THE ROLE OF EVENT EXPRESSION IN GRAMMAR*

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1. *Introduction*

The main thesis of this article is that “event” is an important cognitive category which plays a central role in the semantics of natural languages. It will be shown that apparently unrelated data fall into place as soon as the role of event expressions and the existence of events as a semantic category are recognized.

Attention should be drawn to the fact that in current work in Generative Grammar there is considerable disagreement as to the nature of certain syntactic/semantic constructions. A major controversy is between groups claiming that subjects and predicates should be represented as clauses on all levels of grammar (except perhaps PF) and groups claiming that various semantically clause-like structures should not be represented as clauses at all. It is far beyond the scope of this article to investigate even a substantial part of the existing proposals.¹ My goal is rather to discuss some striking similarities between undoubtedly clausal constructions (finite) and bare infinitive constructions (“accusativus cum infinitivo”) which, I hope, shed some new light on some of the existing theoretical accounts. My involvement in the syntax controversy will, however — with the exception of section 7 — be rather indirect. The reason for that is that I will often have to say more about the semantics of the critical data than about their formal syntactic characteristics. We

* This is a much revised and condensed version of part of my 1982 doctoral dissertation, Bayer (1982). I want to express my gratitude to my advisor, Urs Egli, who proposed some of the ideas about the role of events in linguistic semantics a long time before it became more popular again, and to Arnim von Stechow for his openness in discussions. Special thanks go to Greg Carlson, who prevented me from misunderstanding his work and who gave me encouragement.

Finally I want to thank the members of the Generative Grammar Group at the University of Cologne for the lively discussion after a presentation of part of this material.

will see, however, that the semantic observations, which are largely based on German, will allow us to draw certain conclusions about the formal nature of bare infinitive constructions.

The whole discussion will oscillate between finite sentences like

- (1) a. How did you do that?
- b. How did John slice the salami?
- c. How did Mary cross the road?

where *how* should be strictly understood to mean “in which manner” and non-finite constructions like

- (2) a. We saw/heard/felt you do that
- b. We saw John slice the salami
- c. We saw Mary cross the road

Perception reports like those in (2) and *how*-questions like those in (1) share a surprising amount of distributional similarities. Although the following restrictions on bare infinitives are noted frequently in the linguistic literature, I do not know of any work where the same restrictions were noted for *how*-sentences:²

- (3) a. *How does John know the answer?
- b. *How does John hate the university?
- c. *How does John own a motorcycle?
- (4) a. *We heard John know the answer
- b. *We saw John hate the university
- c. *We saw John own a motorcycle

Consider now stative verbs of the class *sit, stand, lie, ...* under conditions when they come with a subject-NP denoting a stationary object. There again we face a violation in both construction:

- (5) a. How did John stand on the corner?
- b. How did John lie on the sofa?
- c. *How did the building stand on the corner?
- d. *How did the village lie on the banks of the river?
- (6) a. We saw John stand on the corner
- b. We saw John lie on the sofa
- c. *We saw the building stand on the corner
- d. *We saw the village lie on the banks of the river³

If one imagines a world where buildings and villages are not stationary objects but can change places freely, the oddity in both (5) and (6)c.,d. disap-

pears.

Another domain where we can find the parallel is *have* and *be*:

- (7) a. *How is John happy?
b. *How does John have a headache?
- (8) a. *We saw John be happy
b. *We saw John have a headache

In the course of our investigation we will come across less obvious restrictions on both constructions. For the time being it should, however, be emphasized that the restrictions on *how*-sentences are not at all syntactic. Consider *why*. Without doubt, *why*- and *how*-sentences share the same syntactic structure, which we assume to be

- (9) $WH_i [{}_S NP [{}_{VP} t_i \dots]]^4$

If this is so, it follows that the above mentioned restrictions are an idiosyncrasy of *how*. That this is the case is indirectly shown by the fact that all the following examples involving *why* are fully acceptable:

- (10) a. Why does John know the answer?
b. Why does the village lie on the banks of the river?
c. Why is John happy?

It is intuitively clear what produces the similarity between the *how*-sentences and the bare infinitive complements in (1) - (8) above: Any sentence from which *how* (meaning "in which manner") is extracted and any bare infinitive complement of a perception verb must denote a spatio-temporal entity which is either dynamic, i.e. involves at least a single change, or static, while in the latter case there is the restriction that the entity in question has cognitively relevant boundaries. What that means exactly is to be clarified by experimental psychology.⁵ There is one major attempt to specify what is at issue here by purely linguistic and ontological means. This is Carlson (1977a). According to this theory, the semantic ill-formedness of examples like (4)a. or (6) c. follows from the fact that knowing something or being located at a certain place are properties which extend over the life time (or at least over a very large portion of it) of the individual of which they are predicated; slicing something or crossing the road or hanging around at some place for a while, on the other hand, are properties which are quite likely to apply to an individual only temporarily. Although Carlson's intention is largely to explain the behavior of the progressive in English, his theory might be argued to capture *how*-sentences as well. That his theory is intended to explain percep-

tion reports like those in (4) and (8) follows from his example in §7.2 and the discussion there. The example is:

- (11) Martha saw the policemen {
- nude
 - *intelligent
 - run into the bar
 - running into the bar
 - *own a car
 - *nice guys to old ladies
 - being heroes
 - be heroes
 - chased by the robbers
 - *be mammals
 - in the cruiser
 - with the monster
 - *liked by the robbers

Note that in Carlson's theory the semantic well-formedness of a perception report of this sort follows from the ontological nature of the predicate, i.e. from the question whether it applies to the individual diachronically or to so-called temporal "stages" ("or slices" in Carnap's terminology) of an individual. From this reasoning it is obvious why *intelligent* above is ruled out, while *be heroes* is ruled in, — at least if the sentence is understood in such a way that the policemen acted heroically at the time when Martha saw them. One must admit that this theory would have problems in explaining why *being heroes* is far better than *be heroes*. Carlson would be forced to accept my examples in (8) as well, and since his theory does not provide an independently motivated device to explain the data in (7), he would have to do that by stipulative means, if *how*-sentences are found to pattern with the perception reports otherwise.

It should be clear by now that there is a common semantic core which underlies *how*-sentences and perception reports (and probably also the use of the progressive). I do not believe that this common semantic core can be revealed by theoretical considerations exclusively. Thus, it cannot be my goal here to define what the entities playing a role in the above mentioned constructions are. My concern is rather to characterize *e x n e g a t i v o* and with the help of language data what the semantic core might be and in which way it interacts with other subsystems of a modular grammar. I want to call the type of entities which are relevant here *e v e n t s*. Since I take "event"

to be basically a naive concept, I will stick to the common use of the word *event*.

The article is organized as follows: In §§ 2 - 4 it will be shown that *how*-sentences and bare infinitives following perception verbs pattern surprisingly parallel with respect to the applicability or scope of modal verbs (§ 2), negation (§ 3) and sentential adverbs (§ 4). The common core is argued to lie in the fact that it must be event-expressions that are in the scope of the operator HOW or in the complement of a (non-epistemic) perception verb like *see*, *hear* etc. This leads in §5 to the proposal of a verb/operator classification by means of a semantic feature. It will be shown that the relevant feature can either survive or get destroyed in a given configuration. From the event analysis we will derive in § 6 a unified treatment of manner-adverbs and predicative adjectives. The result of this will be that the categorial distinction between some adverbs and adjectives becomes superfluous. Finally, § 7 presents some conclusions for the syntax of non-maximal projections. William's Predication Theory will be investigated with respect to the predictions it makes for the semantics of bare infinitives and XP-adjuncts ('small clauses').

2. *Modals in German*

An important difference between German and English is that German has modals in infinitives, while English does not. The following examples show that:

- (12) a. *Klavier spielen zu können ist ein Vorteil*
 piano play to can is an advantage
 'To be able to play the piano is an advantage'
 b. *To can play the piano is an advantage

Having noticed this, what would be an explanation for the fact that the following German examples of bare infinitives are unacceptable:

- (13) a. **Wir sahen Hans tanzen können*
 we saw Hans dance can
 b. **Wir hörten/sahen Hans singen müssen*
 we saw heard Hans sing must
 c. **Wir hörten Hans ins Kino gehen wollen*
 we heard Hans to-the movie go want

If it is true, as William has argued in Williams (1984), that English copula constructions like *John is a fool* have no VP, and should therefore be analyzed as

[_{NP}John] [_{AUX}is] [_{NP}a fool] one could be tempted to argue analogously for German. And in fact, it was not unusual in older generative work on German to assume a node AUX that was immediately dominated by S. Under such a node modals could be generated; as a consequence, modals could never occur in projections without AUX. There is abundant syntactic evidence now that first of all there is no immediately S-dominated AUX (or INFL) in German;⁷ secondly, so-called AUX-verbs are not bound to a specific constituent. There is no reason why, for example, modals should be dominated only by AUX.

A completely different reason for ruling out the examples in (13) could be that they are semantically ill-formed. It is impossible to perceive directly, i.e. without any epistemic commitments, a disposition (13a), an obligation (13b), or an intention (13c)

In order to avoid a multiplicity of reasons for ruling out (13), we have to search for constructions which are structurally identical to the examples in (13), but semantically less restricted. The relevant examples are the bare infinitives with *lassen* ('let'). As Huber (1980) says, there is one type of *lassen*, a u c t o r i a l 'let', which exhibits properties which are otherwise shared only by attitude verbs taking finite complements. Auctorial 'let' is a world-creating verb; it is typically used in contexts like *in a recent poem*, *in his most popular masterpiece* etc. where the poem or masterpiece represents a world of fiction. Although the formal structure of bare infinitives with *lassen* and with perception verbs is identical, the following examples involving world-creating contexts are acceptable:⁸

- (14) a. *In seinem neuen Roman läßt der Autor alle Frauen*
 in his new novel lets the author all women
 nackt herumlaufen wollen
 naked about-run want
 'In his recent novel the author lets it be the case that all the
 women want to run about naked'
- b. *Im Film ließ man ihn sogar Geige spielen können*
 in movie let one him even violin play can
 'In the movie one let him even be in a position to play the vio-
 lin'

It would amount to pure ad-hocism to propose S-complements involving AUX/INFL for the examples in (14), but not for those in (13). Notice that this is what Williams is committed to when he claims that bare infinitives cannot have *be* b e c a u s e they lack AUX. In Williams (1984) it is observed that

there are certain problems. The examples given are:

- (15) a. I would let the revolution be temporarily successful
 b. I would make there be a whole new order⁹

Since Williams assumes that there are no semantic reasons for cases like **I saw John be dead*, he has to stipulate that “the bare stem construction does have a limited distribution as a clausal structure.” What strikes us here is that *let* and *make* in (15) are precise equivalents to German auctorial *lassen*. It would be surprising if this were purely accidental. There is *prima facie* no reason to believe that semantic explanations are misguided. Intuitively it is plausible that — as in (14a) someone has power over someone else’s intentions, or, as in (14b) over someone else’s dispositions, — especially if this someone is a fictional entity. As we have said already, we cannot directly perceive abstract (or invisible) properties. This gives us a rough idea of a semantic explanation of the difference between (13) and (14).

Let us turn now to *how*. The predicted parallelism between *how*-sentences and bare infinitival perception reports seems to run afoul here. The following questions are fine:

- (16) a. *Wie soll Hans telefonieren?*
 how should Hans telephone
 b. *Wie kann Hans den Wagen starten?*
 how can Hans the car start
 c. *Wie muß Hans die Haare kämmen?*
 how must Hans the hairs comb

The question is whether *wie* corresponds to an operator that has scope over a modalized proposition. To answer this question let us look at the following paraphrases where the questions of (16) are given in the form of conditionals:

- (17) a. *Wenn Hans [telefonieren soll], wie tut er [es]?*
 if Hans telephone should how does he it
 b. *Wenn Hans [den Wagen starten kann], wie tut er [es]?*
 if Hans the car start can how does he it
 c. *Wenn Hans [die Haare kämmen muß], wie tut er [es]?*
 if Hans the hairs comb must how does he it

The pronoun *es* obviously refers back to the bracketed VP's. These VP's are headed by modals, i.e. they refer to abstract properties, obligations and dispositions. A test for the appropriateness of the paraphrases in (17) would be to substitute *es* with the bracketed VP's. Notice that in colloquial German (especially in the south) stylistically marked sentences like

- (18) a. *Der Hans tut telefonieren*
 the Hans does telephone
 b. *Der Hans tut den Wagen starten*
 the Hans does the car start
 c. *Der Hans tut die Haare kämmen*
 the Hans does the hairs comb

are not uncommon. The substitutions of *es* in (17), however, are impossible:

- (19) a. **Hans tut /telefonieren sollen/*
 b. **Hans tut /den Wagen starten können/*
 c. **Hans tut /die Haare kämmen müssen/*

(19) indicates that (17) might not have been appropriate, i.e. meaning preserving paraphrases of (16). As suggested by (18), the more appropriate paraphrases might be those in which the modal is kept outside the VP:

- (20) a. *Wenn Hans [telefoniert], wie soll er [es] tun?*
 b. *Wenn Hans [den Wagen startet], wie kann er [es] tun?*
 c. *Wenn Hans [die Haare kämmt], wie muß er [es] tun?*

What this amounts to is that the modals should be treated as operators which have wider scope than *wie*. A comparison with structurally identical interrogative sentences shows again that the restrictions observed are an idiosyncrasy of *how*; for instance, in the domain of *wann* ('when') modals can have both options of scope:

- (21) a. *Wann muß Hans die Haare kämmen?*
 when must Hans the hairs comb
 b. When is it the case that Hans must comb his hair?
 (*must* has narrow scope)
 c. When must it be the case that Hans combs his hair?
 (*must* has wide scope)

This should suffice for showing that the examples in (16) are no counterexamples to the predicated parallelism between *how*-sentences and infinitival perception reports. It seems rather to be the case that the lack of scope

ambiguities in the domain of *how* can only be explained in connection with the restrictions on perception sentences.

Let us assume that the grammar of logical form (LF) is itself an autonomous system. Among other things LF gives us all the ambiguities that may arise by application of the rule ‘Quantifier Raising’ (OR)¹⁰ or ‘Modal Raising’ (MR).

LF provides two representations for, say, (16c.):

- (22) a. $WIE_i [MUSS_j [Hans\ t_i\ die\ Haare\ kämmen\ t_j]]$
 b. $MUSS_j [WI\ E_i [Hans\ t_i\ die\ Haare\ kämmen\ t_j]]$

In the same way as syntax could not be shown to explain the nature of (13), LF cannot be shown to explain why (22a) should be ruled out. LF seems to be a module which provides alternative readings that cannot be captured by S-structure. It has nothing to say about contents or intensions; therefore it is blind for accidents like (22a). What would be a reason to exclude (22a) as a possible meaning of (16c)? We suppose that the reason is exactly the same as the reason for excluding (3), (5c,d), and (7): In none of these examples the proposition in the scope of the operator WIE denotes a possible event. If *wie* means “in which manner”, however, it is necessary that the proposition in its scope denotes a possible event. The same restriction seems to hold for infinitival perception reports. What one can perceive non-epistemically are material things and events, not propositions. As a consequence, modalized perception reports like those in (13) — i.e. with the modal having narrow scope — pattern with the examples in (4), (6c,d), and (8).¹¹ All of the embedded phrases occurring therein consist of a logical subject and a predicate, i.e. they may be propositional in nature; but they do not refer to event-like entities.

In order to substantiate this claim, let us turn now to a new phenomenon, — namely negation.

3. *Negation*

In Possible-Worlds-Semantics two propositions p and $\sim p$ are assumed to correspond to two disjoint (and mutually exclusive) sets of possible worlds. Cresswell, who works in a framework with possible worlds, tried to integrate events into Possible-Worlds-Semantics. In Cresswell (1979) he investigates positive and negative sentences and their nominalized counterparts. Expressions like

- (23) a. the arrival of the train
b. the non-arrival of the train

mirror their propositional sources insofar as they refer to incompatible entities. Now Cresswell asks: If (23a) refers to an event, what does (23b) refer to? It would run counter to our intuitions if the latter would also refer to an event. If *ev* is a variable for “event”, logical representations of the propositions underlying (23a,b) — at least in a Davidsonian sense — would be:

- (24) a. $\exists ev (ev (arrive (the train)))$
b. $\sim \exists ev (ev (arrive (the train)))$

The counterintuitive representation of (23b) would be:

- (24) b. $\exists ev (ev (\sim arrive (the train)))$

Cresswell remarks that a sentence like

- (25) the non-arrival of the train caused consternation

means roughly “The fact that the train did not arrive caused consternation”, i.e. the nominalization does not refer to an entity one would call an event.

What is the difference between facts and events? First of all, if there occurs an event *x*, we may say that *x* exists and that therefore *x* is a fact. This is the reason why there are sentences like “The fact that the train arrived caused consternation”. As we have seen, the reverse is not possible: Not everything that describes a fact well enough, can serve as an event-description. Perception is largely built on directly observed entities; these are static things and dynamic things, namely events. Perceiving something as a fact however, seems to involve more elaborate cognitive work. The shift from event-perception to fact-perception becomes dramatically clear in epistemically neutral and epistemically loaded perception reports, e.g.

- (26) a. The mother heard her baby cry (but she didn’t realize that it was HER baby)
b. The mother heard that her baby cried (*but she didn’t realize that it was HER baby)

The infinitival perception report does not involve any commitment for the mother to realize what is actually going on; this, however, is not true for the finite perception report: In (16b) the mother would need to be schizophrenic, i.e. in order to make the sentence true one had to imagine that the crying of the baby is perceived by a double mind. In this sense (26b) represents a situ-

(27) John actually saw the kidnapper kidnap the little girl, but he thought it was a boy scout helping a little old lady across the street

(28) a. *Ich sehe Berta ein Bild malen*
I see Berta a picture paint
‘I see Berta paint a picture’
b. **Ich sehe Berta ein Bild gemalt haben*
 painted have
c. **Ich sehe Berta ein Bild malen werden*
 paint will

(29) a. *ich sehe, daß Berta ein Bild malt*
I see that Berta a picture paints
‘I see that Berta paints a picture’
b. *Ich sehe, daß Berta ein Bild gemalt hat*
 painted has
c. *Ich sehe, daß Berta ein Bild malen wird*
 paint will

It is unclear what I actually see in the examples in (29). What is important is that from what I see I derive evidence for the truth of the complement clause; for example, in (29b) I may see a picture with the colors still fresh and wet in order to arrive at the conclusion that Berta has painted a picture. In (28b,c) this is not the case: I cannot look non-epistemically into the past or into the future; therefore only (28a) is semantically well-formed. It means that there is substantial overlap between my seeing and Berta's painting. As before in connection with modals, there is no reason to consider a syntactic explanation. At least the syntax of German can be safely assumed to generate all the examples in (28).

Another test is to look at the cognitive capacities we ascribe to non-humans in ordinary language. Usually we ascribe event-perception, but not fact-perception to animals:

- (30) a. The dog saw Bill steal the money
b. ??The dog saw that Bill stole the money

The reason for not saying things like (30b) is that we mostly do not believe that dogs can know what stealing is. In (30a) we do not implicitly claim that the dog has the potential to grasp the intension of the complement.¹³

This should suffice to show the basic difference between facts and events. There is a second aspect of events which makes them similar to material bodies. This is their spatio-temporal nature. Facts are all kinds of situations. They hold without reference to spatio-temporal locations. Therefore they often cannot be perceived directly. Events, on the other hand, are entities with fixed boundaries, i.e. they have physical shapes like bodies. For example, if I drop a glass, the boundaries of this event are set by the space through which the glass moves from slipping from my hand until breaking on the floor and by the time interval between the time of my letting it slip from my hand and the time of its breaking.¹⁴ In nominalistic systems it is argued that the world is an aggregate of events. Primitive events can be fused to form supra-events and single events can be decomposed into sub-events.¹⁵ The world is according to this view a super-event. The events themselves are sets of space-time-points. Let us look again at Cresswell's examples in (23) with this nominalistic theory in mind. Assume that the world is the super-event ev_w (consisting of the events $ev_1, ev_2, \dots, ev_n$). Assume further that the expression *the arrival of the train* refers to the event ev_k . As a consequence, the expression *the non-arrival of the train* refers to the "event" $ev_w \setminus ev_k$. It is obvious that this latter entity is too amorphous to be of any cognitive relevance for humans. It seems that there are heavy constraints on what can count as an event in human perception.¹⁶ If we take into account such largely unknown constraints it can be explained why there is no ambiguity in perception reports like

- (31) a. *Wir sahen Hans nicht tanzen*
we saw Hans not dance
b. *Wir hörten Emma nicht niesen*
we heard Emma not sneeze
c. *Er spürte das Skalpell nicht eindringen*
he felt the scalpel nor penetrate

If the negative has narrow scope, i.e. if it negates the predicate of the infinitival complement, it is unclear what the object of perception could be: Considering (31a), we could see Hans in infinitely many situations in order to make the sentence true. May be we could even look at a scene in which Hans does not occur at all to make it true.¹⁷ This reasoning is confirmed when we turn to nominalizations. Since non-epistemic perception of events is something like the perception of bodies, it is possible to retain the meaning of perception reports when the complement is nominalized. The following data show that *nicht* in the examples of (31) must have wide scope:

- (32) a. **Wir sahen [Hans' Nicht-Tanzen]*
 we saw Hans(gen.) not dancing
 b. **Wir hörten [Emma's Nicht-Niesen]*
 c. **Er spürte [das Nicht-Eindringen des Skalpells]*

The nominalizations in (32) can only be understood as “fact” nominalizations. On the other hand, the syntactic environments in which they appear are such that the perception verb can only be understood in its non-epistemic sense. This is where the conflict arises. The true nominalizations of the infinitives in (31) are the following:

- (33) a. *Wir sahen [Hans' Tanzen] nicht*
 we saw Hans(gen.) dancing not
 ‘We didn’t see the dancing of Hans’
 b. *Wir hörten [Emmas Niesen] nicht*
 c. *Er spürte [das Eindringen des Skalpells] nicht*

In Barwise (1981) the following principle of a logic of perception is found:

- (34) If *a* sees $\sim\phi$, then $\sim (a \text{ sees } \phi)$

The antecedent suggests that there are scenes (or events) which are negatively characterized. Barwise himself notes that the narrow scope reading of the negative is hard to imagine.¹⁸ Higginbotham (1982) suggests that examples in which the narrow scope option can be taken should be looked at more carefully than Barwise proposes. He thinks that we deal in such cases with marked kinds of negations. In this way a sentence like

- (35) John sees Mary not leave

could only mean that John sees a specific scene, namely a scene which could be described as well with *Mary stays*, i.e. with an antonymic predicate of *not*-VP. Akmajian/Steele/Wasow (1979) imply that there are narrow scope readings of infinitive negation. Their example is:

- (36) They say that every time John gets on his bike he falls of, but
I've seen *him not fall off his bike*

There is, however, a way to read (36) in which the example appears to be ungrammatical. Assume unmarked intonation versus marked intonation where heavy stress is on either *not* or *fall* or *bike*. In the following representations 1 should indicate the main stress of an unmarked sentence, while capital letters should indicate emphatic or contrastive stress:

- (36') a. *... I've seen him not fall off his bike
b. ... I've seen him NOT fall off his bike
c. I've seen him not FALL off his bike
d. I've seen him not fall off his BIKE

(36'a) is semantically ill-formed, because it means that I have seen an event which was of the type of a "not-falling-off-the-bike (by John)". (36'b) is acceptable, because it meets Higginbotham's observation about antonymic predicates: *not* has scope over the VP *fall off his bike* and, what is important, it contrasts the VP with something else, namely the "positive" property that constitutes part of the actually perceived event. (36'b,c) are examples where *not* has even narrower scope. They are examples of term-negation. Natural continuations would be *I've rather seen him GET off his bike/fall off his AIRPLANE*. Notice that the same holds for the German examples in (31). Marked versions like

- (31b') i. Wir hörten EMMA nicht niesen
ii. Wir hörten Emma nicht NIESEN

are understood roughly in the following way:

- (37) a. We heard [_{NP} X] sneeze & X ≠ Emma
b. We heard Emma [_{VP} X] & X ≠ sneeze

From these representations it is obvious that the perceived entity is under-determined in one respect: either it is unclear who the sneezer is in a sneezing-event, or it is unclear what Emma's contribution in a certain audible event was. In each case, however, it is guaranteed that there is an event that can be perceived. In this way, the marked options are in sharp contrast with the unmarked options involving narrow scope of the negative.

Further evidence in favor of my claim that there are semantic reasons which disallow narrow scope readings of negatives in non-epistemic perception reports comes from discourse anaphora. Barwise (1981) thinks that anaphora are good evidence for inviting scenes (or events) into our onotolog-

(38) a. John saw Mary dance. Bill saw it too
 b. *Hans sah Maria nicht tanzen. *Willi sah es auch*
 Hans saw Maria not dance Willi saw it too
 c. *Hans sah Maria nicht tanzen. ?Willi sah es auch nicht*
 Willi saw it too not

(39) Hans sah, daß Maria nicht tanzte. Willi sah es auch.
Hans saw that Maria not danced Willi saw it too

(38c') Hans sah Maria nicht tanzen. Willi sah es auch nicht.

(40) weil sie [_S ihn nicht schnarchen] hört
because she him not snore hears
'because she doesn't hear him snore'

and structurally identical coherent infinitive constructions of German were always semantically blocked with in-situ interpretation (i.e. narrow) of the

negative, it would not be necessary to avoid structural descriptions of type (40). Such examples could only be interpreted with wide scope of *nicht* in LF. Lerner and Sternefeld observe however that there are other examples which are structurally identical, but semantically less perspicuous than the perception reports. Consider the following examples:²²

- (41) a. *Sie läßt ihn nicht eintreten* (permissive)
 she lets him not enter
 ‘She doesn’t allow him to enter’
 b. *Sie läßt das Auto nicht reparieren* (causative)
 she lets the car not get-repaired
 ‘She doesn’t cause the car to get repaired’
 c. *Sie läßt sich nicht hochheben* (modal)
 she lets herself not lift
 ‘It is not possible to lift her’

The authors claim that throughout only wide scope interpretation of the negative is found and that there is no plausible semantic reason. In other cases involving modal verbs like *dürfen* (‘to be allowed’) or *sollen* (‘should’) the choices of scope seem to differ, e.g.

- (42) a. *Du darfst nicht kommen* (only wide scope)
 you may not come
 ‘You are not allowed to come’
 b. *Du sollst nicht kommen* (wide and narrow
 you should not come scope)
 (i) ‘What you should do is not come’
 (ii) ‘It should not be the case that you come’

The conclusion that is drawn from these and a number of other examples is a) that there is no sense in proposing structures like (40) for coherent infinitive constructions in German, and b) that the scope of negations in such constructions is grammaticized, i.e. it is syntactically confined to the widest possible scope of *nicht*. The structure that is finally intended for cases like (40) is then:²³

- (40’) *weil sie* [_{NP} *ihn*] [*nicht* [[_{V₂} *schnarchen*] [_{V₁} *hört*]]]

The reading (i) of (42b) is thought to be secondary in that it is derived by a semantic operation — NEG-transmission — that is lexically triggered. Lerner and Sternefeld discuss a number of scope conditions on LF which guarantee that only the favored readings pass.

(43) a. *In seinem neuen Roman läßt Michael den Helden nicht sterben und Suleman auch nicht*
in his new novel lets Michael the hero not
die and Suleman also not (wide scope)
‘In his recent novel Michael does not create a world in which his hero dies, and Suleman (in his recent novel) does not, too’
b. *In seinem neuen Roman läßt Michael den Helden nicht sterben und Suleman auch*
(narrow scope)
‘In his recent novel Michael creates a world in which his hero does not die, and so does Suleman (in his recent novel)’

(44) a. *θέλω na αγοράσω*
I-want that I-buy
'I want to buy'
b. *μπορώ na δω*
I-can that I-see
'I can see'

Notice now the following set of data:

- (45) a. *θέλο να αγοράσις*
 you-buy
 b. **boró na kitásis*
 you-see
 ‘I am able that you see’
- (46) a. *den boró na kitáso*
 not I-can that I-see
 ‘I cannot see’
 b. **boró na den kitáso*
 ‘I am able that I don’t see’

It is beyond doubt in any theory which takes autonomous systems into account that (45b) and (46b) cannot be blocked in the syntax without intolerable stipulations. Thus, if there must be a semantic reason for the choice of scope of negation etc. in Greek, there must be also a semantic reason in German, assuming that the meanings under discussion are available in both languages. We can conclude that a grammaticization of scope of negation makes grammar redundant in an unnecessary way. A final remark might be fruitful: If LF is — at least at the side that is oriented towards S-structure — some kind of syntax, which is sensitive to operators (e.g. quantified NP’s, modals, negation, certain adverbs), it is unclear in which way the questions of the actually preferred interpretation could be decided there. Notice that reference to lexical content is usually not made at LF; this is rather a matter of the semantic interpretation of spelled out LFs.

My analysis predicts that a proposition in the scope of the operator HOW cannot be such that it does not correspond to an event-description. Since we have found out that unmarked negative expressions do not qualify for event-expressions, we expect that *how*-sentences can only be successfully interpreted, if the sentence in the scope of *how* is either a) positive or b) negative and marked (by means of prosody and/or word order). Exactly this is what is found. Consider the following data:

- (47) a. *How didn’t the train arrive?
 b. How did the train NOT arrive?

If *how* means something like “in which manner” (or $\lambda x_{\text{manner}}$), it is obvious that an expression of the form $\lambda x. x$ is a manner property $[_S \dots x \dots]$ conventionally implicates that there is an entity y , described by $[_S \dots]$.²⁵ Therefore, (47a) means the same as

- (47) a. The train didn't arrive and the speaker wants to know in which manner this took place

Why is this interpretation disfavored by most language users? Possible Worlds Semantics of the traditional conviction cannot give an answer to this. In Possible Worlds Semantics positive and negative sentences/propositions are treated alike. There is no ontological difference. On the other hand, if the world is taken as a super-event, (47a) could be interpreted as

- (47) a'' The speaker wants to know in which manner everything occurred that was not identical with the arrival of the train

This interpretation again is disfavored, because (47a'') certainly does not mention what the language user might be after. As indicated already at the beginning of this section, there is no cognitively relevant boundary to an "event" like the non-arrival of the train. Turning now to (47b), it is observed that the conventional implicature here is different from the one in (47a); (47b) implicates that there is an arrival of the train. Then the meaning of the whole sentences is

- (47) b. There was an arrival of the train and the speaker wants to know which manner-property this arrival did NOT have

Of course, there is nothing wrong with this. It might be a little unusual to be interested in properties that do not hold of perceived entities, but this is just a pragmatic factor. A better example is probably the following: While the policemen, stupid as they are, search for the gun which is believed to have killed the victim, Sherlock Holmes has already found out that the "bullet" wounds were made with a knife post mortem.

- (48) Sherlock Holmes knows how the murderer has NOT killed his victim

Under no circumstances could a prosodically unmarked version of (48) — preferably with contracted *not* — be a semantically well-formed sentence.²⁶

This concludes the discussion of negation with respect to event expressions. We found further support for theories which take events as belonging to the natural ontology of ordinary language. What is important, however, is that positive and negative expressions seem to behave totally different semantically. It was not long ago that this fact seemed to be entirely unknown. With respect to coherent infinitive constructions of German, we argued that there is not much reason to determine the scope of negation syn-

tactically and that the mostly observed preference of wide scope readings should be explained semantically. If this can be substantiated further, it will have consequences for the syntactic analysis of coherent infinitive constructions in German.

We turn next to a brief investigation of the role of sentential adverbs in event expressions.

4. *Sentential adverbs*

Sentential adverbs can be distinguished from VP-modifying adverbs by a simple test: If the item X in a structure [_S...X-ly...] can appear under preservation of meaning in a structure [_S*it is* X [_S*that*[_S...]]], X-ly is a sentential adverb. Here are the relevant examples:

- (49) a. John went certainly to the station
b. It was certain that John went to the station
- (50) a. John went quickly to the station
b. *It was quick that John went to the station

Another indicator is comma intonation. Sentential adverbs (SAs) can be set apart sentence initially by comma intonation, whereas VP-modifiers cannot:

- (51) a. Unfortunately, John went to the station
b. *Quickly, John went to the station

In German one can follow a rule of thumb to detect SAs. Whereas VP-adverbs are shaped like uninflected adjectives (X), SAs have often the form X-*erweise*, e.g. *klug* ('prudent') vs. *klugerweise* ('prudently'). Semantically SAs are operators which take sentences as their arguments and which often express the speakers attitude towards the sentence denotation. Thus, someone who says *Interestingly, John comes always late* wants to express that he finds the fact that John comes always late interesting.

Let us see now what SAs can do to event expressions. In Gee (1975), the following examples are noted:

- (52) *He saw John $\left. \begin{array}{l} \text{certainly} \\ \text{clearly} \\ \text{without doubt} \end{array} \right\}$ murder the woman

Gee suspects semantic reasons for the unacceptability, but does not say what exactly these might be. The corresponding German sentences are perfectly acceptable:

- (53) Er sah den Hans $\left\{ \begin{array}{l} \text{sicherlich} \\ \text{ganz klar} \\ \text{zweifellos} \end{array} \right\}$ die Frau ermorden

The reason for this difference is that the placement of SAs in German is less restricted than in English. What is important for our discussion is, however, that the SAs in (53) can only be understood as modifying the matrix sentence. Under no circumstances could they modify the clause in which they occur. The wide scope interpretation of the SAs in (53) is in perfect agreement with our hypothesis that only event expression can occur as complements of non-epistemic perception verbs. According to this reasoning, the semantic source for the ill-formedness of (52) suspected by Gee would be obvious: Since the SAs in (52) appear in a position from where they cannot have semantic access to the matrix sentence, they have to be interpreted as modifiers of the event expression *John murder the woman*. The SAs are thought to cancel the event aspect of the expression they modify. This predicts that a) SAs do not cause any trouble in the complements of epistemic perception reports, and b) that VP-adverbs can occur freely inside English event expressions. Both predictions are borne out:

- (54) a. He saw that John $\left\{ \begin{array}{l} \text{certainly} \\ \text{clearly} \\ \text{without doubt} \end{array} \right\}$ murdered the woman
 b. He saw John $\left\{ \begin{array}{l} \text{brutally} \\ \text{quickly} \\ \text{secretly} \end{array} \right\}$ murder the woman

One problem with this analysis is, however, that it works only for the cases at issue. We have seen that at least in the context of auctorial *lassen* the event aspect is not required and that in fact *lassen* allows for modalized complements and for narrow scope interpretation of the negative element *nicht*. According to these findings it is highly expectable to find the restrictions on scope lacking that were observed in (53). This expectation is, however, not fulfilled, as the following example shows:

- (55) *Im Film ließ er die Frau sicherlich sterben*
 in-the film let he the woman certainly die
 'In the film he certainly brought it about that the woman died'

(55) can only be interpreted as indicated by the English gloss: the semantically conceivable reading "in the film he brought it about that the woman cer-

tainly died" is not available. In the same way, corresponding examples with the English world-creating verbs *make* and *let* are awkward:

- (56) *In his latest film he $\left\{ \begin{smallmatrix} \text{let} \\ \text{made} \end{smallmatrix} \right\}$ the woman $\left\{ \begin{smallmatrix} \text{certainly} \\ \text{clearly} \\ \text{without doubt} \end{smallmatrix} \right\}$ die

One might think that the awkwardness of (55) and (56) arises from the fact that the SAs express an attitude. There are, however, SAs which do not express attitudes and still resist narrow scope interpretation:

- (57) *Im Film läßt er die Frauen* $\left\{ \begin{smallmatrix} \text{üblicherweise} \\ \text{normalerweise} \\ \text{ausnahmsweise} \end{smallmatrix} \right\}$ *sterben*
 in-the film lets he the women $\left\{ \begin{smallmatrix} \text{usually} \\ \text{normally} \\ \text{exceptionally} \end{smallmatrix} \right\}$ die

Although, there is no *prima facie* semantic reason not to have narrow scope reading here, it is not available.²⁷ I conclude from this that the semantic effects we have found above and which could plausibly block SAs in narrow scope interpretation are overridden by a syntactic condition on possible domains for SAs. What could such a condition be? In order to pursue this question, one has to observe the behavior of SAs in different infinitival constructions:

- (58) a. *Hans versuchte alles* $[_{\bar{s}} \text{um}]_{\bar{s}} \text{PRO}$ *ausnahmsweise*
 Hans tried everything in-order exceptionally
 eingeladen zu werden]
 invited to be
 ‘Hans tried everything in order to get — by exception — invited’
 b. *Hans versprach* $[_{\bar{s}}]_{\bar{s}} \text{PRO}$ *ausnahmsweise zu kommen*]²⁸
 Hans promised exceptionally to come
 ‘Hans promised to come by exception’

(58a) is an infinitival complement with a lexical complementizer; (58b) is a control sentence with a matrix verb that can — according to the classical GB-approach — not induce $\bar{S}$ -deletion; thus, there are reasons to assume the complement to be a maximal projection of INFL. Obviously, the appearance of an SA is strictly bound to the occurrence of INFL. $\bar{S}$ -deletion does not seem to be crucial, however since the following English example is acceptable, too:²⁹

- (59) He considered [_Q him certainly to be a fool]

In clauses without INFL, i.e. in non-maximal projections, SAs cannot find an argument, as the next example from English shows:

- (60) *He considered [him certainly a fool]

The corresponding — somewhat archaic — example from German confirms a syntactic solution:

- (61) *Sie wähten [ihn sicherlich in Rom]*
 they thought him certainly in Rome
 'They certainly believed him (to be) in Rome'

Notice that it would be difficult to find a semantic reason to block co-indexing of the SA *sicherlich* with the small clause *ihn in Rom*. Thus, it seems advisable to assume co-indexing (in the sense of Williams (1980)) between SA and the head of S, which we believe to be INFL.³⁰

Let us turn to *how*-questions again. Caution is required here, because there seem to be pragmatic reasons why SAs cannot occur freely in questions. This might be due to the fact that asking for information and expressing an attitude are actions which are not in pragmatic harmony. As far as we can exclude this separate problem, SAs *seem* to occur in *how*-questions. *Usually*, for instance, is an SA which does not express an attitude, and to a certain extent also *probably*. Consider the following examples now:

- (62) a. How does he usually eat his soup?
 b. How did he probably leave the house?

Both questions are well-formed, but there seem to be restrictions on interpretation. Let us concentrate on (62b) first. If this question is rendered in the form of a conditional, as we have done with respect to the German examples in (16) already, it turns out that only one interpretation can avoid awkwardness:

- (62b') a. *If he [probably left the house], how did he do [it]?
 b. If he [left the house], how did he probably do [it]?

The *it* in (62b'a) refers back to the bracketed phrase; this phrase, however, does not refer to an event type. λx [x probably leave the house] is not a property that could be perceived non-epistemically. It does not have itself a manner property. Therefore the paraphrase (62b'a.) is odd. The bracketed phrase *left the house* in (62b'b), on the other hand, can refer to an event type. λx [x leave the house] is a property that can be perceived non-epistemically;

furthermore it has in itself a manner property. One can leave a house in many ways: Through the door, through the window, by breaking a hole into the wall etc. This reasoning explains why (62b'b) expresses the legitimate reading of (62b). Obviously, the same restrictions on the scope of SAs in event expressions are not found in (62a). It seems that with respect to (62a) both readings are permitted:

- (62a') a. If he [usually eats his soup], how does he do [it]?
 b. If he [eats his soup], how does he usually do [it]?

Although the differences are subtle, the b.-version asks for the average manner of his soup eating, whereas the a.-version asks for the manner of his average soup eating. What is important here is that SAs are not alike in cancelling an event aspect that was induced by the choice of an event verb. While *probably* seems to cancel the event aspect, *usually* does not. *Usually* makes the event more "abstract", but does not affect its ontological status.³¹

These observations lead to the conclusion that certain SAs (i.e. especially those which express an attitude or modalize the clause in their scope) are able to cancel the event aspect of the clause they modify. Let us assume again that the grammar of LF provides all possible readings. Semantic interpretation would then pick up certain readings and dismiss others. It is pretty clear by now what the basis of such a dismissal can be; if an SA is permeable to the event aspect of the clause in its scope, both readings can be semantically interpreted; if an SA blocks the event aspect, because it, say, modalizes the clause in its scope, only the wide scope reading is selected. (63) summarizes this with respect to HOW-sentences:³²

- (63) a. $\text{HOW}_i [\text{SA}_{+cv} [\dots t_i \dots]]$
 b. $\text{SA}_{+cv} [\text{HOW}_i [t_i [\dots t_i \dots]]]$
 c. $*\text{HOW}_i [\text{SA}_{-ev} [\dots t_i \dots]]$
 d. $\text{SA}_{-cv_j} [\text{HOW}_i [t_i [\dots t_i \dots]]]$

We have seen that SAs are subject to a syntactic condition, namely they have to be co-indexed with INFL. Thus, in configurations lacking INFL altogether SAs cannot occur. As the German facts indicate, 'occurrence' should not be understood pre-theoretically here: It is a matter of the general word order properties of a language what can be linked to what. In German, for example, SAs can occur inside the complement of a non-epistemic perception verb, because they can be linked to the INFL of the matrix clause. This is not possible in English for reasons we do not pursue here.

5. *Some general conclusions*

In the preceding section it was indicated that the event aspect of an expression arises from the verb in this expression. Of course, this should not mean that there is an underlying verb in a noun like German *Angriff* ('attack'); let us assume therefore that non-verbal event-expressions like *Angriff* are lexically related to the corresponding verbs, — in this case *angreifen* ('to attack'). With a consideration of verb semantics we return to where we started. In section 1 it was observed that *how*-questiones and bare infinitives after *see*, *hear* etc. pattern alike with respect to stative and dynamic verbs. The Vendler-classification of verbs that is discussed at length in Dowty (1979) can serve as a basis. According to this classification, verbs come under either one of these groups: state verbs (e.g. *know*, *believe*, *desire*, *love*, *hate*, *be*, *have*), activity verbs (e.g. *run*, *walk*, *swim*, *drive (a car)*), accomplishment verbs (e.g. *paint (a picture)*, *make (a chair)*, *give (a talk)*, *draw (a line)*, achievement verbs (e.g. *perceive*, *find*, *lose*, *reach*, *die*). It is obvious that activity, accomplishment and achievement verbs are unproblematic candidates for being classified as *e v e n t* verbs (with the feature [+ev]), while state verbs can easily be classified as *n o n - e v e n t* verbs (with the feature [−ev]). As already indicated in the introduction, the stative class is not so easy to handle semantically. There is a small sub-class which is clearly stative, i.e. it has the logical properties of the other members, but which sometimes patterns with the [+ev] verbs as well, depending on the context in which they occur. This sub-class is discussed thoroughly in Carlson (1977) and in Dowty (1979). The verb *stand*, for example, shares with other stative verbs like *own* the property that any interval it can be applied to can be divided into smaller and smaller subintervals while the predicate *stand PP* is still applicable. The examples in (5) and (6) as well as the restricted use of the progressive³³ show that it cannot be the verb alone which decides whether expressions involving *sit*, *stand*, *lie*, *rest* etc. count as event expressions or not. It rather depends on what our interpretation of the subject-NP of such a verb is. If the subject is interpreted to be a stationary object, the clause as a whole cannot count as an event expression. We believe that this is not a matter of grammar and should be decided by the knowledge of the world. Let us therefore specify this subclass of stative verbs with the feature [±ev]. As Carlson (1977) observes, there is a reading of every verb from the Vendler list in which it cannot count as an event verb. This is the habitual reading. Thus, a sentence like *John smokes* can be understood to be synonymous with *John is a smoker*. Notice that neither in *how*-sentences nor in non-epistemic perception reports

the proposition *SMOKE(john)* can be interpreted along the lines of the habitual reading. It is unnecessary to handle the habitual/non-habitual distinction in grammar, if there is a general semantic theory which works as a filter for interpretations of *How does John smoke?* and *I saw John smoke* as **How is John a smoker?* and **I saw John be a smoker*.³⁴

In the discussion of modal verbs, negation and sentential adverbs in sections 2-4 it was implied that certain operators are able to cancel the event aspect that was introduced by selecting a certain verb from the lexicon. It turned out that in finite clause there was often a raising solution in LF possible which could "rescue" the clause from being semantically odd. Such operators can be assumed to have the feature $[-ev]$. If they take scope over a $[+ev]$ -marked construction, the whole construction will be $[-ev]$. As we have seen, $[-ev]$ -expressions are semantically intolerable in contexts where a $[+ev]$ -reading is called for. If the offending operators can be raised in LF, however, there is a chance for the awkwardness to disappear, because then the offender might be outside the "event-sensitive" context. Certain SAs, modals and sentential negation should be considered to be $[-ev]$. It would require a separate investigation of the semantics of negation with respect to S-structure and prosody. For the sake of discussion, however, we should take it for granted that "marked" negation ("term-negation" etc.) is always distinguishable from "unmarked" negation.³⁵ The verbs induce either $[+ev]$, $[-ev]$ or $[\pm ev]$. These features, which are ultimately needed for semantic interpretation, get promoted in the usual way by the X-architectonics of the syntax. Thus, if $[_V \text{bake}]$ is $[+ev]$, the VP $[_{VP} \text{bake the cake}]$ will also be $[+ev]$.³⁶

Under these assumptions, the following classification emerges:

(64) *Features of operators and verbs*

	$[+ev]$	$[-ev]$	$[\alpha ev]$
operators (incl. modal verbs and AUX- verbs)	—	<i>probably,</i> <i>certainly,...</i> <i>must, can,</i> <i>shall,...</i> <i>not₁</i>	<i>usually,...</i> <i>not₂</i>
verbs	<i>hit, run, eat,</i> <i>think, open....</i>	<i>know, love,</i> <i>hate, own,...</i> <i>have, be</i>	<i>sit, stand,</i> <i>lie,...</i>

(where $\alpha = +$ or $-$, depending on the nature of the context)

Post-LF-semantics provides meaning postulates among which at least the following should be:

- (65) a. x has a manner property iff x is an event.
 b. Any object of non-epistemic perception must be concrete.³⁷
 c. Events are concrete bodies in space and time.³⁸

Sometimes operators happen to be verbs, as (64) shows. In that case, $\bar{X}$ -syntax may lead to expressions that are headed by $[-ev]$ -operators. Let us stipulate that operator-movement in LF can free any given expression φ from the feature $[-ev]$, if φ were $[+ev]$ if not headed by a $[-ev]$ -operator. Now, the restrictions on event expressions we have observed so far should follow from the assumptions in (64) and (65) together with the independently needed $\bar{X}$ -schema (which is able to promote the semantic features from the lexicon) and some version of an LF-syntax.³⁹

Consider the following example:

- (66) a. I know how John must lie on the bank of the river.
 b. I know [_S how_i [_S John [_{INFL} must] [_{VP} lie t_i [_{PP} on the bank of the river]]]]]

(66b) should represent the S-structure of (66a). Omitting irrelevant details, the two LF-representations one can derive from this S-structure are:

- (67) a. I know [HOW_i [MUST_i [_S John [_{INFL} t_i] [_{VP} lie t_i [_{PP} on the ...]]]]]
 b. I know [MUST_j [HOW_i [_S John [_{INFL} t_i] [_{VP} lie t_i [_{PP} on the ...]]]]]

Assume that the $[\pm ev]$ -feature percolates after LF. Since *lie* induces $[\alpha ev]$, the general knowledge system has to decide which value α takes: Provided the system concludes that *John* does not refer to a village or something like that, α will be $+$. **MUST** is an operator which is specified $[-ev]$. It cancels that $[+er]$ -feature of **S** in (67a), because it has scope over **S**. In the context of the “event-sensitive” operator **HOW** this leads to semantic awkwardness. Other things being equal, this does not happen with respect to (67b), because there the $[+ev]$ -marked **S** is in the context **HOW** __, and the modalization takes place “outside”. Thus, (67b) is the LF-representation of (66a) that is semantically legitimate. German examples like:

- (68) **Er spürte Roswitha gut tanzen können*
 he felt_(+fin) Roswitha well dance can_{(-fin) (-fin)}
 ‘He had the feeling that Rosa can dance will’.

are easily explained to be semantically deviant, although the pure perception facts are not so obvious here as in the case of visual perception. Our explana-

tion of the ill-formedness of (68) circumvents a general discussion of perception.⁴⁰

(68) is ruled out as follows: Suppose the S-structure is:⁴¹

The dotted lines show how the features will be percolated. (68) will never end up as a semantically acceptable perception report, because LF cannot raise the offending modal verb higher than shown in (70):

- (70) Er spürte [_[-ev] KÖNNEN_i [_s [_{+ev}] Roswitha gut tanzen t_j]]

KÖNNEN cannot raise to take scope over the matrix sentences — (this would mean “He can feel Roswitha dance well”) — since this would among other things make the whole expression non-finite, i.e. it would change its semantic category altogether. The LF (70) is blocked by (65b,c): Although S itself would count as an event-expression, the “modalized” S will not; it does not refer to a cognitively relevant body in space and time. In a bare infinitive construction like (68) *spüren* is a non-epistemic perception verb which subcategorizes for a complement that denotes some concrete, kinesthetically perceivable entity. Such a complement is absent in the only available LF, (70). Therefore, the semantic clash is unavoidable.

We have subscribed to the idea that events are spatio-temporally located bodies, i.e. they are individuals. The approach proposed so far allows us to use the intuitive advantages of Davidson’s analysis of event- (or action-) sentences.⁴² In Davidson’s analysis every event-expression has an extra variable which might be seen as locating the event ontologically among those entities that are usually not referred to by verbs, VPs or clauses. According to Davidson’s analysis, a sentence like *John hits Mary* is represented as $\exists x [John\ hits\ Mary, x]$. In this representation, x corresponds to something like our feature $[+ev]$. We can think of $[+ev]$ as a variable which percolates in a highly constrained way towards the head of an event-expression. In LF it can be bound by an existential quantifier. A sentence like

- (71) I believe [that [it rains]]

where *rain* may induce [+ev], will then come out as:

- (72) I believe [that [∃ev [_[+ev] it rains]]]

Negation, like some other operators, destroys the event-aspect. Thus, the example *I believe that it doesn't rain* cannot come out as:

- (73) I believe [that [∃ev [NOT [_[+ev] it rains]]]]

Notice that LF will first of all be:

- (74) I believe [that [NOT [it rains]]]

Since *rain* induces [+ev], and NOT cancels this feature, the predicted form will be:

- (75) I believe [that [_[-ev] NOT [_[+ev] it rains]]]

With existential quantification this amounts to (76) rather than to (73):

- (76) I believe [that [NOT [∃ev [_[+ev] it rains]]]]

According to Higginbotham's (1982) individual-events analysis, a non-epistemic perception report like

- (77) John sees Mary leave

is semantically not different from a perception report not involving a clausal complement at all, e.g.

- (78) John sees a tree

Since *see* denotes an extensional relation, the existential quantifier that is associated with the object of *see* takes wide scope. Thus, (77) and (78) will be in LF (79a) and (79b) respectively:

- (79) a. ∃ev, ev is a leaving of Mary [John sees ev]
b. ∃x, x is a tree [John sees x]

This shows that the lexical feature [+ev] might be ultimately a variable for an ontological category that receives in LF an argument position without always being argument-like syntactically. Whereas the quantifier in (79b) gets restricted by an expression that is isomorphic to an S-structure-NP, this is not so in (79a). The results for semantic interpretation are, however, the same.

6. *How to get rid of some adverbs*⁴³

From the point of view of modern work in syntax it makes little sense to consider (at least a large class of) adverbs as a separate syntactic category. As the following examples show, adverbs project in $\bar{X}$ -terms very much like

adjectives:

- (80) a. a *rapid* attack
b. to attack *rapidly*
- (81) a. a *very rapid* attack
b. to attack *very rapidly*
- (82) a. an attack *as rapid as* ...
b. to attack *as rapidly as* ...
- (83) a. an attack *so rapid that* ...
b. to attack *so rapidly that* ...

In German some adjectives assign Case, e.g. *treu* ('loyal', 'grateful') assigns Dative to the left. This is so in the adverbial usage of *true* as well as in the adjectival usage:

- (84) a. *der [seinem Fürsten] treue Diener*
the his sovereign loyal servant
'the servant loyal to his sovereign'
weil er [seinem Fürsten] treu handelte
because he his sovereign loyally acted
'because he acted loyally towards his sovereign'

In German the discrimination between adjectives and adverbs is even harder than in English and French, because German does not mark one category morphologically as English does by suffixing *-ly* or French suffixing *-ment*. Notice that in the following German examples the syntactic status of the underlined words could only be decided on the basis of semantic information:

- (85) a. *weil der Kellner die Suppe kalt brachte*
because the waiter the soup cold brought
'because the waiter brought the soup cold'
- b. *weil der Kellner die Suppe schnell brachte*
quickly
- c. *weil der Kellner die Suppe nackt brachte*
naked

In (85a,c) the underlined words should be adjectives, because the bringing of the soup can neither be cold nor naked. The only candidate for adverbhood seems to be *schnell*, as indicated by the English gloss. Notice, however, that it might not always be completely clear what the A in question modifies, the action or one of the participants. Even here it seems quite unlikely that (85b) is true while *Der Kellner war schnell* ('The waiter was fast') is false. Apparently *schnell* denotes a property which might apply to the action as well as to

the actor.⁴⁴ In a grammar with autonomous systems the ultimate goal for handling such examples would be to treat them alike up to the point where they truly diverge. In the case of (85a-c) this is certainly not before semantic interpretation. I want to show now that in a semantics which considers events to be individuals a unified account of manner adverbs and predicative adjectives is within reach.

Let us assume, following Stowell (1981), that the syntactic structure underlying (85a-c) will be, omitting all details:

- (87) *weil der Kellner die Suppe* [_{XP} *PRO AP*] *brachte*

XP is supposed to be a 'small clause' (SC): PRO is the subject of AP. It can be coindexed with any NP, i.e. in the case of (87) either with [_{NP} *die Suppe*] or with [_{NP} *der Kellner*].⁴⁵ This gives us the desired readings for (85a) and (85c) respectively. Notice now that in our theory we can account equally for (85b). The only difference is that there is no syntactic NP-antecedent. There is, however, an argument place, namely the variable/feature [+ev]. The envisaged analysis of (85b) will be something like:

- (88) *weil der Kellner* [_{VP} *die Suppe* [_{XP} *PRO_i* *schnell*]
[_V [+ev]_i *brachte*]]

Verbs are classically not controllers, but with the additional assumption that certain verbs carry along a semantic feature that corresponds to an event it is not implausible that these can — indirectly — act as controllers. We predict that manner-APs make sense only in contexts where an argument place/feature [+ev] can serve as a controller of the empty PRO-subject.⁴⁶ It goes without saying that all the arguments that were brought forward in favor of an event analysis in the preceding sections apply here as well. Consider, for example, the following German sentence:

- (89) *(weil) der Kellner die Suppe schnell bringen mußte*
because the waiter the soup quickly bring must
'because the waiter had to bring the soup quickly'

Two analysis are imaginable:

- (90) a. *der Kellner* [_{VP} *die Suppe* [_{XP} *PRO schnell*]] [_V *bringen mußte*]]
b. *der Kellner* [_{VP} *die Suppe* [[_{XP} *PRO schnell*]] [_V *bringen*]]
[_V *mußte*]]

If these structures had to be interpreted semantically, (90a) would be ruled out. The reason is that $\bar{V}$ is headed by a modal, i.e. a [-ev]-verb. If the associated variable [-ev] would control PRO, (90a) would be rule out as

semantically ill-formed. In (90b), however, *bringen* is marked [+ev]. This feature can control PRO without committing semantic problems later on. The modal takes, of course, widest scope. It should be emphasized that (90b) goes along with the preferable syntactic architecture of the German V-complex.⁴⁷

Sometimes it can be wise to handle a problem not rigidly in all respects. This is what I have proposed for the treatment of adjectives/adverbs. With the unification, syntactic problems — at least in German — get reduced. At the same time, I believe, it is an advantage also with respect to semantics. Surprising confirmation for our reduction of manner adverbs to predicative adjectives comes from the fact that in many languages, including German and English, *wie/how* is ambiguous between arising from an adjective-position (e.g. *kalt*, *nackt* in (85a,c)) or from an adverb-position (e.g. *schnell* in (85b)). Any of the categorial answers in (91b) fits the question in (91a):

- (91) a. *Wie brachte der Kellner die Suppe?*
 how brought the waiter the soup
 b. i) *Kalt* ii) *Schnell* iii) *Nackt*
 cold quickly naked

In non-autonomous frameworks like, for instance, Montague Grammar it is not easy to see how a unification could be achieved. In Montague Grammar, *schnell* combines with the VP to form a new VP (it is IV/IV, where IV is an intransitive verb phrase) or with the V to form a new V (then it is TV/TV, where TV is a transitive verb) etc. *kalt* and *nackt* cannot combine with V(P), because this would lead to unacceptable pieces of meaning in the course of semantic derivation that is one of the cornerstones of Montague Grammar. As a consequence, they have to be set apart from the adverbs already at the level of syntax.⁴⁸ But even this would not be sufficient to get the desired results. As the following example shows, there are words which are felt to have one and only one core meaning, but which are nevertheless required to appear in different syntactic categories and semantic types:

- (92) (weil) *Helene dem Richter kalt antwortete*
 because Helene the judge coldly answered
 ‘because Helene answered the judge in a cold manner’

As indicated in the English gloss, *kalt* is not a predicate connected with *Helene*, — at least not in the standard sense of (92). For a different reason, *kalt* cannot be predicated of *dem Richter* either: (see fn. 45). So the only option that is left is to interpret it as an adverb. Beyond the lexicon inflation that emerges from a double characterization of many words as virtual adjectives

and virtual adverbs, it seems much more natural to have semantic interpretation decide on the actual linking of predicate and argument than to put all this load on to the lexicon and the syntax.

In our account it follows that a) there is only one syntactic structure for cases from which an adjective/manner adverb ambiguity might arise, b) there is only one lexical entry for both, namely the syntactic category *A* and a semantic specification (which among other things might say that *kalt* can be understood in a direct, i.e. the temperature sense, as well as in a metaphorical sense). LF can be thought to provide all the syntactically possible readings of a given sentence involving a predicative *A*. In the case of (92) this would be roughly:

- (93) a. ...*Helene*_i [_{VP} *dem Richter* [_{XP} *PRO*_i *kalt*] *antwortete*]
 b. ...*Helene* [_{VP} *dem Richter* [_{XP} *PRO*_i *kalt*] [_V *antwortete*]]
 +_{ev}

In this system it depends on the context of the overall meaning of a given sentence which of the readings provided by LF will ultimately be selected.

Wie in German has a very broad range of applications. This is shown in Clement (1971) and Vater (1975), where the facts are discussed and described across a much larger range than it was attempted in the present study or in Bayer (1982). Undoubtedly, there is a common, but as yet invisible bond connecting at least a large number of the possible uses of *wie*. Although my attempt of unifying "adverbial" and "adjectival" *wie* can be seen as a first step towards an explanation, there is still a lot to be done to explain why, for example, certain cases of subordinate *wie*-clauses are usually not understood as "in which manner...", e.g.

- (94) a. *Ich sah wie sie aus dem Wagen stieg*
 I saw how she from the car climbed
 'I saw how/as(?) she climbed out of the car'
 b. *Ich sah sie wie sie aus dem Wagen stieg*
 I saw her how she from the car climbed
 'I saw her as she climbed out of the car'

The *wie* in the examples of (94) possibly incorporates manner of action, state of the actor during the action as well as the temporal setting of the perception in one. In the light of such examples it seems to be quite hopeless an enterprise to try to fix every possible aspect of meaning in a rigid way at the level of syntax and/or LF.⁴⁹

7. Some consequences for the analysis of non-maximal constructions

We have already indicated in section 2 that Williams' (1984) account to

explain away cases like **I saw John be dead* (versus *I saw John dead*) appears very problematic in the light of German data and in the light of a semantic account like the one proposed in this study. In the course of this investigation we have presented wide ranging evidence in favor of heavy semantic constraints on the nature of propositions that are allowed in event-sensitive environments. Since it was shown that there is a common semantic property that unites non-epistemic perception reports and finite sentences involving the operator HOW, there was no *prima facie* reason for us to argue for a non-clausal analysis of the former. This is, however, what is claimed to be the case in Williams (1983) and (1984). Let us therefore investigate Williams' arguments in more detail. All of the following examples are drawn from Williams (1984):

- (95) a. **I saw John being dead*
 b. *I saw John being obnoxious*
 c. *I saw John dead*
 d. **I made John be dead*
 e. **I saw John be dead*

Williams finds that it is always clear how to distinguish between main verb *be* (MV) and auxiliary *be*. (95b) shows that *being*, the MV, is permitted in non-clausal complements as long as the predicate is under the agent's control and nondurative. (95c) shows that the restriction illustrated in (95a) is "not semantic in any obvious sense", since the depicted event is "seeable".

The first, and minor, remark that can be made about this is that it is not clear why *be* is always the auxiliary and why *being* is always the MV. There is, of course, a semantic condition which makes (95a) awkward. It has to do with the fact that predicates like *dead* cannot appear in a larger predicate which is in the progressive. If it is not so clear as Williams suggest, that MV- and AUX-*be* can be distinguished in general, and if there are no (obvious) semantic reasons, one may ask how it comes about that examples like

- (96) **I saw John be obnoxious*

are unacceptable. My own explanation would rather be that both (95e) and (96) are ruled out because *be* induces the feature [−ev] which is, as we have argued, incompatible with the event-sensitive environment that is set up by *I saw*____; *-ing* is a suffix which is [+ev]. Since *-ing* is the head of *being*, it absorbs the [−ev]-aspect of *be*. Since *-ing* is at the same time the marker of the progressive form, it must match the semantics of the predicate in its scope. This is the case in (95b), but not in (95a). I have already drawn attention to the fact that examples like (95d) are not without problems. German as

well as English allow for examples like

- (97) a. *Lassen Sie mich das bald wissen!*
 let you me that soon know
 b. Please, let me know it soon!

i.e. *lassen/let* is not necessarily an event-sensitive context. It is therefore no surprise that auxiliary verbs can occur quite freely after *lassen*:

- (98) a. *Wir ließen ihn schon vor fünf Minuten eingetreten*
 we let him already before 5 minutes entered
 sein
 be
 ‘We caused him to have entered already 5 min. ago’
 b. *Sie ließen ihn tagelang nicht ausgeschlafen haben*
 they let him for-days not enough-slept have
 ‘For (many) days they caused him not to have slept enough’

Again, the fact that these sentences adopt a certain flavor of fiction should not lead to the assumption that their syntactic make up is different from those involving verbs of perception which are totally unacceptable. There might be selectional and stylistic restrictions in English which cause (95d) to sound awkward.⁵⁰ There seems, however, no strong reason to accept Williams’ claim that *be* is dominated by an AUX-node and that it is lacking in naked infinitives because there is no AUX involved.

Let us turn now closer to the core of Williams’ theory. The comparison between (95a) and (95c) above suggests what Williams seems to take for granted, — namely that the semantics of the two constructions are largely the same. This is at least what emerges from the theory that is supposed to explain these data: Predication Theory (PT). The basic idea of PT, as suggested in Williams (1980) and defended and extended in subsequent articles, is a strict unification of any subject/predicate relationship. In a structure

- (99) ...NP...XP...

XP can be the predicate of NP, if NP c-commands XP.⁵¹ There is a level of representation between S-structure and LF called Predication Structure (PS); at PS subject and predicate are coindexed; the following examples suffice to show what is intended:

- (100) a. John_i died_i
 b. John_i left nude_i
 c. John_i is sick_i
 d. John gave Bill the dog_i dead_i

- e. John_i became sick_i
 f. John made Bill_i sick_i

(100a-c) are examples of ‘grammatically governed’ and (100d-f) are examples of ‘thematically governed’ predication. The latter is supposed to be constrained by the θ -roles that might be associated with an argument. Inside the VP it must be the Theme which is linked to the predicate. In this way it can be avoided that Bill in (100d) gets coindexed with dead. Notice now that a clear disadvantage of this explanation is that in the following minimal pair

- (101) a. John gave Bill the book torn
 b. John gave Bill the book naked

the less desired sense of (101b) according to which the book is naked must be avoided by assigning different structural descriptions to the examples in (101):

- (101') a. John [_{VP} gave Bill the book_i torn_i] (by θ -requirement)
 b. John_i [_{VP} gave Bill the book] naked_i (structural)

This solution clearly runs counter to autonomous syntax. But even if it were an acceptable way to handle the facts in English, it is still falsified by German. In German subordinate clauses the AP is clearly *i n s i d e* the verbal complex (VP). This follows from the fact that the verb is in clause final position:

- (102) *weil Hans [_{VP} uns die Bücher [_{AP} nackt] gab]*
 because Hans us the books naked gave

According to PT (102) should be understood in the less favored sense. This is certainly not the case. We take this as sufficient evidence against a substantial part of PT, namely the VP/ θ -requirement; (see also fn. 46).

What does PT say about bare infinitive constructions (“naked” infinitives)? According to Williams (1983), bare infinitives are non-clausal for the following reason: *F i r s t* , they “do not seem to take subjects with narrow scope”:

- (103) a. John saw someone leave
 = $\exists x$ [John saw x leave]
 $\neq$ John saw [$\exists x$ [x leave]]

S e c o n d , they “never show the property of thematic independence in argument positions”. The examples given to back this claim remain obscure to me; so I will ignore this argument. *T h i r d* , “they never have subjects of arbitrary reference”:

- (104) *It is fun leave

Two points can be made about the first argument: As Grewendorf (1984) observes, there is nothing wrong with perception reports which are followed by a statement that the perception must have been a hallucination etc.:

- (105) John heard someone play the piano, but there was nobody around

This shows that quantified NPs from subject position do not raise automatically. The next point is that it is not at all clear whether the objects of perception should be handled in analogy to, say, objects of desire (*want*-type complements). At least Gee's work on perception reports (Gee (1975) and (1977)) indicates that they cannot, — especially with respect to the internal subject position. Turning again to structurally identical cases with *let/lassen* it is obvious that LF provides two readings which both can be semantically interpreted without leading to awkwardness:

- (106) a. *Der Romanautor läßt jemanden sterben*
 the novelist lets someone die
 b. $\exists x$ [the novelist lets x die]
 c. the novelist lets [$\exists x$ [x die]]

(106b) might be associated with a situation in which there is a real person who dies, because the novelist does not help him or her; (106c) might be associated with a situation in which the novelist creates a world of fiction such that there is someone in this world and he/she dies. Since the structural properties of (103) and (106) are the same, we can see no reason for accepting Williams's QR-argument.

The third argument above is immediately falsified by German data which show that bare infinitives in COMP- position can have a subject with arbitrary reference:

- (107) [*PRO* jetzt in den Urlaub gehen] würde Spaß machen⁵²
 now in the holiday go would fun make
 'To go for holidays now would be fun'

On the basis of the above mentioned considerations Williams proposes that bare infinitives are non-clausal, i.e. they do not involve any S-boundary, and they are adequately covered by PT. The following example from Williams (1983) shows what kinds of representations of bare infinitives will be achieved by PT.

- (108) $I_i [{}_{VP_i} \text{ saw }_i \text{ John}_j [{}_{VP_j} \text{ leave}]]$

I want to show now that the idea of not having an S-boundary in bare infinitives in conjunction with the above mentioned results of PT leads to serious consequences. It was argued above that the VP/ θ -requirement of Williams (1980) is stipulative and that it leads to an undesirable interplay of word semantics and phrase structure. There are two alternatives: Either the VP/ θ -stipulation is given up altogether, or it is kept — for English — as it stands. If the latter alternative is chosen, it is possible to analyze bare infinitives in the following way (in analogy to (101'b)):

- (109) $I [{}_{VP} \text{ saw John}] [{}_{VP} \text{ leave}]$

In this case *I* would be coindexed by PT with *leave*. There is nothing wrong with the meaning that I saw John while I was leaving but this is certainly not a meaning to which the bare infinitive construction *I saw John leave* has access. The other alternative is to give up the VP/ θ -requirement. In that case the lack of a clause boundary leads to the same result as the first alternative. Notice that in PT this unwanted result cannot be prevented by θ -theory. According to Williams (1983), *saw John* and *leave* would belong to different “argument complexes” and therefore no violation of the Restricted θ -Criterion would arise.⁵³

In PT all kinds of “non-clausal” complements are lumped together. We have just argued that this leads to seriously wrong predictions with respect to bare infinitives versus predicative adjectives that are not subcategorized (adjuncts). Williams (1983) explicitly claims that PT does not aim at a more than accidental match between S-structure and LF. I want to argue now that PT is not in a position to derive the basic semantics of perception reports. Consider the following examples all of which are indexed in the way PT would provide it at PS:

- (110) a. $\text{She}_j [{}_{VP} \text{ saw him}_i \text{ leave}_i]$
 b. $\text{She}_j [{}_{VP_j} \text{ saw him}_i \text{ naked}_i]$
 c. $\text{She}_j [{}_{VP_j} \text{ considers him}_i \text{ a fool}_i]$
 d. $\text{She}_j [{}_{VP_j} \text{ wants him}_i \text{ dead}_i]$

One thing that raises doubts against a unified syntactic account of these data is that Passive can apply to (110b,c) and may be even to (110d), but not to (110a). There are various attempts in the literature to explain why

- (111) *He was seen leave

is ungrammatical.⁵⁴ I cannot give an explanation myself, but I want to draw attention to the fact that Passive sheds some light on the non-homogeneous nature of the set of examples in (110). There are semantic differences as well. Most linguists agree that there is a proposition-like argument in (110c,d). The propositional nature comes out most clearly in the alternative complements

- (110') c. She considers him to be a fool
d. She wants him to be dead

and by the fact that the following propositions are not logical consequences of (110c) and (110d) respectively:

- (112) a. She considers him
b. She wants him

The differences between (110a) and (110b) are somewhat more subtle. One might be tempted to suggest the same syntactic structure to both examples; following a different syntactic theory than Williams, it could be suggested that both examples involve a clause [*him* XP]. In such a case the event analysis would carry over to (110b). Notice, however, that there is the following difference which I give in the form of meaning postulates; ($\Box$ is the necessity operator):

- (113) a. $\Box$ [she saw him naked $\supset$ she saw him]
b. $\sim\Box$ [she saw him leave $\supset$ she saw him]⁵⁵

While PT prevents us in a general way to capture this difference between (110a) and (110b), the Government and Binding (GB) approach of Chomsky (1981) and Stowell (1981) is compatible with (113). According to GB theory the verb *see* in (110a) subcategorizes for a clause, while the verb *see* in (110b) subcategorizes for an NP only. In the first case this leads to the assignment of a θ -role to the whole clause; in the second case a θ -role is assigned to the object-NP only. Thus the two examples come out as follows:

- (110'') a. She saw [*him* leave]
b. She saw him [*PRO* naked]

Although there might be problems with the GB theory and the way it introduces 'small clauses', it can be shown to avoid all the problems of PT. If *him leave* is a clause, there is no danger that the predicative *leave* might pick up an argument from outside. Since the θ -role OBJECT is assigned to the clause as a whole, the requirement of the meaning postulate (113b) is met. Thus, the consequence *she saw him*, is not a logico-semantic, but rather a pragmatic

consequence, induced by the many situations in which the perception of the action coincides with the perception of the agent. Another great advantage of the small clause approach is that it avoids assigning different syntactic structures to examples like *She saw him naked*, *She found him alone* etc. As the structure in (110''b) shows, there is a PRO-subject which might be controlled either by the subject- or by the object-NP.

It would require a separate study to present more evidence in favor of a clausal analysis for bare infinitives. Grewendorf (1984) investigates some of the predictions that are made by theories suggesting either a sentential or a non-sentential structure of German cases of 'accusativus cum infinitivo' (bare infinitives). If the structure is non-sentential, i.e. if the (logical) subject of the infinitival predicate is the matrix-object-NP, subject/object asymmetries are expected to arise between matrix-subject and infinitive-subject; if, on the other hand, there is a constituent boundary between the Accusative-NP and the matrix, subject/object asymmetries could be expected to arise between the infinitive-subject and the infinitive-object. Grewendorf presents data which suggest that the subject/object asymmetry holds inside the bare infinitive. There are also a number of rather subtle data involving clitic movement which show that there must be a constituent boundary which cannot be crossed by the clitic. It would go far beyond the scope of this article to discuss Grewendorf's findings in some detail. His findings, however, can be taken as giving independent syntactic support to the propositional autonomy of bare infinitives that was argued for in this article. I take it to be a matter of future research to investigate how the sentential character of bare infinitives goes together with the fact that in OV-languages like Dutch and German the infinitival verb (of the bare infinitive S) forms a verb cluster together with the matrix verb.⁵⁶

It was shown in this section that the Predication Theory of Williams (1980), (1983) and (1984) is largely incompatible with the semantic analysis we have proposed for bare infinitive constructions. German offers evidence that it is not enough to explain away the non-appearance of *be* and *have* in bare infinitives by stipulating that these words might be dominated by an AUX-node, which is absent in bare infinitives. It was furthermore shown that PT suffers from certain internal deficits. A major deficit of this theory is that it treats bare infinitives and small clauses alike. It could be demonstrated that this has undesirable effects, both syntactic and semantic. On the other hand, there seems to be no major problem for the GB-framework (including the small clause theory of Stowell (1981)) to incorporate the event-semantics proposed in this article.

8. *Conclusion*

We have proposed a semantic solution to explain the wide ranging distributional similarity of bare infinitives after perception verbs (non-epistemic perception reports) and finite sentences involving the operator *HOW*. Our solution implied that events are central cognitive categories in the semantics of natural languages, and that the above mentioned distribution is to be explained in terms of the semantics of event expressions. There are theories which propose bare infinitives to be non-clausal and that the lack of AUX-verbs (*have*, *be*, modals etc. can be derived from the simple fact that bare infinitives lack an AUX-node. It was shown, mostly with evidence from German, that a) there is no syntactic reason for not having modals in German bare infinitives and that our semantic constraint on the presence or scope of modals explains the data more naturally; b) negative expressions in the unmarked case cannot be event expressions, because their intensions do not correspond to spatio-temporal entities of a cognitively constrained enough kind. Thus, there must be a deep rooted semantic difference between positive and negative expressions; once this is recognized a number of correct predictions about the role of positive and negative expressions in event sensitive contexts follow; c) sentential adverbs are operators which may negatively affect the event-denoting character of a proposition over which they have scope; but sentential adverbs are also bound to the presence of INFL. Thus, there is a second — independent — reason why they cannot be interpreted as belonging semantically to the bare infinitive.

The general conclusion from these observations was that certain verbs induce an event aspect in the syntactic generation/semantic composition and that this aspect — which we represented as a feature — can be affected in various ways in the derivational process, e.g. by event-aspect-cancelling operators like modals, negatives etc. We suggested that the event feature might correspond in LF to an argument position. In this way we could capture the intuitive appeal of Davidson's theory about action sentences. One consequence of our proposal was that manner adverbs (and the corresponding word *how*) can be treated like ordinary predicative adjectives. This is especially desirable with respect to German where manner adverbs and predicative adjectives are morphologically and sometimes even semantically indistinguishable. Finally it was argued that the semantic account offered here has consequences for the proper syntactic analysis of non-maximal constructions like bare infinitives and small clauses. The clausal analysis of bare infinitives was shown to be superior to William's account, according to which infinitives

and small clauses should be unified by Predication Theory.

There are other consequences to which I cannot turn here. Let me just mention that a semantics with events is crucial for the interpretation of text answers following *how*-questions.⁵⁷ Another consequence, which shows that the proposed difference between positive and negative sentences is not at all stipulative, is the following: It is well known that the coordination particle *and* does not always correspond to the logical connective ' $\wedge$ ':

- (114) Tom, Dick and Harry carried the piano upstairs⁵⁸

is certainly not understood as if all three persons did the piano carrying individually; *and* rather "connects" the individuals. The "sum" of Tom, Dick and Harry did the carrying. In Link (1983) and in some of the literature quoted therein, a distinct operator, ' $\oplus$ ', is motivated. This operator takes individuals and maps them into sums or plural objects. While *and* may correspond either to ' $\wedge$ ' or to ' $\oplus$ ', *or* seems to have only the truth conditional function, — at least if we consider only the exclusive *or*. If it is *events* that is referred to by the complements of non-epistemic perception reports, different predictions are made with respect to these operators. Consider the following minimal pair:

- (115) a. We saw Tom and Dick carry something upstairs
b. We saw Tom or Dick carry something upstairs

As predicted by the event theory according to which the object of non-epistemic perception can only be an individual, not a proposition (in the sense of Possible Worlds Semantics), (115a) is ambiguous, whereas (115b) is not; concentrating again on the exclusive reading, (115b) will be understood as follows:

- (116) [we saw Tom carry something upstairs] $\vee$ [we saw Dick carry something upstairs]

(115a) on the other hand, has three readings:

- (117) a. [we saw Tom carry something upstairs] $\wedge$ [we saw Dick carry something upstairs]
b. we saw [[Tom $\oplus$ Dick] carry something upstairs]
c. we saw [Tom carry something upstairs] $\oplus$ [Dick carry something upstairs]

(117a) reports two separate perceptions which may have even occurred at different times and/or places. (117b) reports the perception of a single event in which Tom and Dick in a joint enterprise carried something upstairs. (117c)

reports the perception of two events which are spatio-temporally close enough to be perceived in one stretch; the joint enterprise sense can be completely absent in this case.

NOTES

1) For rather controversial discussion and reference to the relevant literature see Koster and May (1982) and Dasgupta (1982).

2) cf. Dowty (1979); Goldsmith and Woisetschlaeger (1982).

3) Especially the latter example might be acceptable under the condition of "sudden presentation", i.e. acceptability is somewhat enhanced in contexts like:

- (i) When we reached the top of the hill we suddenly saw the village lie on the banks of the river

My attention was drawn to this fact independently by Karen Ebert and Edith Weuster.

4) At the moment only "adverbial" *how* should be considered, i.e. a wh-word which corresponds to lexical adverb(ial)s. We will turn to another aspect of *how* in section 6.

5) cf. Cutting (1981) and the references given there.

6) cf. Lerner and Sternefeld (1984), to which we will turn in section 3.

7) cf. the arguments in Bayer (1984).

8) Huber (1980) seems to be of different opinion; see his discussion on pp. 430f. Huber leaves, however, the data unaccounted for.

9) Williams (1984), p. 140, fn. 2.

10) cf. May (1977). I am following here for convenience the logical analysis of language according to which modal verbs correspond to sentence operators. The LFs given below should be understood as a shorthand which may suffer from this view. Notice that cases of ambiguity do not necessarily have to be resolved in LF. Thus, (21..c.) above may correspond to the following two S-structures:

- (i) $[_S \text{ wann}_i [_S \text{ Hans } [_{VP} t_i [_{VP} [_{VP} \text{ die Haare Kämmen}] [_{V_j} \text{ muß}]]]]]$
 (ii) $[_S \text{ wann}_i [_S \text{ Hans } [_{VP} [_{VP_k} t_i \text{ die Haare } [_{V_k} \text{ kämmen}]] \text{ muß}]]]$

In (i) the VP from which *wann* is extracted is headed by a modal, whereas in (ii) the extraction site of *wann* is an unmodalized VP. It is unclear to me in which way this analysis could be connected with a semantic translation of *muß* ('must') with the necessity operator of modal logic.

11) Notice that this amounts to an explanation of

- (i) *We saw [John be dead]
 (ii) *We saw [John be happy]
 (iii) *We saw [John have a headache]

which is fundamentally different from Williams': What we claim is that the bracketed phrases cannot denote events and that therefore these sentences are ruled out.

12) It is surprising how long it took philosophers to realize the difference between epistemically neutral and epistemically loaded perception. An important, but not really successful forerunner is Dretske (1969); Gee (1975) presents a detailed critique of earlier accounts by Hintikka; the whole issue was again lucidly picked up in Barwise (1981).

13) For more discussion, see Bayer (1982).

14) Some of the problems of this view are discussed in Bayer (1982) and in the literature quoted therein; see also Kamp (1979) and Cooper (1984).

15) cf. Leonard and Goodman (1940), Goodman (1951), Eberle (1970).

16) This fact is completely ignored in part of the philosophical literature, e.g. in Martin (1978) and (1979). In Martin's work, sentences like

(i) John is a brother of Mary

get semantic representations like

(ii) $\exists ev [\text{being a brother} (ev) \wedge ev \text{ is by John} \wedge ev \text{ is of Mary}]$

Of course, negative sentences will in such a theory also refer to events; (cf. Martin 1978), p.165). It goes without saying that such theories are devoid of any linguistic appeal.

17) Gee (1977) has an example which demonstrates that in order to make the sentence

(i) I just saw John move one of the little figures

true it is not necessary that I see John: John might be behind an opaque screen. What is essential according to Gee is that the VP-denotation is perceived. If this is true, it follows that the examples of negation in (31) cannot be understood with narrow scope of NOT. See also Higginbotham (1982).

18) Barwise (1981), pp.378f.

19) Barwise (1981), pp.379f.

20) In the light of examples like (39) it remains obscure why anaphoric reference should be such a good testing ground for ontological commitments, as Barwise (1981) assumes; see also the remarks of Higginbotham (1982) on this issue.

21) I owe this observation to Craig Thiersch. Notice that the uncompromising correlate to (38c) would be:

(i) Hans sah Maria nicht tanzen. Willi auch nicht
Willi too not

22) These are Lerner and Sternefeld's (1984) (14) in §18.

23) Notice that the examples in (42) represent S-structures to which a Germanic sub-case of Move- α has applied, namely "Verb Second". According to Lerner and Sternefeld, the pre-transformation structure would be

(i) $du \text{ nicht }]_{V_3} \text{ kommen}]]_{V_1} \text{ darfst/sollst}$

24) One should be aware, however, that syntax c a n influence — usually reduce — choices of scope as soon as the "canonical" (unmarked) structure is manipulated. This is noted in Lerner and Sternefeld (1984) as well as in Haegeman and v. Riemsdijk (1984): the following examples from Züritüütsch demonstrate what is at issue:

- (i) *daß de Hans kā Fläisch hāt wēle ässe* (wide and narrow)
 that the Hans no meat has wanted (to) eat
 (ii) *daß de Hans hāt wēle kā Fläisch ässe* (only narrow)

25) For details about the notion of 'conventional implicature' see Karttunen and Peters (1976).

26) I want to thank Simon Andrews for a discussion of the Sherlock Holmes example.

27) I think the same is true for English. The following sentences should be awkward:

- (i) ?In his recent films he let the women $\left. \begin{array}{l} \text{usually} \\ \text{normally} \\ \text{exceptionally} \end{array} \right\}$ die

28) Notice that there is a sentence which is distinct only prosodically and orthographically:

- (i) *Hans versprach ausnahmsweise [_s [_s PRO zu kommen]]*

29) I want to thank Simon Andrews for letting me know about his intuitions about British English.

30) Notice that this gives support to Reuland's (1983) idea that NP-*ing* constructions should be analyzed as Ss. One of Reuland's arguments is that NP-*ing* constructions can contain SAs; cf. his example

- (i) [John probably being a spy] Bill thought it wise to avoid him

31) Notice that the following test with pseudo-clefts might be thought to create a problem for this theory:

- (i) [What he usually did] was [eat his soup]
 (ii) *[What he did] was [usually eat his soup]

(ii), however, seems to be an artifact. Of course, it is impossible to "usually eat one's soup" in a concrete event. Although *usually* does not cancel the event aspect, it still has the effect of a quantifier. Thus, (ii) is about as harmless as

- (iii) I am everywhere

Notice that there are SAs which do not have this quantificational force. German *ausnahmsweise* is an example which passes both pseudocleft constructions:

- (iv) [*Was er ausnahmsweise tat*] war [*seine Suppe essen*]
 what he exceptionally did was his soup eat
 (v) [*What er tat*] war [*ausnahmsweise seine Suppe essen*]

32) [-ev]-SAs are like "plugs" to event aspect, while [+ev]-SAs are like "holes", to use the somewhat metaphorical terminology of earlier work by Karttunen.

33) I am thinking of examples like

- (i) a. John is standing on the corner
 b. *The building is standing on the corner
 (ii) a. John is lying on the sofa
 b. *The village is lying on the banks of the river

See Carlson (1977a) and (1977b), Dowty (1979) and Goldsmith and Woisetschlaeger (1982) for discussion of the English progressive.

34) For a solution to derive the habitual reading by means of a 'generalization operator' see Carlson (1977a), p.274.

35) For a more recent investigation of the scope of negation see Jacobs (1983)

36) In the same way, if German [_N *angriff*] is [+ev], the NP [_{NP} *der schnelle Angriff*] ('the rapid attack') will be [+ev]. We must take into account that adjectives like *possible*, *alleged* etc. affect the [+ev]-feature of nouns in the same way as the SAs *possibly*, *allegedly*, etc. affect the [+ev]-feature of sentences. It does not come as a surprise that these adjectives pattern so neatly with the SAs discussed in section 4. Notice that *the usual murderer* refers to an abstract entity, but still to some kind of a murderer. This is not necessarily so in *the alleged murderer*. See Kamp (1975) for discussion.

37) It depends on the respective sensory channel what counts as concrete.

38) Especially (65c) is far from exhaustive, as my previous discussion has indicated already. I leave it to the imagination of the reader to speculate about possible delimitations of this postulate.

39) For example, the LF-syntax proposed in chapter II of Heim (1982). Heim takes "operators" to include quantifiers, negation, temporal and modal operators. Cf. p.143.

40) I take this to be a welcome consequence, as it is always problematic to have semantics excessively on knowledge of the world. Cf. Comrie (1976) for relevant discussion, especially p.36.

41) For motivation of this phrase structure for German, see Bayer (1984).

42) See Davidson (1967). A recent revival of Davidson's ideas about the proper representation of action sentences is found in Higginbotham (1982).

43) The analysis presented in this section follows naturally from the theory proposed in Bayer (1982), although the full consequences were not yet exploited there. Very similar ideas are expressed in Jackendoff (1983), especially in chapter IV.

44) For a discussion of this issue, see Heidolph et al. (1981), §3.3.2.2.3, and the literature mentioned there. The discussion of examples like

(i)	<i>Er kocht gut</i>	(ii)	<i>Er ist ein guter Koch</i>
	he cooks well		he is a good cook

in Motsch (1964) shows that the adjective/adverb distinction was a considerable problem for classical transformational grammar. As the clumsiness of the categorial syntax in Bayer (1982) shows, it is a problem for non-autonomous syntax in general.

45) This is a simplification. In fact, coindexation is restricted here. According to Williams (1980), inside the VP only the θ -position THEME is eligible. This rules out:

- (i) John [_{VP} gave Bill_i the dog [PRO_i dead]]

German data suggest, however, that a somewhat different account is needed. Notice that *folgen* ('follow') and *lauschen* ('listen to') subcategorize for Dative, while the semantically related prefix verbs *verfolgen* ('pursue', 'prosecute') and *belauschen* ('spy out') subcategorize for Accusative. It turns out that generally the Dative-NP cannot function as a controller of PRO, although the θ -roles of the Dative- and the Accusative-NPs seem to be approximately the same:

- (ii) a. **Wir folgten ihm_i [PRO_i nackt]*
 we followed him_i naked
 (dat.)
 b. *Wir verfolgten ihn_i [PRO_i nackt]*
 we prosecuted him_i naked
 (acc.)
- (iii) a. **Wir lauschten ihm_i [PRO_i betrunken]*
 we listened (to) him_i drunk
 (dat.)
 b. *Wir belauschten ihn_i [PRO_i betrunken]*
 we spied (on) him_i drunk
 (acc.)

46) I assume the same analysis for [-ev]-expressions. In the structurally identical example

- (i) *der Kellner_{VP} den Wirt_i [_{XP} PRO intensiv] [_V haßte]*
 the waiter the innkeeper intensively [-ev] hated

the [-ev]-verb *hassen* ('hate') serves as a controller of PRO. What we predict, however, is that the predicate following PRO must not be a manner adverb in (i). Since hate may come in different degrees, a degree word is appropriate. In cases like *own*, most adverbs seem to be excluded for semantic reasons.

47) The finite verb needs to be separated from the rest of the verbal complex, since German is a V-second language, i.e. the finite verb moves to COMP in main clauses. Other X-projections from the VP can be moved into the so-called "Vorfeld", e.g.

- (i) *Bringen_i [_{COMP} mußte]_S der Kellner_{VP} die Suppe*
 bring must the waiter the soup
{[{XP} PRO schnell] [_i t]_j}
 quickly
- (ii) _{[_{XP} PRO schnell] [_i t]_j} *bringen_i [_{COMP} mußte]_S der Kellner*
 quickly bring must the waiter
[{VP} die Suppe t_j]
 the soup

Thus, there is some external support for the proposed semantic analysis.

48) See Dowty (1979) and Bayer (1982). Notice, however, that languages can vary a great deal with respect to their encoding of the modifier status. As Urs Egli (pers. comm.) noticed, Latin discriminates between *quomodo* (manner) and *qual-* (state), where *qual-* has to agree with either the subject or the object-NP, e.g.

- (i) *Qualis/qualem Julius osculat Lucretiam?*
 (nom.) (acc.) (nom.) kisses (acc.)

It goes without saying that on such a rich morphological basis no ambiguity could arise.

49) Discussions with Tilman Höhle and Rainer Bäuerle helped me to see this point much sharper than I did before.

50) According to Williams' theory, deletion of *be* should improve (95d) considerably. I leave it to the intuitions of the native speakers of English to judge

- (i) ?I made John dead

51) There is some further requirement which says that XP must be "c-subjacent" to NP. Cf. Williams (1980). I want to avoid an introduction of this notion and refer the reader to Williams' text. (Caution is required there, because — contrary to what the text says — XP must be c-subjacent to NP and not the other way round!)

52) The bracketed phrase could as well involve $|_{\text{NFI}}$ -tense]:

- (i) *[PRO jetzt in den Urlaub zu gehen]...*
now in the holiday to go

53) There is no reason in PT to assume a different phrase structure for bare infinitives and for adjuncts. If

- (i) I_i [$_{VP}$ saw John] leave_i
gets ruled out by the Restricted θ -Criterion.
(ii) John_i [$_{VP}$ gave me the book] naked_i
will be too.

54) See, for example, Higginbotham (1982), who argues that (111) should be ruled out on the basis of Binding Theory. According to Higginbotham's individual-event analysis, the object trace t_i remains unbound after raising the (quantified) event-expression in LF:

- (i) [t_i leave]_i he_i was seen t_i
Notice that in the light of quite acceptable German passives like

- (ii) *Er wurde Klavier spielen gehört*
he was piano play heard

Higginbotham's proposal seems to be doubtful. I leave the matter open.

55) Cf. fn.17

56) See Evers (1975) on verb-raising and subsequent work, — especially by Dutch syntacticians.

57) See Bayer (1982) for detailed discussion.

58) This example is drawn from Link (1983).

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APPENDIX

One reviewer of this article thinks that the whole enterprise of linking *how*-sentences to perception reports is flawed because of acceptable examples of *how*-sentences containing pure state verbs:

- (i)
 - a. How does John have so much money?
 - b. How does Exxon own oil in Saudi Arabia?
 - c. How can there be unobservables?
 - d. How do bats know where they are?

One moment of thinking should make obvious that (ia.-d.) do not ask for the manner in which John owns a lot of money, Exxon owns oil in Saudi Arabia etc. What (ia.-d.) mean is rather captured by the following paraphrases:

- (ii)
 - a. How come that John has so much money?
 - b. How come that Exxon owns oil in Saudi Arabia?
 - c. How come that there can be unobservables?
 - d. How come that bats know where they are?

Although it is not trivial to give a convincing descriptive account for the relation between (i) and (ii), the fact that (i) only makes sense in the reading given

in (ii) is another argument in favor of event semantics: As long as the event aspect is introduced by a verb (in this case *come*), *how* and manner adverbs are applicable.