

Introduction: on adverbs and adverbial modification

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In traditional grammar, the notions *adverb* and *adverbial function* are used at different levels of grammatical description. The notion *adverb* refers to a part of speech, i.e. a grammatical category, just like noun, preposition, verb, etcetera. The notion *adverbial* refers to a grammatical function of a phrase within a larger syntactic unit (e.g. a clause or some other phrasal constituent within which it is embedded). Traditionally, it is claimed that the adverbial function is typically associated with items that are not arguments of some predicate (e.g. the verb). In modern terminology, this could be rephrased in terms of lexical selection: phrases that function adverbially do not stand in a (categorical)-selectional or theta-selectional relation to a lexical head. Adverbial phrases are often interpreted as being attached to phrases that are already complete in a certain sense. Under this traditional view, the adverbial phrase adds modifying information to the predicate-argument complex. Modification can be of different types: time, place, manner, purpose, reason, condition, etcetera.

Although the syntactic category of *adverb* and the *adverbial function* have been part of linguistic description throughout different types of linguistic paradigms (traditional, structuralist, generative), it seems fair to say that "the grammar of adverbs and adverbial modification" has not figured very prominently on the linguistic research agenda. Research on the behavior of parts of speech displays a strong bias towards nouns and verbs. And even though prepositions and adjectives are not as dominantly present either in linguistic research, they seem to be much better understood. This relative disregard of the grammar of adverbials also essentially holds for the grammatical description of the way phrases function within a larger syntactic context: the syntactic function (e.g. subject, direct object, indirect object, etcetera) of phrases fulfilling an argumental role with respect to the verb, has been studied more extensively, it seems, than the grammatical behavior of adverbial phrases.

This somewhat subordinate role of adverbs and adverbial modification in linguistic investigation and grammatical theorizing is plausibly due to their somewhat "elusive" nature. As has become clear from studies on adverbial syntax, the boundaries of the concept

“adverb”, its grammatical characterization and its syntactic behavior are often unclear and not agreed upon by researchers. This first of all concerns the syntactic categorization of adverbs, i.e. its characterization as a part of speech. Although some researchers have proposed that adverbs form a primitive syntactic class, others, basing themselves on different adverbial properties, have taken a reductionist approach and reduced them to one or more of the major syntactic categories (e.g. N, A, P).

Another domain of unclarity concerns the interpretive status of phrases having an adverbial syntactic function. If in accordance with the principle of Full Interpretation a linguistic object can only be present at the interface between syntax and the C-I-system if it can be accessed by the latter (that is, receive an interpretation), the question arises what interpretive status should be associated with adverbial elements. The traditional view that adverbs only function as predicate modifiers is definitely too narrow, in view of the fact that some adverbs at least can also occur as selected complements to (i.e. arguments of) the verb, as in the English sentence *John worded the letter* **(carefully)*, and other adverbs are better conceived of as sentence operators (modal adverbs such as *probably*) or even as dyadic predicates expressing relations between individuals and events (speaker-oriented adverbs such as *happily* or subject-oriented adverbs such as *carefully*).

In short, there are many unclaritys about the syntactic nature and the precise interpretive status of adverbs. Although there is consensus in the literature that a uniform interpretation (for instance as predicate modifiers or sentential operators) of the different classes of adverbs is untenable, there are many diverging opinions about the proper characterization of the various types of adverbs. Should they be treated as arguments, predicates, (unselective) operators, two-place predicates, etcetera, depending on the context in which they occur? Given this complex mapping between syntax and semantics, what are we allowed to retain of the traditional idea that adverbs belong to a single syntactic category?

The diverging views on the interpretive status of adverbial phrases have, of course, important repercussions for the issue of adverb placement. A central question of adverbial syntax concerns the projection of adverbs into syntactic structure. A bird's eye view on generative treatments of adverbial projection shows a great variety in analyses. Jackendoff (1972) attaches adverbs belonging to different semantic classes to designated positions within the hierarchical structure (to VP or to S); Chomsky (1986) treats adverbs as being

VP-adjoined; Larson (1988) defends the view that adverbs can occur in complement position and that NP-arguments and adverbs should not be distinguished from each other on hierarchical grounds; Cinque (1999) claims that adverbs are located in the specifier position of designated functional projections; Sportiche (1993) defends the view that certain adverbs head a functional projection and can take a verbal projection as their complement. The obvious question which arises concerns the empirical and theoretical arguments that are at the basis of these different views of how adverbs are projected into syntax.

Related to the issue of projection is the question about the distribution of adverbs. A brief look at the existing literature immediately shows that there is quite a strong bias towards research on the distributional patterning at the clausal level. Although recent literature has drawn attention to the parallelism between the nominal and clausal domain as regards the distribution of attributive adjectives and adverbs, respectively, it is quite obvious that many issues of adverbial syntax at the cross-categorical level have remained undressed. To mention a few: As for English, it is not entirely obvious why *-ly* adverbs are excluded in the nominal domain, at least under certain analyses; if one adopts the view that the inflectional morpheme *-ly* is a sort of case marking element (i.e. the adjective carries its case marker on its sleeves; cf. e.g. Larson 1985), then it is not entirely obvious why, besides *John's careful analysis of the problem*, you can't have a nominal structure like **John's analysis of the problem carefully*. The nominal structure cannot be out for case-theoretical considerations if one adopts the view that *-ly* is the case marking element. Notice in this context that other adverbial elements that occur in the clausal domain (e.g. *yesterday*) do occur within the nominal domain: compare *John had a party yesterday* and *John's party yesterday*.

Another possibly interesting question from a cross-categorical perspective concerns the licensing of the adverbial elements in comparison to the licensing of seemingly parallel elements in different syntactic domains: cf. e.g. *John heavily depends on his sister for help*; *John's heavy dependence on his sister*; *John is heavily dependent on his sister*. Consider in this respect also such paradigms as: *John worded the letter* **(carefully)*; *John's wording of the letter* **(carefully)*; *John's (careful) wording of the letter*. Although, as indicated, *carefully* and *careful* differ in the obligatoriness of their presence, it seems plausible that their mode of licensing is quite similar.

The issue about the syntactic placement of adverbs obviously

raises the question to what extent the displacement property (i.e. Move α) is involved in adverbial syntax. It is quite clear that displacement is involved in certain reorderings of adverbs (e.g. wh-interrogative formation: *How quickly did John run?*; topicalization: *That quickly even John couldn't run!*). Whether the displacement property plays a role in the distribution of adverbs in the clause-internal domain (cf. e.g. *John has carefully opened the door* and *John has opened the door carefully*) is much less clear. Although certain movement tests (e.g. sensitivity to the Coordinate Structure Constraint) might lead one to conclude that the displacement property applies to adverbs clause-internally (*John has kissed her carefully and tenderly*; *John has carefully and tenderly kissed her*; **John has carefully kissed her* [— and tenderly]), some researchers have argued on different grounds that adverb displacement in the Middle Field of the clause is nonexistent, e.g. on the basis of the absence of obvious triggers for such movements (cf. e.g. Chomsky 1995). However, plausible triggers for movement might emerge (and have actually been proposed by some scholars) when the interaction between certain classes of adverbs and Tense/Aspect is taken into account (cf. e.g. Delfitto and Bertinetto 1996). More generally, new intriguing theoretical options arise when a very restrictive syntactic format has to meet the interface requirements posed by the semantics of adverbials, as we will see in some of the contributions in this volume.

All in all, it is clear that the grammar of adverbs and adverbial modification is a domain of research which provides a fertile and challenging ground for discussing various aspects of the theory of grammar. In the present volume, a number of these issues but also other aspects of "adverbial grammar" will be taken up. The collection of papers offers a variety of views on adverbial modification and the nature of adverbs.

In the article by Denis Delfitto, some of the issues we just touched on will be discussed in a more elaborate way. A state of the art will be given of such issues as: the categorial status of adverbs, the (interpretive) classification of adverbs, the syntactic placement of adverbs, the displacement properties of adverbs and, finally, their role in the mapping from syntax to semantics.

In her paper "On the syntax of temporal adverbs and the nature of Spec,TP", Artemis Alexiadou discusses the relation between temporal adverbial elements (e.g. *tomorrow*, *yesterday*, *last year*) and the functional head T (Tense). She claims that temporal adverbs are verbal arguments that are base-generated low in a VP-shell structure, as a matter of fact lower than the direct object noun phrase. Evidence

for this low structural placement comes, among others, from phenomena involving c-command relations between direct object noun phrases and temporal adverbials. Another central claim made in this paper is that the relation between temporal adverbs and Tense is parallel to the relation between subjects and Agr. This claim builds on the intuition that Tense is dependent on the accompanying temporal adverbials, on the one hand, and that the morphological marking of tense on the verb can be analyzed as a concord feature, on the other. This parallelism between the subject-Agr relation, on the one hand, and the temporal adverb-Tense relationship, on the other, manifests itself in various ways. In particular, temporal adverbs tend to be compatible, i.e. in agreement with, the verb's tense morphology when this is present. A further reflex of this parallelism is that in certain languages subjects move overtly to Spec,TP (e.g. Irish), while in others temporal adverbs are positioned there (e.g. Greek or Chinese). Thus, temporal adverbs and subjects compete for the same structural position within the functional architecture of the clause. Alexiadou suggests that cross-linguistically the availability of Spec,TP as a landing site for temporal adverbs is dependent on the nature (weak vs. strong) of temporal morphology: languages that lack or have deficient tense morphology (cf. Chinese) need a temporal adverb in Spec,TP in order for the clause to receive temporal reference; languages that have tense morphology do not (e.g. Irish).

Valentina Bianchi's contribution "On Time Adverbials" focuses on localizing temporal clauses introduced by temporal connectives such as "after" and "before". They give rise to what we may regard as a typical 'interface issue': the standard syntactic analysis, which takes subordinate temporal clauses like "before leaving the town" to be in a complement or adjunct relation with the (maximal projection of the) main verb, is difficult to reconcile with the view that connectives like 'before' have to be treated as the temporal counterparts of transitive verbs, that is, as expressing two-place relations between sets of events. This compositionality challenge at the interface is twofold: first, the clausal adverbial, constituting one of the two arguments of the temporal connective, is semantically independent of the main clause, a property that the analyses in terms of complement or modifier are both unable to capture; second, there is in fact no independent semantic motivation for the intuitive analysis of the temporal connective and the subordinate clause as a constituent. Bianchi's answer to this challenge is quite radical. First, she shows that the empirical evidence in favor of a complement or adjunct analysis is not conclusive and even contradictory. Then, she proposes an

Antisymmetry-based analysis according to which the temporal connective is generated as a designated head in the left-periphery of the clause and selects a Topic- or Focus-phrase, in whose specifier the subordinate clause is located. Movement of the main clause to the spec-position of this designated head ensures the creation of a subject-predicate structure (clearly reminiscent of Williams' analysis of the EPP-effects in finite clauses), where the main clause counts as subject of predication. Given the logic of the proposal, it follows that the cases where the temporal clause surfaces in the left-hand position must be structures in which displacement of the main clause is covert. The alternation between overt and covert movement (accounting now for the two basic word orders) can be elegantly derived if we adopt the economy condition that movement need not be overt: the main clause overtly moves over the temporal clause only when the latter is generated in the spec of a Focus projection, triggering defocalization of the most embedded constituent in order to avoid conflicting focus requirements at the interface. This elegant analysis raises many issues, which are partly dealt with in the course of the contribution: the nature of the proposed sorts of movement (both prosodic and non-prosodic) with respect to the existing categorizations, the different nature of *when*-clauses, the non-constituent status of time adverbials and the categorical status of temporal connectives, just to mention some of them. As it stands, Bianchi's analysis is a very interesting attempt to overcome the inconclusiveness and difficulties of the standard analysis of localizing temporal clauses and to meet the interface requirements in a satisfactory way.

Helen de Hoop & Henriëtte de Swart's contribution "Temporal Adjunct Clauses in Optimality Theory" is aimed at a precise assessment of the semantic role of localizing temporal clauses introduced by temporal connectives such as 'when', 'before', etc., not only in canonical contexts of A(dverbial)-quantification, where the issue is the so-called 'splitting-algorithm' (i.e. the determination of the content of the two arguments of the relational adverb of quantification), but also in non-quantificational contexts, where the issue is the nature of the anaphoric relation between temporal and main clauses. The nature of the constraints governing this anaphoric relation is far from trivial, as is shown by the observation that (1) does not get the reading in which the event referred to by the temporal clause follows the event denoted by the main clause (in spite of pragmatic plausibility):

- (1) The president asked who would support her when Robert raised his hand

The interpretations available for (1) depend on the interplay among a number of independent conditions, including the requirement that anaphoric relations be established whenever possible (the equivalent, in the temporal domain, of Williams' requirement that anaphoric relations be seized in text), the condition that the antecedent-anaphor order in a rhetorical relation be paralleled by linear order between the corresponding constituents, and the condition that temporal clauses, being presuppositional, do not qualify as antecedents in local rhetorical relations.

The authors argue that the availability of a causal (hence temporal) relation between the subordinate clause and the main clause in (1), together with the presence of an additional reading in terms of temporal overlap between the two events, constitutes an important argument in favor of the Optimality view that constraints can be violated (as is clearly the case with the constraint on linear ordering in the first reading) and must be ranked (the relation of temporal overlap in the second reading is derived from the impossibility of circumventing the prohibition that temporal clauses qualify as antecedent in local rhetorical relations). This prohibition is interpreted as the equivalent, in the temporal domain, of the canonical Principle B effects in the nominal domain: the prohibition that two arguments of the same semantic predicate which are not marked as being identical be interpreted as identical. Many complex and intriguing issues arise. For instance, notice that the constraint which is ranked highest is clearly reminiscent of a syntactic condition, whilst the violable constraints clearly reflect general pragmatic and processing strategies. On the other hand, the authors reject the view that there be a kind of syntax-based deterministic mapping into quantificational structures. Even in the nominal domain, the interpretation of sentences such as (2) is not compatible with the rigid identification of the restrictor with the NP-complement of the determiner:

- (2) Most abstracts are rejected because of their length

The conclusion the authors would like to draw is that even D(eterminer)-quantification should be analysed along the more flexible line which is standardly adopted for A-quantification.

Given the variety of theoretical frameworks adopted (Antisymmetry, Optimality, etc.), the reader might be inclined to conclude that the analysis of temporal adverbs is characterized by a high degree of methodological uncertainty. In fact, we would be more inclined to draw a different conclusion. What Bianchi's and de Hoop & de

Swart's contributions have in common is the attempt to achieve a better understanding of how syntactic structure meets the interface conditions. Syntax does no longer stand alone as the core of linguistic analysis. Rather, what we have to understand is the complex network connecting syntactic conditions with other specific sets of conditions governing language in use. The rather non-canonical nature of the proposals discussed above simply reflects the attempt to find new answers for a radically new kind of questions.

The last two contributions to this issue on adverbs and adverbial modification do not deal with temporal modification. Edwin Williams argues in his contribution that adverbs exhibit what he calls a *categorical* behavior. He argues against a Cinquean approach (cf. Cinque 1999) towards adverb distribution. A core assumption in this theory of adverbial modification is that adverbs are generated exclusively in the specifiers of functional projections. Scopal relations between adverbs then result from the hierarchical ordering of the functional projections within the clausal structure. Another property of Cinque's theory of adverb distribution is that a verbal head may be moved away by head-to-head movement from its modifying adverb, thus creating patterns of surface mismodification, i.e. surface patterns in which the adverb (the modifier) is no longer next to the modifiee (the verb). Williams argues that the Cinquean view on scopal interactions is too narrow; there are adverbs which are demonstrably not part of the clausal functional structure but which nevertheless behave just like the adverbs which are. In other words, inter-adverb ordering restrictions hold even when the adverbs are not part of the same functional structure. He proposes an alternative model of adverbial modification, which is defined in terms of an abstract language CAT, which consists of a number of operations (e.g. Flip, Reassociate) which can generate the various adverbial orderings without making use of head movement and derive scopal interactions between the adverbs. Williams argues that adverbs are adjoined to the modifiee, where the modifiee can be, for example, a V°, a VP or another adverb.

Norbert Corver's paper "Degree adverbs as displaced predicates" discusses adverbial modification within the adjectival system, and more in particular degree modification. Taking the idea of cross-categorical symmetry as a guiding principle, he argues that placement of degree adverbs within the adjective phrase involves the phenomenon of predicate movement, a phenomenon which has been identified for the clausal and nominal domain in recent years. Taking Rumanian and Italian as the empirical domain of research, he argues that the degree modifier acts as a predicate which undergoes leftward move-

ment across a gradable adjectival element. As in full clauses and noun phrases, the leftward movement of the degree predicate can be of two types: the A-movement type (Predicate Inversion) and the A'-movement type (Predicate Fronting).

It goes without saying that many aspects of adverbial modification remain unaddressed in this special issue. This special issue does not aim at broad coverage, however. Our main purpose is to show by means of this collection of papers that the grammar of adverbs and adverbial modification is a domain of research which provides a fertile and challenging ground for linguistic investigation and the present phase of development of linguistic theory.

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