ON THE EVENTIVE STRUCTURE OF ADJECTIVES
AND ADVERBS

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This paper attempts to capture various aspects of the distribution and morphological makeup of adjectives and adverbs in English via the hypothesis that these categories may be endowed with event structure.

Adjectives are classified as monadic or diadic predicates which may have or lack a Davidsonian argument, that is, they may be stage level predicates or individual level predicates. The number of arguments they take, together with the semantic features of these arguments, condition their conversion into adverbs through the addition of the suffix -ly. On the other hand, the Davidsonian argument determines their possibilities of projection in complement verbless clauses and in adjunct predicatives.

As for adverbs, they all lack a Davidsonian argument, but may also be classified as monadic or diadic predicates. This argumental structure is crucial to explain the distribution of adverbs in a principled way, since they can be projected in any position from which they have scope on their aguments.

1. INTRODUCTION

The development of lexicalist theories like the Lexical Functional Grammar (cf. Bresnan 1982) and, above all, the increasing importance of the Lexicon in Chomskyan grammar has led to the revision of the role the argumental structure of a predicate plays in the characterization of a number of linguistic phenomena. In this paper we will argue that the morphological/syntactic properties of adjectives and adverbs can be better understood if we classify them in terms of their argumental structure.

By the argumental structure of a predicate we mean the specification of the number and type of arguments that participate in the event or property which that predicate denotes. We then say that a predicate has one, two, three... places open in its thematic grid to be saturated by identical number of arguments; accordingly, we refer to monadic, diadic, triadic... predicates.

There has also been a growing attempt to integrate the aspectual information of a predicate in its lexical entry.[1] Within the framework of Generative Grammar (from which most of the work on the issue has emerged) we find two main tendencies: the view taken by Grimshaw (1990) or Jackendoff (1987), among others, of an eventive or aspectual structure different from the thematic structure; and the approach we will adopt here of a unique argumental structure that includes the specification of the eventive information. In particular we will follow Kratzer (1989), who represents the differences between individual level and stage level predicates (i.e. permanent vs transitory properties) with a diffe-

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[1] For the linguistic characterization of the semantic notion *Aktionsart*, see Dowty (1979), Kenny (1963) and Vendler (1967), among others.

rent argumental structure: stage-level predicates have a Davidsonian argument that indivi-
dual level predicates lack.[2]

If we classify adjectives along these lines we will establish two groups: those which
are predicated of an argument in a period whose beginning and end are known will be
classified as stage level predicates; examples in English include:

(1) barefoot, naked, missing, alone, filled, ill, alive, dead, present, available

worried, bored, tired, puzzled, satisfied, irritated, amazed, annoyed, distressed

The other (larger) group of adjectives which are predicated of an argument in a period
whose beginning and end are unknown, will be individual level predicates. This may
apply, to mention just a few, to adjectives like:

(2) intelligent, efficient, modest, wise, false, bold, boastful, intentional, reluctant, silent,
kind, clever, careful, sincere, honest, serious, sad, happy, weak, altruistic

worrying, boring, exciting, amusing, terrifying

Adjectives like *ill* in (1) can only be predicated of an entity at a definite time, where-
as others like *weak* in (2) can be understood as a permanent properties. The same situa-
tion holds in the opposition between past participle adjectives like *worried* or *bored*, sta-
ge level predicates, and the present participles *worrying* or *boring*, which are individual
level predicates. In the lexical entry of these adjectives the difference between the two
groups will arguably be codified in the presence (i.e. stage level) or absence (i.e. indivi-
dual level) of a Davidsonian argument.

Kratzer (1989) mentions a number of grammatical phenomena sensitive to the indivi-
dual/stage level distinction. Thus, stage level predicates can enter in *There*-existencial sen-
tences, whereas individual level predicates cannot (e.g. *There were few people present* vs.
*There were few people intelligent out there). On semantic grounds, stage level adjectives
force a generic reading on their noun phrase arguments in predicative constructions, a res-
triction which does not hold when an individual level adjective appears in this construc-
tion (e.g. in *Firemen are altruistic* the only possible reading is 'All firemen are altruistic';
on the contrary *Firemen are available* can mean that there are firemen who are available).
Finally, absolute constructions with stage level adjectives, but not with individual level
predicates, can be paraphrased by a conditional sentence (e.g. *Worried by that issue, he
cannot concentrate in his work*, with the reading 'If he is worried by that issue...', a me-
aning which is not present in *Reluctant to follow my advice, she pretended to ignore me)*

But as Kratzer herself notes, the distinction individual/stage level cannot be made once and
for all, since certain syntactic and semantic configurations may change this property in predi-
cates. For example, we would think of an expression like *Having brown hair* as an individual
level property unless we want to refer to a person who dyes her hair capriciously very often.
But even if we admit that the structure of some predicates may change in this respect, this do-
es not invalidate a distinction which serves to explain a number of grammatical phenomena.[3]

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[2] We will use the term Davidsonian or eventive argument in the sense proposed by Davidson
(1966), that is to refer to an extra argument (predicated of both the action/property and its parti-
cipants) in perfective predicates.

[3] In Spanish, some adjectives are stage level predicates and, when used predicatively, they can only
combine with the [-perfective] copula *estar* (e.g. *lleno, asombrado, sólo, roto, vacío, contento,
ausente, muerto...*), whereas others are individual level predicates and combine with the [+per-
fective] copula *ser* (e.g. *inteligente, capaz, mortal, modesto, prudente, falso, honesto, veloz...*).

In what follows we will argue that certain restrictions in the type of adjectives which may appear in different constructions in English can only be handled if we take into account their eventive structure. In particular, we will explain what constrains the presence of certain adjectives in complement verbless clauses (the so called, *small clauses* in generativist literature) and in adjunct predicatives. We will show that the options in the first construction are relatively free, in the sense that both individual and stage level predicates can head these complements, the only lexical condition being that the eventive nature of the adjective matches that of the matrix predicate. On the contrary, the class of adjectives that may function as adjunct predicatives is restricted to those which are stage level predicates. This is precisely the group of adjectives that cannot be converted into adverbs through the addition of the suffix *-ly*, and therefore we will extend our conclusions to offer a characterization of the argumental properties of adverbs and the role played by the suffix *-ly* in derivational morphology. Although we will try to avoid technical details here, the assumptions underlying this work are those of the latest versions of Chomskyan Generative Grammar.

2. Adjectives in verbless clauses

There are a number of verbs in English, basically diadic predicates, which have an argument that plays the thematic role of proposition; the canonical structural realization of this role is the clause, so that these verbs normally have a sentential complement:

(3) He perceived *that you are jealous*

He discovered *that the whole garden was empty*

I never knew *that he was wrong*

My uncle thought *that you were wrong*

I believe *that he is as honest as me*

She felt *that the painter was right*

He found *that the prisoners were guilty*

But as is well known, the sequences in italics in (3) can also adopt another syntactic configuration:

(4) He perceived *you jealous*

He discovered *the whole garden empty*

I never knew *him wrong*

My uncle thought *you wrong*

I believe *him as honest as myself*

She felt *the painter right*

He found *the prisoners guilty*

Jespersen (1949), from whom the examples in (4) have been taken, argues that the two constituents after the matrix predicate form a unit, a simple nexus, which he defines as «a

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But there also exists a productive group of adjectives which can be combined with both *ser* and *estar* (e.g. *gordo, delgado, limpio, silencioso, alegre, guapo, feo, elegante, caro, barato...*). In our terms, they may have a double reading as individual level predicates (with no Davidsonian argument) and as stage level predicates.

combination implying predication and as a rule containing a subject and either a verb or a predicative or both» (cf. Jespersen 1949: 5). This idea has been adopted in recent years primarily by Stowell (1981), and has gained wide acceptance mainly among linguists working within the Principles and Parameters approach;[4] nevertheless, the analyses that have been proposed under this view differ in the categorial status assigned to that propositional complement. Since the discussion and evaluation of the different proposals are clearly beyond the scope of this paper, we will accept the assumptions underlying them (i.e. that the two constituents in (4) establish a subject-predicate relationship and form a syntactic unit), but we will adopt the generic and categorially-neutral term *complement verbless clauses* to refer to these constructions.

In the examples in (4) all the verbless clauses have an adjectival predicate; apparently, there is no restriction in terms of the eventive nature of these adjectives, since we find both individual level (e.g. *jealous*) and stage level (e.g. *empty*) predicates. But since these verbless clauses belong to the argumental structure of the matrix predicates, we expect some sort of lexical selection from the head, the main verb, to its complement —i.e. the verbless clause headed by the adjective. The prediction is fulfilled, and we find that individual level predicates like *consider*, *think* or *judge* tend to take verbless clauses headed by individual level adjectives, whereas stage level predicates like *discover*, *want* or *leave* are complemented by verbless clauses with stage level predicates:

> (5) (a) I consider Peter intelligent / boring / *bored
>
> I thought them intelligent / boring / *bored
>
> I judged him intelligent / fascinating /*fascinated
>
> (b) I discovered Peter *intelligent / *boring / bored
>
> I want you *intelligent / *interesting / interested
>
> The result left everybody *intelligent / *exciting / excited

The behaviour of a verb like *find* is significant in this respect. In its epistemic use it is an individual level predicate which can take a verbless clause as its complement (its meaning will be equivalent to *perceive*, here), and the adjective that heads this clause will expectedly be an individual level predicate too:

> (6) I found (perceived) Peter intelligent/ efficient/ boring/ *bored

It is also possible to have *find* in sentences like (7), that is, followed by stage level predicates like *dead* or *bored:*

> (7) I found Peter dead /bored

But the two instances of *find* in (6) and (7) cannot be said to be equivalent. In (7) it cannot be substituted by *perceive* (on the contrary, its paraphrase will be *I found Peter and he was dead/bored*) , and it functions as a stage level predicate with a nominal complement *Peter;* the adjective *dead* is here an object predicative, not the head of a verbless complement clause. Temporarily leaving some details of the analysis aside, this basic difference between (6) and (7) can be represented as follows:

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[4]   The two main alternatives to this view, which has been called the *small clause analysis,* are the *complex predicate hypothesis* (viz. among others, Bach, 1979; Dowty, 1982a; Hoeksema, 1991; Jakobson, 1987) and the *predication theory* of Williams (1983). See also Contreras (1995), whose analysis for propositional complements with a [+V] predicate is different from that of [-V] predicates.

(8) (a) I found [Peter intelligent]

(b) I found [Peter] [intelligent]

We must then establish a clear distinction between adjectives that head verbless complement clauses and adjectives that are predicated of the subject or the object of a clause, this predication being mediated by the matrix predicate: this second group is what we will term *subject/object (adjunct) predicatives.*

3. SUBJECT/OBJECT PREDICATIVES

3.1. *Predicatives integrated in the sentence*

In general, this construction has not been consistently treated by descriptive grammars; in fact, most of the time the sentences in (9) and (10) have been grouped with those in (4), and the analyses provided did not distinguish between them much (important exceptions to this are the works by Brown and Miller 1980; Jespersen 1949 and Wekker and Haegeman 1985, where the differences between complement and adjunct verbless clauses are explicitly mentioned; for a comprehensive treatment of these constructions see Aarts 1992). But as we will show, there is syntactic, as well as semantic, evidence that they should be handled differently. The following sentences contain an object predicative; in (9a-d) this predicative is resultative and in (9e-h) depictive:[5]

(9) (a) A draught of air banged the door *shut*

(b) She boiled the eggs *hard*

(c) You cannot pump this *dry*

(d) She swept the room *clean*

(e) They ate the meat *raw*

(f) I drink my tea very *weak*

(g) He had the answer *ready*

(h) I always buy my meat *fresh*

In (10), we have examples of subject predicatives, which can only be depictive:

(10) (a) Mary looked at them *terrified*

(b) Peter returned home *safe*

(c) Harriet danced the tango *naked*

The first difference between the sentences in (9) and (10) and those in (4) has to do with thematic relations. In all the examples in (4) the adjectives are part of the argumental structure of the matrix predicate, which implies that if they were absent we would not obtain equivalent sentences. Compare (11) and (12), where the symbols ≠ and = mean different and equal argumental structure respectively:

(11)   He perceived you ≠ He perceived you jealous

He discovered the garden ≠ He discovered the garden empty

I never knew him ≠ I never knew him wrong

He found the prisoners ≠ He found the prisoners guilty

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[5]   On the terms resultative and depictive, see Rothstein (1983) and Simpson (1983).

(12) She boiled the eggs = She boiled the eggs hard

She swept the room = She swept the room clean

They ate the meat = They ate the meat raw

Mary looked at them = Mary looked at them terrified

Peter returned home = Peter returned home safe

In customary small clause analyses (viz. footnote 4) the adjectives in (11) are said to be the nuclei of what we have termed complement verbless clauses, its subject being the nominal constituent to its left:

(13) He perceived [$_{complement}$ you$_{(subject)}$ jealous$_{(predicate)}$]

On the contrary, in (12) the adjectives establish a predicative relationship with an empty category (PRO in those analyses) correferent either with the object or with the subject of the main predicate, and the constituent they form functions as an (omittable) adjunct:[6]

(14) She boiled [the eggs$_i$] [$_{adjunct}$ PRO$_{i(subject)}$ hard$_{(predicate)}$]

[Mary$_i$] looked at them [$_{adjunct}$ PRO$_{i(subject)}$ terrified$_{(predicate)}$]

This syntactic difference has been frequently noted in the literature; see Demonte (1991) and Mallén (1991) for references.[7] We will now turn to certain semantic facts which have been by and large ignored (viz. Bosque 1990; Demonte 1991; Hernanz 1988; Miguel 1992, and references therein, for some interesting treatments of the aspectual restrictions of the adjectives in Spanish).

If the matrix predicate in constructions like (13) conditions the eventive nature of the adjective in the verbless clause, in (14) both predicates are subject to the same restriction: they must be stage level. That is, having an individual level predicate as the secondary predicate as in (15a), or as the main predicate as in (15b), renders an ungrammatical result:[8]

(15) (a) *Henry hid the papers *intelligent*

*He ate the carrots *red*

(b) *Susan *admires* his work worried

We assume, in the light of Hernanz (1988), that adjectives can only head an adjunct predicative when they have a Davidsonian argument. This argumental position has to be discharged and this is done through a process of thematic identification with the David-

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6   There exists another construction headed by verbs (called complex transitives in Wekker and Ha-
    egeman, 1985), whose argumental structure includes an object and an obligatory complement
    predicated of this object, e.g.: *The government set the prisoners free.* We won't deal with it here,
    but we expect the adjectival predicative to have a syntactic structure like that of the examples in
    (14) in the text, even though it may behave as the argumental complements in (13) in functional
    terms.

7   The analysis Demonte (1991) offers defends not only a different structural configuration for both
    types of predicatives (with subject predicatives attached to the Tense Phrase and object predica-
    tives to the Verbal Phrase), but also a different constituent structure for depictive and resultative
    predicatives: the former are treated as Tense Phrases and the latter as Aspectual Phrases.

8   We will not contemplate here the cases where the adjective functions 'adverbially' with verbs
    which are not stage level predicates, since this possibility is restricted to just a few: *The flowers
    smell good/sweet; The food tastes good/marvellous* (examples taken from Quirk *et al.* 1985)

sonian argument of the main predicate. If this explanation is on the right track it follows that the matrix verb must also be a stage level predicate, hence the agrammaticality of (15b).

In general adjunct predicatives are oriented to the object of the main predicate when this is *affected* (in the sense of Jaeggli 1986 and Rizzi 1986; see also Demonte 1991), that is, when it designates an entity whose status, location or properties are modified by the event expressed by the verb. Compare in this respect the two sentences in (16):

(16) (a) They played the music *loud*

(b) *?They listened to the music *loud*

In (16a) the object *the music* is affected but in (16b) it is not, and that's why its combination with an object predicative is ruled out.[9] This does not mean that we cannot find an instance of secondary predication in sentences like this, but then it will be oriented to the subject:

(17) The students listened to the music *absorbed*

Since affected objects tend to be [-animate] entities and subjects are normally Agents or Experiencers (hence, [+animate] entities), the semantic features of the adjective alone often serve to determine if it refers to the subject or to the object. Thus, *naked* can only be predicated of the subject in (18), whereas *raw* will be predicated of the object:

(18) (a) John$_{[+human]}$ ate the meat naked$_{[+human]}$

(b) John ate the meat$_{[-animate]}$ raw$_{[-animate]}$

It is then difficult to find examples where an adjunct predicative can ambiguously refer to the subject and to the object.[10] Consider in this respect the following examples, where the semantic features of the adjective may match with both:

(19) (a) Mary looked at them terrified

(b) John beat Peter flat

In (19a) the object is unaffected, and therefore the predicative is subject oriented. On the contrary, the adjective in (19b) can only be object oriented given its resultative character.

Summing up so far: adjective phrases can function as secondary predicates which modify the verb and are oriented to the subject or the object of the sentence (provided this is affected in the relevant sense). We have shown that the eventive nature of the adjective (i.e. the Davidsonian argument it may have or lack), is crucial to its licensing as an adjunct predicative: only stage level adjectives can appear in these constructions and are licensed through a process of thematic identification with the main verb. Let's turn to another possibility of secondary predication which supports this view.

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[9] According to a native speaker, the sentence (16b) can be acceptable in certain contexts (e.g. *First we will listen to this music loud and then we will listen to it quiet*). Nevertheless its status is clearly more marginal than that of (16a)

[10] The only ambiguous sentences we could attest have the adjectives *naked* or *nude* as predicatives: e.g. *The artist painted/watched her naked*. Notice that these sentences are also counterexamples to the restriction we have imposed on the object (i.e. it is not affected).

3.2. *Non-integrated predicatives*

Subject/object oriented predicatives can also appear as adjuncts structurally independent of the clause: we will term them non-integrated predicatives. Subject oriented adjectives are much more productive in this case than object oriented ones, the reason probably being structural.[11] As regards semantic conditions, we find the same restriction as before: the adjective must be a stage level predicate:

(20) (a) Happy / *Intelligent, she resumed her work

(b) Excited / *Exciting, the crowd cheered the King

In fact, most of the examples of this construction seem to involve adjectives whose *Aktionsart* is grammatically realized, either morphologically (past perfect participles are more frequent than non verbal adjectives) or syntactically (with modifiers which express the aspect):

(21) (a) Terrified, he looked at them

(b) Dazed, the man stumbled backwards

(c) (Always) cautious, he opened the door just a little

It may seem that the insertion of the aspectual adverb *always* in (21c) (example taken from Quirk *et al.* 1972: 120) is a mechanism to justify the appearance of a predicative instead of an adverbial phrase semantically equivalent to it, since adverbial phrases exclude modifiers (they only allow for specifiers like quantifiers or degrees):[12]

(22) (*Always) Cautiously, he opened the door just a little

But this contrast between adjectives and adverbs doesn't seem to be enough to explain the insertion of aspectual marks in non-integrated adjuncts. Quirk *et al.* (1985: 425) note that these marks are obligatory when the non-integrated adjunct is object-oriented:

(23) She glanced at he cat, *(now) quiet.

I glanced at Mary, angry ?*(as always)

In neither of the two examples above can the object-oriented adjective be replaced by an adverb, yet the (aspectual) modification seems to be necessary.

Hernanz (1993), who includes these cases of secondary predication in the class of what Beukema (1982) and Stump (1985) have termed «free adjuncts», argues that they have a propositional interpretation independent of that headed by the main predicate: in other words, they inaugurate their own temporal/aspectual space. That we have two different events can be seen in examples like (24) (adapted from Martínez 1994) where we find a non-integrated adjective and an integrated adjective both oriented to the subject of the main sentence:

(24) *Tired out* by his journey, Manuel got home *half asleep*

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[11] The predicative is expanded in the highest sentential projection, which implies that it will c(ategorially)-command the subject immediately.

[12] The same reason could arguably be adduced to explain why some speakers seem to prefer a sentence like *Happy to be back, she resumed her work* to (20a) in the text. Adverbs don't admit complementation, therefore *happily* could never substitute the adjective here, whereas it could be more productively used in examples like (20a).

Since the free adjunct is a stage level predicate its Davidsonian argument alone will serve to support that independent predication, but a morphological or syntactic realization of the aspect helps to make it clearer.

Stage level adjectives may then function as secondary predicates oriented to one of the participants in the primary predication, and they can appear integrated in the clause or be expanded in a position external to the sentence with a propositional interpretation. There is another category which apparently shares these properties: the adverb. Adverbs may be understood as logical predicates which can also appear integrated or non-integrated in the sentence. This means that they may modify the verb or the sentence, a possibility which, as we will see, follows from their particular argumental structure. As adjectives, they can also be oriented to one of the participants in the clause.

But adjectives and adverbs cannot be said to be equivalent; thus, together with examples like (20a) and (21c) (repeated here for convenience) which have a quasi-synonymous version with an adverb, we more frequently find cases like those in (26), where the two options bring about a clear difference in meaning:

(25) (a) *Happy,* she resumed her work

Happily, she resumed her work

(b) *Cautious,* he opened the door just a little

Cautiously, he opened the door just a little

(26) He looked at them *terrified* ≠

He looked at them *terrifyingly*

We will seek for an explanation for some of the differences between adjectives and adverbs which hinges on the derivational process which converts the former category into the latter. But first, as we have done in the case of the adjectives, we'll argue for a classification of adverbs in terms of their argumental structure.

4. THE CLASSIFICATION OF ADVERBS

Traditional classifications of adverbs tend to focus on their notional or semantic properties (Quirk *et al.* 1972; 1985, offer a comprehensive treatment of adverbs in this respect), but the groups formed this way do not always reflect their distributional restrictions. Take, for example, *easily,* and *carefully;* both are customarily classified as adverbs of manner, but whereas *easily* is restricted to the medial and final position in the sentence, *carefully* may also appear in initial position and before auxiliary verbs:

(27) (a) **Easily,* John **easily* has *easily* finished *easily*

(b) *Carefully,* John *carefully* has *carefully* finished *carefully*

In Ojea (1994; 1995) we offer an alternative classification of adverbs based on their thematic properties, and we argue that their distribution is conditioned by these lexical properties and by the sentential structure of the language. We will summarize here the main aspects of this proposal to show how the argumental structure of adverbs is crucial to the understanding of their properties and their relationship with the adjectives from which they are derived.

Adverbs can be considered logical predicates, that is, open functions which require a number of arguments to be saturated (viz. Bellert 1977; Davidson 1966; Hornstein 1990

and Parsons 1990).[13] As is well known, they may appear in different positions within the sentence. In transformational grammar this has frequently led to their being treated as «transportable categories» which may move in the sentence provided certain interpretative conditions are observed (viz., for example, Huang 1975; Jackendoff 1972, 1977; Keyser 1968, or, more recently, Nakajima 1991 and Parsons 1990). Other linguists (cf. Belletti 1990; Pollock 1989) account for the distribution of the adverbs in terms of the mobility of other constituents; that is, adverbs will only be generated in one place in the sentential structure but since other constituents are subject to movement, they can eventually display more than one position in the surface structure (e.g., before or after the main verb if this raises to Tense).

Our proposal differs from these two in that we do not allow for adverb movement, but we do not restrict their base generation either. In essence, we argue that adverbs can be adjoined to any maximal projection from which they can fulfil their lexical requirements and therefore be correctly interpreted.

Turning now to the thematic classification of adverbs, we may establish three groups: VP adverbs (one of their arguments is the event), sentential adverbs (one of their arguments is the sentence) and functional adverbs (their only argument is one of the functional categories of the sentence). The first two groups can be further subdivided into monadic and diadic adverbs.

Functional adverbs won't be considered here, since they depart from the other two classes in aspects which go beyond the aim of this paper. Suffice it to say that we find a group of functional adverbs connected with each of the functional or grammatical categories which can be said to anchor the predicative relationship between a subject and a verbal predicate to the discourse. Thus, we have aspectual adverbs (e.g. *always, just, ever, never, already, still, yet, frequently, generally, usually, scarcely, rarely*), polarity adverbs (for negative polarity: e.g. *hardly, merely, barely,* and for affirmative polarity: e.g. *quite, fully, really*), time adverbs (e.g. *now, then*) and modality adverbs (e.g. *evidently, obviously, definitely, undoubdtedly, certainly, apparently, presumably, perhaps, possibly, probably*). Their existence also provides an interesting argument in support of recent analyses in the generative approach that defend the syntactic projection of grammatical categories, and the order in which the adverbs appear in the sentence serves to clarify the order these grammatical categories may exhibit.[14] In particular, for English they seem to support the following sentential structure:

(28) [$_{CompP}$ [$_{AgreementP}$ [$_{ModalityP}$ [$_{TenseP}$ [$_{PolarityP}$ [$_{AspectualP}$ [$_{VP}$

Turning now to the other two groups of adverbs (i.e. VP adverbs and sentential adverbs), they may be further classified in terms of their argumental structure. Thus VP adverbs can be one-place predicates or two-place predicates. In the first case, their thematic structure is that in (29a) and in the second the one in (29b):[15]

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[13] Viz. Dowty (1982b), McConnell-Ginet (1982) and Thomason and Stalnaker (1973) for an alternative view where adverbs are treated as logical operators.

[14] This order may be different in each language, and this is predictably reflected in the distribution of functional adverbs in those languages. See Ojea (1994; 1995) for a comparison between English and Spanish in this respect and for further empirical consequences.

[15] Among the adverbs with the argumental structure in (29b) we may include those classified as subject-oriented by Jackendoff 1972 or Lakoff 1972.

(29) (a) <event>

(b) <event, external argument of the verb>

We list some examples of monadic VP adverbs in (30) and some of diadic VP adverbs in (31):

(30) (a) early, late, well, hard, fast, again, here, there...

(b) completely, easily, totally, handily, mortally, immediately...

(c) logically, naturally, clearly, remarkably, oddly, strangely...

(31) (a) deliberately, boastfully, intentionally, voluntarily, reluctantly, silently, impulsively, kindly, cleverly, carefully, carelessly, wisely, foolishly...

(b) Sincerely, frankly, honestly, truthfully, confidentially, seriously, bluntly...

Let's assume a structure of the verbal phrase along the lines of Koopman and Sporstiche (1988), with a first maximal projection where we find the verb and its internal arguments, and a recursive projection where the external argument of the verb is expanded prior to any movement; monadic VP adverbs will be expanded adjoined to the first VP projection —to the left or to the right; the adverbs in (30a) are restricted to the right:[16]

(32) [$_{VP}$ external arg. [*monadic adv* [$_{VP}$ verb+internal args.] *monadic adv*]

Since these monadic VP adverbs cannot have the external argument of the verb under their scope, they cannot be projected in any other place of the sentential structure, and consequently they will always appear to the right of auxiliary or modal verbs. It will also be impossible for them to display a sentential scope: that is why the two first instances of *easily* in (27a) are precluded.

On the contrary, diadic VP adverbs must be adjoined to the recursive VP projection including the verb and its external argument:

(33) [*diadic adv* [$_{VP}$ external arg. [$_{VP}$ verb+internal args.]] *diadic adv*]

In these positions, the adverb will appear before of after the main verb, as before, but there exist more places in the structure from which it can have scope on both the external argument of the verb and the verb itself. In particular, diadic VP adverbs can be attached to any of the functional categories between AgrP and VP, these two included: this explains the options available for *carefully* in (27b).

In the case of sentential adverbs we still have the distinction between monadic and diadic predicates. The argumental structure of the first group is represented in (34a), and that of the second group in (34b):

(34) (a) <sentence>

(b) <speaker/hearer, sentence>

Some examples are provided in (35a) and (35b):

(35) (a) logically, naturally, clearly, remarkably, oddly, strangely, unexpectedly, understandably, literally, basically, essentially, fundamentally...

(b) Sincerely, frankly, honestly, truthfully, confidentially, seriously, bluntly...

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16 Radford (1997: 435) offers a principled explanation of the fact that some adverbs (e.g. *well*) can only appear in final position, but his proposal cannot explain why other adverbs that he explicitly groups together with *well* as VP adverbs (e.g. *completely*) behave differently.

Most of the adverbs in (35a) are the same ones we had characterized as VP adverbs in (30c). Intuitively they seem to be predicated of the verb or of the sentence depending on their position in the structure. That is, when the adverb is expanded in a configuration where it just has the verbal constituent under its scope, it is the event that saturates the variable opened in its argumental structure; but if it is expanded in a position external to the sentence, the argument that saturates its open function seems to 'widen' and becomes the sentence itself. Note, in this respect, the contrast between (36a) and (36b); in the first case the verb lacks a Davidsonian argument in its eventive structure and this makes it incompatible with the monadic VP adverb *logically*, but when this adverb is sentential the eventive nature of the verb ceases to be relevant:

(36) (a) *He has suffered the consequences *logically*

(b) *Logically*, he has suffered the consequences

A similar situation is found in the case of diadic adverbs: many of them (basically those in 31b) can be predicated of the event and the external argument of the verb, or be sentential and therefore take the sentence and the speaker/hearer as their arguments. This is why an adverb like *sincerely* is incompatible in its verbal reading with a verb like *frighten*, which in standard analyses is said to lack an external argument, whereas both may coexist when the adverb is sentential:

(37) (a) *Mice *sincerely* frighten me

(b) *Sincerely*, mice frighten me

This option to have arguments which may vary in extension (but not in number: a monadic adverb will always take just one argument, whereas a diadic adverb will always take two) is clearly lexically governed. Thus, the diadic adverb *sincerely* can be either verbal or sentential, whereas an adverb of the same type like *carefully* can only be verbal; compare (37) with (27b), repeated here as (38), where the argumental structure of *carefully* remains constant independently of the position it occupies:[17]

(38) *[Carefully]*, John *[carefully]* has *[carefully]* finished *[carefully]*

Interestingly, we still find a third possibility, that of adverbs like *sadly, happily* or *tragically*. They may behave the same as *carefully* and have the argumental structure <event, external argument of the verb> in any position, or allow for a change in the nature of its arguments and be predicated of the sentence and the speaker/hearer in certain contexts, thus falling in the same group as *sincerely:*

(39) (a) *Sadly*, they waved goodbye

(b) They *sadly* waved goodbye

(c) They waved goodbye *sadly*

The reading of (39a) is ambiguous, since it may be synonymous to the one it displays in (39b) and (39c), that is: 'it was in a sad mood that they participated in the event of wa-

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[17] For an example similar to (38), Jackendoff (1972: 49) argues that there exists a change of meaning depending on the place where the adverb is expanded. Thus, for him *Cleverly, John dropped his cup of coffee* means «It was clever of John to drop his cup of coffee», whereas the meaning of *John dropped his cup of coffee cleverly* is «The manner in which John dropped his cup of coffee was clever». We believe that these differences are not parallel to those observed with adverbs like *sincerely* or *logically* (which may have two different argumental structures), but simply amount to a different focus of the adverb *cleverly* on one of the arguments it takes.

ving goodbye' (the argumental structure of the adverb remains constant here) or it may be: 'for the speaker it is a sad thing that they had waved goodbye —even though they may be glad about it«, where the adverb has changed its argumental structure.[18]

Finally, note that we can never have two instances of one adverb predicated of the same arguments (cf. (40)), but nothing prevents the expansion of one adverb in two different positions when its argumental structure varies accordingly:

(40) *Deliberately, he dropped the cup deliberately

*Cleverly, he dropped the cup cleverly

(41) Logically, he has solved the problem logically

Frankly, he could not have answered that question frankly

Sadly, he undertook that task sadly

Therefore, a linguistic Lexicon must provide information not only of the meaning of the different adverbs in the language but also of their argumental structure, specifying the number, type and possibility of variation of the arguments they take. But since most of them are the result of a process that combines an adjective with the derivative suffix -ly, the Lexicon must also specify the function and restrictions of this suffix, something which again hinges on aspects related to the thematic structure of the adjectives, and which we will explore in the next section.

5. ADJECTIVES AND ADVERBS: THE ROLE OF THE SUFFIX -LY

We have argued that adverbs should be treated as predicates, and that in their basic use as modifiers in the verbal projection they take the event as (one of) their argument(s). More specifically adverbs seem to modify only stage level verbs; therefore could say that adverbs are predicated of the Davidsonian argument of those verbs. This means that they cannot have a Davidsonian argument of their own, the implication being that they will only be obtained from adjectives which are individual level predicates. As predicted, all the adjectives in (2) have a corresponding adverb in -ly, that is, the language allows for intelligently, efficiently, weakly, worryingly or boringly, while preventing *alively, *illy, *satisfiedly or *boredly.[19] There is also a group of adjectives which have a double lexical specification as individual or stage level predicates, and, taking one or the other, we may obtain equivalent constructions with an adjectival predicative or with an adverb: the examples in (25), repeated here as (42), represent this possibility:

(42) (a) Happy, she resumed her work

Happily, she resumed her work

(b) Cautious, he opened the door just a little

Cautiously, he opened the door just a little

Other adjectives in this group include proud, glad, cheerful, quiet and enthusiastic, among others.[20]

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[18] In this second argumental structure, sadly can be combined with verbs which would otherwise be incompatible with it: Sadly, the storm destroyed the crops.

[19] Some stage level adjectives can become adverbs but the meaning of the latter differs significantly from that of the base: e.g. deadly, presently. We will not pursue this question further here.

[20] Interestingly, the equivalent adjectives in Spanish can be combined with both the perfective copula estar and the imperfective copula ser (viz. fn. 3): e.g. ser/estar feliz, precavido, orgulloso, alegre, tranquilo.

But in most cases the adjective has a unique eventive structure with or without a Davidsonian argument, and the first restriction we find in the derivation of adverbs is that the suffix -*ly* should only be added to those which are individual level predicates. The second is also connected to the argumental structure of the base adjective: the suffix 'absorbs' the internal argument that the adjective may have. Consider in this respect the difference between two individual level predicates like *logical* and *happy*. The former requires just one argument to saturate the open place in its thematic grid, while the latter needs two, the internal one being optional. This can be observed in both the attributive and the predicative constructions:[21]

(43) (a) A logical conclusion

(b) The conclusion was logical

(44) (a) A person happy (that you came)

(b) John was happy (that you came)

Though the adjectives *logical* and *happy* differ in this respect, the corresponding adverbs *logically* and *happily* behave the same in that neither of them allow for an internal argument. Thus, contrary to (44), the complementation in (45) is imposible:

(45) John was singing a tune *happily* (*that you came)

But this leads to an apparent paradox. The adjective *logical* is a one-place predicate, *happy* is a two-place predicate, and the addition of -*ly* absorbs the internal argument of the adjective in this second case. We would then expect the adverbs we obtain, *logically* and *happily* respectively, to be one-place predicates. But we have classified them in different groups, *logically* as a monadic adverb and *happily* as a diadic predicate. We believe that the difference between the two lies in the semantic features of the external argument of the adjective.[22] The process could tentatively be explained as follows: the addition of the suffix -ly must ensure that the argumental structure of the adjective is adapted to match the new requirements which follow from the fact that it will be converted into a category which is basically predicated of a verb. Therefore, -ly will absorb the internal argument the adjective may have, and also force the incorporation of the Davidsonian argument of the verb (to become one of the arguments of the adverb) to the base argumental structure:

(46) (a) Logical: <ext. arg. [-animate]>

Logical+ly: <ext. arg. [-animate] + Davidsonian. arg. of the verb>

(b) Happy: <ext. arg. [+animate], intern. arg.>

Happy+ly: <ext. arg. [+animate], Ø + Davids. arg. of the verb>

Apparently both, *logically* and *happily*, have now the same number of arguments in their thematic grid. But, as we have seen, VP adverbs can be predicated either of the verb alone or of the verb and its external argument. If we adopt the standard definition of the verbal external argument as the most prominent of all in the thematic hierarchy (viz. Grimshaw 1990), the external argument of the verb will necessarily play the thematic ro-

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[21] As is well known, an adjective that modifies a noun directly (attributive construction) cannot have a complement of its own when it is projected in its canonical position to the left of the nominal head: *A happy that you came person.*

[22] By the external argument of an adjective we mean the one which syntactically functions as the subject in the predicative construction (i.e. the one eventually placed in a projection «external» to the Adjective Phrase).

les of Agent or Experiencer, and these two imply entities with (at least) the feature [+animate]. As a consequence, only those adjectives which are predicated of a [+animate] entity will retain this argument when adapting its argumental structure to that of an adverb. The derivational process will then be (47) rather than (46):

> (47) (a) Logical: <ext. arg. [-animate]>
>
> Logical+ly: <Ø + Davidsonian arg. of the verb>
>
> (b) Happy: <ext. arg. [+animate], intern. arg.>
>
> Happy+ly: <ext. arg. [+animate], Ø + Davids. arg. of the verb>

This is the reason why the adverbs in (30) (which derive from adjectives that cannot be predicated of [+animate] nouns) are monadic predicates while the adverbs in (31) (derived from adjectives which can be predicated of [+animate] nouns) are diadic.

Finally, the suffix *-ly* plays another role in the derivational process: it neutralizes the type of arguments the adverb may take. That is, *logically* will become a one place predicate but there is no extra requirement as to the nature of the single argumental position to be discharged (provided it is not incompatible with the meaning of the adverb): in this case, it may be the Davidsonian argument of the verb or the sentence, as argued above. The same happens to *happily:* the two arguments it requires can vary and be the Davidsonian argument of the verb and its external argument, or the sentence and the speaker/hearer.

6. CONCLUSIONS

We have shown that the eventive structure of adjectives and adverbs conditions their properties and their behaviour in certain constructions. Thus, only stage level adjectives can head subject/object predicatives (both integrated and non integrated in the sentence), whereas the conversion of adjectives into adverbs is restricted to individual level predicates. The type and number of arguments that the adjective takes also plays an essential role in this derivational process, since those adjectives which have one internal argument lose it after the addition of the suffix *-ly,* and only those whose external argument has the feature [+animate] or [+human] retain it when converted into adverbs.

This thematic information has also proved a powerful instrument to account for the distribution of adverbs in the sentence. We have characterized adverbs as monadic or diadic predicates which are expanded in any position of the clause from which they can have scope over their argument(s). We have also argued that these arguments may vary in extension, thus allowing for the coexistence of the same item (with a different argumental specification) in the sentence.

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