The architecture of a Functional Discourse Grammar

Hengeveld, K.

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The Architecture of a Functional Discourse Grammar

Kees Hengeveld

1. Introduction

Since the beginning of the nineties, a significant part of the research carried out within the Functional Grammar framework has been directed at the expansion of Functional Grammar (FG) from a sentence grammar into a discourse grammar.[1] There are several reasons why FG should aim at such a development. First of all, there are many linguistic phenomena that can only be explained in terms of units *larger* than the individual sentence: discourse particles, anaphorical chains, narrative verb forms, and many other aspects of grammar require an analysis which takes the wider linguistic context into consideration. Secondly, there are many linguistic expressions which are *smaller* than the individual sentence, yet function as complete and independent utterances within the discourse. This requires a conception of utterances as discourse acts rather than as sentences, as has been shown in Mackenzie (1998).

Hannay and Bolkestein (1998) argue that the proposals[2] which have been developed aiming at the expansion of FG into a grammar of discourse represent two different approaches. In the first, the discourse level is covered by additional hierarchically superordinate layers. This approach, called the *upward layering approach* in Hannay and Bolkestein (1998), is exemplified by Hengeveld (1997) and Moutaouakil (1998). In the second approach, the discourse level is handled by a separate component, linked to the grammatical component through an interface. Hannay and Bolkestein (1998) call this the *modular approach*, examples of which are Van den Berg (1998) and Vet (1998).

In this chapter I want to claim that an adequate model of the grammar of discourse requires the integration of these two approaches, i.e. I will argue that both the application of extended layering and the recognition of vari-

ous levels of analysis are necessary. The model of a Functional Discourse Grammar (FDG) presented here is thus both hierarchical and modular. A major feature of the model is that it works in a top-down fashion, that is, decisions at higher levels and layers of analysis determine and restrict the possibilities at lower levels and layers of analysis. This feature of FDG will be treated first, in Section 2. Section 3 then presents a general outline of the model, focusing on the various levels of analysis and the complex interfaces linking them to one another. The layers to be distinguished at the various levels are presented in detail in Section 4. Section 5 looks at the dynamic top-down construction of basic linguistic expressions within FDG by analyzing a series of illustrative examples. More complex examples which involve intricate interactions between the various levels of analysis are discussed in Section 6. The paper is rounded off in Section 7.

2. Top down

In Levelt (1989) the speech production process is described as a top-down process, running from intention to articulation. His analysis suggests that the speaker first decides on a communicative purpose, selects the information most suitable to achieve this purpose, then encodes this information grammatically and phonologically and finally moves on to articulation. Levelt shows that there is ample support in psycholinguistic research for this conception of speech production.

The speech production model used in FG (Dik 1997a: 60) has a quite different orientation. It starts out with the selection of predicate frames that are gradually expanded into larger structures, which when complete are expressed through expression rules. In view of Levelt's (and many other psycholinguists') findings, this organization of the grammar runs counter to the standard of psychological adequacy that FG should live up to (Dik 1997a: 13–14).

In the model defended here production is therefore described in terms of a top-down rather than a bottom-up model. This step, apart from having a higher degree of psychological adequacy, is crucial to the development of a grammar of discourse: in a top-down model, the generation of underlying structures, and in particular the interfaces between the various levels, can be described in terms of the communicative decisions a speaker takes when constructing an utterance, as will be illustrated in Sections 5 and 6.

3. Outline of the model

Figure 1 gives the basic outline of FDG. It shows that FDG distinguishes three interacting levels: the interpersonal level, the representational level, and the expression level, in that hierarchical order. The presence of these three levels as separate modules within the model is the major difference from earlier upward layering proposals.

Layering applies at each level separately, i.e. each level is organized hierarchically, as will be shown in the next section. This hierarchical organization of the model is the major difference from earlier modular proposals.

Mapping rules link the interpersonal to the representational level, in those cases in which semantic content is necessary for the transmission of a certain communicative intention. Expression rules then link the interpersonal and representational levels to the expression level. In cases in which only pragmatic content has to be transmitted, expression rules directly link the interpersonal to the expression level. The various linking mechanisms may be interpreted as interfaces which define the possible correspondences between layers at different levels.

The three levels interact with a cognitive component and with a communicative component. The cognitive component represents the (long-term) knowledge of the speaker, such as his communicative competence, his knowledge of the world, and his linguistic competence. The speaker draws on this component at each of the three levels.

The communicative component represents the (short-term) linguistic information derivable from the preceding discourse and the non-linguistic, perceptual information derivable from the speech situation. As far as the linguistic information is concerned, the communicative component is fed by the interpersonal and expression levels, and feeds the representational level in order to enable later reference to earlier acts and expressions, as will be illustrated in Section 6. Of course, short-term information may be selected for long-term storage and is in that case passed on to the cognitive component.

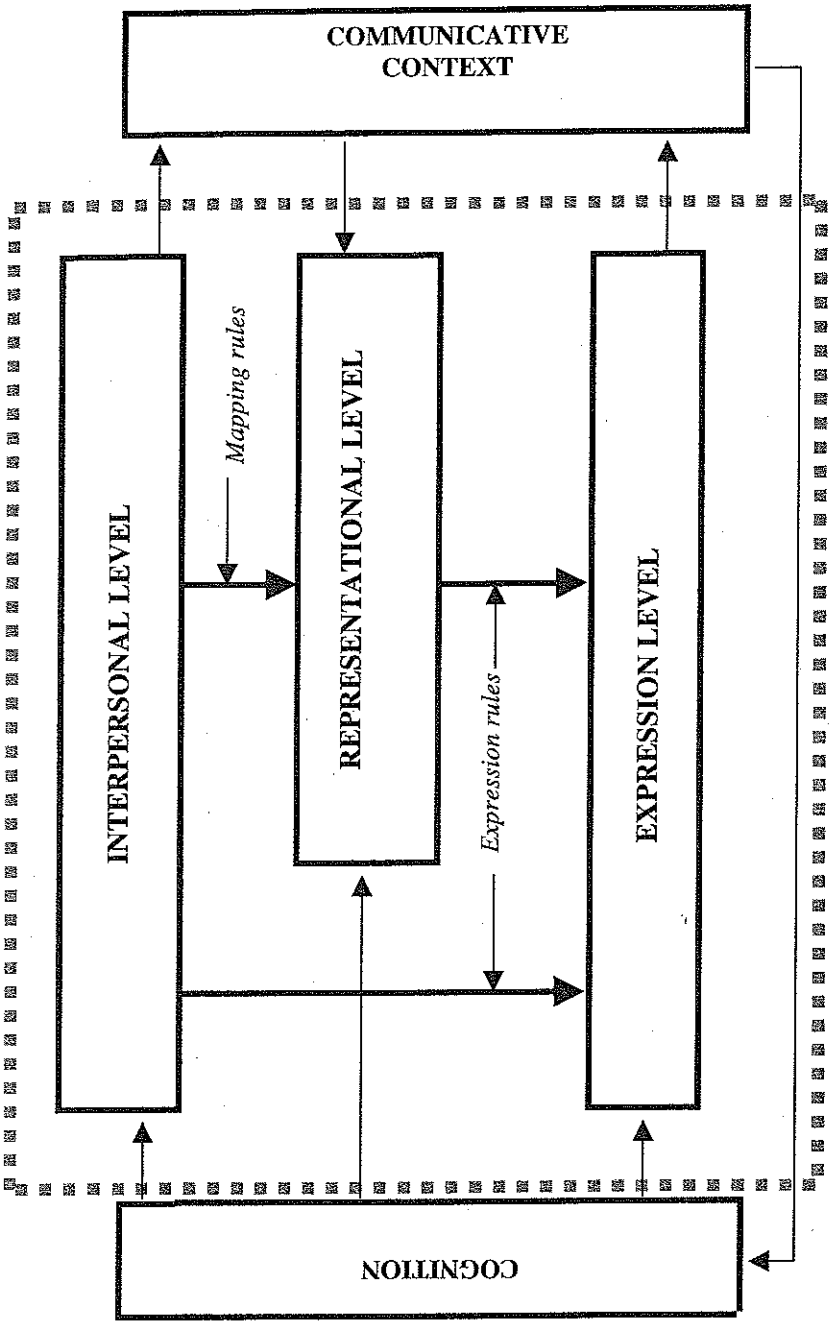

Figure 1. Outline of FDG GRAMMAR

4. Levels and layers

4.1. Introduction

As was mentioned in the previous section, each level of analysis in Figure 1 is organized hierarchically. In this section I will first of all review each of the levels separately. Then I will present the full model and compare it to the earlier layered sentence model, as presented in Hengeveld (1989).

4.2. The interpersonal level

The hierarchical structure of the interpersonal level is presented in Figure 2.

$(M_1: [(A_1: [ILL\ (P_1)_S\ (P_2)_A\ (C_1: [...(T_1)\ (R_1)...]\ (C_1))]\ (A_1))]\ (M_1))$

Figure 2. The interpersonal level

Note that this representation is non-exhaustive, in the sense that there are higher levels of discourse organization which are not captured here. In 4.6 I will return to this point.

At the interpersonal level a central unit of analysis is the move (M), defined in Kroon (1995: 66), following Sinclair and Coulthard (1975), as "the minimal free unit of discourse that is able to enter into an exchange structure". As such, the move is the vehicle for the expression of a single communicative intention of the speaker. Examples of such communicative intentions are inviting, informing, questioning, threatening, warning, recommending, etc.

In order to achieve his communicative intention, the speaker executes one or more discourse acts (A), defined in Kroon (1995: 65) as "the smallest identifiable units of communicative behaviour". A move consists of one central act, which may be supported by one or more subsidiary acts. Every act may be characterized in terms of its illocution (ILL), by which I here mean the illocution as coded in the expression[3] (Dik 1997b: ch. 11). Illocutions are represented as abstract illocutionary frames,[4] which take the participants (P_N) in the discourse act, i.e. the speaker (P_S) and the addressee (P_A), and the communicated content (C), i.e. the information transmitted in the discourse act, as their arguments. In order to build up the communi-

cated content the speaker may have to execute one or more ascriptive acts (T) and one or more referential acts (R): it is the speaker who refers to entities by using referring expressions,[5] and it is the speaker who ascribes properties to entities by applying predicates to these referring expressions.[6]

4.3. The representational level

The hierarchical structure of the representational level is presented in Figure 3.

$(p_1: [(e_1: [(f_1)\ (x_1)]\ (e_1))]\ (p_1))$

Figure 3. The representational level

Note that, again, this representation is non-exhaustive. There are higher levels of semantic organization which are not captured here (see Section 4.6).

In transmitting his communicative intention the speaker will in most cases have to fill his utterance with basic semantic content, i.e. with descriptions of entities as they occur in the non-linguistic world. These entities 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). Within the maximally hierarchical representation given in Figure 3 the propositional content (p_1) contains the description of a state of affairs (e_1), which contains the description of a property (f_1) and the description of an individual (x_1). Note, however, that all entity types may also be expressed directly, i.e. non-hierarchically, through lexical items.

4.4. The expression level

The hierarchical structure of the expression level is presented in Figure 4.

$(Para_1: [(S_1: [(Cl_1: [(PrP_1: [(Lex_1)]\ (PrP_1))\ (RP_1: [(Lex_2)]\ (RP_1))]\ (Cl_1))]\ (S_1))]\ (Para_1))$

Figure 4. The expression level

This representation is just a simplified example of what the expression level might look like. It is an example, since every language has its own

expression possibilities, which lead to different expression units in their grammars. It is simplified, since the expression possibilities of a single language are generally much more refined than in the example I have given here. This simplified example will suffice, however, to illustrate the points I want to make in this chapter. It is a representation of constituent structure which starts at the level of the paragraph (Para), which may consist of one or more sentences (S), each of which may contain one or more clauses (Cl), which may contain one or more predicate phrases (PrP) and referential phrases (RP), each of which may contain one or more lexemes (Lex).

It is important to note that the expression level corresponds with what in Levelt's production is the product of grammatical and phonological encoding. Articulation, the final step, is not a level within the grammar, but the actual output of the grammar.

4.5. Integration

The levels and layers discussed so far are given in Figure 5. The elements in boldface at the interpersonal and representational levels in this figure correspond to units that were present in the layered representation of clause structure defended in Hengeveld (1989) and its upward-layering elaboration in Hengeveld (1997). The correspondences may be listed as follows:

M	**Move**	M	Move
E	**Speech Act**	A	Discourse Act
ILL	**Illocution**	ILL	Illocution
P_N	**Speech Act Participant**	P_N	Discourse Act Participant
X	**Propositional Content**	p	Propositional Content
e	**State of Affairs**	e	State of Affairs
x	**Individual**	x	Individual
f	***Property or Relation***	*f*	*Property or Relation*

Figure 5. Hengeveld (1989/1997)

The major differences at the interpersonal and representational levels, then, concern the presence of the variables C, T and R at the interpersonal level. In other words, a major feature characterizing the current proposal is *downward layering* at the interpersonal level. I will now briefly discuss each of these variables in contrast with their representational neighbours. Examples will follow in Section 5.

The introduction of the variable T at the interpersonal level makes it possible to distinguish systematically between ascription as an act of the

speaker, and the entity type which is described within this act of ascription. Often the speaker will use the description of a zero-order entity (f) to give content to his ascriptive act, but he might also use, for instance, a first-order entity (x) in a classifying or identifying construction. Similarly, the variable R allows for a systematic distinction between the act of referring on the one hand, and the entity type referred to on the other. Frequently the speaker will use the description of a first-order entity to give content to his referential act, but reference to other types of entity is equally possible.

The introduction of the variable C opens up a way to distinguish the information communicated in a discourse act from the nature of the entity type the description of which is used to transmit that information. As a result, it is no longer necessary to assume that every discourse act contains a propositional content, i.e. a third-order entity. In many circumstances it is sufficient, for instance, to communicate information by simple reference to a first-order entity.

A further difference between Hengeveld (1989, 1997) and the current proposal concerns the presence of the Expression Level in the model. The major motivating factor for the introduction of this level is the existence of *meta-linguistic expressions* (Sweetser 1990) or *reflexive language* (Lucy 1993). This phenomenon will be illustrated in Section 6.

4.6. Upward layering

The previous sections have shown that each level or module in the proposed model has its own layered structure. Section 4.5 has stressed the relevance of further *downward layering* at the interpersonal level. Further *upward layering* is necessary too, but will not be dealt with here. A major point, however, is that upward layering is not restricted to the interpersonal level, but is a feature of all levels of analysis. Thus, at the interpersonal level there may be linguistic reasons to distinguish, for instance, between the layers of Turn and Exchange in dialogues; at the representational level languages may give special treatment to the layers of Episode and Story in narratives; and at the expression level there may be reasons to distinguish layers, for example Section and Chapter in written communication. In each case, the possible mappings of interpersonal to representational to expression categories have to be determined partly on a language-specific basis. Thus, a Move is mapped onto an Episode onto a single sentence in narratives in many languages of Papua New Guinea, whereas it is commonly expressed through a paragraph in most Western European languages.

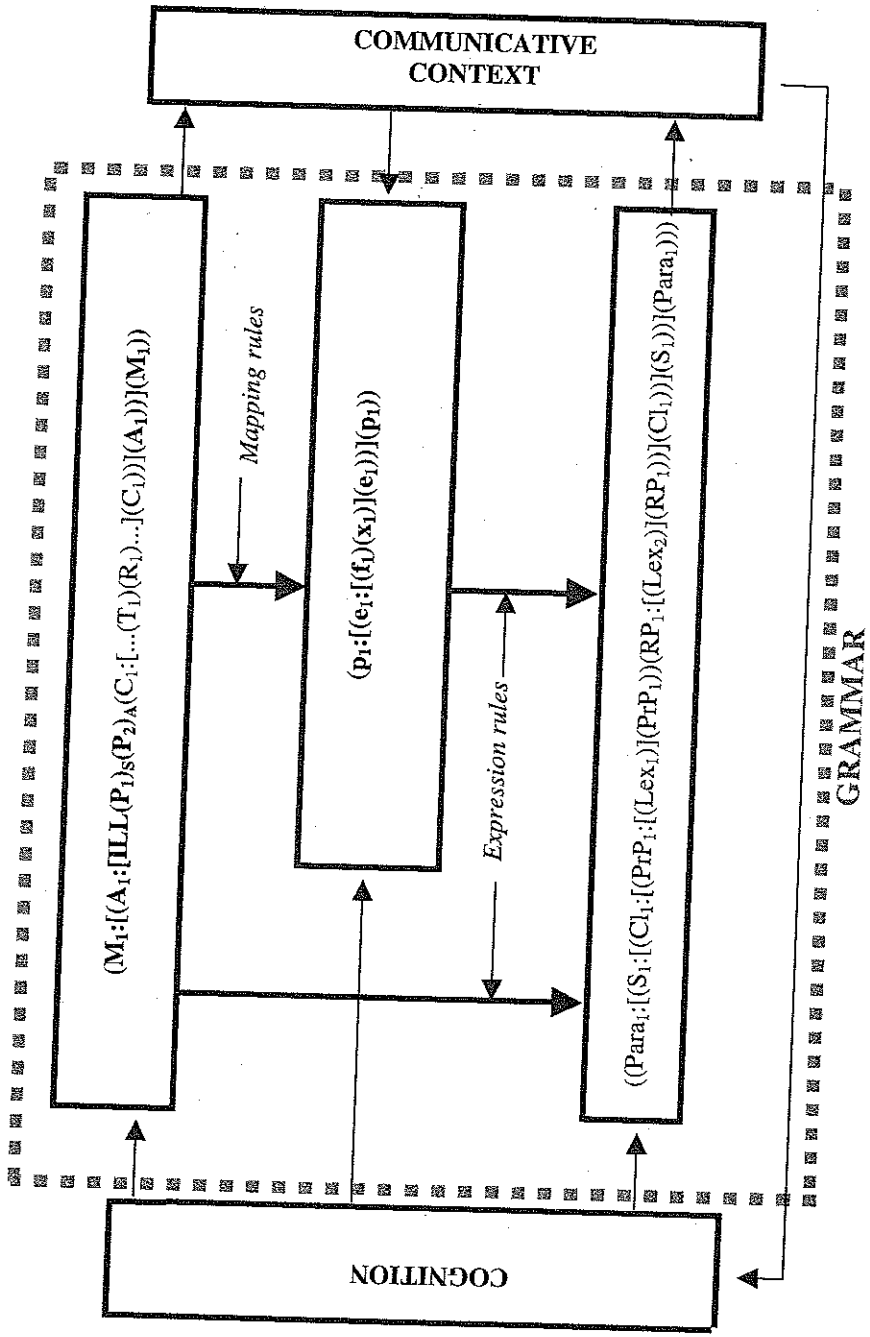

Figure 6. Levels and layers

5. Making choices at the interpersonal level

Within the model proposed here, the construction of linguistic expressions can be interpreted as a decision-taking process on the part of the speaker. This process applies in a left-right and top-down fashion.

Left-right decisions apply at the interpersonal level only. For instance, only after deciding on the communicative intention Warning for a certain move may the speaker select, for instance, the appropriate discourse acts Vocative, and Imperative. Only after deciding on the discourse act Vocative does the necessity to execute a referential act become obvious, etc. The result might then be something like (1):

(1) *George, watch out for that tree!*

Top-down decisions are of a more complex nature. These concern the decisions the speaker makes with respect to (i) the semantic content necessary to successfully execute an interpersonal act, and (ii) the expression category necessary to successfully transmit his communicative intentions.

In what follows I will restrict myself to some examples of this decision-making process. In order to facilitate the interpretation of the representations I use tables in which the various levels correspond with rows: the first row contains the interpersonal units, the second row the representational units, and the third row the expression units. Furthermore, I concentrate on the representation of the relevant part of the example under consideration. Within the example this part is printed in italics; within the representation it is separated from the remaining part by means of vertical lines.

Let us first consider a lexical, i.e. ready-made C. If the speaker wants to express his frustration about the way things are going he may select a lexical item which serves this purpose directly. An expression such as *damn* has pragmatic, not semantic content. Therefore, the speaker may move directly from the interpersonal to the expression level:

(2) *Damn!*

$(A_1: [EXPR\ (P_1)_{Sp}\ (P_2)_{Addr}$	(C_1)	$]\ (A_1))$

	(Lex_1)	

The expressive illocution takes care of the prosodic contour of this one-word expression.

The next example concerns a lexical R. If the speaker wants to draw the attention of someone present in the speech situation he may simply call his name. Here we have a referential act which makes use of a lexical item (Lex) which does not have semantic content, but only referential content. Therefore, the speaker may move directly from the interpersonal to the expression level again:

(3) *John!*

$(A_1: [VOC\ (P_1)_{Sp}\ (P_2)_{Addr}\ (C_1: [$	(R_1)	$]\ (C_1))]\ (A_1))$

	(Lex_1)	

Now consider a case in which the speaker draws on the representational level in order to transmit his communicative intention. The content communicated (C) here is the description of a third-order entity (p) expressed in a clause (Cl):

(4) *The Plaza Santa Ana is the best place to go.*

$(A_1: [DECL\ (P_1)_{Sp}\ (P_2)_{Addr}$	(C_1)	$]\ (A_1))$
	(p_1)	
	(Cl_1)	

The same propositional content (p), expressed as a clause (Cl), may occur as the vehicle which the speaker uses to execute a referential act (R):

(5) I want to know *whether the Plaza Santa Ana is the best place to go.*

$(A_1: [DECL\ (P_1)_{Sp}\ (P_2)_{Addr}\ (C_1: [$	(R_1)	$]\ (C_1))]\ (A_1))$
	(p_1)	
	(CL_1)	

This may be contrasted with a case in which a referential act (R) again refers to a propositional content (p) but is expressed by means of a referential phrase:

(6) *I want to know your opinion.*

$(A_1: [DECL (P_1)_{Sp} (P_2)_{Addr} (C_1: [$	(R_1)	$] (C_1))] (A_1))$
	(p_1)	
	(RP_1)	

Ascriptive acts (T) often make use of the description of a zero-order entity (f) and are then expressed by means of a lexeme (Lex), as in the next example:

(7) *The Plaza Santa Ana is wonderful, don't you think?*

$(A_1: [DECL (P_1)_{Sp} (P_2)_{Addr} (C_1: [$	(T_1)	$] (C_1))] (A_1))$
	(f_1)	
	(Lex_1)	

But the speaker may also decide on a first-order entity (x), expressed as a referential phrase (RP) to transmit the same kind of information, as in the following example:

(8) *The Plaza Santa Ana is a wonderful place, don't you think?*

$(A_1: [DECL (P_1)_{Sp} (P_2)_{Addr} (C_1: [$	(T_1)	$] (C_1))] (A_1))$
	(x_1)	
	(RP_1)	

The examples just given serve to illustrate how linguistic expressions may be seen as the product of a top-down decision process on the part of the speaker, with a certain independence, within limits, of the three levels distinguished within the model.

6. Complex interactions between levels

6.1. Introduction

Let me now turn to more complex interactions between the various levels. As Figure 1 already showed, the communicative context feeds into the representational level. The preceding discourse is of course part of this communicative context, and units within this discourse may be used for later reference. This is achieved in the model presented here by having

these units reappear within the representational level. In this way we may account for constructions like the following:

(9) a. *If you behave well, I'll let you read my poems.*
b. *Is* that *a threat or a promise?*
(10) *My brother-in-law, if* that*'s the right word for him, is a poet.*

In (9b) the demonstrative *that* refers to the preceding move. In (10) it refers to the preceding lexeme *brother-in-law*. These examples thus illustrate that elements from both the interpersonal and the expression levels are available for later reference once they are produced, i.e. they may become part of the representational level in ensuing communication. Reference to elements from the interpersonal and expression levels will be studied separately below. In order to account for these cases the model presented here (Figure 7 below) allows for the copying of elements from the interpersonal and the expression levels to the representational level via the communicative context.

In order to show their different status, variables from both levels are written with lower-case letters when they are used. In the next sections I will give some examples of how these variables are used in analyzing a variety of constructions which involve metacommunicative and metalinguistic expressions.

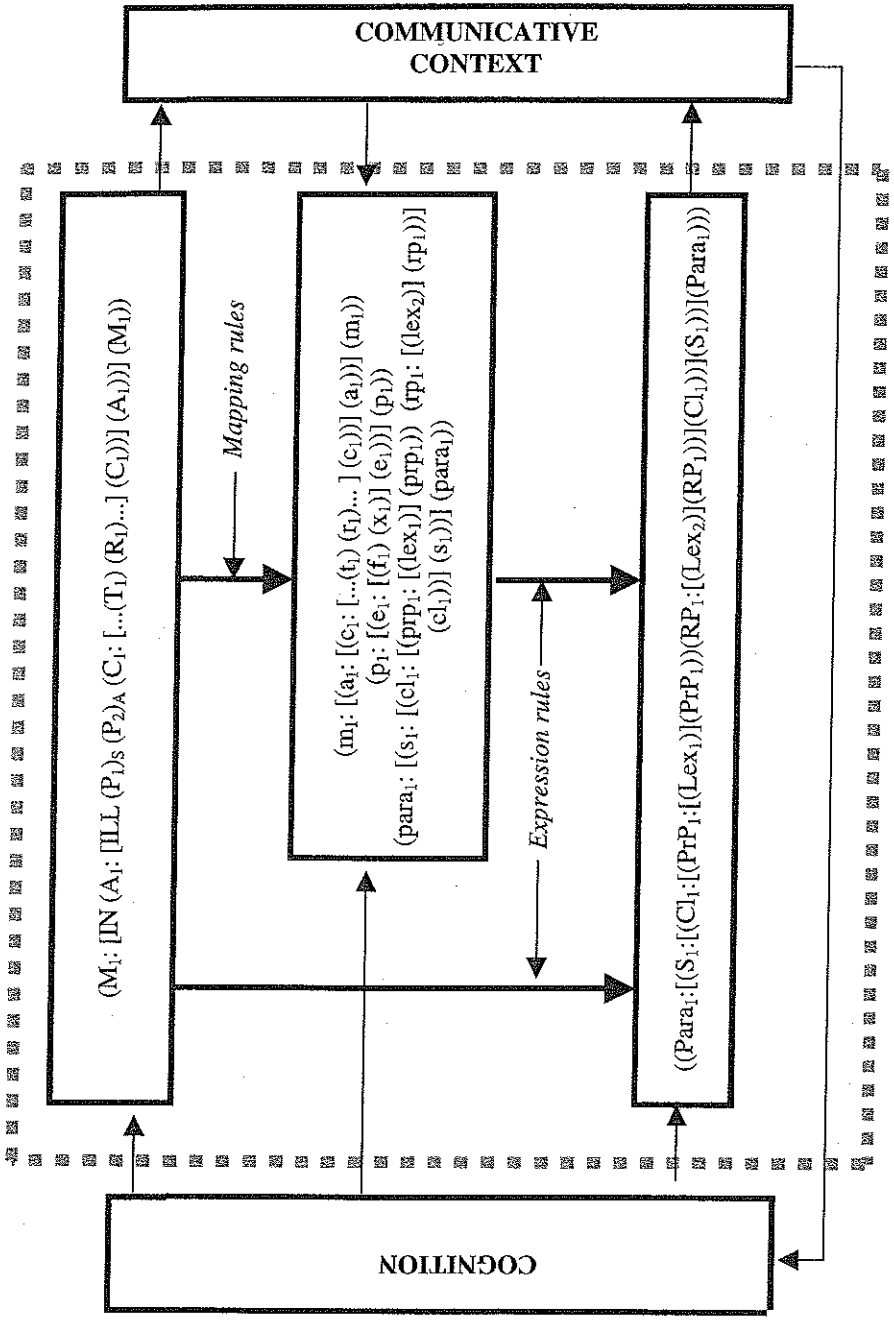

Figure 7. Levels and layers

6.2. Referents from the interpersonal at the representational level

In this section I will discuss two construction types that can only be properly understood if we allow units from the interpersonal level to enter the representational level: *hedged performatives* and *identity statements.*

Consider the following examples from Spanish:

(11) a. *(Me)* *temo* *que* *Juan* *esté* *enfermo.*
to.me I.am.afraid that Juan is.SUB ill
'I'm afraid that Juan is ill.'

b. *Me* *temo* *que* *Juan* *está* *enfermo.*
to.me I.am.afraid that Juan is.IND ill
'I'm afraid that Juan is ill.'

In (11a) the speaker simply expresses his state of mind. The embedded clause, in which the subjunctive is used, represents what he fears might be the case. In (11b) the indicative is used in the embedded clause. This sentence, unlike (11a), is an example of a so-called *hedged performative* (Fraser 1975), in which the embedded clause represents the actual information the speaker wants to transmit, but which he 'hedges' since he thinks the addressee might not like what he has to say. In cases like these the actual communicated content (c) is hidden in the embedded clause (Cl), which itself is the expression of a referential act (R), so that this sentence may be represented as follows:

$(A_1: [DECL\ (P_1)_{Sp}\ (P_2)_{Addr}\ (C_1: [...$	(R_1)	$...]\ (C_1))]\ (A_1))$
	(c_2)	
	(CL_1)	

A second case in which units from the interpersonal level figure at the representational level concerns so-called *identity statements* (Declerck 1988, Hengeveld 1992, Keizer 1992) as illustrated in (12):

(12) The Morning Star ís *the Evening Star.*

Sentences like (12), with a prosodically prominent copula, serve the purpose of stating that the act of referring to an object by using a certain name is equivalent to the act of referring to that same object by another name; hence they are statements about the validity of acts of reference. Therefore the representation of e.g. *the Morning Star* may be as follows:

$(A_1: [DECL (P_1)_{Sp} (P_2)_{Addr} (C_1: [...$	(R_1)	$...] (C_1))] (A_1))$
	(r_2)	
	(RP_1)	

This representation states that in (12) the speaker executes a referential act by making reference to a referential act (r), which is expressed as a referential phrase (RP).

6.3. Referents from the expression level at the representational level

Units from the expression level may enter the representational level as well. I will discuss two cases here: metalinguistic conditionals and direct speech.

An example of a metalinguistic conditional is given in (13):

(13) *This concert, if you want to call it* that, *isn't exactly what I was waiting for.*

The word *that* refers to the preceding word *concert*, which is a case of reference to the code rather than to the message. Thus there is a referential act (R) in which reference is made to a lexeme (lex) which is expressed as a lexeme (Lex), as indicated in the following representation:

$(A_1: [DECL (P_1)_{Sp} (P_2)_{Addr} (C_1: [...$	(R_1)	$...] (C_1))] (A_1))$
	(lex_1)	
	(Lex_2)	

A second case in which reference is to the code rather than to the message concerns direct speech. Reporting direct speech may be interpreted as a form of mimicry (Clark and Gerrig 1990), where direct speech can be seen as imitated code. This is evident from the fact that direct speech reports respect the original language and/or dialect, as in:

(14) *He said: "¿Cómo estás?".*

and that direct speech reports may contain meaningless noise, as in:

(15) *He said: "gagugagugagu".*

The latter example furthermore shows that the imitated code can be any part of the expression level.

In (14) the speaker refers (R) in the second argument of the verb *say* to a previous sentence (s) which in the actual expression is repeated through imitation. This example may thus be represented as follows:

$(A_1: [DECL (P_1)_{Sp} (P_2)_{Addr} (C_1: [...$	(R_1)	$...] (C_1))] (A_1))$
	(s_1)	
	(S_1)	

7. Conclusion

In this chapter I have presented a basic outline of FDG and illustrated its appropriateness by analyzing a number of construction types that would have been difficult to handle in earlier versions of FG. Many aspects of FDG require further elaboration. These aspects can be grouped together into five categories:

(a) What are the restrictions on left-right decisions within the production process, i.e. what are the systematic restrictions on the internal constitution of the interpersonal level?
(b) What are the restrictions on top-down decisions within the production process, i.e. what do the interfaces between the three levels of grammar look like?
(c) What is the internal structure of the cognitive component and how does it interact with the three levels of grammar?
(d) What is the internal structure of the contextual component, particularly with respect to the representation of the non-linguistic context, and how does it interact with the three levels of grammar?
(e) None of these questions is new to FG. I hope that the model of FDG presented here will provide the basis for an integrated approach to these central issues in linguistic theory.

Notes

1. This chapter is the product of long and lively discussions with a great number of people. The Amsterdam FG-DISCO group has met at irregular intervals over the last few years, and has been a very inspiring environment for discussion of the topics dealt with in this chapter. I am indebted to the members of this group, Machtelt Bolkestein, Mike Hannay, Caroline Kroon, Lachlan Mackenzie, Rodie Risselada, and Co Vet, for the many open-minded and inspiring discussions we have had. A special word of thanks goes to Mike Hannay, for a revival of the group's activities when the time was there, and to Lachlan Mackenzie for joining this revival. Outside the FG-DISCO group, and extending over the same period, I have had countless

discussions with Gerry Wanders about the topic of this chapter, in which she has manifested herself as a critical and generous sparring partner. I am grateful to her for her help. Given the extensive interaction with all of these colleagues over a long period of time, it is hard to do justice to their individual contributions to the contents of this chapter. As a result, I do not want to claim originality for many of the ideas presented in this chapter, only for the way these are put together.

2. See Van den Berg (1998), Connolly (1998), Connolly et al. (1997b), Crevels (1998), Gómez Soliño (1996), Hengeveld (1997), Jadir (1998), Kroon (1997), Liedtke (1998), Mackenzie (1998, 2000), Moutaouakil (1998), Rijkhoff (1995), Steuten (1997, 1998), Vet (1998).
3. I take a broad view of coded illocution here, in that among the encoding possibilities I include not only sentences types, but also prosodic encoding, morphological encoding, and conventionalized lexicalization patterns.
4. This slot may alternatively be occupied by a performatively used speech-act verb.
5. Cf. Lyons (1977: 177): "... the speaker ... invests the expression with reference by the act of referring".
6. Cf. Lyons (1977: 161): "For example, in saying of a particular flower that it is red, we ascribe to it the property of redness, but we predicate of it the predicate 'red'".

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