the morphosyntactic, and the phonological level. Each level consists of various hierarchically ordered layers.

3.1 Levels

At the interpersonal level the hierarchical structure given in (1) applies:

(1) $(M_1: (A_1: [(F_1) (P_1)_S (P_2)_A (C_1: [...(T_1) (R_1)...] (C_1))] (A_1)) (M_1))$

The hierarchically highest unit of analysis given here is the move (M), which may contain one or more discourse acts (A). A discourse act is organized around a basic illocution (F), which combines with the speech act participants (P, the speaker S and the addressee A) and the communicated content C evoked by the speaker. The communicated content, in turn, contains a varying number of ascriptive (T) and referential (R) acts. Note that the latter two units are operative at the same layer, i.e. there is no hierarchical relation between them. In general, then, at the interpersonal level units are analysed in terms of their communicative function.

At the representational level the layers presented in (2) are relevant:

(2) $(ep_1: (p_1: (e_1: (f_1: [(f_2) (x_1)] (f_1)) (e_1)) (p_1)) (ep_1))$

At this level of analysis linguistic units are described in terms of the entity type they designate. These entity types are of different orders: third-order entities or propositional contents (p); second-order entities or states of affairs (e); first-order entities or individuals (x); and zero-order entities or properties (f). Propositions may furthermore be joined into episodes (ep). Note that an (f) unit occurs both as a unit characterizing a states-of-affairs (f_1) in (2), and as an independent constituent (f_2) within the state of affairs. The units (f_2) and (x_1) in (2) belong to the same layer, i.e. there is no hierarchical relation between them.

At the structural level, constituent structure representations of clauses, phrases and words are given, while the phonological level provides the overall segmental and suprasegmental phonological representation of a construction. At these levels underlying units become more language-specific, but the assumption is that differences between languages can be described systematically along typological parameters.

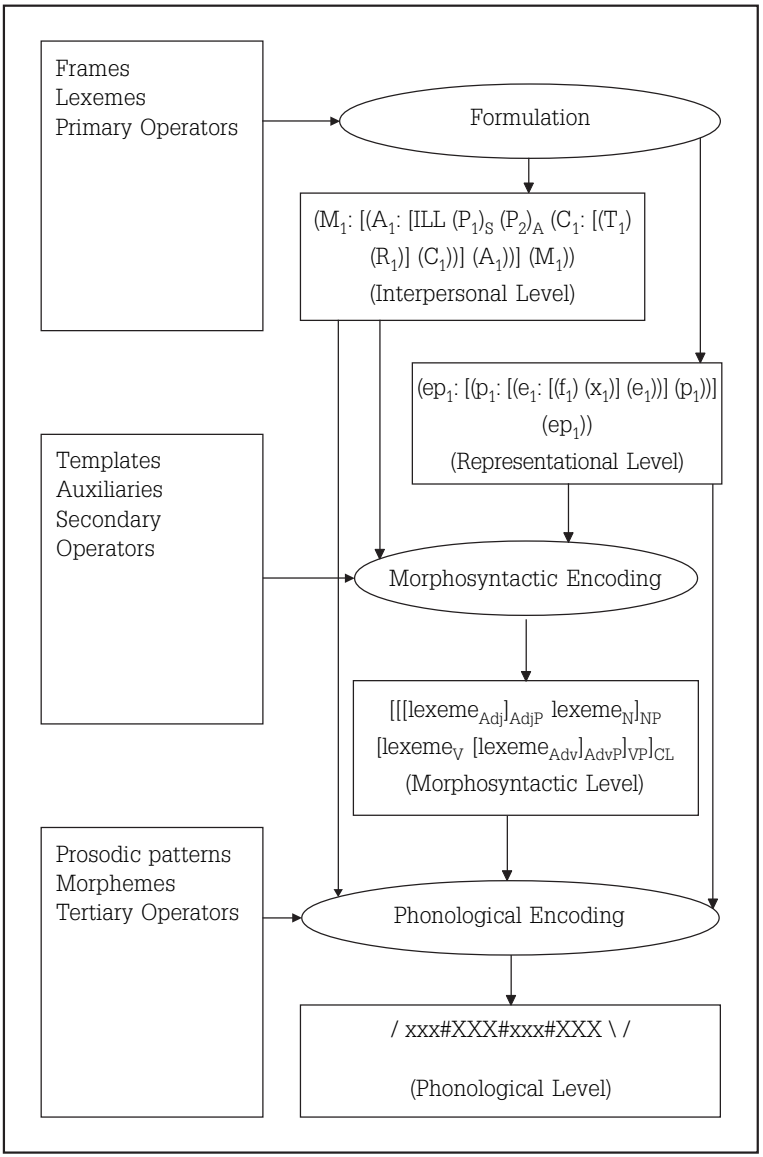

Figure 1 – Outline of FDG

An important property of the model is that the interpersonal, representational, and morphosyntactic levels of linguistic organization are built up using different sets of primitives. The interpersonal and representational levels of organization are structured on the basis of pragmatic and semantic frames, into which lexemes and primary operators (i.e. operators that are defined in terms of their meaning)

are inserted. The morphosyntactic level is organized in terms of structural templates, into which, apart from lexical material from the preceding levels, grammatical words and morphosyntactic secondary operators (i.e. operators anticipating bound grammatical expressions) are inserted. The phonological level is organized in terms of prosodic patterns, into which the lexical material from the preceding levels is inserted, together with bound morphemes and possibly tertiary operators (i.e. operators anticipating the acoustic expression of the utterance).

Finally, it is important to note that levels are related to each other through operations, represented in circles in Figure 1. There is a fundamental distinction between FORMULATION on the one hand, and ENCODING on the other. The process of formulation is concerned with specifying those pragmatic and semantic configurations that are encoded within the language. In terms of formulation, languages may differ in e.g. the kind of pragmatic and semantic functions that are relevant for a description of their grammatical system. The process of encoding is concerned with the morphosyntactic and phonological form pragmatic/semantic configurations take in the language. In terms of encoding, languages may differ in e.g. their word order, morphological types, phoneme inventory, etc.

3.2 Layering

Each level has a hierarchical organization consisting of several layers. Lower layers are contained within higher layers. Each layer at the interpersonal and representational level has the following internal structure, where á ranges over all variables:

(3) $(\pi\, \alpha_1$: (complex) head $(\alpha_1)_\varphi$: $\sigma(\alpha_1))_\varphi$

A unit may be built up using lexical and grammatical means. The lexical means can be subdivided into obligatory heads and optional modifiers (σ). The head is represented as the first restrictor, the modifier as a non-first restrictor. The grammatical means are subdivided into operators (π) and functions (φ). Operators capture non-relational properties expressed through grammatical means, functions capture relational properties expressed through grammatical means.

The main semantic domains of operators and modifiers at the various layers of the interpersonal and representational levels are listed in Table 1 and illustrated with an example of a modifier.

Table 1 – Semantic domains of operators and modifiers

Interpersonal level	
M	Communicative status of the move (e.g. *however*)
A	Communicative status of the act (e.g. *in addition*); Stylistic properties of the act (e.g. *briefly*)
F	Illocutionary manner (e.g. *frankly*)
C	Subjective attitude (e.g. *fortunately*); Reportativity (e.g. *reportedly*)
Representational level	
ep	Order of episodes (e.g. *first*)
p	Propositional attitude; Evidence (e.g. *possibly*; *apparently*)
e	Temporal orientation; Reality status; Location; Event quantification (e.g. *yesterday*; *hardly*; *here*; *twice*)
f	Manner; Aspect; Participant-oriented modality (e.g. *beautifully*; *continuously*; *be able to*)

By way of example, consider the interpersonal (5) and representational (6) formalization of example (4), adapted from Hengeveld and Wanders (Forthcoming):

(4) Reportedly a man was deliberately cutting himself with a knife yesterday.

(5) $(A_I: [(F_I: \text{DECL}\ (F_I))\ (P_I)_S\ (P_J)_A\ (C_I: [(T_I)\ (R_I)\ (R_J)\ (R_K)]\ (C_I): \text{reportedly}_{Adv}\ (C_I))]\ (A_I))$

(6) $(p_i: (\text{past}\ e_i: (\text{progr}\ f_i: [(f_j: \text{cut}_V\ (f_j): \text{deliberately}_{Adv}\ (f_j))\ (1\ x_i: \text{man}_N\ (x_i))_{Ag}\ (x_i)_{Pat}]\ (f_i): (1x_j: \text{knife}_N\ (x_j)_{Instr}\ (f_i))\ (e_i): \text{yesterday}_{Adv}\ (e_i))\ (p_i))$

The various lexical modifiers are represented at their respective layers: *reportedly* at the C-layer of the interpersonal level in (5), *deliberately* and *yesterday* at the f_j- and e_i-layer of the representational level in (6). The past progressive form of the verb is triggered by the combination of an aspectual and a temporal operator at the f_i- and e_i- layer in (6).

3.3 Complementation

Just as layers may be further specified by modifiers and operators, they may be turned into an argument of a complement-taking predicate. For a full discussion of complementation in FDG see Hengeveld and Mackenzie (Forthcoming, chapter 5-6).

Complement-taking verbs expressing the semantic domains listed in Table 1 for the INTERPERSONAL LEVEL, take arguments with decreasing internal complexity the lower the layer they embed. The layers distinguished at the interpersonal and representational levels that may potentially underlie a subordinate clause are listed in (7) and (8):

(7) Interpersonal layers underlying subordinate clauses

a. $(\Pi M_1: (\Pi A_1: [\ldots (\Pi C_1: [(T_1) (R_1)] (C_1): \Sigma (C_1))] (A_1): \Sigma (A_1)) (M_1): \Sigma (M_1))$

b. $(\Pi A_1: [\ldots (\Pi C_1: [(T_1) (R_1)] (C_1): \Sigma (C_1))] (A_1): \Sigma (A_1))$

c. $(\Pi C_1: [(T_1) (R_1)] (C_1): \Sigma (C_1))$

(8) Representational layers underlying subordinate clauses

a. $(\pi ep_1/\pi p_1: (\pi e_1: (\pi f_1: [(f_2) (x_1)] (f_1): \sigma (f_1)) (e_1): \sigma (e_1)) (ep_1/p_1): \sigma (ep_1/ p_1)$

b. $(\pi e_1: (\pi f_1: [(f_2) (x_1)] (f_1): \sigma (f_1)) (e_1): \sigma (e_1))$

c. $(\pi f_1: [(f_2) (x_1)] (f_1): \sigma (f_1))$

A higher layer generally contains all lower layers. As a result, subordinate constructions can be classified in terms of the highest layer they contain. Furthermore, since every layer brings along its own set of operators and modifiers, we can predict that operators and modifiers pertaining to the highest layer a subordinate clause contains, as well as all lower ones, can be expressed in that subordinate clause. Modifiers and operators pertaining to layers higher than the highest layer the subordinate clause contains, are barred from expression in that subordinate clause.

Consider the following examples and their underlying formalizations:

(9) I summarize that both acts, which you have mentioned, are important. The choice depends upon the individual. Since he is well aware of the circumstances, you should communicate to him your concerns and then let him decide what he may. Be thankful for whatever your father does since both acts will bring reward to you as well in the Hereafter.(move)

$(f_1: \text{summarize}_V (f\text{-}_1))$

$(x_1)_{\Phi}$

$(M_1: [(A_1: [(F_1) (P_1)_S (P_2)_A (C_1: [\ldots(T_1) (R_1)\ldots] (C_1))] (A_1))_{\Phi},$

$(A_2: [(F_2) (P_1)_S (P_2)_A (C_2: [\ldots(T_2) (R_2)\ldots] (C_2))] (A_2))_{\Phi}, \ldots] (M_1))_{\Phi}$

(10) I might add that, frankly speaking, you're going to have bigger problems than just raising capital. (act)

$(f_1: \text{add}_V (f\text{-}_1))$

$(x_1)_{\Phi}$

$(A_1: [\text{ILL} (P_1)_S (P_2)_A (C_1: [\ldots(T_1) (R_1)\ldots] (C_1))] (A_1))_{\Phi}$

(11) He said that reportedly there was some history of threats of domestic abuse in the family. (communicated content)

$(f_1: \text{say}_V (f_1))$

$(x_1)_{\Phi}$

$(C_1: [\ldots(T_1) (R_1)\ldots] (C_1))_{\Phi}$

The verb *summarize* in (9) introduces the summarizing move in an argumentative series. This move is represented as its argument M_1 and consists of a series of acts. The verb *add* in (10) takes a single act A_1 as its argument. And the verb *say* in (11) introduces the content C_1 communicated in the original discourse act. Note that it is often hard to decide whether we are dealing with a move or with a discourse act acting as a complement, as is the case with modifiers operating at these levels.

Complement-taking verbs expressing the semantic domains listed in Table 1 for the REPRESENTATIONAL LEVEL, take arguments with decreasing internal complexity the lower the layer they embed. Consider the following examples and their underlying formalizations:

(12) It ends with that he breaks up with her, and she runs crying out in the hall. (episode)

$(f_1: end_V\ (f\text{-}_1))$

$(ep_1: [(p_1: (e_1: (f_2: [(f_3) \ldots] (f_2)) (e_1)) (p_1)), (p_2: (e_2: (f_4: [(f_5) \ldots] (f_4)) (e_2)) (p_2))] (ep_1))_{\Phi}$

(13) He believed that I had gone too far. (propositional content)

$(f_1: believe_V\ (f_1))$

$(x_1)_{\Phi}$

$(p_1: (e_1: (f_2: [(f_3) \ldots] (f_2)) (e_1)) (p_1))_{\Phi}$

(14) He wanted me to be in charge. (state-of-affairs)

$(f_1: want_V\ (f_1))$

$(x_1)_{\Phi}$

$(e_1: (f_2: [(f_3) \ldots] (f_2)) (e_1))_{\Phi}$

(15) He continued to cry. (property)

$(f_1: continue\ (f_1))$

$(x_1)_{\Phi}$

$(f_2: [(f_3) \ldots] (f_2))_{\Phi}$

The verb *end_with* in (12) introduces the final episode of a story, represented as its argument (ep_1), which itself contains the description of two propositional contents; the verb *believe* in (13) expresses a propositional attitude, and thus takes a propositional complement ($p\text{-}_1$), which itself contains the description of a state-of-affairs; the verb *want* in (14) takes as its argument the event wanted, and thus takes as its complement the description of a state-of-affairs (e_1), which itself contains the description of a property; and the verb *continue* in (15) describes the continued application of a property, and thus takes the minimal structure (f_1) as its complement. Thus, since higher layers contain all lower layers, complement clauses may be classified in terms of the highest layer that their underlying

representation contains. At the same time, the presence of a higher layer predicts the presence of all lower ones.

4 Hypotheses

In comparison with Functional Grammar (FG), Functional Discourse Grammar (FDG) offers a number of additional layers within the underlying representation of (combinations of) utterances. Since in FG the layers available within the underlying representation of full utterances constitute the possible types of complement clauses (see e.g. HENGEVELD, 1989; DIK; HENGEVELD, 1991; GENEE, 1998) the question is to what extent the layers used in FDG can similarly be used to provide a more comprehensive classification of complement clauses. Taking into account that our focus here is particularly on the specifications referring to the modal meanings occurring in complement constructions at the representational level, it is of particular interest to us to see how the episodes (ep) and properties of states-of-affairs (f) behave in relation to states-of-sffairs and propositional contents. The investigation of the hypothesis is restricted to complements of the representational level, since it is at this level that modal distinctions are most relevant and most diverse. With this restriction in mind, the hypothesis which we investigate may be summarized as:

> Modal expressions in representational complement clauses only pertain to operator and modifier classes of the highest layer relevant for that type of embedded construction and of all lower levels.

The analyses thus refer to the complements of the specified subtypes containing one or more modal expressions in the form of modifiers and operators. With respect to the last ones, however, the verbal mood in the complement is not being considered as a modal operator, since its use may be imposed by the verbal mood of the matrix predicate rather than by the need to independently express a modal value. The only modal elements that represent operators in the selected data are modal verbs which function as auxiliary verbs, like *poder, dever, ter que, querer*.

5 Parameters of analysis

In order to verify the relationship between the kind of modal and the kind of complement, we use the following functional parameters in our analysis.

5.1 Semantic type of matrix predicate

The semantic classification of the matrix predicates (DIK, 1997) allows us to distinguish the semantic category of the complement, within which we observe the presence of modal operators and modifiers:

(i) Propositional attitude predicates: "specify the [intelectual or emotional] attitude of a person in relation to the possible fact designated by the propositional complement" (DIK, 1997, p.107).The CTPs occurred in the corpus are the following: *achar (*to think), *parecer* (to seem), *pensar* (to think), *acreditar* (to believe), *crer* (to believe), *supor* (to suppose), *entender* (to understand), *admitir* (to admit), *ser evidente* (to be evident), *ser claro* (to be clear), *ter impressão* (to have the impression), *estar convencido* (to be convinced).

(ii) Predicates of knowledge and acquisiton/loss of knowledge: "designate the mental acquisition, possession, or loss of the fact designated by the propositional complement" (Dik, 1997, p.107). The only CTP occurred in the corpus is *saber* (to know).

(iii) Predicates of mental perception: "designate 'indirect perception' of the fact designated by complement propositional term" (DIK, 1997, p.108). Examples of this kind of predicate are: ver (to see), perceber (to perceive), descobrir (to discover).

(iv) Predicates of practical manipulation: "designate that X does something in order to get Y to do SoA, without an intervening speech act" (DIK, 1997, p.111): Examples of this kind of predicate are: fazer (to manage) and levar (to lead).

(v) Phasal predicates: designate the development phase (begining, midle or end) of the SoA described in the complement. In Dik's terms, "predicates of this class too take a predicational complement describing a SoA that necessarily occurs simultaneously with the SoA described in the main clause" (DIK, 1997, p.113) Examples of this kind of predicate are: começar (to begin), continuar (to continue), acabar (to finish).

A full description of all theses matrix predicate in Brazilian Portuguese can be found in Neves (2001, p. 31-53).

5.2 Semantic category of the complement

Within the representational level, different complements can be distinguished according to the semantic category of the matrix predicate (HENGEVELD; MACKENZIE, 2008, Forthcoming):

(i) ep-complement: episodes are combinations of clauses that represent a thematically coherent chunk of a narrative stretch, often with a series of events presented in chronological order and not involving any change of scene.

(16) Já as minhas [filhas] tinham um gato em casa... o gato é um bicho muito arisco... não é? ele tá sempre com aquela unhazinha querendo botar de fora quando a criança vai mexer... acabamos **tendo que desfazer do gato**... (D2/RJ/269: 4)

acaba-Ø-mos	te-ndo	que	desfaze-r	do	gato
end-PAST.IND-1PL	have-PROG	that	get_rid-INF	of the	cat

'Now [my daughters] had a cat at home… the cat is a very suspicious animal, isn't it? It always wants to put its nails out when a child comes to caress it … in the end, we had to get rid of the cat …'

(ii) p-complement: propositional contents are mental constructs that do not exist in space or time but rather exist in the mind of those entertaining them.

(17) eu acredito **que pode ser que:... a população ribeirinha venha sofrer um pouco**... (DID REC 125)

Eu	acredit-Ø-o	que	pode-Ø-Ø	se-r	que:
I	believe-PRES.IND-1SG	COMP	may-PRES.IND-3SG	be-INF	COMP

'I believe it may be that ... the marginal people will suffer a little ...'

(iii) e-complement: states-of-affairs are entities that develop in time and can be evaluated in terms of their reality status.

(18) e a indústria pesada...foi inclusive a que...fez com **que o Japão *pudesse*...ser uma potência industrial** (EF RJ 379)

e	a	indústria	pesada	foi	inclusive	a	
and	the	industry	heavy	was	in fact	the one	
que	fez-Ø-Ø		com	que	o	Japão	
that	make-PAST.PRF-3SG		with	COMP	the	Japan	
pude-sse-Ø...			ser	uma	potência	industrial	
can-PAST.IPF.SBJV-3SG			be-INF	a	power	industrial	

'And the heavy industry was the one that made that Japan could be an industrial power.'

(iv) f-complement: properties of states-of-affairs are situational concepts that can not be located in time and have no independent existence; rather, they define sets of states-of-affairs.

(19) S1: ah é ( ) quando eu começo um regime geralmente... começo por necessidade... porque quando eu tô muito gorda caio muito...

S2: é lógico...

S1: porque meus pés são relativamente pequenos pro meu corpo... mas depois já começa a vaidade... aí eu começo a **não querer engordar** (D2/RJ/269: 13)

eu	começ-Ø-o	a	não	quere-r	engorda-r
I	start-PRES.IND-1SG	to	not	want-INF	get fat-INF

"S1: when I begin a diet I usually begin it due to a necessity because when I am very fat I fall very frequently…

S2: obviously…

S1: because my feet are a little small for my body… but after that vanity appears… then I start not wanting to get fat."

5.3 Modal category

In Portuguese, modality can be expressed by modal operators (auxiliary verbs *poder* (may/can), *dever* (should/must), *ter que* (have to) and *querer* (want)) and modifiers (adverbs like *realmente* (really) and *talvez* (maybe)). Modal operators are presented in (16) to (19) and modifiers are presented in (20) and (21):

(20) eu acho que **realmente** é uma fase assim inesquecível. (AC-082)

eu	ach-o	que	realmente	é	uma
I	think-PRES.IND.1SG	COMP	really	be.PRES.IND.3SG	a

fase	inesquecível
period	unforgettable

'I think that it is really an unforgettable period.'

(21) e acho que **talvez** tenha a ver com o lance do próprio mestrado. (D2 RE 340)

eu	ach-o		que	talvez	tenh-a-Ø		
I	think-PRES.IND.1SG		COMP	maybe	have-PRES.SUBJV-3SG		
a	ve-r	com	o	lance	do	próprio	mestrado
to	see-INF	with	the	whole thing	of the	itself	M.A. programme

'I think that maybe it has to do with the whole thing of the M.A. programme itself.'

5.4 Domain of modal evaluation

By the domain of evaluation (HENGEVELD, 2004b) of a modal distinction is meant the perspective from which the evaluation is executed. By varying this perspective the following types of modality may be distinguished:

(i) **Facultative modality** is concerned with intrinsic or acquired capacities.

(22) eu acho que ela **pode** competir e ser um profissional em qualquer tipo de profissão. (DID POA 08)

eu	ach-o		que	ela	pode-Ø		competi-r	
I	think-PRES.IND.1SG		COMP	she	may-PRES.IND.3SG		compete-INF	
e	se-r	um	profissional	em	qualquer	tipo	de	profissão
and	be-INF	a	professional	in	any	kind	of	profession

'I think she can compete and be a professional in any kind of profession.'

(ii) **Deontic modality** is concerned with what is (legally, socially, morally) permissible.

(23) os sindicatos também **devem** levar... adiante... toda e qualquer... reivindicação... dos seus... associados... (DID REC 131)

os	sindicatos	também	deve-m	leva-r...	adiante...	
the	unions	also	should-PRES.IND.3PL	put-INF	forward	
toda	e	qualquer...	reivindicação...	dos	seus...	associados...
all	and	any	claim	of the	its	members

'the unions should also put forward all its members' claims.'

(iii) **Volitive modality** is concerned with what is desirable.

(24) eu acho que a gente naturalmente **quer** ficar com as pessoas que...são ligadas pai mãe irmão e tudo sabe? (D2 REC 279)

eu	ach-o	que	a_gente	naturalmente	quer-Ø	
I	think-PRES.IND.1SG	COMP	we	naturally	want-PRES.IND.3SG	
fica-r	com	as	pessoas	que	são	ligadas
stay-INF	with	the	people	that	be.PRES.IND.3PL	close

'I think we naturally want to stay with the people that are close father mother brother and all, you know?'

(iv) **Epistemic modality** is concerned with what is known about the actual world.

(25) ela ficou na sala de aula e o pessoal (...) desde o começo do ano pensou até que:: **poderia** ser uma aluna transferida... (AC-088)

o	pessoal (...)	desde	o	começo	do	ano	penso-Ø-u
the	people	since	the	beginning	of the	year	think-PAST.IND-3SG
até	que	pode-ria-Ø		se-r	uma	aluna	transferida...
even	COMP	might-FUT.COND-3SG		be-INF	a	student	transferred

'she was in the classroom and the people, since the beginning of the year, thought even that she might be a transferred student.'

(v) **Evidential modality** is concerned with the source of the information contained in a sentence.

(26) a casa própria eu acredito que seria **evidentemente** uma medida de larga repercussão social (DID REC 131)

a	casa	própria	eu	acredit-o		que	se-ria-Ø
the	house	own	I	believe-PRES.IND.1SG		COMP	be-FUT.COND-3SG
evidentemente	uma	medida	de	larga	repercussão	social	
evidently	a	measure	of	wide	impact	social	

'one's own house I believe would evidently be a measure of wide social impact."

5.5 Target of modal evaluation

By the target of evaluation (HENGEVELD, 2004b) of a modal distinction is meant the part of the utterance that is modalized. Along this parameter the following types of modality can be distinguished:

(i) **Participant-oriented modality**. This type of modality affects the relational part of the utterance as expressed by a predicate and concerns the relation between (properties of) a participant in an event and the potential realization of that event.

(27) e tem certas coisas que eu acho que **nós** devíamos aguardar mais um pouquinho. (DID POA 6)

e	tem-Ø	certas	coisas	que	eu	ach-o	
and	have-PRES.IND.3SG	certain	things	that	I	think-PRES.IND.1SG	
que	nós	dev-ía-mos	aguarda-r	mais	um	pouquinho	
COMP	we	should-FUT.COND-1PL	wait-INF	more	a	little bit	

'and there are certain things for which I think we should wait a little bit more.'

(ii) **Event-oriented modality**. This type of modality affects the event description contained within the utterance, i.e the descriptive part of an utterance, and concerns the objective assessment of the actuality status of the event.

(28) eu acho que qualquer pessoa deve **saber [cozinhar]** não é pelo sentido prático, mas pelo prazer (D2 POA 37)

eu	ach-o	que	qualquer	pessoa	deve-Ø
I	think-PRES.IND.1SG	COMP	any	person	should-PRES.IND.3SG

sabe-r	cozinha-r
know-INF	cook-INF

'I think that every person should know [how to cook] not for the practical sense, but for the pleasure.'

(iii) **Proposition-oriented modality**. This type of modality affects the propositional content of an utterance, i.e. the part of the utterance representing the speaker's views and beliefs, and concerns the specification of the degree of commitment of the speaker towards the proposition he is presenting.

(29) nós temos aqui já duas máquinas éh: antigas (...) todas duas máquinas acho que:: devem **tá perto de cem anos já**... (DID REC 04)

todas	duas	máquinas	ach-o	que	deve-Ø-m
all	two	machines	think-PRES.IND.1SG	COMP	must-PRES.IND-3PL

(es)ta-(r)	perto	de	cem	anos	já...
be-INF	near	of	a hundred	years	already

'We have here two old machines (…) all of them I think they must already be near a hundred years old.'

According to our theoretical approach, the possible modalities within each kind of complement are the following:

Table 2 – Cross-classification of modality and complement types

Modality \ Complement-type	ep	p	e	f
Proposition-oriented	+	+	–	–
Event oriented	+	+	+	–
Participant-oriented	+	+	+	+

6 Analysis and results

In the analyzed corpus, we found complements containing modal elements of all complement types discussed earlier. The distribution of the 163 occurrences of representational complements can be seen in Table 3:

Table 3 – Types of representational complements with modal expression

COMPLEMENT-TYPE	N	%
ep-complement	3	2
p-complement	156	96
e-complement	2	2
f-complement	2	2
TOTAL	163	100

The quantitative analysis of these occurrences shows a high frequency of *p*-complements and a much lower frequency of ep-, e- and *f*-complements. Within all these complements the most frequent modal operators are the auxiliaries *poder* (may), *dever* (must) and *ter que* (have to), codifying the deontic domain of evaluation, whose target is an event. The number of occurrences of modal element in each kind of complement is presented in Table 4:

Table 4 – Occurrences of modal element and type of complement

Modality \ Complement-type	ep	p	e	f	Total
Proposition-oriented	0	40	0	0	40
Event oriented	0	87	2	0	89
Participant-oriented	3	29	0	2	34
TOTAL	3	156	2	2	163

The only two occurrences of *f*-complement with modal are (19), repeated here for convenience, and (30):

(19) S1: ah é ( ) quando eu começo um regime geralmente... começo por necessidade... porque quando eu tô muito gorda caio muito...

S2: é lógico...

S1: porque meus pés são relativamente pequenos pro meu corpo... mas depois já começa a vaidade... aí eu começo a **não *querer* engordar** porque (aí a vaidade é que está falando né?) (D2 RJ 269)

eu	começ-o	a	não	quere-r	engorda-r
I	start-PRES.IND.1SG	to	not	want-INF	get fat-INF

'S1: when I begin a diet I usually begin it due to a necessity because when I am very fat I fall very frequently…

S2: it is obvious…

S1: because my feet are a little small for my body… but after that vanity appears … then I start not wanting to get fat.'

(30) então a arte SURge (...) em função da necessidade de eu assegurar a caça e continuar ***podendo*** **comer e me manter vivo** (EF SP 405)

então	a	arte	SURge—Ø		em	função	da	necessidade
then	the	art	arise-PRES.IND-3SG		in	function	of the	necessity
de eu	assegura-r		a	caça	e	continua-r		pod-endo
of I	secure-INF		the	hunting	and	continue- INF		be able-PROG
come-r	e	me	mante-r		vivo			
eat-INF	and	myself	keep-INF		alive			

'Then the art arises (...) due to the necessity to secure the hunting and continue to be able to eat and keeping myself alive.'

In (19), the property of 'having a start' is assigned to the complement embedded in 'começar' and in (30) the property of 'to be continued' is assigned to the complement embedded in 'continuar'. Both complements contain a participant-oriented modal element, as allowed by our prediction.

The two tokens of **e-complements** containing a modal element found in the corpus are restricted to practical manipulation predicates, represented by 'fazer' (31) and 'levar' (32). The modal operator of the *e*-complement codifies in both cases facultative event-oriented modality using the verb 'poder', expressing the conditions that enable its occurrence. This is again in conformity with our predictions.

(31) e a indústria pesada foi inclusive a que fez com **que o Japão *pudesse* ser uma potência industrial** (EF RJ 379)

e	a	indústria	pesada	foi	inclusive	a	que
and	the	industry	heavy	was	in fact	the one	that
fez-Ø		com	que	o	Japão	pude-sse-Ø	
make- PAST.PRF.3SG		with	COMP	the	Japan	can-PAST.IPF.SBJV-3SG	
ser	uma	potência	industrial				
be-INF	an	power	industrial				

'And the heavy industry was the one that made that Japan could be an industrial power.'

(32) então isso leva com **que nós... *possamos* compreender qual seria a visão de mundo implicada naquela vivência daquele sujeito** (EF REC 339)

então	isso	leva-Ø	com	que	nós...	poss-a-mos	
then	this	lead-PRES.IND.3SG	with	COMP	we	be able-PRES.SBJV-1PL	
compreende-r	qual	se-ria-Ø	a	visão	de	mundo	
understand-INF	what	be-FUT.COND-3SG	the	view	of	world	
implicada	naquela	vivência		daquele		sujeito	
implied	in that	experience of life		of that		person	

'Then, this leads us... to be able to understand what would be the world view implied in that person´s experience of life.'

The **p-complements** occur with three types of matrix predicate: propositional attitude (33), knowledge (34) and mental perception (35) predicates:

(33) acho **que os padres seriam mais...*talvez* mais humanos até**, se eles conhecessem todos esses problemas que nós conhecemos (DID POA 6)

ach-o		que	os	padres	se-ria-m	mais
think-PRES.IND-1SG		COMP	the	priests	be-FUT.COND-3PL	more
talvez	mais	humanos	até			
maybe	more	human	even			

'I think that the priests would be more ... maybe even more human if they knew all of these problems we know.'

(34) sabemos também **que**... **os sindicatos também *devem* levar... adiante... toda e qualquer reivindicação... dos seus associados**... (DID REC 131)

os	sindicatos	também	deve-Ø-m		leva-r	adiante
the	unions	also	must-PRES.IND-3PL		put-INF	forward
toda	e	qualquer	reivindicação...	dos	seus	associados
all	and	any	complaints	of the	its	members

'We know also that... the unions must solve... any complaints... from its members.'

(35) então você vê **que eu: não *posso* falar nunca em construção** (DID REC 04)

eu	não	poss-o.	fala-r	nunca	em	construção
I	not	can-PRES.IND-1SG	speak-INF	never	about	building

'So you see that I can never speak about building.'

Within the p-complements, the modifiers (e.g. 'talvez') codify, in most of cases, epistemic proposition-oriented modality (33), expressing the speaker subjective attitude in relation to a propositional content, and the modal operators (e.g. 'dever' and 'poder') codify deontic event (34) or participant (35) oriented modality.

Among the three types of matrix predicate found in the corpus, the one with the highest frequency is the class of propositional attitude predicates, with high token frequency of the verb 'achar' (to think), the preferred form to codify epistemic proposition-oriented modality in PB, as has been attested previously in other corpus-based research (GONÇALVES, 2003).

An interesting result of our analyses is related to the predicate 'acabar', as observed in (36) to (38), which in these uses embeds an **ep-complement**.

(36) aquilo se torna tão chato que a criança desiste... não pa/ acaba **não *podendo* nem ver** (D2 SP 360)

a	criança	desiste-Ø		acaba-Ø	não
the	child	give_up-PRES.IND.3SG		end- PRES.IND.3SG	not
pode-ndo		nem	ve-r		
can-PROG		not even	see-INF		

'That becomes so boring that the child gives up... in the end she can't even see it.'

(37) já as minhas [filhas] tinham um gato em casa... o gato é um bicho muito arisco... não é? ele tá sempre com aquela unhazinha querendo botar de fora quando a criança vai mexer... acabamos ***tendo que*** **desfazer do gato** (D2/RJ/269)

acaba-Ø-mos	te-ndo	que	desfaze-r	do	gato
end-PAST.IND-1PL	have-PROG	that	get rid-INF	of the	cat

'Now [my daughters] had a cat at home… the cat is a very suspicious animal, isn't it? It always wants to put its nails out when a child comes to caress it… in the end, we had to get rid of the cat.'

(38) Porque se ele pede muito pouco... depois vai acabar ***tendo que*** **pagar**... então... não... desconta cinqüenta por cento...

vai-Ø	acaba-r	te-ndo	que	paga-r...
AUX.FUT-PRES.IND.3SG	end-INF	have-PROG	CONJ	pay-INF

'For if he asks too little ... afterwards he will end up having to pay … then … it does not… discounts fifty percent …'

In all these occurrences, the predicate 'acabar' introduces a final episode, constituted by a single event, related to the previous episode (constituted by a series of events), with which the final episode maintains the thematic unity.

Note that, although the predicate 'acabar' retains its meaning of 'to reach an end', what is ended in these examples is the series of events introduced by the speaker and not the single event embedded in the predicate, as would be the case in examples like:

(39)

João	acabo-Ø-u	de	lava-r	o	carro.
João	finish-PAST.IND-3SG	of	wash-INF	the	car

'João finished washing the car.'

Note that the modals encountered in this type of complement are all participant-oriented, but apparently this is not the only possibility, as illustrated by the following example encountered on the Internet:

(40) Em termos jornalísticos, ao interpretamos a matéria em questão, ficamos com a idéia de tratar-se de uma notícia tendencialmente informativa, porém muito comum, fria, e também bastante formal. Comum, pela evolução clássica da narrativa em formato lide, desenvolvida a partir da chamada do apresentador. Formal, pela ausência de elementos literários mais expressivos e conotativos, de maiores figuras de linguagem, impressões ideológicas, e também de elementos dramáticos – como já foi lembrado acima. E fria, ou atemporal, pela falta de factualidade da própria notícia, que **acaba não podendo** ser totalmente justificada – não estando pautada nem por um acontecimento "de momento", nem tão pouco pela sua relevância informativa. A reportagem parece muito pouco ou quase nada nos acrescentar em termos de novidade sobre o assunto.

a	notícia	fria	acaba-Ø	não	pode-ndo	se-r
the	news	cold	end-PRES.IND-3SG	not	can-PROG	be-INF
totalmente		justificada.				
totally		justified.				

'In journalistic terms, when we interpret the subject in discussion, we think it is a tendentiously informative piece of news, but a very ordinary, cold, and also a very formal one. Ordinary due to the classical evolution of the narrative in form of lead, developed from the presenter's announcement. Formal due to the absence of more expressive and connotative literary elements, of greater figures of speech, ideological impressions, and also of dramatic elements – as it was said above. And cold, or timeless, due to the lack of factuality of the piece of news itself, which, at the end, can not be totally justified – being supported neither by a happening 'of the moment', nor by its informative relevance. The report seems to inform us very little or almost nothing in terms of the newness on the subject.'

In this example the verb *poder* is used as an event-oriented epistemic modal.

In all, then, we may conclude that our hypothesis is confirmed: there are no examples of complement types containing modal elements that pertain to a layer higher than the one defining the semantic type of the complement within FDG. Although the number of examples found for all but the propositional complements is low, the results coincide with native speaker intuitions about the combinability of certain complement types with certain modal categories. Our results furthermore confirm the applicability of the representational units Episode and Property of State of Affairs proposed in FDG.

7 Expanding the analysis: more on 'phasal' predicates

In the above we have come across two different uses of phasal predicates: one in which it embeds an f-complement and one in which it embeds an ep-complement. But there is another use of phasal predicates that cannot be interpreted as either of these two. This use is found with the predicate 'começar' (to begin) embedding a finite complement.

In the following example, two persons, S1 and S2, are talking about jobs. S2 says that, when a company needs a new employee, it uses the 'head hunter' services. The interviewer, then, asks for the translation of the term 'head hunter':

(41) Doc. Qual seria a tradução direta desse 'headhunter'?
S2: éh, éh... seria um contato direto... é e/ eles telefonam... falam... com a pessoa... através de uma mensagem... que que de modo nenhum pode ser identificada porque que **começa que 1.[**a pessoa *pode* estar muitíssimo bem no lugar que está e de maneira nenhuma pensando em sair**] 2.** ... então...**[**o telefonema de alguém ah... intermediário de um concorrente pode complicar a situação da pessoa naquela empresa...**]**
S1: (certo)
S2: não é verdade? então **3.[**eles têm que telefonar...de um modo que não seja... de jeito nenhum seja seja identificado para que que é...e conversar com a pessoa diretamente...**]** (D2 SP 360)

começa-Ø		que	a	pessoa	pode-Ø	estar
start-PRES.IND.3SG		COMP	the	person	can-PRES.IND-3SG	be-INF
muitíssimo	bem	no	lugar	que	está-Ø	e
very	well	in the	place	that	be-PRES.IND-3SG	and
de maneira	nenhuma		pensa-ndo		em sai-r	
of way	any		think-PROG		in leave-INF	

'Doc. What would be the translation for 'headhunter'?
S2: it would be a direct contact… they call... talk to the person... through a message... that can not be identified because **it starts that 1.[**the person can be very well in the place s/he is working and is not thinking about leaving there**] 2.** ... then... **[**the call from someone, a intermediary from a concurrent company, can complicate the person's situation in that company...**]**
S1: (right)
S2: isn't it true? then **3.[**they have to call, in a way they can not be identified, to talk directly to the person**]** '

In (41), S1 explains the way in which a competing company would approach a manager from another company that they consider hiring. After saying that it is important that the headhunter cannot be identified in any way when he is making contact with the potential candidate, S1 presents a series of arguments which justify this need for secrecy. The first and most important of these arguments is introduced as the complement of the predicate 'começar' (to begin), which can therefore be considered to take an A-complement. This Act is only one of the several Acts which integrate the major Move, which corresponds to S1's answer to the interviewer's question: 'What would be the translation for 'head hunter'?' The verb *começar* can in this use thus be considered to be the complement-taking alternative to adverbial modifiers such as 'firstly' and 'in the first place'.

When this type of predicate is analyzed as an interpersonal one, it is easy to understand why 'começar' is used in an impersonal construction, with

neutralization of person and tense marking in favor of an unmarked form, e.g., third person present tense, indicative mood.

We summarize the different kinds of complements of verbs like 'começar', 'acabar' and 'continuar' in the following Table:

Table 5 – Behaviour of the predicates 'começar' (to start), 'continuar' (to continue) and 'acabar' (to end)

Type of complement	Structure of the complex construction	Function of predicate	Example
f-complement	X começar a / X acabar de + non-finite complement (infinitive) X continuar (a) + non-finite complement (infinitive or gerund)	To indicate that the **property** of 'to have a beginning', 'to have an end' and 'to have continuity' applies to the event embedded in the predicate	Começou a fazer a tarefa. 'He began to do the homework.' Acabou de fazer a tarefa 'He finished doing the homework.' Continuou a fazer a tarefa. Continuou fazendo a tarefa. 'He continued doing the homework.'
ep-complement	X começar + non-finite complement (gerund only) X acabar	To indicate that, from a series of real or presupposed **events**, the event(s) expressed in the embedded complement is/are the one(s) which begin(s), finish(es)	Começou jogando no São Paulo, depois foi para o Corinthians e agora joga no Barcelona. 'He started playing soccer in São Paulo, after that he went to Corinthians and now he plays in Barcelona.' Acabamos tendo que desfazer do gato, jogar a casinha dele fora e comprar um cachorro. 'In the end, we had to get rid of the cat, throw its little house out and buy a dog.'
A-complement	Começar que + finite complement Acabar que	To indicate that, from a series of **arguments**, the one expressed in the complement begins or ends the argumentation	Começa que eu nem gosto de criança. Eu jamais poderia ter filhos. 'For a start, I do not even like kids. I would never have children.' João está sempre distraído durante as aulas. Acaba que seu desempenho é péssimo. 'John is always distracted during the classes. It ends that his performance is pretty bad.'

8 Conclusion

Taking into account the unities of analysis proposed by the FDG, the hypothesis of this study is confirmed, since there were not occurrences of complement types containing modal elements that pertain to a layer higher than the one defining the semantic type of the complement within FDG. Besides, the behavior of the verbs *começar* and *acabar* demonstrates the relevance of the distinctions between the unities proposed by the FDG for the treatment of complement clauses.

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- RESUMO: Este trabalho trata da (im)possibilidade de expressão de um conjunto de categorias modais em orações completivas com base na abordagem em níveis do complemento prevista na Gramática Discursivo-Funcional (GDF). Nossa hipótese é a de que as expressões modais nas orações completivas pertencem apenas a classes de operadores ou modificadores do mais alto nível relevante para aquele tipo de construção encaixada e para todos os níveis mais baixos. Para testar essa hipótese, foram analisadas ocorrências de orações completivas em dois bancos de dados do português falado no Brasil. A investigação dessas hipóteses restringe-se às orações completivas do nível representacional.

- PALAVRAS-CHAVE: Orações completivas; nível representacional; modalidade; operadores; modificadores.

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THE DYNAMIC IMPLEMENTATION OF NON-OVERT ARGUMENTS IN NOMINALIZATIONS

Roberto Gomes CAMACHO[1]

- ABSTRACT: Valency is an inherent property of nominalizations representing higher-order entities, and as such it should be included in their underlying representation. On the basis of this assumption, I postulate that cases of non-overt arguments, which are very common in Brazilian Portuguese and in many other languages of the world, should be considered a special type of valency realization. This paper aims to give empirical support to this postulate by showing that non-overt arguments are both semantically and pragmatically motivated. The semantic and pragmatic motivations for non-overt arguments may be accounted for by the dynamic implementation of the FDG model. I argue that the way valency is realized by means of non-overt arguments suggests a strong parallelism between nominalizations and other types of non-finite embedded constructions – like infinitival and participial ones. By providing empirical evidence for this parallelism I arrive at the conclusion that there are at least three kinds of non-finite embedded constructions, rather than only two, as suggested by Dik (1997).

- KEYWORDS: Nominalization; embedded constructions; valency; overt argument; non-overt argument.

1 Introduction

Dik (1985) provides some universal principles concerning the formation and expression of derived constructions in natural languages, showing how they work with respect to three constructions types, derived intransitives, causative constructions and nominalizations. The former two cases involve valency reduction and valency extension respectively, and the latter is derived from a verbal predicate and, in spite of consisting of an embedded version of the same predication, the embedded verbal predicate is adjusted to the expression pattern of a nominal term (DIK, 1985, p. 21).

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Considering that predicate formation rules take a predicate frame as input and deliver a derived predicate frame as output, Dik (1997) argues that any property of the input predicate can be modifiable through predicate formation. Since a predicate frame codes such types of information as the predicate form, the predicate type, the quantitative and qualitative valency, these properties, which are coded in the predicate frame, provide a natural basis for distinguishing different types of predicate formation processes (DIK, 1997, p. 5-6).

Predicate formation rules have the important function of extending the set of basic properties/relations that can be designated in the language, and given that clause structures are built up around predicate frames, the rules and strategies for construing clause structures can make use of the full set of predicates (basic and derived) available in the language. For this reason Dik (1997, p. 2) says that both basic and derived predicates, together with basic and derived terms, are contained in the so-called 'Fund' of the language.

Since action-nominalizations may fill the slot of an embedded construction, it is convenient to see the treatment Dik gives to nominalizations in a taxonomy of embedded constructions.

Dik (1997) takes much effort to provide the semantic and formal parameters which combine in different ways to produce a great variety of types of embedded constructions. Nevertheless, since recurrent patterns can be discerned in this variety, it is possible to construe a taxonomy of embedded constructions with general cross-linguistic validity, which may be seen in Figure 1.

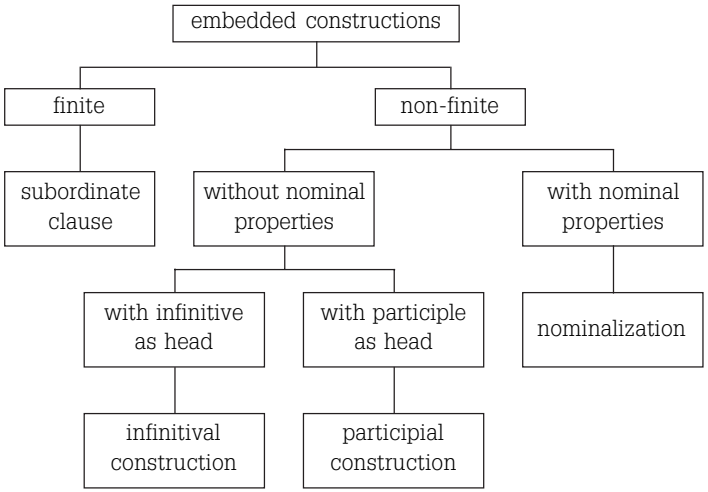

Figure 1 – Types of embedded constructions (cf. DIK, 1997, p. 142)

As can be seen in Fig. 1, according to Dik (1997), embedded constructions may be finite and non-finite. While finite embedded constructions are realized as subordinate clauses, non-finite ones may or may not have properties in common with primary, nominal terms. If they do, they are realized as nominalizations.[2] If not, they may have either an infinitive or a participle as their Head. Consider (1a) and (1b):

(1) a. *Maria* *lament-ou*
Maria regret-IND.PRF.3.SG

que *João* *tenh-a* *demiti-do* *Pedro*
that João have-SBJV.PRF.3.SG dismiss-PST.PTCP Pedro
'Maria regretted that João had dismissed Pedro'

b. *Maria* *lament-ou*
Maria regret-IND.PRF.3.SG

a *demi-ssão* ***de*** ***Pedro*** *por* *João*.
the dismiss-NMLZ of Pedro by João
'Maria regretted Pedro's dismissal by João.'

In each case, the underlined constituent in the embedded construction specifies the same state-of-affairs. The construction in (1a) is a finite subordinate clause where João is an Agent in the subject position and Pedro is a Patient in the object position. In the case of productive nominalizations in Brazilian Portuguese, like (1b), the predicate itself acquires certain nominal properties; in fact, we see that in (1b) the Patient constituent appears as a possessor phrase, which is specially suited for expressing a semantic relation of possession within a nominal term. Because of that, nominalizations adopt possessor phrases for expressing certain semantic functions which typically make part of the argument structure of a verbal predicate. The fact that *Pedro* appears in (1b) as a possessor phrase is interpreted by Dik as a nominal property, and the nominal phrase *a demissão de Pedro* 'the dismissal of Pedro' is described as a nominalization (DIK, 1997, p. 157-8).

According to Dik (1997), besides nonfinitess, the main feature infinitives and participles constructions have in common with nominalizations is the possibility of being the Head of an embedded construction. But there is another relevant feature, which is shared by all types of non-finite embedded constructions: they may be realized as closed or open predications,[3] as the

2 Since I am concerned with overt and non-overt valency it is quite clear that the kind of nominalization I am dealing with here is the one that represents such entities of a higher level, as second-order entities or states-of-affairs, as for instance *writing*. Therefore cases of first argument nominalizations (actor-nominalizations) like *writer* are excluded.

3 Infinitival and participial constructions may express closed or open embedded constructions. According to Dik, "those embedded constructions in which all argument positions are represented by overtly specified terms are closed, and those in which at least one argument position is not overtly expressed are open" (DIK, 1997, p. 147).

argument structure they are provided with is overtly or non-overtly specified. Although this feature is assigned by Dik to infinitival and participial constructions, I argue that it must include nominalizations too.

Brazilian Portuguese provides a good illustration of the main theoretical assumption that nominalizations have as much potential valency as do other types of embedded constructions, like infinitives and participles. However, differing from the way Dik treats other types of embedded constructions, he makes no reference at all to the open or closed nature of nominalizations working as the head of a predication, which happens to be a relevant property to account for their valency.

This paper deals with overt and non-overt expression of arguments considering a sample of productive nominalizations that represent higher order entities in spoken Brazilian Portuguese. The sample consists of 181 occurrences of nominalizations collected by Santana (2005), taken from three kinds of survey from the Standard Urban Norm Project (NURC/Brazil Project): Formal Elocutions (EF-377: CASTILHO; PRETI, 1986); Dialogues between Informant and Interviewer (DID-237: CASTILHO; PRETI, 1987); and Dialogues between two Informants (D2-360: PRETI; URBANO, 1988). Since the first of these consists of a recorded lesson in classroom, the degree of interaction between the participants is very limited as compared to the other two, which consist of typical conversations. The interviewees are all graduates.

Relying on the FDG framework, which is the way FG was projected into a new architecture by Hengeveld (2004), the main purpose is to give empirical support to the following points: (1) nominalizations are provided with valency (2) when non-overt, valency is both semantically and pragmatically motivated; (3) there is a parallelism among the three types of non-finite embedded constructions postulated by Dik (1997) concerning the way valency is realized by means of a non-overt argument; (4) the multilevel organization of the FDG model and its process of dynamic implementation (HENGEVELD, 2005) may account for the different types of non-overt arguments.

This paper is organized as follows: in section 2 I give a brief description of the way nominalizations are dealt with in the FG framework. In section 3 I compare cases of overt and non-overt arguments to show that the potential argument structure is always realized in nominalizations referring to second-order entities or states-of-affairs. In Section 4 relevant similarities between nominalizations and other types of non-finite embedded constructions are displayed. In section 5 I show that, since the non-overt specified valency is triggered by semantic and pragmatic motivations, this situation can be dealt with very well at the Interpersonal and Representation levels provided by FDG (HENGEVELD; MACKENZIE, 2006). In this section, I also argue that the principles

involved in the dynamic implementation of FDG can be applied very well to non-overt arguments in nominalizations. In the light of these results, I conclude with a new proposal for the taxonomy of embedded constructions postulated by Dik (1997).

2 Nominalization in the FG framework

According to Dik (1997) the fact that Pedro appears as a genitive in (1b) means that *a demissão de Pedro* 'Pedro's dismissal' should be interpreted as a nominal property and Pedro's dismissal should be described as a nominalization. Therefore nominalizations are embedded constructions which to some degree have adjusted to the typical pattern of primary, nominal terms, according to the Principle of Formal Adjustment (PFA):

(2) PRINCIPLE OF FORMAL ADJUSTMENT (PFA):

Derived, secondary constructions of type X are under pressure to adjust their formal expression to the prototypical expression mode of non-derived, primary constructions of type X. (DIK, 1997, p. 158).

The prototypical model of expression of a primary type of term, which refers to some first-order entity, may contain such constituents as determiners, quantifiers, possessors, adjectives and, by definition, a noun as its Head. On the other hand, embedding constructions are a secondary type of term used to refer to second-, third- or fourth-order entities, and their typical ingredients are operators, Predicates, Arguments and Satellites. Dik considers that nominalizations are due to a tendency, consonant to the PFA, to press embedded constructions into the expression format of primary, nominal terms. We can see the types of formal adjustment in Fig 2 below.

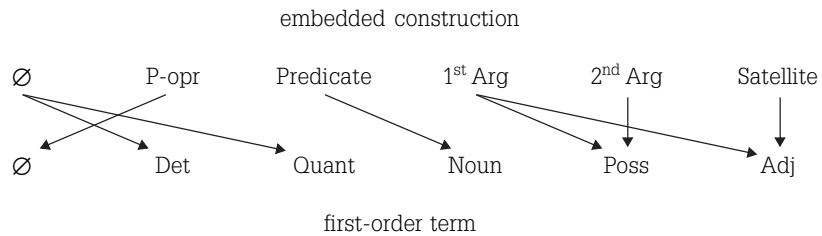

Figure 2 – Formal adjustments (DIK, 1997, p. 158)

Since nominalizations are embedded constructions, they can work as terms in a predication of a higher level. Dik's assumption is that the underlying structure of the nominalization should represent the quantitative and qualitative valency of the input verbal predicate. This view is not unanimous in FG framework. Mackenzie (1985; 1996) argues that productive nominalizations are provided with no valency at all.[4] However, from Dik's perspective it is possible to postulate that the underlying structure of nominalizations, which is by definition abstract in nature, represents the same potential valency as the input verbal predicate. Dik's PFA says that an embedded nominalization has the same function as a typical NP and as a result of this it may adopt formal characteristics of such an NP. Although PFA is functionally motivated, Dik's view has little to tell us about the semantic and pragmatic motivations, which could block the overt specification of all arguments in nominalizations, an issue which will be dealt with in the next section.

3 Non-overt valency in nominalizations: semantic and pragmatic motivations

Brazilian Portuguese has a strong diachronic tendency to the progressive deletion of pronominal reference to NPs previously mentioned in the context. This tendency explains why it is possible to answer such a question as (3a) with the two alternative sentences contained in (3b) and (3c).

(3) a. *Você* *am-a* *Maria?*
You love-IND.PRS.3.SG Maria?
'Do you love Maria?'

b. *Não.* *Não* *a* *am-o.*
No, not her love-IND.PRS.1.SG
'No. I do not love her.'

c. *Não.* *Não* *am-o* *Ø.*
No not love-IND.PRS.1.SG Ø
'No. I do not love (her).'

Due to this tendency it is quite natural for a Brazilian speaker not to fill every argument position if the entity referred to is contextually recoverable. Consequently, the potential arguments cannot be searched around the internal structure of the head by itself but in another place of the discourse context. Therefore, if we consider as overt arguments only those ones around the internal structure of the head nominal predicate, the frequency of overt first argument is reduced in my sources to only 16% (30/181) and of second argument is reduced

[4] For a more detailed discussion of this issue, see Camacho (2007).

to only 34,0% (41/122). In consonance with the tendency mentioned above, there is a high preference for non-overt valency.

When valency is overtly expressed, the use of a possessor phrase introduced by *de* 'of' is the preferred form to express overt arguments, as attested by the following numbers: the frequency of first arguments as a possessor form is 73.3% (22/30), and the frequency of second arguments is almost the same, that is 73.1% (30/41). The nominalizations included in (4) and (5) are instances of first and second arguments, respectively, expressed as *of*-phrases.

(4) *isso* *significa* *um* *aumento* ***de*** ***vencimento-s***. (D2-SP-360)
This mean-IND.PRS.3.SG a.M raise-NMLZ of' salary-PL
'this means a raise **in salary**'

(5) *a* *responsabilidade* *na* *manutenção* *da* ***casa***...
the.F responsibility in-the.F maintain-NMLZ of-the.F home
vem *como* *complemento* *né?* (D2-SP-360)
comes.in-IND.PRS.3.SG as complement doesn't it?
'the responsibility in the maintenance **of the home**... comes in as a complement, doesn't it?'

Given that individual participants are expressed by verb arguments, the world's languages display a wide variety in the coding of participants of dependent states-of-affairs. One way of coding participant of dependent states-of-affairs, including nominalizations, is that arguments corresponding to participants shared by the main and the dependent state-of-affairs may be not expressed. According to Cristofaro (2003, p.75-81) this is usually the case when main and dependent states-of-affairs share a participant corresponding to the missing argument, or when the information pertaining to the missing argument is easily recovered or irrelevant in the discourse context. This second alternative very commonly applies to Brazilian Portuguese, as discussed earlier in relation to independent clauses.

In the functionalist literature, that kind of motivations is called economy principle (GIVÓN, 1980, 1990; HAIMAN, 1983; CRISTOFARO, 2003). If both the dependent and the main predications share the same participants, references to these participants may be omitted in the dependent construction.

When the participants of the dependent predicate are predetermined by the semantics of the matrix clause, the speaker may refrain from referring to them, since the correspondent semantic information is provided by the subordination link between the two predications. However, when the participants are not predetermined and there is non-overt reference to them, there is no structural means at all of recovering the missing information; therefore,

the Addressee's last resort is to check his/her short-term information in search for given entities. In this situation, though overt expression of the same argument is morphosyntactically allowed, it may remain unexpressed because it consists of pragmatic information that is shared by the speech act participants. Therefore, the non-expression of an argument does not involve loss of information. This is a typical example of the Principle of Information Recoverability at work (CRISTOFARO, 2003, p.250-251).

Let us proceed with the presentation of the empirical evidence from Brazilian Portuguese. Firstly I will examine only the manifestation of first arguments, and secondly the manifestation of second arguments.

If we take into account the assumption that the potential valency may be expressed outside the scope of the dependent construction, we may consider as arguments non-overt terms expressed mainly by different types of zero anaphora. The first type of zero anaphora represents a first argument which consists of a participant semantically shared with the main predicate, as shown in (6a).

(6) a. *ajud-ar* *um* *pessoa* *que* *t-em*
help-INF a.M people who have.AUX-IND.PRS.3.SG
me *ped-ido* *para* *Ø* *faz-er::* *program-ação* *(Ø)*
me ask-PST.PTCP to make-INF programm-NMLZ
de *suco-s* *d-o* *Lanjal* (DID-SP-234)
of juice-PL of-the.M Lanjal
'to help some people who have asked me to make:: programming of Lanjal juices'

Since the nominalization *programação* 'programming' is part of a purposive adverbial clause, the same participant represented by *me* 'me' in the main clause is shared with the subject/agent of *fazer programação* 'make programming' in the dependent clause. It should be noted that the same nominalization with the first argument overtly specified, as can be seen in (6b), would not be a well-formed construction in Portuguese for reason of redundancy, a matter concerned with the way Representational Level is conceived in FDG..

(6) b. **ajudar um pessoal que que que tem me pedido para fazer:: programação de sucos do Lanjal* ***(por mim)***
'to help some people who have asked me to make:: programming of Lanjal juices **by me**'

The second type of zero anaphora represents a first argument recovering some given entity that have just appeared in the precedent text, but not exactly in the matrix predication, as illustrated in (7a).

(7) a. *num-a vida dess-e tipo... a preocup-ação principal (Ø)*
in.a-F life of.this-M kind the.F concern-NMLZ main
est-á centra-d-a
be.DUR-IND.PRS.3.SG focus-PST.PTCP-F
in.the.F survive-NMLZ
n-a sobreviv-ência (EF-SP-405)
'in this kind of life... the main concern is focused on surviving'

The subject of the text, wherefrom the fragment above was taken out, is prehistoric man's art. For this reason, many references to the prehistoric man are made throughout the text. Thus, the information pertaining to the missing argument (symbolized by Ø) is easily recovered in the discourse context, consisting of short-term information. Now, note that the same nominalization in (7b) with an overt first argument would keep on being a well-formed construction, meaning that either expressing or not expressing the missing argument represents a real choice of the Speaker, a matter concerned with the way the Interpersonal Level is conceived in FDG.

(7) b. *numa vida desse tipo... a preocupação principal* ***do homem*** *está centrada na sobrevivência...* (EF-SP-405)
'in this kind of life... the main concern **of man** is focused on surviving'

The third type of zero expression of argument is not anaphorical but cataphorical. There is a reduced number of cases where non-overt first arguments may be recovered not in the preceding text, but in the following text by means of a relative clause playing the role of a modifier of the nominal head, as illustrated by (8a)

(8) a. *é MUIto difícil (...) a gente separ-ar*
be.IND.PRS.3SG VERY difficult the.F people.1.PL separate-INF
a percep-ção... d-o conceito que nós
the.F perceive-NMLZ of-the.M concept that we
faz-emos d-o objeto. (EF-SP-405:56)
make-IND.PRS.1.PL of-the.M object
'it is very difficult for us to separate the perception... of the concept that we make of the object'

The potential first argument of *percepção* 'perception', which is missing in the internal structure of the embedded nominalization, would have to be expressed by the oblique marking complement *por nós* 'by us', but it is not, because it ended up being mentioned in the following relative clause modifying the Head noun represented by the nominalization, where it appears as *nós* 'we', i.e., the nominative subject of *fazemos* 'make'. Here again the insertion of a term in the first argument position makes the construction not well-formed, as it may be seen in (8b). Since we have here a missing argument which is not allowed because of redundancy, this type of zero is also semantically motivated.

(8) b. * *separar a percepção do objeto* ***por nós*** *do conceito que* ***nós*** *fazemos do objeto*
'to separate the perception **by us** of the concept that **we** make on the object'

In short, the evidence here discussed points to two types of zero, no matter whether they are either anaphorical or cataphorical: when missing participants in the dependent construction are semantically determined by argument sharing relation with the matrix predicate, their expression by zero is obligatory; on the other hand, when missing participants are textually recoverable, the expression by zero is optional, being either overt or non-overt for reason of short-term information between speech act participants.

Now, taking into account some quantitative evidence, if we add to these three kinds of missing arguments represented by anaphorical and cataphorical zeroes just discussed those ones that are overtly expressed, they make up 68.0% (125/181) of first arguments formally specified. The remaining 32.0% (56/181) of first arguments consist of non-referential noun predicates (30 cases) and semantically undetermined subject arguments (26 cases). Let's see before a case of semantically undetermined subject, as illustrated in (9).

The promotion the speaker refers to in (9) must be carried through by the Ministry of Justice which determines the career of the state attorney, but she does not, at that point in the discourse, deem relevant to mention the agent:

(9)	*dentro*	*d-o*	*aument-o*	*de*	*vencimento-s*		*hav-eria...*
	inside	of-M	raise-NMLZ	of	salary-PL		there.be-IND.FUT.IRR.3.SG
	um-a	*promo-ção*		***de***	***tod-o***	***o***	***pessoal*** (D2-SP-360)
	a-F	promote-NMLZ		of	all-M	the.M	staff

'together with the raise of salary there would be... a promotion **of all the staff**'

This situation of subject semantic indetermination is similar to that of passive voice constructions like (10a) or other predications containing an undetermined subject, like (10b), where the lack of a subject NP shows that the respective

state-of-affairs may be applied to any arbitrary person and the non-overt subject has a generic reading.

(10) a. *o* *pessoal* *foi* *promov-id-o*
the.M staff be.IND.PRF.3.SG promote-PST.PTCP-M
promov-eu *se* *o* *pessoal*
promote-IND.PRF.3.SG REFL the.M staff
'the staff has been promoted'

b. *promov-eram* *o* *pessoal*
promote-IND.PRF.3.PL the.M staff
'one has promoted the staff'

The deverbal construction in (11), on the other hand, contains an instance of a non-referential nominalization, functioning as the complement of a noun, as it may be seen in *falta de divulgação* 'lack of divulgation' where *divulgação* "divulgation" exerts the function of complement of the noun *falta* 'lack'.

(11) *o* *teatro* *é* *menos* *acei-t-o*
the.M theater be.IND.PRS.3.SG less accept-PST.PTCP-M
pel-o *público* *por* *falta* *de* *divulg-ação* (DID-SP-234)
by-the.M public for lack of divulge-NMLZ
'the theater is less accepted by the public because of lack of divulgation'

This usage means that the noun assigns a property without referring, thus providing only a lexical description for a state-of-affairs. The noun gets close to the status of a zero-order entity, the less prototypical referential category: while referring to a zero-order expression, this kind of nominalization cannot refer to real entities, but only to the property it denotes (cf. KEIZER, 2004).

Let us proceed now by examining the empirical evidence for second arguments. If we apply the same quantitative procedures to second arguments of the predicate underlying the nominalization, as we applied to first arguments, the results are surprisingly comparable: adding up the overtly expressed cases (n=41), the cases of non-expressed arguments for reason of semantic sharing (n=6), the cases of arguments pragmatically resumed by zero anaphora (n=26), and the cases of arguments expressed in the following context (n=4), we reach a total amount of 68.0% (77/122) of expressed arguments, compared to 18.0% (22/122) of undetermined referents and 14.0% (n=17) of non-referential nominal heads.

Example (11), here repeated as (12) for convenience, contains an instance of a second argument, *teatro* 'theater', which is semantically shared with the main predicate. The overt expression of the second argument, which is not allowed for semantic reason of redundancy, would make it a not well-formed construction.

(12) **o teatro é menos aceito pelo público por falta de divulgação* ***do teatro***
'the theater is less accepted by the public because of lack of divulgation **of the theatre**'

Example (13a) contains an instance of a nominal predication whose second argument slot recovers some given entity that has just appeared in the precedent text not exactly in the main predication as a kind of short-term information available for the speech act participants.

(13) a. *ele* *perceb-eu* *que* *er-a* *capaz* *de*
he realize-IND.PRF.3.SG that be-IND.IPFV.3.SG able of

CRI-AR::... *e* *cri-ar* *um-a* *imagem*
create-INF and create-INF an-F image

(...) então:: *ele* *v-ai* *tent-ar* *us-ar*
(...) then he go.AUX-IND.PRS.3.SG try-INF use-INF

est-a ***cri-ação****...* *que* *ele* *é* *capaz* *de*
this-F create-NMLZ that he be.IND.PRS.3.SG able of

faz-er... *para* *garant-ir* *a* *caça* (EF-SP-405)
do-INF in order to guarantee-INF the.F prey

'he realized that he was capable TO CREATE... and to create an image (...) then... he's going to try using this **creation**...he is able to do... to guarantee the prey'

Note that *criar uma imagem* 'to create an image' is recovered by a nominalization represented by *criação* 'creation' in the following sentence, where there is a missing argument. Nevertheless, the insertion of an overt expression of this missing argument does not make it an ungrammatical construction, as illustrated in (13b), because Portuguese grammar would allow the repetition of [*da*] *imagem* '[of the] image' as the second argument of *criação* 'creation'. As it may be seen, this kind of zero anaphora is due to a pragmatic motivation.

(13) b. *ele percebeu que era capaz de CRIAR::... e criar uma imagem...(...) então:: ele vai tentar usar esta criação* ***da imagem****... que ele é capaz de fazer... para garantir a caça....*

'he realized that he was capable TO CREATE::... e to create an image... (...) then:: he's going to try to use that creation **of the image**... he is able to do...to guarantee the prey...'

Consider now example (14a). It contains an instance of nominalization where a non-overt argument may be recovered in the following text by means of a relative clause which is marked in bold.

(14) a. *é* *inCRÍvel* *o que* *aparec-e* *lá*
be.IND.PRS.3.SG inCREDible what happen-IND.PRS.3.SG there

o-s *cort-e-s* ***que*** ***eles*** ***d-ão*** ***n-a-s***
the.M-PL cut-NMLZ-PL that they make-IND.PRS.3.PL in-the.F-PL

cena-s (DID-DP-234)
scene-PL
'it is inCRedible what happens there the cuts **they make in the scenes**'

Here again the insertion of a term in the second argument slot makes the construction not well-formed, as illustrated by (14b), where the reference to the arguments of *cortes* 'cuts' is realized inside the relative clause that follows this nominalization.

(14) b. * *é inCRÍvel o que aparece lá os cortes das cenas* ***que eles dão nas cenas*** *é::*
'it is inCRedible what happens there the cut of the scenes **that they make in the scenes**'

The inappropriateness of an overt second argument can be explained in terms of the Principle of Information Recoverability by Cristofaro (2003), which can be understood as the tendency to reduce the length or complexity of an utterance so that redundant information may be omitted.

Consider once again the example in (13a) in comparison with the example in (14b) just mentioned above. The arguments of *criação* 'creation' in (13a), which are given zero anaphora expression in the nominalization, are easily recoverable from the preceding text. The potential first argument is *ele* 'he', i.e, *o homem pré-histórico* 'the prehistoric man', and the second argument is *imagem* "image". Unlike (13a), the arguments in (14a) could be overtly expressed, but the application of the above-mentioned principle leads to non-overt arguments in the term headed by the nominalization *criação* 'creation'.

Now let us take in account (15a):

(15) a. *na medida... em que* *acab-ava* *a* *caça* *d-o*
as end-IND.IPFV.3.SG the.F prey of.the-M

lugar OU (que) *em virtude* *d-a* *época* *d-o* *ano*
place OR (that) by virtue of-the.F season of-the.M year

n-o *inverno* *por exemplo...* *imigr-avam* *para*
in-the.M winter for example migrate-IND.IPFV.3.PL to

lugar-es	*mais*	*quente-s*	*eles*	*também*	*precis-avam*
place-PL	more	warm-PL	they	also	need-IND. IPFV.3.PL

acompanh-ar...	*a*	***migr-ação***	*d-a*	*caça* (EF-SP-405:49)
follow-INF	the.F	migrate-NMLZ	of-the.F	prey

'as the prey of the place ended OR (that) by virtue of the season… in the winter for instance… they used to migrate to warmer places, they also needed to follow the… **migration** of the prey'

The first argument of the nominalization migração 'migration' the noun *caça* (literally 'prey' meaning 'animals to be hunted') does not represent secondary or background information, but rather by displaying a contrast with the parallel expressions given in (15b-c), the presence of the repeated adpositional phrase *da caça* 'of the prey' becomes absolutely necessary to the thematic continuity.

(15) b. *migr-ação* *d-o* *homem*
migrate-NMLZ of-the.M man
'man's migration'

c. *migr-ação* *d-a* *caça*
migrate-NMLZ of-the.F prey
'prey's migration'

Furthermore, although there is a first mention to *a caça do lugar* 'the prey of the place' consisting of pragmatically new information, when it is mentioned again, it is a given information and so it should be expressed as a zero anaphora, but in fact it is represented by the full NP *a caça do lugar* 'prey of the place' in order to avoid confusion between both types of migration, man's migration and prey's migration, even though the first state-of-affair is not represented by a nominalization in (15a), but by the verbal predicate *imigravam* 'migrate'. Therefore, the overt expression of this argument is prompted by pragmatic and semantic motivations.

It is exactly the pragmatic role of nominalization in creating discourse continuity that determines the formal expression of the arguments. If the pragmatic function of the potential arguments of the predicate underlying nominalization is the introduction of a new referent, nominalization should allow an overt NP corresponding to this argument; if, on the other hand, there is a discourse function of preserving text cohesion by recovering a preceding complete predication, the potential arguments are not overtly expressed.

The data just analyzed show that the open nature of nominalizations depends on a set of semantic and pragmatic factors, a kind of motivations earlier called economy principle (GIVÓN, 1980, 1990; HAIMAN, 1983; CRISTOFARO, 2003).

As it was assumed earlier, if both the dependent and the main predications share the same participants, references to these participants may be omitted in the dependent construction.

The missing participants are due to two kinds of motivations: in case of semantic predetermination, the speaker may refrain from referring to an argument of the embedded nominalization because the correspondent semantic information is provided by the subordination link between the two predications. However, when there is no structural means at all of recovering the missing information, the Addressee's last resort is to check the Contextual Component in search for given entities. In this situation, though overt expression of the same argument is morphosyntactically allowed, it may remain unexpressed because it consists of pragmatic information that is shared by the speech act participants. Therefore, the non-expression of an argument does not involve loss of information.

These two kinds of motivations, the semantic and the pragmatic, are typical instances of the Principle of Information Recoverability at work (CRISTOFARO, 2003, p.250-251). This principle fits in well with the way FDG is organized. Thus, in FDG,

> each level of representation within the grammar feeds into the contextual component, enabling subsequent reference to various kinds of entity relevant at each level as soon as they are introduced in the discourse. The operation of formulation draws on this component so that that the availability of antecedents and visible referents may influence the composition of (subsequent) discourse acts (HENGEVELD; MACKENZIE, 2006, p.670-671).

In other words, there is interaction between the Representational and Interpersonal Levels and the context. Thus, the choice between overt and non-overt expression of the arguments of nominalizations depends on the Speaker's assumptions concerning both the link between main and dependent clause and the Addressee's short-term memory, as represented by the Contextual Component, as it will be treated in more details in section 5.

To sum up, the evidence discussed so far shows that there are two cases of zero anaphora representing missing arguments in the nominalization: one triggered by semantic motivations and the other by pragmatic motivations. Both kinds of zero anaphora are governed by the same pressure towards maximal simplification of expression, as stated by Haiman's economy principle or Cristofaro's Principle of Information Recoverability.

4 Similarities between nominalizations and other non-finite embedded constructions

I have so far given empirical support to the semantic and pragmatic motivations for non-overt arguments of nominalizations. Now I focus on the similarities between nominalizations and other non-finite embedded constructions with respect to the open or closed nature of predications. Recall that, according to Dik (1997), "those embedded construction in which all argument positions are represented by overtly specified terms are closed, and those in which at least one argument position is not overtly expressed are open" (DIK, 1997, p.147).

Both infinitival and participial embedded constructions are considered by Dik (1997) to have closed and open positions in their argument structure. Example (16) , a case of an inflected infinitive, is a good illustration of a closed infinitival construction in Portuguese, whereas (17) is a good example of a closed participial construction:

(16) *Pass-ei* *sem* *me* *ve-r-em.* (DIK, 1997, p 146)
Pass.by- IND.PRF.1.SG without me see-INF-3.PL
'I passed by without them seeing me.'

(17) *Ele* *chega-ndo* *a* *São Paulo,* *fo-mos* *a-o* *hotel*
He arrive-PTCP.PST at São Paulo, go-IND.PRF-1.PL to-the.M hotel
'As soon as he arrived at São Paulo, we went to the hotel.'

Now consider (1) repeated here as (18) for convenience. This sentence is an instance of a closed construction headed by a nominalization. In this example, both arguments of the underlying predicate are overtly expressed; the subject/agent as a possessor and the object/patient as an oblique phrase introduced by *por* 'by':

(18) *Maria* *lament-ou* *a* *demissão* *de* *Pedro* *por* *João*
Maria regret-IND.PRF.3.SG the dismissal of Pedro by João
'Maria regretted Pedro's dismissal (by João)'

When an infinitival or participial construction expresses a proposition where the subject of the embedded construction and some argument of the matrix clause are identical and pragmatically unmarked, they are called open infinitival or participial construction, as shown in (19a-b). In (19a) the subject of the finite verb *quer* 'wants' in the matrix predicate – the stressed pronoun *ele* 'he' – is in coreference relation with the subject of the non-finite verb in the dependent

predicate establishing with it an anaphorical relationship, whereas in (19-b), we have a situation of cataphora where the subject of the participle in the dependent construction *chegando* 'arriving' is again in coreference with the subject of the main predicate in *fomos* 'we went'.

(19) a. *Ele* *quer* *ø* *trabalha-r* *na* *Universidade.*
he want.IND.PRS.3.SG ø work-INF in.the.F University.
'He wants to work in the University'

b. *Øchega-ndo* *a* *São Paulo,* *fo-mos* *a-o* *hotel*
Øarrive.PTCP.PRS at São Paulo, go.PRF-1.PL to-the,M hotel
'Arriving at São Paulo, we went to the hotel.'

In the open predications of (19a) and (19b), there is no overt constituent representing the embedded Subject, since the subject, a common case of zero in Portuguese, is left unexpressed under the condition of coreference with the higher Subject (DIK, 1997, p. 148). The same may be applied to nominalizations. Consider the example in (20), where the first argument of the nominalization *resistência* 'resistance' is non-overt by virtue of a coreference relation with the noun *caça* 'prey', which plays the function of subject of the main predicate:

(20) *a* *caça* *que* *é* *o que* *oferec-e...*
the.F prey that be.IND.PRS.3.SG what offer-IND.PRS.3.SG
um-a *resist-ência* (EF-SP-450)
a-F resist-NMLZ
'the prey... that is the one that offers... some resistance'

According to Dik, open infinitival constructions are not restricted to those containing an anaphorical term. He mentions another usage of open infinitival constructions whose Subject has a generic rather than an anaphorical value. Let us take in account (21):

(21) Ø *É* *perigoso* *nada-* *n-aquel-e* *lago.*
It be.IND.PRS.3.SG dangerous swim-INF in-that-M lake.
'It is dangerous to swim in that lake.'

Since there is no antecedent which the Subject of the embedded construction could be linked to, the non-overt Subject of that type of infinitival construction does not have anaphorical value; instead it expresses that the danger may be applied to any arbitrary person and the non-overt Subject has a generic reading. Again the same is applied to nominalizations, as it may be seen in (22), where

the missing first argument is just a grammatical device to mean that the agent is any arbitrary person:

(22)	*É*		*comum*	*a*	*demissão*	*de*	*trabalhador-es*
	be.IND.PRS.3.SG		common	the.F	dismissal	of	worker-M.PL
	n-o	*final*	*d-o*	*ano*.			
	at-the.M	end	of-the.M	year			
	'The dismissal of workers is common at the end of year.'						

In short, examining instances of the three types of embedded constructions postulated by Dik (1997) from Brazilian Portuguese, I observed that the property of either being closed or being open predication applied to infinitival and participial embedded constructions can be very well applied to nominalizations too. I interpreted some cases of nominalization as open predication because there is no overt constituent representing the embedded Subject. Thus nominalizations consist of embedded constructions whose Subject is left unexpressed either under the condition of coreference with the higher Subject or under the condition of generic reading, and this situation is exactly the same as that one applied to infinitival and participial constructions.

This formal behaviour nominalizations have in common with the other types of embedded constructions shows that the open nature of nominalizations cannot be associated with lack of valency at all. Otherwise the same property should be extended to the two other kinds of open verbal predicates I dealt with here. Next let us see how to interpret this open nature in terms of the FDG model.

5 The dynamic implementation of zero anaphora

The evidence of semantic integration, discussed in section 3, seems to show that the Representational Level plays an important role in the Formulation given that it is at the Representational Level that we can account for cases of zero anaphora motivated by semantic predetermination, a functional behavior directly linked to degree of integration between main and embedded predicates.

However, how can we explain cases of zero anaphora motivated by speaker's choice on the basis of referents presumably available in the Addressee's short-term memory? The best explanation for this kind of choices motivated by pragmatic information must be searched at the Interpersonal Level.

Recall that FDG is a multilevel model of grammar consisting of Interpersonal and Representational levels operating at the stage of formulation, and the Morphosyntactic and the Phonological levels operating at the stage of

codification (HENGEVELD; MACKENZIE, 2006). Given that FDG is a top-down model, its efficiency is directly proportional to the way it resembles language production. Thus, according to Hengeveld (2005), the idea of dynamic implementation calls for the Depth First Principle and the Maximal Depth Principle; both of them are meant to speed up the implementation of the grammar. The depth-first principle states that "information from a certain level is sent down to a lower level as soon as the necessary input information for that level is complete", while the principle of maximal depth states that "only those levels of representation that are relevant for the building-up of (a certain aspect of) and utterance are used in production of that (aspect of the) utterance" (HENGEVELD, 2005, p. 73).

Figure 3 represents the pathways through the grammar. According to Hengeveld, the horizontal arrows concern the consultation of the sets of primitives by the various operations. The dynamic implementation is represented by vertical arrows.

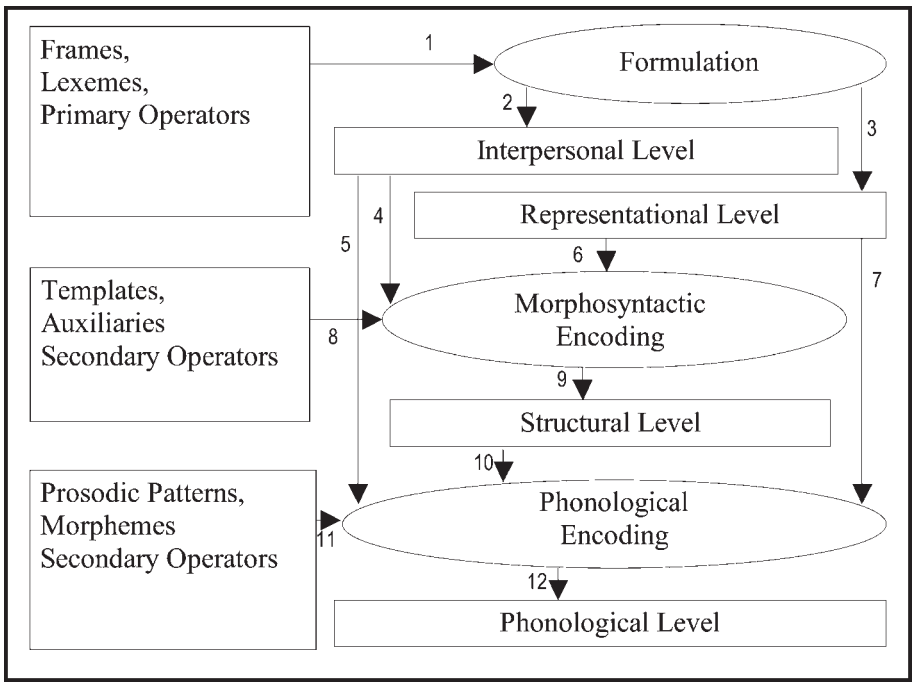

Figure 3 – Pathways through the grammar (HENGEVELD, 2005, p. 75)

Since FDG represents a modular view of the grammar, pragmatics, semantics, morphosyntax and phonology are developed at independent but interrelated levels. The dynamic implementation provides a path through which short-term information may be accessed, while the relevant complementation choices at the Representational Level are being performed.

There are two decisions to be made at the same time when construing a nominalization as an embedded construction. One decision has to do with the Representation Level without any interference of the Interpersonal Level in accordance with depth-first principle. If it is the semantic type of complement-taking predicate that triggers the relevant choice of a given dependent construction, like a nominalization, the Speaker must check out whether there is some sharing of participants to avoid stating redundant information.

The other decision has to do with the Interpersonal Level. The speaker consults the Contextual Component to check out which piece of information is already available to the Addressee in order to provide the Structural Level with the most suitable form. Although the former type of decision draws on the Representational Level, and the latter draws on the Interpersonal Level, the results may be exactly the same at the Structural level, i.e., at the Structural level both the semantic motivation due to sharing of participants and the pragmatic motivation due to availability of short-term information lead to the same expression by either zero anaphora or zero cataphora.

The Interpersonal Level, the Representational Level and the Structural Level must be dynamically integrated in such a way that referential information stored in memory, which is contained in the Contextual Component, is readily accessible even after the relevant complementation choices at the Representational Level have been carried out. This way of processing is already predicted by the FDG framework, where the Interpersonal and the Representational levels are conceived of as operating independently from each other, while the Contextual Component may be accessed at any time (HENGEVELD, 2004, p. 3).

Thus, after the semantic type of the complement-taking predicate has triggered the relevant choice of such a given dependent construction as a nominalization, the speaker needs to access the Contextual Component to check out which entities are available to the Addressee in order to provide the Structural Level with the correct expression form. All these decisions draw on information specified at the Interpersonal Level. Let us resort to some examples of nominalizations, given in (23) and (24), where the stressed pronoun *eles* 'they' refers to the prehistoric men, a piece of information mentioned several times throughout the text. Firstly consider (23):

(23) *eles* *consegu-em* *cheg-ar...* *a* *é*
they succeed.in-IND.PRS.3.PL arrive-INF to be.IND.PRS.3..SG
óbvio *um-a* *evolu-ção* *[* **deles**]* (EF-SP-405:57)
obvious an-F evolve-NMLZ [of theirs]
'it is obvious that they succeed in arriving at... an evolution [* **of theirs**]'

After selecting the appropriate lexeme with its respective predicate frame at the Representational Level, zero anaphora is chosen for the expression of the argument in (23), representing *eles* 'they' just mentioned in the main predicate.

Now consider (24):

(24) *eles* *tinh-am* *que* *acompanh-ar*
they have-IND.IPFV.3.PL that follow-INF
o *moviment-o* ∅ [=*d-o-s* *anima-is*] *também:* (EF-SP-405)
the.M move-NMLZ ∅ [= of-the.M-PL animal-PL] too
'they had to follow movement **∅** [= of the animals] too'

In (24), on the other hand, zero anaphora expression is not semantically predetermined, but motivated for pragmatic reasons, i.e., the status of given information of the referential expression *animais* 'animals', which is repeated many times in the ongoing discourse. In this specific case, the Contextual Component needs to be consulted in a principled way with the cooperation of both speech act participants. In this case, it is the availability of the referent at the Interpersonal Level that finally triggers the expression of zero anaphora to (24) at the Structural Level.

As the depth-first principle predicts, cases of semantically predetermined zero anaphora, as contained in (23) are motivated by the following path through the grammar: 1 → 3 → 6 → 8 → 9 → 10 (see Fig. 3); in this case the Interpersonal Level is circumvented. However, cases of pragmatically determined zero anaphora, such as those contained in (24), are motivated by the following path through the grammar:1 → 2 → 4 → 8 → 9 → 10 (see again Fig.3); now it is the Representational Level that is circumvented.

Now let us take in account the example contained in (25):

(25) **a** ***caça*** *que* *é* *o que* *oferec-e...*
the.F prey be.IND.PRS.3..SG what offer-IND.PRS.3.SG
uma *resist-ência* [*da caça] [aos homens pré-históricos] (EF-SP-450)
a-F resist-NMLZ [*of the prey] [to the prehistoric men]
'the prey is the one that offers... some resistance [*of the prey] [to the prehistoric men]'

My claim is that, during Formulation, the two levels work simultaneously to produce (25). However, given that these levels work independently from each other, the paths through grammar are exactly the same as those followed to construe (23) and (24). In (25), on the other hand, they work simultaneously to produce both types of zero anaphora: the one referring to *caça* 'prey' as the first argument of *resistência* 'resistance' is motivated by semantic predetermination; the other, referring to *homens pré-históricos* 'prehistoric men' the second argument of *resistência* 'resistance', is pragmatically motivated.

6 Conclusion

By analyzing a sample of productive nominalizations in spoken Brazilian Portuguese, I gathered some empirical evidence to give support to the assumption that the lack of overt arguments does not mean nominalizations are devoid of valency. Rather, non-overtness makes clear that nominalizations are aligned with other types of non-finite embedded constructions concerning the open or close nature of the predicates and, therefore, concerning their potential valency, as good evidence that all kinds of predicate working as embedded constructions have a complete argument structure in their underlying representation.

As a consequence, I suggest changing the taxonomy of embedded constructions proposed by Dik (1997, p. 146), which was presented in Fig. 1, into a revised one, now presented in Figure 4, in order to include the nominalized construction into it as modality of embedded construction of the same type as the others, i.e., containing both open and closed slots in its argument structure.

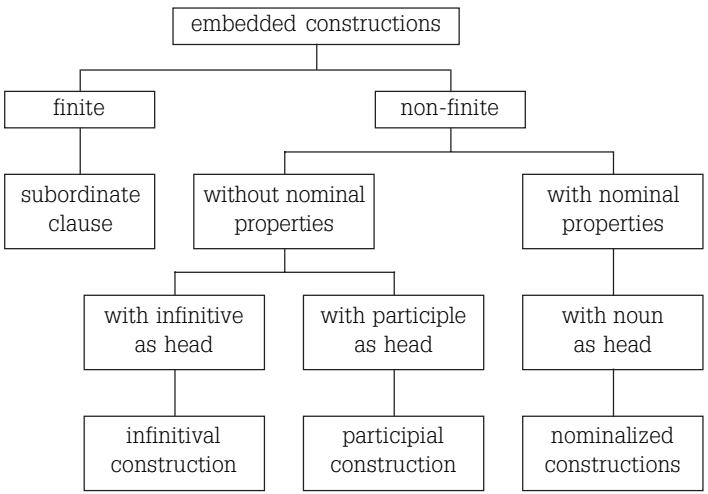

Figure 4 – Types of embedded constructions revised

Finally I also arrived at the conclusion that the dynamic implementation of FDG model accounts for the semantic and pragmatic motivation for non-overt arguments as a result of the interdependence relation among the levels or organization.

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CAMACHO, R.G. A implementação dinâmica de argumentos não-manifestos em nominalizações. *Alfa*, São Paulo, v.51, n.2, p.213-237, 2007.

- RESUMO: Como a valência é uma propriedade inerente de nominalizações representando uma entidade de nível superior, como um estado de coisas, ela deveria ser incluída na representação subjacente delas. Com base nesse postulado, defendo o princípio de que os casos de argumentos não-manifestos, que são muito comuns tanto no Português Brasileiro como em muitas outras línguas, devem ser considerados um tipo especial de realização de valência. Este trabalho pretende dar suporte empírico a esse postulado, mostrando que argumentos não-manifestos são determinados tanto por motivações semânticas quanto por motivações pragmáticas. Esses dois tipos de motivações podem ser explicados pelo processo de implementação dinâmica do modelo de Gramática Discursivo-Funcional. Sustento a idéia de que o modo como a valência se realiza por meio de argumentos não-manifestos sugere um forte paralelismo entre nominalizações e outros tipos de construções encaixadas não-finitas – como as participais e as infinitivas. Com o apoio de evidência empírica para esse paralelismo, concluo que há pelo menos três tipos de construções encaixadas não-finitas em vez de somente duas, como originalmente sugerido por Dik (1997).

- PALAVRAS-CHAVE: Nominalização; construção encaixada; valência; argumento manifesto; argumento não-manifesto.

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Appendix: List of Abbreviations

1	first person	M	masculine
2	second person	NMIZ	nominalizer
3	third person	PL	plural
AUX	auxiliary	PRF	perfect
DUR	durative	PRS	present
F	feminine	PROG	progressive
FUT	future	PST	past
IND	indicative	PTCP	participle
INF	infinitive	REFL	reflexive
IPFV	imperfective	SBJV	subjunctive
IRR	irrealis	SG	singular

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MORPHOSYNTAX AND ITS GENERATION IN FUNCTIONAL DISCOURSE GRAMMAR: WHAT CAN BE LEARNED FROM ROLE AND REFERENCE GRAMMAR?

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- ABSTRACT: The morphosyntactic level in Functional Discourse Grammar (FDG) is currently underdeveloped. The aim of the present paper is to make proposals relevant to the structure of the morphosyntactic level in this theory, and to how the interpersonal (pragmatic) and representational (semantic) levels of the grammatical component map on to it. These proposals rely heavily on a second structural-functional theory, Role and Reference Grammar (RRG). It is suggested that morphosyntactic structures in FDG need to be much more like the layered structures of RRG, and that given appropriate additions to the representational level which have been shown to be needed cross-linguistically, FDG could then adopt (or adapt) the semantics-to-syntax linking algorithms of RRG in order to provide a generative interfacing mechanism between the interpersonal and representational levels, on the one hand, and the morphosyntactic level on the other.

- KEYWORDS: Functional Discourse Grammar; Functional Grammar; Role and Reference Grammar; morphosyntax; linking algorithms.

1 Introduction

Functional Discourse Grammar (henceforth FDG, HENGEVELD, 2004a, 2004b, 2005; HENGEVELD; MACKENZIE, 2006; 2008, Forthcoming; MACKENZIE; GÓMEZ-GONZÁLEZ, 2004, 2005) offers a top-down model of grammar which is meant to reflect, in its general architecture, the ideas put forward by Levelt (1989, 1999) in relation to an account of language production. As shown in Figure 1, adapted from Hengeveld and Mackenzie (2006, p.669, 670),[2]

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[2] It should be noted that this version of the model outline differs in one important respect from that given in Hengeveld (2005, p61), which does not have an arrow feeding information from the interpersonal to the representational level, but rather formulates the interpersonal and representational structures independently. However, in the earlier article Hengeveld (2005, p.73) states that information at the interpersonal level can have consequences for the representational level (e.g. selection of an imperative frame forces the choice of a controlled event). I have therefore followed the later version of the model here.

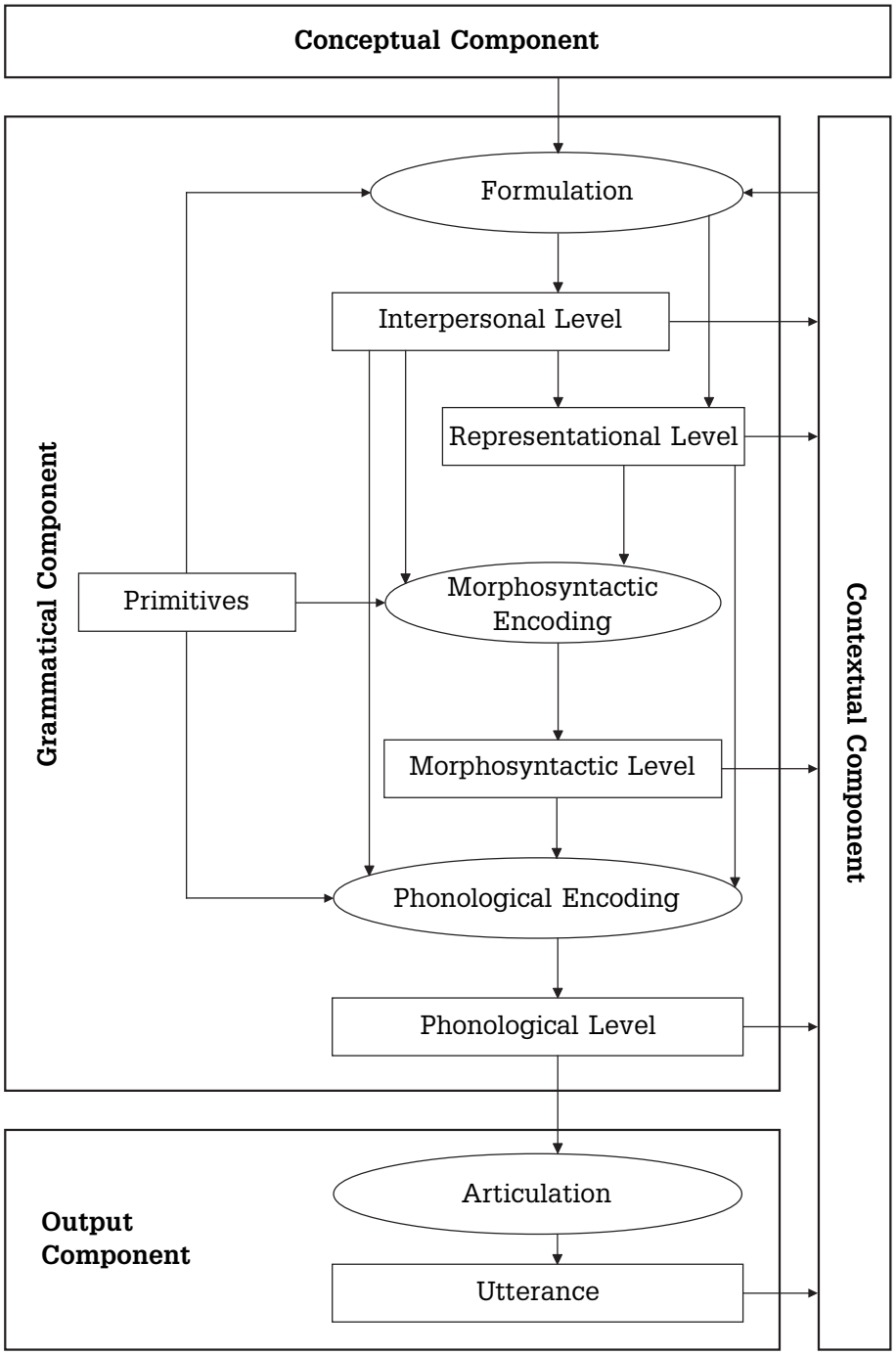


Figure 1 – Components, operations and levels of representation in FDG

the central GRAMMATICAL COMPONENT of the overall model is driven by a CONCEPTUAL COMPONENT, interacts with a CONTEXTUAL COMPONENT, and passes its resulting structures to an OUTPUT COMPONENT concerned with the final articulation of the utterance in sound, writing or gestural sign. The grammatical component consists of four levels: the INTERPERSONAL, at which the utterance is planned in terms of discourse pragmatics as a move consisting of one or more acts, which in turn consist of subacts; the REPRESENTATIONAL, at which the semantics (predicate-argument structure, additional modifiers, etc.) is dealt with; the MORPHOSYNTACTIC, which takes the output of the interpersonal and representational levels and converts it to an ordered syntactic structure with appropriate morphology; and the PHONOLOGICAL, which converts the output of the morphosyntactic level into a pre-phonetic phonological representation. Each level is fed by a set of PRIMITIVES, which includes a subset with structuring function, a subset in phonemic form, and a subset of grammatically-realised operators. In order to respect the incrementality of production proposed in Levelt's model, it is proposed that as soon as one level produces enough output for a lower level to act on, that part of the output is passed on without necessarily waiting for the rest of the production from a particular level. In the current state of development of FDG, we have simply four different, parallel specifications of the utterance, discourse-pragmatic, semantic, morphosyntactic and phonological. Clearly, however, if the theory is to develop into a fully generative model which is capable of specifying all the stages in going from conceptualisation to articulation, it is essential to describe how the levels interface. In other words, we must show how structures from the interpersonal level are mapped on to those at the representational level, how output from both of these levels is mapped on to the morphosyntactic level, and how what is produced by this level is mapped on to a phonological representation. Apart from some hints in the work of Bakker and Siewierska (2004) on how interpersonal and representational structures could be fused into a single underlying structure for input to dynamic expression rules based on earlier FG, little has been done on the FDG mapping rules. Furthermore, since the requirements of language production and comprehension are in some ways very different, it is likely that the mappings from one level to another will not simply be reversible, if they are to attain a high degree of cognitive adequacy. The purpose of the present paper is to make some suggestions for how the morphosyntactic level of FDG might be represented, and the way in which interpersonal and representational elements might be mapped on to it in the productive direction. These proposals will rest on a comparison between FDG and a second structural-functional grammar, Role and Reference Grammar (RRG).

2 The morphosyntactic level

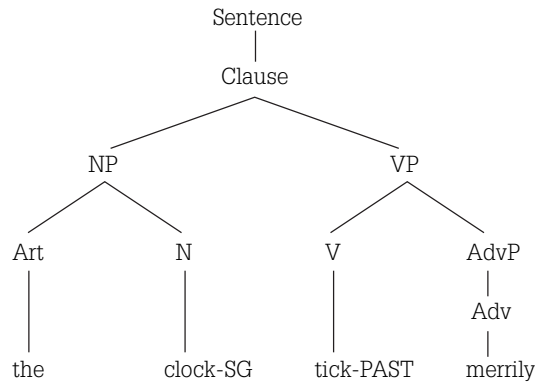
2.1 The current model

The most recently published summary of FDG states that "[t]he morphosyntactic level accounts for all the linear properties of a linguistic unit, both with respect to the structure of sentences, clauses, and phrases, and with respect to the internal structure of complex words" (HENGEVELD; MACKENZIE, 2006, p.674). The morphosyntactic structure proposed is of an extremely orthodox kind, as shown in the linear structure for example (1) given in (2), or alternatively the tree diagram in (3):

(1) The clock ticked merrily, … (BNC[3] ASE 1923)

(2) $[[[\text{the}_{\text{Art}}\ \text{clock}_{\text{N}}\text{-SG}]_{\text{NPi}}\ [\text{tick}_{\text{V}}\text{-PAST}\ [\text{merrily}_{\text{Adv}}]_{\text{AdvPi}}]_{\text{Vpi}}]_{\text{Cli}}]_{\text{Si}}$

(3)



In other words, the whole sentence is seen as consisting of a single clause, which in turn consists of a NP and a VP, the latter containing a verb and an AdvP; the NP consists of an article and a singular noun, and the AdvP of a single adverb. The structuring of the morphosyntactic level is achieved through the operation of templates for words, phrases, clauses and sentences, provided by the set of primitives which feed this level (HENGEVELD, 2005, p.68). I assume that it is intended that the templates for clauses will be broadly of the type proposed in Dik's account of FG (DIK, 1997 p.408-414, p.424-427), consisting minimally of slots for Subject, Verb, Object[4] and pragmatically-significant positions such as initial and final position in the clause. The important question which arises is

3 Examples marked BNC are from the British National Corpus (World Edition).

4 Subject and Object are assigned as syntactic functions at the morphosyntactic level (HENGEVELD, 2004b, p.373).

whether the structural means available in FDG are sufficient, in view of the evidence about morphosyntactic patterning available across a typologically-varied range of languages. In order to make progress on this question it is instructive to look at what is proposed in RRG.

2.2 The layered structure of the clause in Role and Reference Grammar

Role and Reference Grammar (RRG: VAN VALIN; LAPOLLA, 1997; VAN VALIN, 2005), like FDG, postulates separate levels of semantics and (morpho)syntax. In what follows, I shall first summarise briefly the nature of the morphosyntax in RRG and outline the evidence for the kind of syntax proposed, and then examine what parallels already exist between the syntax of RRG and that of FDG.

The syntactic level of RRG is organised as a layered structure of units which, although motivated in semantic terms, are argued for on the basis of syntactic evidence. The clause is divided into a core, which contains the nucleus and core arguments, and a periphery in which non-arguments occur. The nucleus houses the semantic predicate, and the core arguments are also arguments in the semantic representation for the predicate. These divisions, which are claimed to be universal, are illustrated in Figure 2.

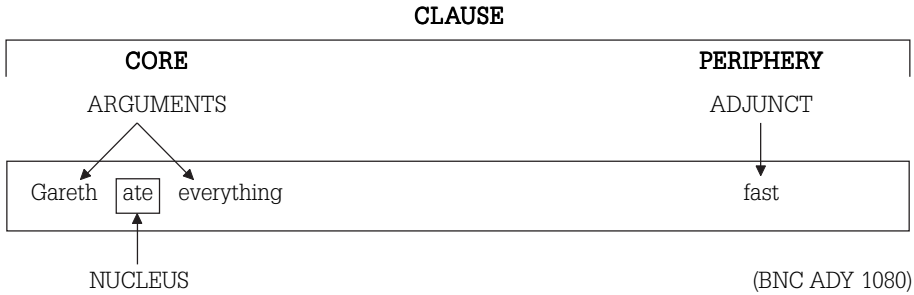


Figure 2 – The layered syntactic structure of the clause in RRG

There are also elements which are not claimed to be universal. Some languages have a pre-core slot (PrCS), in which question words appear in languages, such as English, which do not place them in their ordinary pattern position in the clause (see example (4)); this is also the position for material which would be regarded as 'fronted' in theories that admit transformations, and which is integrated into the clause in English (example (5)). Some verb-final languages have a corresponding post-core slot (PoCS). Some languages, again including English, have a left-detached position (LDP) in which sentence-initial elements

can occur when separated from the clause by a pause, intonation break or comma (example (6)). Again there is a similar possibility after the clause, the right-detached position (RDP: example (6)).

(4) **What** did you leave behind? (BNC ASN 1841)

(5) **This one** I'm sure you'll recognise. (BNC JK2 326)

(6) **As for him**, his heart was still set on finding the sea-king's palace … (BNC FUB 43)

(7) She's cunning, **that girl**. (BNC HTX 2808)

The structural elements of the clause are displayed in the form of a CONSTITUENT PROJECTION. There is also an OPERATOR PROJECTION showing the operators, for tense, illocutionary force, aspect, modality, etc, which attach to the various layers of the structure, and so show scopal relations. Finally, a FOCUS PROJECTION indicates the potential focus domain (PDF), within which focused elements must occur for a given language, and the actual focus domain (AFD) for a particular example. In Figure 3, all three projections are shown for the simple clause in Figure 2: 'IU' stands for 'basic information unit' (VAN VALIN, 2005, p.78). The basis of the layered structure of the clause goes back to the first full presentation of RRG by Foley and Van Valin (1984). Three kinds of evidence for layering are adduced: the restricted scope of particular operators; the coding and behavioural properties of the units proposed; and the important role of the layered structure in explaining type of linkage between clauses in sentences. I shall examine each briefly in turn: for a rather fuller account, see Butler and Taverniers (2008, Forthcoming).

Operators for aspect (e.g. progressive in English) affect only the predicate itself, and so do those directional operators, in languages such as Kewa, which indicate the direction of the process itself: these operators constitute evidence for the nucleus. On the other hand, other types of directional, such as the prefixes *her-* and *hin-* in German, indicate the direction of movement of a participant in relation to the process. Similarly, root modalities (ability, obligation, intention) indicate some property of a participant in relation to whatever is signalled by the predicate. Such operators involve the whole core, without affecting non-core elements. Note, however, that this type of evidence assumes that operators are syntactic rather than semantic or pragmatic, a position which I shall argue against in a later section.

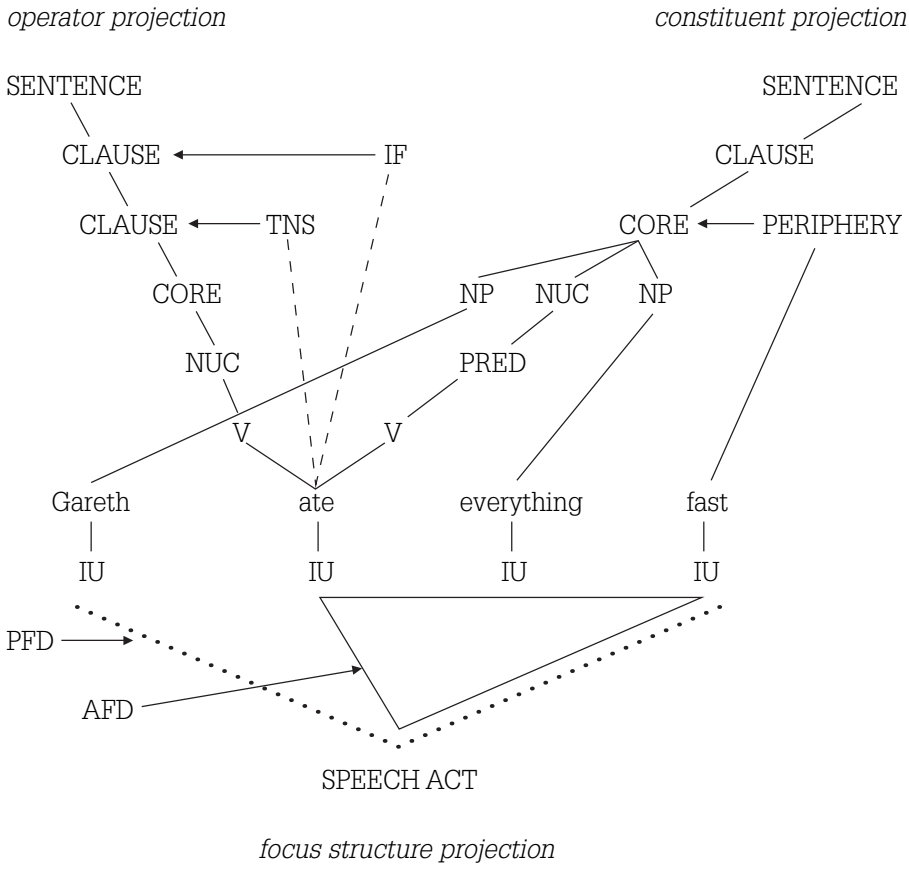


Figure 3 – The constituent, operator and focus projections for a simple sentence

As far as coding properties are concerned, arguments in the core (e.g. what in most theories are labelled Subject and Object in English) are, cross-linguistically, normally coded by unmarked forms and those in the periphery (i.e. adjuncts) by marked forms, often adpositional. Further evidence comes from agreement and cross-referencing phenomena. English, for example, has verb agreement with the Subject but not with adjuncts, and in the Australian aboriginal language Gooniyandi arguments, but not adjuncts, are cross-referenced on the verb, as shown in examples (8) and (9), taken from McGregor's (1990) corpus, in which the arguments *girili* and *boojabij*, but not the adjuncts *ngilanggoowa* and *ngamoo nganyi marlami*, show cross-referencing:[5]

[5] Glosses for Gooniyandi examples have been provided with only the degree of detail necessary for our present purposes. The conventions are those of the Leipzig Glossing Rules, available at http://www.eva.mpg.de/lingua/files/morpheme.html

(8) (= McGregor's 3-41, 1990, p.158)

girili	wara-ari	ngilanggoowa
tree	stand:PRES:3SG:CLF	eastern:end

'The tree stands on the eastern end (of a row of trees).'

(9) (= McGregor's 3-37, 1990, p.156)

ngamoo	nganyi	marlami-ya	ngarag-bidda[6]	boojabij
before	1SG	nothing-LOC	make-PST:3PL.NOM:3SG.ACC:CLF	post:office

'Before my time they built the old post office.'

The distinction between core and clause is motivated by, for example, the behaviour of some Germanic languages with regard to verb position. In, for instance, German, Dutch and Icelandic, the finite verb must appear in second position in the clause, except in polar questions. Examples from German and Dutch are given in (10) - (13):

(10)

Gestern	hab-e	ich	ein	Bild
Yesterday	have.PRES-1SG	1SG.NOM	DET.INDF	picture

ge-mal-t	von	der	Mama,	von	mir
PTCP-paint-PTCP	of	DEF.F.SG.DAT	Mama,	of	1SG.DAT

und	vom	Clemens.
and	of.DET.DEF.M.SG.DAT	Clemens

'Yesterday I painted a picture of Mama, of me and of Clemens.'
(Peter Härtling …*und das ist die ganze Familie: Tagesabläufe mit Kindern*, cited as part of the LIMAS corpus, Source no. 408, line 23, http://www.ikp.uni-bonn.de/Limas/)

(11) *Gestern ich habe ein Bild gemalt von der Mama, von mir und vom Clemens.

(12)

Gisteren	sprak-en	Perez de Cuellar	en	Aziz,	al
Yesterday	speak.PST-3PL	Perez de Cuellar	and	Aziz	already

vijf	uur	met	elkaar.
five	hour	with	each.other

'Yesterday Perez de Cuellar and Aziz spoke to each other for five hours.' (Leiden Corpus of Dutch, taken from ECI Corpus on CD-ROM, file DUT02A01)

(13) *Gisteren Perez de Cuellar en Aziz spraken al vijf uur met elkaar.

RRG explains these facts by positing that (except in yes-no questions) the finite verb must be in second position in the CLAUSE, but that the Subject[7] must be the first

6 The more modern spelling would be *–birra* rather than *–bidda* (Bill McGregor, pers. comm.).

7 In fact, as we shall see later, RRG does not use the traditional category of Subject, but rather that of the Privileged Syntactic Argument (PSA) for a construction. For our purposes at present, however, we can continue to use the more familiar label.

non-verbal element in the CORE. Thus when there is a constituent in the PrCS, inversion of Subject and verb must occur. Crucially, constituents in the LDP do not cause such inversion, as shown in examples (14) and (15) from German and Dutch respectively:

(14) Der Hans Sachs, der war
DET.DEF.M.SG.NOM Hans Sachs DEM.M.SG.NOM be.PST.3SG
ein Schuhmacher und Poet dazu …
DET.INDF.M.SG.NOM shoemaker and poet with.it
'Hans Sachs, he was a shoemaker and a poet too.'
(German Wikipedia corpus, id = 45776, available at http://corp.hum.sdu.dk/)

(15) Mijn zoon, ik heb hem het zestallig
1SG.POSS son 1SG have.PRS.1SG 3SG.M.OBL DET.DEF.N.SG six.number
stelsel uit<ge>leg-t, hij was pas vier
system <PTCP>explain-PTCP 3SG.M be.PST.3SG only four
'My son, I explained the base six number system to him, he was only four.'
(http://www.hamelen.tv/archief/1992-10-00-html, consulted 5.12.2006)

A second argument for the distinction between core and clause comes from the behaviour of head-marking languages (NICHOLS, 1984), in which dependency is marked on the head of the construction rather than on the dependent element. An example of such a language, as we have seen, is Gooniyandi. Consider an example such as (16):

(16) (= McGregor's 5-241, 1990: 379)
gardiya gard-looni nganyi-ngga
white:man hit-PST:1SG.NOM:3SG.ACC:CLF 1SG-ERG
'It was the white man that I hit.'

Note that both arguments are cross-referenced on the verb. Furthermore, the free NP arguments can be omitted, to leave simply *gardlooni* (MCGREGOR, 1990, p.200). In RRG this is taken as evidence that the affixes on the predicate are the true core arguments, and that the omissible NPs are outside the core, though inside the clause.

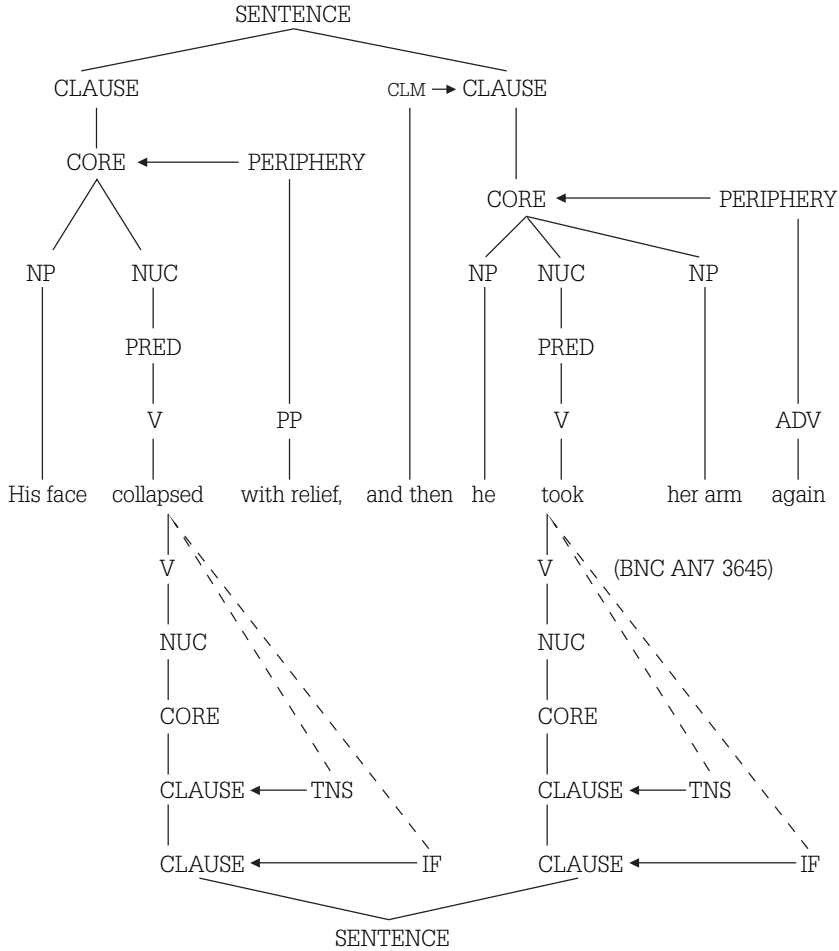
A final important source of evidence for the layering of syntactic structure proposed in RRG is the syntax of clause combination. This is seen in terms of two cross-cutting dimensions, those of JUNCTURE and NEXUS. Juncture refers to the layer involved in the linkage (nucleus, core, clause), the default situation being that units of the same layer are linked; nexus refers to the type of linkage, coordinate, subordinate or cosubordinate, this last category referring to the

situation in which one clause is dependent on the other (in terms of the sharing of at least one operator), though not embedded within it. To the nine possible combinations generated by the three values on each dimension, all of which are said to occur in Korean (YANG, 1994), Van Valin and LaPolla (1997, p.469) add coordination of whole sentence structures containing LDP elements; in the latest version of the theory (VAN VALIN, 2005) there are also some refinements to subordination which need not concern us here. The combination of the theoretical constructs of unit layering and nexus type allows an explanatory account of the syntax of complex sentences which has been substantiated through analysis of a range of typologically diverse languages.

As the distinction between clause and core will be crucial to the arguments presented later, it is of interest here to look a little more closely at the difference between clausal and core junctures. For purposes of illustration I shall discuss only the coordination nexus type, but similar arguments apply to subordination and cosubordination types. First, it is important to note that coordination in RRG is not to be equated with conjunction of two units, this being just one of the ways in which the formal syntactic relation of coordination can be realised. Coordination is characterised by the lack of dependence between the units, while subordination involves structural dependence and cosubordination dependence between operators over the units. An example of clausal coordination is shown in (17): note the structural and operator independence, and the joining of two whole clauses.[8]

[8] CLM stands for 'clause linkage marker'.

(17)



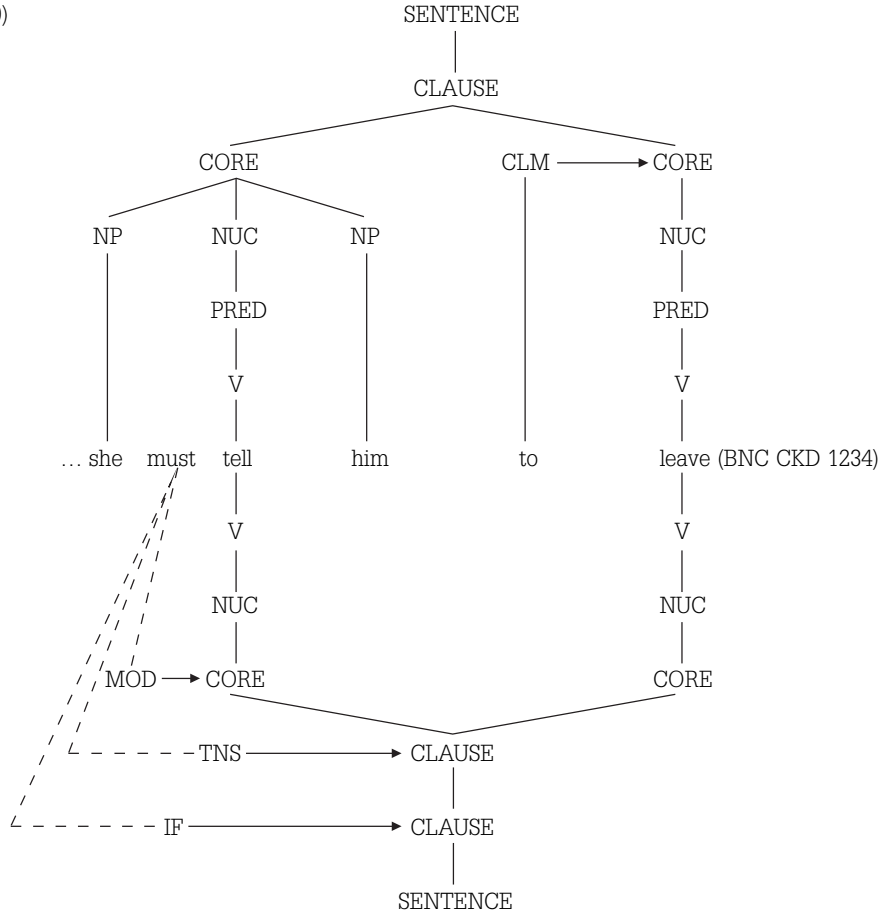
Examples (18) and (19) demonstrate that where whole clauses are the units involved in coordination, each can have its own independent illocutionary force:

(18) I hate myself for asking, but why did you leave? (BNC C9N 719)

(19) Forgive my asking, Sister, but why is he using a mask? (BNC CK0 370)

By way of contrast, (20) shows core coordination: again there is structural and operator independence, but here two cores are linked.

(20)



We have so far been concerned with evidence for the layering of syntactic units themselves. RRG grammarians also cite evidence for the attachment of operators to particular layers in the structure. The scope relations among operators lead to predictions, borne out in relation to typologically diverse languages, that operators will be expressed in an order, radiating out from the predicate itself, corresponding to the scheme nuclear < core < clausal. Note, however, that these facts could equally be taken to indicate semantic rather than syntactic scope: see later discussion.

2.3 Morphosyntactic structure in RRG and FDG: some parallels and differences

There is a considerable amount in the foregoing discussion which will be familiar to those with a knowledge of Functional Grammar. In particular, some of

the elements of the RRG layered structure are reminiscent of the special positions, labelled as P0-P3, proposed in FG in order to account for the location of elements with particular pragmatic functions. For instance, the LDP of RRG corresponds exactly to the P2 extra-clausal constituent proposed by Dik (1978, p.21), housing elements with the pragmatic function Theme, which "specifies the universe of discourse with respect to which the subsequent predication is presented as relevant" (DIK, 1978, p.19). Similarly, the RDP is equivalent to P3, housing a constituent with Tail function, which "presents, as an 'afterthought' to the predication, information meant to clarify or modify it" (DIK, 1978, p.19).

Within the clause itself, however, the mappings between FG and RRG are by no means exact. FG postulates a P1 position at the beginning of the clause, which is "used for special purposes, including the placement of constituents with Topic or Focus function" (DIK, 1997, p.408). Dik (1997, p.409) claims that this principle interacts with the typologically determined choice between ordering dependents before or after heads, and with the universal tendency for Subject to precede Object, to yield two basic word order patterns, P1 S O V and P1 V S O. Languages may have types of constituent which must be placed in P1: for English, Q-word constituents[9] (interrogative pronouns and NPs with interrogative determiners), relative pronouns and subordinators fall into this category. Where P1 is not occupied by such a constituent, it may house elements with Given Topic or Focus function. An example of a constituent with contrastive Focus in P1 is given in (21):

(21) This one I swapped with Christopher. (BNC KCT 7428)

Since an element with Given Topic function is often the Subject, it follows that the Subject often occurs in P1.

Mackenzie and Keizer (1991), in a detailed examination of Topic and Focus in an English text, conclude that Dik's analysis is untenable as far as Topic is concerned. They demonstrate that topical elements do not have any special treatment in English, and so, according to the principles of FG, the pragmatic function Topic cannot be assigned to them. This leads to the question of what use is made of P1 if no constituent specialised for that function is present, and Mackenzie and Keizer's answer is to agree with Dik's own rule, that in such circumstances this position is filled by the Subject.

The important point, then, in relation to English at least, is that there is incomplete correspondence between the FG P1 position and the PrCS of RRG, because of the stipulation that the Subject can go into P1 if there is nothing else that takes precedence over it for that position. The only circumstance in which

9 Except in echo questions, where they are in the normal position for their particular syntactic function.

the PrCS houses the Subject of an English clause is when that Subject is also a *wh*-constituent; otherwise, the default position is the first position within the core itself.

It should also be mentioned that a special position for Focus constituents, P0, has also been postulated to occur at the end of clauses in Polish, Czech and Bulgarian (DIK, 1997, p.426). Hannay and Martínez Caro (2008, Forthcoming) also present evidence for such a special position to account for certain focus phenomena in Spanish and English.

There are two problems for the F(D)G account in terms of syntactic templates with specified positions. Firstly, the templates proposed by Dik give us no way of recognising a syntactic unit which corresponds to the distinction between core and clause in RRG, which as we have seen is strongly motivated in terms of a number of types of evidence. Secondly, FDG inherits from FG a picture of constituent ordering in which structural templates make crucial use of the syntactic functions Subject and Object. Note, for instance, that de Groot (2005), in an article on morphosyntactic templates in FDG, still proposes clause templates containing Subject and Object. Likewise, Bakker's dynamic model of the speaker (see e.g. BAKKER, 2001, 2005; BAKKER; SIEWIERSKA, 2004), which is the most detailed and cognitively-adequate account of FG expression rules available to date, still operates with templates involving the Subject and the P1 position. As we shall see, this is problematic in view of convincing evidence from RRG that Subject and Object functions are not well motivated cross-linguistically. Let us consider each of these points in turn.

2.4 The lack of a clause-core distinction in F(D)G

As shown earlier, the clause-core distinction in RRG is motivated by four types of evidence: constituent ordering in verb-second languages, the behaviour of core arguments in head-marking languages, the syntax of clause combination, and the fact that operators take a particular unit as the scope of their action. This last point will be discussed in a separate section later; here, I shall review briefly the other three types of evidence in relation to existing F(D)G accounts.

Even the early FG literature tackles the issue of constituent ordering in verb-second languages. For instance, Dik (1978, p.178-179) proposes a syntactic template for Dutch main clauses consisting of the sequence P1 Vf S O Vi, where Vf is the finite verb and Vi an infinitive, and P1 the initial position in the clause which must house certain types of constituent (including *wh*- and fronted items) if these are present. However, Dik goes on to comment that if there is no element which obligatorily goes into P1, then constituents with Topic or Focus function

may go there, and that since the Subject will often have one of these pragmatic functions, it is the main candidate for P1 position in such circumstances. There is thus still a blurring of the distinction between a core consisting of the predicate and its arguments, on the one hand, and a position before the core where *wh*- and fronted items must occur, on the other.

The account of constituent ordering by Connolly (1991, 2005), according to which no element is obligatorily filled, is likewise able to get constituents into the correct positions for particular languages, and represents a considerable improvement on the Dik scheme. For English (CONNOLLY, 1991, p.60-70, 2005, p.44), it recognises not only P1, but also a sequence of up to seven further 'nuclear constituents' (N1-N7). P1 houses only constituents which must go into this position (e.g. *wh*-items, subordinators) or, in the absence of such elements, a constituent with Focus pragmatic function. The unmarked position for the Subject in a declarative clause is N2, N1 being the position for the finite verb in constructions with Subject-finite inversion. This dissociation of P1 from Subject function potentially allows the recognition of a core grouping of elements in the clause, but Connolly does not go on to make this proposal, so that the model misses an opportunity to provide a unified account for the whole range of phenomena which motivate the recognition of the RRG core element.

As far as the syntax of head-marking languages is concerned, I am not aware of any F(D)G account which distinguishes between (i) a ('core') unit consisting of the predicate plus attached pronominal arguments, and (ii) the whole clause, in which there may be additional independent NPs which are coreferential with the pronominal elements.

Similarly, extant accounts of clause combination in F(D)G , partly because of their failure to recognise the clause-core distinction but also because the nexus category of cosubordination has no place in the theory, are unable to match the richness and elegance of the RRG account, where the matrix of juncture and nexus types gives rise to a principled set of clause relation types.

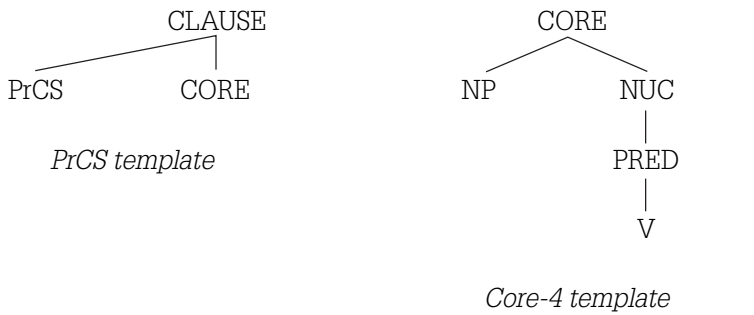
2.5 Syntactic templates and syntactic functions in RRG

In RRG as in F(D)G, patterns at the syntactic level are stored as templates (originally known as 'constructional templates', and now simply as 'syntactic templates'), in what is known as the 'syntactic inventory' for a language (VAN VALIN; LAPOLLA, 1997, p.73, VAN VALIN, 2005, p.13). Templates are postulated for the various layers in the structure of the sentence. It is recognised that there is considerable variability in templates across languages: firstly, as we have seen, some languages do not have pre- or post-core slots or left/right detached

positions; secondly, some languages (e.g. English) impose particular orders on core elements, while others (e.g. Dyirbal) are very much more flexible. For English, Van Valin (2005, p.15) proposes templates for the PrCS and LDP, and six different templates for the core. In the construction of a sentence, appropriate templates are fitted together to form the final structure. Consider example (4), repeated for convenience as (22) below:

(22) What did you leave behind? (BNC ASN 1841)

This sentence consists of a single clause, with no element in the LDP. The clause requires the PrCS template, which itself contains the core; the core template needed is Van Valin's Core-4, as shown in Figure 4:



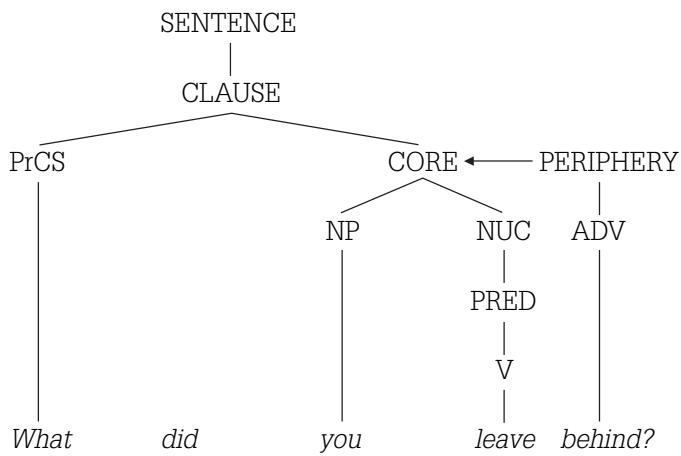


Figure 4 – Templates in the construction of the structure for example 4/22

Note that the templates make no reference to functional categories such as Subject and Object. This reflects two characteristics of RRG: firstly, as noted briefly earlier, the traditional functions of Subject and Object are not recognised, and indeed it is postulated that there are languages which do not have syntactic functions at all; secondly, the syntactic function which corresponds to the Subject in English and many other languages is assigned by a general set of rules. Let us look at each of these features in a little more detail.

RRG and FG (and presumably FDG) agree in claiming that not all languages require the postulation of syntactic functions. The justification for postulating such functions in a language is that there are some phenomena in that language in which different semantic roles are neutralised for the purposes of the syntax. For instance, in English there is neutralisation of semantic roles as far as agreement on the verb is concerned. Consider examples (23) and (24):

(23) … our hearts have been smitten by the courage of athletes who come from Great Britain. (BNC CAS 1067)

(24) … the courage of athletes who come from Great Britain has smitten our hearts.

In FG, it is the presence of voice alternations such as this in a language which determines whether syntactic functions need to be proposed or not. In RRG, because of its rather different categories, it must be demonstrated that the grammatical restrictions shown by the language cannot be stated simply in terms of semantic categories, together with reference to core or non-core status in the syntax. In order to discuss this further, we need to introduce a concept which will be treated in further detail later, that of SEMANTIC MACROROLES. RRG recognises two such roles, actor and undergoer, which generalise over sets of thematic roles which are treated as the same for particular purposes in the grammar: the prototypical actor is an Agent, while the prototypical undergoer is a Patient.

The agreement facts demonstrated by the above examples of the English active/passive alternation cannot be explained in this way, since finite verb agreement is with the undergoer of a transitive verb in (23), but with the actor in (24), so that this semantic opposition is neutralised for the syntactic purpose under discussion. There are languages, such as the Austronesian language Acehnese, in which all grammatical restrictions can be explained in terms of semantic categories, so that there is no need to postulate syntactic functions for this language.

Where syntactic function assignment is indeed needed, as in the case of the English active and passive alternation exemplified above, proponents of RRG argue that the traditional categories of Subject and Object run into considerable problems for some languages. Van Valin and LaPolla (1997, p.263-270), in a

discussion of two ergative Australian languages, Warlpiri and Dyirbal, demonstrate that although there is evidence for grammatical phenomena which require the assignment of a syntactic function in each language,[10] the assignment of a blanket Subject function obscures differences in the alignment of syntactic function with the three different types of arguments which must be recognised in characterising ergativity, viz. the single argument of an intransitive verb, the actor of a transitive verb and the undergoer of a transitive verb. Furthermore, Van Valin (2005, p.94) points out that analysis in terms of the traditional Subject is problematic in Philippine languages.[11] To avoid these difficulties, RRG postulates a different concept, that of the PRIVILEGED SYNTACTIC ARGUMENT OF A GRAMMATICAL CONSTRUCTION (PSA). PSAs come in two types, controllers and pivots (the latter normally relating to missing arguments in certain types of construction), and each of these can be either syntactic (as with the controller in the English passive, for example) or semantic (as in Acehnese). These details need not concern us here: the important point is that the PSA is defined relative to particular constructions in a language, and that "only syntactic pivots and controllers contribute to the generalized syntactic argument notion that is the traditional 'subject' in a language" (VAN VALIN, 2005, p.105).

RRG does not have any syntactic function which captures the notion of the traditional Object. Van Valin and LaPolla (1997, p.270-273) refer to work by Dryer (1986) which argues that in many accusative languages, the accusative NP does not have the syntactic and morphological properties associated with the traditional direct Object.

We are left with the question of why syntactic function, in the form of the PSA, does not figure in the syntactic templates proposed in RRG. The answer is that the PSA is assigned by general principles which make reference not only to the core status of arguments, but also to the semantic structure of sentences. It is, then, time for us to look briefly at how RRG describes the semantics.

3 Semantics and its mapping on to morphosyntax

3.1 The logical structures of sentences in RRG

The semantic structures proposed in RRG are based on the system developed by Dowty (1979) on the basis of earlier work by Vendler (1967), in which complex

10 Warlpiri, however, does not have a voice opposition (VAN VALIN; LAPOLLA, 1997, p.270), so that FG would be forced to conclude that it had no syntactic functions.

11 For discussion of voice in Philippine languages in relation to Subject assignment in FG, see Siewierska (1991, p.82-86, p.91-93).

predicates are decomposed into simpler elements, using abstract operators such as CAUSE and BECOME. At the heart of these structures are the LOGICAL STRUCTURES (LS) which form the main part of the lexical entries for predicates. Predicates are divided into six main classes (states, activities, achievements, semelfactives, accomplishments, active accomplishments) by means of a set of binary features as shown in Table 1. Static predicates represent states of affairs which do not involve 'happening'; dynamic predicates express actions; telic predicates represent states of affairs which involve an inherent end-point; punctual predicates encode events which effectively occur instantaneously. These features can, in turn, be allocated by means of a battery of tests on a given sentence. In addition to the six main classes of predicate, there are causative variants of each.

Table 1 – Predicate classes in RRG

Predicate class	static	dynamic	telic	punctual
State	+	–	–	–
Activity	–	+	–	–
Achievement	–	–	+	+
Semelfactive	–	±	–	+
Accomplishment	–	–	+	–
Active accomplishment	–	+	+	–

Each major class has a distinctive pattern in its LS, as illustrated in (25) - (30) below:

(25) Bernice was tired. (BNC HTY 2826)
tired´ (Bernice) [state]

(26) Miss Cress watched her, … (BNC AD1 1860)
do´ (Miss Cress [**watch´** (Miss Cress, her)]) [activity]

(27) The glass shattered. (BNC CKB 654)
INGR **shattered´** (glass) [achievement]

(28) Blue lights flashed. (BNC HTH 1766)
SEML **do´** (blue lights, [**flash´** (blue lights)]) [semelfactive]

(29) Alfred Oliver had died. (BNC ANK 391)
BECOME **dead´** (Alfred Oliver) [accomplishment]

(30) They walked to the end of the road … (BNC BN1 1083)
do´ (they, [**walk´** (they)] & INGR **be-at´** (end of the road, they) [active accomplishment]

Achievements and semelfactives are both punctual (as shown by the operator INGR, for 'ingressive'), the difference between them being that the former, but not the latter, result in a change of state. Elements such as **dead´** or **walk´** are not predicates of English, but rather are intended as placeholders for an eventual decomposition into cross-linguistically applicable semantic elements. A number of proposals have been made for more detailed semantic decomposition (VAN VALIN; WILKINS, 1993, VAN VALIN; LAPOLLA , 1997, p.116-118; MAIRAL USÓN; FABER, 2002, 2007; RUIZ DE MENDOZA IBÁÑEZ; MAIRAL, 2006).

RRG does not include thematic roles, such as Agent and Patient, as primitives of the theory, since such roles may be deduced from the positions of arguments in the LS. For example, the sole argument of a 1-place stative predicate is the PATIENT, the first argument of a pure location predicate is a LOCATION and the second a THEME, the first argument of a cognition predicate is a COGNIZER (itself a type of EXPERIENCER) and the second the CONTENT, and so on. However, as we saw briefly earlier, RRG does postulate generalised semantic roles, the macroroles of actor and undergoer. These roles are assigned to arguments in a LS by reference to the Actor-Undergoer Hierarchy shown in Figure 5 (VAN VALIN; 2005, p.61).

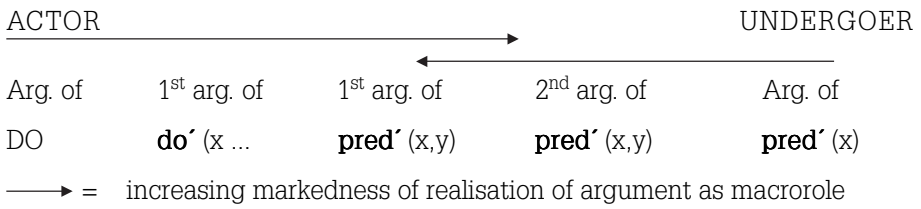


Figure 5 – The RRG Actor-Undergoer Hierarchy

For any given sentence with a transitive verb, the argument which is furthest to the left in the hierarchy will be assigned actor status and the one which is furthest to the right will, in the default situation, be the undergoer. Thus in (26), the first argument of the **do´** predicate, *Miss Cress*, is the actor, and the second argument of the activity predicate **watch´** (*her*) the undergoer. In an intransitive construction, the sole argument may be either actor (as in (30)) or an undergoer (as in (29)).

3.2 Mapping from semantics to syntax in RRG: the role of the Privileged Syntactic Argument

While, as pointed out in the first section of this paper, FDG so far has no comprehensive account of how representations at the interpersonal (pragmatic)

and representational (semantic) levels are mapped on to the morphosyntax, RRG has a detailed algorithm for linking semantics and certain aspects of discourse pragmatics to syntax (and indeed, another algorithm for the reverse mapping, which will not concern us here). This algorithm has been developed using evidence from a wide range of typologically diverse languages, and the latest version is presented in Van Valin (2005, p.136-149), on which the following brief account is based.

The first stage in semantics-to-syntax linking is to construct the semantic representation for the sentence which, as we have seen, is based on the LS of the predicating element. Actor and/or undergoer are then assigned according to the hierarchy in Figure 5. The next stage is to determine the morphosyntactic coding of the arguments. This involves, as a first step, the determination of the PSA, which is based on two sets of constraints. Firstly, PSA selection responds to a hierarchy which is identical to that for actor and undergoer assignment. Secondly, it obeys a set of principles which depend on the type of construction involved and/or the (type of) language. For accusative constructions, the default for PSA is the highest ranking core argument on the hierarchy in Figure 5, whereas for ergative constructions it is the lowest ranking argument. Also, there are languages (e.g. German, Italian, Dyirbal) in which only arguments with macrorole status can be PSA, and others (e.g. Icelandic, Japanese, Korean) in which the PSA can be assigned to non-macrorole direct core arguments. Finally, there are restrictions on the PSA in terms of coding: some languages (e.g. English, German) have case-sensitive PSAs, while others (e.g. Belhare, Tibetan) have PSAs which are case-insensitive.

Once the PSA has been assigned correctly the appropriate syntactic template can be selected, according to the following principle: "The number of syntactic slots for arguments and argument-adjuncts[12] within the core is equal to the number of distinct specified argument positions in the semantic representation of the core" (VAN VALIN, 2005, p.130).

Note that only **distinct** specified argument positions count: if an argument position is specified more than once in the LS, it counts only once. This principle may be qualified by language-specific constraints: for instance, in English, all cores have a minimum syntactic valence of 1, certain constructions known as argument-modulation constructions (VAN VALIN, 2005, p.115-116) reduce the number of core slots by 1, as does the occurrence of a syntactic argument in the PrCS, and this last condition may override the first.

Finally, arguments are assigned to positions in the syntactic representation so far planned. Non-*wh* arguments are assigned to appropriate positions in the

12 Argument adjuncts occur in clauses such as those with *put* and a locative PP, where the PP is required by the verb and the preposition contributes an independent element of meaning to the clause, unlike the case with, for example, *to* after *give*, which simply marks the Recipient argument.

clause, and if there is a *wh* argument in the LS, it is assigned, according to the language concerned, to the normal position which a non-*wh* argument with the same function would occupy ('pattern position'), or to the PrCS (as in English) or PoCS, or to some position with the potential focus domain of the clause, the unmarked position for focus in the language being the default. Optionally, a non-*wh* argument may be assigned to the PrCS or PoCS, provided that the structure conforms to the focus structure restrictions of the language. Finally, any non-*wh* arguments of the LS other than that of the main predicator in the nucleus are assigned to the periphery (the default), to the PrCS or PoCS, or to the LDP/RDP. All of these steps are subject to some degree of cross-linguistic variation.
An example of semantic-to-syntax linking is shown in Figure 6 for the example in (31):

(31) What did you give her? (BNC BNG 612)

Note that this sentence illustrates one of the language-specific rules for the assignment of the undergoer in English: with ditransitive verbs such as *give*, English allows undergoer assignment to either the Recipient (*her* in our example), or the Patient (as with *what* in (32):

(32) What did you give to her?

The steps in the linking algorithm for a very similar example are discussed in more detail in Butler (2007).

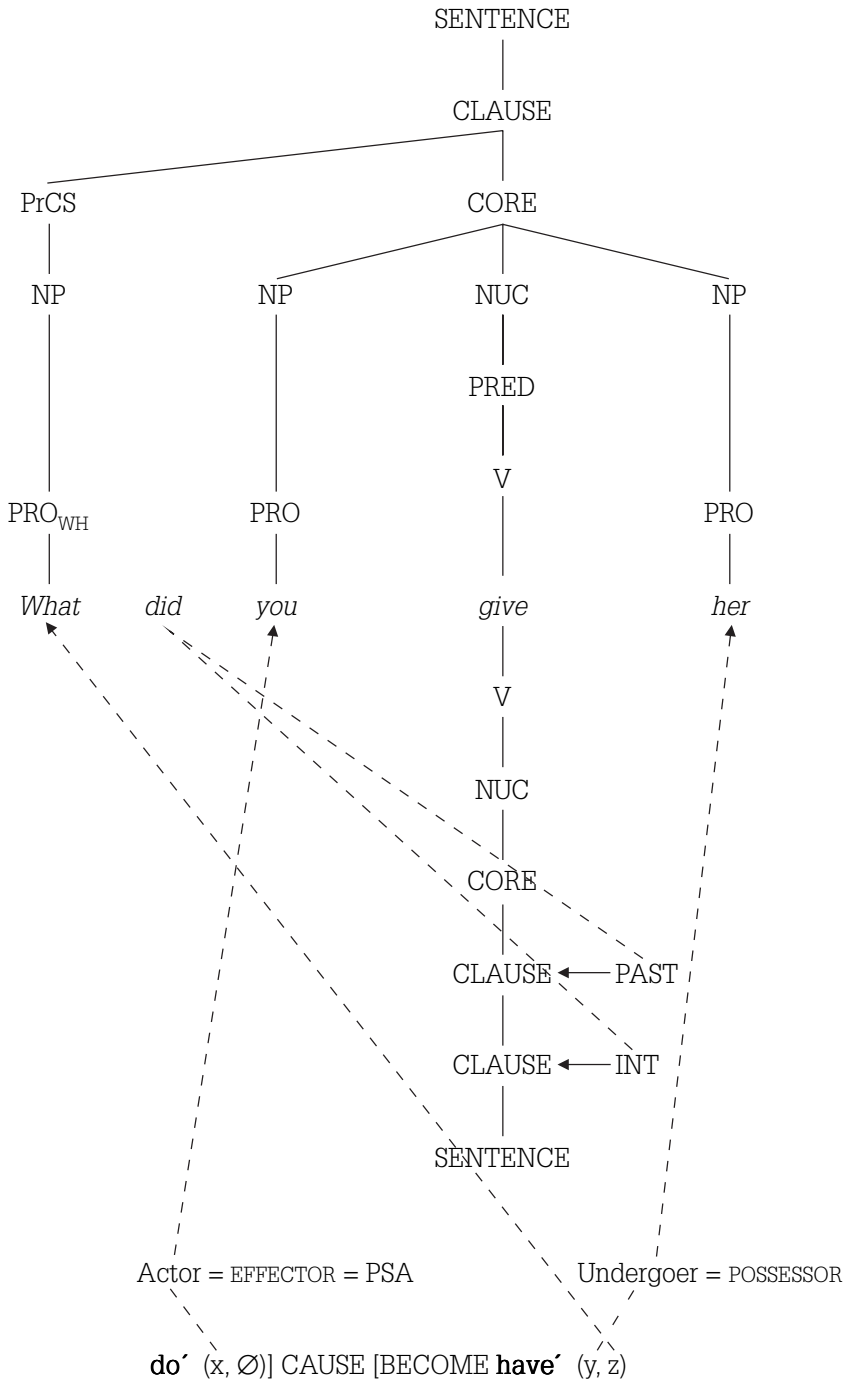


Figure 6 – Semantics-to-syntax linking for example 31

3.3 The status of operators in FDG and RRG

FDG postulates that operators are required at all four levels of the grammar. At the interpersonal (pragmatic) level there are operators which effect grammatically-realised modifications of discourse moves, their component acts and the smaller constituents of which these acts are composed; at the representational (semantic) level, operators modify propositional contents, states of affairs, properties, individuals, etc.; at the morphosyntactic level we have secondary operators involved in morphological means of expression; finally, at the phonological level, we have phonological secondary operators such as those involved when the phonological structure is sensitive to syntactic organisation of a linguistic unit (HENGEVELD; MACKENZIE, 2006).

RRG, on the other hand, has a much smaller range of operator types, concentrating on those which are concerned with the grammatical expression of categories such as illocutionary force, tense, aspect, directionality, modality, evidentiality, definiteness in the NP, and the like. Furthermore, as already noted, RRG treats all its operators as syntactic, though it is recognised (VAN VALIN, 2005, p.50) that they require semantic interpretation and that this is a complex matter.

FDG thus has the more sophisticated account of operators, and it seems reasonable to treat operators for illocution, evidentiality and the like as interpersonal, and so pragmatic in nature, while those for tense, aspect, etc. are representational, and so semantic,[13] reserving morphosyntactic operator status to those grammatical modifications which occur at the morphosyntactic level itself. Note, for instance, that the restrictions imposed by operators at one level on those at a lower level are often predictable from the meanings involved: e.g. the fact that imperative illocutions require a controllable action. Note that the proposed shift from syntactic to semantic units for operator attachment is made possible by the fact that the universal units of the layered structure of the clause in RRG correspond to underlying semantic units: the syntactic nucleus contains the semantic predicate, core arguments represent arguments in the semantic representation of the predicate, the core contains the predicate plus its arguments, the periphery houses non-arguments, and the clause consists of the predicate plus arguments and non-arguments (see VAN VALIN; LAPOLLA, 1997, p.27; VAN VALIN 2005, p.5).

13 Nuyts (1992, 2001) has even proposed, within his Functional Procedural Grammar model, that distinctions of modality, evidentiality, temporal and spatial modification, etc. should be seen as operating at an extralinguistic conceptual level, though with repercussions on the grammar.

4 The final reckoning: implications of RRG for FDG

FDG and RRG are extremely similar in their aims and many of their assumptions: both are concerned to show the relationships between form and function in language, and regard the syntax as (partially) semantically motivated; both place great emphasis on typological adequacy and also subscribe to principles of psychological/cognitive adequacy. It is therefore to be expected that ideas from one theory may well prove to be compatible with those from the other.

Although the discourse pragmatic and semantic levels of patterning are in some ways more highly developed in FDG than in RRG, FDG so far lacks a detailed account of lexical structure, and this is a particularly grave disadvantage for any theory with pretensions to cognitive adequacy, since it would seem that the syntactic component of language production is largely lexically driven (LEVELT, 1989, 1999). RRG provides such an account, through its postulation of logical structures in the lexical entries for predicates, and the semantic decomposition required is now being worked out in much more detail. Indeed, García Velasco and Hengeveld (2002), in an article which presages the development of FDG, actually suggest the adoption of abstract semantic decompositions of the type used in RRG. The discussion in the present paper suggests that such borrowing could profitably go even further, to embrace aspects of the morphosyntactic structure and semantics-to-syntax linking procedures.

First let us review the position with regard to the structural templates posited at the morphosyntactic level. We have seen that there are already equivalences between the LDP/RDP of RRG and the P2/P3 positions of F(D)G. Furthermore, the periphery of the clause in RRG is occupied by what were known in FG as satellites, and are referred to as lexical modifiers in FDG. The main differences are in the recognition of the core in RRG, and its separateness from the pre-core slot (or, in some languages, post-core slot). This distinction is strongly motivated by several kinds of evidence and, I have argued, needs to be reflected in FDG. We have seen that some elements which would go into the special clause-initial P1 position in F(D)G would be in the PrCS in RRG (e.g. *wh*-constituents and some 'fronted' elements with contrastive focus in English), but that although the Subject will often be placed in P1, it (or rather the PSA) does not go into the PrCS in RRG, except when it is a *wh*-item. This suggests that elements equivalent to the RRG core and PrCS/PoCS should be recognised in FDG, and that in languages such as English the first NP in the core should be the default location for the Subject,[14] rather than the P1 slot of the current model. We have seen that an adaptation of

[14] In fact, it would seem advantageous for FDG to drop the label Subject in favour of something equivalent to the RRG PSA, given the arguments mentioned in §2.4.

Connolly's (1991) proposals for English, which have the merit of dissociating P1 from the default position for Subject, could potentially achieve this aim. The syntactic templates which form part of the set of primitives available to the morphosyntactic level would then be reformulated in terms of the elements P2/LDP, P3/RDP, core and PrCS/PoCS, rather than in functional terms (i.e. containing S, O, as well as the positionally defined element P1). Furthermore, this proposal would require a realignment of the current position regarding the allocation of Focus and Topic constituents to positions in the clause: the focused subact of a discourse act could, for example, be placed in the PrCS-equivalent position (as in examples (21), (22), (31), (32)), while subacts with Topic function (in those languages which where topicalised elements have some overt reflex of their status in the grammar) would frequently end up mapping on to the core-initial position where this is the default for Subject/PSA.[15]

We have also seen that the adoption of the clause-core distinction would also allow FDG to give more detailed and insightful accounts of other aspects of syntax, such as predicate-argument relations in head-marking languages, and also clause combining. Crucially, we have here a set of fairly disparate phenomena, all of which can be elegantly accounted for in terms of a single, powerful proposal. If FDG were also to adopt the RRG concept of macroroles, which is again well motivated by cross-linguistic evidence, the scene would be set for adoption of some version of the semantics-to-syntax mapping algorithm already worked out for RRG. As we have seen, such a proposal has important advantages over current F(D)G work on morphosyntactic realisation, in that it makes use of the category of Privileged Syntactic Argument rather than Subject/Object, and has been thoroughly tested against a wide range of typologically diverse languages. Furthermore, this algorithm has been shown to be implementable in terms of the incremental processing which is widely agreed to occur in language production (BUTLER, 2007). On the other hand, RRG could benefit from closer attention to the stratification of operators proposed in FDG.

5 Conclusion

I hope to have shown in this paper that the morphosyntactic level in FDG is in need of considerable development, and that in the form presented so far in the FDG literature it fails to capture some important structural generalisations. On the other hand, proponents of RRG have succeeded rather better, a crucial element in their model being the distinction between the clause and the core which it contains. This distinction requires the recognition of a pre-core slot as well as a

15 For a comparison of focus in FG and RRG (and also Systemic Functional Grammar), see Butler (2005).

default position for the Subject in languages such as English, these being conflated into the P1 position in FG accounts of constituent order which have been taken over, for example, in the work of Bakker on expression rules. I conclude that proponents of FDG would do well to adopt some version of the distinctions made in RRG, a potentially promising avenue of exploration being an adaptation of the templates proposed by Connolly (1991, 2005), where, for English, P1 and the default Subject position are dissociated. Recognition of a core grouping of elements within the clause would also allow the adoption of the algorithms which map semantics on to syntax, and *vice versa*, in RRG, so providing a well worked out set of cross-linguistically validated rules for mapping meanings on to morphosyntax.

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BUTLER, C. S. A morfossintaxe e sua geração pela Gramática Discursivo-Funcional: o que se pode aprender com a Gramática de Papel e Referência? *Alfa,* São Paulo, v.51, n.2, p.239-268, 2007.

- RESUMO: O nível morfossintático na Gramática Discursivo-Funcional atualmente está pouco desenvolvido. O objetivo deste trabalho é fazer propostas relevantes para a estrutura do nível morfossintático nessa teoria e para a forma de enquadramento dos níveis interpessoal (pragmático) e representacional (semântico) do componente gramatical na estrutura morfossintática. Tais propostas apóiam se extensamente em uma segunda teoria estrutural funcional, a Gramática de Papel e Referencia (RRG). Sugere-se que as estruturas morfossintáticas na GDF precisam ser mais parecidas com as estruturas em camadas da RRG e que, com os acréscimos adequados ao nível representacional que se mostraram necessários translingüisticamente, a GDF poderia então adotar (ou adaptar) os algoritmos de ligação semântica-para-sintaxe da RRG, a fim de fornecer um mecanismo de interface gerativo entre os níveis interpessoal e representacional e o nível morfossintático.

- PALAVRAS-CHAVE: Gramática Discursivo-Funcional; Gramática Funcional; Gramática de Papel e Referência; morfossintaxe; algoritmos de ligação.

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THE IMPLEMENTATION OF GRAMMATICAL FUNCTIONS IN FUNCTIONAL DISCOURSE GRAMMAR

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- ABSTRACT: In standard FG (DIK, 1997) grammatical functions are assigned directly to the underlying representation in a more or less across the board fashion, only taking into consideration the language dependent semantic function hierarchy. This approach bypasses a number of constraints on subject assignment that may be gathered from typological data, and observed from the actual behaviour of speakers. In this contribution, we make an attempt to reinterpret FG syntactic functions in the light of the FDG model. Following ideas from Givón (1997), we propose a treatment of Subject assignment on the basis of a combination of semantic and pragmatic factors of the relevant referents and other functional aspects of underlying representations. The assignment rules adhere to the respective hierarchies as discussed in the typological literature. In our proposal, Subject (and Object) assignment are now located in the expression component, more specifically in the dynamic version of the expression rules as proposed in Bakker (2001).

- KEYWORDS: Subject assignment; alignment; multifactor approach; dynamic expression rules; typological hierarchies.

1 Introduction

In the grammar model of Functional Grammar as presented in Dik (1997, p.60) the fully specified underlying clause (FSUC) is an amalgamation of all functional information necessary to derive the morphosyntactic structure of the corresponding expression. The proposition and embedded layers provide the semantics. The illocutionary layer represents the speech act information. Furthermore, all three types of functions, which are crucial for the determination of the shape and order of noun phrases, are coded in the FSUC. Semantic functions are found on all layers. Pragmatic functions are attached to elements of the full

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FSUC in as far as their targets are of a semantic nature. And syntactic functions, if at all relevant for the language are attached to arguments and/or adjuncts.

In the FDG model (HENGEVELD, 2004) a clear distinction is made between the underlying pragmatic and semantic representations, labelled interpersonal and representational level, respectively. As opposed to the grammar model, pragmatic functions are assigned independently to the relevant referents on the basis of discourse information. The pragmatic component interacts directly with the expression rules, bypassing the semantics. There are several reasons to also remove the syntactic functions from the representational level. Firstly, this would lead to a 'clean', purely semantic representation rather than a mixed bag of semantics and syntax. Secondly, and more importantly in the grammar model, syntactic function assignment as it stands is not really part of syntax in the sense that only the side effects are found in form while the explanation for it is located outside the grammar altogether. FG interprets Subject and Object as a primary and secondary vantage point or *perspective* on the state of affairs as presented in the utterance. Furthermore, there is the requirement of *choice*, i.e. the presence of full-fledged passive and dative shift constructions, which may change the respective vantage points and allow the demoted arguments to be expressed, at least optionally. The latter is a necessary – though not a sufficient – condition on the presumed integrity of meaning under alternative syntactic function assignment. Finally, for languages which have syntactic functions in the first place, their assignment is restricted to some language specific subset of the arguments and first order satellites, obeying the Semantic Function Hierarchy (SFH). Given these constraints, there is only a restricted number of languages in the world which actually have a Subject, and even less languages with an Object, as argued in Siewierska (1998).[3] The single factor which determines the choice of Subject and Object, i.e. perspective is a non-grammatical notion. This seems to make the syntactic function assignment mechanism an extra-clausal device, possibly even an extra-linguistic one. If considered to be extra-clausal but intra-linguistic, perspective could be interpreted as a third kind of pragmatic function. Subject and Object would then be its interpretation at the clausal level, much in the way the respective types of sentential utterance Topic and Focus are the clausal implementation of the discourse notions of Topicality and Focality. If perspective is basically taken to be an extra-linguistic phenomenon, syntactic function assignment could then be seen as part of the more general cognitive processing of linguistic material. In that case, perspective would not be a direct object of study for a theory of grammar. It would exist only in terms of the morphosyntactic side effects which are subsumed under the notions Subject

[3] Of the 430 languages represented in the database on person marking and agreement discussed in Siewierska and Bakker (2007) only around 25% would have a Subject in terms of FG, and probably under 5% would have an Object.

and Object, much in the way that forces such as *economy* and *iconicity* are assumed to be operating on grammars. Unlike the latter two however, perspective, as an independent take of the speaker on the state of affairs, would not work mainly diachronically but would actively interfere with morphosyntax, bypassing the pragmatic and semantic make up of the actual sentence under expression. But if it were to operate directly from a high cognitive level, then it would be remarkable that so few languages would implement such a general cognitive notion in their grammars.[4] On top of this, perspective typically employs formal devices such as case marking, verb agreement, variation in constituent order and several syntactic operations such as conjunction reduction and equi-NP deletion which are in fact very common in languages across the board. These formal phenomena are related to clausal semantic and pragmatic factors for the great majority of the languages which do not have syntactic functions FG-style. The same seems to be the case for a number of related grammatical phenomena that are not controlled by syntactic functions for languages which do have them.

In short, we think that for the explanation of syntactic functions and their actual assignment to clauses, and for grammatical relations in general, there is no real need for an independent notion such as perspective, whether it is seen as a discourse or as a cognition related concept. Therefore, in this contribution an attempt will be made at locating the assignment of syntactic functions where they most naturally fit in an FDG type grammar: in the expression rule component. A central assumption, much in the vain of Givón's (1997) multifactor approach, and *contra* Dik (1997, p.250 f) will be that Subjects (and Objects) can be assigned fully on the basis of purely linguistic factors in all languages for which these notions are relevant in the first place. In other words: we will assume that they can and should always be assigned and explained on the basis of some language dependent constellation of pragmatic and semantic properties of the sentence under expression rather than on the basis of a single unifying abstract notion. Furthermore, it is the same set of functional factors that operates behind related morpho-syntactic phenomena that are not controlled by a grammatical function. As a result a separate notion of perspective is superfluous, though it may be used as a descriptive term that generalizes over the respective sets of functional properties controlled by Subject and Object in the relevant languages.[5]

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4 This point is probably acknowledged in Dik (1997, p.254) when he argues that "a full theory of 'perspective' will have to take into account (i) the basic perspective of the predicate frame; (ii) the possible influence of predicate formation rules; (iii) modulations of perspective effected by Subj/Obj assignment; (iv) the influence of pragmatic function assignment." We will come back to some of these points below.

5 Working within FG, Itagaki and Prideaux (1985) show that certain semantic aspects of terms, notably animacy and concreteness, determine Subject assignment to a high degree. Dik (1997, p.279) picks up on this stating that the chance of Subject and Object assignment to a term is influenced by a number of priorities related to definiteness, person, number, animacy and others. In all cases these factors are seen as codetermining factors or historical factors rather than an alternative for the SFH.

There will be two further points of departure, which moreover are fully in keeping with the current development of the FDG model. The first one is that a discourse orientation is taken rather than a sentence one. Although no coherent proposal has been made for the precise representation of discourse structure within FG so far, we will take the availability of such a representation parallel to the famliiar underlying structures for sentences for granted, and will assume that it has certain properties necessary for the present exercise. Secondly, it will be assumed that performance rather than competence is the decisive level on which the acceptability of utterances is eventually decided on. In practice this means that in order to decide whether Subject may be assigned to some constituent in a language a corpus of actual spoken data should be taken into consideration rather than intuitions of native speakers about individual constructed sentences. Although these two points seem to belong to the basics of FG theory (cf. DIK, 1997, p.1 ff), in actual implementations of the theory they have been made explicit relatively rarely so far. Two notable exeptions are the corpus related investigations by Butler (1999, 2003) and Mackenzie's (1998) work on elliptic utterances, where both a discourse situation is assumed and language behaviour rather than knowledge is the norm.

Since English seems to be one of the languages where grammatical functions are highly grammaticalized and entrenched in the morphosyntax, it is this language which will be the ultimate test bed for this exercise. We will, however, resort to examples from other languages in order to safeguard typological adequacy at least to some extent.

The rest of the text is structured as follows. In section 2 we will propose an integrated framework for grammatical relations of which syntactic functions are a subcategory and which is partially based on ideas from work in FG and two related functional theories, RT and RRG. In section 3 we will try to implement that framework in the FDG model. Section 4 presents our conclusions.

2 An integrated framework for Grammatical Relations

The debate on the status of Subject and Object in linguistic theory and description is a long standing one. In the respective versions of formal theory, Subject and Object are typically treated as 'deep' syntactic positions, on which different constituents may land via the application of transformational rules. Relational Grammar (PERLMUTTER, 1982) shares this double deep-to-surface aspect of Subject and Object, be it that in this case there are links with semantic and pragmatic aspects of the clause structure.

Two current functional approaches to grammatical relations seem to be more relevant for the current discussion: Kibrik's (1997) Relational Typology (RT) and Van Valin and LaPolla's (1997) Role and Reference Grammar (RRG). Just like FG, RT and RRG treat Subject (and Direct Object and possibly Indirect Object) as grammatical functions, which link elements of semantic deep structure – typically arguments - to elements of the syntactic surface structure – typically noun phrases. They share with FG the assumption that Subject is only relevant for a language to the extent that a restricted amount of neutralization takes place. In other words, different arguments (possibly also adjuncts) can take this function and in doing so lose the morphosyntactic properties associated with the semantic and pragmatic functions that they bear and acquire a new, unified set of properties. This neutralization, however, should apply to only a restricted number of constituents, typically only the two arguments of bivalent verbs and the single argument of monovalent ones, much in the way of FG's SFH. For all theories, the behavioural properties of Subjects and Objects, i.e. their role in syntax are more central than their coding properties, i.e. the way they are case marked or are marked via agreement on the verb.

Relational Typology is a comprehensive typology of grammatical relations. In RT, Subject is seen as a priviliged sytactic position, representing the most salient and obligatory participant in the event expressed by the clause. Which constituents can be formally coded and syntactically behave as a Subject in a language is based on a hierarchy of three functional dimensions, or pivots: role, flow and deixis. Role relates to the primary semantic concepts of Cause/Agent and Effect/Patient. These concepts may be grammaticalized in a language by way of three prototypical sets of hyperrroles: Principal vs Patientive (characteristic of accusative alignment), Actor vs Undergoer (active alignment) and Agentive vs Absolutive (ergative alignment). The notion of flow relates to the informational status of the constituents, and may be seen as corresponding to the FG pragmatic functions. Finally, deixis is related to the mutual knowledge of the speech act participants, as coded on NP's (e.g. by definiteness, nominal versus pronominal expression) and on verbs (inverse marking). In Kibrik's typology, languages may be pure, in which case Subject is based on just one of the three pivots. Or they may be mixed, in which case several pivots codetermine what can be a Subject. Although it is probably rare, languages may be pivotless, i.e. there is no way in which the three potential pivots, namely, role, flow and deixis manifest themselves obligatorily in morphosyntax, neither in NP marking, verb agreement, constituent order nor the usual forms of syntactic control.

Role and Reference Grammar employs a pair of primary semantic concepts, the semantic macroroles, called Actor and Undergoer. Unlike RT, however they do not translate into different pairs of language type specific hyperroles. They

relate directly to the more or less familiar semantic functions such as Agent and Patient. But in contrast to FG's First and Second Argument, they do not generalize over fixed sets of semantic functions in a one-to-one fashion. Rather, they constitute a hierarchy on which Agent is the prototypical Actor, and Patient is the prototypical Undergoer, but other functions, such as Recipient and Possessor may be either Actor or Undergoer, depending on the language, the predicate and the construction in question. As a consequence, RRG crucially distinguishes between the different semantic functions that may be borne by the single argument of monovalent predicates. Subject – or rather: Priviliged Syntactic Argument, PSA – is assigned to some constituent on the basis of this Actor-Undergoer hierarchy. For accusative languages the default assignment is to the most Actor-like argument; for ergative languages PSA is assigned to the most Undergoer-like one. Passive and anti-passive constructions may change default PSA assignment, and at the same time demote the default PSA argument to adjunct status. When PSA's may be assigned to arguments with different semantic functions they are called variable, else they are invariable. RRG divides PSA's into controllers, i.e. the constituent which is responsible for agreement marking (the 'Subject proper'), and pivots, i.e. any constituent which is under its control, such as an 'equi-deleted' argument of a coordinate or subordinate clause. Both controllers and pivots may be syntactic (when there is neutralization), or semantic (when control is purely based on the semantic function involved, without neutralization). In languages with switch reference systems they may also be pragmatic. In RRG it is stressed that languages may have more than one type of grammatical relation, or PSA for that matter.[6] Therefore, a construction oriented rather than a grammar-wide approach to grammatical relations is favoured by this theory. Finally, a comprehensive set of RRG linking rules, which relate the logical structure of the clause with its syntactic structure, revolves around PSA assignment.

Apart from the similarities mentioned above, FG, RT and RRG have another aspect in common. All three theories concentrate on one type of 'priviliged syntactic argument', the one typically associated with the notion of Subject, and based on restricted neutralization over a relatively small set of semantic functions, typically arguments of the main predicate. This leaves outside the picture all those morpho-syntactic phenomena that have a non-syntactic (i.e. a semantic or pragmatic) controller/pivot. Although the final result may work out a bit differently for the three theories, this position will leave out a considerable amount of languages from any typology based on such an approach, and will ignore a vast amount of relevant morpho-syntactic phenomena for languages which do have Subjects. Also, no relation is created with the possible diachronic scenarios that may give rise to the coming into existence of Subjects.

6 The example is given of Jacaltec which, according to Craig (1977) has no less than five different types of restricted neutralization, controlling equi-NP deletion, raising, relativization, clefting and cross-clause coreference, respectively.

In Siewierska and Bakker (2004) a somewhat broader perspective on grammatical relations is sketched in which Subjects (and Objects) – in FG terms: syntactic functions – are a specific, highly grammaticalized type of relation rather than the only one. Points of departure are the following four dimensions of grammatical description which in our view play a crucial role in the domain of grammatical relations.

(1) a the morphosyntactic phenomena that are traditionally linked to grammatical relations by most linguistic theories
b. the argument and adjunct slots accessible for grammatical relations
c. the pragmatic and semantic aspects of the fillers of these slots; and
d. further functional and formal aspects of the sentence

We will discuss each of these briefly.

The set of morphosyntactic phenomena relevant for Subjects, and in fact the only way in which they are 'visible' is often divided into coding and behavioural properties. Under coding properties may be found case marking (typically Nominative/Absolutive for Subject and Accusative for Object) and agreement marking on the verb. Behavioural properties are syntactic phenomena under control of Subjects. We mention anaphoric binding as expressed in personal, possessive and reflexive pronouns, conjunction reduction, equi deletion, raising, and the relativized constituent in relative clauses, among others (i.e. the pivots of RRG). Finally there is constituent order, which may be both under control of Subjects and mark them. It is not necessarily the case that, in some language L_i, all these phenomena are under control of one constituent, e.g. the Subject. Some phenomena may be irrelevant for L_i. Alternatively, they may be under control of other types of constituents, such as first arguments, irrespective of whether they are Subjects or not. The following example from Tagalog illustrates this.

(2) Tagalog (Austronesian; SCHACHTER, 1977, p.292):

a. Nag-aalala	ang	lolo	sa	kaniyang	sarili.
AG-worry	SUBJ	grandfather	DAT	his	self
'Grandfather worries about himself.'					

b. In-aalala	ng	lolo	ang	kaniyang	sarili.
AG.PASS-worry	AG	grandfather	SUBJ	his	self
'Grandfather worries about himself.'					

In (2a), we have an active clause with the Agent controlling the reflexive. In the passive version in (2b), the syntactic positions are reversed.[7] We find the reflexive marked for Subject. It is still, however, controlled by the (demoted) Agent.

[7] We are aware of the controversial status of the Tagalog non-actor focus constructions with respect to the active/passive distinction but have adopted the analysis preferred to date in FG.

The second dimension in the domain of grammatical relations is that of arguments and adjuncts of the sentence. These are the anchor points for grammatical relations, both in the grammar of a language and in the actual expressions.[8] In the grammar they determine which constraints may be assigned the respective types of grammatical relations. FG's SFH is an example of such a constraint. In expressions there is competition, within the constraints of the grammar between the actual argument (and possibly satellite) positions for the assignment of syntactic functions. There is no fundamental difference between the three theories in relation to the semantic functions they distinguish. However, they do differ in the way they generalize over subsets of semantic functions. FG's first and second argument generalize over argument *positions*, thereby blurring the distinction between the actual semantic functions of these arguments. This works in many cases; however for languages with so-called split-S as demonstrated by Laz in example (3) FG needs to introduce extra conditions on the coding and potentially also the behavioural properties of the relevant constituents.

(3) Laz (Caucasian; HARRIS, 1985, p.52)

a. Ko'i-k kai ibirs.
this man-ERG well sings
'The man sings well.'

b. Ko'i-ø 'urun.
man-ABS die
'The man dies.'

In (3a) the Agent argument has ergative case marking; the Processed/Experiencer argument in (3b) has zero marking. So, case marking can not be dealt with by simply distinguishing between first and non-first arguments. Another case in point are so-called Dative Subjects as in Icelandic in (4b).

(4) Icelandic (Indo-European; ZAENEN et al, 1985)

a. Ég hjálpa-ð-I Þeim.
1SG.NOM help-PAST-1SG 3PL.DAT
'I helped them.'

b. Þeim va-r hjálp-að af mér.
3PL.DAT be.PAST-3SG help-PASTPRT by 1SG.DAT
'They were helped by me.'

[8] The notion of 'pivot' would be a good choice for this. However, ever since it was coined by Dixon (1994) it has been used in slightly different ways by different authors (cf. the discussion of RT and RRG above), and is therefore by now as confusing as the notion Subject.

In (4b) we have a passive. However, apart from being fronted the second argument does not receive any other of the coding properties associated with Subjects (i.e. nominative case and agreement on the verb). On the other hand, Dative Subjects do function in syntax and control e.g. conjunction reduction. In this sense the RRG Actor-Undergoer hierarchy seems to allow finer tuned descriptions than the FG first and second argument.

Thirdly, we think a role of considerable importance is played by the semantic and pragmatic features of the terms that fill the argument and satellite positions. This is manifest in languages with all kinds of splits, as illustrated in (5) and (6) below.

(5) Nocte (Tibeto-Burman; DAS GUPTA, 1971, p.21)

a. Nga-ma ate hetho-ang.
1SG-ERG 3SG.ACC teach-1SG
'I will teach him.'

b. Ate-ma nga-nang hetho-h-ang.
3SG-ERG 1SG-ACC teach-INV-1SG
'He will teach me.'

(6) Yidin^{y} (Australian; DIXON, 1977, p.256)

a. Nundu nandi:n bunda:n.
2SG.NOM 1PL.ACC hit
'You hit us.'

b. Badi gilbi:l bana:n.
boat.ABS throw water.ERG
'The water threw the boat up.'

Nocte, in example (5a/b) has a hierarchical way of determining verb agreement. When one of the arguments is bound by the first person, this is always marked on the verb, irrespective of the distribution of the semantic functions. In the Australian language Yidin^{y} the choice between accusative and ergative alignment is based upon the pronominal versus nominal nature of the argument fillers, and therefore on the pragmatic status of the corresponding terms in the discourse, as demonstrated in example (6a/b).

Finally, apart from the features of the argument terms themselves, there may be other aspects of the utterance that have influence on the choice of alignment systems, and therefore potentially on the choice of Subjects. We give an example from Georgian.

(7) Georgian (Kartvelian; COMRIE, 1978)

a. Student-I ceril-s cers.
student-NOM letter-ACC write.PRES
'The student writes the letter.'

b. Student-ma ceril-i dacera.
student-ERG letter-ABS write.PAST
'The student wrote the letter.'

In (7a) the tense is present, and the alignment accusative. In (7b), with past tense, ergative alignment is applied. The same phenomenon is found in Mayan languages. Other languages have other kinds of splits (cf. SONG, 2001, p.149 ff).

We will now try to integrate the above into a somewhat broader framework, which does not only accommodate Subjects and Objects but also other, closely related instances of grammatical relations. Before we sketch this framework, three more points should be made. Firstly, we will not look at cases where the phenomena of (1a) have a specific semantic or pragmatic function for their controller and controllee. This implies that – arguably rare - cases where e.g. the controllee of equi-deletion is restricted to Agents, as shown for Acehnese in example (8), are left out of the current discussion.

(8) Acehnese (Austronesian; DURIE, 1985)

a. Gopnyan geu-tém jak/*geu-jak.
3SG 3-want go/*3-go
'He wants to go.'

b. Gopnyan geu-tém *hët/geu-hët.
3SG 3-want *fall/3-fall
'He wants to fall.'

In many languages, the referents of imperative constructions are Agent-controlled. FG first and second arguments as well as RRG Actor and Undergoer are generalizations over the basic semantic functions as found for predicates in the lexicon. So, if for a language, some syntactic process is controlled by any first argument, irrespective of its semantic function, we could say that this is a case of (admittedly restricted) neutralization of the underlying semantic functions of first argument positions in that language. From our current perspective, we will see them then as controllers of grammatical relations. Secondly, we will assume that the notion grammatical relation applies only when a generalization can be made over the arguments of monovalent and bivalent predicates, e.g. when control over certain phenomena is shared by single intransitive arguments (S) and the first transitive argument (A; accusative alignment), or shared by the S and the

second transitive argument (P; ergative alignment). And thirdly, only cases will be taken into consideration where control involves at least one syntactic rule. Thus, coding phenomena such as agreement and case marking do not suffice to postulate a grammatical relation. Although for some languages, case marking is also neutralized for arguments in actual control position (Nominative and Absolutive case are the typical instances of this), in others they may still mark semantic functions (the Dative Subject of Icelandic in (4b) is an instance of this).

In summary, we will define syntactic functions as functions which control one or more syntactic rules, generalize over at least one argument position and are shared by intransitive and transitive predicates. This means that, for this exercise we will take the original FG position as a point of departure rather than the RRG one since it is the most far-reaching of the two. It is an empirical question which of these two positions will provide the best typological descriptions and predictions in the light of the rest of our considerations. A case for the RRG approach would be a language where some syntactic construction is controlled by e.g. Actor or Undergoer rather than first or second argument.[9]

While standard FG presents syntactic functions as more or less isolated, something which languages may or may not possess, we would rather perceive of them as a special case of control over morphosyntactic phenomena by arguments and adjuncts. They are to be found in the centre of a continuum of argument control, as depicted below. In some sense this continuum could be seen as an extension of the Semantic Function Hierarchy in both directions.[10]

(9) SEMANTICS → ← PRAGMATICS

Ag > ACT > 1 Arg pos > 2 Arg pos > all Args > Adjnct_1 > … Adjnct_n

| Invariable - Variable Grammatical Relations |

| FG Syntactic Functions |

In (9), to the far left we find examples of (morpho)syntactic control by a single semantic function. Acehnese in (8) above could be an example of this. One step to the right we find control by a macrorole, such as Actor. As discussed above, Actor generalizes over the left-hand side of a continuum that runs from prototypical Agent (maximum control) to prototypical Patient (minimum control). It covers those functions which imply some control of the referent in the argument

9 Note that Icelandic as exemplified in (4) above is not a case in point since it is the coding aspects which are not shared by dative subjects while the behavioural ones – here: conjunction reduction - are. However, if we would follow Van Valin and LaPolla (1997, p.256) in analyzing Pro drop in Acehnese as examplified in (9) above as controlled by Actors rather than by Agents then this would be an argument for introducing semantic macroroles.

10 Here and below, and unlike García Velasco and Hengeveld (2002), we assume that predicates in the lexicon come with more or less fixed predicate frames in terms of number of arguments and prototypical role assignments. For argumentation, see Jackendoff (1990). For an implementation in FG see Siewierska (1993).

position over the activity expressed by the predicate. The actual set covered by a macrorole may differ per language. Another step further, control is generalized to a complete argument position, irrespective of the semantic function attached to it. This is typically a first or second argument in the traditional FG sense. Tagalog in (2) above may be an example of this. Since this generalization creates a relation in the grammar between two different argument positions – typically S-A; and S-P in 'deep' ergative languages such as Dyirbal (cf. DIXON, 1994, p.12) – we consider it an instance of grammatical relations. Up to this point on the continuum, control is fully exerted on the basis of (a set of) argument positions introduced by the main predicate, irrespective of the terms that serve as their fillers in actual utterances. In that sense the assignment of control is invariable. However, from here onwards, a kind of 'choice' is introduced, i.e. within a certain range of argument and adjunct positions, there is *variation* as to which of the relevant positions may actually exert control. As will be argued in the next section, our assumption is that for languages for which there exist such variable grammatical relations, the actual selection of the controlling position is always determined by a specific subset of the semantic and pragmatic properties of the fillers of the relevant slots. In that sense these positions are in competition for the control of the intended phenomena; the middle of the continuum can be seen as the battleground of the different types of functional forces. To the extreme right we find phenomena that may be controlled via any argument and potentially any adjunct position. A typical example are the positions which may be relativized in relative clauses. For languages such as English and many other Indo-European languages for that matter, there seem to be no constraints on relativization. Indeed, even adjunct positions may be relativized, as exemplified in (10), where it concerns a temporal adjunct.

(10) The date on which you are planning to arrive is very inconvenient.

It could be claimed that the underrepresentation of the relativized position by a gap or some pronominal form, as in the fast majority of the world's languages, is due to its local topicality.[11] Other characteristic examples of unrestricted control are wh-extraction, quantifier floating and possessor ascension. In these cases, control is exerted by the focality of the corresponding referent. We will consider such phenomena, which are exclusively controlled by pragmatic functions and for which there is no competition between the respective positions as outside the domain of grammatical relations. The same goes for purely semantic controllers, as in the case of Acehnese above.

[11] In the sample of Comrie and Kuteva (2005), 86% of the relevant languages have a gap or a pronominal element for relativized Subjects as well as Obliques.

So, what we are left with are those clusters of morphosyntactic phenomena that are controlled from a subset of the argument and adjunct positions in an utterance. In the case of invariable grammatical relations (IGR) there is neutralization over the semantic functions which are shared by e.g. the first argument position of all predicates of the languages. This neutralization is very common in the languages of the world. That may be because by definition they never co-occur in the same utterance and are therefore never in competition. However, neutralization over first and second argument, leading to variable grammatical relations (VGR), and FG-like Subjects is much less common. There are good reasons for this. First and second arguments are bound to co-occur in utterances, and it is crucial for hearers that they can be distinguished, given their contrastive roles in the state of affairs expressed in transitive predications, prototypically Agent versus Patient. The semantic function may not always be inferred on the basis of the semantics of the filler terms. Despite this obvious threshold, languages may diachronically develop constructions which bring second arguments to the position of first arguments, both syntactically and morphologically. A typical device which brings this about is topicalization, as in cleft constructions, which bring second arguments to first argument position. Such constructions generally allow for an Agent to be expressed optionally as an Adjunct. Another well-known pathway is reflexivization, which typically disallows overt Agents. Over time, such constructions may develop into what are synchronically interpreted as passive constructions. Indeed, Subjects have regularly been interpreted as grammaticalized topics (cf. TOMLIN, 1983; GIVÓN, 1997). Once these constructions are part of the grammar, then the motivating force for the promotion of non-first arguments – their topicality – may be replaced by a combination of the semantic properties common for topics: definite, animate, first/second person, etcetera. The applicability of the construction may be further restricted by 'environmental' factors, mentioned in (1d) above, such as tense, level of embedding, etcetera. Neutralization may be complete in the sense that all coding and behavioural aspects of first arguments are equally taken over by second arguments in passive constructions. Or it may be partial, as for the Icelandic in (4b), where the Dative case marking corresponding to the semantic function is maintained and agreement is determined at a default value. Finally, passive constructions may further grammaticalize in the sense that also third arguments with the right properties may qualify for promotion, as in English. Alternatively, different constructions may develop independently for different argument positions, as for Kapampangan in (11a/b) below, adapted from Dik (1997).

(11) Kapampangan (Austronesian; MIRIKITANI (1972) as cited in DIK, 1997, p.263)

a. I-sulat ne ning lalaki ing poesia.
PASS1-write 3SG.3SG AG boy SUBJ poem
'The poem will be written by the boy.'

b. Sulat-anan ne ng poesia ning lalaki ing mestra
write-PASS2 3SG.3SG GO poem AG boy SUBJ teacher
'The teacher will be written a poem by the boy.'

We will assume that a syntactic function is assigned to any argument position in an utterance when it controls (a subset of) the morphosyntactic phenomena intended under (1a) above, provided that it generalizes over a set of primitive semantic functions and that there is at least one syntactic operation involved. This definition includes invariable relations, in other words: alternative assignment and a passive construction are not necessary for the notion syntactic function to apply. We will use the notion Subject for the strongest syntactic function in a language. Expanding on Keenan (1976), we will determine the strength of syntactic functions on the basis of the number of argument positions which are accessible to it and the number and nature of the constructions it controls. Theoretically, there may be different Subjects in a language in the sense that different arguments control different subsets of phenomena. In such cases, behavioural aspects prevail above coding.

For the same reason that they arise with some difficulty, passive constructions will remain in the language as markers of alternative Subject assignment. Only very rarely languages have VGR's without there being a special passive construction. According to Foley and Van Valin (1984) Baraï is an exception. In this language, only Subjects, which occupy the leftmost position of the two transitive arguments, may be followed by the intensifying suffix *–ka*. The default Subject is the Agent. This is shown in (12a) and (12b). However, when the Patient is higher on the definiteness hierarchy than the Agent, it will be promoted to Subject. This is only indicated by a reversal in constituent order, not by any other syntactic device. That the Agent in (12c) and Patient in (12d) are Subject is shown by the fact that they control the intensifier which is attached to a prononominal copy in case the Subject is nominal.

(12) Baraï (Indo-Pacific; FOLEY;VAN VALIN, 1984, p.346 ff)

a. Fu-ka na kan-ie.
3SG-INT 1SG hit-1SG
'He really hit me.'

b. *Fu na-ka kan-ie.
3SG 1SG-INT hit-1SG
'He hit really me.'

c. E ije fu-ka ame ije kan-ia.
man DEF 3SG-INT child DEF hit-3PL
'The man really hit the children.'

d. Ame ije bu-ka e be kan-ia.
child DEF 3PL-INT man INDEF hit-3PL
'Someone really hit the children.'

Having sketched our view on grammatical relations, let us now turn to the implementation of these ideas in the FDG model.

3 Reconsidering grammatical relations in FDG

If we interpret the above in terms of the FDG model as presented in Hengeveld (2004), we get the following picture. An early step in the derivation of an utterance is the selection of the basic predicate including its argument structure. At this stage, the pragmatic status of the referents which will fill the argument positions of the predicate is available to the speaker. These referents are either 'given' and established at the discourse level or 'new' and will be firstly introduced in the utterance under production. The corresponding pragmatic information may codetermine the selection of the main predicate to the extent that the lexicon contains near-synonym pairs such as 'buy – sell', 'send – receive', 'borrow – lend' etcetera. This choice determines what might be called the **lexical perspective** on the state of affairs. This perspective may be changed by predicate formation rules which change the meaning of the predicate by adding or removing arguments, as in causativization and detransitivization, or otherwise, as for so-called 'get' passives in English.[12] After the main predicate has been established, all argument and satellite positions will be bound by term variables, and the rest of the operators will be selected. With the underlying pragmatic and semantic structures complete, the expression rules will be activated. Given the impact it has on the overall structure of the utterance, we assume that the determination of the argument and satellite positions that will have control over morphosyntactic processes, as in the case of Subjects, takes place at a very early stage in the expression process. In terms of the dynamic expression rules as formulated in Bakker (2001) and Bakker and Siewierska (2004) it will take place at the level of the highest node in the derivation tree, and typically before it is expanded in any way. Thus, precisely at the threshold between functional and formal processes. This is probably the case for all types of languages, both those with and those without syntactic functions, since constituent order, more particularly the choice

12 For our discussion here, we will assume that 'real' passives do not affect the meaning, and are therefore not the result of the application of a predicate formation rule.

of the filler of the first position (P1), and the overall structure of the utterance (passive, cleft, expletive etc) are typically determined by the functional properties of the arguments and possibly also some major satellites. And it is precisely at the level of the top node that all functional information is maximally accessible, to the extent that it plays a role in the grammar at this stage.[13] For languages that do have syntactic functions the choice of Subject and possibly other functions will be made at this stage. For reasons of terminological continuity we will call such choices the **grammatical perspective** on the state of affairs. However, we will assume that this is just a label and that the actual 'choice' is made on the basis of the functional features of the relevant argument positions, rather than via a more or less independent choice of the speaker. That this is probably so, even for languages such as English, where Subject assignment seems to be highly grammaticalized, may be shown by the example sentences in (12). Compare the acceptability of (13a-d).

(13) English (Indo-European)
  a. She bought a new bike.
  b. ???A new bike was bought by her
  c. ?A falling stone hit her
  d. She was hit by a falling stone

Of both pairs (13a/b) and (13c/d), although all versions might be considered well-formed in terms of competence based rules, only the ones with the pronominal Subjects seem acceptable from a performance oriented perspective. In fact, utterances such as (13b) and (13c) are very rare in corpora of spoken English. A search through the spoken section of the British National Corpus (BNC; ASTON; BURNARD, 1998) confirms that speakers select their Subjects on the basis of their semantic and pragmatic properties rather than on the basis of some more or less independent operation such as *perspective*. Firstly, passives are rare in the spoken language. Moreover, passives with explicit agents are rarer still. Svartvik (1966), in a corpus of written English, found that over 80% of the passives were agentless. For a corpus consisting of a mixture of written and (formal) spoken English, Thompson (1986) found more or less exactly the same. The nature of the selection process in the BNC did not allow us to inspect all candidate sentences for agentless passives. Therefore, we can only more or less impressionistically state that passives with agents are just a fraction of all passives to be found in the spoken corpus, probably considerably less than 15% of them. It may be concluded then that the major reason for speakers of English to opt for the passive

13 On the basis of agreement phenomena in Arabic Bakker (2005) suggests that not all features, although available in the technical sense are equally accessible at this stage. Arguably, accessibility is influenced by the pragmatic status of the respective constituents and by processing aspects such as a constituent having been expressed at an earlier stage.

is the absence of an agent since it is unknown, irrelevant or obvious, i.e. for discourse pragmatic reasons.[14] According to Thompson (1986, p.497) it is also for discourse pragmatic reasons that speakers of English choose for a passive despite the presence of an agent. The non-agent (i.e. the second argument) will be Subject when "(it) is more closely related than the agent to either the theme of the paragraph or to a participant in the immediate preceding clause". Obviously, this may be interpreted in terms of the different types of discourse and sentence topics. That topicality, and pragmatics in general is an important parameter in the determination of Subjects in English may be gathered from the following data from the BNC. In the section with spoken English we found 236 utterances which contained both a form of *be* and the preposition *by*. Of these, 71 were analyzed as non-passives or agentless passives. The 165 passives with an agent that remained may be characterized as follows in terms of the form of the two arguments.

Table 1 – Distribution of types of passive Subjects and agents

SUBJECT	AGENT ('by')	number of occurrences
Pronominal	Pronominal	14 (8.5%)
Pronominal	Nominal	102 (61.8%)
Nominal	Pronominal	2 (1.6%)
Nominal	Nominal	47 (28.5%)

So, the Subject is a pronoun in over 70% of the cases, the agent in around 10% which is indicative of the overall topicality of the referent in the Subject position. In almost two thirds of the cases, we find the combination of a pronominal Subject and a nominal agent. When both referents are pronominal all cases but one follow the person hierarchy 1 > 2 > 3. The only counterexample has a relative pronoun for its Subject in which case there is no real choice at all. The two sentences which have a nominal Subject and a pronominal agent can be found in (14) and (15) below.

(14) and will continue to, to, to, erm so that the, the, the set-up should never have been created by hér. [PS527]

(15) We said that come from the film Cats and he reckoned the copy of Memories he's got is sung by who? [PS0FX]

In both cases the Subject is topical while the agent is focal, either because of its contrastive nature or because it is a question word. Finally, of the 47 nominal pairs, the majority have a definite Subject and an indefinite agent. However, in 8

14 Givón (1979, p.59) assumes that missing agents are always recoverable by the hearer, and therefore left out by the speaker, at least in terms of the type of referent.

cases the Subject is indefinite while the agent is definite. Of these, only 1 has a non-human Subject while the agent is human. It is given in (16).

(16) On their births a trust a fund of tens of thousands of pound was started for them in their names by their grandmother. This will guarantee all their school fees and the basis of their future. [PS0FG]

An explanation for the subjecthood of the money may be that it is going to be the topic for the following stretch of discourse. In (17), another example of an indefinite subject, the earth has been introduced as a topic, and is continued by the related sub-topic in the Subject position of the second clause while *the moon* – Force, not Agent – is in focus.

(17) And the planet earth is within the reach of gravitational pull and things on the earth are attracted by the moon. [KPAPS000]

Overall, the assumption made above, and earlier on by authors such as Thompson (1986) that the selection of Subject in English is determined by discourse related factors gets strong support from the BNC corpus data. We suggest therefore the following approach to syntactic functions in FG, and more specifically to Subject: Arguably, all languages have morphosyntactic rules which are controlled by one or more argument positions. When for the application of this control in some grammar it can be shown that there is neutralization over a set of basic semantic functions which do play a role elsewhere in the grammar, the control function will be seen as syntactic. The strength of a syntactic function is measured in terms of the number of semantic functions or argument positions it generalizes over and the amount of morphosyntactic phenomena it controls. When there are more syntactic functions in a language, the strongest one will be called Subject. Others will be Object, Object2, etcetera. Passives are seen as constructions which diachronically set the stage for a language to extend the Subject function to at least a second transitive argument position. Synchronically, their function is to restructure the utterance such as to bring about marked Subject assignment, and iconically move the patient to the front and the agent to the syntactic periphery, if it is expressed at all. However, for a language to have Subjects in the first place there is no absolute need for the presence of a passive construction: it suffices when there is some form of neutralization over basic semantic functions. In other words: languages with invariable grammatical relations (IGR) may also have Subjects. When languages have developed neutralization over more than one argument position this will be coded in the grammar in terms of the argument positions which are accessible to Subject assignment (the SFH) and the set of morphosyntactic operations which Subjects control. This could be seen as the static, competence aspect of syntactic functions. As such, **writers** of English

may conciously employ the passive as a rhetoric device, as has been shown by Coetzee (1980). However, **speakers** typically do not apply these rules consciously and spontaneously, nor across the board. In the practice of utterance production the most central argument position will be determined at an early stage of the expression process, and on the basis of certain pragmatic and semantic features of the terms in the argument positions. These sets of features, which are drawn from a universal set but may be grammaticalized and more or less fixed in a language, determine the probability of the choice, and the chance that certain utterances might be found in a corpus of spoken language. Thus, they are part of the dynamic, performance aspect of the language. Interestingly, since they work stochastically rather than in a yes/no fashion, they work in two ways vis-à-vis competence. On the one hand, they create constraints on what would technically be possible within the limits set by the grammar. In that sense they work as a filtering device, be it a functional rather than a formal filter. On the other hand, they tempt speakers to cross the boundaries of competence, and produce utterances which formally would be considered unwellformed. Examples from Dutch are found in (18) and (19) below:

(18)	De	reiziger-s	word-en	verzocht	uit te stappen.
	DEF	passenger-PL	AUX.PASS-PL	request-PASTPRT	to.descend
	'Passengers are requested to leave the train.'				

(19)	Die	broek	pas	ik	niet!
	DEM	pants	fit.1SG	1SG	not
	'Those pants do not fit me.'				

In (18), Subject is assigned wrongly to the third argument (Recipient/Experiencer). However, (18) is frequently heard spoken by conductors on trains. Given the topicality of passengers in such a context, it has become the unmarked form. It is corrected only by school teachers and their likes. In (19), the same features active in Subject assignment are in the process of bringing about a reinterpretation of the predicate scheme of the verb *passen* 'to fit'. In its traditional reading, the first argument would be the Force (here: the pants) and the second one the Experiencer (here: the speaker). However, younger speakers will typically reverse the roles, and put the Experiencer in the first argument slot, and therefore make it the default Subject, while the original meaning is maintained. Without making performance factors central, there would be no way to explain these, and many other diachronic changes.

4 Conclusions

In this contribution, we have made an attempt to reinterpret FG syntactic functions in the light of the FDG model. Rather than assuming the sentence and competence based position traditionally taken in FG, we have argued for a discourse and performance based approach to notions such as Subject and Object. Furthermore, in order to create a more general background for syntactic functions, we have tried to sketch a continuum for grammatical relations, on which syntactic functions take a central position, though not an isolated one. This continuum serves two purposes. Firstly, it provides a multidimensional typological space, with both functional and formal vectors. In this space, all languages may be located in a much finer grained fashion than just having or not having Subject according to the rather restricted original definition of FG, with the SFH as its only extra dimension in case a language does have Subjects. Secondly, the continuum creates a framework for explaining the diachronic changes that take place in the domain of grammatical relations. With such adaptations and provisions, FG moves in the direction of related theories such as RRG and RT. This may one day lead to a unified functional theory on grammatical relations and syntactic functions, arguably one of the oldest, most hotly debated and controversial areas of linguistic description.

The practical implication for FG theory is that the notion of syntactic function gets a wider application in terms of the actual syntactic operations that are traditionally seen as being controlled by arguments, and is no longer directly tied to the presence or absence of a passive construction. As a result, a number of historically and synchronically related phenomena may be easier to embed in the theory. We are thinking of other kinds of passives, such as reflexives, 'get' passives and passives with obligatory suppression of the agent/first argument. But also impersonal constructions, middle voice, the inverse and, more in general changes in the interpretation of predicate frames of verbal arguments come into focus.

With the domain of grammatical relations, and more specifically syntactic functions thus reinterpreted, we think that the FDG model, and therefore FG theory more closely approaches the ideal of a functional theory of language, i.e. a theory that not only describes what native speakers **know** about their language but also what they **do** with that knowledge.

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BAKKER, D.; SIEWIERSKA, A. A implementação de funções gramaticais na Gramática Discursivo-Funcional. *Alfa,* São Paulo, v.51, n.2, p.269-292, 2007.

- RESUMO: Na GF padrão (DIK, 1997), as funções gramaticais são atribuídas diretamente à representação subjacente de uma forma mais ou menos abrangente, levando em consideração apenas a hierarquia de função semântica dependente da língua. Essa abordagem contorna diversas restrições relacionadas à atribuição de sujeito que podem ser reunidas por meio de dados tipológicos e observadas no comportamento real dos falantes. Neste trabalho, fazemos uma tentativa de reinterpretar as funções sintáticas da GF à luz do modelo da GDF. Seguindo as idéias de Givón (1997), propomos um tratamento da atribuição de sujeito baseado em uma combinação de fatores semânticos e pragmáticos dos referentes relevantes e outros aspectos funcionais das representações subjacentes. As regras de atribuição obedecem às respectivas hierarquias como discutido na literatura sobre tipologia. Em nossa proposta, a atribuição de Sujeito (e de Objeto) agora se localiza no componente expressivo, mais especificamente na versão dinâmica das regras de expressão apresentadas por Bakker (2001).

- PALAVRAS-CHAVE: Atribuição de sujeito; alinhamento; abordagem multifatorial; regras de expressão dinâmicas; hierarquia tipológica.

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Abbreviations

1	first person
2	second person
3	third person
ABS	absolutive
ACC	accusative
AG	agent
AUX	auxiliary
DAT	dative
DEF	definite
EP	epenthetic
ERG	ergative
INDEF	indefinite
INT	intensifier
INV	inverse
NOM	nominative
PASS	passive
PASS1	passive type 1 (for patients)
PASS2	passive type 2 (for recipients)
PAST	past tense
PASTPRT	past participle
PL	plural
SG	singular
SUBJ	subject

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ORDERING OF REPRESENTATIONAL LEVEL ADVERBIAL MODIFIERS IN SPOKEN BRAZILIAN PORTUGUESE

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- ABSTRACT: Supported by the Functional Discourse Grammar theoretical model, as proposed by Hengeveld (2005), this paper aims to show that the order of modifiers of the Representational Level in spoken Brazilian Portuguese is determined by scope relations according to the layers of property, state-of-affairs and propositional content. This kind of distribution indicates that, far from being free-ordered as suggested by traditional grammarians, modifiers have a preferred position determined by semantic relations that may be only changed for pragmatic and structural reasons.

- KEYWORDS: Functional Discourse Grammar; word order; modifier; adverbial phrase.

1 Introduction

Previous researches on sentence constituent ordering have shown that SVO is the Portuguese word order pattern, as observed by Pádua (1960), for European Portuguese (henceforward EP), and by Pontes (1987), Decat (1989) and Berlinck (1989), for Brazilian Portuguese (henceforward BP). However, Pezatti (1992) argues that there are two word order patterns for BP sentences: SV(O) is preferred by sentences with transitive and non-existential intransitive verbs and VS is preferred by sentences with existential/presentative verbs. In other words, according to the word order pattern BP is a split ergative language.[2]

Following Dik (1981), Camacho and Pezatti (1997) postulate that SVO is diachronically derived from the postfield pattern P1 VSO, the subject NP having

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[2] The term *split ergative* refers crosslinguistically to languages in which the object is sometimes aligned with the transitive subject and sometimes aligned with the intransitive subject. The reason why split ergativity is a typological property of Portuguese is the fact that on one hand intransitive subjects of presentative/existential V**S** constructions are identified with such features as lexical, indefinite, post-verbal and new which are typically applied to objects and on the other hand the fact that when occurring in **S**V(O) constructions they are identified with such features as non-lexical, definite, preverbal and given which are applied to transitive subjects (cf. DUTRA, 1987 and PEZATTI, 1992)

displaced to P1 according to the ordering principles (SP4 and SP5) presented by Dik (1997a), taking into account that BP preserves some traces from postfield languages in the existential/presentative types of constructions.

This paper is framed in the context of the Functional Discourse Grammar model (henceforward FDG), as first proposed by Hengeveld (2004b, 2005) and later by Hengeveld and Mackenzie (Forthcoming). This model is hierarchical and modular and has a top-down organization, that is, decisions at higher levels and layers of analysis determine and restrict the possibilities at lower levels and layers of analysis.

Assuming that Brazilian Portuguese displays the SV(O) and VS ordering patterns for argument constituents, this paper analyzes the order of optional constituents of the Representational Level, defined as level 1, 2 and 3 satellites by Dik *et al.* (1990), with scope on a predicate (property), a predication (state-of-affairs) and a proposition (proposition content), respectively (hereafter s_1, s_2 and s_3). Until the nineties, Portuguese grammars postulated that adverbs and adverbial phrases would be provided with some relative mobility. According to Ilari et al. (2002), in the approach traditional grammarians have dedicated to the adverb analysis, there are two expectations living together that are to a certain degree irreconcilable: on the one hand, the expectation that adverbs occur after either the direct or the indirect object in clauses when adopting the so called 'direct order'; on the other, the expectation that the adverb should be represented as if it were provided with some relative mobility inside the clause. Evidently wrong when referred to the adverb class as a whole, these two apparently irreconcilable claims may be deemed correct if they are appropriately qualified and considered in the context of a less generic discussion about the adverb placement in the Portuguese clause (cf. ILARI et al. 2002, p.53). As a matter of fact, traditional grammarians as Cunha and Cintra (1985, p.533-534), for instance, are so cautious about adverb ordering that they are used to mitigating their assertions with many types of modals. Anyway, there would be a general consensus among these scholars about the relative freedom which the adverbial constituents are provided with inside the clause.

I agree with Ilari et al. that there is indeed a little bit of truth in both claims: if, on the one hand, there is a preferred position, on the other, there is also some mobility in adverb ordering. As it will be seen later, the semantic type and the pragmatic function can really determine the satellite position in the clause, thus disrupting the preferred position. This apparently contradictory behavior may be considered a possible consequence of Portuguese being typologically an SVO language. According to Dik, "the class of SVO language is typologically not uniform: unlike SOV and VSO languages, SVO languages do not allow solid predictions with respect to constituent order correlations in other domains" (DIK, 1997a, p.411).

This paper aims to show that there is some regularity in the distribution of this kind of presumably free-ordered constituents: like argument ordering, modifiers at the Representational Level are provided with a kind of fixed position determined by scope relations, which may only be changed for some pragmatic reasons defined by the Interpersonal Level and for structural reasons which are determined by Morphosyntactic Level. Samples of empirical evidence have been extracted from the *corpus* of *Projeto de Gramática do Português Falado* ('Spoken Portuguese Grammar Project').

This paper is organized as follows. Firstly, I show the methodological procedures. Secondly, I present quantitative evidence for the canonical position of the Representation Level modifiers. Thirdly, I focus on issues related to changes in linear ordering. Finally, some further generalizations are given by proposing specific templates for modifier ordering.

2 Methodological procedures

The database is the Standard Urban Norm Project (NURC), a *corpus* of socially symmetrical dialogues provided by university graduates from the following cities: Recife, Salvador, Rio de Janeiro, São Paulo and Porto Alegre. My sample is restricted to the database called the minimal *corpus* of the Spoken Portuguese Grammar Project, which is restricted to one interview for each one of the three kinds of survey corresponding respectively to Formal Elocutions (EF:SP-405, RJ-379, RE-377. SSA-46 and POA-278); Dialogues between Informant and Interviewer (DID: SP-234, RJ-328, RE-131, SSA-231 and Poa-45); and Dialogues between two informants (D2: SP-360, RJ-355, RE-05, SSA-98 and POA-291).

In spite of Portuguese being ranked as a pro-drop language, only clauses with all argument constituents overtly expressed have been considered, since the possibility of non-overtly expressed constituents could affect the final results. Also only the constituents overtly expressed by means of a full NP or stressed pronouns have been considered, thus discarding those clauses with arguments or satellites in the expression form of clitics and relative pronouns.

The positions are defined as follows. Considering that the beginning of a clause always consists of a clearly marked border, both this initial position and any other positions preceding the subject (S) are coded as **I**. On the other hand, considering that the property/relation (verbal, nominal, adjectival or adverbial, all generically represented by V) is the clausal head, **2** stands for the position before the predicate, and **3** for the position after it. Taking into account that the end of a clause is just as clear a border as the beginning of it, **F** was coded to represent both the last position and the positions before the last one. My concern

here is restricted to constituents occurring inside either the predication or the proposition at the Representational Level, which represent a whole Discourse Act at the Interpersonal Level, a unit that would be considered as a sentence in a grammatical sense. Consequently slots for Themes and Tails will not be taken into account here because they consist of Discourse Acts by themselves and as such they are outside the scope of the principles that rule adverb ordering inside the sentence. So the pattern to be considered is I S 2 V 3 O F.[3]

Additionally, each modifier is analyzed according to the following functional parameters: layer, semantic function, pragmatic function, and structural complexity.

As for layer, the constituents focused are ranked according to the three levels of organization predicted by FDG: f-modifier (σ_1), e-modifier (σ_2) and p-modifier (σ_3).

As for the analysis of semantic function, the classification proposed by Dik *et al.* (1990) is basically applied with the addition of further changes suggested by Wanders (1993), Ramat and Ricca (1998) and Hengeveld (2004a). Therefore, for the innermost layer of property (**f-modifier (σ_1)**) I arrived at the following functions: Beneficiary, Instrument, Company and Inner Cause; Manner, Speed and Quality, Source and Direction, Path. *Novamente* 'again' was added according to Wanders' suggestion (1993).

For the next layer of state-of-affairs (**e-modifier** (σ_2)), the following functions were considered: Time, Frequency and Duration; Location; Circumstance, Cause and Condition, Reason and Purpose, Modal and Domain (RAMAT; RICCA, 1998). In addition to these-modifiers, Phasal ones such as *ainda* 'still' and *já* 'already' are considered too.

And finally, for the outermost layer of the Representational Level (**p-modifier** (σ_3)) I considered the following functions: Volitive, Epistemic, Evidential, Domain and, Concession (HENGEVELD, 2004a; RAMAT; RICCA, 1998).

As for Pragmatic function, the scope of this paper has been restricted to Focus, Emphasis and Contrast. In terms of structural complexity, the adverbials considered include both, adverbials and prepositional phrases.

Based on this procedure, 355 tokens are analyzed and the quantitative evidence is presented in the next section.

[3] Initially because of Portuguese's split ergativity, three patterns (SVO, SV and VS) of ordering were considered on the basis of the hypothesis that that they could determine some differences in the adverbial positions. Yet since these kinds of correlations were not found these suppositions were completely abandoned.

3 Evidence for non-marked position

Functional Discourse Grammar (HENGEVELD, 2004b, 2005) is designed as a modular architecture with a top-down organization, which works its way down from the Speaker's intention to articulation. As such, it is constituted by four components: the conceptual, the contextual, the grammatical and the output component, as shown in Figure 1.

The Grammatical Component is represented by means of ovals, boxes and rectangles: ovals stand for operations, boxes for primitives and rectangles for levels of representation. The operation of formulation in the Grammatical Component converts communicative intention into pragmatic and semantic representations at the Interpersonal and Representational Levels, respectively. In the next stage, the operation of encoding in turn converts these pragmatic and semantic representations into morphosyntactic and phonological representations; these representations constitute the grammar output and at the same time the input for the final operation of articulation, whose result is the linguistic expression.

The four levels of representation are hierarchically structured into layers of various kinds. The highest layer of the Interpersonal Level is the Move which consists of one or more Discourse Acts; these discourse acts are in turn organized into an Illocution, the Speech Participants and a Communicated Content, consisting of Subacts of Reference and Ascription. At the top of the Representational Level lies the Episode, which contains one or more propositional contents; this layer in turn contains one or more states-of-affairs, organized into individuals, properties, locations and times. The Morphosyntactic Level is responsible for providing structural representations in terms of linear properties of the linguistic unit and, similarly to the other levels, it is hierarchically organized into sentence, clause, and phrases.

Taking into account that production starts with communicative intentions, which are processed into a top-down way, Hengeveld (2005) finds compatibility between this kind of organization and the idea of dynamic implementation of the grammar, as suggested by Bakker (2001). As a top-down organization, the efficiency of the FDG model is proportional to the way it resembles language production. In Figure 1, the pathways through the grammar are represented by arrows. According to Hengeveld (2005), the horizontal arrows concern the consultation of the sets of primitives by the various operations. The dynamic implementation, which is represented by vertical arrows, calls for Depth First Principle and Maximal Depth Principle; both of them meant to speed up grammar implementation.

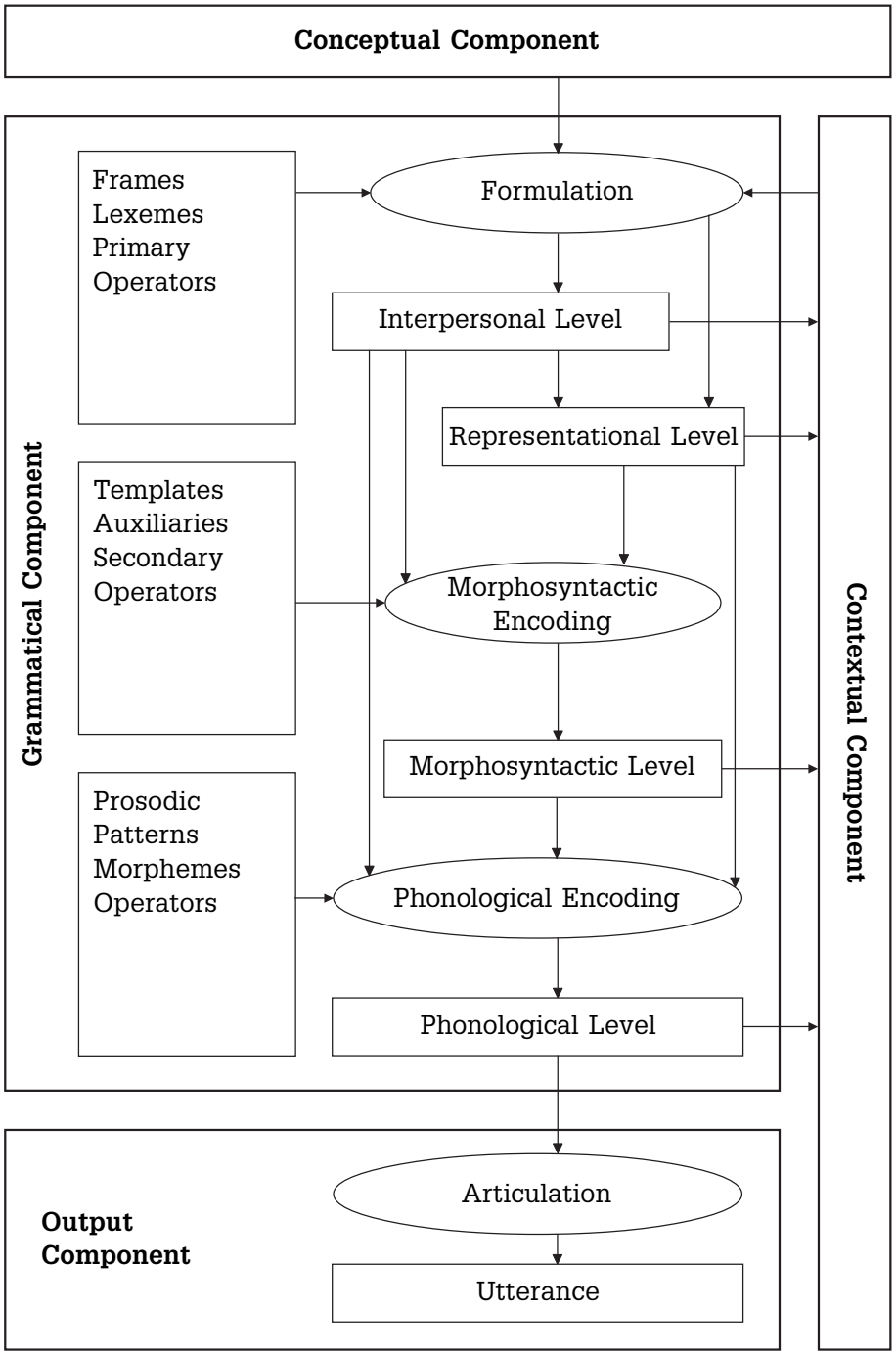

Figure 1 – Layout of FDG and pathways through grammar (HENGEVELD, 2005, p.75)

Given that this paper is restricted to the analysis of semantic modifiers, we will concentrate on the Representational Level and the way it is related to the Interpersonal Level. In the FDG model it is the Representational Level that deals with the semantic aspects of the linguistic units. According to Hengeveld and Mackenzie (Forthcoming), the term 'semantic' is used in a very restricted way. In one sense, which is very similar to Bühler's representational function or to Halliday´s ideational function, it is restricted to the ways in which language is related to the real or imaginary world it describes. Based on this thought, it is possible to say that many linguistic elements have no semantic meaning attached to them, as for instance, performatives and illocutionary satellites, which are related to the Interpersonal Level.

In another sense, the term 'semantic' is restricted to the meaning of lexical units (lexical semantics) of the complex units (compositional semantics), but independent from the way in which they are used in communication. The complex meanings are expressed by grammatical means, represented by operators or functions. The cases in which the compositional meanings result from the combination of lexical items, the combinatory possibilities are specified in representational frames, which are responsible for the compositional semantics, that is, for the means by which complex meanings may be produced through combinations of basic units.

By virtue of being the result of combinations of lexical items, the position of constituents in the linear linguistic expression is firstly determined at the Representational Level, where templates for modifiers of predicate, states-of-affairs, propositional contents and episodes are established. On the basis of quantitative evidence, more precisely on the basis of frequency of usage, a preferred order for modifiers at the Representational Level will be taken in account here together with the presupposition that changes in this preferred order are motivated only by pragmatic and morphosyntactic reasons at the Interpersonal and the Structural Levels, respectively. As discussed below, the preferred position for these modifiers is,, firstly determined by the relation between the modifier and its head. Let's start the discussion with some pieces of quantitative evidence.

In spoken Brazilian Portuguese, the overall distribution of the three types of satellite according to the layer at which they apply are summed up in Table 1.

Table 1 – Position of $\sigma_1/\sigma_2/\sigma_3$ in Brazilian Portuguese

Position		I	2	3	F	Total
σ_1	n.	7	7	22	50	86
	%	8	8	26	**58**	100
σ_2	n.	105	40	22	45	212
	%	**49**	19	11	21	100
σ_3	n.	32	15	6	4	57
	%	**56**	26	11	7	100
Total	n.	144	62	50	99	355
	%	**41**	17	14	**28**	100

As the figures indicate, 41% of the relevant satellites are placed in initial position and 28%, in final position. This suggests that in BP there is clear tendency to insert this kind of modifiers in **peripheral** positions (69%).

Let us now turn to Table 2, which presents the location of different types of f-modifiers in spoken Brazilian Portuguese.

Table 2 – Position of σ_1 in Brazilian Portuguese

Position		I	2	3	F	Total
Manner	n.			15	16	31
	%			48	**52**	37
Instrument	n.	6	1	2	8	17
	%	35	6	12	**47**	20
Beneficiary	n.		4	3	8	15
	%		27	20	**53**	17
Company	n.			1	5	6
	%			17	**83**	7
Path	n.	1			4	5
	%	20			**80**	7
Quality	n.		2		1	3
	%		**66**		33	3
Cause	n.				3	3
	%				**100**	3
Direction	n.				3	3
	%				**100**	3
Speed	n.			1	1	2
	%			50	50	2
Source	n.				1	1
	%				**100**	1
Total	n.	7	7	22	50	86
	%	8	8	26	**58**	100

The f-modifier (σ_1) is placed in final position in 58% of the cases, as illustrated by (1). If this number is added to the 26% of the cases occurring in the position immediately after the predicate, as in (2), the result amounts to 84% of σ_1 filling slots on the right side of the predicate. It indicates that this is the non-marked position of f-modifiers.

(1) os patrões: procuram defender... suas causas... assim como os empregados... **através de seus órgãos**. (DID-RE-131:269)
'employers manage to defend... their causes... just like employees, **through their own respective institutions**'

(2) agora eu estou muito sozinha lá na praia... quando a gente ia **com a TURma** lá no SESC (DID-POA-49:252)
'now I am very lonely there on the beach.... when we went **with the gang** there to SESC'

According to the figures in Table 3 (below), e-modifiers (σ_2) are spread throughout the clause, but the initial position is the preferred one in 49% of the cases, as shown by (3); 21% of the cases go to the final position, as illustrated by (4), and 30% of the cases occur in the medial positions (3 and 4), as shown by (5):

(3) **hoje em dia** os filmes são mais vazios sei lá (DID-SP-234:364)
'**nowadays** films are emptier I don't know '

(4) de manhã eu tomo café com leite **normalmente** (DID-RJ-328:296)
'in the morning I have coffee with milk **normally'**

(5) a infecção primária ou primo-infecção **geralmente** passa desapercebida (EF-SSA-46:10)
'the primary infection or first-infection **generally** goes unnoticed'

Table 3 – Positions of σ_2 in Brazilian Portuguese

Position		I	2	3	F	Total
Time	n.	45	4	5	23	77
	%	**59**	5	6	**30**	36
Frequency	n.	31	12	6	3	52
	%	**69**	23	25	7	24
Location	n.	14	2	1	12	29
	%	**48**	7	3	**42**	14
Phasal	n.	9	13			22
	%	41	**59**			10
Modal	n.	3	6	8	2	19
	%	16	31	**42**	11	9
Circumstance	n.	1	1	1	3	6
	%	17	17	17	**49**	3
Domain	n.	1	2	-	-	3
	%	25	**75**			1
Reason	n.	1	-	1	-	2
	%	50		50		1
Duration	n.				1	1
	%				**100**	0,5
Purpose	n.				1	1
	%				**100**	0,5
Total	n.	105	40	22	45	212
	%	**49**	19	11	**21**	100

The evidence just shown suggests that the initial position is the preferred one for this kind of modifier; however this conclusion may be not confirmed by a qualitative analysis, since all e-modifiers in this position are provided with pragmatic function, as it will be seen in the next section.

Discarding the initial position, Time and Location modifiers are more frequently placed in final position (at a rate of 72% and 80%, respectively); the preferred position for Frequency and Phasal modifiers, in turn, is the medial one, but just immediately before the predicate (at a rate of 57% and 100%, respectively); finally Modal modifiers are placed in the position immediately after the predicate in 50% of the cases, while 37% occur in the position immediately before the predicate, and 13% prefer the final position. Therefore, it is possible to argue that the non-marked position for Time and Location Modifiers is the final one, the position immediately before the predicate for Frequency and Phasal modifiers, and the position immediately after it for Modal modifiers.[4]

[4] The number of tokens for other types of modifiers (Circumstance, Domain, Reason, Duration and Purpose) does not allow more definitive conclusions.

Table 4 displays the quantitative results for p-modifiers. The preferred position for this kind of modifier is the initial one (56%), 37% compete for the medial position, and only 7% are placed in final position, as illustrated in (6), (7) and (8), respectively.

(6) **naturalmente** eles... pensando que a Escola de Belas Artes precisa de papel, né? ...mandaram enganado o papel. (D2-RJ-355:1329)
'**of course** they... thinking that the School of Beautiful Arts is in need of paper, right? ... they sent the wrong paper'

(7) eu **realmente** não tenho curso, não fui preparado para isso (D2-RJ-355:502)
'I **really** do not have graduation, I have not been prepared for this'

(8) O meu quadro é assim... eu sou... eu sou solteiro **teoricamente**... (D2-RJ-355:121)
'That is my picture... I am... I am **theoretically** single...'

The preferred position of the epistemic kind of modifier is the initial one, or at most, the position immediately before the predicate, whereas Evidentials give preference for the second position, just after the predicate.[5] If the total number of tokens on the left side of the predicate is taken into account, it may be observed that this position is the most favorable for placing p-modifiers and, therefore, the initial one ends up being its preferred position.

Table 4 – Positions of σ_3 in Brazilian Portuguese

Position		I	2	3	F	Total
Epistemic	n.	20	11	1	2	34
	%	**59**	32	3	6	**60**
Evidential	n.	8	4	5		17
	%	**47**	24	29		30
Volitive	n.	3				3
	%	**100**				5
Domain	n.				2	2
	%				**100**	3
Concession	n.	1				1
	%	**100**				2
Total	n.	32	15	6	4	57
	%	**56**	26	11	7	100

Summing up, the empirical evidence just discussed shows that the non-marked position of the modifiers in morphosyntactic templates is determined by the Representational Level in direct dependence on the kind and the semantic function of the modifier, which has much to do with scope relations. According

[5] The number of tokens for other types of modifiers (Volitive, Domain and Concession) does not allow more definitive conclusions.

to Dik modifiers "can be subdivided into distinct types which contribute to the specification of a particular layer" (cf. DIK et al. 1990, p.25). This distribution may be seen in the following quotation:

> **Predicate satellites** capture the lexical means which specifiy additional properties of the set of SoAs designated by a nuclear predication. **Predication satellites** capture the lexical means which locate the SoAs designated by a predication in a real or imaginary world and thus restrict the set of potential referents of the predication to the external situation(s) the speaker has in mind. **Proposition satellites** capture the lexical means through which the speaker specifies his attitude towards the proposition he puts forward for considerations (cf. DIK et al., 1990, p.28).

So, the standard position of f-modifiers is on the right of the sentence head (property), whereas the standard position of p-modifiers is on the initial part of the sentence. However, the non-marked position of e-modifiers is more strongly related to its semantic function, since the preferred position of Frequency and Phasal e-modifiers is just before the predicate, that of the Modal is just after it and that of Time/Location is the final one. In other terms, the preferred position of e-modifiers is determined by scope relations at the Representational Level.

The data analysis allows us to set up the following ordering template of-modifiers, at the Morphosyntactic Level, for Brazilian Portuguese taking into account the different types of optional constituent dealt with here so far. By virtue of scope relations, the adverbials modifying the lowest layers are placed closer to the head: σ_1 stands as closest as possible to the predicate, σ_2 stands as closest as possible to the predicate and its arguments and σ_3 stands as the head of the clause.

$$\sigma_3\ \mathbf{S}\ \sigma_{2\ \text{Freq/Phasal}}\ \mathbf{V}\ \sigma_1\ \sigma_{2\text{-/Modal}}\ \mathbf{O}\ \sigma_1\ \sigma_2$$

4 Evidence for change in the non-marked position

Just as arguments, modifiers can be placed in positions other than the preferred one. The change in the standard placement may be triggered by pragmatic and structural motivations at the Interpersonal and Morphosyntactic Levels, respectively.

The Interpersonal Level deals with the formal aspects of linguistic units which reflect their role in the interaction between Speaker and Addressee. Since each Speech act participant has a communicative goal in mind, in certain cases this communicative goal is clear enough (as for instance, a job interview), whereas in

other cases it simply plays the role of supporting a social relationship (for instance, phatic communication). It is the goal of interaction to determine the best strategy to be adopted by each participant to achieve his/her communicative purpose.

The properties of interactions, which reflect the strategic, purposive nature of interaction, are studied in a range of disciplines covered by rhetoric and pragmatics. Rhetoric deals with the ordering of discourse components towards the achievement of the Speaker's communicative strategy and with the formal properties of utterances used by the Speaker to influence the Addressee, whereas pragmatics deals with the way the speaker moulds his/her message in terms of the addressee's current state of mind. This kind of speaker's expectation determines which part of a linguistic unit may be presented as particularly more salient, which part should be chosen as the speaker's point of departure and which part should be considered as shared by both speech participants. These kinds of strategies reflect the pragmatic functions known as Contrast, Focus, Emphasis and Topic.

Contrast signals the speaker's desire to bring out the particular differences and similarities between two or more Communicated Contents or between a Communicated Content and contextually available information. Emphasis signals the speaker's desire that the addressee should attend particularly to the Subact. Focus signals the speaker's strategy selection of new information. Topic function will be assigned to a Subact which has a special function within the Act, that of signaling how the Communicated Content relates to the gradually constructed record in the contextual component. (cf. HENGEVELD; MACKENZIE, Forthcoming).

As English, Portuguese dispenses with the Topic function which is closely correlated to the syntactic subject; it is exactly because Topic function has no repercussion on the linguistic realization of the Act that there is no formal marking available for it. Only such pragmatic functions of saliency as Focus, Contrast and Emphasis were detected on the sample here analyzed, that is, the only ones that apply to modifiers at the Representational Level.

As seen before, the preferred position for σ_1 is on the right of the predicate. The change of the preferred position of f-modifiers is triggered by the Interpersonal Level, since the f-modifier assumes the initial position when the Subact which represents it signals the Speaker's desire to bring out the particular differences and similarities between it and contextually available information, as illustrated in (9), where the constituent *pela Lufhansa* 'by Lufthansa' contrasts this airline company with others previously mentioned in the discourse. It is worth noting that in this position, f-modifiers can only be assigned to the pragmatic function of Contrast and never Focus or Emphasis.

(9) acabei indo na Lufthansa... porque **pela Lufthansa** eles me conseguiam isso rapidamente (D2-RJ-355:181)

'I ended up going by Lufthansa... because **by Lufthansa** they got me this quickly'

There was not any token of σ_1 playing Emphasis function which suggests that this kind of pragmatic function is signaled by other devices, as for instance particles and special constructions, as can be seen in (10)

(10) ele segue o salário dos jogadores **principalmente através da revista Placar**
'he follows the news on the players' salary **mainly through the magazine Placar**'

As for linear ordering, there is evidence to argue that the preferred position for σ_1, i.e., its non-marked position, is immediately after the predicate, and in the final position when carrying new information (Focus), as can be seen in (2) and (1), respectively, repeated below for convenience. It takes the initial position when it signals the speaker's desire to bring out the particular differences and similarities between two or more communicated contents or between a communicated content and contextually available information, as (9) above.

(2) agora eu estou muito sozinha lá na praia... quando a gente ia **com a TURma** lá no SESC (DID-POA-49:252)

'now I am very lonely there on the beach.... when we went **with the gang** there to SESC'

(1) os patrões: procuram defender... suas causas... assim como os empregados... **através de seus órgãos**. (DID-RE-131:269)

'employers manage to defend... their causes... just like employees, **through their own respective institutions**'

We saw that the preferred position for σ_2 is closely related to the respective semantic function it plays in the predication. So the tendency for Time and Location modifiers is to be located on the right of the predicate, as can be seen in (11) and (12) respectively.

(11) a gente se encontra **sempre todos os MEses nesse janTAR**... com os amigos (DID-POA-45:161)
we meet **always every month at this dinner**... with our friends

(12) mas a gente podia andar **na**... **na Avenida Farrapos** (DID-POA-45:291)
but we could walk on… **on the Farrapos Avenue**

The preferred position for Phasal and Frequency modifiers is just immediately before the predicate, as can be seen in (13) and (14) respectively.

(13) eles **ainda** vivem em BANdos (EF-SP-405:60)
'they **still** live in groups'

(14) eu tenho a impressão que eles **normalmente** não usam aquilo...nas refeições (DID-RJ-328:366)

'I have the impression that they **normally** don't use that... on meals'.

Finally preferred position for Modal modifiers is just immediately after the predicate, as can be seen in (15).

(15) qualquer cirurgia... no campo médico... propriamente dito... implica... **obrigatoriamente**... em despesas (DID-RE-131:18)

'any surgery...in the medical area... as such… implies **obligatorily** some expenses'

Yet there is a great number of occurrences of Time, Location and Frequency modifiers standing in the initial position of the clause that require some further explanation. An accurate analysis of these cases shows that all kinds of e-modifier at this position are provided with pragmatic function. Therefore, it is not possible to infer that such position is the natural one for Time, Frequency and Location, as suggested by the quantitative results. It is possible to argue that the high frequency of the e-modifiers in initial position is explained by the assignment of pragmatic function at the Interpersonal Level.

E-modifier (σ_2) can be assigned to two pragmatic functions, that is, Contrast and Emphasis, as illustrated in (16) and (17), respectively, the former being more frequent than the latter. As observed, (16) establishes a sharp contrast between the Subact *hoje em dia* 'nowadays' and the contextually available information, the previous time, thus allowing the following paraphrase: 'I think that nowadays students are more interested in theater' (in contrast to what happened before). In example (17) the Subact *hoje* 'today', highlighted by means of the particle *mesmo* 'just', signals the Speaker´s desire that the Addressee should pay attention particularly to this information. It is interesting to note that the pragmatic function Focus determines the initial position of the clause to this kind of modifier and that the pragmatic function Emphasis is also marked by focalizing particles.

(16) **hoje em dia** eu acho que os estudantes estão se interessando mais... por teatro (DID-SP-234:482)

'n**owadays** I think that students are more interested in theater'

(17) **hoje** *mesmo* eu fiz uma viagem daqui prá Camaçari (D2-SSA-98:4)

'*just* **today** I made a trip from here to Camaçari'

Frequency modifiers specify the number of times a certain state-of-affairs occurs, and it is expressed by means of both phrases, such as in (18) and (19), and adverbs, such as *normalmente* 'normally', *geralmente* 'generally' as illustrated in (20).

(18) **Todos os meses** nós temos um jantar (DID-POA-45:13)
'**every month** we have a supper'

(19) **às vezes** tem... tem fogão **(**DID-POA-45:35)
'**sometimes** there is a stove'

(20) **normalmente** existe... acredito eu... um colegiado (DID-RE-131:150)
'**normally** there is... I believe... a board of judges'

There is no doubt that, in (18), the phrase *todos os meses* 'every month' indicates that the state-of-affairs takes place once a month and, furthermore, that there is a sharp contrast between *month* and *week*, for instance. This highlighting Contrast function accounts for the initial position. The same explanation can be applied to (19) and (20).

There we can note the PB tendency to stress Time and Location, that is, to emphasize the temporal and spatial scenery of the state-of-affairs expressed by the clause.

On the other hand, *normalmente* 'normally' and *às vezes* 'sometimes', when occurring between the subject and the verb (position 2), seem to mitigate the meaning expressed in the predication, since it indicates the Speaker's non-commitment in relation to the number of occurrences of the state-of-affairs. So, it is not the pragmatic function of Contrast or Emphasis that determines the medial position, but a certain epistemic modality. This situation may be seen more clearly in the phrase *às vezes* 'sometimes' which in tokens such as (21) and (22) can be paraphrased by σ_3-Epistemic *talvez* 'maybe'.

(21) ele **às vezes** fica até apavorado amedrontado né?... (DID-SSA-231:700)
'**sometimes** he becomes even terrified, frightened, doesn't he?'

(22) em casa a mãe **às vezes** não tem condição de ensinar. (DID-SSA-231:97)
'**sometimes** at home the mother isn't able to teach'

(21') ele **talvez** fica até apavorado amedrontado né?
'**maybe** he gets even terrified, frightened, doesn't he?'

(22') em casa a mãe **talvez** não tem condição de ensinar.
'**maybe** at home the mother isn't able to teach'

Such results allow me to state that e-modifiers (Time, Frequency, Location, Circumstance and Reason) occur in initial position when conveying the pragmatic functions of Contrast or Emphasis, while at the final position they are always provided with new information which identifies it as the sentence Focus. The

only situation this constituent does not convey salient information is when it is placed in its usual or preferred position. It is very clear that, in these kinds of tokens, the position of modifiers, which is expressed by morphosyntactic templates, is motivated by choices at the Interpersonal Level.

The data still show that the same position (**I**, 2, 3 and F) can be occupied by more than one modifier both from the same level and from different levels. In such cases, there are different reasons determining their ordering at the Morphosyntactic Level, as will be shown next.

Brazilian Portuguese tends to load the initial positions with constituents of the same level, as it may be seen in (23) and (24).

(23) por exemplo *numa igreja* **hoje** você tem imagens que representam... uma idéia religiosa...(EF-SP-405:4)

'for example *in a church* **today** you have images that represent... a religious idea'

(24) é e... mas... *depois* **diante das dificuldades de conseguir quem me ajudasse**... nós paramos no sexto filho. (D2-SP-360:33)

'but... *later* **due to the difficulties** to get somebody to help me... we stopped in the sixth son'

In the former occurrence, the sequence *numa igreja hoje* 'in a church today' reveals that the constituent exerting Focus function assumes the first position which is just immediately followed by constituents exerting Contrast function. Whereas Focus represents the Subact communicatively more salient, which signals the Speaker's strategic choice for new information, Contrast signals the Speaker's desire of highlighting differences and similarities between a Communicated Content and contextually anchored information (PRINCE, 1981). It is possible to conclude that Focus in PB tends to be located at extremely peripheral positions, that is, either at the initial or at the final position of the clause.

The e-modifier order in (24) is due to a matter of semantic ordering of the optional constituents according to the Principle of Iconic Ordering (their ordering iconically reflects the semantic content), because in the first place the state-of-affairs has to be temporally located by means of the modifier *depois* 'later on', and just after that, the reason for the state-of-affairs expressed in the main clause is started, since Cause specifies semantically a state-of-affairs whose occurrence triggers the occurrence of the state-of-affairs referred to in the main predication. Thus, Cause is a modifier which is more intimately related to the state-of-affairs than Time. On the order hand, (25) confirms the tendency of Phasal satellites being placed in their preferred position, that is, just immediately before the predicate, whereas modifiers exerting the pragmatic function of Contrast keep the first position.

(25) *nessa época* **ainda** não existe preocupação com composição (EF-SP-405:401)
'at this time there is no concern with composition **yet**'

Satellites of different levels follow the sequence σ_3 σ_2, as observed in (26). It is possible to conclude that s_3 satellites keep their non-marked position being followed by satellites σ_2 playing the Contrast function. This is the natural order because p-modifiers take the whole extended predication as scope, which implies including e-modifiers in their range.

(26) *provavelmente* **no segundo mês** ele ainda é positivo (EF-SSA-46:148)
'*probably* **in the second month** he is still positive'

As for the medial positions (2 and 3), as already observed, there is a tendency in PB to not overload them; that is why the number of tokens with more than one satellite is reduced in these positions. However the example in (27) shows that constituents playing pragmatic functions have priority even in the position before the predicate because σ_1 meaning Contrast precedes σ_2. The example in (28) shows that the preferred position to $\sigma_{1\text{Quality}}$ is close to its head (*vocês*), while $\sigma_{2\text{Phasal}}$ remains in its non-marked position.

(27) ele pode fazer de três maneiras: translação, interpretação e extrapolação, mas isto *pra vocês*, **basicamente**, serve, basta que vocês me digam que que é compreensão (EF-POA-278:98)
'he can do it by three means: translation, interpretation and extrapolation, but *basically* **for you** it is enough, it is enough you say me what what is comprehension'

(28) e a responsabilidade de vocês... *co:mo futu:ros profissionais do direito* **ainda** se torna maior (EF-RE-337:374)
'and your responsibility... *as future Law professionals* becomes **even** greater'

As for the position after the predicate, the examples in (29) and in (30) suggest that structural complexity plays an important role in determining the linearization of modifiers, that is, more complex constituents follow less complex ones: *aqui* 'here' and *pra vocês* 'to you' are level 2 and level 1 satellites, respectively. This semantic nature would determine the order σ_1 σ_2 and not σ_2 σ_1 as they stand in the clause. As a kind of competing motivations (cf. DU BOIS, 1985), these cases follow SP7 (Specific Principle), as stated below:

> other things being equal, constituents prefer to be placed in an order of increasing complexity, which is defined as follows:
> (i) clitic < pronoun < noun phrase < adpositional phrase < subordinative clause;
> (ii) for any category X: X < X co X;
> (iii) for any category X and Y; X < X [sub Y].
> (co = coordinating element, sub = subordinating element) (cf. DIK, 1997a, p.411).

So, as a modifier working at the Representational Level, the pronominal adverb *aqui* 'here' may be considered less complex than the prepositional phrase *pra vocês* 'to you', which leads to the order $\sigma_2 \sigma_1$. In such a case the Morphosyntactic Level is responsible for a non-preferred linearization of these modifiers.

(29) eu trouxe *aqui* **pra vocês** a medicação eu não vou falar mais sobre a medicação (EF-SSA-46:204)
'I brought the medicine *here* **to you** and I won't talk about medicine anymore'

(30) agora eu vou mostrar *aqui* **pra vocês** (...) como se dá o contágio (EF-SSA-46:52)
'now I am going to show *here* **to you** (...) how the infection happens'

Now turning our attention to the final positions, it is possible to note sequences of satellites both of the same level and of different levels. Sequences of σ_1 can occur with satellites of different setting, as (31). In this case, both satellites are located in their preferred position, or rather, on the right side of the predicate. In principle these constituents could be interchangeable but the placement at the final position is evidence that Manner (*acima de oitenta ou noventa... de velocidade* 'above a speed of eighty or ninety') is the New Focus, that is, it signals the speaker's strategy selection of new information.

(31) eu não viajo *nem num outro carro* **acima de oitenta ou noventa... de velocidade** a Kombi dá para fazer isso (D2-SSA-98:120)
'I don't travel, not *even in another car* **above a speed of eighty or ninety'**

Cases like (32) are well accounted for by the Principle of Iconic Ordering, since their positions are displaced according to the natural attention flow from Source to Goal (cf. DE LANCEY, 1981, p. 633). The order of the motion event goes from Source, represented by the pronominal adverb *aqui* 'here' to Direction, represented by the prepositional phrase *pra Camaçari* 'to Camaçari'.

(32) hoje mesmo eu fiz uma viagem *daqui* **prá Camaçari** (D2-SSA-98:4)
'just today I made a trip *from here* **to Camaçari**'

The occurrence of two **e-modifiers** in final position is also possible, as shown in (33), which is motivated by the Principle of Increasing Complexity, since the pronominal adverb *lá* 'there' precedes the prepositional phrase *durante o jantar* 'during the supper'.

(33) e tem muito sorTEIo *lá* **durante o jantar** (DID-POA-45:34)
'there are many raffles *there* **during the supper**'

The sequence of satellites of different levels occurs only between σ_1 and σ_2. Most cases follow the sequence σ_1-σ_2, which reflects a non-marked sequence determined by scope relations, since e-modifiers take the whole core predication as scope. There is a great number of this type of sequences in the sample, involving such different types of semantic function as Company and Time, as seen in example (34).

(34) saem... ahn... cinco... *comigo* **de manhã** (D2-SP-360:142)
'five leave... ahn... *with me* **in the morning'**

However, there are some changes in the sequence mentioned before, so that σ_2 precedes σ_1, as can be seen in (35) where the Time modifier expressed as an adverb is followed by the Manner satellite expressed by the prepositional phrase, which is appropriately explained by the Principle of Increasing Complexity too, as shown in (ii), where for any category X: X < X co X. So the complex coordinate phrase *com outros olhos com os nossos critérios de beleza e os nossos critérios de valor estético* 'with other eyes with our criteria... of beauty... and our criteria of aesthetic value' follows the adverb *hoje* 'today'.

(35) aí... a gente vê essa obra *hoje* com outros olhos com os nossos critérios... de beleza... e os nossos critérios de valor estético (EF-SP-405:295)
'we see this work *today* with other eyes with our criteria... of beauty... and our criteria of aesthetic value'

5 Conclusion

The linearization of modifiers in Brazilian Portuguese is determined, as shown above, by the scope relations at the Representational Level and these kinds of semantic relations trigger the appropriate template of the non-marked positions at the Morphosyntactic Level, according to (a)

(a) σ_3 **S** $\sigma_{2\ \text{Freq/Phasal}}$ **V** σ_1 $\sigma_{2\text{-/Modal}}$ **O** σ_1 σ_2

However, some information from the Interpersonal Level, such as assignment of pragmatic function to the subacts representing the modifiers, ends up determining, at the Morphosyntactic Level, the template (b) to the initial position and (c) to the position on the left side of the predicate. Thus, such pragmatic functions as Focus, Contrast and Emphasis trigger the first position of the sentence to the modifiers, even before the placement of p-modifiers (σ_3), which have the first position as their non-marked one and even before the placement of Frequency and Phasal kinds of modifiers, which have the position just immediately before the predicate as their preferred one.

(b) $\sigma_{\text{Focus/Contr/Emph}}\ \sigma_3\ \mathbf{S}\ \sigma_{2\ \text{Freq/Phasal}}\ \mathbf{V}\ \sigma_1\ \sigma_{2\text{-/Modal}}\ \mathbf{O}\ \sigma_1\ \sigma_2$

(c) $\sigma_3\ \mathbf{S}\ \sigma_{\text{Contr}}\ \sigma_{2\ \text{Freq/Phasal}}\ \mathbf{V}\ \sigma_1\ \sigma_{2\text{-/Modal}}\ \mathbf{O}\ \sigma_1\ \sigma_2$

The template standing for the positions to the right side of the predicate, on the other hand, which depends on the structural complexity of the modifier, is precisely defined at the Morphosyntactic Level, or rather, the more formally complex is the modifier, the more extreme at the end of the sentence is its position according to the Principle of Increasing Complexity, as can be seen in (d).

(d) $\sigma_3\ \mathbf{S}\ \sigma_{2\ \text{Freq/Phasal}}\ \mathbf{V}\ \sigma_{\text{-complx}}\ \sigma_{\text{+Complex}}\ \mathbf{O}\ \sigma_{\text{-complx}}\ \sigma_{\text{+Complex}}$

As discussed above, PB is provided with four templates at the Morphosyntactic Level for the adverbial modifiers of the Representational Level. It is possible to arrive at the conclusion that preference for certain positions is determined by semantic relations of scope; however, these natural motivations may be changed whenever some other kind of motivations prevail, such as pragmatic and structural ones; so the semantic relations give some room, in the first place, to pragmatic motivations involving the Principle of Pragmatic Highlighting and in the second place, to structural motivations governed by the Principle of Increasing Complexity.

As a final note, the evidence discussed and the conclusions I have been able to draw show clearly that the FDG organization in levels and layers is a useful tool for accounting for complex relationships among different kinds of motivations as the ones focused here.

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▪ RESUMO: Tomando como suporte teórico o modelo da Gramática Discursivo-Funcional, como proposta por Hengeveld (2005), este trabalho tem como objetivo mostrar que a ordem dos modificadores do Nível Representacional no português brasileiro falado é determinada pelas relações de escopo de acordo com as camadas desse nível: propriedade, estado de

coisas e conteúdo proposicional. Esse tipo de distribuição indica que os modificadores têm uma posição preferida determinada pelas relações semânticas que só pode ser alterada por razões pragmáticas (no Nível Interpessoal) ou estruturais (no Nível Morfossintático).

- PALAVRAS-CHAVE: Gramática Discursivo-Funcional; ordem de palavras; modificadores; adverbiais.

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