

Adverbs

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1. Introduction

The word class of adverbs has often been used as a residual category, covering everything not covered by other well-established word classes such as verbs, nouns, adjectives, and adpositions. In this chapter, considerable attention will therefore be given, in Section 2, to the definition of adverbs, the delimitation and overlap with other word classes, and possible sources for adverbs. The definition arrived at covers a wide range of subtypes of adverbs, which differ from each other in terms of their scope and their semantic domain. These subtypes are discussed in Section 3. Section 4 then moves on to show from a typological perspective that the scopal subclasses show different behaviour, both as regards their morphological encoding, their syntactic ordering, and their very existence. The chapter is rounded off in Section 5.

2. Adverbs as a word class

2.1. The definition of adverbs

The definition of adverbs that I will use in this chapter (see also Schachter & Shopen 2007: 20; Hengeveld 1997: 121) is given in (1):

- (1) Adverbs are lexical modifiers of non-nominal heads.

Several aspects of this definition require further explanation.

First of all, the fact that adverbs are modifiers means that they are optional elements, depending on a head that is obligatory. Thus, in (2) the adverb *quickly* can be left out without affecting the grammaticality of the sentence, while its head *run* cannot:

- (2) a He runs quickly.
b He runs.
c *He quickly.

Secondly, an adverb is a lexical element, which means that it is neither morphosyntactically compositional nor grammatical. As for morphosyntactic compositionality, consider the following examples:

Hausa (Newman 2000: 44)

- (3) dà gaggāwā
with haste
'quickly' (litt. 'with haste')

Garo (Burling 2004: 263)

- (4) jakrak-e
be.quick-ADV.SUB
'quickly' (litt. 'being quick')

In Hausa, adverbial expressions are regularly formed as prepositional phrases, as in (3). In Garo, verbs provided with an adverbial subordinating suffix *-e* are used as predicates of adverbial clauses, as in (4). In both cases the adverbial is not lexical, and hence does not count as an adverb.

As for the distinction between lexical and grammatical modification, consider the following example:

Hupa (Golla 1970: 135)

- (5) Yeh-ʔi.ʔi-n-yaW.i.
INTO.THE.HOUSE-HAB-2.SG-move
'You always go in.'

Hupa has a large set of adverbial prefixes, many of which express directional meanings. This is illustrated in (5) with the prefix *yeh-* 'INTO.THE. HOUSE'. In other languages this meaning might be expressed by an adverb, but in *Hupa* grammatical means are used to the same end.

The third aspect of the definition that requires further explanation concerns the types of head that adverbs modify. The fact that adverbs modify *non-nominal heads* sets them apart from adjectives, which modify nominal heads. Many types of head qualify as being non-nominal. First of all, lexical heads of all classes but the nominal one may be modified by adverbs:

- (6) walk *quickly* (verbal head)
(7) *extremely* rich (adjectival head)
(8) *surprisingly* quickly (adverbial head)
(9) *exactly* behind the building (adpositional head)
(10) *quickly* after he left us (conjunctive head)

But heads may be compositional as well. In (11) and (12) the adverbs may be said to modify various aspects of the sentence as a whole.

- (11) *Apparently* Sheila has left.
(12) *Honestly*, you are a crook.

In Section 3 the various types of non-nominal heads, both lexical and compositional, will be the point of departure for a fine-grained classification of adverbs.

It has sometimes been argued (e.g. Ramat & Ricca 1998) that adverbs may also modify nominal heads, as in the case of focus particles, illustrated in the following examples:

- (13) *Even* the members of his own party protested against him.
(14) He arrived at *just* the right time.

Note, however, that in this case it is not the nominal head but the noun phrase as a whole that is being modified, as is clear from the fact that *even* and *just* precede the article in (13) and (14).

2.2. Delimitation with other word classes

Given the definition of adverbs just given, they may be distinguished from neighbouring word classes quite straightforwardly.

Adjectives share with adverbs the property that they are modifiers, it is just the class of heads that is being modified that is different.

- (15) a. *Quick* steps crossed the street.
b. He crossed the street *quickly*.
c. *Quickly*, he crossed the street.

In (15a) *quick* modifies the noun *steps*, in (15b) *quickly* (meaning ‘in a quick manner’) modifies the verb *cross*, and in (15c) *quickly* (meaning ‘after a short interval of time’) modifies a larger part of the sentence. In English the distinction between adjectives and adverbs is in most cases clearly marked morphologically.

Particles may express meanings similar to adverbs, are free words like adverbs, and may modify non-nominal heads like adverbs do, but they differ from adverbs in being grammatical rather than lexical in nature. The two classes can be distinguished by the fact that adverbs, being lexical in nature and therefore heads themselves, can be modified, while particles cannot. Thus, in Goemai elements such as *kàt* ‘maybe’ and *mé* ‘really’ are particles, as they cannot be modified by any type of modifier (Hellwig 2011: 296), whereas true adverbs can. Similar examples for English are given in (16):

- (16) a. Quite *possibly* she will arrive by train.
b. *Quite *maybe* she will arrive by train.

Though expressing roughly the same type of meaning, *possibly* and *maybe* behave quite differently, in the sense that *maybe* cannot be modified, whereas *possibly* can (Keizer 2018: 365). Thus *possibly* is an adverb, but *maybe* is a particle. With a similar reasoning it can be easily established that *just* and *even*, illustrated in (13-14), are grammatical rather than lexical elements. On a language-specific basis other criteria may be useful to distinguish between the two classes. Thus in Ngitì adverbs (or rather flexible modifiers, see below) can be nominalized, whereas particles cannot (Kutsch Lojenga 1994: 335).

Adpositions and *conjunctions* differ from adverbs in that they are relators rather than modifiers. Compare in this respect the following examples:

- (17) He moved to Brazil *after* the war.
(18) She went on a holiday *before* anyone else had been.
(19) You may come back *tomorrow*.

In (17) the preposition *after* establishes a temporal relation between two events: one being the move to Brazil and the other one being the war. In (18), similarly, two events are temporally related to one another, now by means of the conjunction *before*. The adverb *tomorrow* in (19), however, does not establish such a relationship, but just specifies a temporal property of a single event.

2.3. Overlap with other word classes

In many languages adverbs show overlap with other word classes.

Overlap with *nouns* is frequently found in the case of locative and temporal adverbs, which may have to do with the deictic nature of these adverbs. An example is the word *ganji* in Koyra Chiini, which can be used both nominally, as in (20a), where it is the head of a noun phrase contained in a postpositional phrase, but also in its bare form as a directional adverb, as in (20b).

Koyra Chiini (Heath 1999: 441, 123)

- (20) a. I-i boyrey ganji di ra.
 3.PL.S-IMPF converse wilderness DEF LOC
 'They were conversing in the bush.'
- b. Ni fatta ganji.
 2.SG.S exit wilderness
 'You emerged from the wilderness.'

One could argue that *ganji* in (20b) is actually a noun phrase, just as in (20a), the difference being that the postposition is being suppressed. An argument in favour of such an analysis is that the verb in (20b) already expresses directionality, and that in many languages locative adpositions are suppressed when accompanying verbs of movement or location.

Overlap with *adjectives* is especially frequent in the case of adverbs of manner and degree. In Hengeveld (1992, 2013, see also Mackenzie this vol.) I show that this follows quite naturally from the fact that adjectives (A) and adverbs of manner and degree (MAdv) are neighbouring categories in a parts of speech hierarchy of the following form:

- (21) V ⊃ N ⊃ A ⊃ MAdv

In languages with a flexible parts-of-speech system, the functions of the parts of speech on this hierarchy may be combined in a single word class, starting from the right. So there are languages where the functions of MAdv and A are combined in a single class of *modifiers*, languages where the functions of MAdv, A, and N are combined in a single class of *non-verbs*, and languages where all four functions are combined in a single class of *contentives*. In all these cases, the manner adverb does not occur as a separate class in the language, and in all cases it overlaps with adjectives.

Ingush has a class of modifiers, as shown in (22):

Ingush (Nichols 2011: 217)

- (22) a. dika sag
 good person
 'good person'
- b. dika ealar
 well say.PST.WITN
 'said (it) well'

The following examples are from Turkish, which has a class of non-verbs:

Turkish (Göksel and Kerslake 2005: 49)

- (23) a. güzel-im
beauty-1.POSS
'my beauty'
b. güzel bir köpek
beauty INDEF dog
'a beautiful dog'
c. Güzel konuş-tu-Ø
beauty speak-PST-3.SG
'S/he spoke well.'

Overlap with *adpositions and conjunctions* is again frequently found for locative and temporal adverbs. The following examples illustrate this for English:

- (24) a I met him outside the office.
b I will wait for you outside.
(25) a I saw him before he left the office.
b I have met him before.

The non-relational uses of *outside* in (24b) and *before* in (25b) probably derive from their relational uses, as a default contextual interpretation is imposed on these non-relational uses: *outside* in (24b) is interpreted with respect to the location of either the speaker or the addressee, and (25b) is interpreted with respect to the moment of speaking.

2.4. Sources for adverbs

As suggested by the hierarchy in (21), adverbs are the least likely to occur as a separate word class among the parts of speech represented in that hierarchy. It is therefore not uncommon to find languages with no adverbs at all. An example is Lao, a language for which Enfield (2007: 239) states that “[a]dverbs are not a distinct word class, but are simply verbs used in certain slots.” Similarly, Peterson (2011: 129) remarks that “[i]n principle there is no need to discuss “adverbials” separately in Kharia as they do not differ from other types of Case-syntagmas.” In languages that do have adverbs, these sometimes belong to large classes of basic lexemes. This is for instance the case in Bardi, for which Bower (2012: 561) reports the presence of 352 adverbs, ‘comprising 7.3% of the total number of headwords in the dictionary’. In many languages, however, adverbs form a minor word class, and in many cases there is evidence that these words were recruited from elsewhere. I will briefly consider their sources here, some of which are located within the language system itself, and some outside it.

Within the language system a frequent source for adverbs is derivation through affixation, as with *-ly* in English or *-mente* in Spanish. These affixes themselves go back to independent words, such as the ablative form of Latin *mēns* ‘mind’ in the case of Spanish *-mente*. A few examples from Spanish are given in (26):

Spanish

(26)	natural-mente natural-ADVR 'naturally'	ilegal-mente illegal-ADVR 'illegally'	real-mente real-ADVR 'really'	evidente-mente evident-ADVR 'evidently'
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Another frequent source is derivation through reduplication of often verbal stems, as illustrated for Garo in (27):

Garo (Burling 2003: 31, 38, 111, 211)

(27)	bra~bra pour.into~ADVR 'in large numbers'	chap~chap attach~ADVR 'side by side'	jrip~jrip be.silent~ADVR 'silently'	srang~sran be.clear~ADVR 'clearly, fluently'
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Adpositional phrases can be used as adjuncts, but may become frozen and then turn into unanalyzable adverbs. In Udihe, for instance, nouns may be inflected for a whole series of locative cases, but in some cases they occur in one case form only, which may be reduced as well, such that the frozen form may be considered an adverb:

Udihe (Nikolaeva 2001: 370)

(28)	zugdu 'at home'	<	zugdi-du 'house-DAT'	'in the house'
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Similarly, Hill (2005: 245) speculates that in Cupeño the adverb *wiyika* 'around' may include the directional suffix *-(y)ka*.

In several languages serial verbs fulfil functions similar to adverbs, in that one of the verbs modifies the other. Modifying serial verbs may develop into adverbs over time. The contrastive examples in (29) from Moskona illustrate this:

Moskona (Gravelle 2010: 142)

(29)	a.	Dif	di-ecira	di-okog.
		I	1.SG-walk	1SG-precede
				'I walked [and] preceded (them).'
	b.	Dif	di-ecira	kog.
		I	1.SG-walk	ahead
				'I walked ahead.'

The adverb *kog* 'ahead' in (29b) is a reduced form of the serial verb *okog* 'precede' in (30a).

Sources outside the language system itself may also be exploited, which leads to the incorporation of new material in the language system. Gómez Rendón (2008) gives the following examples of Spanish adverbs borrowed into Otomí:

Otomí (Gómez Rendón 2008: 333, 334, 411)

(30)	mälmente 'wrongly'	< Sp. malamente
	pobremente'na 'poorly'	< Sp. pobremente
	prinsipalmente 'mainly'	< Sp. principalmente
	lwego 'afterwards'	< Sp. luego

Another source outside the language system itself is the creation of ideophones,

which are 'marked words that depict sensory imagery' (Dingemanse 2012: 654). This strategy is used especially often in the creation of manner adverbs. To mention just one language, Sohn (1994: 88) states for Korean that '[t]housands of ideophones (sound symbolic or onomatopoeic expressions) [...] are manner adverbs'. A few examples are given in (31):

Korean (Sohn 1994: 88)

(31) ttalkak-ttalkak wulkus-pwulkus sol-sol mikkun-mikkun
'rattling' 'colorfully' 'gently, smoothly' 'smoothly, sleekly, oily'

Of course, once borrowings or ideophones have been adopted by the speech community, they do become part of the language system into which they have been incorporated.

3. Classes of adverbs

3.1. Introduction

In this section I will present a detailed classification of adverbs. The classification is based on two parameters. The first concerns the *scope* of adverbs. This parameter follows from the idea that utterances can be analyzed as hierarchically organized layered structures, where layers correspond to pragmatic or semantic categories that are in scopal relationships. This parameter is introduced in Section 3.2. The second parameter concerns the semantic *domain* to which adverbs pertain. These are introduced in Section 3.3. The cross-classification following from the two parameters is presented in Section 3.4.

3.2. The scope of adverbs

In many grammatical theories the notion of hierarchy plays an important role. Underlying representations are assumed to contain multiple branches or layers that are in scopal relationships. One way in which these layers become visible at the surface is in ordering phenomena, such as the ones illustrated in (32) and (33).

- (32) a. He left quickly recently.
b. *He left recently quickly.
- (33) a. Reportedly he probably left the building.
b. *Probably he reportedly left the building.

In (32) the temporal adverb *recently* has to occupy a more peripheral position than the manner adverb *quickly*. In (33) the evidential adverb *reportedly* has to occupy a more peripheral position than the modal adverb *probably*. In the approaches mentioned above, this is the reflection of a higher position in the hierarchy of *recently* and *reportedly* respectively. The hierarchical approach has been applied to both grammatical modification, in the classification of categories of tense, mood, aspect, evidentiality, and polarity, and to lexical modification, in the classification of classes of adverbs.

Within the group of hierarchical approaches, some define layers in syntactic terms, while others define them in pragmatic and semantic terms. An example of the former is the

Cartographic Approach within Generative Syntax (see e.g. Cinque & Rizzi 2010). In Cinque (1999) this approach is applied to the parallel classification of TMA systems and adverbs. An example of the latter approach is Functional Discourse Grammar (FDG; see e.g. Hengeveld & Mackenzie 2008; Keizer 2015; Mackenzie, this volume). This is the approach that I will take in the present chapter.

The layers distinguished in FDG belong to different levels of grammatical organization: the Interpersonal (pragmatic) Level, the Representational (semantic) Level, the Morphosyntactic Level, and the Phonological Level. These are related in a top-down manner, as indicated in Figure 1. As this figure indicates, pragmatics governs semantics, pragmatics and semantics govern morphosyntax, and the three together govern phonology. For the classification of adverbs this means that in FDG the pragmatic and semantic aspects of adverbs are considered to determine their formal behaviour.

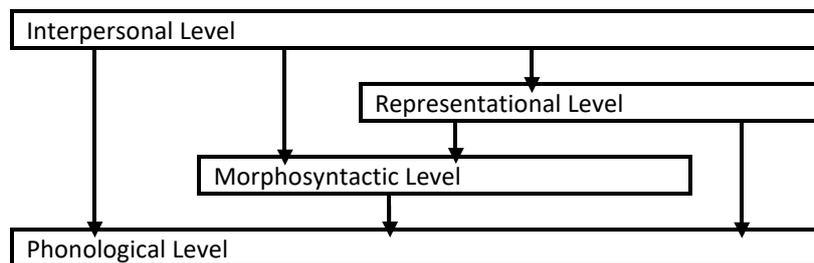


Figure 1. Levels in FDG

Every level is internally organized in terms of hierarchies of layers, the nature of which corresponds to the level to which they pertain. For the purposes of this chapter, only the internal structure of the first two levels is relevant. These are given in Figure 2, which also shows the hierarchical relations between them. Scopal domination is indicated by means of the symbols ‘>’ and ‘V’. Only layers relevant to this chapter are listed.

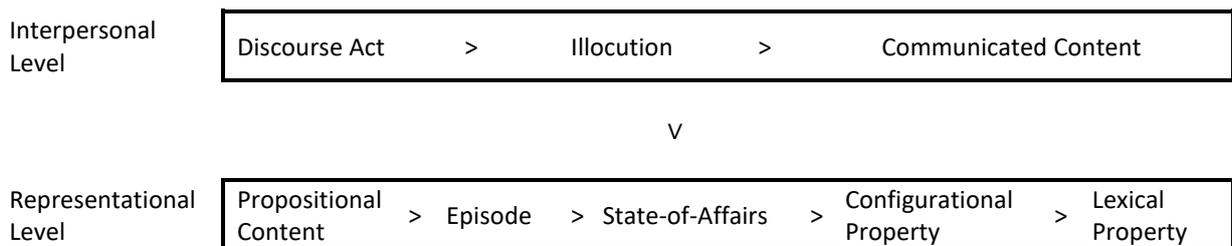


Figure 2. Scope relations at the Interpersonal and Representational Levels in FDG

Every layer may be modified by (grammatical) operators or (lexical) modifiers, represented as π and σ respectively in a formula like the following, where both are given as modifying a Propositional Content (p):

$$(34) \quad (\pi \rho_1: [\text{-----}]) (\rho_1): \sigma (\rho_1))$$

For instance, a Propositional Content may be modified by an inferential operator or by an inferential modifier, as shown in (35):

- (35) a She must be the happiest woman in the world.
 (infer p_1 : [–she is the happiest woman in the world–] (p_1))
 b She is presumably the happiest woman in the world.
 (p_1 : [–she is the happiest woman in the world–] (p_1): presumably (p_1))

In (35a) the auxiliary *must* is a grammatical expression of inference represented as an operator ‘infer’ preceding the propositional content, while *presumably* in (35b) is a lexical expression of inference represented in its lexical form as a restrictor following the propositional content. Similar examples could be given for every layer.

In Table 1 all layers from Figure 2 are listed, a definition is provided, and the operators relevant at each layer as detected in earlier research are given. This will form the basis for the classification of adverbs, which are lexical modifiers at different layers, and thus the lexical counterparts of the operators listed in Table 1. Definitions are mainly taken from Hengeveld & Mackenzie (2008), operator categories correspond with the summary provided in Hengeveld & Fischer (2018).

Layer	Definition	Relevant operator categories
Lexical Property	the property expressed by any lexical predicate	local negation, property quantification, directionality
Configurational Property	the combination of a predicate and its arguments that characterizes a set of States-of-Affairs	participant-oriented modality, failure, qualitative aspect, participant-oriented quantification
State of Affairs	events or states, i.e. entities that can be located in relative time and can be evaluated in terms of their reality status	event-oriented modality, non-occurrence, event perception, relative tense, event quantification, event location
Episode	one or more States-of-Affairs that are thematically coherent, in the sense that they show unity or continuity of time, location, and participants	objective epistemic modality, subjective deontic modality, co-negation, deduction, absolute tense
Propositional Content	a mental construct that does not exist in space or time but rather exists in the mind of the one entertaining it	subjective epistemic modality, disagreement, inference
Communicated Content	the totality of what the Speaker wishes to evoke in his/her communication with the Addressee	denial, reportative, mirative
Illocution	the lexical and formal properties of a Discourse Act that can be attributed to its conventionalized interpersonal use in achieving a communicative intention	illocutionary modification
Discourse Act	the smallest identifiable unit of communicative behaviour	irony, reinforcement, mitigation, rejection, quotative

Table 1. Layers and operators in FDG

In order to determine to what layer a certain class of adverbs belongs, a number of criteria will be applied below.

The first one involves cooccurrence restrictions obtaining between adverbs and operators. Where such cooccurrence restrictions obtain, the adverb must be of the same layer as the operator. Take for instance the following example:

- (36) *She will arrive *recently/tomorrow.

This example shows that *recently* cannot cooccur with the future tense, which is an operator at the Episode layer. *Recently* must therefore apply at the Episode layer as well.

The second criterion concerns cooccurrence restrictions obtaining between adverbs and lexical properties of the layer at which they apply. This criterion only applies at the layers of the Lexical Property and the Configurational Property, which together provide the basic lexical specification of a Discourse Act. An adverb applies at the layer of the Lexical Property when its application is lexically restricted. This is illustrated in (37) (Allerton 2002: 139):

- (37) a deeply disappoint/*deeply injure
b *severely disappoint/severely injure

Degree adverbs such as *deeply* and *severely* show cooccurrence descriptions that depend directly on the lexical item they modify. They therefore must apply at the layer of the Lexical Property.

An adverb applies at the layer of the Configurational Property when it exhibits participant-oriented cooccurrence restrictions or *Aktionsart* restrictions. These are illustrated in (38) and (39):

- (38) They/*he went to Paris *jointly*.
(39) She reached the summit **completely*.

Jointly in (38) cannot occur with a singular subject. Since participants are introduced in the underlying representation at the layer of the Configurational Property, this means that *jointly* is an adverb at that layer. In (39) *completely* cannot be used, as it cannot combine with a momentaneous *Aktionsart*. This shows that *completely* is a modifier of the Configurational Property, as *Aktionsart* is a property of the combination of a lexical predicate with its arguments.

A third criterion concerns scopal relationships, as illustrated in (40)-(41):

- (40) They *completely* emptied their rooms *simultaneously*.
(41) *Recently* they emptied their rooms *simultaneously*.

Example (40) expresses that the complete emptying of the rooms was simultaneous, not that the simultaneous emptying of the rooms was complete. Thus *simultaneously* has scope over *completely*. Similarly, (41) expresses that the simultaneous emptying of the rooms was recent, not that the recent emptying of the rooms was simultaneous. Thus *recently* has scope over *simultaneously*. By applying the transitivity principle (Cinque 1999: 6), it can now also be concluded that *recently* has scope over *completely*. An important application of the scope criterion is the following. Since it is possible to establish by means of the previous criteria that *recently* modifies the Episode layer, as shown in (36), and *completely* the layer of the Configurational Property, as shown in (39), then one can safely conclude that *simultaneously* applies at the layer of the State-of-Affairs, as this is the only intervening layer between Episode and Configurational Property. This is also consistent with the fact that the State of Affairs layers hosts relative tense operators

The last criterion does not help to identify at which layer a certain adverb applies, but it does help to establish that adverbs do not belong to the same group. If two or more adverbs from the same domain can cooccur in a single sentence, this demonstrates that they apply at

different layers. Thus, (41) illustrates that *recently* and *simultaneously*, both from the temporal domain, cannot pertain to the same layer.

3.3. The domains of adverbs

The domains to which adverbs belong concern the types of meaning and the types of function adverbs express. This translates into general domains such as manner, modality, and location. Domains are generally identified on the basis of descriptive convenience, and this chapter will not be an exception to this general approach. The domains I identify are the following: Degree, Manner, Participation, Quantification, Location, Time, Modality, Perspective, Evidentiality, Speaker Evaluation, and Textual organization. The precise meanings and functions expressed within each of these domains depend partially on the layer at which the adverbs are applied, which is why they will be presented in more detail in the next section, which provides a cross-classification of the two parameters.

3.4. The classification of adverbs

By combining the two parameters *target of adverb* and *domain of adverb*, a detailed classification may be arrived at. The possible combinations are listed in Table 2, which is partly inspired by Wanders (1993), Ramat & Ricca (1998), and Cinque (1999). The remainder of this section will motivate this classification using the criteria outlined in Section 3.2. All classes will be discussed below and exemplified by English *-ly* adverbs, which can be used for all the relevant combinations of the two parameters. In Section 4 I will turn to other languages.

Note that many adverbs that will be shown below to operate at higher layers of semantic organization, can also occur within noun phrases. Compare the following examples:

- (42) a He *probably* left early.
b a *probably* expensive car
- (43) a He is *definitely* not very healthy.
b a *definitely* weird idea.

The exact treatment of the b-examples, in which the adverb modifies a modifier within a noun phrase would require a separate study and will not be addressed below, but see van de Velde (2010) and Keizer (2019) for discussion.

	Lexical Property	Configurational Property	State-of-Affairs	Episode	Propositional Content	Communicated Content	Illocution	Discourse Act
Degree	Degree <i>extremely</i>							
Manner	Predicate-oriented <i>beautifully</i>	Subject-oriented <i>angrily</i>						
Participation		Additional participant <i>manually</i>						
Quantification		Event-internal <i>briefly</i>	Event-external <i>frequently</i>					
Location		Direction <i>diagonally</i>	Relative location <i>internally</i>	Absolute location <i>nationally</i>				
Time		Aspect <i>completely</i>	Relative Time <i>simultaneously</i>	Absolute Time <i>recently</i>				
Modality		Participant Oriented <i>easily</i>	Event-oriented <i>obligatorily</i>	Objective epistemic <i>really</i>	Subjective epistemic <i>probably</i>			
Perspective					Perspective <i>technically</i>			
Evidentiality			Event perception <i>visibly</i>	Deductive <i>seemingly</i>	Inferential <i>presumably</i>	Reportative <i>reportedly</i>		
Intensification						Intensification <i>definitely</i>		
Speaker evaluation					Sp. eval. of Prop.Cont. <i>foolishly</i>	Sp. eval. of Comm.Cont. <i>fortunately</i>	Sp. eval. of Illocution <i>frankly</i>	Sp.eval. of Discourse Act <i>sadly</i>
Textual organization								Situating the Discourse Act <i>finally</i>

Table 2. Cross-classification of adverbs

Degree

Degree adverbs specify the degree to or intensity with which the property or relation expressed by a lexical item applies. Degree adverbs may modify all kinds of lexical items:

- | | | |
|------|---|---------------------------|
| (44) | <i>severely</i> injure (verb) | Degree – Lexical Property |
| (45) | <i>excessively</i> rich (adjective) | Degree – Lexical Property |
| (46) | <i>remarkably</i> quickly (adverb) | Degree – Lexical Property |
| (47) | <i>exactly</i> behind the building (adposition) | Degree – Lexical Property |
| (48) | <i>instantly</i> after he left us (conjunction) | Degree – Lexical Property |

Degree adverbs modify the Lexical Property. This is evident from the fact that they may impose collocational restrictions on the lexical item with which they combine, as illustrated for verbal heads above in (37), repeated here as (49) (Allerton 2002: 139):

- (49) a deeply disappoint/*deeply injure
b *severely disappoint/severely injure

Examples of collocational restrictions involving adjectival heads from Dutch are given in (50)-(51). Klein (2001: 234-235) observes that some degree modifiers in this language are limited to adjectival heads with a negative content, such as *lastig* 'difficult' in (50a) and *slecht* 'bad' in (51a).

- (50) a knap lastig
quite difficult
'quite difficult'
b *knap gemakkelijk
quite easy
'quite easy'
- (51) a bar slecht
very bad
'very bad'
b *bar goed
very good
'very good'

Manner

Manner adverbs may apply at two different layers, that of the Lexical Property and that of the Configurational Property. These different uses are illustrated in (52) and (53):

- | | | |
|------|------------------------------------|--|
| (52) | She danced <i>beautifully</i> . | Predicate-oriented Manner – Lexical Property |
| (53) | She left the room <i>angrily</i> . | Subject-oriented Manner – Configurational Property |

There are several differences between the adverbs in (52) and (53). First of all, in (52) only the dancing is beautiful, the subject *she* not necessarily is, while in (53) the *angriness* includes the subject. This is why in the latter case the Configurational Property is being modified, as this represents the predicate with its arguments, while in the former case it is just the Lexical Property that is modified (Hengeveld & Mackenzie 2008: 208-209).

Another difference between the two classes is that manner adverbs modifying a Lexical Property may impose very specific collocational restrictions as to the kind of predicate with which they may combine (García Velasco 1996: 154), as shown in (54)-(55) (Matthews 1981: 137):

- (54) a They build *shoddily*.
b *They cook *shoddily*.
(55) a She dresses *loudly*.
b *She makes up *loudly*.

Such restrictions do not hold for manner adverbs modifying a Configurational Property:

- (56) a She *angrily* left the room.
b He *angrily* slept on the sofa.
c They were listening *angrily*.

The fact that there are two types of manner adverbs operating at different layers is also evident from the fact that the two may be combined in a single sentence:

- (57) She *angrily* danced *beautifully*.

Similar at first sight are adverbs such as *stupidly* in (56) (Hengeveld & Mackenzie 2008: 209):

- (58) John *stupidly* answered the question.

in which the subject *John* may well have given an intelligent answer to the question, but the current speaker considers it stupid of John to have given an answer at all. This type of adverb will be treated as an adverb of speaker evaluation below, following Keizer 2020.

Participation

Adverbs of participation introduce additional participants or specify relations between participants, and therefore modify the Configurational Property, as this is the layer at which the predicate and its arguments are combined. Examples are:

- (59) She laminated the dough *manually*. Instrument – Configurational Property
(60) They *mutually* support each other. Reciprocal – Configurational Property
(61) They went to Paris *jointly*. Company – Configurational Property

The fact that these adverbs modify the Configurational Property is reflected in the restrictions that apply to their application. Other than degree adverbs and adverbs of manner modifying

the Lexical Property, which show collocational restrictions that have to do with just the lexical item that they modify, participation adverbs are sensitive to properties of arguments. Thus, both *manually* and *mutually* can only apply to Configurational Properties involving an Actor, and *mutually* and *jointly* only to Configurational Properties with a plural first argument.

Quantification

Adverbs of quantification are of two types: event-internal ones, such as *briefly* in (62), which specify the internal duration of a State-of-Affairs, and event-external ones, such as *frequently* in (63), which quantify over States-of-Affairs.

- (62) She frowned *briefly*. Event-internal Quantification – Configurational Property
(63) She visited her friends *frequently*. Event-external Quantification – State-of-Affairs

The first type operates at the layer of the Configurational Property, the latter at the layer of the State-of-Affairs. This is reflected in the fact that there are collocational restrictions on the former type as regards its interaction with *Aktionsart*, a category pertaining to the Configurational Property. Thus, *briefly* cannot combine with Configurational Properties with a momentaneous *Aktionsart*, while *frequently* can, as shown in (64).

- (64) She reached the summit **briefly/frequently*.

The fact that these two types of quantification occupy different layers is also evident from the fact that the two may be combined in a single sentence.

- (65) She *frequently* frowned *briefly*.

Location

Within this domain there are three subclasses: direction at the layer of the Configurational Property (66), relative location at the layer of the State-of-Affairs (67), and absolute location at the layer of the Episode (68).

- (66) He crossed the square *diagonally*. Direction – Configurational Property
(67) The bank was reorganized *internally*. Relative Location – State-of-Affairs
(68) The policy was implemented *nationally*. Absolute Location – Episode

A directional adverb such as *diagonally* in (66) has scope over adverbs modifying the Lexical Property, as illustrated in (69), in which it has the degree adverb *severely* in its scope:

- (69) The car oscillates *severely diagonally*.

On the other hand, it falls within the scope of State of Affairs modifiers such as *internally*, to be discussed below, as in (70):

- (70) The metal pipes run *diagonally internally*.

Together these facts indicate that *diagonally* modifies the Configurational Property. *Internally* in (63) expresses relative location, as it needs a reference point with respect to which an interior area can be defined. *Nationally* in (68) does not require such a reference point.

The fact that these adverbs belong to different classes is also evident from the fact that they may be cooccur in one and the same sentence. In (71) all three classes of adverbs are combined.

(71) *Probably*, in their installations the metal pipes run *diagonally internally nationally*.¹
(i.e. 'Probably, nation-wide the metal pipes run diagonally in the internal part of their installations.')

This sentence is admittedly overloaded with *-ly* adverbs, but can certainly be interpreted. The example also shows that *diagonally* is in the scope of *internally*, which in turn is in the scope of *nationally*. All three are in the scope of *probably*, which is shown below to belong to the Propositional Content layer. Thus *nationally* must be at the Episode layer, *internally* at the layer of the State-of-Affairs, and *diagonally* at the layer of the Configurational Property.

Time

The class of adverbs of time comprises adverbs expressing aspect, relative time, and absolute time. These are illustrated in (72)-(74):

(72)	He emptied the room <i>completely</i> .	Aspect – Configurational Property
(73)	The shops opened <i>simultaneously</i> .	Relative Time – State-of-Affairs
(74)	She met her friends <i>recently</i> .	Absolute Time – Episode

The layers at which these adverbs apply become evident from their collocational restrictions. *Completely* can not be used with Configurational Properties with a momentaneous *Aktionsart*, while the other two adverbs can, as shown in (75):

(75) They reached the summit **completely/simultaneously/recently*.

Simultaneously cannot be combined with non-simultaneous relative tenses, which operate at the layer of the State-of-Affairs.

(76) Having emptied the room *completely/*simultaneously*, he treated himself to an espresso.

Recently cannot combine with non-past absolute tenses, which operate at the layer of the Episode.

(77) The shops will open *completely/simultaneously/*recently*.

The fact that these adverbs belong to different classes is also evident from their possibility to

¹ Adapted from <https://eurosafek.org/thieves-break-through-wall-to-attack-safe/>, consulted July 14th, 2020.

occur in one and the same sentence. In (78) all three classes of adverbs are combined.

(78) *Recently* they *completely* emptied their rooms *simultaneously*.

Modality

Modal expressions belong to four different classes (Hengeveld 2004, Hattner & Hengeveld 2016, Keizer 2018). Participant-oriented modality, illustrated in (79), “describes a relation between a participant in a state-of-affairs, and the potential realization of that state-of-affairs” (Hattner & Hengeveld 2016: 2). Event-oriented modalities, illustrated in (80), “characterize a state-of-affairs in terms of its feasibility or desirability” (Hattner & Hengeveld 2016: 3). Episode-oriented modality, illustrated in (81), “characterizes episodes in terms of the (im)possibility of their occurrence in view of what is known about the world” (Hattner & Hengeveld 2016: 3). Finally, proposition-oriented modality, illustrated in (82), “expresses the speaker’s commitment with respect to the truth value of a propositional content” (Hattner & Hengeveld 2016: 4).

- | | | |
|------|---|-------------------------------------|
| (79) | She climbed the tree <i>competently</i> . | Modality – Configurational Property |
| (80) | One <i>obligatorily</i> takes off one’s shoes here. | Modality – State-of-Affairs |
| (81) | She will <i>really</i> lose her temper. | Modality – Episode |
| (82) | She is <i>probably</i> ill. | Modality – Propositional Content |

Participant-oriented modalities apply at the layer of the Configurational Property, which shows up in the fact that they require the presence of an Actor argument. If such an argument is not available, the use of an adverb expressing this modality is ungrammatical, as shown in (83).

(83) The fire extinguisher is **competently/obligatorily/really/probably* full.

Event-oriented modal adverbs apply at the layer of the State-of-Affairs, which explains why they cannot combine with an incompatible modal operator pertaining to that layer, such as permissive *may* in (84). *m* relative anterior tense. The reason is that an obligation to participate in an event cannot be imposed posteriorly, while the objective or subjective evaluation of an event having taken place is unproblematic, as shown in (84).

(84) One may **obligatorily/really/probably* takes off one’s shoes here.

Both *really*² and *probably* express epistemic modality, but the former is located at the Episode layer and expresses subjective epistemic modality, while the latter is located at the Propositional Content layer and expresses subjective epistemic modality. They have in common that they may have absolute temporal modifiers, which pertain to the Episode layer, in their scope:

(85) She was *really/probably* ill yesterday.

² *Really* has many different uses (see e.g. Keizer 2018), the one that is relevant here can be paraphrased as ‘in reality’ or ‘it is the reality that’.

But they differ in that *really* but not *probably* may appear in questions:

(86) Was she *really*/**probably* ill yesterday?

Questions contain a Propositional Content with an operator specifying an indeterminate propositional attitude, which is incompatible with a lexical expression that does express a propositional attitude at that same layer, such as *probably*. *Really* expresses the objective existence of reality at the Episode layer, and therefore does not clash with the propositional operator.

Modal adverbs of the different subclasses can combine in a single sentence, though the result is awkward due to the stacking of four *-ly* adverbs:

(87) *Probably* people *really* have to be able to swim *competently obligatorily* in order to enter the swimming pool. (i.e. 'Probably it is the reality that one has to be able to swim in order to enter the swimming pool.'

Pairwise combinations of hierarchically continuous adverbs are certainly more natural:

(88) Your behaviour will *probably really* lead to your dismissal.

(89) He *really* had to stay away *obligatorily* from the office after his dismissal.

(90) One *obligatorily* has to swim *competently* in a country with lots of water.

Perspective

The class of adverbs of perspective have only one subclass, which is illustrated in (91):

(91) *Technically*, they won the war, but *morally*, they did not.

Perspective – Propositional Content

These adverbs specify the perspective from which the truth of the Propositional Content with which they combine has to be evaluated (Wanders 1993: 48).

Adverbs of perspective can be shown to be lower in scope than adverbs operating at the layer of the Communicated Content such as *reportedly*, to be discussed below:

(92) *Reportedly*, they *technically* won the war.

On the other hand, as shown in (91), these adverbs have absolute temporal reference in their scope, which shows that they operate at a layer higher than the Episode. They thus must be situated at the layer of the Propositional Content.

Evidentiality

Evidential adverbs come in four different classes (Hengeveld & Hattner 2015, Kemp 2018), illustrated in (93)-(96):

- | | | |
|------|---|---------------------------------------|
| (93) | She <i>visibly</i> blushed. | Evidentiality – State-of-Affairs |
| (94) | She has <i>seemingly</i> left the building. | Evidentiality – Episode |
| (95) | She is <i>presumably</i> ill. | Evidentiality – Propositional Content |
| (96) | She is <i>reportedly</i> on a holiday. | Evidentiality – Communicated Content |

Visibly in (93) expresses event perception, which ‘indicates whether or not a speaker witnessed the event described in his or her utterance directly’ (Hengeveld & Hattner 2015: 487). In (94), *seemingly* expresses deduction, which indicates ‘that the information the speaker presents is deduced on the basis of perceptual evidence’ (Hengeveld & Hattner 2015: 486). *Presumably* in (95) expresses inference, which indicates that the speaker ‘infers a certain piece of information on the basis of his/her own existing knowledge’ (Hengeveld & Hattner 2015: 485). Finally, *reportedly* in (96) expresses reportativity, which indicates ‘that the source of the information that the speaker is passing on is another speaker’ (Hengeveld & Hattner 2015: 484).

Visibly differs from the other three in that it cannot take negation, which is an operator at the Episode layer in English (Hengeveld & Mackenzie 2018), in its scope.

- (97) She **visibly/seemingly/presumably/reportedly* didn’t blush.

The other way around, *visibly*, but not the other three adverbs, can be in the scope of negation,

- (98) She didn’t *visibly/*seemingly/*presumably/*reportedly* blush.

Seemingly differs from *presumably* and *reportedly* in that it imposes restrictions on the absolute tenses with which it can combine, as deduction requires perception first. Since absolute tenses apply at the Episode layer, this restriction shows that *seemingly* applies at the Episode layer as well.

- (99) She will **seemingly/presumably/reportedly* leave the building by eight o’clock.

Presumably differs from *reportedly* in that the latter can take a propositional adverb such as *certainly* in its scope, while the former cannot cooccur with it. This shows that *presumably* operates at the layer of the Propositional Content, while *reportedly* is situated at a higher layer.

- (100) *Reportedly/*presumably* she *certainly* left the building.

Finally, *reportedly* can be shown to apply at the layer of the Communicated Content, as it can be within the scope of illocutionary adverbs, which, as shown below, apply at the layer of the Illocution.

- (101) *Honestly*, she *reportedly* left the building at eight o’clock.

Pairwise combinations of adverbs from contiguous layers, in (102)-(104), further show that the different types of adverbs may be combined, and hence must belong to different classes.

- (102) *Reportedly* she *presumably* left the building.
 (103) *Presumably* she had *seemingly* left the building, which may be why he did not knock on her door.
 (104) *Seemingly* she *visibly* blushed, as she turned away her face so that I wouldn't notice.

Intensification

Adverbs of intensification place particular stress on the message that is being transmitted. An example is given in (105):

- (105) I am *definitely* going to vote in the next elections.

These adverbs can be shown to operate at the layer of the Communicated Content, which captures the message transmitted in a Discourse Act. They can take adverbs operating at the layer of the Propositional Content in their scope, as shown in (106) which contains a subjective epistemic modal adverb:

- (106) He is *definitely probably* going to run for president.

On the other hand, intensifying adverbs are within the scope of illocutionary adverbs, as shown in (107):

- (107) Quite frankly, it is definitely not the best day to go to the beach!

These combined facts show that the intensifying adverb can only be at the layer of the Communicated Content.

Speaker Evaluation

This is another large class of adverbs, and also one the status of which may be most controversial. Examples of adverbs from this class at the various layers are given in (108)-(111):

- (108) She *foolishly* slept the whole day. Speaker Evaluation – Propositional Content
 (109) *Fortunately*, she came alone. Speaker Evaluation – Communicated Content
 (110) *Frankly*, she doesn't seem interested. Speaker Evaluation – Illocution
 (111) *Sadly*, your mother has died. Speaker Evaluation – Discourse Act

All these adverbs can be paraphrased in a way that brings out the fact that they express an evaluation by the speaker:

- (112) I think it was foolish of her to sleep the whole day.
 (113) I think it was fortunate that she came alone.
 (114) I am saying frankly that she doesn't seem interested.
 (115) I am sad that I have to tell you that your mother has died.

What all these adverbs have in common, is that they are non-truthconditional, even when they can be shown to apply at the Representational Level (Keizer 2020), as in the case of speaker evaluation at the layer of the Propositional Content, while generally only adverbs applying at the Interpersonal Level are non-truthconditional. This shows up in the fact that they cannot be denied in pairs like the following:

- (116) A: She *foolishly* slept the whole day.
B1: That's not true. She did not sleep the whole day.
B2: *That's not true. That isn't foolish.
- (117) A: *Fortunately*, she came alone.
B1: That's not true. She did not come alone.
B2: *That's not true. That is not fortunate.
- (118) A: *Frankly*, she doesn't seem interested.
B1: That's not true. She does seem interested.
B2: *That's not true. You are not being frank.
- (119) A: *Sadly*, your mother has died.
B1: That's not true. She hasn't died.
B2: *That's not true. You are not sad.

Adverbs of speaker evaluation at the layer of the Propositional Content are in a way two-faced: on the one hand, a speaker attitude is being expressed, which gives these adverbs an interpersonal flavour; on the other hand, the layer that is being evaluated is propositional in nature. For this reason, Keizer (2020) treats these adverbs as separate Propositional Contents, within which the adverbs predicate a property of a certain representational layer. Thus, in (108), *foolishly* predicates a property of the State-of-Affairs *she slept the whole day*, which functions as its argument, but this Propositional Content as a whole provides further information about the main Propositional Content, which it modifies. This analysis explains why the adverbs of this class show a behaviour different from that of the other adverbs discussed here. I will not go into the technical details here, but treat this subclass of adverbs as modifiers of the Propositional Content.

Foolishly in (108) is analyzed as a modifier of the Propositional Content, since it can occur preceding and following other propositional modifiers, such as *probably*, as in the following examples, taken from Keizer (2019: 13):

- (120) They *probably foolishly* believed the American Defense Department Big Lie that radiation does not hurt you. (NOW, US)
- (121) Last year in MUT I *foolishly probably* spent between \$750-\$1000.
(<https://answers.ea.com/t5/FIFA-15/Packs/td-p/4556769>)

The fact that the adverbs in (120)-(121) may occur in both orders means that they must be operating at the same layer.

Furthermore, adverbs of speaker evaluation at the Propositional Content layer can be shown to have scope over absolute tense, an Episode operator, as shown in (122), again taken from Keizer (2019: 13):

(122) Former Enron president *wisely* left firm in 1996, uncomfortable with 'asset light' strategy. (COCA, magazine)

In (122), the leaving the firm in 1996, so including the temporal interval, is considered wise by the speaker, as not long after this moment Enron collapsed.

Fortunately in (109) is analyzed as a modifier of the Communicated Content. It indicates the speaker's positive attitude with respect to the message he or she is transmitting. This adverb can scope over an adverb modifying the Propositional Content, as shown in (123).

(123) *Fortunately*, she *wisely* slept the whole day yesterday.

At the same time, *fortunately* can be shown to be within the scope of illocutionary adverbs, discussed below, which apply at a layer one step higher than the Communicated Content.

(124) *Frankly*, she *fortunately* slept the whole day yesterday.

From these facts it may be deduced that *fortunately* indeed operates at the layer of the Communicated Content.

Frankly in (110) modifies the Illocution. This shows up in the fact that there are cooccurrence restrictions on the use of illocutionary adverbs in combination with certain illocutions. Thus, Han (2000: 166) notes that *frankly* is less felicitous with commands, a restriction that does not rest on *honestly*:

(125) ?Frankly/honestly, go home!

Furthermore, combining one and the same adverb with different illocutions may lead to a shift in perspective (Woods 2014: 211):

- (126) a. Seriously, Andy can play rugby.
b. Seriously, can Andy play rugby?

In (126a) the speaker is presenting himself or herself as being serious, in (126b) it is the addressee who is requested to be serious in providing an answer.

Furthermore, as shown in (124), illocutionary adverbs scope over adverbs of speaker evaluation at the layer of the Communicated Content. The following example shows they are within the scope of adverbs of speaker evaluation operating at the layer of the Discourse Act, to be discussed below.

(127) *Finally*, I *frankly* did not like the way you acted today.

Taken together, these facts establish that illocutionary adverbs apply at the layer of the Illocution.

Sadly in (111) modifies the Discourse Act. In (128) it scopes over an illocutionary adverb, showing it is at a layer higher than the Illocution:

(128) *Sadly*, I *honestly* think you have made a big mistake.

Textual Organization

The last class of adverbs consists of those fulfilling a role in textual organization, such as *briefly*, *finally*, and *importantly*, as illustrated in (129)-(131):

(129) *Finally*, this was my last lecture. Textual Organization – Discourse Act

(130) *Importantly*, the students should be involved. Textual Organization – Discourse Act

(131) *Briefly*, the bill seeks more justice for tenants. Textual Organization – Discourse Act

The fact that these operate at the highest layer shows up in their possibility to occur in all kinds of speech act, as illustrated for *finally* in (129) above and (132)-(133):

(132) *Finally*, do not forget to close the door.

(133) *Finally*, do you like it or not?

4. Formal and behavioural correlates

4.1. Introduction

In the previous section I have provided a detailed classification of adverbs in terms of the parameters of *target* and *domain*. As mentioned earlier, the latter parameter is motivated primarily by descriptive convenience, grouping together adverbs that share a certain overall meaning or function, as shown in the rows in Table 2. The first parameter groups adverbs together in a different way, across the specific domains, in terms of their shared scope. These groupings are visible in the columns in Table 2. The latter grouping is one that is reflected in the form and behaviour of classes of adverbs, as will be shown in this section. I will focus on the three aspects: the existence of adverbs (Section 4.2), the morphological marking of adverbs (Section 4.3), and the order of adverbs (Section 4.4).

All observations in this section are based on the inspection of a 60-language sample, given in Table 3. The sample was created applying the method proposed in Rijkhoff et al. (1993) to the Glottolog 4.2.1 classification (Hammarström et al. 2020). In Table 3 the names of the phyla and subphyla, the name of the language, and the published source used to collect information about the language are specified. It is important to note that in the following sections I can only indicate tendencies in the data, as most grammars provide relatively little information on this word class, and do not apply a classification as detailed as the one that was presented in Section 3. Also, grammars generally do not contain explicit statements about the (non-)existence of adverbs, or study their ordering explicitly. Therefore, I present the observations below with caution, and as generalizations that may invite further testing in specific languages.

For the languages marked with an asterisk in Table 3 insufficient data were available to include them in the generalizations below.

<i>Phylum</i>	<i>Subphylum</i>	<i>Sub-subphylum</i>	<i>Language</i>	<i>Source</i>
A'ingae			A'ingae	Fischer & Hengeveld (forthc.)
Indo-European	Albanian		Albanian	Newmark, Hubbard & Pifti (1982)
Arawakan			Apuriña	Facundes (2000)
Nyulnyulan			Bardi	Bowern (2012)
Sko			Barupu	Corris (2006)
Basque			Basque	Hualde & Ortiz de Urbina (2003)
Dravidian			Betta Kurumba	Coelho (2003)
Gunwinyguan			Bininj Gun-wok	Evans (2003)
Burushaski			Burushaski*	Berger (1998)
Eskimo-Aleut			Central Alaskan Yupik	Miyaoka (2012)
Muskogean			Choctaw	Broadwell (2006)
Chukotko-Kamchatkan			Chukchi	Dunn (1999)
Uto-Aztecan			Cupeño	Hill (2005)
Atlantic-Congo	Volta-Congo		Gã	Campbell (2017)
Gaagudju			Gaguudju	Harvey (2002)
Sino-Tibetan	Brahmaputran		Garo	Burling (2003)
Afro-Asiatic	Chadic		Goemai	Hellwig (2011)
Uralic			Hungarian	Kenesei, Vago & and Fenyvesi (1998)
Athabaskan-Eyak-Tlingit			Hupa	Golla (1970)
Nakh-Daghestanian			Ingush	Nichols (2011)
Mande			Jalkunan	Heath (2017)
Ket			Ket*	Georg (2007)
Austroasiatic			Kharia	Peterson (2011)
Afro-Asiatic	Cushitic		Konso*	Ongaye (2013)
Koreanic			Korean	Sohn (1994)
Songhay			Koyra Chiini*	Heath (1999)
Nilotic			Lango	Noonan (1992)
Tai-Kadai			Lao	Enfield (2007)
Kartvelian			Laz	Lacroix (2009)
Narrow Talodi			Lumun	Smits (2017)
Sino-Tibetan	Sinitic		Mandarin	Li & Thompson (1981)
Atlantic-Congo	Mei		Mani	Childs (2011)
Araucanian			Mapudungun	Smeets (2008)
Pano-Tacanan			Matsés	Fleck (2003)

Nuclear Trans New Guinea	Madang		Mauwake*	Berghäll (2015)
Sepik			Mehek	Hatfield (2016)
Nuclear Trans New Guinea	Asmat Awyu Ok		Mian	Fedden (2011)
East Bird's Head			Moskona	Gravelle (2010)
Movima			Movima*	Haude (2006)
Austronesian	Malayo-Polynesian	Malayo-Sumbawan	Mualang*	Tjia (2007)
Salishan			Musqueam	Suttles (2004)
Central Sudanic			Ngiti	Kutsch Lojenga (1994)
Nivkh			Nivkh	Nedjalkov & Otaina (2013)
Atlantic-Congo	North-Central Atlantic		Noon*	Wane (2017)
Austronesian	Paiwan		Paiwan	Chang (2006)
Indo-European	Indo-Iranian		Palula	Liljegren (2016)
Pidgins and Creoles			Pichi	Yakpo (2019)
Austronesian	Puyuma		Puyuma*	Teng (2008)
Quechuan			Quechua*	Weber (1989)
Austronesian	Malayo-Polynesian	Central Eastern Malayo-Polynesian	Rapanui	Kievit (2017)
Pomoan			Southern Pomo*	Walker (2013)
Sumerian			Sumerian*	Jagersma (2010)
Afro-Asiatic	Berber		Tamashek*	Heath (2005)
North Halmahera			Tidore	Staden (2000)
Khoe-Kwadi			Ts'ixa*	Fehn (2014)
Turkic			Turkish	Lewis (1967)
Warao			Warao	Romero-Figeroa (1997)
Pama-Nyungan			Warrongo	Tsunoda (2011)
Hmong-Mien			Xong	Sposato (2015)
Nuclear Torricelli			Yeri	Wilson (2017)

Table 3. The sample

4.2. The existence of adverbs

Languages differ in the extent to which they have specific classes of adverbs in their lexical inventory at all. As mentioned above, Lao (Enfield 2007: 239) and Kharia (Peterson 2011: 129) are claimed to have no adverbs at all, while other languages, such as Bardi (Bower 2012), are particularly rich in adverbs. The languages in between these two extremes have varying quantities and subtypes of adverbs, and the variation observed in this respect does not seem to be random. More specifically, it seems that the presence of subclasses of adverbs can be described in terms of the following hierarchy, which coincides with the layered hierarchical structure of FDG:

(134) Lexical Property \supset Configurational Property \supset State-of-Affairs \supset Episode \supset
Propositional Content \supset Communicated Content \supset Illocution \supset Discourse Act

That is to say, when a language has a certain scopal subclass of adverbs on this hierarchy, it will also have the scopal subclasses to the left on the hierarchy. And when it does not have a certain scopal subclass of adverbs on this hierarchy, it will neither have the scopal subclasses to the right on the hierarchy. If a language has, for example, a class of adverbs operating at the layer of the Propositional Content, it will have adverbs operating at the layers of the Episode, State-of-Affairs, Configurational Property, and Lexical Property as well. And if a language does not have a class of adverbs operating at the layer of the Communicated Content, then neither will it have adverbs operating at the layers of the Illocution and the Discourse Act.

In Table 4, the languages exhibiting the different types predicted by the hierarchy in (134) are listed. This table is entirely based on adverbs reported on in the grammars, classified in terms of the subclasses in Table 2, and not on explicit metastatements that other adverbs would not exist. It is furthermore important to note that only real adverbs, as defined in Section 2, are listed in Table 4, and not other types of adverbial expressions. Yeri, for instance, uses true adverbs at the layers of the Lexical Property and Configurational Property, nominal phrases at the layers of the State of Affairs and Episode, and particles at the layer of the Propositional Content. Similarly, Basque uses true adverbs up to the layer of the Episode, and at higher layers uses adpositional phrases and particles.

The result showing up in Table 4 is quite remarkable, as the generalization seems to hold across the sample. I should emphasize, however, that the presence of a subclass of adverbs in Table 4 may be based on the existence of on just one type of adverb relevant to a certain layer. For example, at the layer of the Configurational Property I have above identified adverbs in six different domains: subject-oriented manner, additional participants, event-internal quantification, direction, aspect, and participant-oriented modality. The presence of just one of these would lead to a positive value in the cells above. This does suggest, however, that the target of an adverb is a more important predictor of its existence than its domain.

Another remarkable result is that for just one language, Turkish, could adverbs at the highest two layers be identified. This may be a result of the fact that grammars generally do not discuss these adverbs as separate classes, an impression that is reinforced by the fact that the adverbs concerned were only identified after consulting an extensive dictionary of the language (Avery 1983). For most of the other sample languages such an additional source is not available.

	Lexical Property	Configurational Property	State-of-Affairs	Episode	Propositional Content	Communicated Content	Illocution	Discourse Act
Apurinã, Lao, Choctaw, Kharia								
Paiwan	+							
Warao, Xong, Yeri	+	+						
Barupu, Cupeño, Garo, Mian, Moskona	+	+	+					
Basque, Betta Kurumba, Bininj Gun-Wok, Central Alaskan Yupik, Goemai, Laz, Mani, Matses, Mehek, Ngiti, Nivkh Jalkunan Warrongo,	+	+	+	+				
A'ingae, Chukchi, Gaguudju, Lango, Lumun, Mandarin, Mapudungun, Musqueam, Palula, Rapanui, Tidore	+	+	+	+	+			
Albanian, Bardi, Gã, Hungarian, Hupa, Ingush, Korean, Pichi	+	+	+	+	+	+		
Turkish	+	+	+	+	+	+	+	+

Table 4. The existence of adverbs

A phenomenon accompanying the absence of adverbs at the higher layers, is that at these layers more often periphrastic constructions are used to express the relevant adverbial notions. Even in languages that do have adverbs available for these layers, there may be a preference for additionally marking these adverbs. This in English one finds *strangely enough* (speaker evaluation – propositional content) versus *strangely* (manner – lexical property), *frankly speaking* (speaker evaluation – illocution) versus *frankly* (manner – lexical property), etc. See Ramat & Ricca (1998) for further discussion.

4.3. The morphological marking of adverbs

A study of the morphological marking of adverbs reveals a number of further phenomena that provide further partial support for the hierarchy in (134). These concern:

- (i) the use of reduplication as an expression strategy at certain layers;
- (ii) the use of flexible modifiers (adjectives/adverbs) at certain layers;

Reduplication

An interesting generalization that shows up in the data is that languages use reduplication as an adverb creating strategy at the lowest layers only. Here part of the hierarchy in (134) seems to be relevant too. In some languages one finds reduplication as an adverb-forming strategy at the layer of the Lexical Property only. This is for instance the case in Basque, where reduplicated adjectives are used as manner adverbs at this layer and are subject to restrictions of a lexical nature:

Basque (Hualde & Ortiz de Urbina eds 2003: 194)

(135)	arin~arin	labur~labur	Manner – Lexical Property
	fast~ADVR	short~ADVR	
	'quickly'	'briefly'	

In other languages adverbs derived by reduplication apply at the layers of the Lexical Property and the Configurational property, as in Korean, where ideophones are reduplicates:

Korean (Sohn 1994: 506, 507)

(136)	mwulek~mwulek	Manner – Lexical Property
	IDEO~ADVR	
	'(growing) rapidly'	
(137)	allang~allang	Manner – Configurational Property
	IDEO~ADVR	
	'cunningly, with flattery'	

In Garo, finally, one finds reduplication as an adverb forming strategy at these two layers as well as at the layer of the State-of-Affairs:

Garó (Burling 2003: 16, 106, 107)

(138)	bak~bak chop~ADVR 'quickly'	Manner – Lexical Property
(139)	bing~bang IDEO~ADVR 'carelessly'	Manner – Configurational Property
(140)	jem~jem repeat~ADVR 'repeatedly'	Quantification – State of Affairs

Table 5 shows how these systems map onto the hierarchy in (134).

	Lexical Property	Configurational Property	State-of-Affairs	Episode	Propositional Content	Communicated Content	Illocution	Discourse Act
Basque, Gã	+							
Korean, Lango, Mandarin, Warrongo	+	+						
Garo	+	+	+					

Table 5. Reduplication

Flexible modifiers

A further tendency that shows up clearly in the data is that languages with flexible modifiers, use these adverbially at the lower layers only. At higher layers there are dedicated adverbs. Again, part of the hierarchy in (134) seems relevant to understand the distribution of these adverbial uses.

In Lango, flexible modifiers may only be used at the layer of the Lexical Property:

Lango (Noonan 1992: 181)

- | | | | |
|-------|------|---------------------|-----------------------------------|
| (141) | à | bèbèr | Manner – Lexical Property |
| | ATTR | good | |
| | | ‘good/well’ | |
| (142) | nî | lwájé | Manner – Configurational Property |
| | ADVR | clumsy | |
| | | ‘*clumsy, clumsily’ | |

In Ingush, they are allowed at the two lowest layers, but not at the layer of the State-of-Affairs:

Ingush (Nichols 2011: 377, 229)

- | | | | |
|-------|---------|-----------------------------|-----------------------------------|
| (143) | sixa | ‘rapid, rapidly’ | Manner – Lexical Property |
| (144) | xaarc | ‘false, falsely’ | Manner – Configurational Property |
| (145) | pxoragh | ‘*horizontal, horizontally’ | Direction – State of Affairs |

Mapudungun does allow flexible modifiers at the lowest three layers, but not at the layer of the Episode:

Mapudungun (Smeets 2007: 71, 72)

- | | | | |
|-------|--------|------------------------|-----------------------------------|
| (146) | küme | ‘good, well’ | Manner – Lexical Property |
| (147) | rüf | ‘truthful, truthfully’ | Manner – Configurational Property |
| (148) | we | ‘new, just’ | Relative Time – State-of-Affairs |
| (149) | chumül | ‘*recent, recently’ | |

In Mian flexible modifiers can be used adverbially up to the layer of the Episode:

Mian (Fedden 2011: 116, 117)

- | | | | |
|-------|-------|----------------|-----------------------------------|
| (150) | ayam | ‘good, well’ | Manner – Lexical Property |
| (151) | gaang | ‘wise, wisely’ | Manner – Configurational Property |
| (152) | mikik | ‘new, firstly’ | Relative Time – State-of-Affairs |
| (153) | dam | ‘true, truly’ | Modality – Episode |

Table 6 shows how these systems map onto the hierarchy in (134).

	Lexical Property	Configurational Property	State-of-Affairs	Episode	Propositional Content	Communicated Content	Illocution	Discourse Act
Albanian, Cupeño, Gã, Lango	+							
Ingush, Warao, Xong	+	+						
Mapudungun	+	+	+					
Mian, Ngiti, Rapanui	+	+	+	+				

Table 6. Flexible modifiers

4.4. The order of adverbs

A last generalization, one that was made by Cinque (1999) already and that is confirmed in the data, is that the higher the layer at which an adverb applies, the more peripheral its position is. The most peripheral positions are the clause initial and clause-final ones, and moving inward from both sides one arrives at ever less peripheral positions. The many English examples with multiple adverbs given in Section 3 confirm this generalization. Example (154) serves as an illustration.

(154) *Finally*, she *honestly reportedly probably* left the building at eight o'clock.

The adverb highest in scope here is *finally* which modifies the highest layer of the Discourse Act and is in the most peripheral position; the adverb one step lower in scope is *honestly*, which modifies the Illocution and occupies the next position in line. *Reportedly* modifies the Communicated Content, the next layer in the hierarchy, and occupies the next position. And *probably*, which modifies the next lower layer, the Propositional Content, follows.

In some cases adverbs start in positions at both ends of the sentence, in which the predicted order holds for the two subsets of adverbs. This is illustrated in (155):

(155) *Fortunately*, he *apparently* plays soccer more *frequently lately*.

In the initial field, *fortunately*, a modifier of the Communicated Content, is in a more peripheral position than *apparently*, which modifies the Propositional Field. In the final field, *lately*, a modifier of the Episode, is more peripheral than *orderly*, which modifies the State of Affairs.

Some assorted examples from sample languages further illustrate the phenomenon. In Mandarin Chinese, adverbs at higher layers, from the Episode onwards, expressing e.g. absolute time (156) and inference (157), may occur in sentence-initial position. All other adverbs, including those of manner (158) and quantification (159), have to occur after the sentence initial subject or topic.

Mandarin Chinese (Li & Thompson 1981: 321, 323, 329)

(156) *Jīntiān wǒ bu shūfu.*
today 1.SG NEG comfortable
'Today I don't feel well.'

(157) *Xiǎnrán Zhāngsān bu gāoxing.*
obviously Zhangsan NEG happy
'Obviously, Zhangsan is not happy.'

(158) *Tā kuài.kuài.de zòu.*
3.SG quickly walk
'He/she walked quickly.'

(159) *Tā yóu chī le.*
3SG again eat PERF
'She is eating again.'

In Korean, the position of an adverb correlates with its interpretation, as the following examples show:

Korean (Sohn 1994: 87)

(160) *Hwaksilhi* Minca-nun ka-n-ta
surely Minca-CONTR.TOP go-IND-DECL
'Surely Minca is going.'

(161) Minca-nun ku kes-ul *hwaksilhi* a-n-ta
Minca-CONTR.TOP DEF thing-ACC surely knows-IND-DECL
'Minca knows it for sure.'

Hwaksilhi can be used as a subjective epistemic adverb, as in (160), or as a manner adverb, as in (161). The position of the adverb leads to disambiguation, with the higher epistemic adverb occupying the peripheral position, and the manner adverb occupying an internal position.

In Pichi adverbs of relative location and absolute location may, as expected, cooccur in a sentence, in which case the adverb of absolute location takes the more peripheral position.

Pichi (Yakpo 2019: 267)

(162) Bət ín sidón dón dón dón *yandá*.
but 3SG.INDP stay downREP REP yonder
'But he stays far down over there.'

5. Conclusion

In this chapter I have first defined adverbs as lexical modifiers of non-nominal heads, and considered the implications of this definition for the proper identification of adverbs. I then classified adverbs along two parameters: the semantic/pragmatic domain to which they belong and the layer at which they apply, where layers were defined in terms of the framework of Functional Discourse Grammar. I then showed that the classification in terms of layers provides the basis for a series of generalizations concerning the form and behaviour of classes of adverbs defined in hierarchical terms.

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