

# Term structure in FG: a modest proposal

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## 1. Introduction<sup>1</sup>

From the very beginning, the term has been one of the basic units in Functional Grammar (Dik 1978, 1989, 1997a, 1997b). Although in the course of the years various changes and additions have been proposed, to the theory as a whole as well as to the structure of terms, the basic architecture of terms seems to have remained relatively unaffected. Nevertheless, on close examination it turns out that the picture is, in fact, far from clear, that the various changes and additions proposed are often incompatible, and that a number of important issues have as yet not been resolved.

My aim in this paper is to make a modest contribution to the development of a plausible and consistent structure of terms. It will be modest in that I will tackle only one particular issue, that of how to represent complements and modifiers within the term.<sup>2</sup> More specifically, I will concentrate on the following questions:

1. Why do modifiers at term level take the form of non-first restrictors, whereas at all other levels they take the form of satellites?
2. Is it plausible to assign the same status (that of restrictor) to both the head of a term (first restrictor) and its modifiers and/or complements (non-first restrictors)?
3. If we assume that some nominal predicates (e.g. relational, deverbal) have a predicate frame with one or more argument slots, do we want to maintain a distinction between arguments and non-first restrictors?

More generally, it will be argued that, although it is laudable and perfectly legitimate to try and draw parallels between terms and predications (or higher levels within the clause), the wish for a uniform structuring at each level in the clause should not go at the expense of the descriptive and explanatory adequacy of term structure.

This paper is organised as follows. First I will discuss existing proposals for the representation of modifiers and complements within terms. Naturally, I will start with Dik's original and adapted proposals (Dik 1978, 1989, 1997a, 1997b), after which I will proceed to briefly discuss some alternative analyses (Mackenzie 1983, 1987a, 1996; Rijkhoff 1992, 2002; Anstey 2002). I will then consider the pros and cons of these various analyses before proposing my own, which I hope, will avoid most of the cons while retaining the most

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<sup>1</sup> I would very much like to thank Lachlan Mackenzie for his generous comments on an earlier version of this paper. Any remaining errors and inconsistencies are, of course, entirely my own.

<sup>2</sup> It is even more modest in the sense that I will restrict myself to the role and status of restrictive modifiers. Following Dik (1997b: 41), I will assume that non-restrictive modifiers are not part of the term proper (i.e. to fall outside the scope of the term operators), although obviously attached to the term (syntactically in that they seem to fill one argument position together with the term, semantically in that they denote property of the referent of the term and pragmatically in that typically they fulfil one of a range of discourse functions). See also discussion of examples (25) and (26).

important pros. Finally, in my conclusion I will indicate some further problematic areas within term structure which, in my view, ought to be addressed in the near future.

## 2. Modification within the clause: existing analyses

### 2.1 The standard approach: Dik (1978, 1997a, 1997b)

In Dik (1978: 16, 57) terms were formed according to the following general schema:

$$(1) \quad (\omega x_1: \varphi_1(x_1): \varphi_2(x_1): \dots \varphi_n(x_1))$$

where  $\omega$  stands for one or more term operators,  $x_1$  is a variable ranging over a set of potential referents and each  $\varphi(x_1)$  is an open predication in  $x_1$ . The representation is to be read as follows: the domain of the potential referents  $x_1$  is first restricted to the set of entities of which  $\varphi_1(x_1)$  is true; this latter set is restricted to the subset of which  $\varphi_2(x_1)$  is true, and so on until the open predication  $\varphi_n(x_1)$  gives the last restriction on the set of potential referents. For obvious reasons these open predications were called *restrictors*.

In subsequent versions of the theory of Functional Grammar, this basic schema for terms remains virtually unchanged (Dik 1989: 115; 1997a: 132). With the introduction of the layered model (Hengeveld 1989, Dik 1989), the number of variables was, of course, extended, which meant that the term variable  $x_1$  was from then only used in terms referring to first-order entities (objects, individuals), while higher order entities (predications, propositions, speech acts) were all provided with their own variable, which was also used in terms referring to these entities. At a later stage, the *f*-variable was introduced to symbolise properties (Keizer 1991, 1992a, Hengeveld 1992). At the same time there were proposals to introduce new (or other) term operators and to order these hierarchically along the semantic domains of quality, quantity and location (e.g. Rijkhoff 1992, 2002, Dik 1997a: 159-163).

None of these changes, however, affected the basic structure of the term: terms still consisted of a term variable, one or more term operators and one or more restrictors. Operators and restrictors differ in the way in which they are expressed. Term operators capture a limited number of grammatically expressed distinctions in some semantic domain (Dik 1997a: 160-161).<sup>3</sup> Restrictors, on the other hand, are lexically expressed: they always take the form of an open predication, although the predicate  $\varphi$  may take a variety of forms (e.g. Dik 1997a: 151):

- (2) unmodified nominal: a *paper* box  
nominal + case (genitive): *John's* box  
adpositional: the box *in the garden*  
adjectival: the *blue* box  
participial: the *hard-working* man  
clausal: the box *which is blue/made of paper* etc.

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<sup>3</sup> Observe, by the way, that according to this definition it is doubtful whether (in)definiteness should be represented by means of a term operator, as this distinction seems to be of a pragmatic rather than a semantic nature (Keizer 1988, 1992a).

Compared to Dik (1978), however, Dik (1989, 1997a) introduces one major modification to term structure by acknowledging that not only verbal predicates have arguments, but certain nominal predicates as well. Thus, in a series of articles on derived constructions, Dik (e.g. 1985a, 1985b, 1985c) proposes to regard Dutch verbal nouns, such as *verrichting* ‘activity’, *daling* ‘decrease’ or *overname* ‘take-over’, as derived from the corresponding verbal predicates *verrichten* ‘to act’, *dalen* ‘to decrease’ and *overnemen* ‘to take over’ through a rule of predicate formation specifying the syntactic category and form of the derived predicate. According to this rule, both the valency of the input predicate and the semantic functions of the arguments are preserved in the process. Some examples of deverbal noun formation in are given (3):<sup>4</sup>

- (3) *Verbal Noun Formation:*
- a. Input:  $fall_V (x_i)_{Proc}$   
Output:  $fall_{VN} (x_i)_{Proc}$
  - b. Input:  $destroy_V (x_i)_{Ag} (x_j)_{Go}$   
Output:  $destruction_{VN} (x_i)_{Ag} (x_j)_{Go}$

The rule of verbal noun formation does not, however, only affect the form of the input predicate, but also that of the arguments.<sup>5</sup> This is accounted for by the Principle of Formal Adjustment (Dik 1997b: 157-158):<sup>6</sup>

- (4) *Principle of Formal Adjustment (PFA):*  
Derived secondary constructions of type X are under pressure to adjust their formal expression to the prototypical expression model of non-derived, primary constructions of type X.

As can be seen from the general schema in (1), prototypical terms consist of a first restrictor in the form of a nominal predicate. Modifiers within the term typically appear in the form of adjectives, genitives, adpositions and relative clauses (compare (2)). This means that the agent and goal terms of a transitive input predicate (e.g. examples (5a&b)) appear as adjectival, genitival and/or adpositional modifiers in the term (e.g. examples (5a’&a’), (5b’&b’)).<sup>7</sup>

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<sup>4</sup> Note that the derived predicates here are categorised as verbal nouns (VN) rather than nominal predicates. This is on account of the fact that these derived nouns still retain some of their verbal properties, one of these properties being the presence of arguments.

<sup>5</sup> In some cases of predicate formation, the number of arguments does change. An example of a rule involving valency reduction is that of First Argument Nominalisation, where the first argument is typically ‘absorbed’ by the derived predicate (e.g. *producer*, *leader*, *cyclist*, etc.). Occasionally, valency extension takes place, as in causative predicate formation, where an extra argument is added representing the causee (e.g. Dik 1997b: 8-9).

<sup>6</sup> Mackenzie (1987b, 1996: 326) distinguishes 5 stages (or degrees) of formal adjustment in the process of nominalisation and concludes that languages differ with regard to the level of nominalisation they permit.

<sup>7</sup> In a small number of languages (e.g. Hausa), the Agent is expressed in a relative clause referring to the action denoted by the nominalised verb (Koptjevslaya-Tamm 1993: 191-194); translated into English, this would yield something like ‘the destruction of the city that Caesar did’.

- (5) a. The people elected the president  
 a'. the presidential election  
 a''. the people's election of the president  
 b. Caesar destroyed the city.  
 b'. the destruction of the city by Caesar  
 b''. Caesar's destruction of the city

## 2.2 Mackenzie's modifications (1983, 1987a, 1996)

In a series of articles on nominalisation, Mackenzie proposes three modifications to Dik's general schema for terms. The first of these is to provide both derived and non-derived relational nouns with arguments (Mackenzie 1983, 1987a). In Mackenzie (1987a: 7), for instance, a distinction is made between  $\alpha$  relational predicates and  $\beta$  relational predicates, as illustrated in (6):

- (6) a.  $\alpha$  relational predicates:  $\text{father}_N(x_i)_{\text{Ref}}$   
 b.  $\beta$  relational predicates:  $\text{destruction}_N(x_i)_{\text{Ag}}(x_j)_{\text{Go}}$

Unlike  $\beta$  relational predicates (which include Dik's verbal nouns),  $\alpha$  relational predicates are non-derived (basic). They do not inherit their arguments but already have their own predicate frame in the lexicon on account of the fact that the semantics of the predicate requires the presence of an argument with reference to which the predicate can be said to hold (hence the semantic function of Ref(ERENCE) in (6a)). Like  $\beta$  relational predicates, the arguments of  $\alpha$  relational predicates are typically expressed by means of a genitival or adpositional phrase:

- (7) *Basic relational predicates*  
 a. John's father; the father of John  
 b. the dog's tail; the tail of the dog  
 c. the top of the mountain

The second modification proposed by Mackenzie concerns the status of optional modifiers in the term, such as possessors in the form of genitives or adpositional phrases indicating location. To enhance the internal consistency of terms, Mackenzie (1985a, 1985b, 1990) proposes to analyse these modifiers as satellites. The construction in (8a) is analysed as consisting of a basic relational head and an argument; this argument is assigned the semantic function Ref and appears in the form of a genitive term. The construction in (8a'), on the other hand, consists of a non-relational head modified by a satellite with the semantic function Poss. Similarly, in (8b), the adpositional phrase has the status of argument, while in (8b') it functions as a satellite expressing location.

- (8) a. John's father:  $(d1x_i; \text{father}_N(d1x_j; \text{John}_N)_{\text{Ref}})$   
 a'. John's book:  $(d1x_i; \text{book}_N(d1y_i; \text{John}_N)_{\text{Poss}})$   
 b. the king of France:  $(d1x_i; \text{king}_N(d1x_j; \text{France}_N)_{\text{Ref}})$   
 b'. the king on the painting:  $(d1x_i; \text{king}_N(d1y_i; \text{painting}_N)_{\text{Loc}})$

Thirdly, Mackenzie (1985a, 1985b, 1987b, 1996) argues that certain deverbalisation processes, such as Genitive-Gerund Formation or Productive Nominalisation (exemplified in examples (9) and (10), respectively) are not necessarily, or even typically, characterised by valency preservation, but instead almost invariably lead to valency reduction (Mackenzie 1996: 338-339):

(9) *Gerund-Genitive Formation*

- a. Input: Pred<sub>v</sub> Arg1 Arg2  
Output: Pred<sub>v</sub> Arg2
- b. My horse's winning the race came as a great surprise

(10) *Productive Nominalisation*

- a. Input: Pred<sub>v</sub> Arg1 Arg2  
Output: Pred<sub>v</sub>
- b. My horse's winning of the race came as a great surprise

Since, unlike in the verbal domain, it is very common for (at least some of) the arguments of derived nominal constructions not to be explicitly mentioned, Mackenzie suggests that expressions functioning as arguments at the level of the predication better be regarded as satellites at term level (providing – syntactically – optional information). More specifically, these term satellites fulfil a function comparable to that of Dik's implied satellites at predication level. According to Dik (1989: 194; 1997a: 227-228): '... certain  $\sigma_1$  satellites are in a sense already "implied" by the nuclear predication'. Thus, in a sentence like (11a) it is implied that Peter performed the action in a certain manner. Since the manner satellite is thus always present, it cannot be asserted or denied, as shown in (11b&c).

- (11) a. Peter removed the lid from the jar.
  - b. \*Peter removed the lid from the jar, and he did it in a manner
  - c. \*Peter removed the lid from the jar, but not in a manner
- (e.g. Dik 1997a: 227-228)

Mackenzie (1996) too, distinguishes between implied (or y-) satellites and non-implied (or z-) satellites, subsequently applying this distinction to gerund constructions. For a genitive gerund like *my horse's winning the race* he thus proposes 'to regard the Possessor as a satellite to the verbal noun, specifically a y-satellite, since the role seems to be implied: you can't sensibly talk about "winning the race" without implying that someone or something won, or is winning, or will win it; and it is correspondingly nonsensical to assert or deny the Possessor' (Mackenzie 1996: 339).

### 2.3 Rijkhoff's (1992, 2002) unified analysis of predication and term

In Rijkhoff's proposals for term structure, terms are given almost exactly the same internal organisation as (core) predications, with three layers of operators and satellites at both levels (e.g. Rijkhoff 1992: 190, 206). This means that for Rijkhoff (e.g. 1992: 190; 2002: 118ff.) all non-first restrictors in the term function as satellites, which he represents by means of the term satellite variable  $\tau$ . Moreover, nuclear and core predication satellites and term satellites

are regarded as belonging to the same three domains: Quality, Quantity, Location.<sup>8</sup> Both at the verbal and at the nominal level, these three domains are assumed to cluster around the nucleus (i.e. the verbal or nominal predicate) in such a way that Quantity satellites have scope over Quality satellites, while Location satellites have scope over both Quantity and Quality satellites. The only difference between the two levels is in the form of the modifiers (e.g. Rijkhoff 2002: 224). This is illustrated in Table 1:

**Table 1: Rijkhoff's (2002) three domains within predications and terms**

Level \ Function	Quality	Quantity	Location
Predication	adverbs and adverbials of manner, speed etc.	adverbs and adverbials of frequency	adverb and adverbials of time and place
Term	adjectives	lexical numerals	relative clause, possessor NP, adpositional phrases

#### 2.4 Anstey's (2002) evaluation of the layered model

Anstey (2002) addresses two problems in Functional Grammar brought about by the introduction of the layered structure of the clause: the positional problem and the typological problem. In what follows, I will focus on the former; moreover, I will discuss only those changes proposed by Anstey that are relevant to the present discussion.

The positional problem identified by Anstey is largely due to the friction between the various proposals made with regard to the position of operators and satellites in the layered model of the clause – first and foremost between the models introduced by Hengeveld (1989) and Dik (1997a, 1997b), but also between the various modifications and implementations presented in other discussions on the level, or scope, of specific operators and satellites (Mackenzie 1998, Vet 2001, Van der Auwera 2001, Keizer 1992a, Vismans 1994, Cuvulay-Haak 1996, Rijkhoff 1992). The solution offered by Anstey is to abolish the present models and to replace them by two layered models: one semantic and one cognitive.

Let us, however, concentrate on the matter in hand and consider some of the consequences of Anstey's proposals for the structure of terms. Like Mackenzie, Anstey (Anstey 2002: 14) considers the term contained in the genitive expression in a term like *Mary's sister* (i.e. *Mary*) as an argument of the first-restrictor predicate *sister*. In a term like *the big man on the beach*, however, Anstey, unlike Mackenzie, does not analyse the term *the beach* as a satellite (ibid.). This is because the term *the beach* would have to be analysed here as a  $\sigma_i$  satellite (modifying at predicate level), whereas Anstey argues that there are no  $\sigma_i$  satellites. Thus, according to Anstey (2002: 7), such traditional nuclear predicate satellites as manner and speed are really  $\sigma_0$  satellites (as proposed by Mackenzie 1998), while others, like (im)perfective aspect satellites, should be analysed as  $\sigma_2$  satellites (as suggested by Comrie 1976: 18, 34; Bybee et al. 1994: 54, Dahl 1985: 78). What remains are such first-order satellites as additional participant (beneficiary, company), instrument, quality and spatial

<sup>8</sup> This distinction also applies to both (nuclear and core) predication operators and term operators; these, however, will not be discussed here.

orientation (source, path, direction). According to Anstey (2002: 7), however, these should not be analysed as satellites at all: since they all introduce additional participants into the state of affairs (optionally extending the number of “arguments in the predicate”), they should rather be regarded as optional arguments of the verbal predicate.

Anstey (2002: 14) then extends this analysis to the term: as there are no  $\sigma_1$ -satellites at the level of the predication, there cannot be any  $\sigma_1$ -satellites at term level either. Therefore, in a term like *the big man on the beach*, the term *the beach* is not to be analysed as a satellite, but as an optional argument. This does not, however, mean that there are no satellites at all at term level. Higher level satellites, such as those indicating time and place at the level of the core predication (level 2), can occur in terms; this is what happens when a temporal or locational expression modifies a second order entity. Thus, in term like *yesterday's meeting*, the temporal expression *yesterday* is analysed as a level-2 satellite; Anstey (2002: 15) does not, however, assign this expression the semantic function of Time, but instead assigns it semantic function of Ref, which was originally reserved for arguments of a nominal predicate.

### **3. Pros and cons of existing analyses**

In this section I will review the major strengths and weaknesses of the existing proposals for term structure described in the preceding section. One of the major merits of the early model (Dik 1978) was, of course, that the proposed structures for terms and predications were fairly simple and transparent, based on familiar ideas from logical semantics. We thus had a strict division between reference (the domain of terms, as referring expressions) and predication (the domain of predicates). Since reference and predication can be seen as two different functions within the clause, it made sense for the expressions fulfilling these functions to be provided with different analyses. In that light a distinction between restrictors (at term level) and satellites (at predication level) seemed entirely plausible.

By now, however, this strict division has disappeared. As we have seen, Rijkhoff has propagated a uniform approach to terms and predications, emphasising the parallels between the two levels rather than the differences. Moreover, with the introduction of the layered clause structure, the number of levels has been considerably extended. In the layered model, the parallels between terms and the other levels are obvious. Term variables and operators perform the same function as those at other levels: the former symbolise the entity designated by the construction, the latter capture a limited number of grammatically expressed crucial distinctions in some semantic domain (Dik 1997a: 160-161). First restrictors, too, can be found at each level in the clause. These parallels become clear from Table 2 (based on a combination of proposals by Dik 1997a, Hengeveld 1989, 1992 and Keizer 1992a):

**Table 2: The structure of the layered clause**

Variable	Restrictor	Operators	Referent	Satellites
E	Clause/Illocution <sup>9</sup>	$\pi_{4/5}$ : Illocution operators	Speech act	$\sigma_{4/5}$ : Illocution satellites
X	Proposition	$\pi_3$ : Proposition operators	Potential fact	$\sigma_3$ : Proposition satellites
e	Predication	$\pi_2$ : Predication operators	State of affairs	$\sigma_2$ : Predication satellites
x <sup>10</sup>	??	$\omega$ : Term operators	Individual	--
f	Predicate	$\pi_1$ : Predicate operators <sup>11</sup>	Property/Relation	$\sigma_1$ : Predicate satellites

Table 2 also illustrates, however, that, despite these parallels, the term level is still the odd one out. First of all, the (first) restrictor of terms does not necessarily take the form of a single unit (a predicate); instead it consists of a first (typically nominal) restrictor and, optionally, one or more non-first restrictors (typically, but not necessarily, adjectival predicates). Keizer (1992a) introduced the term ‘Predicator’ to fill this gap. It is only at term level, however, that we find such non-first restrictors. Moreover, it is the only level where, in these proposals at least, we find no satellites.

In other words, we have a number of inconsistencies here. At term level the functional/lexical opposition is realised through the distinction between operators and restrictors, whereas at all other levels the divide is between operators and satellites. Operators, although they may differ in nature depending on the kind of entity designated, perform the same basic function at all levels. The question that arises is whether the same may not be true for restrictors and satellites. Let us return to the definitions given of these notions, starting with the latter. In Dik (1997a: 86; see also Dik et al. 1990), we read that, unlike arguments,

Satellites are not ... required by the predicate; they give optional further information pertaining to additional features of the SoA (level 1), the location of the SoA (level 2), the speaker’s attitude towards or evaluation of the propositional content (level 3, or the character of the speech act (level 4).

First of all, it is important to realise that what is meant here is optionality at the syntactic and semantic level. Thus, arguments are required by the semantics of the verb: their meaning is not complete without them. Syntactically this is (to a considerable extent, at least) reflected by the fact that predications without a subject and (depending on the type of verbal predicate) one or more objects (direct, indirect, prepositional) are generally regarded as ungrammatical. Omitting satellites, on the other hand, will always result in a semantically and syntactically well-formed expression. This does not mean that satellites are also pragmatically optional: they may well provide focal information, in which case they are crucial for a proper

<sup>9</sup> The proposal by Dik (1997a) and Hengeveld (1989, 1992) differ with regard to the scope of the illocution operators: in Dik they have scope over the entire clause, while for Hengeveld they operate on the illocution, which, in his proposal, forms part of the clause. Since this issue is not relevant to the present discussion, I will not comment on it. For a discussion, see e.g. Anstey (2002).

<sup>10</sup> Both Dik (1997a) and Hengeveld (1989, 1992) use the x-variable to symbolise the (first-order) referent at this level. Terms, however, are different from any of the other clause units in that they can be used to refer to any order of referent. It is, however, the only level at which reference can be made to individuals (concrete entities). I will return to this matter below.

<sup>11</sup> Strictly speaking, this is not correct. In the verbal domain, level-1 operators operate on the nuclear predication (verbal predicate and its arguments), rather than on the predicate. The same is true for satellites at this level. See Anstey (2002).

understanding of the predication in question, which would be infelicitous without this information (e.g. in contrastive contexts: *Where did you meet him? – I met him in Paris*).

The same, however, can be said of non-first restrictors within the term. Unlike the (obligatory) first-restrictor, non-first restrictors provide semantically and syntactically optional (though pragmatically relevant) information about the referent. The difference between terms and higher-level clause units is that within terms the restrictive function of first and non-first restrictors is much more conspicuous. This difference is largely due to the fact that terms, as those expressions taking argument position, are referring expressions, whose referent set needs to be established before predication can take place. This does not mean that at the other levels in the clause satellites do not have a restrictive function. At the level of the predication, for instance, adding a time or place satellite obviously restricts the number of possible interpretations of that predication. In other words, the basic function of the three basic ingredients does seem to be the same at all levels: operators capture grammatically expressed information about the entity designated, (first) restrictors provide (syntactically and semantically) obligatory information about this entity, while non-first restrictors and satellites provide optional lexical information. It could, of course, be argued that, because of their restrictive function, ‘restrictor’ may, indeed, be an appropriate term to refer to modifiers at term level. Nevertheless, since these modifiers could be argued to belong to the same category as the satellites at the other clause-levels, it would obviously be more consistent to represent them in a similar fashion.

Consider the examples in (12). Once we accept that nominal predicates can have arguments as well as satellites, the verbal and nominal constructions in (12a&b) can be analysed in similar (though not identical) ways.

- (12) a. Caesar’s destroyed the city in 57 BC.  
b. Caesar’s destruction of the city in 57 BC.

In both utterances, the terms *Caesar* and *the city* are arguments of the predicate (*destroy<sub>V</sub>* and *destruction<sub>N</sub>*, respectively) and in both cases the arguments are assigned the same semantic functions (Agent and Goal, respectively). In addition, the adpositional phrase *57 BC* functions as a locational satellite in both cases, which seems appropriate as it has the same form and function in both constructions.

However, there is no reason to confine this kind of parallel analysis to arguments and satellites in the form of adpositional phrases. Consider in this respect the examples in (13):

- (13) a. I assured John *I honestly believe him to be innocent*.  
b. I assured John of *my honest belief in his innocence*.<sup>12</sup>

In (13a), we have a verbal predicate (*believe*) which takes a propositional goal argument, here expressed in the form of an infinitival clause (*him to be innocent*). The adverb *honestly*

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<sup>12</sup> It might be objected that in example (13b) the adjective *honest* is used non-restrictively, in the sense that it obviously does not function to distinguish between an honest belief (in his innocence) and one or more other beliefs (in his innocence). This would certainly be true if the adjective in question was, indeed, interpreted as a property of the referent (cf. *an honest man*). In this example, however, *honest* functions to modify the speaker’s attitude towards the content of the proposition ‘belief in his innocence’; on this interpretation the adjective *honest*, just like the adverb *honestly* in (13b), restricts the denotation of the proposition *belief in his innocence* to

functions as a level-3 satellites, modifying the speaker's attitude (in terms of truth, sincerity, commitment) towards this proposition. The term *my honest belief in his innocence* in (13b) can be used to refer to this same proposition. It may therefore be argued that the adjective *honest* fulfils the same function here as the adverb *honestly* in (13a). There is, of course, a difference in form, but (as in the case of the 'inherited' arguments) this can be accounted for by means of the Principle of Formal Adjustment (PFA; see (4)). The two expressions, *honestly* and *honest*, do, however, fulfil the same function: both provide optional information about the speaker's attitude towards (commitment to) the truth of the proposition 'he is innocent'. It therefore seems plausible to assign both expression the same function, that of third-order satellite.

Let us consider one more example in this respect. In (14a) the subject term *the president* functions as the agent in the SoA designated by the predication. In (14b), the same information is provided by means of the adjective *presidential* (Dik 1997b: 159). The difference in form will, again, be taken care of by the PFA. Moreover, as predicted by Mackenzie's Valency Reduction Hypothesis, this information is no longer required in the case of a nominalised head. The most plausible analysis, therefore, seems to be that in which the adjective *presidential* does not function as a restrictor, but as an implied satellite with the semantic function of Agent.<sup>13</sup>

- (14) a. The president denied the charges.  
 b. the presidential denial of the charges

The approach advocated has an additional advantage. In Dik's original schema for term structure, heads (first-restrictors) and modifiers (non-first restrictors) were analysed as having the same function: both served to restrict the set of potential referents symbolised by the term variable. The only difference between first and non-first restrictors was a difference in scope (Dik 1989: 134), in the sense that the first-restrictor would be 'logically prior' (Dahl 1971; cf. Jespersen 1924: 96) to any non-first restrictors. This does not, however, give special status to the first restrictor, since in the same way the second restrictor would be 'logically prior' to the third restrictor. Thus, a term like (15a) would be given the underlying (simplified) representation given in (15b), and would be interpreted along the lines of (16).

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those propositions which I sincerely believe to be true. I will therefore maintain that both *honest* and *honestly* are used restrictively in these examples.

<sup>13</sup> The adjectival argument construction is not very common in English, although the following authentic examples show that it is certainly acceptable, in particular with nationality-denoting adjectives:

- (i) *Any under oath presidential denial of sex with Monica Lewinsky* should make for an airtight perjury case (From: Nightmare on Pennsylvania Avenue, by Carl Limbacher; Chuck Baldwin Life, Talk Radio)  
 (ii) Though it's now four days ago since *the American attack on thousands of fleeing Iraqi troops*,... <ICE-GB:S2B #81:1:F>  
 (iii) He claimed *the British proposal for a common currency based on the hard ecu* was more sophisticated than that of most European partners. <ICE-GB:W2C-006 #18:1>

- (15) a. an old African elephant  
 b.  $(\lambda x_1: \text{elephant}_{t_N}: \text{African}_A: \text{old}_A)$

- (16) Instruction from S to A:  
 a. Take a (singleton) set of elephants  
 b. From this set single out the subset whose members have the property “African”  
 c. From this subset single out the subset whose members have the property “old”<sup>14</sup>

Nor is it the kind of predicate used which distinguishes first restrictors from non-first restrictors. Although the former are typically nominal and the latter typically adjectival, both may also take other forms (see also (2)):

- (17) a. Red is a lovely colour. [adjectival first restrictor]  
 b. To err is human. [verbal first restrictor]  
 c. a paper box [nominal second restrictor]  
 d. a burning house [verbal second restrictor]

Instead, what distinguishes the first restrictor from all other restrictors is that it the first restrictor which indicates, for the addressee, the type and order of entity referred to. It is for this reason that this first-restrictor is obligatory; without it the addressee would not be able to determine what kind of entity the speaker is referring to. All other restrictors function to specify further properties of the entity in question. Which non-first restrictors can felicitously be used is (partly at least) determined by the first restrictor (or, more correctly, by the entity designated by the first restrictor) – not the other way round. Observe finally that whereas there may be scope differences between the various non-first restrictors, they all perform the same function. The primary distinction is, therefore, that between first restrictors on the one hand and non-first restrictors on the other. This, too, ought to be reflected in the underlying representation of the term.

It will be clear that the proposals by Mackenzie offer an attractive way of dealing with some of these problems, in particular with those problems related to the status of the elements in deverbal constructions. By allowing various nominalised predicates (deverbal nouns, gerunds as well as first argument nominalisations like *listener* or *player*) to have both (inherited) arguments and implied satellites, the similarities as well as the differences between the input predicates and the output predicates are neatly reflected.

Moreover, by representing the optional (or optionally expressed) participants in these derived constructions as satellites there is no need for a separate rule of term-predicate formation (Mackenzie and Hannay 1982). This rule was introduced to make it possible for terms indicating e.g. location or possession to function as restrictors. After all, restrictors have a predicative function, whereas terms are referring expressions. For these terms to function as restrictors they would first need to be converted into predicates. If, on the other hand, they function as satellites, such conversion is no longer needed. Moreover, as satellites such terms could be assigned a semantic function: satellites are assigned semantic functions expressing the relation between satellite and first restrictor; restrictors are not.

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<sup>14</sup> Note that restrictors need not differ in scope; they may also be conjoined, in which case the two modifiers are usually separated by means of a comma or the conjunction *and*.

However, because these proposals were made to deal with nominalised constructions, they are restricted to the status and role of genitival and adpositional modifiers, that is, to modifiers which are themselves terms. As illustrated in (2), however, modifiers can appear in many forms. These other modifiers (adjectival and nominal predicates, participials and clauses) are still analysed as restrictors. This means that within the term we now have two types of modifiers – satellites (adpositional modifiers) and restrictors (adjectival and clausal modifiers) – despite the fact that both perform the function of restricting the denotation of the first restrictor.

As we have seen, Rijkhoff does take the extra step of analysing all modifiers within the term as satellites. In the structure he proposes, terms contain one (obligatory) restrictor and one or more optional satellites. In a further attempt to develop a uniform analysis of terms and predications, satellites at both levels are categorised as belonging to one of three domains: quality, quantity and location.

Closer inspection, however, suggests that the parallel structures imposed on terms and predications may be somewhat forced. For instance, as shown in Table 1, adjectival satellites are categorised as indicating a quality of the referent. Adjectives can, however, also indicate time (as in *my previous job*, *a recent proposal*, *the future king*), in which case they seem to fall within the domain of location (which includes time indicators). Furthermore, adjectives can be used to indicate frequency (e.g. *his frequent/regular/weekly/annual visits*), in which case it would make sense to place them in the domain of quantity.

Moreover, as we have seen, adjectives can be used to indicate a participant in a state of affairs (e.g. *the presidential election*, *the American attack* etc.), in which case they can be seen as corresponding to an argument in the verbal domain, rather than as belonging to any of the three domains distinguished.<sup>15</sup> However, since Rijkhoff (1992: 207, 2002: 226-227) acknowledges satellites at term level, but no arguments, analysis of these expressions poses a problem. Finally, such adjectives as *honest* in *my honest belief*, expressing the speaker's attitude towards the proposition referred to, obviously do not fall within any of the three domains: although they can occur in terms, they can never function as satellites at the level of the predication.

Similar problems arise in the case of adpositional satellites. In a straightforward example like *the book on the table*, the prepositional phrase *on the table* clearly belongs to the domain of location. In a term like *the cake for John*, however, it is far from clear to which of the three domains the satellite *for John* belongs. Moreover, adpositions, in particular those

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<sup>15</sup> Interestingly, these adjectives do so without taking argument position. Thus, in examples like *the American attack on Iraq* the agent of the action of attacking is not explicitly being referred to; yet, anaphoric reference to the implied agent is possible:

- (i) In Paris Francine Stock examines the thinking behind the last minute *French* initiative and what *they* hope to gain from it. <ICE-GB:S2B-010 #7:1:A>

Moreover, addition of a phrase referring to an Agent clearly leads to anomalous results; thus, in a construction like (ii) the adjective can no longer be interpreted as referring to those who did the initiating.

- (ii) \*? ... the French initiative by the British ...

In other words, although the adjective *French* here does not syntactically fill an argument position of the underlying verb *initiate*, it does act like an argument both semantically and pragmatically.

introduced by *of*, can also express a quality, as in *a man of honour*, *sheets of satin* and *a girl of sixteen*. Note that in all these cases, the quality in question can also be expressed by means of an adjective: *an honourable man*, *satin sheets* and *a sixteen-year-old girl*.

In addition, the prepositional phrases following deverbal nominal predicates (*the election of a president*, *the attack by the Americans*) are, again, hard to qualify. The same is true for *of*-phrases following basic relational predicates. Thus it seems hardly plausible to paraphrase a term like *the top of a mountain* as ‘the top situated upon a mountain’ (anyone wishing to convey this meaning would probably use the phrase *the top on the mountain*). Instead, *of* in these cases expresses an intrinsic part-whole relation, which, once again, does not seem to belong to any of the three domains distinguished by Rijkhoff. It will be clear that much the same applies to genitival terms (*Mary’s brother*, *the president’s denial* etc.), with the possible exception of possessive constructions.<sup>16</sup>

This, then leaves us with relative clauses, which are even harder to categorise. Rijkhoff (2002: 219) describes the function of the relative clause in (18a) as that of locating the entity referred to in time. Clearly, though, this is not the main function of relative clauses. What relative clauses do is indicate that the referent of a particular term also functions as a participant in some other state of affairs: the relative clause in (18a) does not merely place the book referred to in the past (which would be odd anyway, as shown by the markedness of *\*?the book yesterday*), but serves to indicate that this book plays a role in a particular giving-event (which took place in the past).

- (18) a. the book *I gave you (yesterday)* [location in time] (Rijkhoff 2002: 219)  
b. books (*which have been*) *written for first-year students*

The same is true for the construction in (18b): the relative clause does not serve to place a set of books in the present (note that for participial clauses it would be difficult to place the referents in any time), but, to relate it to some other state of affairs, thereby further qualifying the nature of the book referred to.

It therefore seems to me that the uniformity found between predications and terms by Rijkhoff, as manifested in the shared domains of quality, quantity and location, is too restrictive (as regards satellites, at least) and, as such, not descriptively adequate. I quite agree that there are important semantic and syntactic similarities between terms and predicates; at the same time, however, it needs to be acknowledged that these clause units perform different functions in the clause, which may call for differences in analysis.

Anstey (2002), as pointed out before, proposes to do away with all level-1 (nuclear predication) satellites. I will not address the question here of whether this is justified; I will, however, argue that his reasons for doing so do not seem to apply to terms. Let us concentrate

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<sup>16</sup> In accounting for possessive genitives like *John* in *John’s book*, Rijkhoff (2002: 219) refers to Claudi and Heine’s (1986: 316-317) and Heine’s (1990: 144) ‘space-to-possession metaphor’, according to which ‘what’s at one’s place is at one’s disposal’. Now, this may indeed be a basis for categorising possessive genitives as belonging to the locational domain, but it will also be clear that not all genitives can be so easily reformulated as indicating place. If we are to understand the genitive expressions in such constructions as *Mary’s brother* or *the president’s denial of the charges* as indicating location, then surely only in mental space; i.e the entity denoted by genitive term functions as a ‘reference point’ (Langacker 1991: 170) for identifying the referent of the term as a whole – not merely through spatial location, but through any kind of relation/association (cf. Taylor 1996: 17).

on those expressions which, at the level of the nuclear predication, serve to provide optional information in the form of additional participants, instruments and spatial orientations, and which, according to Anstey, should be analysed as optional arguments. Anstey's reason for analysing them in this manner is that these expressions do not specify further properties of the event, but introduce additional participants.<sup>17</sup> Terms, however, do not always (or even typically) denote events (or states of affairs). It is therefore hard to see how in a term like *the letter from John*, the term *John* introduces a new participant into any state of affairs, since there is no state of affairs for John to participate in (note that it is implausible to regard John as a participant in the state of affairs denoted by the predication in which the term as a whole functions as an argument). The expression *from John* does, however, specify a further property of the referent.

It is, moreover, far from clear what exactly an optional argument is. If we start from the original definitions of satellites and arguments, the term is a *contradictio in terminis*; after all, what distinguishes arguments from (adpositional) satellites from is they are obligatory. If we are to follow Anstey's line of reasoning, we have to abandon obligatoriness and optionality as the defining features of arguments and satellites, respectively. Instead the crucial distinction will be that between participants and non-participants in the state of affairs denoted. Although this may be a valid distinction to make, I do not feel that it should replace the traditional argument/satellite distinction (however problematic this distinction may be), particularly since the idea of optional arguments is relevant only at the level of the predication. At all higher levels, satellites still need to be defined in terms of their optionality, since – just like in terms – there is no state of affairs for any participants to be introduced into.

Finally, Anstey's proposal, too, applies only to optional information in the form of terms (adpositions and genitives), as only these can be seen as introducing participants. It cannot plausibly be extended to clauses or adjectives, which means that, at term level, we simply end up with yet another category: apart from arguments (e.g. *Mary* in *Mary's brother*), satellites (e.g. *yesterday* in *yesterday's meeting*) and restrictors (e.g. *boring* in *a boring meeting*), we now also have optional arguments (e.g. *the beach* in *the big man on the beach*).

#### **4. A modest proposal**

In view of the above it will not come as a surprise that I prefer to simplify term structure by analysing all (syntactically) optional information (i.e. all modifiers) within the clause as satellites. In addition, some predicates (basic relational predicates and most derived nominal predicates, see (6)) will be represented in the lexicon (or fund) with one or more argument slots. This analysis will then apply to all terms, irrespective of the form of the modifiers (adjectival, adpositional, genitival, nominal or clausal, the type of (first) restrictor (derived or non-derived) or the type of entity referred to (concrete object, state of affairs, proposition,

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<sup>17</sup> Observe that I do not include the function of Quality here, which, according to Anstey, also functions to introduce a new participant into the state of affairs. In my view, however, the expression *an exile* in an utterance like *John stayed in the country as an exile* does not introduce a new participant (or any participant for that matter): it is a non-referential expression, predicating a property of John. It therefore does not seem justified to analyse this expression as introducing an optional participant.

speech act or property). It will be clear that the possible combinations of these parameters are too numerous to list; a number of examples, however, will suffice to illustrate the result. In these examples satellites are given in italics and arguments in bold and italics.

- (19) • first-order entities
- a. genitival argument, non-derived head:  
***John's***<sub>Ref</sub> hair
  - b. adpositional satellite, non-derived head:  
the book *on the desk*<sub>Loc</sub>
  - c. adjectival satellite, non-derived head:  
an *old*<sub>Qual</sub> car
  - d. clausal satellite, derived head:  
the painting *I bought yesterday*
- (20) • second-order entities
- a. pronominal argument and (implied) adpositional satellite, derived head:  
*their*<sub>Proc</sub> arrival *at the airport*<sub>Loc</sub>
  - b. nominal satellite, derived head:  
the meeting *last week*<sub>Time</sub>
  - c. genitival and adpositional argument, derived head:  
*the doctor's*<sub>Ag</sub> treatment *of the patient*<sub>Go</sub>
  - d. clausal satellite, derived head:  
the meeting *I attended*
- (21) • third-order entities
- a. genitival and clausal argument, derived head:  
*John's*<sub>Pos</sub> hope *that the charges would be dismissed*<sub>Cont</sub>
  - b. pronominal and adpositional argument, derived head:  
*his*<sub>Pos</sub> belief in *her innocence*<sub>Go</sub>
  - c. clausal argument, non-derived head:  
the fact *that he didn't come*<sub>Cont</sub>
  - d. adjectival satellite, non-derived head:  
a *splendid*<sub>Att</sub> idea
- (22) • fourth-order entities
- a. clausal satellite; derived head:  
the order *John gave*
  - b. appositional argument, derived head:  
the question *'who did it?'*<sub>Form</sub>
  - c. adjectival satellite, derived head:  
a *tentative*<sub>Att/Man</sub> answer
  - d. pronominal and adpositional argument, derived head:  
*our*<sub>Ag</sub> response to *his entreaty*<sub>Go</sub>

- (23) • zero-order entities
- a. adpositional argument, derived head:  
the height *of the tower*<sub>Ref</sub>
  - b. genitival argument, non-derived head:  
*the car's*<sub>Ref</sub> colour
  - c. clausal satellite, non-derived head:  
the colour *I like best*
  - d. adjectival satellite, non-derived head:  
a *dark*<sub>Qual</sub> colour

Note that a number of new semantic functions have been introduced: Qual(ity) for qualifying adjectives, i.e. adjectival satellites which denote a quality of the referent of the term; Att(itude) for adjectival satellites expressing the speaker's attitude towards a third-order referent; Contents for the complement clauses of third order predicates like *fact* or *hope*; and Form for the arguments of speech act predicates like *question* because they give the actual (direct speech) form of the speech act in question.<sup>18</sup> Finally, observe that *last week* in (20b) is assigned the semantic function of Time, not, as Anstey (2002: 15) suggests, Ref. The function of Ref will be reserved for arguments of relational nominal predicates like *father*, and deadjectival nominal predicates like *height*.

Now, clearly, the parallels between terms and predications are even more consistently reflected, in that both now consist of a variable, one or more operators, arguments (though not typically so at term level) and satellites. At the same time, however, there are also differences between the two clause units, in particular with regard to the functions of the satellites. Thus we see that, although there is a certain overlap between the functions of term satellites and predication satellites (at both levels satellites can, for instance, have the semantic function of Location or Time), there is quite clearly no direct match between the sets of functions performed by the satellites at the two levels. In itself this is not surprising, since there are also differences between the functions of satellites at the higher levels of the clause (2-4): at each level, satellites serve specific functions depending on the type of entity denoted. To some extent this is also true of terms: as they are the only clause unit which can be used to refer to concrete objects, there are bound to be differences between the satellites modifying these entities and those modifying higher order entities. This, then, accounts for the fact that it is only at this level that the function Quality is found, as it is concrete objects which have (physical) attributes like colour and size (in a literal sense, at least).

As pointed out earlier, however, there is another difference between terms and the other clause units which accounts for the fact term satellites differ, in form and function, from those at higher levels. Terms are the only clause units which always have a referring function: it is by means of terms that we refer to the participants (obligatory or optional) in a state of affairs. When any of the other clause units occur in argument position, they, too will have a referring function; this is not, however, their typical use. This may, in fact, explains why it is that only terms have satellites in the form of a restrictive relative clause: since restrictive relative clauses provide an additional predicate frame for the term to participate in, they can only be used to modify term referents. Once again, this is no reason for not regarding them as satellites.

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<sup>18</sup> Notice that restrictive relative clauses have not been supplied with a semantic function; this is simply due to the fact that I have not been able to come up with an appropriate label.

At a pragmatic level, too, satellites (and arguments) at term level serve a different purpose from those at higher levels. Due to the referring function of terms, term satellites typically serve to help the addressee to identify the entity referred to. It is this function of referent identification which explains why it is that the arguments of basic or derived nominal predicates can so often be omitted, while at predication level arguments must virtually always be expressed. Since within the term arguments typically serve to enable the addressee to identify the term referent, they are only added when they are needed for identification; if not, they are left implied. Note that identification here does not necessarily mean (unique) identification of a specific entity, by may also apply to types of entities. Consider the following examples:

- (24) a. *The spire of our church* has collapsed.  
b. The church opposite our house burnt down last night. We could see *the spire* collapse.  
c. I could see *the spire of a church* in the distance.  
d. I could see *a spire* in the distance.

In (24a), the explicitly mentioned argument *our church* serves to (uniquely) identify the entity referred to. In (24b), there is no need to explicitly mention the argument within the term; since the argument is clearly evoked, identification will be unproblematic. In (24c) the argument functions to identify the type of entity referred to without identifying a particular token. In (24d), neither the type nor any token are being identified – possibly because the speaker is unable to provide this information. In other words, the presence of the argument depends on whether it is required and/or available for the identification of the term referent. Predications, on the other hand, do not refer to entities. They describe states of affairs, introducing them into the discourse. The arguments contained in the predication serve to narrow down the denotation of the verbal predicate, but do not function to identify a specific event.

I would therefore like to regard these identifying expressions at term level as non-expressed arguments, rather than implied satellites. The reason they are not expressed is a pragmatic one; semantically, they have the same level of obligatoriness as in the verbal domain. Although I realise distinctions are very subtle, these non-expressed arguments are not identical to Anstey's (2002: 7) optional arguments either, a function he assigns to additional participants in states of affairs, i.e. Dik's implied  $\sigma_1$  satellites, such as beneficiary, instrument, company, direction, source etc., which, generally speaking, are required neither semantically (at least not to the extent arguments are), nor for purposes of identification.

Adjectives, on the other hand, will be treated as satellites, either implied (e.g. colours, sizes) or non-implied; though the line may be difficult to draw. Note, however, that not all adjectives are to be analysed as satellites within the term. Thus, like relative clauses, adjectives may have a restrictive or a non-restrictive function. This is illustrated in the examples in (25) and (26).<sup>19</sup> In (25), the adjectives fulfil what is presumably their most function, that of restricting the referent set of the term in question. In (26), on the other hand, the adjectives in the italicised expressions do not have restrictive function. Thus, in (26a), the implication is not that there is more than one statue of Lord Roberts, but only one of Lord Roberts on horseback. Similarly, in (26b), there is only one set of boots involved, all

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<sup>19</sup> The examples here are taken from the ICE-GB corpus, a fully tagged and parsed one-million-word corpus of written and spoken English composed at the Survey of English Usage, University College London.

members of which are shiny, while in (26c) there is obviously only one kingdom of Strathclyde and one kingdom of Dalriada.

- (25) a. Well that was slightly above the *average* tea shop <ICE-GB:S1A-010 #20:1:A>  
b. ... he'd be worrying about whether the tissue box was on the *right* side of the bed and whether you know why the flowers weren't the *right* colour and all that nonsense you know and sort of busy dispatching people <ICE-GB:S1A-010 #258:1:B>  
c. This meant that following the *Anglo-Saxon* victory at Chester c.616 A.D. the *British* kingdoms were restricted to Cornwall, Wales and Strathclyde. <ICE-GB:W1A-001 #60:1>
- (26) a. The field officer and the major of the parade have once again halted more or less directly in front of the *equestrian* statue of Lord Roberts <ICE-GB:S2A-011 #22:1:A>  
b. but uh it has looked immaculate as ever as the guards now resume their original positions and, mark time, the *shiny* boots rising and falling in perfect harmony <ICE-GB:S2A-011 #37:1:A>  
c. One by-product of the Deirian Deiran advances in Northern England may have been the consolidation of the *British* kingdom of Strathclyde based on Alcuin (Dumbarton Rock) and the emergence of the *Irish* kingdom of Dalriada. <ICE-GB:W1A-001 #61:1>

Now, let us return for a moment to another difference between terms and other units within the clause, namely, that terms can be used to refer to any order of entity, while each of the higher clause units designate just one particular type of entity (without referring to this entity, unless they occur in argument position). Due to this feature of terms, satellites at term level can fulfil a large variety of functions, depending on the order of entity referred to. In the case of a concrete referent, satellites can provide optional information about physical attributes of the entity in question, its location, possessor, etc. If the referent is a second-order entity, satellites may serve to indicate time (*yesterday's meeting*), frequency (*weekly meetings*) or participants (*a meeting of souls*), while adjectives like *honest* (*my honest belief*) or *possible* (*a possible solution*) indicate the speaker's attitude towards the truth of the proposition referred to. Arguably, an adjective like *frank* in *a frank answer* can be seen as modifying the speech act referred to.

This raises the question of what determines the level of a satellite: is it the level at which they occur within the clause, or the order of the entity they modify? On the basis of the preceding, it will be clear that it must be the order of the entity rather than the level of the clause (see also Anstey 2002: 5). In that case, however, it would be more consistent also to distinguish different levels of (term) arguments, as their form and function, too, are determined by the order of the entity referred to:

- (27) a. level-1 argument: *John's father*  
b. level-2 argument: *his treatment of the patients*  
c. level-3 argument: *the fact that the earth is round*  
d. level-4 argument: *the question 'who did it?'*

The analysis proposed can, of course, be applied to adjectives as well. Adjectives, too, can take arguments as well as satellites. Thus (predicatively used) basic adjectives like *privy* (to sth), *fond* (of sb/sth), *eager* (to do sth), as well as derived adjectives like *dependent* (on sb/sth) all have one argument position. Adverbial modifiers – intensifiers like *very* and

*extremely* and downtoners like *almost* and *rather* – on the other hand, are to be analysed as satellites of the adjectival predicate they modify.

A final advantage of the current proposal is that it reflects the difference in status between first restrictors and non-first restrictors. In traditional approaches this difference was captured by means of the head-modifier distinction (or, in the case of arguments, the head-complement distinction). These terms were used to reflect the intuitive idea that within each phrase one element was somehow more important than the others. With regard to noun phrases, for instance, Jespersen (1924: 96) describes how

In any composite denomination of a thing or person ..., we always find that there is *one word of supreme importance* to which the others are adjoined as subordinates. This chief word is defined (qualified, modified) by another word, which in turn may be defined (qualified, modified) by a third word, etc. (original emphasis).

A similar characterisation is, in fact, used by Dik (1997a), who, as pointed out before, follows Dahl (1971) in regarding the information given in the first restrictor (or head) as “logically prior” to the information contained in non-first restrictors (or modifiers) (Dik 1997a: 134; 151). Dik (ibid.) also mentions that there appears to be psycholinguistic evidence to support the idea that the information in the head is psychologically prior to the information in the modifier (Clark and Clark 1977: 474). Accordingly, in Dik’s Functional Grammar, it is the first restrictor in underlying term structure which functions as the head of the term phrase, while the second, third etc. restrictor function as modifiers (e.g. Dik 1997a: 151). Quirk et al. (1985: 60), too, describe the head as having a ‘primary’ function, as the ‘central constituent’ within a noun phrase.

But what does it mean for an element to be the most important, primary, logically prior part of a noun phrase? The answer to this question is usually given in terms of the designation of a noun phrase. In Givón (2001: 59) we read that ‘within the noun phrase, a noun is typically the syntactic and semantic head, defining the type of entity involved’. Similarly, in Langacker’s (2002: 12-13) Cognitive Grammar it is the profile of the head that prevails at the composite structure level (is the ‘profile determinant’), where the profile of an element is determined by its designation. The head (or first restrictor) therefore plays a very specific role within the noun phrase (or term); one that is fundamentally different from that of the other restrictors.

In the representation of terms proposed here this difference is now neatly reflected: the first-restrictor is still analysed as a restrictor, serving, as at every level in the clause, to designate the type of entity involved (not just the order of the entity, but its more specific nature, the ‘kind of thing’ in question). This restrictor, as the head of a term, is characterised by specific properties, both semantic (e.g. in terms of selection restrictions) and syntactic (e.g. pluralisation, subject-verb number agreement). Any modifiers or complements, on the other hand, are represented as satellites or arguments.

## 5. Conclusion

Let me start by briefly summarising the main advantages of the structure of terms proposed. In general, it succeeds in bringing out the parallels with higher levels (in particular with the predication) where these can plausibly be assumed to exist, while at the same time reflecting the differences between terms and other clause levels. Moreover, it offers a consistent treatment of all terms, irrespective of type, order or form of the restrictor. Further obvious advantages are that all modification by lexical means is done by means of satellites (cf. Rijkhoff), and that nominal predicates can have predicate frames with arguments, which also facilitates the description of inheritance of arguments (cf. Mackenzie). Moreover, as satellites and arguments, all modifiers or complements within the term can be provided with a semantic function indicating their relation to the restrictor. Finally, this proposal allows us to acknowledge the different roles played within the term by the restrictor and any satellites or arguments.

In addition, it has been suggested that the level of a satellite is determined by the type of entity it modifies, not by the level in the clause at which it occurs (although these typically correspond). This means that terms can contain satellites of any level, depending on the order of the entity referred to. Since terms can also contain arguments of different types, depending on the type of referent, it was suggested that different levels of arguments be distinguished, too.

Now it may be argued that the inconsistencies noted in the model (more specifically, in term structure) could just as well be solved by analysing all satellites as (non-first) restrictors, rather than the other way round (an approach adopted by, for instance, Vet 1986, 1990). Either approach will, of course, lead to a more unified account, in which non-first restrictors and satellites are analysed in a similar way. Reanalysing satellites as non-first restrictors has the advantage of not having to introduce any new semantic functions: on such an approach semantic functions can be reserved for arguments, while the specific function of the restrictors must be derived from the form and content of the restrictor, as well as from the given setting. A possible disadvantage of such an approach might be that yet another category (of satellites??) will be needed to deal with non-restrictive modifiers. Another objection might be that it fails to bring out the (important) distinction between first and non-first restrictors.

Finally, there are still a number of other issues relating to the structure of terms that need to be addressed. The first of these concerns an old problem, namely that of how to distinguish between arguments and satellites at term level. In other words: how do we decide what the predicate frame of a (nominal) predicate looks like? Is it useful, apart from the (notoriously) unreliable omissibility criterion, to look for operational tests for distinguishing between satellites and arguments (e.g. Radford 1988; Fries 1999; Keizer in prep.)? In this respect, we also have to establish more precisely the status of implied satellites and optional arguments, and to ask ourselves whether we really need these additional categories. Another question that has not been addressed here is that raised by Anstey (2002): do level-1 satellites exist, either in the predication or in the term? These and other questions need to be answered to come to a truly adequate and consistent analysis of terms; the proposal made in this paper will, I hope, be one step in that direction.

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