

THE DISTRIBUTION OF ADVERBIAL PHRASES IN ENGLISH

Ana I. Ojea López
Universidad de Oviedo

This paper offers an account of the distribution of adverbial phrases in English based on two main assumptions: a) that adverbs can be characterized as logical predicates which may take one or two arguments to saturate their reference and b) that the eventual distribution of adverbs is crucially conditioned by the constituent structure of the sentence. We propose that the traditional classification of adverbs as verbal or sentential modifiers must be extended to include another class: that of the adverbs which are predicated of one of the functional categories which, according to the Principles and Parameters Theory, appear in the sentence. We then argue that adverbs are located in any position from which they may comply with their lexical requirements, and we explore the empirical consequences which follow from this fact.

1. Introduction

The purpose of this paper is to provide an analysis of adverbial phrases in English which focuses on the incidence that the lexical characteristics of the different adverbs have on their possibilities of distribution in the sentence. We will go beyond the traditional semantic classifications (some of which are extremely precise and provide a useful tool for the analysis; vid., for example, Quirk et al., 1979; 1985), because these notional groups do not always reflect the syntactic restrictions most of the adverbs have (i.e. there is a strict regulation of the position they can occupy in the sentence). Take, for example, the case of *well* and *carefully*. Both of them have been traditionally classified as adverbs of manner, but whereas *well* can only appear at the end of the sentence, *carefully* can occupy three positions: initial, medial and final; that is,

despite their semantic affinity they behave quite differently from a syntactic point of view:

- (1) a. *Carefully*, he opened the door
 He *carefully* opened the door
 He opened the door *carefully*
- b. **Well*, the child speaks
 *The child *well* speaks
 The child speaks *well*

We will argue that the distribution of adverbs is mainly conditioned by their lexical nature (basically by their thematic properties) and by the particular sentential structure of English.¹ The paper is organized as follows. In Section 2 we outline the theoretical assumptions relevant for the analysis we provide. In Sections 3, 4, and 5 we characterize adverbs as logical predicates, that is open functions which require one or more arguments to be saturated; we will then distinguish between those adverbs which take one argument (one-place predicates), and those which take two (two-place predicates). We will also extend the traditional classification of adverbs as sentential or verbal to include a third class: that of the adverbs which modify the functional categories which appear in the sentence.² We will conclude in Section 6 exploring other empirical consequences of our analysis.

2. Theoretical framework.

We follow the generativist model known as the *Theory of Principles and Parameters*, assuming the essentials of Chomsky's (1992) ideas in what is known as the *minimalist* approach. In this grammatical framework, the central component is a linguistic Lexicon with phonological, syntactic and thematic information about the different lexical units of the language. These lexical units are the input to the articulatory-perceptual system and to the conceptual-semantic system, and the only levels of representation are the Phonetic Form (PF) and the Logical Form (LF), which are conceived

¹ In certain respects, this structure will be different to that of other languages and from this follow important empirical consequences, which we will explore in section 6.

² We will only deal with the adverbs which appear within the sentence, that is, we will exclude from consideration the other structural positions they can occupy as specifiers within adjective phrases, prepositional phrases or adverbial phrases. For simplicity, we won't refer to dislocated or focused adverbs either.

as interface levels between the Lexicon and these two systems. Derivations will then be understood as computations effected by a computational component on the lexical items, and they will be *convergent* (if they satisfy the output conditions at PF and LF) or *crashing* (if they fail to satisfy these conditions).

It is also assumed that languages vary only with respect to the parameters available in the Lexicon; one of such parameters has to do with the number and organization of the functional categories a language selects from the inventory provided by the Universal Grammar. In this respect, English displays the following categorial organization in its sentential marker:³

$$(2) \quad [_{\text{CompP}} [_{\text{AgrP}} [_{\text{MP}} [_{\text{TP}} [_{\Sigma\text{P}} [_{\text{AspP}} [_{\text{VP}} \dots$$

In this structure we find a lexical category (the verbal phrase) and a number of functional or grammatical categories. There is a clear contrast between these two categorial classes. On the one hand, in the verbal phrase we find the semantic nucleus of the sentence (i.e. the verb) and the subject in the initial structure; therefore, the predicative relation which is the basis of the sentence is substantiated in this projection. On the contrary, none of the other projections above the VP has lexical content, and their function is essentially relational or grammatical. Besides, the verb belongs to an open class, in the sense that a language can be enriched by the creation of new verbs, something impossible in the case of those categories which are nuclei of the functional projections (they form closed lexical classes).

The highest functional category we find in the sentence (whose nucleus will then constitute its syntactic nucleus) is the complementizer phrase, CompP. This category expands the subordinators —*that, whether, if, for*— and serves as a landing site for certain constituents which are moved for interpretative reasons (i.e. in interrogative sentences, relative clauses . . .).

³ We adopt the sentential structure in Chomsky (1989) (who adapts Pollock's (1989) ideas on the verbal phrase), but we have also included the proposals in Laka (1990) and De Miguel (1992) with respect to the existence and placement of ΣP and AspP. For ease of exposition we don't include the category which instantiates the agreement relation between the verb and its object, Object AgrP, since this category doesn't play a significant role in our argumentation (although it has gained in importance in the most recent developments of the grammar).

The other functional categories project the agreement relation which exists between the subject and the verb (AgrP), the epistemic modality (MP), the grammatical tense (TP), the affirmative or negative polarity (Σ P) and the verbal aspect in the classical sense of Aktionsart (AspP).

The verb appears inflected in the Lexicon and has to check its inflectional features in the corresponding grammatical categories. Since AGR in English has weak features the verb moves to this category in the LF (that is, “spell out” takes place before V-movement), except in the case of auxiliary and modal verbs, which, having no thematic grid, are not visible at LF, and therefore have to raise overtly.

Together with these proposals, we will defend that AgrP has a double expansion, AgrP(N) and AgrP(V), corresponding to its nominal and verbal features respectively. This idea is not new and it is implicit in analyses like those of Belletti (1990) and Chomsky (1992). The assumption behind is that AgrP is different to all the other functional categories in that its only function is to establish a relationship between a nominal category (the subject or the object) and a verbal one. Once this task is fulfilled, AgrP can be deleted (cf. Chomsky, 1989); therefore, to expand its nominal and verbal features into two different categories doesn't entail a further complication of the interpretative component whilst it dispenses an extra position in the structure which will be productively occupied by some adverbial phrases (vid. Ojea (1995) for additional evidence in support of this proposal). Instead of (2) we will then assume the structure in (3):

$$(3) \quad [_{\text{CompP}} [_{\text{AgrP(N)}} [_{\text{AgrP(V)}} [_{\text{MP}} [_{\text{TP}} [_{\Sigma\text{P}} [_{\text{AspP}} [_{\text{VP}} \dots$$

The derivation will begin from the Lexicon, selecting which predicates —together with the arguments they select— are required, and projecting the structure which is needed to insert them. This structure is then subject to certain instances of movement due to interpretative or articulatory perceptual reasons. For example, one of the verbal arguments (normally the external one, the most prominent thematically) moves to the specifier position of AgrP(N) where it will function as the subject of the sentence. And, as has been mentioned supra, the verb raises to the nucleus of AgrP(V) in the LF (when it is a thematic predicate) or overtly (in the case of modals or auxiliaries).

Turning now to the issue at stake here, there are two main aspects about adverbs which have to be explored: their lexical nature and the mobility they may display in the sentence.

There have been two different views in the literature about the lexical characterization of adverbs: they have been considered logical operators (cf. Thomason and Stalnaker, 1973; McConnell-Ginet, 1982; Dowty, 1982) or logical predicates (cf. Davidson, 1967; Bellert, 1977; Hornstein, 1990; Parsons, 1990). We will take this second option and treat adverbs as predicates, that is, open functions which require a number of arguments to be saturated. When an adverb functions as a modifier (its most frequent role in the sentence), it enters into a government relation—in the sense of the Government 2 relation discussed in Escribano, 1991b—that forces its categorial-commanding of the categories which are its arguments and which will then fall under its scope; one of these arguments will in fact be the syntactic nucleus of the projection the adverb modifies.

As regards the question of the mobility of the adverbs, the traditional view would be the one defended in Keyser (1968), Huang (1975), Jackendoff (1972, 1977) or, more recently, Parsons (1990) and Nakajima (1991): that adverbs are transportable categories which may move in the sentence provided certain interpretative conditions are fulfilled.

Other linguists (cf. Pollock, 1989; Belletti, 1990) have approached the mobility of adverbs in the sentence—mobility that in this view would only be apparent—as the result of the mobility of the other constituents; in other words, adverbs will only be generated in one place in the sentential structure, but, since other constituents are subject to movement, they could eventually display more than one position in the surface structure. For example, one adverb generated in TP will end up being to the right of an auxiliary verb since this has to go up onto AgrP(V)⁰, but it will appear to the left of a main verb because this only moves at LF to check its inflectional features.

Our proposal will be different from these two in the sense that we won't allow for adverb movement, but we won't restrict their base generation either; in essence, we will defend that adverbs can be adjoined to any maximal projection from which they could fulfil their lexical requirements and be therefore correctly interpreted. The core of the explanation will then lie in the characterization of the lexical requirements of the different types of adverbs in English, and this is the task we undertake in the following sections.

VP adverbs3.1. *One-place predicates. Argument: <event>*

- A) *Early, late, well, hard, fast, indoors, downstairs, home, again, here, there . . .*
- B) *Completely, easily, totally, handily, mortally, immediately . . .*
- C) *Logically, naturally, clearly, remarkably, astonishingly, oddly, strangely, unexpectedly . . .*

These adverbs can be said to be predicated of the event, that is, they are licensed by what has been called the *eventive argument* of the verb, and they need to have it under their scope to be interpreted.⁴ In terms of structure, this implies that they will have to c-command VP. For this constituent, we adopt the structure defended in Koopman and Sporstiche (1988), in the sense that there is a first maximal projection—where we find the verb and its internal arguments—and then a recursive projection of VP where the external argument is expanded prior to any movement. Adverbial phrases of the sort we are discussing here are just predicated of the event, that is, they must not have the external argument of the verb under their scope; therefore their base position will be that in (4), where X stands for the adverbial:

$$(4) \quad [{}_{VP} \text{ ext. arg } X [{}_{VP} \text{ verb int. arg. } {}_{VP}] X {}_{VP}]$$

Consequently, if the lexical requirements of these adverbs are respected, they will always appear to the right of auxiliary or modal verbs, and it will be impossible for them to display a sentential scope; sentences like those in (5) and (6) would then be ungrammatical:

- (5) a. **Completely*, John has finished
- b. *John *completely* has finished
- (6) a. **Well*, John has done his work
- b. *John *well* has done his work

We have established three groups in this first class for purely descriptive reasons, since we defend that their lexical requirements are identical. The adverbs which appear under A are always expanded in the right hand side of the verbal constituent, whereas those under B and C can be on both sides:

⁴ The proposal to include an eventive argument in the thematic grid of the verb (and of other predicates as well; see, for example, Hernanz, 1988 or Bosque, 1990) comes from the ideas of Davidson (1967) and Higginbotham (1985, 1987) about the need to characterize the aspectual nature of the verb in the Lexicon.

- (7) a. John has *completely* finished his work
 b. John has finished his work *completely*
 c. *John has *well* done his work
 d. John has done his work *well*

We have not found a conclusive reason for this different behaviour, but it could have to do with the morphological peculiarity of the adverbs in group A: most of them don't derive from adjectives (the adjectives being the only modifiers in English which can precede or follow its nucleus), and they lack the suffix *-ly*, which—as we will show—plays an important role in the lexical characterization of English adverbs, something influencing, in turn, their distributional possibilities. For example, we will argue that it is this suffix that allows the adverbs we have grouped in C to appear in positions outside the VP which are therefore forbidden in the unmarked case (cf. (5) and (6)):

- (8) *Logically*, John has finished his work.

We will deal with this question in section 4. But before turning to another class of adverbs, we would like to emphasize that the classification we are proposing has implications for the distribution of the adverbs in the sentence, not for the restrictions we may find among themselves. For example, it won't be impossible to have more than one adverb predicated of the same argument (the event, in this case), provided they display a semantic value which can be licensed through the verbal content. When this situation holds, the internal order of these adverbs in the VP is only conditioned by semantic/pragmatic reasons (see Escribano (1991a) for an analysis of the NP along these lines). In this respect, the notion of time is taken to be more inclusive than the notion of place, and this more inclusive than manner. Therefore, in the unmarked case, the adverbial phrases will be ordered accordingly:⁵

- (9) He was working conscientiously in that project for five years

One more comment is at play here. In all the cases we have exemplified until now, we have been dealing with adverbs which function as modifiers of the verb and which, according to our proposal, are distributionally conditioned by their lexical requirements as (logical) predicates, since they are interpreted as predicates over their respective heads. Obviously, we can look at the issue from the other side, that is, an adverbial phrase can

⁵ This unmarked order can obviously be changed to suit the demands of information focus.

also be one of the arguments a verbal predicate requires to be saturated. In these cases, the adverbs are said to be subcategorized by the verb, they are complements and not mere modifiers, and will be expanded in the V' projection since they saturate one of the variables opened in the thematic grid of the verb:⁶

- (10) He behaved *well*
 They treated their guests *inconsiderately*
 (cf. *They treated their guests)

3.2. Two-place predicates. Arguments: <event, external argument of the verb>

- A) *Boastfully, deliberately, intentionally, voluntarily, reluctantly, silently, impulsively, instinctively, kindly, cleverly, carefully, carelessly, wisely, foolishly, stupidly . . .*
 B) *Sincerely, frankly, honestly, truthfully, confidentially, seriously, bluntly . . .*

The adverbs in this group require two arguments to be interpreted (saturated as predicates): the verbal event (as those in 3.1) and the external argument of the verb.⁷ The idea behind this thematic grid —i.e. that some adverbs are subject-oriented— is not new in the literature (cf. Jackendoff, 1972; Lakoff, 1972), but we think that the concept of subject is too narrow to characterize the nature of the second argument. In this respect, consider the following pairs (taken from Jackendoff, 1972: 83):

- (11) a. The doctor examined John *carefully*
 b. John was examined *carefully* by the doctor
 (12) a. The police arrested Fred *carelessly*
 b. Fred was arrested *carelessly* by the police

In the examples in (a) the adverb is predicated of the verbal event and the subject of the sentence (i.e. *examine* and *doctor* in (11)), but in the cases of (b) it is not the subject but the *by*-phrase that constitutes the argument required by the adverb to be interpreted. The key lies in the fact that 'subject' is just a

⁶ As regards the fulfilment of the adverb's own lexical requirements, we may adopt the proposal defended in Grimshaw (1990: 64) for certain nominals: the variable opened in the lexical structure of the adverb will be saturated by a non thematic argument R which is satisfied by "reference" in sentences like (10).

⁷ That is the reason why these adverbs normally select the thematic role *agent* in their argument, since it is this role, being the less inherent in the thematic hierarchy (vid. Grimshaw, 1990), that is most likely to be displayed by the external argument of the verbal predicate.

configurational notion which doesn't always coincide with that of the most external (that is, most prominent or less inherent) of the arguments of the verb.⁸ This is clearly reflected in passive constructions (as those in the (b) cases), where the subject is almost always the internal argument of the verb; the adverb is then oriented to the *by*-phrase in passive sentences because the external argument is linked to this phrase in such constructions.

In this respect, the contrast between the following examples should also be noted:

- (13) a. I *sincerely* fear snakes
 b. *Snakes *sincerely* frighten me
 (14) a. John sank the ship *deliberately*
 b. *The ship *deliberately* sank

Under standard assumptions, both types of psychological verbs in (13)—the *fear*-type and the *frighten*-type—are two-place predicates which assign their arguments the thematic roles 'experiencer' and 'theme'. The difference between the two is that while *fear* has an external and an internal argument, *frighten* lacks an external argument; hence, its impossibility to appear with an adverb which requires an external argument to saturate its argumental structure.⁹

Similarly, the contrast in (14) follows from the fact that the adverb *deliberately* can only coexist with the agentive construction of a verb like *sink*, since in this construction the subject is the external argument of the verb; middle constructions (cf. (14b)), on the contrary, lack an external argument and therefore *deliberately* won't fulfil its lexical requirements here.

As an additional evidence, we may note that the semantic content of the adverb must match with that of both the verb and the external argument (not always the subject) for the construction to be semantically accurate; thus, (15) is grammatical because the verb is [+activity] and *Joe* has the thematic role of 'agent' (both features are selected by the adverb *intentionally*), but a sentence like (16) will be ill-formed because the features of the verb ([−activity]) and the external argument (thematic role: 'experiencer') clash with those required by the adverb:

⁸ Following Grimshaw (1990), we take the external argument to be the most prominent argument—in both, the thematic and the aspectual dimension—in the thematic grid of a predicate.

⁹ Vid. Grimshaw (1990: 22ff.) for a more detailed account of the differences between the two types of verbs. Obviously, the sentence in (13b) would be possible with the adverb in initial or final position (i.e. *Sincerely, snakes frighten me*), a contrast we will deal with in section 4.2.

(15) Joe hit Mary *intentionally*

(16) !Joe fears storms *intentionally*

If we then accept that the thematic grid of these adverbs is <event, external argument of the verb>, the structural positions that they may occupy will be different from those of the monadic adverbs we reviewed before. Our proposal is that they could be adjoined to the recursive VP projection including the verb and its external argument (X stands for the adverbial):

(17) [_{VP} X [_{VP} ext. arg. [_{VP} verb + int. arg. _{VP}] _{VP}] X]

In this position, the adverbs will appear in front or after the main verb, as those in 3.1. But now, there exist more places in the structure from which they can fulfil their lexical requirements, that is, from which they can have scope on both, the external argument of the verb and the verb itself. In particular, they could be attached to any of the intermediate (functional) categories between AgrP and VP, these two included. They will thus be the adverbs which can be more freely inserted in the sentential structure (cf. (5b) and (6b)):

- (18) a. *Deliberately*(,) John broke the glass
 b. John *deliberately* broke the glass
 c. John *deliberately* has broken the glass
 d. John has *deliberately* broken the glass
 e. John has broken the glass *deliberately*

Yet, there is one special case we will have to consider and account for; it affects those adverbs which we have grouped in B, when they have a sentential scope (a situation similar to that of the monadic adverbs under C above). This will be our goal in next section.

4. Sentential adverbs

All the sentences below have been traditionally said to include an instance of a sentential adverb:

- (19) a. *Logically/Naturally/Amusingly*/. . ., he has solved the problem
 b. *Frankly/Honestly/Seriously*/. . ., they could not have answered those questions

- c. *Personally*, I imagined they had chosen you
- d. *Cleverly/Wisely/Carelessly*/ . . . , John dropped his cup of tea
- e. *Evidently/Obviously/Definitely*/ . . . , they make a nice couple
- f. *Apparently/Presumably/Perhaps*/ . . . , he is moving to another house

The adverbs in (19) share a number of properties: they are located in the periphery, they seem to have the whole sentence as their scope, they cannot be the basis of contrast in alternative questions or negation and they cannot be focused or included within verbal pro-forms. But there are clear differences among them as well. For example, all the adverbs in (19) can appear integrated in the sentence in medial position, but only those in (19a-d) can also be expanded in final position with no intonational (comma) break:

- (20) a. He has *logically/naturally/amusingly* solved the problem
- b. They could not have *frankly/honestly/seriously* answered those questions
- c. I imagined they had *personally* chosen you
- d. John *cleverly/wisely/carelessly* dropped his cup of tea
- e. They *evidently/obviously/definitely* make a nice couple
- f. He is *apparently/presumably/perhaps* moving to another house
- (21) a. He has solved the problem *logically/naturally/amusingly*
- b. They could not have answered those questions *frankly/honestly/seriously*
- c. I imagined they had chosen you *personally*
- d. John dropped his cup of tea *cleverly/wisely/carelessly*
- e. *They make a nice couple *evidently/obviously/definitely*
- f. *He is moving to another house *apparently/presumably/perhaps*

Besides, when the adverbs in (19a), (19b) and (19c) appear in medial or integrated final position their meaning is different from the one they exhibit in initial position, something which only happens partially with the adverbs in (19d) and never with those in (19e-f) in the available places. We will argue that only the adverbs in (19a) and (19b) are sentential, if the attribute “sentential” characterizes just the adverb that has the sentence as its only argument or as one of its arguments. This is not the case in (19c) or (19d) and, *stricto sensu*, doesn’t apply to (19e) and (19f) either, since in these latest cases the adverbs are predicated of just one grammatical value (instantiated in a corresponding grammatical category) of those which conform the sentence as a whole. We will come back to the issue in section 5.

4.1. *One-place predicates. Argument: <sentence>*

Logically, naturally, clearly, remarkably, astonishingly, oddly, strangely, unexpectedly, inevitably, understandably, literally, basically, essentially, fundamentally . . .

Most of these adverbs are the same we had characterized as predicates which could take the event as its sole argument (see section 3.1; group C). Intuitively, they can be said to be predicated of the verb in certain cases and of the sentence in others, their position in the structure being the relevant factor in this respect. That is, when they are expanded in a configuration where they just have the verbal constituent under their scope, it is the eventive argument of the verb that saturates the variable opened in their argumental structure, and it is then the one they have to match with to be correctly interpreted. That is why the examples in (22a) and (23a), where this semantic requirement is fulfilled, are grammatical, whereas (22b) and (23b) —with verbs whose [–activity] value is incompatible with the meaning of the adverb— are not:

- (22) a. Your friend answered the question *logically*
 b. *Your friend knows the question *logically*
- (23) a. She writes *naturally*
 b. *He feels hungry *naturally*

If, on the contrary, they are expanded in a position where the constituent that is under their scope is the sentence, the argument which saturates their argumental structure seems to “widen”, and, consequently, the eventive nature of the verb ceases to be relevant:

- (24) a. *Logically*, your friend knows the question
 b. *Naturally*, he feels hungry

We have argued elsewhere (vid. Ojea 1995) that a possible explanation for this phenomenon may lie in the nature of the suffix *-ly*, which they all share. This suffix converts an adjectival predicate into an adverb and neutralizes the type of argument(s) it takes. That is, a one-place adjective will be converted into a one-place adverb with no extra requirement as to the extension or nature of the argumental position to be discharged.¹⁰

¹⁰ This can be tested through the paraphrase of the sentence in which the adverb appears with another in which we have the corresponding adjective. Thus, *Formally, this is a necessity* will be paraphrased as *There is a formal necessity*, where both, *formal* and *formally*, are predicated of just one argument. On the contrary, *Honestly, she is a bore*, cannot be equivalent to **She is a honest bore* but to *I am honest in saying that she is a bore*, where both *honest* and *honestly* require two arguments to be interpreted (see §4.2)

We have analyzed the cases of those adverbs that can be predicated either of the eventive information of the verb or of the sentence, since their meaning is compatible with the two options: this can be taken to be the unmarked case. In section 3 we mentioned some other cases (groups A and B there) where the meaning of the adverb restricts their possibilities of argumentation to the event. Of course, the opposite situation also holds, that is, the meaning of certain adverbs makes them more likely to be predicated of the sentence than of the event (for example, *basically*). Yet, there is another case: that of the adverb *personally*, which can satisfy its argumental requirements in the event (cf. (20c) and (21c)) or in one of the arguments of the verb, provided this argument bears the thematic role 'experiencer' (cf. (19c)). Note that in this case *personally*, despite its position, cannot be considered a sentential adverb since it still requires an 'experiencer' to be interpreted (compare with (24)):

(25) **Personally*, they had chosen you

4.2. Two place predicates. Arguments: <Speaker/hearer, sentence>

Sincerely, frankly, honestly, truthfully, confidentially, seriously, bluntly, ...

Some of the adverbs we have dealt with in section 3.2. exhibit the same sort of behaviour than the *logically*-class above. They are the result of adding the suffix *-ly* to an adjective, and they therefore inherit a thematic structure underspecified in terms of the nature of the arguments. As a result, if their own meaning is compatible with both options, these adverbs may be predicated either of the <event, external argument> or of the <speaker/hearer, sentence>.¹¹ This is the situation we have in (19b), (20b) and (21b), repeated her for convenience:

- (26) a. *Frankly/Honestly/Seriously/ . . .*, they could not have answered those questions.
 b. They could not have *frankly/honestly/seriously* answered those questions
 c. They could not have answered those questions *frankly/honestly/seriously*

¹¹ Notice that the relationship of the notions speaker/hearer with the sentence is equivalent to that of the external argument with the verb (ie. the speaker/hearer will be the "external argument" of the sentence).

In (26a) the adverb is predicated of the speaker and of the sentence (note that it could be predicated of the hearer if the sentence had been a question instead of a statement: *Frankly, Honestly, Seriously, . . . , couldn't they have answered those questions?*), whereas in (26b-c) its arguments are the external argument of the verb and its eventive information. Notice that, in these particular examples, the adverbs are compatible with both argumental structures but this is not always the case. Thus, they won't be possible, in their eventive reading, with verbs which lack an external argument, but nothing prevents their sentential interpretation in this case:

- (27) *Sincerely*, snakes frighten me
 (cf. (13b): *Snakes *sincerely* frighten me)

Among the adverbs we have characterized as two-place predicates we may distinguish two other groups: one we will exemplify with the adverb *deliberately* and another which will be represented by *cleverly*. Both of them are different from the *frankly*-type above essentially in that they do not change the extension of their arguments, which will consistently be <external argument, event>. In the case of *deliberately*, this can be easily tested in all the positions it may exhibit (cf. (18), repeated here as (28)):

- (28) a. *Deliberately*(,) John broke the glass
 b. John *deliberately* broke the glass
 c. John *deliberately* has broken the glass
 d. John has *deliberately* broken the glass
 e. John has broken the glass *deliberately*

Contrary to what happened in the case of (26), the meaning of the five sentences in (28) is, *mutatis mutandis*, the same; that is, the extension of the arguments of the adverb has remained constant.¹² We will assume that in (28a) the adverb is predicated of the <external argument, event> but has been expanded in one of the highest positions from which it can fulfil its lexical requirements, that is, adjoined to AgrP: it then appears in the periphery of the sentence but is by no means sentential. Other adverbs similar to *deliberately* in their functioning are: *boastfully, intentionally, voluntarily, impulsively, . . .* (see §3.2).

¹² *Deliberately* will always be predicated of <external argument, event>, and that is why the interpretation of all the sentences in (28) can be paraphrased as: "It was in a deliberate way that John participated in the event of breaking the glass".

As regards the *cleverly*-type the issue is more controversial. It has been commonly assumed that the meaning of the adverb changes depending on the position it occupies in the sentence. Thus, for Jackendoff (1972: 49) *cleverly* may appear in initial, final or auxiliary position as in:

- (29) a. *Cleverly*, John dropped his cup of coffee
 b. John dropped his cup of coffee *cleverly*
 c. John *cleverly* dropped his cup of coffee

He argues that the paraphrase for (29a) will be: "It was clever of John to drop his cup of coffee", and for (29b): "The manner in which John dropped his cup of coffee was clever"; the reading of (29c) would be ambiguous between that of (29a) and (29b).

Nevertheless, this difference in meaning does not parallel the contrast we observed in (26) with the *frankly*-type.¹³ There, the adverb ceased to be predicated of the event and the external argument of the verb and, when expanded in initial position, could be combined with verbs whose features didn't match with those of the adverb (see (27)). In the case of (29), on the contrary, we only find a different focus of the adverb on one of the two arguments it requires, but no change in the extension of those arguments.¹⁴ In other words, *cleverly* will be predicated of <external argument, event> in all the three cases of (29), but will focus on the external argument when it is placed in the projection which eventually hosts that argument (29a), or on the event when it is expanded in the VP (29b); its reading will be neutral with respect to these two arguments in any of the medial positions it can occupy (29c). In sum, the difference in meaning which Jackendoff (1972) and other linguists have mentioned exist, but does not imply a change in the thematic grid of the adverb.¹⁵ Together with *cleverly*, in this group we find adverbs like *clumsy*, *carefully*, *carelessly*, *wisely*, *foolishly*, *stupidly*,...

¹³ Jackendoff (1972) argues that both adverbs behave the same.

¹⁴ That is why the contrast we noted in (27) does not hold here. If an event is not compatible with *cleverly* the combination of the two will be impossible irrespectively of the position of the adverb: **Cleverly*, John heard a noise / *John *cleverly* heard a noise / *John heard a noise *cleverly*.

¹⁵ The paraphrases Jackendoff (1972) himself offers for (29) clearly shows that the same two arguments appear in every case.

Finally, consider the case of adverbs like *sadly* (or *happily*, *tragically*,...). It can occupy the initial, medial and final positions as all the others above:

- (30) a. *Sadly*, John gave up his post
 b. John *sadly* gave up his post
 c. John gave up his post *sadly*

Focusing on (30a), we note that the reading of the adverb is ambiguous since it may be synonymous to the one it displays in (30c) —it would then fall in the same group as *deliberately* in this respect— or have a different one in which it would be predicated of the speaker and the sentence (similarly to what happened to *frankly*).¹⁶ This fact clearly suggests that the property the adverbs in *-ly* exhibit (i.e. the possibility that they may extend their arguments) is lexically-governed and that, as such, it has to be included in the information that for each lexical item is provided in the Lexicon.

Finally, consider the situation we may face when trying to combine in a single sentence two instances of the same adverb with a variable argumental structure. With one-place predicates, this will be possible to do, provided the argument is of a different kind:

- (31) *Logically*, he has solved the problem *logically*

If it is a two place predicate, when we have two instances of an adverb whose two arguments have changed the same situation holds:

- (32) *Frankly*, they could not have answered those questions *frankly*
 (33) *Sadly*, he undertook that task *sadly*

But in those cases where the adverb can not change the extension of its arguments, it will be impossible to expand two instances of the same predicate even if it is in different structural positions:

- (34) **Deliberately*, he dropped the cup *deliberately*
 (35) **Cleverly*, he dropped the cup *cleverly*

¹⁶ The paraphrases in these two cases would be: (a) “It was in a sad mood that John participated in the event of giving up his job” and (b) “For the speaker it is a sad thing that John has given up his job (even though John may be glad about it)”. Note that in this second argumental structure, *sadly* can be combined with events which would otherwise be incompatible with it: *Sadly, the storm destroyed the crops.*

5. Adverbs and functional categories

Although we have maintained the traditional distinction between verbal and sentential adverbs—which, as has been shown, needs to be understood as the structural expression of certain lexical properties of the adverbs—this has to be implemented to include a number of adverbs which take as their argument one of the functional projections which anchors the predicative relationship between a subject and a verbal predicate to the discourse. Recall that, for English, we defend the functional structure in (3), repeated here as (36):

$$(36) \quad [_{\text{CompP}} [_{\text{AgrP(N)}} [_{\text{AgrP(V)}} [_{\text{MP}} [_{\text{TP}} [_{\Sigma\text{P}} [_{\text{AspP}} [_{\text{VP}} \dots$$

All the adverbs in section 4 should in fact be treated as predicates taking one functional projection (CompP) as their argument. If we now consider the other four functional categories in (36) (plus the agreement projection, which is simply relational) we also expect four other different types of functional adverbs in English: accordingly, we will refer to aspectual adverbs, polarity adverbs, time adverbs and modality adverbs.

5.1. Aspectual adverbs. Argument: <AspP>

A) *Always, just, ever, never, already, still, yet...*

B) *Frequently, generally, usually, scarcely, rarely...*

Aspectual adverbs are modifiers that serve to specify the way in which the verbal event is regarded or experienced with respect to time (i.e. if the event is viewed as complete (perfective aspect) or as incomplete (non perfective aspect)). According to Parsons (1990: 210), the event variable and the time variable of a sentence are quantified, by default, by existential quantifiers: aspectual adverbs appear in the Logical Form as quantifiers which affect this default existential quantification (for example, *always* turns the existential quantifier into a universal one).

We may distinguish two classes of aspectual adverbs: those which exhibit a strict connection with the grammatical or lexical aspect (group A) and those which contribute to the aspectual information but in a wider sense (group B, normally referred to as “frequency adverbs”). This semantic difference between the two groups has syntactic implications as well. Thus, even though, in general, adverbs can be expanded in any position from which they may have scope on their arguments, the close relationship between those in group

A and the category AspP limits their appearance to a structural position where this category is the sister of the adverbial projection.¹⁷ This doesn't happen to frequency adverbs, which display the (apparent) mobility proper of adverbs, since in any of the projections on or above AspP they will fulfil their scope requirements. Moreover, this group of adverbs is mainly made out of derived forms with the suffix *-ly*. This reinforces our hypothesis that this suffix plays an important role in the lexical (and, therefore, distributional) characterization of adverbs:¹⁸

- (37) a. **Ever*, the students shouldn't be given homework
 b. *Normally*, the students shouldn't be given homework
 (38) a. *The students *ever* shouldn't be given homework
 b. The students *normally* shouldn't be given homework
 (39) a. The students shouldn't *ever* be given homework
 b. The students shouldn't *normally* be given homework

It is also possible to find these frequency adverbs in final position, something which may point to the by now familiar situation of the variable argumentation of the adverbs in *-ly* (whose argument can also be <event>, when the adverb is expanded in the VP):

- (40) a. *The students shouldn't be given homework *ever*
 b. The students shouldn't be given homework *normally*

Finally, note that, given the functional structure of English, the *always*-type will always be categorially-commanded by ΣP , something which will ensure that their sensitivity to polarity is respected; therefore, *never* or *ever/yet* will be expanded depending on the affirmative/negative features of ΣP :¹⁹

¹⁷ The case of *yet* is exceptional here, since it is the only one of these which can also be expanded in the final position.

¹⁸ Note in this respect that an adverb like *often*, which, semantically, should belong to the group of frequency adverbs, strongly prefers the medial position (cf. *He often visits his parents in the evening*), and when we find it in initial or final position —although the result is much marked now— it may simply be due to its equivalence in meaning to *frequently*, which consistently appears here (cf. *Often, he visits his parents in the evening; He visits his parents in the evening ?(quite) often*). An adverb like *sometimes* may also display the different possibilities we have associated with the forms in *-ly*, but in this case its categorial nature, midway between adverbial and nominal, may be responsible for it (vid. fn. 22).

¹⁹ In fact, the adverbs *ever* and *yet* are not conditioned by the negative polarity but by the non assertive character of the sentence: that's why, under certain conditions, they are also licensed in interrogative sentences (vid. Ojea, 1994).

- (41) a. He has *never* been to London
 b. He has not *ever/yet* been to London

This doesn't happen to frequency adverbs, which may be expanded in projections on which the polarity features don't have scope (see, □ 6 infra.)

5.2. *Polarity adverbs. Argument: <ΣP>*

- A) *Hardly, merely, barely, . . .*
 B) *Quite, fully, really, . . .*

These adverbs can be said to express the degree of affirmative or negative polarity which will characterize the predication.²⁰ This is the reason why they are only expanded in a position where they have ΣP as their sister and must match in features with it (ie. those in group A will only be compatible with a negative polarity whereas the adverbs in B require a positive polarity):²¹

- (42) a. She can *hardly* speak English
 b. I *quite* agree with you

5.3. *Time adverbs.. Argument: <tense>*:

Now, then.

The paradigm of English adverbs is highly limited in the expression of the grammatical tense. The language then resorts to prepositional phrases or to noun phrases with an "adverbial flavour" in then: *yesterday, tomorrow, this morning, . . .* (what Larson (1985) calls "bare NP-adverbs"). Since only adverbial phrases can modify a functional projection, only *now* and *then* —adverbials proper— can be expanded in TP:

- (43) He is *now* playing the guitar
 He was *then* playing the guitar

²⁰ This degree-like status of polarity adverbs allows them to have any quantified XP as their argument (cf. *hardly anyone/ever*). Also note that certain adverbs like *completely* or *perfectly* have a borderline semantic nature in between manner and degree. This follows from our assumptions since in any case they will still preserve their lexical requirements, having one only argument under their scope: cf. *I perfectly understand you* (polarity modifier) vs. *I understand you perfectly* (verbal modifier).

²¹ The adverbs which select a negative polarity, being negative themselves, preclude the expansion of the nucleus of the projection *not*: cf. **She can not hardly speak English*.

Bare NP-adverbs (and temporal prepositional phrases), on the contrary, may either function as temporal modifiers that appear as predicates of events in the Logical Form (44) or as what Parsons (1990: 209) calls “frame adverbials”, that is phrases that set the temporal context within which the rest of the sentence is to be interpreted (45):²²

- (44) He will be playing football with us *tomorrow*
 He played football with us *yesterday*
 (45) *Tomorrow*, he will be playing football with us
Yesterday, he played football with us

Remark that in any of these uses the bare NP-adverbs are interpreted as predicates over one single argument, being this the VP or the sentence: our assumptions are then fulfilled.²³

5.4. Modality adverbs. Argument: <MP>

Evidently, obviously, definitely, undoubtedly, certainly, clearly, ...
Apparently, presumably, perhaps, possibly, probably, ...

They take as their argument the modal information, understood as the epistemic conditions of the sentence (ie. the conditions for truth of content). Therefore, they are not sentential *stricto sensu* and that's why structurally they display more possibilities than those which in section 4 we analyzed as adverbs predicated of the sentence. For example, they may be expanded adjoined to MP, which, given the structure of English, will place them in front of the lexical verb or after the modal/auxiliary verbs if there are any:

- (46) They *evidently* make a nice couple
 He is *apparently* moving to another house
 John (*evidently*) will (*evidently*) have (**evidently*) finished.

²² The same situation holds for aspectual bare-NP adverbs: (*Every year*) we (**every year*) travel to London (*every year*).

²³ In fact, the two adverbs *now* and *then* may also take the VP as their argument (and appear in final position), even though they are not forms in *-ly*. This may follow from the fact that the event can always be set within a temporal context which is independent, though connected, of that of the whole sentence. That is why in a single sentence one may find more than one specification of time (cf. *Yesterday he arrived at five*) and, in any case, the adverbs will always be predicated of one single argument, the TP or the VP. Interestingly, since the sentence lacks a functional projection for place, this situation doesn't hold when we find two specifications for place. In this case one of them will contain an independent aspectual value and legitimate an event different from that of the main clause: cf. *Here, we always eat in this small restaurant* (meaning: (when we are) here, we always eat in this small restaurant). Vid. Hernanz 1993.

But they can also be attached to AgrP (either to the left or to the right), appearing then at the periphery of the sentence:

- (47) (*Evidently*,) they make a nice couple (*,evidently*)
 (*Apparently*,) he is moving to another house (*,apparently*)

Note that in these three positions —the only ones from which they will preserve their lexical requirements as predicates— the modal adverbs will always fall outside the scope of negation, that is, they will never be negated with the rest of the sentence:

- (48) (*Evidently*,) they (*evidently*) don't make a nice couple (*,evidently*)
 (= It is evident that they don't make a nice couple)
 (49) (*Apparently*,) he is (*apparently*) not moving to another house (*,apparently*)
 (= It apparently seems that he is not moving to another house)

In this respect, they behave differently from all the other adverbs predicated of the functional categories (see §6), but this peculiarity follows from the structural organization of grammatical categories in English, not from any restriction on the adverb itself.

6. Some other empirical consequences

6.1. *On the scope of negation*

The analysis of adverbial phrases we have devised has proven to be a rather powerful instrument to explain the structural restrictions they are subject to. Thus, apart from the possibilities we have explored in simple declarative sentences, our analysis predicts that the lexical requirements of the different classes of adverbs will also condition their interaction with the sentential negation and, therefore, the global meaning of the sentence. Given the structure we have defended for English (cf. (35)), those adverbs whose arguments are projected under Σ P will systematically fall under the scope of the negation. This is the case of VP adverbs —those which are one-place predicates and cannot change the extension of their arguments (cf. (50a)), and those which being two-place predicates are expanded in VP (cf. (50b))— and aspectual adverbs (cf. (51)):

- (50) a. John hasn't done his work *well* (but rather poorly)
 b. John didn't break the glass *deliberately* (but inadvertently)
 (51) He hasn't *ever* been to that place (cf. *never)

Notice that in the case of VP adverbials we have more possibilities than those exemplified in (50). That is, we may find a two-place predicate like *deliberately* expanded in any of the maximal projections above ΣP , and, consequently, outside the scope of the negation:

(52) *Deliberately*, John didn't break the glass (*but inadvertently)

And, since most VP adverbs are forms in *-ly*, we may also find them with a sentential (not verbal) scope, which precludes their being interpreted within the focus of negation:

(53) a. He didn't answer that question *logically* \neq

b. *Logically*, he didn't answer the question

(54) a. He didn't answer the question *frankly* \neq

b. *Frankly*, he didn't answer the question

(55) a. John didn't give up his post *sadly* \neq

b. *Sadly*, John didn't give up his post

In the case of aspectual adverbs, only those which must always be expanded in AspP fall within the scope of negation systematically; but frequency adverbs, that is, those adverbs which may also be placed in any other position above AspP, can escape the effect of the negation from there:

(56) a. He doesn't visit his parents *frequently* (but rarely)

b. He doesn't *frequently* visit his parents (but rarely)

c. *Frequently*, he doesn't visit his parents (*but rarely)

Exactly the same situation holds for time adverbs: if they are expanded in the VP (see (44) and fn. 22) they fall within the scope of the negation (cf. 57a), but if they appear in TP or in a higher projection, they don't (cf. 57b):

(57) a. He won't come *today* (but tomorrow)

b. *Today*, he won't come (*but tomorrow)

At the other end of the scale we have those adverbs which systematically fall outside the scope of negation: sentential and modal adverbs (cf. 48 & 49).

These two classes of adverbs, also share another restriction: they cannot appear in non-finite or imperative sentences:

(58) a. **Sincerely*, stay with me

b. *I want you *sincerely* to stay with me

(59) a. **Possibly*, stay with me

b. *I want you *possibly* to stay with me

The reason for this behaviour has to do, once more, with the fulfilment of the lexical requirements of the adverbs. Thus, sentential adverbs have the sentence, that is, the cluster of functional and lexical categories in (35), as (one of) their arguments, and since infinitive and imperative sentences lack agreement, tense and modal features, they don't qualify as a proper argument.²⁴ The same happens with modal adverbs, which require a ModP.

Modal adverbs cannot occur in questions either, but the reason in this case has to do with the meaning of these adverbs: they qualify the truth of the proposition expressed in the sentence and it is impossible to ask a question and at the same time evaluate that truth:²⁵

(60) *Will you *evidently* stay with me?

6.2. Some parametric consequences.

Finally, consider another consequence of our analysis. We have argued that the different possibilities of distribution of adverbial phrases in English are strictly conditioned by (a) the lexical requirements of the adverb as a logical predicate and (b) the particular sentential structure of English. From this follows that, given another language, only if the adverbs have a different lexical (in the sense of argumental) structure or if the functional configuration of the sentence does not coincide, shall we expect significant differences with the facts we have explored in English. We will briefly deal with two facts in Spanish which support these predictions.

The first has to do with the different lexical nature of modality adverbs in Spanish. We argued in Ojea (1995) that these adverbs are operators and not predicates; they will, therefore, be able to select the feature <+subjunctive> when they are expanded in a position from which they c-command ModP:

(61) *Probablemente* vayamos a Cuba

²⁴ The fact that time adverbials may appear in the constructions of (58) and (59) —even though, as we have noted, they lack grammatical tense— can be misleading: what we really have in those cases is an instance of a temporal modifier in the VP, not an adverb predicated of TP, as the position in which this adverb has to appear clearly shows: cf. *Stay with me today/now; I want you to stay with me today/now.*

²⁵ As Bellert (1977) points out, the situation is different in the case of the corresponding sentence with a modal adjective: cf. *It is evident that he will stay with me.* Here we get the assertion of one complex proposition and therefore it is possible to form a question out of it: cf. *Is it evident that he will stay with me?*

But this selection won't take place when the operator doesn't c-command ModP:

(62) **Vayamos probablemente a Cuba.*

In English, on the contrary, since modality adverbs are not operators but predicates, they will never force a particular option in the specification of ModP.

The second piece of evidence refers to the functional properties of the two languages. Spanish organizes the functional categories available in the inventory provided by UG (Universal Grammar) differently from English; in particular it has been argued that Σ P dominates ModP and all the other functional categories (cf. Laka, 1990, among others).²⁶ The relevant structure will then be (63):

(63) [_{CompP} [_{AgrP(N)} [_{AgrP(V)} [_{Σ P} [_{MP} [_{TP} [_{AspP} [_{VP} ...

This different organization of the functional structure of the sentence doesn't have a direct incidence on the distribution of adverbial phrases in the two languages, but another aspect connected to this is relevant: the different stage at which the checking of inflectional features takes place. In Spanish this happens before spell out, since Agr is strong and therefore "visible". This provokes significant differences between the two languages. For example, adverbial phrases which could systematically appear in front of the verb in English will go after it in Spanish (ie. one-place predicates within the VP: cf. 64); the same situation is faced by functional adverbs, which, being projected in the functional categories dominating the VP, will nevertheless end up after it (cf. 65):

(64) **Juan completamente terminó el trabajo*

(65) *Ese alumno asiste siempre/habitualmente/ahora a mis clases*

The analysis we have provided for the distribution of adverbial phrases serves then to characterize the facts of English systematically, but also to explore the parametric variation between this language and others like Spanish, with the consequences this brings about for a theory of language acquisition.

²⁶ A straightforward consequence of this difference can be tested in short answers. Here, whereas the nucleus of Σ P can stand by itself in Spanish (cf. *¿Quieres algo más? Sí/No*), in English we need the modal *do*, marked with tense, to support the affirmative or negative answer (cf. *Do you want anything else? Yes, I do/ No, I don't*).

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