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GERD WOTJAK (ED.)

Toward a Functional
Lexicology

Hacia una lexicología funcional



PETER LANG

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Kees Hengeveld

Adverbs in Functional Grammar¹

1. Introduction

One of the least studied major parts of speech is the class of adverbs. The reasons for this situation might be that there are very few languages in which this part of speech represents an open class of basic, i.e. underived lexemes. Given, however, the large number of functions that adverbs may fulfil, they deserve attention from lexicologists. In this paper I present a classification of adverbs in terms of the various positions they may occupy in the underlying representation of utterances (Hengeveld 1989, 1992a) in Functional Grammar (FG, Dik 1989). Each of these positions corresponds to a particular function which identifies a subclass of adverbs. The lexical entries of adverbs which may be derived from this classification account for various formal and behavioural properties of the various classes of adverbs.

This article is organized as follows: After defining the class of adverbs in section 2 and introducing the representation of utterances in FG in section 3, I present a classification of adverbs in terms of this representation in section 4. Section 5 then shows that this classification allows us to predict a number of properties of adverbs in a consistent manner. Section 6 presents my conclusions.

2. Adverbs

The (syntactic) definition of adverbs that will be used in this article (cf. Hengeveld 1992a, 1992b; Ramat & Ricca *fc.*) is given in (1):

1. An adverb is a lexical modifier of a non-nominal head.

This definition contains three elements that need some further exploration.

(i) An adverb is a *modifier* in the sense that it occupies a non-obligatory syntactic slot and thus depends on the presence of an element that occupies the obligatory slot of the non-nominal head. Compare the following examples:

¹ I am indebted to Gerry Wanders for comments on an earlier version of this paper.

2. a. She dances beautifully.
 b. She dances.
 c. *She beautifully.

In (2a) the verb *dance* occupies the head position, *beautifully* the modifier position in a predicate phrase. The head can occur independently (2b), the modifier cannot (2a). In this sense adverbs resemble adjectives, modifiers of nominal heads, as illustrated in (3):

3. a. the old man
 b. the man
 c. *the old

It should be noted, however, that in some languages a modifier can occur as the only element of a phrase in those cases in which the head can be appropriately understood from the context.

(ii) The requirement that adverbs be *lexical* elements excludes syntactically construed modifiers of non-nominal heads from the definition. Compare the following examples:

4. a. She dances *beautifully*.
 b. She dances *in a beautiful manner*.
 5. a. I spoke to her *yesterday*.
 b. I spoke to her *before you arrived*.

Examples (4a) and (5a) contain adverbs, examples (4b) and (5b) contain non-lexical adverbial constructions. Since derivational rules produce lexical items, derived adverbs such as *beautifully* in (4a) are included in the definition.

(iii) The definition of adverbs as modifiers of *non-nominal heads* distinguishes them from adjectives, which modify nominal heads. Non-nominal heads may be of various types, ranging from lexical elements, such as the adjectival head in (6), to entire sentences, as in (7):

6. an *extremely* intelligent boy
 7. *Frankly*, I don't like you.

There are elements which modify nominal heads, such as *even* in (8), which are sometimes characterized as adverbs (cf Ramat & Ricca *fc*):

8. *Even* the queen was present.

These elements are probably better characterized as (focus) particles. Notice in particular that, strictly speaking, *even* in (8) does not modify the nominal head *queen* but rather the noun phrase *the queen*.

3. The hierarchical structure of the utterance in Functional Grammar

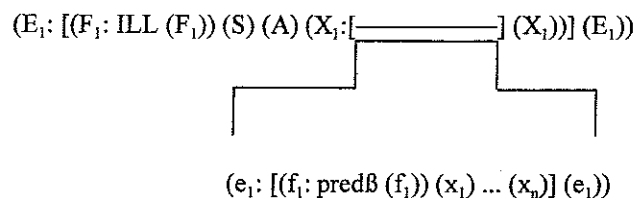
In FG underlying representations of utterances are semantically and pragmatically based universally applicable structures. Once fully specified, the underlying structures are translated into actual linguistic expressions via the application of a language-specific set of expression rules. Thus, semantics and pragmatics are clearly separated from syntax, morphology, and phonology.

Utterances are represented as hierarchically ordered layered structures (Hengeveld 1989), within which each layer corresponds to a certain communicative function. The basic organization of the layered representation of utterances is given in Figure 1. This representation is inspired by Foley & Van Valin (1984), but has been given a semantic basis in the FG framework.

The highest level in Figure 1 is called the interpersonal level (Halliday 1985). It represents the speech act (E), and is structured on the basis of an illocutionary frame (F), which takes the speaker (S), the addressee (A), and the propositional content of the speech act (X) as its arguments.

The lowest level is called the representational level (Bühler 1934). It represents the state of affairs (e) referred to in the speech act, and is structured on the basis of a predicate frame (f), which takes one or more individuals (x) as its arguments.

The two levels thus correspond to Jakobson's (1971) speech event and narrated event, respectively. As Jakobson argued, many grammatical categories can be defined only if these two levels of analysis are taken into account.



Variable	Designation	Order	Linguistic unit
(E ₁)	Speech act	4	Utterance
(X ₁)	Propositional content	3	Proposition
(F ₁)	Illocution	0	Illocutionary force
(e ₁)	State of affairs	2	Predication
(x ₁)	Individual	1	Term
(f ₁)	Property/Relation	0	Predicate

Figure 1. The hierarchical structure of the utterance in FG

The structure in Figure 1 contains a number of different layers. The outermost layer (E) represents the speech act, which, extending Lyons (1977) classification of entity types, designates a fourth order entity, which is characterized by the fact that it locates itself in space and time. The speech act contains a propositional content (X), a third order entity, which can be located neither in space nor in time. Within the propositional content reference is made to a state of affairs (e), a second order entity, which can be located in space and time. This state of affairs involves one or more individuals (x), first order entities, which can be located in space but not in time. The participants in the speech event, at the interpersonal level, are characterized in terms of an illocutionary relation (F), the participants in the narrated event, at the representational level, in terms of a property or relation (f). These are zero order entities, which have no independent existence, but can only be predicated of other types of entity.

Each entity type has a corresponding linguistic unit, as indicated in Figure 2. Finally, it should be mentioned that layers of lower levels are fully contained within layers of higher levels, such that e.g. the presence of a propositional layer implies the presence of a predicational layer.

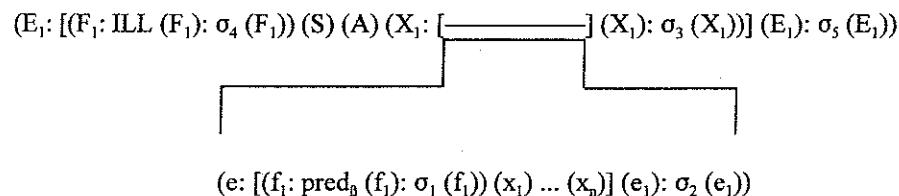
The distinction between propositional contents and states of affairs, or between third and second order entities, is of crucial importance (see Lyons 1977) within the model just presented. Propositional contents, i.e. thought, opinions, and the like, are of an intensional nature. They only exist in the mind of the speaker. States of affairs, i.e. events, states, and the like, are of an extensional nature. They are part

of the external world described in the speech act, and exist whether they are thought about or not.

4. Adverbs in Functional Grammar

4.1. Satellites

Each of the relevant units of the utterance structure discussed so far can be modified by operators and satellites. Operators are abstract elements representing semantic distinctions expressed by grammatical means. Satellites represent modifications expressed by lexical means. In what follows I will restrict myself to satellites. In Figure 2 the different types of satellite (σ) are located in the model of the utterance.



σ_1 :	Predicate satellites	σ_2 :	Predication satellites
σ_3 :	Proposition satellites	σ_4 :	Illocution satellites
σ_5 :	Utterance satellites		

Figure 2. Satellites

All satellite types have functions which are characteristic of the level at which they operate. Predicate satellites (σ_1) specify additional properties of the internal structure of a state of affairs (e.g. Manner, Degree). Predication satellites (σ_2) specify the external setting of a state of affairs (e.g. Time, Location, Cause). Proposition satellites (σ_3) specify the attitude of the speaker with respect to the propositional content of the speech act (e.g. Evidence, Hypothesis). Illocution satellites (σ_4) modify the speaker's communicative strategy (e.g. Manner (of speech act)). Finally, in order to account for textual relations, there is a class of utterance satellites (σ_5), which capture the lexical means through which the speaker locates his utterance within the context of the discourse and thus restricts the set of potential perlocutions of this utterance.

4.2. The classification of adverbs

4.2.1. Introduction

From the description of the treatment of satellites in FG in section 4.1. it follows that satellites can be characterized in general terms as modifiers of non-nominal heads. Since adverbs have been defined as lexical modifiers of non-nominal heads, they can now be reinterpreted in terms of the FG framework as lexical elements occupying a satellite slot. The classification of satellites in FG may thus serve as a framework for the classification of adverbs as well, in the sense that adverbs may be classified in terms of the specific satellite slot they may occupy. The various subclasses are discussed in what follows.

4.2.2. Adverbs as predicate satellites (σ_1)

Predicate satellites modify the relation or property expressed by a predicate. What results is a complex relation or property. Predicate satellites thus affect the internal constitution of a state of affairs. Adverbs occupying the predicate satellite slot (represented as *adverb*¹) are those that are traditionally known as adverbs of manner and degree. These can be further divided with respect to the nature of the predicate they modify, which may be verbal (9), adjectival (10), or adverbial (11):

9. That boy played *clumsily*.
10. That boy is *extremely* clumsy.
11. That boy played *incredibly* clumsily.

The relevant part of these sentences may be represented as in (12)-(14):

12. (f_1 : pred_v (f_1): adverb^{IV} (f_1))
'That boy played *clumsily*'
13. (f_1 : pred_{ADJ} (f_1): adverb^{IA} (f_1))
'That boy is *extremely* clumsy'
14. (f_1 : pred_{ADV} (f_1): adverb^{IADV} (f_1))
'That boy played *incredibly* clumsily'

There are various things to be noted about these representations. First of all, adverbs of the three subclasses are considered to act as restricting predicates² over

2 Adverbs themselves constitute the head of an adverbial predicate phrase. In order not to complicate the representations, this fact will be ignored here.

the variable of the predicate phrase (f_1), extending the proposal for the treatment of temporal satellites in Vet (1986). Second, and as a result of the first characteristic, the three classes of adverbs have an argument position, as indicated in their lexical entries in (15)-(17):

15. *clumsily*_{ADV} (f_1)
16. *extremely*_{ADV} (f_1)
17. *incredibly*_{ADV} (f_1)

This treatment of adverbs formalizes their predicative nature and makes sure they can only be inserted in the appropriate position, that is, within the predicate phrase. As pointed out by García Velasco (fc.), this representation furthermore allows for a consistent treatment of selection restrictions that may obtain between a predicate and the adverb that modifies it. For instance, manner adverbs generally do not combine with adjectival or adverbial predicates, as illustrated in (18):

18. *That boy is clumsily funny

This restriction on Manner adverbs is taken care of by the selection restrictions on its argument position, as indicated in (19):

19. *clumsily*_{ADV} (f_1 : <Pred_v> (f_1))

There are, ofcourse, more specific restrictions. Thus, roughly speaking, manner adverbs do not combine with non-controlled non-dynamic predicates but only with controlled and/or dynamic states of affairs. Again, these restrictions may be captured by imposing selection restrictions on the argument position of the relevant adverbs. For a more extensive discussion the reader is referred to García Velasco (fc.).

4.2.3. Adverbs as predication satellites (σ_2)

Predication satellites give further information about the setting of a state of affairs. They may specify the state of affairs in terms of the time or place of its occurrence, or in terms of the number of its occurrences. Thus, adverbs occupying the predication satellite slot (represented as *adverb*²) are those that are generally known as Time, Place, and Frequency adverbs, as in the following examples:

20. The meetings were held *recently*
 21. The meetings were held *nationally*
 22. The meetings were held *frequently*

The relevant part of these sentences may be represented as in (23):

23. (e₁: [...]) (e₁): adverb² (e₁)
 'The meetings were held *recently/nationally/frequently*'

As in the case of adverbs of Manner and Degree, the adverbs of this class are treated as one-place predicates, which in this case take a second order argument:

24. *recently*_{ADV} (e₁)
 25. *nationally*_{ADV} (e₁)
 26. *frequently*_{ADV} (e₁)

Cooccurrence restrictions may be accounted for by specifying selection restrictions on the argument of the adverb. Thus, adverbs such as *recently* may only be used when reference is made to a state of affairs situated before the moment of speaking, as illustrated in (27):

27. *The meetings will be held *recently*

This restriction on the argument position of *recently* may be represented as in (28):

28. *recently*_{ADV} (e₁: <past> (e₁))

A fourth class of adverbs which may be argued to take a predicational argument are those which specify the likelihood of the occurrence of an event (cf. Wanders 1993):

29. One *hardly* finds a topic that gives rise to more confusion

In this example, and more clearly in Spanish examples with the adverb *difícilmente*, the value added by the adverb concerns the actuality of the occurrence of the state of affairs. It is therefore incompatible with other elements specifying the degree of actuality, such as sentence negation:

30. *One *hardly* doesn't find a topic that gives rise to more confusion

This adverb, with the selection restriction that it imposes, may thus be represented as in (31):

31. *hardly*_{ADV} (Pos e₁)

4.2.4. Adverbs as proposition satellites (α₃)

Proposition satellites specify the speaker's subjective attitude towards the propositional content he is presenting within his speech act. This attitude may be of an epistemic, evidential, or attitudinal nature. The following adverbs (represented as adverb³) illustrate the expression of these different attitudes via adverbs:

32. *Probably* he's ill
 33. *Apparently* he's ill
 34. *Unfortunately* he's ill

The relevant part of these sentences may be represented as in (35):

35. (X₁: [...]) (X₁): adverb³ (X₁)
 '*Probably/apparently/unfortunately* he's ill'

The predicate frame of these adverbs is as in (36)-(38):

36. *probably*_{ADV} (X₁)
 37. *apparently*_{ADV} (X₁)
 38. *unfortunately*_{ADV} (X₁)

This account of propositional adverbs provides a way to take care of e.g. the restrictions on the expression of epistemic adverbs in contexts in which the speaker does not express his commitment to the content of a proposition, as is the case in questions:

39. *Is he *probably* ill?

This restriction of epistemic adverbs to propositions with a determined (det) truth value may be captured in their predicate frames as in (40):

40. *probably*_{ADV} (X₁: <det> (X₁))

A fourth class of adverbs that may be said to take a propositional argument are known as Viewpoint adverbs (cf Quirk et al. 1985, Wanders 1993) or as Domain adverbs (cf Ramat & Ricca fc.). These specify the perspective from which or the limits within which the propositional content may be considered to be true. Examples (from Quirk et al. 1985: 568) are given in (41)-(42):

41. *Architecturally*, it is a magnificent conception
 42. *Weatherwise*, we are going to have a bad time this winter

A specific restriction imposed by these adverbs is that the propositional content they modify is an opinion rather than a fact.

4.2.5. Adverbs as illocution satellites (σ_4)

Illocution satellites modify the speaker's communicative strategy. Adverbs fulfilling this function (represented as adverb⁴) are known as illocutionary adverbs. These are illustrated in (43)-(44):

43. *Frankly*, I don't like him
 44. *Confidentially*, I don't like him

The relevant part of these sentences may be represented as in (45):

45. (F₁: ILL (F₁): adverb⁴ (F₁))
 'Frankly/confidentially, I don't like him'

The adverbs involved have the predicate frames illustrated in (46)-(47):

46. frankly_{ADV} (F₁)
 47. confidentially_{ADV} (F₁)

There are again restrictions on the occurrence of these adverbs, which the format used for representing them allows to capture. Thus, adverbs such as *confidentially* do not combine with imperative illocution, as illustrated in (48):

48. *Confidentially, shut up!

This limitation of *confidentially* to non-directive (non-dir) illocutions may be captured in its predicate frame, as in (49):

49. confidentially_{ADV} (F₁: <non-dir> (F₁))

4.2.6. Adverbs as utterance satellites (σ_5)

Utterance satellites capture the lexical means through which the speaker locates his utterance within the context of the discourse. Adverbs occupying this satellite slot (represented as adverb⁵) are illustrated in (50)-(51):

50. *Finally*, I see no reason to go on like this
 51. *Briefly*, I see no reason to go on like this

In (50) the last argument in a series is presented. In (51), a series of arguments is summarized. The adverbs involved can thus only be interpreted in terms of a larger stretch of discourse, within which they situate the utterance they modify. The relevant parts of these sentences may be represented as in (52):

52. (E₁: [.....] (E₁): adverb⁵ (E₁))
 'Finally/briefly I see no reason to go on like this'

The adverbs illustrated here have the predicate frames given in (53)-(54):

53. finally_{ADV} (E₁)
 54. briefly_{ADV} (E₁)

A rather obvious restriction in the case of an adverb such as *finally* is that it is restricted to the final or closing utterance within a discourse move. This restriction may be captured by providing its predicate frame with the selection restriction given in (55):

55. finally_{ADV} (E₁: <last> (E₁))

4.3. Summary

The classification of adverbs resulting from the discussion in the preceding sections may be summarized as in (56):

56. CLASSES OF ADVERBS

Adverb¹ (Manner, Degree)

(f ₁ : verb	(f ₁): adverb ^{1V}	(f ₁))
(f ₁ : adjective	(f ₁): adverb ^{1A}	(f ₁))
(f ₁ : adverb	(f ₁): adverb ^{1Adv}	(f ₁))
Adverb ² (Time, Place, Frequency, Actuality):		
(e ₁ : [.....]	(e ₁): adverb ²	(e ₁))
Adverb ³ (Epistemic, Evidential, Attitudinal, Viewpoint)		
(X ₁ : [.....]	(X ₁): adverb ³	(X ₁))
Adverb ⁴ (Illocutionary):		
(F ₁ : ILL	(F ₁): adverb ⁴	(F ₁))
Adverb ⁵ (Textual)		
(E ₁ : [.....]	(E ₁): adverb ⁵	(E ₁))

5. Formal and behavioral correlates

The classification presented in the previous section provides a basis for explaining a number of formal and behavioural properties of the various classes of adverbs. I will briefly go into the following four properties here: (i) selection restrictions, (ii) the existence of adverbs, (iii) formal differences between adverbs, and (iv) the order of adverbs.

5.1. Selection restrictions

A first property may be briefly mentioned here. In the course of the discussion of the various classes of adverbs in section 4.2. it has been shown that one of the advantages of the representational mechanism proposed is that restrictions on the occurrence of adverbs can be captured via the selection restrictions that are imposed on its argument position. The examples of selection restrictions presented there have shown that these selection restrictions are directly related to the nature of the argument. Thus, adverbs modifying the predicate impose restrictions on the nature of that predicate, adverbs modifying the predication on the nature of that predication, etc. As such, these selection restrictions provide indirect evidence for the classification proposed.

5.2. The existence of adverbs

In their study of sentence adverbs in the languages of Europe, Ramat and Ricca (fc.) show that many languages lack certain classes of, particularly, sentence adverbs. The investigation of some additional data shows that there is a stronger tendency for adverbs of higher levels to lack in a certain languages than for adverbs

of lower levels. Thus, in the Altaic language Kalmyk (Benzing 1985) there are Manner adverbs (level 1), some marginal lexicalized spatial and temporal adverbial expressions (level 2), but there is no evidence for the existence of adverbs of levels 3, 4 and 5. In Dutch, there are adverbs of levels 1 and 2, adverbs for several but not all of the subclasses of level 3, but no adverbs of levels 4 and 5. In both languages the absence of certain adverbs is compensated for by complex adverbial expressions (See Ramat & Ricca for extensive exemplification).

These data suggest that the existence of adverbs within a language is hierarchically determined as indicated in (57):

57. Adverb⁵ > Adverb⁴ > Adverb³ > Adverb² > Adverb¹

5.3. Formal differences between adverbs

Some languages indicate the different levels at which adverbs operate by formal means. Thus, the two interpretations of *wisely*, one as a manner adverb (Adverb¹) and one as an attitudinal adverb (Adverb³) is made in German as indicated in (58) (cf. Dik 1975):

German

58.	Adjective	Adverb ^{1V}	Adverb ²	Adverb ³
	<i>klug</i>	<i>klug</i>	--	<i>klugerweise</i>
	'wise'	'wisely'		'wisely'

Somewhat differently, in Dutch manner adverbs (Adverb¹) take the same form as adjectives. Adverbs of higher levels, however, are generally not identical in form to adjectives, but are derived from these by various suffixes, as indicated in (59):

Dutch

59.	Adjective	Adverb ^{1V}	Adverb ²	Adverb ³
	<i>mooi</i>	<i>mooi</i>	--	--
	'beautiful'	'beautifully'		
	<i>recent</i>		<i>recentelijk</i>	--
	'recent'	--	'recently'	
	<i>mogelijk</i>			<i>mogelijkerwijs</i>
	'possible'	--	--	'possibly'

Thus, some aspects of the classification of adverbs presented earlier find some formal reflection in these two languages.

5.4. The order of adverbs

The strongest piece of evidence for the classification presented earlier comes from the order in which adverbs appear in languages. If the main predicate of a sentence is taken as the center, adverbs may be said to orient themselves towards this center in such a way that the scope relations between them are matched by their order with respect to the center. Consider the following example:

60. *Finally* (σ_3), your mother *honestly* (σ_4) *probably* (σ_5) has been slandering *terribly* (σ_1) *again* (σ_2)

The order of the three adverbs preceding the main predicate (*finally*, *honestly*, and *probably*) reflects the scope relations between them as reflected in their underlying representation. The same goes for the two adverbs following the main predicate: the manner adverb (Adverb¹) is closest to the main predicate and followed by the temporal adverb (Adverb²).

Although this tendency for the ordering of adverbs is strong, there are two points that should be mentioned here:

(i) adverbs with a deictic component, such as the spatial adverbs *here* and the temporal adverbs *tomorrow* seem to behave much more freely than other adverbs as regards the positions they may occupy;

(ii) within each of the subclasses of adverbs there may be more specific ordering constraints. Thus, Siewierska (1992: 418) notes the following restrictions on the ordering of attitudinal and epistemic adverbs, both pertaining to the class Adverb³:

61. Fortunately, he had evidently had his own opinion of the matter
62. *Evidently, he had fortunately had his own opinion of the matter

6. Conclusion

In this paper I hope to have shown that the hierarchical structure of the utterance as it is conceived in Functional Grammar provides an adequate basis for the semantic classification of adverbs, while at the same time allowing for a systematic account of their formal and behavioural properties.

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