

Layers and operators in Functional Grammar¹

KEES HENGEVELD

Institute for General Linguistics, University of Amsterdam

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1. INTRODUCTION

I have argued elsewhere (Hengeveld, 1987b) that for a proper treatment of modality the clause model used in Functional Grammar (Dik, 1978, 1980) should be adapted in such a way that a number of different layers can be distinguished. My main argument there was that predications, used in Functional Grammar to represent linguistic expressions, have two different functions: a DESCRIPTIVE function and a CONTENT function. A predication not only gives a description of the external situation the speaker refers to within his speech act, it also represents the propositional content or message unit processed within that speech act. Subjective and evidential modalities, which express a propositional attitude, should take a predication in its content-representing function in their scope, whereas objective modalities, i.e. those modalities that are concerned with the actuality status of a State of Affairs (SoA), should take a predication in its SoA-designating function in their scope. A clause model should therefore be able to distinguish between these two functions of predications.

In this paper I want to refine the model in such a way that other categories of operators can be included and then proceed to explore the possibilities of

[1] This paper has profited considerably from discussions with and the detailed comments of Machtelt Bolkestein and Simon Dik. I am furthermore grateful to Casper de Groot, Peter Kahrel, Lachlan Mackenzie, Hotze Mulder, Jan Rijkhoff, Nigel Vincent, and two anonymous referees of *JL* for valuable comments on earlier versions of this paper, a preliminary version of which appeared as *Working Papers in Functional Grammar* 27 (1988). Those unfamiliar with the theory of Functional Grammar may refer to Dik (1978) or to the summary given in Dik (1980). Abbreviations used in this paper – *General*: FG, Functional Grammar; SoA, State of Affairs; A, Addressee; S, Speaker; sg, singular; pl, plural; du, dual; Nmlztn, Nominalization; Cop, Copula. *Wordclasses*: β , any wordclass; N, noun; V, verb; A, adjective. *Variables*: α , any variable; E, speech act; X, potential fact; e, state of affairs; x, individual. *Illocutionary frames*: ILL, any illocutionary frame; DECL, declarative; INT, interrogative; IMP, imperative. *Semantic functions*: Sem, any semantic function; Ag, Agent; Go, Goal; ϕ , Zero; Exp, Experiencer; Poss, Possessor; Loc, Location; So, Source; Temp, Time; Circ, Circumstance; Evid, Evidence; Mot, Motivation. *Predicate operators*: Pf, Perfective; Ingr, Ingressive; Res, Resultative; Neg, Negation. *Predication operators*: Pres, Present; Fut, Future; Rem. past, Remote past; Rec. past, Recent past; Iter, Iterative; Nec, Necessitative; Irr, Irrealis. *Proposition operators*: Inf, Inferential; Quot, Quotative; Cert, Certainty; Prob, Probability. *Illocution operators*: Mit, Mitigation; Reinf, Reinforcement.

the resulting structure. In doing so I will touch upon a number of related issues which have received much attention lately.

- (i) Restrictions on the ordering of tense, mood, and aspect (TMA) morphemes (Bybee, 1985; Foley & Van Valin, 1984).
- (ii) The representation of sentences in Functional Grammar, in relation to the treatment of tense (Vet, 1986).
- (iii) Restrictions on the selection and expression of TMA-morphemes in subordinate constructions, in relation to the degree of sententiality of the subordinate construction (Lehmann, forthcoming).
- (iv) The representation of non-restrictive constructions and predication-combining in Functional Grammar (Hannay & Vester, 1987).

In Section 2 I present a clause model which shares its layered structure with that proposed by Foley and Van Valin (1984), and uses the format proposed in Vet (1986) for the representation of individual layers. In Section 3 I give a classification of operators according to their relative scope by associating them with the different layers distinguished within the clause model. Section 4 explores the implications of the model for the classification and treatment of subordinate constructions.

2. A TWO-LEVEL ANALYSIS OF THE CLAUSE

The basic idea behind the clause model presented here is that every utterance can be analysed at two levels: the REPRESENTATIONAL (Bühler, 1934) and the INTERPERSONAL (Halliday, 1970) level. At the representational level a SoA is described in such a way that the addressee is able to understand what real or hypothesized situation is referred to. At the interpersonal level this situation is presented in such a way that the addressee is able to recognize the communicative intention of the speaker. Thus the representational level is concerned with the narrated event, the interpersonal level with the speech event (see Jakobson, 1971).

2.1. *The representational level*

For the representation of narrated events I use Vet's (1986) proposal concerning the representation of sentences. Vet argues that sentences, like terms, are referring expressions. The entities they refer to are SoAs, which take place in some time-space region. To arrive at a unified account of terms and sentences, he proposes a general schema for the representation of sentences, which is exemplified in (1):

$$(1) (e_1: [\text{Write}_v(x_1: \text{John}_N(x_1))_{Ag}(x_j: \text{book}_N(x_j))_{Go}] (e_1))$$

The predication, between square brackets, conforms to FG-conventions. It is built on the basis of a PREDICATE FRAME, which contains a number of

argument positions (x_i, x_j) , each provided with a semantic function (Agent, Goal²), and a predicate which specifies the relation between these arguments. In the argument positions of the predicate frame TERMS, expressions with referential potential, are inserted. The predication as a whole is presented by Vet as a restrictor of the sentence variable e , symbolizing some time-space region. What is relevant here is that I interpret this variable as a variable representing the narrated event. I will return to some details and advantages of Vet's analysis in the sections on operators and satellites.

2.2. *The interpersonal level*

Speech events may be analysed in an analogous way: the participants in a speech event are the speaker, the addressee and the transmitted content or message. The relation between these three participants is expressed by an abstract illocutionary frame, which represents the basic illocution of the linguistic expression. An example of an illocutionary frame with its paraphrase, based on Dik (forthcoming), is given in (2):

- (2) DECL (S) (A) (X₁) Speaker (S) wishes the Addressee (A) to add the content (X₁) to his pragmatic information.

The analysis presented here, which can be considered a FG equivalent of Ross' (1970) performative analysis, leads to the general schema for the representation of speech events given in (3), where the speech event variable E, symbolizing the current time-space region, is restricted by a clause designating the speech act which occupies this time-space region:

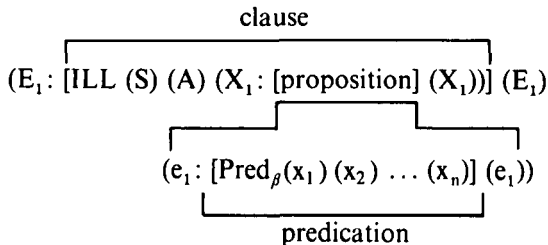
- (3) (E₁: [ILL (S) (A) (X₁: [proposition] (X₁))] (E₁))

Here an abstract illocutionary frame (ILL) specifies the relation between the speaker (S), the addressee (A) and the content of the utterance (X₁).

2.3. *The clause*

The representations of narrated event and speech event may be combined in a single representation of the utterance, as in (4):

- (4) The representation of utterances



[2] The semantic function Goal covers all arguments designating entities to which an action is applied.

In this analysis of the clause a predication fulfils two different functions: it designates a SoA at the representational level, and it represents the content of a speech act at the interpersonal level. To distinguish these two uses of predications I use the term 'predication' to refer to the former and 'proposition' to refer to the latter function.

Starting from the innermost layer, the predication, the functions of the different layers distinguished in (4) can be understood in the following way. A predication gives a description of a set of possible SoAs. By inserting a predication into a narrated event slot it becomes a referring expression. The entity it refers to is the real or hypothesized situation the speaker has in mind. By inserting a fully specified predication into the proposition slot of an illocutionary frame it becomes an expression referring to the information unit or content transmitted in some speech act. The illocutionary frame contains instructions for the addressee about what the speaker wants him to do with this information unit. By inserting a clause into a speech event slot it becomes an actual speech act or utterance-token (Lyons, 1977: 35).

The representation of a simple utterance thus contains four different variables, restricted by different linguistic units, resulting in expressions referring to different kinds of entity:

(5) Variables and restrictors

Var	Restrictor	Clause unit	Reference
x	Pred _N	(x ₁ : Pred _N (x ₁))	Individual
e	Predication	(e ₁ : [Predication] (e ₁))	State of affairs
X	Proposition	(X ₁ : [Proposition] (X ₁))	Potential fact
E	Clause	(E ₁ : [Clause] (E ₁))	Speech act

The analysis therefore provides variables for first (x), second (e), third (X), and fourth (E) order entities. The E-variable is different from the other three kinds of variable in that it refers to the speech event itself rather than to one of the entities to which reference is made within that speech event. E-variables are created during the process of speaking. A speaker and his addressee(s) make use of them later when remembering or referring to a particular utterance. The E-variable can be seen as containing information about the time and place of, and the participants in the speech event. As such it provides clues as to the reference of what Jakobson (1971) called shifters: grammatical units of which the general meaning cannot be defined without making reference to the speech event within which they are used, such as personal and demonstrative pronouns, and absolute tenses. The E-variable provides the deictic centre (see Comrie, 1985: 36) on the basis of which the

reference of these elements is determined.³ It will be of some use in defining tense distinctions (see 3.3).

3. OPERATORS

3.1. General outline

Leaving aside term operators, the clause model given in (4) provides four positions for operators, as indicated in (6):

(6) Operators (positions)

$(E_1: [\pi_4 \text{ ILL } (S) (A) (\pi_3 X_1: [\text{proposition}] (X_1))] (E_1))$

$(\pi_2 e_1: [\pi_1 \text{ Pred}_\beta (x_1) (x_2) \dots (x_n)] (e_1))$

π_1 : predicate operators π_3 : proposition operators

π_2 : predication operators π_4 : illocution operators

Definitions for these four classes of operators are given in (7), and a tentative classification of operators in terms of this four-fold distinction is given in (8):

(7) Operators (definitions)

- (i) PREDICATE OPERATORS capture the grammatical means which specify additional properties of the set of SoAs designated by a bare predication.
- (ii) PREDICATION OPERATORS capture the grammatical 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.
- (iii) PROPOSITION OPERATORS capture the grammatical means through which the speaker specifies his attitude towards the (truth of the) proposition he puts forward for consideration.
- (iv) ILLOCUTION OPERATORS capture the grammatical means through which the speaker modifies the force of the basic illocution of a linguistic expression so as to make it fit his communicative strategy.

[3] Cf. Lyons' (1977: 170) remark that 'We cannot say of a sentence like "That man over there is my father" that it expresses a true or false proposition unless we know who has uttered it and who is the person being referred to by means of the expression "that man over there".'

(8) Operators (classification)

Semantic domain	Grammatical category
Predicate operators	
Internal temporal constituency	Imperfective/Perfective, Phasal Aspect
Presence or absence of property or relation expressed by predicate	Predicate negation
Predication operators	
Time of occurrence	Tense
Frequency of occurrence	Quantificational Aspect
Actuality of occurrence	Objective mood/Polarity
Proposition operators	
Source of proposition	Evidential mood
Commitment to proposition	Subjective mood
Illocution operators	
Weakening strategy	Mitigating mode
Strengthening strategy	Reinforcing mode

The crucial difference between predicate operators and predication operators is that predication operators are concerned with the occurrence or setting of a SoA rather than with its properties. Thus predicate operators are related to the descriptive function of predications, whereas predication operators are related to the referring function of predications.

The crucial difference between predication operators and proposition operators is that proposition operators are concerned with the attitude of the speaker towards the content of his speech act, rather than with the occurrence of the event to which reference is made within that speech act. Thus proposition operators are related to the content function of propositions.

The crucial difference between proposition operators and illocution operators is that illocution operators are concerned with the possible perlocutionary effects of a speech act, rather than with its content. Thus illocution operators are related to the communicative intention with which the speaker presents this content.

The general functions of the four operator types can now be defined as in (9):

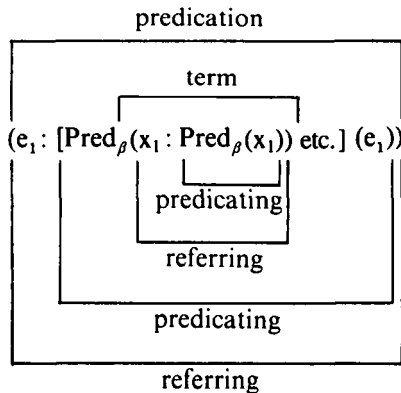
- (9) π_1 : Modification of the internal structure of the SoA.
- π_2 : Qualification of the SoA as a whole.
- π_3 : Qualification of the proposition.
- π_4 : Modification of the basic illocution.

In what follows I give some examples of how distinctions in the field of tense, mood, aspect, polarity and illocution can be interpreted in terms of this fourfold classification. It is not my intention to provide a fully-fledged account of the typology of TMA systems, but rather to adduce some evidence for the distinction between four types of operator as it is made here.

3.2. *Operators at the representational level*

The distinction between predicate operators and predication operators is motivated by the fact that at the representational level two functions should be fulfilled: first of all, the speaker should create a proper description of the situation he wishes to refer to; secondly, he should relate this description to the situation he has in mind. I will refer to these two functions of the predication as its **PREDICATING** and **REFERRING** functions. The same distinction may be applied to terms: within the predication they are referring expressions, but their internal make-up consists of the application of predicates to a term variable. When terms are inserted into argument slots they become expressions referring to individuals existing in some world. When predications are inserted into SoA slots they become expressions referring to situations obtaining in some world. This correspondence between terms and predications is stressed in Vet (1986). The following figure tries to capture these two functions of predications and terms:

(10) Predicating and referring functions of predications and terms



Predicate operators fulfil a function in building up a proper description of the situation the speaker wishes to refer to: without affecting the argument structure of a predicate frame, predicate operators specify properties of the

SoAs designated by bare predications which are of sufficient generality to be coded grammatically rather than lexically within a given language. Predication operators are related to the referring function of predications: without affecting the properties of the SoAs designated by a predication they relate the description of a SoA to the occurrence of that SoA in a real or imaginary world.

3.2.1. *Predicate operators.* Given the property-assigning function of predicate operators, to make a grammatical category qualify for predicate operator status it should be such that the characteristics of the set of SoAs designated by a predication in which the grammatical category is applied are different from the characteristics of the set of SoAs designated by the same predication in which the predicate operator is not applied. The general properties expressed through predicate operators may include:

- (i) The 'internal temporary constituency' (Comrie, 1976) of the situation referred to.
- (ii) The presence or absence of the relation or property expressed by the predicate.

Many, though not all, aspectual distinctions seem to express properties of the first type. This can most easily be demonstrated by looking at the typology of SoAs.

What is generally called 'Aktionsart' is handled in FG in terms of a typology of SoAs (see Dik, 1978, forthcoming; Vester, 1983; de Groot, 1985). The main parameters in the typology of SoAs are: [\pm dynamic], [\pm control], [\pm telic], [\pm momentaneous]. In different combinations these parameters define most of the SoA-types.

Many aspectual distinctions are 'feature changing', in the sense that they change the value of one of the aforementioned parameters. For instance, the English Perfect, Progressive and Prospective turn a [+dynamic] SoA into a [-dynamic] one. Steedman (1977: 221, see also Goossens, 1985) demonstrates that English sentences involving these aspectual categories are similar to states, since they cannot occur in pseudo-cleft constructions of the type given in (11):

- (11) *What he did was be running

In a similar way, the perfective/imperfective distinction may affect the momentaneousness of a SoA, as in (12), where the imperfective value of the progressive cancels the momentaneousness of *reach* (see Comrie, 1976: 43):

- (12) (a) The soldiers reached the summit. [+Mom]
 (b) The soldiers were reaching the summit. [-Mom]

I take it that this feature-changing property of many aspectual categories indicates that they can be analysed as operating SoA-internally and should be taken into account in a typology of SoAs. This view is supported by the fact that dynamicness and momentaneousness are 'inherent' features of predicates, as opposed to, for instance, control and telicity, which may depend on features of arguments and satellites (see de Groot, 1985: 75).

Apart from aspectual distinctions, negative polarity can be analysed as operating on the predicate in sentences like the following (see Vet, 1986):

(13) Charles is not unintelligent.

On one interpretation of this sentence, it is claimed that it is the case that Charles has the property 'not-unintelligent'. On another, it is claimed that it is not the case that Charles has the property 'unintelligent'. Under the first interpretation the negative element can be seen as the expression of a predicate operator, under the second as the expression of a predication operator (see 3.2.2).

It is a general property of the categories discussed here that they present borderline cases on the derivational-inflexional continuum (see Bybee, 1985), in the sense that languages may differ with respect to the derivational or inflexional realization of these categories. A case in point is the perfective/imperfective distinction in the Slavic languages, which seems to be analysable as partly derivational, partly inflexional. Predicate negation in English, as illustrated in (13), is another illustration. Consider:

(14) Charles is not intelligent.

This sentence imposes the 'it is not the case that...' interpretation, given the availability of (15):

(15) Charles is unintelligent.

The use of *not* as the expression of a predicate operator remedies the ungrammaticality of **unintelligent*, but would be quite exceptional or unacceptable in other cases.

3.2.2. *Predication operators.* The kinds of distinctions to be expressed through predication operators have been characterized as being concerned with the occurrence of a SoA rather than with its properties. A set of SoAs designated by a predication may be limited to the situation(s) the speaker has in mind by evaluating it with respect to:

- (i) time of occurrence
- (ii) frequency of occurrence
- (iii) actuality of occurrence

All tense distinctions can be analysed as operating on predications. They locate the SoA designated by a predication on the time axis relative to the

speech act or to other SoAs. Vet (1986) proposes to analyse tensed predications in the following way:

- (16) (Tense e_1 : [predication] (e_1))

Following Comrie (1985), a distinction can be made between absolute, relative, and absolute-relative tense (cf. also Salkie, this volume). The time of occurrence of a SoA may be evaluated relative to the time of occurrence of the speech act, in which case the variable E provides the 'deictic centre' (Comrie, 1985: 36) for absolute time reference. Or it may be evaluated relative to the occurrence of another SoA, in which case the narrated event variable e provides the reference point for relative time reference. An adaptation of Comrie's (1985: ch. 6) formalization in line with the variables used here leads to:

- (17) (a) Absolute tense: e_1 relative E_1
 (b) Relative tense: e_1 relative e_2
 (c) Absolute-relative tense: e_1 relative e_2 relative E_1

Examples are:

- (18) (a) I crossed the street e_1 before E_1
 (b) Having crossed the street, ... e_1 before e_j
 (c) I had crossed the street, ... e_1 before e_j before E_1

Thus the reference points needed to give a description of Tense distinctions are directly available within the clause model used here.

Apart from Tense distinctions, some aspectual categories qualify for predication operator status. The aspectual categories I have in mind give a specification of the frequency of occurrence of a SoA, such as Semelfactive and Iterative aspect. Dik (1985: 9) uses the term Quantificational Aspect as a cover term for aspectual categories like these. Rather than modifying the internal structure of a SoA, these aspectual categories specify how many times a SoA with a given internal structure occurs (occurred, will occur). Separating the frequency of occurrence of a SoA from the internal temporal constituency of that SoA implies that both categories can in principle be specified independently of one another. Comrie (1976: 30) showed this to be the case for English. The following example from Hidatsa confirms his analysis:

- (19) *Hidatsa* (Siouan, Matthews, 1964)
 Wíó i hírawe ki ksa c
 woman she sleep INGR ITER MOOD
 'The woman fell asleep again and again'

The morpheme *ksa* indicates that the speaker refers to a situation that occurred frequently. The morpheme *ki* characterizes each individual occurrence of the situations referred to as being viewed from its starting

point. The different status of the two aspectual categories can be demonstrated by the *happen* paraphrases given in (20):

- (20) (a) It often happened that the woman started to sleep
 (b) *It started to happen that the woman often slept

To distinguish between the two types of Aspect I will use the term 'Qualificational Aspect' to refer to those aspectual distinctions which can be thought of as expressed by predicate operators, and I will continue to use the term 'Quantificational Aspect' to refer to the aspectual distinctions which can be thought of as expressed by predication operators.

Example (19) could be represented as in (21):

- (21) (Iter. e_1 : [Ingr. hírawe_v (x_1 : wíō_N (x_1))_d] (e_1))

But Quantificational Aspect can also be interpreted as a means of SoA-quantification,⁴ comparable to term-quantification. Under this analysis quantificational aspects can be represented as:⁵

- (22) Quantificational Aspect
 (i) ($1e_1$: [predication] (e_1)) semelfactive
 (ii) (me_1 : [predication] (e_1)) iterative

The third TMA category which can be seen as operating on predications is OBJECTIVE MODALITY.⁶ Linguistic means giving expression to objective modal distinctions can be regarded as the output of an evaluation process on the part of the speaker with regard to the actuality status of a SoA. The knowledge on which the speaker has to base this evaluation may be subdivided into the two types given in (23):

- (23) Two types of knowledge
 (i) Knowledge of possible situations obtaining in the speaker's conception of reality or of a hypothesized universe.
 (ii) Knowledge of possible situations relative to some system of moral, legal or social conventions.

The speaker bases his epistemic and deontic evaluations on (23.i) and (23.ii), respectively. Depending on the degree of compatibility of a SoA designated by a predication with the speaker's knowledge of either type the two ranges of possibility and permissibility in (24) can be established:

[4] This was suggested to me by Casper de Groot.

[5] The difference between non-generic and generic predications can be accounted for in a similar way if the latter are represented, parallel to generic terms, in the following way, which was suggested to me by Simon Dik:

(i) (ge_1 : [predication] (e_1))

The interpretation of the generic operator (*g*) in this context is something like: the statement is valid for any instantiation of the SoA designated by the predication.

[6] See Hengeveld (1987b) for a more elaborate treatment of modality.

(24) Objective modality

- (i) Certain – Probable – Possible – Improbable – Impossible
- (ii) Obligatory – Acceptable – Permissible – Unacceptable – Forbidden

Elements giving expression to objective modal distinctions take a SoA as designated by a predication in their scope, as they represent the output of speaker's evaluation of the probability or desirability of occurrence of that SoA in terms of his knowledge. POLARITY distinctions operating on the predication, paraphrasable as 'it is the case that' and 'it is not the case that', are closely related to objective modality. They differ from the objective modal distinctions discussed so far in that they characterize a SoA as simply actual or non-actual.

3.3. *Operators at the interpersonal level*

The distinction between proposition operators and illocution operators is motivated by the fact that at the interpersonal level two functions should be fulfilled: firstly, the speaker should transmit some content, which may have different sources; secondly, he should indicate what he expects the addressee to do with this content. Proposition operators are used by the speaker to specify to what degree he feels committed to the truth of the content he transmits, and they are therefore largely restricted to declarative sentences. Illocution operators capture the grammatical means which the speaker uses to modify the illocutionary force of his utterance in view of the possible perlocutionary effects of his speech act. Without affecting the basic illocution expressed by the abstract illocutionary frame, illocution operators specify strategic modifications of this basic illocution.

3.3.1. *Proposition operators.* Following Chung and Timberlake (1985: 244), I use the term EPISTEMOLOGICAL MODALITY for those linguistic means through which the speaker expresses his commitment with regard to the truth of a proposition. Two subtypes are to be distinguished: SUBJECTIVE MODALITY, through which the speaker specifies the kind and degree of his commitment; and EVIDENTIALS (see e.g. Chafe & Nichols, eds. 1986; Willett, 1988), through which the speaker specifies how the proposition came to his knowledge. What both subtypes have in common is the relevance of the source of the information contained in a proposition. In the case of evidentials this source is characterized as different from the speaker. In the case of subjective modality the speaker is the source. This source-revealing character of subjective modality is reflected in one of the differences between subjectively and objectively modalized sentences, as illustrated in (25):

- (25) (a) A: It is possible that it will rain tomorrow.
- B: Who says so?

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- (b) A: Perhaps it will rain tomorrow.
 B: *Who says so?

Questioning the source of the information contained in sentence (25b) is clearly out of place, as the modal adverb indicates that the speaker is expressing his personal opinion. The different sub-distinctions to be made within the epistemological modality type are:

(26) Epistemological modality

Source	Modality		
Speaker	Subjective	Epistemic	Certainty Probability Possibility
Evidence	Inferential	Boulomaic	Wishing, Hoping
3rd person	Quotative		
Experience	Experiential		

The following examples are from *Hidatsa*, a language making extensive use of elements expressing epistemological modality:

- (27) *Hidatsa* (Siouan, Matthews, 1964)
 wacéo úixi a áciwi ski
 man antelope he track CERT
 'The man sure tracked an antelope.'

- (28) wio a riiti rahe
 woman she hungry QUOT
 'I've been told that the woman is hungry.'

Distinguishing between two different types of modality again implies that both can be specified independently of one another. First, consider the lexical expression of both modalities in the English example (29):

- (29) It is certainly possible that John is ill.

The subjective modal adverb expresses almost the opposite of the objective modal adjective. Yet there is nothing wrong with this sentence. The point is, as Lyons (1977: 49) puts it, that 'logical probability can be defined, and measured, as a property of some system of propositions in abstraction from the beliefs of the users of that system'. For an inflexional realization of both categories consider the Turkish example (30):

- (30) *Turkish* (Altaic, Lewis, 1967: 127)
 Gel-me-meli-ymiş-siniz
 come-NEG-NEC-INF-2PL
 'It seems you ought not to come.'

Here the subjective inferential follows the objective necessitative, thus reflecting the ordering assumed for predication and proposition operators. This sentence can therefore be represented as in (31):

- (31) (Inf. X_1 : [(Nec. e_i : [Neg. gel- v (dm x_i : p2 (x_i))] (e_i))] (X_1))

3.3.2. *Illocution operators.* Two of the strategies in which illocution operators can be used are mitigation and reinforcement (see Haverkate, 1979). The general function of mitigation is to reduce the force of a speech act. The goals of mitigation can be more specific: to prevent loss of face, be polite, leave room for the addressee to refuse or disagree, make the addressee feel comfortable, etc. The general function of reinforcement is to impose the speech act more strongly upon the addressee. The goals of reinforcement too can be more specific: to convince the addressee, express impatience, show superiority, etc.

The main reason to distinguish between proposition operators and illocution operators is that whereas the former are largely restricted to declarative sentences, which means they operate inside the illocutionary layer, the latter can be applied to sentences with all kinds of basic illocution, that is they operate outside the illocutionary layer. The sentences in (32) show the general applicability of the reinforcing use of the Spanish subordinator *que*, those in (33) the general applicability of the mitigating particle *a/ya* in Mandarin Chinese:

- (32) *Spanish* (Indo-European, Hengeveld, 1987a)
- (a) ¡Que no me gusta nada esa película!
 that not me please.PRES.IND.3SG nothing that movie
 'I don't like that movie at all!'
- (b) ¡Que no te marches mañana!
 that not yourself leave.PRES.SUBJ.2SG tomorrow
 'Don't you leave tomorrow!'
- (c) ¡Que si vienes mañana!
 that whether come PRES.IND.2SG tomorrow
 'Are you coming tomorrow?!'
- (33) *Mandarin Chinese* (Sino-Tibetan, Li & Thompson, 1981)
- (a) Wo bing mei zuo-cuo a/ya
 I on.the.contrary not do-wrong MIT
 'On the contrary, I didn't do wrong.'
- (b) Chi-fan a/ya
 eat-food MIT
 'Eat, OK?!'

- (c) ni xiāng bù xiāng tā a/ya
 You think not think he MIT
 'Do you miss him?'

It is difficult to give a proper translation of the Mandarin examples. In general, the mitigating particle reduces the forcefulness of the speech act. Thus (33a) is 'less belligerent', (33b) 'much/more friendly', and (33c) 'much softer' than their non-mitigated counterparts (Li & Thompson, 1981: ch. 7.5).

3.4. *Some hypotheses*

The ordering and classification of operators proposed here leads to the formulation of a number of hypotheses. All of these hypotheses have a provisional character and cannot be fully investigated here. Nevertheless they follow from the model proposed here and present promising guidelines for future research.

Hypothesis 1 seems to be compatible with the results of Bybee (1985)⁷ and Foley and Van Valin (1984), which inspired its present formulation.

(34) Hypothesis 1

The preferred order of operators is $\pi_4 \pi_3 \pi_2 \pi_1 \text{Pred}_\beta$
 or $\text{Pred}_\beta \pi_1 \pi_2 \pi_3 \pi_4$

I have not been able to find an example from any language in which all four categories are present in one sentence, but the order also holds for subsets of operators. Consider, for instance, the following examples from Hidatsa, Diegueño, and Quechua:

(35) *Hidatsa* (Siouan, Matthews, 1964)

- (a) wíó i hírawe ki ksa c Pred_β π₁ π₂ π₃
 woman she sleep INGR ITER PROB
 'The woman fell asleep again and again.'
- (b) Wíra i ápáari ki stao wareac Pred_β π₁ π₂ π₃
 tree it grow INGR REM.PAST QUOT
 'They say the tree began to grow a long time ago.'

[7] Bybee's results are not directly applicable to the model used here, as she investigated the expression of three categories, Tense, Mood, and Aspect, without further subdivisions being made. It seems, however, that even some of the exceptions to the preferred orders which she found (Pred A T M or M T A Pred) could be explained within the model proposed here. In particular the possibility of objective mood distinctions occurring closer to the predicate than tense distinctions (as in several creole languages, where the irrealis morpheme occurs within the scope of the anterior morpheme) is not excluded in the present model, since both categories can be seen as expressed by predication operators, with respect to which no claim is made as to their internal ordering.

- (36) *Diegueño* (Yuman, Gorbet, 1976)
 W-a:-m-x-kx Pred_βπ₂π₃
 3SG-go-away-IRR-INF
 'It must be that he will go.'
- (37) *Quechua* (Andean, Cole, 1982)
 pay-ka shamu-nga-m-ári⁸ Pred_βπ₂π₃π₄
 he-TOP come-FUT.3-FIRSTHAND-REINF
 'He *will* come!'

The West Greenlandic examples given in (38) further illustrate the ordering of illocution and proposition operators relative to the indicator of the basic illocution:

- (38) *West Greenlandic* (Inuit, Fortescue, 1984)
- (a) Qama-junnarsi-vuq (π₃ ILL)
 be.out.hunting.seals-PROB-3SG.IND
 'He's probably outside hunting seals.'
- (b) Aki-nngil-aanga luunniit (ILL π₄)
 reply-NEG-3SG.ISG.INDIC REINF
 'He didn't even reply to me!'

Whereas in (38a) the subjective modal affix *junnarsi* precedes the Indicative, which marks declarative sentences, the emphatic particle *luunniit* follows it in (38b), thus reflecting the differences in scope between the two categories of operator.

- (39) Hypothesis 2
 Diachronic developments in the field of operators tend to follow the direction $\pi_1 > \pi_2 > \pi_3 > \pi_4$

Again the hypothesis seems to be compatible with the data in Bybee (1985) and those in Foley and Van Valin (1984).⁹

- (40) Hypothesis 3
 Operators of the class π_n may impose restrictions on the selection of operators of the class π_{n-1} .

In other words, operators may impose selection restrictions on the next operators down and these are the only restrictions possible. If proved to be correct, this generalization considerably reduces the set of possible formulations of operator combinations. The following series may illustrate the hypothesis:

[8] Cole (1982: 95) notes that 'the primary device for the expression of sentence emphasis is the use of the highly emphatic validator *-má(ri)* (from *-mi* "first-hand information" + *ari* "affirmation")'.

[9] Cf. also Traugott (1982: 253) who hypothesizes a development from 'less personal to more personal'.

- (41) (a) $\pi_4 > \pi_3$ Mitigation of a declarative sentence disallows strong commitment with respect to the truth of the proposition it contains.
 (b) $\pi_3 > \pi_2$ Desiderative mood requires the situation referred to be non-actual.
 (c) $\pi_2 > \pi_1$ Objective epistemic mood requires a phasal aspect operator to be applied if the SoAs designated by a predication are non-stative.

The first restriction is exemplified by:

- (42) *Spanish* (Indo-European)
 (a) seguramente es/*sea posible
 certainly be. 3SG.IND/SUBJ possible
 ‘Certainly it’s possible.’
 (b) quizás es/sea posible
 maybe be. 3SG.IND/SUBJ possible
 ‘It may/might be possible.’

Mitigation is expressed in Spanish by means of the subjunctive. Mitigation requires the speaker to be less than fully committed to the truth of the proposition, hence the ungrammaticality of the version of (42 a) in which the subjunctive is combined with the modal adverb *seguramente*.

The latter two restrictions can be demonstrated by means of the sentences in (43):

- (43) (a) I wish I were travelling in France.
 (b) *I wish I am travelling in France.
 (c) *I wish I travelled in France.¹⁰

Although wish cannot be said to be the expression of an operator, these sentences may serve to illustrate the following two steps: (i) Wish requires the situation referred to to be non-actual, hence the ungrammaticality of (43 b); (ii) evaluating a situation as non-actual in an epistemic sense generally requires the SoAs to be non-dynamic, hence the ungrammaticality of (43 c). Goossens (1985), following Steedman (1977), notes that dynamic SoAs provided with a Progr, Perf or Hab operator count as non-dynamic SoAs (see 3.2.1), hence the grammaticality of (43 a). Thus the restrictions illustrated by the ungrammaticality of (43 b–c) can be stated as in (44):

- (44) DES > NON-ACT > PROGR, PERF, HAB / [+dyn]

The third restriction can be illustrated separately by the following Turkish examples:

[10] Example (43c) is not ungrammatical under a habitual interpretation, as in the sentence (Lachlan Mackenzie, pers. comm.) *I wish I travelled* (for instance as a salesman) *in France and not* (as I actually do) *in Finland*. For an explanation see below.

- (45) *Turkish* (Altaic, Lewis, 1967)
- (a) Selimiye camisini gör-meli-sin
 Selimiye mosque see-NEC-2SG
 'You must see the Selimiye mosque.'
- (b) Sen-i gör-müş ol-mali
 YOU-ACC see-RES be-NEC
 'He must have seen you.'

Example (45a) has a deontic interpretation, whereas (45b), in which the resultative morpheme is added to the verbal base, has an epistemic interpretation.

From hypothesis 3 we may deduce:

- (46) Hypothesis 4
 Operators are specified most economically in the order $\pi_4 > \pi_3 > \pi_2 > \pi_1$

Given that according to hypothesis 3 higher operators may restrict the selection of lower operators, the order given in hypothesis 4 ensures a selection procedure which consistently narrows down the options available during the creation of an underlying utterance.

4. SUBORDINATE CONSTRUCTIONS

Assuming the validity of the layered model of the clause and the position of operators within that model, the question arises as to what the implications of the model are for the treatment of subordinate constructions. As in the case of operators, processes at term level are not dealt with here. By a subordinate construction I understand a construction that for its occurrence depends on another. The word construction is used here as a cover term ranging over predications, propositions, and clauses. It is the distinction between these three types of construction that leads to the first question to be asked with respect to complex constructions: should subordinate constructions be classified as predications, as propositions or as clauses? To put the same question in other words: what is the internal structure of subordinate constructions? Section 4.1 tries to answer this question with respect to constructions occupying an argument position. Section 4.2 is complementary to Section 4.1, in that it is concerned with what I provisionally call the 'external structure' of embedded constructions, in particular with respect to satellites. Here the main question is to what layer of the clause satellites should be attached. Section 4.3, finally, looks at secondary predication.

4.1. *Complement constructions*

Assuming that arguments may refer to different kinds of entity, the following hypothesis seems to follow from the approach presented so far:

(47) Hypothesis 5

Subordinate constructions can be classified according to the highest layer they contain.

This generalization should be understood in the following way. Within a narrated event reference can be made to speech events other than the one executed, propositions other than the one put forward for consideration, and narrated events other than the one referred to in the matrix clause. So, by peeling off layers from the general model for the simple clause, one encounters all types of subordinate construction. This means that:

- (i) A subordinate construction cannot contain a layer of a certain level without at the same time containing all subsequent layers;
- (ii) The operators associated with the layers which a subordinate construction contains can be expressed within that subordinate construction.

The matrix predicate determines what kind of construction it may dominate. The examples given in (48) illustrate these points:

$$(48) E_1 : [\pi_4 \text{ ILL } (S) (A) (\pi_3 X_1 : [\text{proposition}] (X_1))] (E_1)$$

-
- (a) $(\pi_2 e_1 : [\pi_1 \text{ Say}_v (x_1)_{Ag} (E_j : [\pi_4 \text{ ILL etc.}] (E_j))_{Go}] (e_1))$
 - (b) $(\pi_2 e_1 : [\pi_1 \text{ Know}_v (x_1)_\phi (\pi_3 X_j : [\pi_2 e_j : \text{etc.}] (X_j))_{Go}] (e_1))$
 - (c) $(\pi_2 e_1 : [\pi_1 \text{ See}_v (x_1)_\phi (\pi_2 e_j : [\pi_1 \text{ Pred}_\beta \text{ etc.}] (e_j))_{Go}] (e_1))$

The uppermost formula in (48) represents the interpersonal level of the matrix clause. The formulas in (48a-c) represent several matrix clause representational levels structured on the basis of predicate frames which take constructions of decreasing complexity as their Goal arguments. The verb *say* in (48a) takes a clausal Goal argument (E), the verb *know* in (48b) takes a propositional Goal argument (X), and the verb *see* in (48c) takes a predicational Goal argument (e).

The representation given in (48a) is intended to capture direct speech reports. It is clear that all kinds of distinctions and modifications made by the original speaker can be repeated. The interesting thing about direct speech reports is that they involve a shift in the deictic centre, and this is precisely what the presence of the E-variable accounts for.

The representation in (48b) indicates that cognitive predicates embed

propositions, not predications. One therefore expects the possibility of applying proposition operators to the complements of cognitive predicates. That this is in fact possible can be illustrated by the English examples in (49):

- (49) (a) He didn't know that John would come.
- (b) He didn't know whether John would come.

The complementizer *that* in (49 a) indicates that the speaker considers John's coming to be a fact, whereas the complementizer *whether* in (49 b) does not commit the speaker to the truth of the embedded proposition. Note that it is the actual speaker who expresses his commitment with respect to the embedded proposition in (49 a).

Indirect speech reports can be captured in a similar way. Unlike direct speech reports, these do not involve a shift in a deictic centre. However, it is generally possible to apply proposition operators in the subordinate clause, as in the case of cognitive predicates. The examples from Jacaltec given in (50) illustrate this point:

- (50) *Jacaltec* (Mayan, Craig, 1977)
 - (a) Xal naj tato chuluj naj presidente
 said he that will.come the president
 'He said that the president would come.'
 - (b) Xal naj chubil chuluj naj presidente
 said he that will.come the president
 'He said that the president would come.'

The complementizer *tato* in (50 a) indicates that the actual speaker considers the original speaker unreliable, whereas the complementizer *chubil* in (50 b) indicates that the actual speaker considers the original speaker reliable. Again the interpretation of the operators should be related to the actual speaker, not to the subject of the matrix clause.

The representation in (48 c) finally, is intended to show that a verb like *see*, in one of its readings,¹¹ embeds predications, not propositions. The embedded

[11] In fact there are at least three different senses of the verb *see* that are relevant in the present context. It can be used to designate the visual perception of individuals or first order entities, the visual perception of events or second order entities, and the mental perception of potential facts or third order entities. In the latter reading its meaning corresponds roughly to *understand*. In our representational system these different readings could be accounted for by assuming the following three lexical entries for the verb *see*, each with a different Goal argument:

- (i) See_v (x₁)_ϕ EXP (x₂)_{Go} (visual perception of individual)
- (ii) See_v (x₁)_ϕ EXP (e₁)_{Go} (visual perception of event)
- (iii) See_v (x₁)_ϕ EXP (X₁)_{Go} (mental perception of potential fact)

These different Goal arguments are generally realized as nouns, non-finite complements and finite complements respectively (see Barwise & Perry, 1983: 179; Woodbury, 1986: 198).

predication can be specified for tense and aspect, but not for propositional attitude. This is not surprising, since we can witness SoAs, but not facts.

I have restricted myself in (48) to verbal predicates, but comparable examples could be given for adjectival and nominal predicates (see Hengeveld, forthcoming). Adjectives like *true* and *undeniable* have propositional complements, adjectives like *certain* and *regrettable* have predicational complements. Nouns like *fact* have a propositional complement, nouns like *possibility* have a predicational complement. These differences between predicates should be represented in the lexicon, for instance in the following way:

- | | | |
|------|--|---|
| (51) | Say _V (x ₁) _{AG} (E ₁) _{Go} (Direct speech) | True _A (X ₁) _φ |
| | Say _V (x ₁) _{AG} (X ₁) _{Go} (Indirect speech) | Fact _N (X ₁) _φ |
| | Know _V (x ₁) _φ EXP (X ₁) _{Go} | Possible _A (e ₁) _φ |
| | See _V (x ₁) _φ EXP (e ₁) _{Go} | Possibility _N (e ₁) _φ |

This approach not only accounts for the fact that the operators to be expressed in a complement are determined by the type of that complement, but also provides the means to account for differences in the form and behaviour of complements. The former differences are illustrated in the following examples from Nama. In Nama subordinate constructions may take three different forms. Direct quotation is achieved by repeating the original sentence and providing it with the quote particle *tí*:

- (52) *Nama Hottentot* (Khoisan, Hagman, 1974; Rust, 1965)
 'Oo-s ke // 'iisà // xaápá kè míí / 'úú-ta
 then-3SG DECL she again REM.PAST say not.know-1SG
 'a tí
 PRES QUOTE
 'She said again: "I don't know".'

Indirect quotation and other forms of propositional complementation may take the form illustrated in (53)–(54), containing the complementizer *!xáísà*.

- (53) // 'iip ke 'am'a-se kèrè ≠ om / 'aé // amsà xuú-kxm
 he DECL true-ADV REM.PAST believe Windhoek from-1DU
 /xií hàà !xáísà
 come PF that
 'He really believed that we had come from Windhoek.'
- (54) !úú-ta níí !xáís ke 'a 'am'a
 go-1SG FUT that DECL be.PRES true
 'It's true that I will go.'

Predicational complements, finally, take the form of a nominalization, as in (55):

- (55) !gû-s ke káise a !gomba te
 go-NMLZTN DECL very PRES difficult to.me
 'It's very difficult for me to go.'

In terms of the present analysis, Nama has specialized forms for E-complementation, X-complementation, and e-complementation.

With respect to the behaviour of complements the differences between action and fact nominalizations are illustrative.¹² Sentence (56) is 'structurally ambiguous between a "factive" sense and a "manner" sense'. It can mean 'either that the speaker dislikes the fact that John drives or that the speaker dislikes the way in which John drives' (Katz & Postal, 1964: 123f, cf. also Vendler, 1967).

- (56) I dislike John's driving.

Specification of the goal (*the car*) and the manner (*careless(ly)*) of John's driving leads to (57) under the first and to (58) under the second interpretation:

- (57) I dislike John's carelessly driving the car.

- (58) I dislike John's careless driving of the car.

The realizations of the goal and manner arguments in (57)–(58) are interrelated, as can be derived from:

- (59) *I dislike John's carelessly driving of the car.

- (60) *I dislike John's careless driving the car.

In terms of the present analysis, English treats X-nominalizations and e-nominalizations differently.

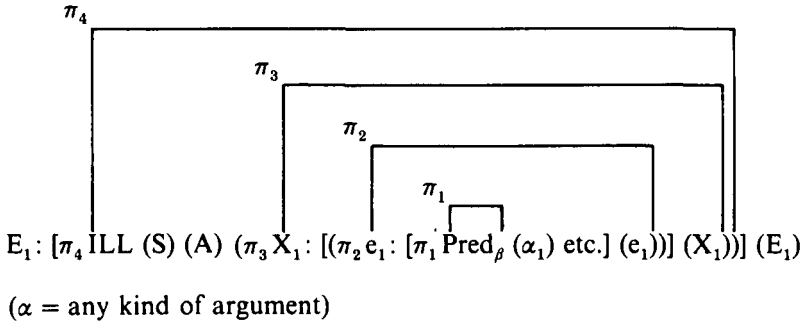
With respect to the expression of operators in subordinate constructions the hypothesis given in (61) seems to be relevant:

- (61) Hypothesis 6
 Operators with higher scope may affect the expression of operators with lower scope.

The scope of operators can be represented as in (62):

[12] I am indebted to Simon Dik for drawing my attention to the facts which follow.

(62) The scope of operators



The representation in (62) shows that subordinate constructions occupying an argument position fall within the scope of most matrix clause operators. Two examples may serve to illustrate the effects this may have:

(63) *Spanish* (Indo-European, Hengeveld, 1987b)

Quizás es seguro que la ceguera puede ser vencida
 maybe is.IND certain that the blindness can.IND be cured
 'Maybe it's certain that blindness can be cured.'

(64) Quizás sea seguro que la ceguera pueda ser vencida
 maybe is.SUBJ certain that the blindness can.SUBJ be cured
 'Maybe it's certain that blindness can be cured.'

Sentences (63)–(64) are a non-mitigated and a mitigated version of a Spanish declarative sentence. Mitigation is expressed by means of the subjunctive, as in (64). Although the modal adjective *seguro* normally requires the indicative in its complement, as in (63), it takes a subjunctive complement in (64). The higher scope operator mitigation thus not only affects the matrix clause predicate, but also all other inflected forms in the clause.

A second example is given in (65):

(65) I knew you would come.

This sentence can be represented as in (66):

(66) (Past $e_1: [\text{Know}_V (x_1: pI (x_1))_{0 \text{ EXP}} (\text{Cert. } X_1: [(\text{Fut. } e_j: [\text{Come}_V (x_j: p2 (x_j))] (e_j))] (X_1))_{\text{GOL}} (e_1)]$)

Here the future tense operator of the complement of *know* falls within the scope of the past tense operator of the matrix clause. The result is a future in the past.

The expression of lower operators need not be affected by the presence of higher operators, as can be demonstrated by means of the following Nama example:

(67) *Nama Hottentot* (Khoisan, Hagman, 1974)

Siikxm ke ké //nàú //’iíp kò !úú !xáísà
 IDU DECL REM.PAST hear he REC.PAST go that
 ‘We heard that he had just gone.’

Hagman (1974: 257) remarks that in this example the recent past (*kò*) in the complement is ‘recent relative to the context, i.e., the matrix sentence’. The fact that the recent past operator in the embedded construction is correctly interpreted can be regarded as the result of its being within the scope of the remote past operator of the matrix clause, as predicted by (62).

4.2. *Adverbial constructions*

In Functional Grammar adverbial constructions are generally referred to as **SATELLITES**. Satellites are like arguments in that they contain a variable and are assigned a semantic function. They differ from arguments only in the fact that they are optional. Satellites can be classified according to their internal structure, as has been done for arguments in the preceding section. For instance, reasons are third order entities (Lyons, 1977: 445), and should therefore be represented as propositions, causes are second order entities, and should be represented as predications, beneficiaries are first order entities, and should therefore be represented as simple terms. This, however, is not the main subject of this section. The question here is rather how satellites should be represented within the clause model developed so far. For a more detailed analysis the reader is referred to Dik *et al.* (in prep.). In this paper I will concentrate on the interaction between satellites and operators. In 4.2.1 satellites are subdivided according to the layer at which they apply. Furthermore attention is given to the differences between restrictive (4.2.2) and non-restrictive (4.2.3) adverbials (see Hannay & Vester, 1987).

4.2.1. *Layers and satellites.* The functions to be fulfilled by satellites at the different layers are not very different from the ones postulated for operators. Stating that a certain SoA took place *yesterday* is applying a lexical strategy which is comparable to the application of the past operator within a grammatical strategy. The definitions given here for satellites at the different layers of the clause are therefore reminiscent of the definitions given for operators in Section 3.1:

(68) Satellites (definitions)

- (i) **PREDICATE SATELLITES** capture the lexical means which specify additional properties of the set of SoAs designated by a bare predication.

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- (ii) 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.
- (iii) PROPOSITION SATELLITES capture the lexical means through which the speaker specifies his attitude towards the proposition he puts forward for consideration.
- (iv) ILLOCUTION SATELLITES capture the lexical means through which the speaker modifies the force of the basic illocution of a linguistic expression so as to make it fit his communicative strategy.
- (v) CLAUSE SATELLITES capture the lexical means through which the speaker locates the speech act designated by a clause within the context of discourse and thus restricts the set of potential perlocutions of the clause.

For the last category of satellites there is no corresponding operator type. This is because with this satellite type we are crossing the clause boundaries and entering the domain of interclausal relations at the discourse level.

The main difference between satellites at the interpersonal level (proposition satellites and illocution satellites) and satellites at the representational level (predicate satellites and predication satellites) is that the former are speaker-, addressee- or speech act-oriented, whereas the latter are argument- or SoA-oriented.

The classification proposed here can be compared very well with the classification of adverbial constructions proposed in Quirk *et al.* (1985), elaborating on Greenbaum (1969):

(69) The classification of adverbial constructions

Quirk <i>et al.</i> (1985)	Corresponding satellite type
Adjuncts	Representational level
Predication	Predicate satellites
Sentence	Predication satellites
Disjuncts	Interpersonal level
Attitudinal	Proposition satellites
Style	Illocution satellites
Conjuncts	Discourse level: Clause satellites

For tests distinguishing between these different types of adverbial see Greenbaum (1969), Bartsch (1976), Quirk *et al.* (1985), and Dik *et al.* (in prep.).

4.2.2. *Restrictive adverbials*. Satellites have generally been represented in Functional Grammar as in:

(70) $\text{Pred}_p(\text{arg}_1)\dots(\text{arg}_n)(\text{sat}_1)\dots(\text{sat}_n)$

In (70) satellites are represented as optional arguments of the predicate. This representation captures in fact the definition given for predicate satellites, the main function of which is to give additional information on the internal structure of the SoAs under consideration.

Vet (1986) suggests an approach in which satellites specifying time and location are represented as secondary restrictors of the e-variable, as in:

(71) I saw him yesterday.

(72) (Past e_i : [I see him] (e_i): yesterday (e_i))

(73) I saw him in the garden.

(74) (Past e_i : [I see him] (e_i): [(x_i : garden (x_i))_{Loc}] (e_i))

In this approach satellites are considered to be optional secondary restrictors of the event variable e. This representation captures the definition given for predication satellites, the main function of which is to specify the setting within which a SoA occurs (occurred, will occur).

Perhaps Vet's analysis may be extended to capture restrictive adverbials at the propositional level, although truly restrictive adverbials seem to be exceptional there. An example could be sentence (75),¹³ in which *John* is presented as the source (So) of the proposition presented by the speaker. It might be represented as in (76):

(75) According to John there's a bull in the field.

(76) (X_1 : [There's a bull in the field] (X_1): [(x_i : John (x_i))_{So}] (X_1))

Within this approach restrictive adverbials are within the scope of the operators associated with the level they restrict. Sentence (77), containing a restrictive predicational satellite, and its schematic representation (78) may illustrate this point:

(77) *Nama Hottentot* (Khoisan, Hagman, 1974)

tsíí stásisà !'oá-kxm níí //òá-s 'ái!aa-p ke
 and station to-IPL FUT go.down-NMLZTN before-3SG DECL
 //náatse kái kérékèpà kè hàà 'íí
 that.day big church.service REM.PAST COP COP

'And before we went down to the station that day there was a big church service.'

[13] The adverbial seems to be restrictive only if Focus is on the proposition as a whole.

- (78) (Rem.past e_i : [predication] (e_i): [(Fut. e_j : [predication] (e_j))_{Temp}]
(e_i))

In (78) the second event falls within the scope of the Past operator of the first event. Due to a rule governing the sequence of tenses the temporal construction is in the past tense in the English translation, whereas in the Nama original the morpheme *ni* indicates future time reference.

4.2.3. *Non-restrictive adverbials*. For non-restrictive adverbial clauses I follow the proposal made by Hannay and Vester (1987), although it has to be adapted in such a way that it applies to all the different layers proposed here. Hannay and Vester suggest that non-restrictive clauses be analysed in the following way:

- (79) Core predication (predication)_{Sem Pragm Synt}

Hannay and Vester compare the organization of complex sentences with the organization of predications, in the sense that subordinate predications may entertain semantic, pragmatic and syntactic relations with core predications, just like arguments entertain these relations with predicates. Application of this model within a layered approach suggests a further subcategorization of non-restrictive adverbials according to the level at which they occur. In general terms, the approach to be adopted in this section can be summarized as follows:

- (80) (α_1), (α_2)_{Sem Pragm Synt}

where α represents any of the variables e , X , or E . The schema in (80) indicates that two constructions OF THE SAME LEVEL can be brought into a non-restrictive relation, where one of the two can be seen as subordinate to the other, and its semantic, pragmatic and/or syntactic functions indicate in what way it is subordinated. In this section I restrict myself to the semantic functions of non-restrictive adverbial constructions. The restriction that the two constructions be of the same level is in fact the restriction imposed on all kinds of clause linkage by Foley and Van Valin (1984: 188). Their approach runs into trouble where it has to deal with complementation (*ibid.* 251f), but works fine for the constructions dealt with here. The possible non-restrictive combinations of constructions in the present approach can be listed as in (81)–(83):

- (81) (e_1), (e_2)_{Sem} predication combining
 (82) (X_1), (X_2)_{Sem} proposition combining
 (83) (E_1), (E_2)_{Sem} clause combining

The subordinate constructions in these combinations can be considered predication, proposition, and clause satellites, respectively. Examples of the intended constructions are:¹⁴

- (84) When he comes, I leave.
- (85) John is home, because that's his car outside.
- (86) Watch out, because there's a bull in the field.

In (84) one SoA is presented as the circumstance (Circ) within which another takes place. In (85) one fact is presented as evidence (Evid) for another fact. In (86) one speech act is presented as the motivation (Mot) for another speech act. Sentences (84)–(86) can be represented as in (87)–(89):

- (87) (E_i: [DECL (S) (A) (X_i: [(Pres e_i: [I leave] (e_i)), (Pres e_j: [He come] (e_j))_{Circ}] (X_i))] (E_i))
- (88) (E_i: [DECL (S) (A) (X_i: [John is home] (X_i)), (X_j: [That's his car outside] (X_j))_{Evid}] (E_i))
- (89) (E_i: [IMP (S) (A) (e_i: [A watch out] (e_i))¹⁵] (E_i)), (E_j: [DECL (X_i: [There's a bull in the field] (X_i)) (E_j))_{Mot})

The most important aspect of these representations is that two constructions in a non-restrictive relation can be subordinate to shared higher operators, a phenomenon which Foley and Van Valin (1984), following Olson (1981), labelled *COSUBORDINATION*. The effects of this approach can be illustrated by means of the following examples.¹⁶

The coordinated predications in (84) cannot carry their own proposition operators (π_3) as (90) demonstrates.

- (90) *When he possibly comes, I must leave.

Both can, however, carry their own predication operators (π_2):

- (91) When he comes, I will have left already.

The coordinated propositions in (85) cannot carry their own illocution operators (π_4):

[14] Non-restrictive satellites should be distinguished from extracausal constituents such as Theme and Tail (see Dik, forthcoming). The latter are necessarily outside the scope of all matrix clause operators, unlike some of the non-restrictive satellites treated here.

[15] I assume that there is no intermediate propositional layer in imperative sentences. Imperative illocutionary frames could be assigned the following structure and paraphrase, adapted from Dik (forthcoming):

IMP (S) (A) (e_i) Speaker (S) wishes the Addressee (A) to perform the action (e_i).

In this way the irrelevance of truth-commitment in imperative sentences is accounted for by means of the absence of the layer at which it applies.

[16] Cf. also Bolkestein (forthcoming) on the expression of modality in constructions expressing a causal relation in Latin.

(92) *John is home!, because that might be his car outside.

But they can each carry their own proposition operator (π_3):

(93) John must be home, because that certainly is his car outside.

The coordinated clauses in (86) can carry their own illocution operators (π_4):

(94) You had better watch out, because there might be a bull in the field!

A final look at Nama shows an important difference between restrictive and non-restrictive satellites with respect to the expression of operators. In (77), discussed earlier, the restrictive temporal satellite is within the scope of the tense operator of the matrix predication, and the occurrence of the SoA expressed within the satellite predication is interpreted relative to the occurrence of the SoA expressed within the matrix predication. In (95), with its rough representation (96), the non-restrictive temporal satellite is not within the scope of the tense operator of the matrix predication and therefore has to be interpreted relative to the moment of speaking:

(95) *Nama Hottentot* (Khoisan, Hagman, 1974)

Tsíí	'aé//ams	'ái-ta	kè	síí	'oo-p	ke
and	Windhoek	LOC-1SG	REM.PAST	arrive	TEMP-3SG	DECL
tíí	/hòopà	kè	'áute	hàa.	'íí stásis	tàpa
POSS.1SG	friend	REM.PAST	wait	PF	station	LOC

'And when I arrived in Windhoek, my friend had been waiting for me at the station.'

(96) (Rem.past e_1 : [predication] (e_i)), (Rem.past e_j : [predication] (e_j))_{Temp}

4.3. *Secondary predication*

To complete the picture of subordinate constructions some final remarks should be made on the status of free secondary predication, as illustrated in:

(97) I saw him walking down the street.

Here *walking down the street* is an optionally added secondary predication. Following Vester (1983), constructions like (97) may be represented schematically as in (98), where secondary predication is taken quite literally:

(98) (e_1 : [predication] (e_i): [predication] (e_j))

This representation predicts that the two predications cannot be specified independently for tense, but can be specified for aspect. That this is indeed

the case can be illustrated by means of the following sentences (cf. Comrie, 1976: 40):

(99) I saw him cross the street.

(100) I saw him crossing the street.

In the perfective variant (99) the use of the infinitive indicates that I witnessed the crossing from beginning to end, whereas in the imperfective (100) the use of the gerund indicates that I witnessed the crossing, but not necessarily from beginning to end.

5. CONCLUSION

By way of conclusion I summarize the main points that I have argued:

- (i) Every main clause can be analysed at two levels: the representational and the interpersonal level.
- (ii) Each level can be analysed as containing several layers.
- (iii) Each layer has its own associated operators.
- (iv) Every subordinate construction can be classified according to the highest layer it contains.
- (v) Every adverbial construction can in addition be classified according to the layer to which it attaches.

*Author's address: Institute for General Linguistics,
University of Amsterdam,
Spuistraat 210,
NL-1012 VT Amsterdam,
The Netherlands.*

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