

# MANNER MODIFICATION IN EVENT SEMANTICS\*

SASCHA ALEXEYENKO  
*University of Osnabrück*

## 1 Introduction

Following Davidson's (1967) seminal work, manner adverbs—along with some other types of adverbials—are standardly analyzed as predicates of events, cf. (1). Accordingly, a sentence like in (2) gets a semantic representation along the following lines:

- (1)  $\llbracket \text{skillfully} \rrbracket = \lambda P \lambda e [P(e) \ \& \ \text{skillful}(e)]$   
(2) Brutus skillfully stabbed Caesar in the back.  
 $\exists e [\text{stab}(e) \ \& \ \text{past}(e) \ \& \ \text{agent}(b)(e) \ \& \ \text{theme}(c)(e) \ \& \ \text{skillful}(e) \ \& \ \text{in-the-back}(e)]$

Such analysis accounts for a number of semantic properties of manner adverbs, most importantly for their scopelessness and conjunctive character, demonstrated by the following downward entailment pattern:

- (3) a. Brutus stabbed Caesar skillfully.  
b.  $\models$  Brutus stabbed Caesar.

As is visible from the lexical entry of *skillfully* in (1), (neo-)Davidsonian event semantics usually attributes no (semantic) significance to the adverbial suffix *-ly*, such that the denotation assigned to a manner adverb is essentially that of the corresponding adjective.

Somewhat ironically in this context, the semantics of the adjectival counterparts of manner adverbs is a much more controversial case. The controversy has mainly to do with the fact that manner adjectives can modify event nouns as well as “individual nouns”:

- (4) a. skillful managing  
b. careful skiing  
c. quick decision  
d. good treatment  
(5) a. skillful teacher  
b. careful driver

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- c. fast horse
- d. good king

In connection with the cases like in (5), it has been pointed out already by Aristotle that manner adjectives give rise to the so-called substitution failure of co-referential terms, as a good king may be a bad father. Consequently, in early formal semantic theories, manner adjectives were classified as a subtype of “non-intersective” adjectives and analyzed as intensional modifiers, that is, as functions from properties to properties (type  $\langle\langle e, t \rangle, \langle e, t \rangle\rangle$ , extensionally) (Siegel, 1976; see also Partee, 1995).

Only relatively recently, Larson (1998) proposed to analyze manner adjectives as properties of events as well (see also Egg, 2008). According to it, the fact that manner adjectives can modify individual nouns, as in (5), has to do with the presence of a hidden event argument in the semantic structure of (some) individual nouns. An obvious advantage of Larson’s eventive analysis over the intensional analysis consists in a unified treatment of manner adjectives and manner adverbs. However, detailed compositional semantics of event modification in nominals is still missing. It is also not clear which individual nouns should have an additional event argument and where it comes from. For deverbal nominalizations, as in (5a) and (5b), one can assume that the event argument comes from the semantics of the base verb. However, the examples in (5c) and (5d) show that adjectival manner modification is not restricted to deverbal nominals.

Thus, even though (neo-)Davidsonian event semantics standardly formalizes lexical entries of manner adverbs as containing the respective base adjectives, the semantics of the latter is far from being uncontroversial.

An even more general issue commonly left aside in standard event semantics concerns the intuition that what is specified by manner adverbs is precisely the *manner* in which an event is carried out or goes on, rather than the event itself (see Reichenbach, 1947). Moreover, neglecting this intuition correlates with inability to account for certain data. For instance, on the analysis in terms of predicates of events, it is not clear what is modified by manner adjectives in constructions of the type *in an ADJ manner*, which are common paraphrases of *-ly* manner adverbs. However, despite a range of arguments in favor of an alternative analysis in terms of predicates of manners, it largely remains peripheral (its few proponents being Piñón, 2007, and M. Schäfer, 2008).

The aim of this paper is to provide a semantic and syntactic analysis of manner modification within the framework of event semantics, particularly considering the issues discussed above. In a programmatic fashion, they can be summarized in the following way:

1. What do manner adverbs denote: properties of events or properties of manners?
2. What is the semantic relation between manner adverbs and their base adjectives?

The paper is structured in the following way. Section 2 presents evidence that manners are a separate semantic type, as well as arguments in favor of an analysis of manner adverbs in terms of predicates of manners. In section 3, I suggest that manner modification is introduced into the syntactic structure as functional projection MannerP, whose head relates manners to events and assigns instrumental case to its specifier. Section 4 addresses the way manner adverbs enter the composition in the specifier position of MannerP. Specifically, I argue that what is called “manner adverbs” are morphologically merged Kase phrases which contain dummy nominal *-ly* modified by the respective base adjective. Finally, section 5 discusses the syntactic location of MannerP suggesting that it may vary depending on the syntactic environment. Section 6 closes the paper with a short summary of its main claims.

## 2 Manners as a Semantic Type

The standard approach to manner adverbs in the (neo-)Davidsonian framework is to treat them semantically on a par with verbs, i.e., to analyze them as predicates of events. Repeating (1) and (2) from the introduction, the denotation of a manner adverb like *skillfully* and its contribution to the semantic representation of a sentence look as follows in this framework:

- (6)  $\llbracket \text{skillfully} \rrbracket = \lambda P \lambda e [P(e) \ \& \ \text{skillful}(e)]$   
 (7) Brutus skillfully stabbed Caesar in the back.  
 $\exists e [\text{stab}(e) \ \& \ \text{past}(e) \ \& \ \text{agent}(b)(e) \ \& \ \text{theme}(c)(e) \ \& \ \text{skillful}(e) \ \& \ \text{in-the-back}(e)]$

However, this conception of manner adverbs does not accord with the intuition that what is *skillful* in (7) is not really the *event* of Brutus's stabbing Caesar, but rather the *way* he did it. In other words, there is little of manners in such analysis of manner adverbs. This intuition was expressed as early as in Reichenbach (1947), being a critical consideration with respect to his own analysis of manner adverbs "as adjectives referred to the event indicated by the sentence" (Reichenbach, 1947:307–308).

The intuition that manner adverbs modify manners rather than events was one of the main motivations for Dik (1975) to argue for the introduction of manners as a separate type into the basic ontology of semantic types and for a reanalysis of manner adverbs in terms of predicates of manners. Within modern formal semantic work on manner modification, the main proponents of a reanalysis along these lines are Piñón (2007) and M. Schäfer (2008). They present a collection of facts which suggest that an analysis of manner adverbs in terms of properties of manners should be preferred over an analysis in terms of properties of events.

One argument comes from the fact that manner adverbs (derived from adjectives by means of the suffix *-ly*) can be paraphrased as adverbials of the form *in an ADJ manner/way*, where ADJ stands for the corresponding base adjective:

- (8) a. John answered the question *in a wise manner/way*. ( $\equiv$  wisely)  
 b. Mary dances *in a beautiful manner/way*. ( $\equiv$  beautifully)  
 c. John writes *in an illegible manner/way*. ( $\equiv$  illegibly) (from Dik, 1975)

Relatedly, a clause containing a manner adverb can be paraphrased as a predication of the corresponding base adjective of a complex NP headed by *the way*, cf. the examples in (9) and (10). These two interconnected observations suggest that manner adverbs are predicates of manners, as it is counterintuitive to try to analyze nouns like *manner* or *way* as event nominals.

- (9) a. Rebecca wrote illegibly.  
 b. The way Rebecca wrote was illegible.  
 (10) a. Malika spoke softly.  
 b. The way Malika spoke was soft. (from Piñón, 2007)

Thirdly, Piñón (2007) argues that within the standard framework of (neo-)Davidsonian event semantics it is not clear how to analyze sentences containing verbs of perception with propositional *how*-complements like in (11), so that the analysis captures their interpretative dissimilarity from bare propositional complements, as in (12), and propositional *that*-complements, as in (13). While statements in (12) report perceptions of events, statements in (11) intuitively report perceptions of manners of these events.

- (11) a. Malika saw how Rebecca wrote.  
 b. Rebecca heard how Malika spoke.
- (12) a. Malika saw Rebecca write illegibly.  
 b. Rebecca heard Malika speak softly.
- (13) a. Malika saw that Rebecca had written illegibly.  
 b. Rebecca heard that Malika had spoken softly. (from Piñón, 2007)

In what follows I argue that, in addition to the basic intuition in Reichenbach (1947) and to the specific considerations in Dik (1975), Piñón (2007), and M. Schäfer (2008), there are two direct arguments for considering manners as an independent semantic type, along with individuals, events, degrees, etc. Both arguments have to do with the fact that it is possible to refer to manners directly (without such “help” nouns as *manner* or *way*): both by means of anaphoric pronouns and manner nominalizations.

Quite analogously to one of Davidson’s original observations with respect to events, manners allow for anaphoric pronominal reference. Anaphoric expressions are in this case *so* or *thus*, see the descriptions and examples from *Oxford Dictionaries Online*:<sup>1</sup>

- (14) *so* (= in the way described or demonstrated; thus)  
 Hold your arms so.
- (15) *thus* (= in the manner now being indicated or exemplified; in this way)  
 She rang up Susan, and while she was thus engaged Chignell summoned the doctor.

In addition to *so* and *thus* (the latter being rather formal or literary in modern English), there are several commonly used analytic expressions that make anaphoric reference to manners, such as (*in*) *this way* and *like this*. The demonstrative pronoun *this* in these constructions refers to a specific way described (or demonstrated) in the preceding or subsequent discourse.

Moreover, direct nominal reference to manners is possible as well. Manner nominalizations are easiest to detect when they occur as complements of *with*-PPs which serve as manner adverbials, as in the examples below:

- (16) a. Mary dances with beauty/grace.  
 b. John drives with care.  
 c. Peter fights with courage.

In these contexts, the nominals *beauty*, *care*, etc. refer to the same things as complex NPs of the sort *beautiful way* or *careful way*, i.e., to particular manners in which events denoted by the main verbs are carried out.

In view of this collection of arguments for the presence of a manner argument in the semantic structure of statements about events, I follow the tradition of thought initiated by Dik (1975) in assuming that an analysis of manner adverbs in terms of properties of manners is more adequate than an analysis in terms of properties of events, which answers question 1 from the introduction. The next section sets forth the basic elements of my version of an analysis within this framework. Before proceeding to it, I will briefly discuss some details of the analysis in M. Schäfer (2008), which is the most recent and formally elaborated existing analysis in the same framework.

Schäfer suggests that the semantic representation of a sentence containing a manner adverb has the structure exemplified below (tense is ignored):

<sup>1</sup>Equivalent expressions in some other languages include: *ainsi* in French, *so* in German, *così* in Italian, *tak* in Russian, *así* in Spanish.

- (17) John wrote illegibly.  
 $\exists e [\mathbf{subject}(john, e) \ \& \ \mathbf{write}(e) \ \& \ \exists m [\mathbf{manner}(m, e) \ \& \ \mathbf{illegible}(m)]]$

In order to arrive at this representation, Schäfer assumes that the lexical entry of an adjective like *illegible* is as in (18a). In addition, he formulates a template for manner adverbials which “introduce[s] the manner variable and turn[s] the predicate of type  $\langle e, t \rangle$  into a modifier of type  $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$ ” (Schäfer, 2008:365), cf. (18b). Consequently, the result of the application of this template to the lexical entry of the adjective yields the representation in (18c). Supplying *P* in it by the structure that represents the property of events of writing by John and existentially quantifying over events, Schäfer gets the formula in (17).<sup>2</sup>

- (18) a.  $\lambda x [\mathbf{illegible}(x)]$   
 b.  $\lambda Q \lambda P \lambda x [P(x) \ \& \ \exists m [\mathbf{manner}(m, x) \ \& \ Q(m)]]$   
 c.  $\lambda P \lambda x [P(x) \ \& \ \exists m [\mathbf{manner}(m, x) \ \& \ \mathbf{illegible}(m)]]$

Abstracting away from the complication with the semantic types, which requires some sort of underspecification formalism (see fn. 2), the derivation above raises an important question: What is the semantic relation between a manner adverb and its base adjective, and what is the semantic contribution of the derivational suffix *-ly*. According to Schäfer, the template for manner *adverbials* takes an *adjective* as input and makes a manner modifier out of it. Furthermore, he assumes that “the modification-template is applied per default whenever items of type  $\langle e, t \rangle$  are used adverbially” (Schäfer, 2008:366). Even though it is not stated explicitly, these descriptions suggest that in fact the template represents the semantics of the suffix *-ly*. Thus, on Schäfer’s analysis, both the function **manner** which relates manners to events and the existential quantifier over manners are located in a template, which seems to correspond to the contribution of *-ly*. This triggers the question if there are any reasons to assume that it is the suffix *-ly* that introduces the function relating manners to events and existential quantification. In what follows, I answer this question to the negative.

Summing up, Schäfer’s analysis and the one proposed in this paper have in common the general underlying idea concerning manner adverbs as predicates of manners. Moreover, the semantic representation of sentences containing manner adverbs I will arrive at is not very different from the one in (17). However, the intermediate steps will differ considerably. The core questions we need to answer at this point are what introduces the function **manner** which relates manners to events, and where existential quantification over manners originates from. In the next sections, I will argue that the source of these elements is different, and will avoid formulating templates. Section 3 provides arguments for assuming a special functional projection MannerP, whose head introduces the function **manner**. Section 4 presents an analysis of *-ly* as an indefinite dummy nominal attributively modified by manner adjectives inside of a prepositional structure. It gives answers both to the question concerning the relation between manner adverbs and their base adjectives and the question concerning the origin of the existential quantifier over manners.

<sup>2</sup>In order to get semantically well-formed derivations from the representations in (18a-c), one needs to assume some sort of underspecification formalism according to which the variable *x* stands for a supertype that includes both manners and events as its subtypes. To avoid this complication not relevant for the discussion, I assume that the internal argument of *illegible* in (18a) is a manner, such that *illegible* denotes a property of manners, type  $\langle m, t \rangle$  rather than  $\langle e, t \rangle$ . Analogously, I assume that the variable *x* in (18b-c) stands for events, so that the modifier in (18c) can be directly applied to the verbal predicate. Consequently, the semantic type of the template would be  $\langle \langle m, t \rangle, \langle \langle v, t \rangle, \langle v, t \rangle \rangle \rangle$  and of the resulting modifier  $\langle \langle v, t \rangle, \langle v, t \rangle \rangle$ , instead of  $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$ .

### 3 Relating Manners to Events

Now that we have discussed a collection of arguments in favor of an analysis of manner adverbs as predicates of manners, the question is how predication of manners works compositionally. First of all, we need a “manner function” from events to manners in order to relate them to each other. Moreover, intuitively, the manner argument is existentially quantified over. Thus, we need a structure which roughly corresponds to Schäfer’s “template for manner adverbials” in (18b) (see also Piñón, 2008:8):

$$(19) \quad \lambda Q \lambda P \lambda e. \exists m [P(e) \ \& \ \mathbf{manner}(m)(e) \ \& \ Q(m)]$$

The next question is what introduces the manner function and the existential quantification over manners. Schäfer assigns both jobs to his template for manner adverbials, which seems to correspond to the derivational suffix *-ly* on the surface. In what follows, I will argue that the manner function and the existential quantification enter the composition from different sources, and none of them is the suffix *-ly*.

There are at least two arguments not to assign the semantics in (19) to the adverbial suffix *-ly*. On the one hand, if we assume that it is *-ly* that introduces the manner function, we lose the possibility to account for adjectival manner modification of nominals in a naturally parallel way, since in this case the manner function would have to come elsewhere for adjectives. But at least for manner modified event nominalizations, such as *skillful managing* etc. in (4), one would like to have an analysis maximally similar to the one proposed for adverbial manner modification of verbs (ideally, though, this analysis should also cover manner modified individual nominals, such as *skillful teacher* etc. in (5)).

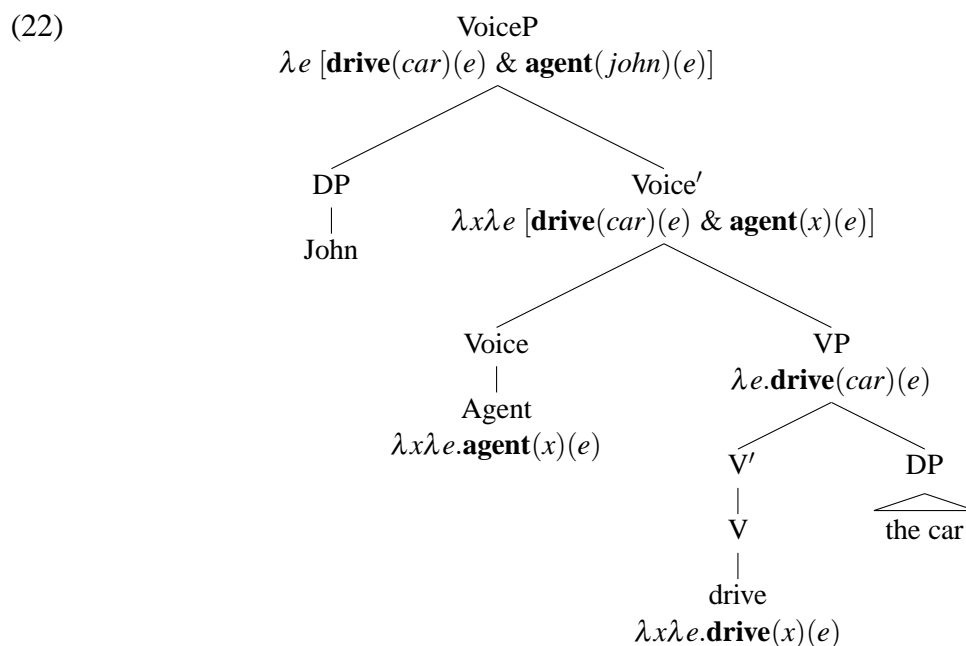
On the other hand, adverb formation by means of the suffix *-ly* is not restricted to manner adverbs. In general, *-ly* seems to operate across semantic classes of adverbs being able to form most of them, including frequency adverbs (*constantly*, *occasionally*), location adverbs (*centrally*), modal adverbs (*allegedly*, *possibly*), etc. Therefore, restricting the semantics of *-ly* in each case to specific operators, e.g., to the manner function in the case of manner adverbs, would lead to the introduction of numerous lexical entries of the suffix, making it highly ambiguous. A more adequate approach in this connection would be to leave its semantics general enough (if not empty) to cover the formation of various semantically disjoint adverbial classes.

Thus, coming back to the question what introduces the manner function into the semantic representation, I suggest that it is the role of a dedicated functional projection which I will call MannerP. Its syntactic architecture and general semantic contribution are quite similar to the syntax and semantics of VoiceP introduced in Kratzer (1996). Therefore, before setting forth the details concerning MannerP, I will briefly outline Kratzer’s VoiceP.

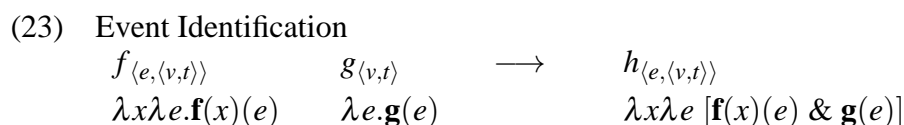
In her 1996 paper, Kratzer influentially argued for a different nature of the external argument of verbs as compared to the internal one. According to her proposal, only the internal argument is merged within the VP, while the external argument is introduced by a special functional projection called VoiceP. This asymmetry can be seen in the lexical entries of verbs *drive* and *own* below and in the semantics of Agent and Holder, the two possible variants of Voice discussed in Kratzer.

- (20) a.  $\llbracket \text{drive} \rrbracket = \lambda x \lambda e. \mathbf{drive}(x)(e)$   
 b.  $\llbracket \text{Agent} \rrbracket = \lambda x \lambda e. \mathbf{agent}(x)(e)$
- (21) a.  $\llbracket \text{own} \rrbracket = \lambda x \lambda s. \mathbf{own}(x)(s)$   
 b.  $\llbracket \text{Holder} \rrbracket = \lambda x \lambda s. \mathbf{holder}(x)(s)$

Thus, different “flavors” of the external argument corresponding to various thematic roles, such as Agent or Holder, are captured by the variation in the semantics of the VoiceP heads. The external argument itself is introduced in [Spec, VoiceP]. Accordingly, the entire syntactic structure accompanied by the semantic derivation looks as exemplified below.



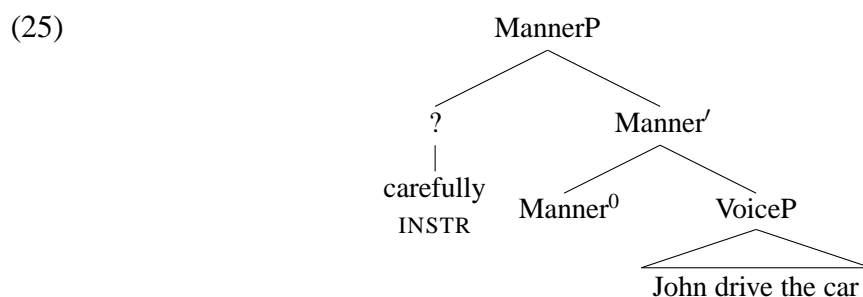
In order to be able to combine Voice (type  $\langle e, \langle v, t \rangle \rangle$ ) with the VP (type  $\langle v, t \rangle$ ), Kratzer introduces a new composition rule which she calls *Event Identification*.



Note that alternatively, in order to avoid the introduction of a new composition rule, the semantics of Voice may be modified in such a way as to allow for Functional Application:

(24)  $\llbracket \text{Agent} \rrbracket = \lambda P_{\langle v, t \rangle} \lambda x \lambda e [P(e) \ \& \ \mathbf{agent}(x)(e)]$

Turning back to manner modification, I suggest that it constitutes a separate “thematic role” and enters the syntax as Manner Phrase, whose structure is akin to the structure of VoiceP:



(26)  $\llbracket \text{VoiceP} \rrbracket = \lambda e [\mathbf{drive}(car)(e) \ \& \ \mathbf{agent}(john)(e)]$   
 $\llbracket \text{Manner}^0 \rrbracket = \lambda P_{\langle v, t \rangle} \lambda m \lambda e [P(e) \ \& \ \mathbf{manner}(m)(e)]$   
 $\llbracket \text{Manner}' \rrbracket = \lambda m \lambda e [\mathbf{drive}(car)(e) \ \& \ \mathbf{agent}(john)(e) \ \& \ \mathbf{manner}(m)(e)]$

Let us now discuss the structure above in more detail. First of all, it shows that MannerP is merged on top of VoiceP (in active sentences). I will not comment on this point here, since a more thorough discussion of the location of MannerP will follow in section 5. We will see that this order of syntactic projections possibly reflects what is sometimes discussed under the label “agent-orientedness” in the literature. Second, the MannerP head introduces the necessary manner function which relates manners to events. Apart from this, Manner<sup>0</sup> assigns INSTRUMENTAL case to its specifier, which is expressed inflectionally in languages like Russian, but prepositionally in English, cf. *in a careful way* and *with care*. In section 4, I will argue that *-ly* manner adverbs are in fact also prepositional case constructs that contain dummy noun *-ly* modified by manner adjectives. Since the discussion of the internal structure of *-ly* adverbs and the way they enter [Spec,MannerP] will follow only in section 4, this point is marked by [?] in the derivation in (25).

Note that in order to avoid the introduction of a new composition rule in the spirit of Kratzer’s *Event Identification* to combine Manner<sup>0</sup> with VoiceP, the lexical entry of the former is formulated such that it allows for Functional Application. Still, in case a special composition rule should be preferable for some independent reasons, the denotation of Manner<sup>0</sup> needs to be merely simplified to  $\lambda m \lambda e. \mathbf{manner}(m)(e)$ .

Finally, I leave open the question whether there may be various heads of MannerP. Piñón (2007, 2008) suggests that there are potentially many manner functions and not just one, listing among possible candidates **form** (for adverbs like *beautifully* and *illegibly*), **speed** (*quickly*), and **effort** (*painstakingly*). Like in the case of various VoiceP heads (Agent, Holder, etc.), one could then differentiate between several MannerP heads which would introduce different manner functions. However, I believe that such diversity should reflect distributional and not only conceptual differences between manner adverbs, which may be accounted for by various manner functions. Since this paper was concerned with only one distributional feature, namely the ability of adverbs to occur as adjectives in paraphrases *in an ADJ way* (and related constructions), in which all manner adverbs pattern alike, I leave the question concerning potential sub-specification of manners for further research.

Before turning to the discussion of the internal structure of *-ly* adverbs, I will close up this section with a general consideration in connection with Manner Phrase. The proposal that manner modification is introduced by means of functional projection MannerP requires rethinking of the traditional conception of manner modification as something optional. This may appear surprising, however, the assumption that manners are semantically present in events of certain types even when not made explicit is not exactly new. It is expressed already in Dik (1975:117) in the following passage:

All +Control and all +Change Situations (i.e., all Activities, Positions, and Processes [but not States]) have an implicit manner in which they are carried out or go on.

In support of this claim he points out that when describing an event it makes little sense to add that it occurred in a certain way without describing this way, nor to deny it, and illustrates it by the following examples (grammaticality judgements as in the original):

- (27) a. \*John answered the question in a manner.  
 b. \*John answered the question, but not in a manner.  
 c. \*Did John answer the question in a manner or didn’t he?

Dik’s assumption concerning the semantic presence of manners in eventualities (possibly with the exclusion of states) is intuitively plausible, as dynamic events and so-called “interval



statives” (such as *sit*, *lie*, *stand*, which correspond to Positions in Dik’s nomenclature) necessarily unfold in a certain way. The analysis as presented above makes exactly this point, assuming an obligatory projection that introduces manners modification. This means, however, that in the absence of an explicit manner adverbial or anaphoric pronoun the specifier position of MannerP is realized as a structurally present null pronoun (similar claims have been made for arbitrary and indefinite null objects, for instance, see Rizzi, 1986, for Italian).

## 4 Internal Structure of Manner Adverbs

The issue left open in the last section concerns the specifier position of MannerP. In the previous discussion we have seen that it can be realized as a manner adverbial or as an anaphoric pronoun, overt (*so*, *thus*) or null. Pronouns do not present particular compositional problems, being variables of type  $\langle m \rangle$ .

More needs to be said about how manner adverbs, which have been argued to denote properties of manners, enter the composition in [Spec,MannerP], and how the manner argument is saturated in this case. Moreover, if the manner argument is bound off by an existential quantifier (which accords with how manner adverbs are naturally interpreted), the question is where the quantifier comes from. One way to answer this question is to formulate a special template which contains existential quantification over manners in its semantics, as in M. Schäfer (2008). However, since such template does not correspond to any constituent in the surface structure, its introduction is somewhat stipulative. Alternatively, one may assume that the semantics of a manner adverb is more complex than just the denotation of the respective adjective<sup>3</sup> (i.e., a property of manners) and also contains existential quantification. In this case, we need to reconsider the common attitude of attributing no semantic significance to the fact of the morphological difference between manner adverbs and manner adjectives. Since there are independent arguments to do so, this is the direction pursued in what follows.

Discussing the internal structure of manner adverbs, Déchaine and Tremblay (1996) present a number of arguments that *-ly* in English and *-ment* in French are something else than category-changing derivational suffixes (see also the discussion in Baker, 2003:231–236). After providing some general motivation for not considering *-ly* and *-ment* adverbs as a distinct lexical category<sup>4</sup>, Déchaine and Tremblay argue specifically that they are *prepositional adverbials*, akin to adverbials like *in an ADJ manner* in English and *de manière ADJ* in French. Accordingly, *-ly* and *-ment* are nominals modified by the corresponding manner adjectives inside a PP structure. In support of this view, they adduce the following arguments.

First, both *-ly* and *-ment* derive from nouns diachronically. English *-ly* comes from Old English *lijk* ‘body’, and Romance *-ment(e)* comes from Latin *mente*, the ablative form of the feminine noun *mens* ‘mind’ (note that ablative is particularly interesting at this point in connection with the claim that MannerP assigns instrumental).

Second, in French, the base adjectives of *-ment* adverbs are always in a feminine form, cf. the following examples (obviously, this cannot be shown for English as it does not mark gender inflectionally):

- |      |    |                        |                         |            |
|------|----|------------------------|-------------------------|------------|
| (28) | a. | <i>lente-ment</i>      | * <i>lent-ment</i>      | ‘slowly’   |
|      | b. | <i>grande-ment</i>     | * <i>grand-ment</i>     | ‘greatly’  |
|      | c. | <i>maladroite-ment</i> | * <i>maladroit-ment</i> | ‘clumsily’ |

<sup>3</sup>There is the logical possibility for the quantifier to be in the denotation of manner adjectives along with the respective property of manners. However, it is quite unclear how to motivate its presence there.

<sup>4</sup>See also Emonds (1985) and Baker (2003).

If *-ment* is a noun, this can be straightforwardly explained as a sign of attributive modification since *mens* is feminine. However, if *-ment* is a derivational suffix, this fact is unexpected, as such suffixes usually attach to uninflected forms.

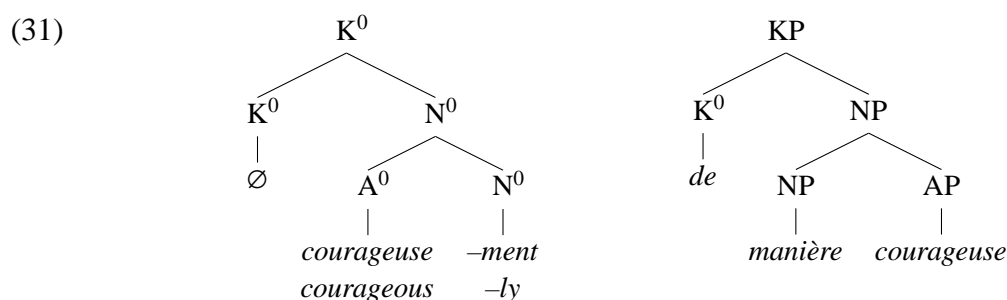
Third, in Spanish, unlike in English and French, a single *-mente* can attach to a coordination of two adjectives, cf. (29). This behavior is normal for nominals, but is unavailable to suffixes of any types in Spanish (see Zagana, 1990).

- (29) a. [inteligente y profunda] -mente  
 ‘intelligently and profoundly’  
 b. [directa o indirecta] -mente  
 ‘directly or indirectly’

In addition to these arguments, Baker (2003:234–235) notes that, if *-ly* is a nominal, this would explain the observation that, like attributive and unlike predicative adjectives, adverbs generally cannot take complements (see Jackendoff, 1977). In this case, (30a) would be ruled out for the same reason as (30b):

- (30) a. John proudly (\*of his daughter) showed everyone his photo album.  
 b. John is a proud man (\*of his daughter).  
 c. You often meet men proud of their daughters.

Summing up, Déchaine and Tremblay (1996) take the observations above as evidence that *-ly* in English and *-ment* in French are nominals. Based on this and in view of the semantic equivalence of prepositional adverbials of the type *in an ADJ manner/de manière ADJ* and *-ly/-ment* manner adverbs, they propose that the latter are “prepositional compounds”. Thus, both types of adverbials have a similar structure: a noun modified by an attributive manner adjective inside a PP. Mainly concentrating on French *-ment* adverbs and *de manière ADJ* adverbials, Déchaine and Tremblay suggest that they contain Kase heads ( $\emptyset$  corresponding to the ablative and semantically vacuous *de*, respectively), which they consider as a subtype of prepositional heads. Accordingly, the proposed syntactic structures in both cases are as follows:



Déchaine and Tremblay’s (1996) analysis of *-ly* manner adverbs as prepositional phrases gives an answer to the question concerning the relation between manner adjectives and adverbs. According to it, manner adverbs are not members of a separate lexical category, but morphological constructs which contain attributively used manner adjectives. In general, I will follow this line of approach, but will divert from Déchaine and Tremblay’s (1996) analysis with respect to two issues: (a) the semantic contribution attributed to the noun *-ly*, and (b) the syntax of the nominal structure dominated by KP.<sup>5</sup>

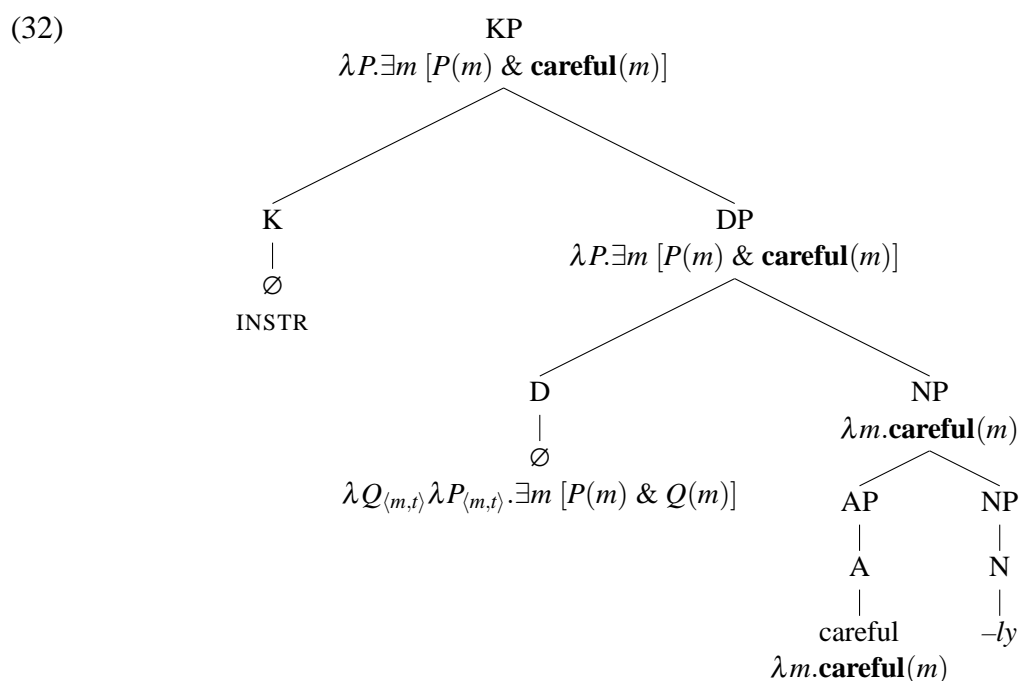
According to Déchaine and Tremblay (1996), as well as Baker (2003), the nominal *-ly* means ‘manner’, like its more explicit counterpart in the adverbials of the type *in an ADJ*

<sup>5</sup>Note that I will keep on using the term “adverb” for simplicity.

*manner*. This, however, runs into the problem already discussed at the beginning of this section, namely, that *-ly* is not restricted to manner adverbs. Assigning the meaning ‘manner’ to it in the case of manner adverbs would lead to multiple ambiguity in view of other semantic classes of adverbs. Instead, I suggest that *-ly* is a dummy nominal inserted merely for syntactic reasons, since adjectives need a noun to modify (attributively or predicatively), which they lack in a verbal environment. In that *-ly* is similar to the dummy nominal *one* in nominal ellipsis.<sup>6</sup>

Another aspect in which my analysis of *-ly* adverbs differs from the one proposed in Déchaine and Tremblay (1996) concerns the structure of the nominal projections dominated by KP. In fact, a modification of their analysis gives a straightforward answer to the question concerning the origin of the existential quantifier over manners discussed above. Mainly concerned with the French prepositional adverbials, which lack an overt determiner (*de manière* ADJ), Déchaine and Tremblay tuned their syntactic structures in (31) in accordance with that, i.e., without a DP layer. However, considering the English counterpart of the prepositional adverbial of this type and the natural interpretation of such adverbials in general, I assume that KP dominates DP (as proposed in Lamontagne and Travis, 1986). Accordingly, *-ly* manner adverbs also include a *covert* indefinite determiner. Specifically, this indefinite determiner introduces existential quantification over manners taking two predicates of manners, and thus is a variant of the standard indefinite determiner for individual nouns.

Summing up all the points discussed above, the proposed syntax and semantics of *-ly* manner adverbs looks as follows:<sup>7</sup>

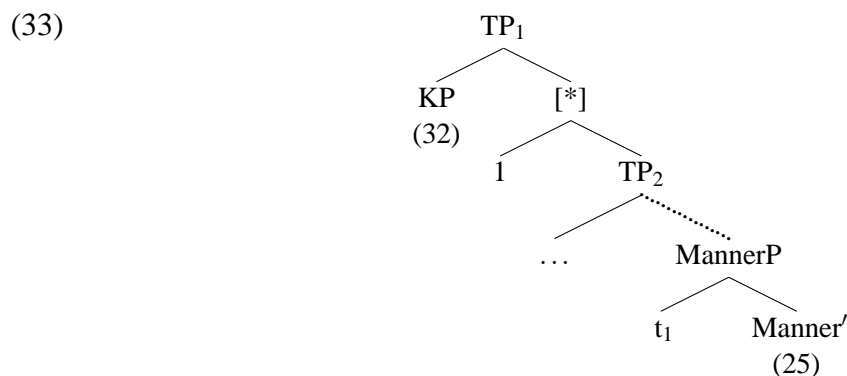


Now we can combine the structure above with *Manner'* in (25). The dummy noun *-ly* modified by a manner adjective enters the derivation in [Spec,MannerP] as a KP assigned instrumental case by *Manner*, which enables the modified noun to attach to the verb. It is then

<sup>6</sup>Alternatively, the ontology of semantic types may be constructed such that individuals, events, degrees, manners, and possibly some other particulars are subtypes of some type *entity*. In this case, the semantics of *-ly* may be treated as general as to denote a property of entities.

<sup>7</sup>The structure of adverbials like *in an careful manner* is analogous. Furthermore, it seems desirable to extend the present analysis to adverbials like *with care* as well. However, this enterprise is outside of the scope of this paper.

quantifier-raised to a higher position, e.g., to TP. Thus, the derivation proceeds as presented below.



- (34)
- $$\begin{aligned}
 \llbracket \text{Manner}' \rrbracket &= \lambda m \lambda e [\mathbf{drive}(car)(e) \ \& \ \mathbf{agent}(john)(e) \ \& \ \mathbf{manner}(m)(e)] \\
 \llbracket \text{MannerP} \rrbracket &= \lambda e [\mathbf{drive}(car)(e) \ \& \ \mathbf{agent}(john)(e) \ \& \ \mathbf{manner}(g(1))(e)] \\
 \llbracket \text{TP}_2 \rrbracket &= \exists e [\mathbf{drive}(car)(e) \ \& \ \mathbf{agent}(john)(e) \ \& \ \mathbf{manner}(g(1))(e)] \\
 \llbracket [*] \rrbracket &= \lambda m. \exists e [\mathbf{drive}(car)(e) \ \& \ \mathbf{agent}(john)(e) \ \& \ \mathbf{manner}(m)(e)] \\
 \llbracket \text{KP} \rrbracket &= \lambda P. \exists m [P(m) \ \& \ \mathbf{careful}(m)] \\
 \llbracket \text{TP}_1 \rrbracket &= \exists m \exists e [\mathbf{drive}(car)(e) \ \& \ \mathbf{agent}(john)(e) \ \& \ \mathbf{manner}(m)(e) \ \& \ \mathbf{careful}(m)]
 \end{aligned}$$

Summing up, we have seen that manner adverbs do not constitute a separate lexical category, thus, answering question 2 from the introduction. Instead, what is called “manner adverbs” is a morphosyntactic construct that enables manner adjectives to attach to verbs in form of attributive modifiers of a dummy noun in instrumental case.

The last question addressed in this paper concerns the syntactic position of MannerP, which was left for later discussion in section 3. I will discuss some facts which indicate that in active sentences it is located on top of VoiceP.

## 5 Syntactic Position of MannerP

Manner modification is possible with virtually all syntactic and semantic types of verbs, with the possible exclusion of states.<sup>8</sup> Since it is admissible with verbs that do not have an external argument and so lack a Voice layer, such as unaccusatives (Hale and Keyser, 1993; Chomsky, 1995), it seems plausible to assume that MannerP is located on top of VP. However, the data discussed below suggests that the situation may be more complicated and MannerP has different syntactic positions in different syntactic environments. Specifically, in active sentences it may be located on top of VoiceP, as tentatively suggested in section 3.

It is an often cited fact that some manner adverbs, such as *carefully* in the examples below, do not combine with middles and unaccusatives (see Fellbaum, 1986; Baker et al., 1989; Lekakou, 2005; Bhatt and Pancheva, 2006):

- (35)
- |                                   |              |
|-----------------------------------|--------------|
| a. John drives his car carefully. | ACTIVE       |
| b. This pie was baked carefully.  | PASSIVE      |
| c. *This car drives carefully.    | MIDDLE       |
| d. *The cup broke carefully.      | UNACCUSATIVE |

<sup>8</sup>Manner modification of states remains a controversial issue, see Katz (2003); Mittwoch (2005); Katz (2008).

Manner adverbs of this type are special insofar as intuitively they invoke properties of the agent, therefore, they are also commonly called “agent-oriented”, “agent-sensitive”, or “agentive” in the literature.<sup>9</sup> However, their sensitivity to the agent cannot be merely *semantic*, it has to reflect the *syntactic* presence of the agent, because, like *by*-phrases, they are incompatible both with middles and unaccusatives.<sup>10</sup> Let us discuss this point in more detail.

The ability to license *by*-phrases and to control are standard indications for the syntactic presence of implicit agents (see, e.g., Manzini, 1983; Roeper, 1987; Baker et al., 1989; Bhatt and Pancheva, 2006). Based on these tests, agents both in middles and unaccusatives, unlike in passives, are argued to be syntactically absent. The difference between middles and unaccusatives is then usually drawn along the lines of the *semantic* presence of the agent. While true unaccusatives are supposed to lack an agent at all levels of representation and interpretation, middles have been argued to have implicit agents present semantically. The compatibility of the latter with secondary predicates over the agent (Ackema and Schoorlemmer, 2005; Lekakou, 2005) and with instrumental phrases, which conceptually imply the presence of an agent (Hale and Keyser, 1987; Condoravdi, 1989; F. Schäfer 2008), are usually taken as signs of the semantic presence of agents in middles:

- (36) a. Physics books read poorly when drunk. (Ackema and Schoorlemmer, 2005)  
 b. This glass breaks easily with a hammer. (F. Schäfer, 2008)

In other words, if manner adverbs like *carefully* were sensitive merely to the semantic presence of the agent, the distribution in (35) would look differently, as in this case they should be able to combine with middles as well. But since, on the contrary, they pattern together with *by*-phrases, they must be sensitive to the syntactic presence of the agent as well. This sensitivity can be reflected in the structural position of MannerP on top of VoiceP.

Moreover, instead of assuming that it is only a subset of manner adverbs, namely so-called “agent-oriented” manner adverbs, that enter the syntax in MannerP dominating VoiceP, while other manner adverbs merge somewhere else, I suggest that the difference cuts across syntactic environments, rather than across subclasses of manner adverbs. That is, in actives and passives MannerP is located on top of VoiceP, while in middles and unaccusatives on top of VP.<sup>11</sup>

<sup>9</sup>The notion “agent-orientedness” is also widely used in connection with the ambiguity of some manner adverbs between a clausal and a manner reading (Travis, 1988; Geuder, 2000; Ernst, 2002; M. Schäfer, 2002; Wyner, 2008):

- (i) John carefully closed the door.  
 a. John closed the door in a careful manner. [manner reading]  
 b. It was careful of John to close the door. [clausal reading]

However, since this paper focuses on manner modification, the discussion of the clausal reading and this ambiguity in general is outside of its scope.

<sup>10</sup>Note that agent-orientedness understood in terms of incompatibility with middles and unaccusatives is not restricted to manner adverbs. Often cited examples of agent-oriented non-manner adverbs include *deliberately*, *intentionally*, *obediently*, *reluctantly*, *willingly*, etc.

<sup>11</sup>In middles and unaccusatives, there is in fact not much choice for MannerP but to be located on top of VP. Unaccusatives are standardly supposed to lack VoiceP altogether. For middles I follow a widely accepted view assuming that their [Spec, VoiceP] is empty, and the individual variable introduced in Voice<sup>0</sup> gets bound off by a higher syntactic head which introduces middle semantics generically quantifying over the event variable (Condoravdi, 1989; Ackema and Schoorlemmer, 1994; Marelj, 2004; Lekakou, 2005). Unlike in the case of actives, this configuration makes it impossible for Manner<sup>0</sup> to combine with VoiceP semantically, given the semantics of Manner<sup>0</sup> in (26), as there is an unsaturated individual argument. However, see Stroik (1992) and

This implies, however, that manner adverbs that are licit in all types of syntactic environments listed in (35) can merge in MannerPs that are located in different positions, namely on top of VoiceP in actives/passives and on top of VP in middles/unaccusatives. It seems that this assumption may be on the right track, as such manner adverbs seem to undergo a subtle but clear meaning shift depending on whether they are used in actives/passives, on the one hand, or middles/unaccusatives, on the other, cf. the following contrasts:

- (37) a. John drives easily / well / fast.  
 b. This car drives easily / well / fast.

Manner adverbs in the examples above describe manners relative to different participants of the events. In (37a) the manner of driving is specified such that it invokes properties of the driver and not those of the car. By contrast, the same manner adverbs in (37b) specify the manner of driving in virtue of the characteristics of the car, rather than the abilities of the driver. Moreover, it seems that each environment allows only for one interpretation, as the driver-relative reading is not available in (37b), while the car-relative reading is not available in (37a). The fact that each kind of environment comes with its own reserved interpretation for manner adverbs suggests that the interpretative difference originates from a difference in the structural position of such adverbs, rather than from their ambiguity, as otherwise it is not clear what blocks the respective second reading in each case.

Thus, I tentatively suggest that MannerP may have different syntactic positions in different syntactic environments. In actives and passives it is on top of VoiceP, as already implemented in (25) in section 3. In middles and unaccusatives it is located on top of VP. The respective position “colors” the meaning of manner adverbs accordingly, cf. (37). Finally, the difference between manner adverbs like *carefully* in (35) and adverbs like *easily* in (37) amounts to the inability of the former to occupy the specifier position of MannerP on top of VP in middles and unaccusatives due to their sensitivity to the syntactic presence of the agent, while the semantics of the latter is more flexible to allow them to occur in either environment with a subtle change of meaning.

## 6 Conclusions

The aim of this paper is to give a semantic and syntactic analysis of manner modification in English within the framework of event semantics. First, it provides arguments against the more or less standard treatment of manner adverbs as predicates of events making way for an alternative analysis in terms of predicates of manners, which are linked to events by a manner function introduced in the head of a special functional projection MannerP. Furthermore, seeking to establish the semantic relation between manner adverbs and their base adjectives, the paper argues that manner adverbs are not a separate lexical category, but morphologically merged Kase phrases which contain dummy noun *-ly* modified by the respective base adjective.

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