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## Reconciling “possessor” datives and “beneficiary” datives – Towards a unified voice account of dative binding in German<sup>\*</sup>

This paper argues for a neo-Davidsonian voice approach in the spirit of Kratzer (1996, 2003) to the syntax and semantics of dative arguments in German, and against syntactic or lexical theories of possessor raising. The voice approach is developed in some detail for so-called “possessor” datives, and later on extended to “beneficiary” datives. It is argued that, in both cases, the local contribution of the dative argument has to be kept strictly separate from an effect that arises across a distance. Locally, “possessor” and “beneficiary” datives encode (intended) affectees. By way of the compositional process of Variable Identification, which is modelled after, and extends, Kratzer’s (1996) Event Identification, the dative argument co-refers with another argument in the local c-command domain, viz. a possessor in the case of “possessor” datives, and a participant in a purposive predication in the case of “beneficiary” datives. Locality constraints on Variable Identification are reviewed, and it is tentatively concluded that intervening CP boundaries and propositional nouns limit the application of Variable Identification. The costly assumption of a principle like Variable Identification is further justified by its applicability to other voice phenomena, such as the middle voice of Ancient Greek, or reflexivity.

### 1. Introduction: Dative arguments, neo-Davidsonianism and voice

This paper has two main objectives. The first goal is to get closer to an analysis of what all dative arguments in German have in common. The second goal is to characterize the mechanisms behind the syntax and semantics of dative arguments as phenomena belonging to a suitably defined dimension of voice. I use the term ‘voice’ to characterize the linguistic tie-up between the predicate and the arguments/adjuncts of a predication. Following work by Kratzer (1996, 2003) and others I conceive of this tie-up as largely syntactic. On this view, verbs are not voice-derived in the lexicon to acquire special argument structural properties. Instead, voice heads above VP add the syntactic structure and the thematic role information needed to accommodate (further) participants in the linguistic rendering of a state of affairs. This way of implementing voice phenomena may be seen as a specific execution of a neo-Davidsonian program which builds complex predications from the conjunc-

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<sup>\*</sup> It took me a long time to write this paper. More colleagues and friends than I could possibly mention individually have discussed the ideas with me that are laid out in it. I wish to thank them all. Claudia Maienborn and two anonymous reviewers made me start all over again, for good reasons. Joachim Jacobs has been a source of encouragement, and of frank criticism. Daniel Büring, finally, took the time to understand the aim of my project, and helped me set up the abstraction part of the semantics as it is presented in this paper. None of the aforementioned people is responsible for its shortcomings.

tion of several smaller predications that all contribute to the characterization of a single event.

The first – possibly surprising – step in the argument will be to establish so-called “free” datives as the primary objects of investigation and to sort out the datives of true ditransitive verbs as irrelevant to the development of a voice account of dative arguments (§2). §3 constitutes the core of the paper. So-called “possessor” datives are given an analysis which derives their semantic and syntactic behaviour from the inherent properties of an affectee voice head. In spelling out these properties I make recourse to Dowty’s (1991) concept of Proto-Role entailments, and to a suitably generalized version of Kratzer’s (1996) composition principle of Event Identification. A number of locality effects discussed in §4 illustrates the strictly local nature of the involved mechanisms. §5 compares the proposal defended here with other proposals in the literature. “Beneficiary” datives are discussed in §6, and I sketch a way to decompose beneficiary semantics as (intended) affectedness plus purposivity. This paves the way for a treatment of the datives of §3 on a par with “beneficiary” datives. In §7, the middle voice of Ancient Greek and reflexivity are briefly discussed, and I demonstrate that the generalized version of Event Identification introduced in §3, viz. Variable Identification, can be used to account for these phenomena, too, if they are to be given a neo-Davidsonian analysis in Kratzerian terms.

## 2. Redefining “free” datives as the primary object of investigation

Analyses of the syntax and semantics of datives will typically take prototypical ditransitive verbs as a point of departure, such as verbs meaning ‘give’, ‘show’, or ‘tell’. An analysis is developed for some of these verbs and the syntax and semantics of their dative arguments, and then other verbs that may take dative arguments are considered. Verbs that may, but need not take dative arguments thus typically end up having a secondary status in comparison with true ditransitive verbs.

The present study adopts the exact opposite as its research strategy. Free or optional dative arguments are considered basic for the argumentation, and obligatory dative arguments enter the perspective only secondarily. In fact, the present paper concentrates entirely on structures with dative arguments that have predictable and grammatical counterparts without dative arguments. How can such a step be justified?

The basic tenet of the proposal defended below is that what licenses a dative argument in a sentence is a voice phenomenon and is therefore akin to passivization, middle voice formation in Ancient Greek, and even reflexivization. This view will be spelled out and substantiated in some detail in the remainder of this paper.

If the licensing of datives is to be analyzed as a voice phenomenon, the research strategy should be in accordance with this basic assumption. When investigating voice phenomena, linguists will start out from structures that display the voice contrast under scrutiny. Passive structures, for instance, are compared with active structures, and an analysis of the principled correspondence between as many active-passive pairs as possible is developed. To be sure, there are some verbs that are only used in the passive, but have no active counterpart.

An English example is *be born*. Such passives are traditionally called ‘deponents’ or ‘*passiva tantum*’ (from Latin *tantum* ‘only’). Similarly, Greek verbs that are only used in the middle voice, but have no active counterpart, are *media tantum*, and an English verb like *behave oneself* is a *reflexivum tantum*. Starting out from a verb like *geben* ‘give’ in an analysis of the German dative should, on the voice view of datives, be just as dispreferred, or even absurd, as starting out from a verb like *be born* if one aims at a principled account of the passive, because *give* is a dative-voice *tantum* verb. Assuming a voice approach to dative arguments in German, I therefore take it to be a licit strategy to set up the system for all and only the free datives of German. §§3–6 constitute first steps in this direction.

### 3. Implementing “possessor” datives

The voice account of dative licensing will be set up for structures in which the referent of the dative argument is, among other things, a possessor. Two examples are provided in (1), and we interpret these examples in such a way that Ede possesses the shin in (1a) and the scalp in (1b) (or that the shin and the scalp are Ede’s body-parts).<sup>1</sup>

- (1) a. Die Paula trat *dem* Ede gegen das Schienbein.  
       the Paula kicked the.DAT Ede against the shin  
       ‘Paula kicked Ede in the shin.’  
    b. *Dem* Ede juckt die Kopfhaut.  
       the.DAT Ede itches the.NOM scalp  
       ‘Ede’s scalp itches.’

It was just stated that ‘Ede possesses the shin [...] and the scalp’ in (1). This is not to be taken to mean that the dative argument as such encodes the possessor relation. Even though analyzing the datives as expressing a relation of possession (of the shin, of the scalp) in sentences like (1) is probably the prevalent option in the literature among researchers of the most diverse theoretical persuasions (cf., e.g., Gallmann 1992, König & Haspelmath 1998, or Wunderlich 1996, 2000), I defend the claim that the dative argument is an affectee in (1a), and an experiencer in (1b). I defer the discussion of diverging proposals to §5; a more precise characterization of the affectee notion and the experiencer notion will be given in §3.3.1.

#### 3.1 The basic idea

As said above, I assume that the dative argument is not itself a possessor argument in (1). How, then, do we reconcile the fact that the dative argument denotes an affectee (cf. (2a))

<sup>1</sup> In (1), definite articles are used preceding the proper names. This is done to make the differences in case marking visible. From now on, only the determinerless proper names of the standard language will be used. Dative arguments will, however, be italicized throughout for better perspicuity.

with the intuition of possession or a part-whole relationship that is clearly felt to hold between the dative referents in (1) and the shin and the scalp, respectively? (2b) sketches a way to do this.

- (2) a. Intuition of affectedness of the dative referent:  
 local effect, induced by a voice head tying an affectee to the encoded eventuality
- b. Intuition of possession/of a part-whole relationship:  
 non-local effect, induced by the dative argument “binding” the possessor variable of the more deeply embedded noun

The major aim of the present larger section (§3) will be to make more precise what “binding” is taken to mean in (2b).<sup>2</sup> I will couch my proposal in a neo-Davidsonian event semantics in the style of Kratzer (1996, 2003). The sub-section to follow will familiarize the reader with Kratzer’s version of event semantics. We will then be able to implement the proposed analysis in §3.3.

### 3.2 Kratzer’s (1996, 2003) neo-Davidsonian event semantics

In a neo-Davidsonian event semantics like Kratzer’s (1996, 2003), verbs are predicates of events, i.e. they take a referential event argument, just as a nominal predicate takes a referential argument. The thematic relations expressed by arguments of the verb and by prepositional phrases may then be conjoined with the basic predication of the event. For instance, a sentence like *Paul is dancing in the ballroom* may, in an event semantics, be paraphrased as ‘There is an event of dancing, and Paul is the agent in this event, and the event takes place in the ballroom’. Kratzer’s project over the past decade has been to tie a special version of a neo-Davidsonian event semantics as closely as possible to syntax. With one exception to be discussed below, arguments are also licensed independently of the verb in the syntax. It is not the verb itself that brings along thematic relations or that projects enough structure to accommodate all arguments of a sentence, but special functional heads which build up structure above VP. Kratzer (1996) has implemented this idea in some detail for what she calls the VoiceP, a thematic role head introducing agent arguments of transitive verbs into the structure right above VP (syntacticians often use Chomsky’s 1995 concept of *little v* instead).

Let us see in more detail how the derivation of the sub-inflectional structure of a transitive predication proceeds in Kratzer’s system. A verb like *wash* will have a lexical entry as in (3), with the predicate ‘wash’ on the right side of the equation meant as an abbreviation of the truth-conditions of eventualities of washing, whatever they may be.

- (3)  $[[wash]] = \lambda x \lambda e. wash(x)(e)$

<sup>2</sup> In the generative literature, Guéron (1985) seems to mark the starting point for a tradition that models “possessor” datives as datives that really “bind” possessor variables on some understanding of the term ‘binding’. More on this proposal and the related one by Vergnaud & Zubizarreta (1992) will be said in §5.3.

(3) means that *wash* takes the internal argument as an argument, and an event argument, but no external argument. If we bind the variables of the verb existentially, we get as a paraphrase: ‘There is an event of washing something’. Note that this lexical entry is, in fact, not at all Davidsonian with respect to the theme argument. A radically Davidsonian implementation would rather provide a lexical entry for *wash* along the lines of (3’).

$$(3') \quad [[wash]] = \lambda e.wash(e)$$

In Kratzer’s implementation of event semantics, internal arguments are the only arguments that may be pre-specified in the lexical entries of verb roots for their thematic involvement into the denoted eventuality. On her view, they must be. The gist of the argument in Kratzer (2003) is as follows: All simple predicates in natural languages must be cumulative. This is taken to be a universal. Stated for thematic role predicates, this comes out as in (4a) (cf. Kratzer 2003, ch. 3: 8), a natural language paraphrase is provided in (4b).

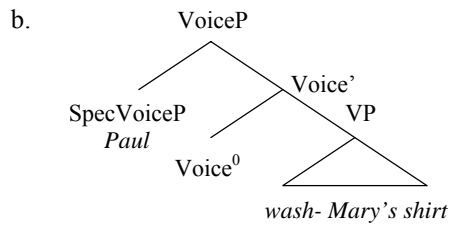
- (4) a.  $\forall e \forall e' \forall x \forall y \forall R_{\langle e, \langle s, t \rangle \rangle} [\text{natural}_{\langle e, \langle s, t \rangle \rangle, t}(R) \& R(x)(e) \& R(y)(e')] \rightarrow R(x+y)(e+e')$   
 b. ‘If an individual stands in a natural (thematic) relation to an eventuality, and a different individual stands in the same relation to a second eventuality, then the sum of the two individuals also stands in that relation to the sum of the two eventualities.’

Kratzer claims that this universal holds true of thematic relations like the agent relation, but not of the putative theme relation. Moreover, she states that it is impossible to find a common core of all the different relations that have traditionally been subsumed under the theme relation. Her example to show that the theme relation is not cumulative involves the planting of a rose bush. Different individuals perform different actions that all add up to the planting of the rose bush. One person digs the hole, another person puts the rose bush in the hole, a third person adds manure, and so on. All these people acting in sub-events of the planting event count as agents in the super-event of planting the rose bush. On the other hand, the referents of the theme arguments of the actions of digging the hole, putting in the rose bush, adding manure, etc. do not add up to a single super theme. The planted rose bush doesn’t consist of the addition of the rose bush, the hole, the manure etc.

If theme arguments display an idiosyncratic behaviour in the semantics, they should also be treated idiosyncratically by the grammar. In our context, being treated idiosyncratically means *not being introduced by a regular thematic role head, but being pre-specified for thematic properties in the lexical entry of the verb root*. Put differently: Only arguments with thematic roles that are in some sense anomalous – e.g., non-cumulative – need to be assigned their thematic role directly by the verb. Many internal arguments are exceptional in this sense, and that is why they are pre-specified in the verb. On this view, the notorious difficulties encountered when generalizing over the thematic roles of internal arguments of verbs like *praise*, *avoid*, *imagine*, *meet* etc. (see Kratzer 2003, ch. 3: 10 or Levin 1999) vanish, because as internal arguments they are exempt from falling under any broad thematic role category.

We can now start with the derivation of a sentence as in (5).

- (5) a. Paul washed Mary’s shirt.



If we apply the denotation of *wash* in (3) to the denotation of the direct object, we get the VP denotation in (6), a function from events to truth values of type  $\langle s, t \rangle$  ( $s$  is Kratzer's type for eventualities, which subsumes events and states).

$$(6) \quad [[VP]] = \lambda e. \text{wash Mary's shirt}(e)$$

Kratzer's denotation of the Voice head is spelled out in (7). It is a function from individuals to a function from events to truth values, i.e. it is of type  $\langle e, \langle s, t \rangle \rangle$ ; it takes an individual and an event and checks whether the individual stands in the agent relation to the event.

$$(7) \quad [[\text{Voice}^0]] = \lambda x \lambda e. \text{Agent}(x)(e)$$

Neither of (6) or (7), the daughter nodes of Voice', is of the right semantic type to combine with the other daughter node by Functional Application. Voice<sup>0</sup> would require a term denoting an individual as its argument, which is not the type that the VP has, and the VP would require an event to combine with. This is not the type of Voice<sup>0</sup>. The way out that Kratzer proposes is Event Identification.<sup>3</sup> Event Identification is a special rule of composition. Its general format is given in (8a), (8b) applies it to our case.

(8) Event Identification (Kratzer 1996: 122)

$$\begin{array}{lll}
 \text{a. } f & g & \Rightarrow h \\
 \langle e, \langle s, t \rangle \rangle & \langle s, t \rangle & \langle e, \langle s, t \rangle \rangle \\
 \text{b. } \lambda x \lambda e. \text{Agent}(x)(e) & \lambda e. \text{wash Mary's shirt}(e) & \lambda x \lambda e. \text{Agent}(x)(e) \ \& \ \text{wash Mary's shirt}(e)
 \end{array}$$

Event Identification delivers an output which is again a function of the type of the voice head. The difference is that the agent role has now been tied to the VP denotation. The event specified by the VP must be the same event in which the agent referent acts as an agent. Admittedly, Event Identification is quite a costly thing; it is a new rule of composition which allows us to do something that Functional Application won't deliver, but at the price of inflating the stock of rules of composition by at least 50 per cent (if we assume Functional Application and Predicate Modification to be established principles of composition). It looks like this is the price of neo-Davidsonianism. On the one hand we want to be able to add arguments to predications that are not pre-specified in the verbal root. On the other hand, the mechanism that delivers this should not look like adverbial modification

<sup>3</sup> Other solutions to similar problems are, for instance, Higginbotham's (1989)  $\theta$ -identification, or Kaufmann & Wunderlich's (1998) Connexion.

with optional PP modifiers, because agent arguments of transitive verbs have a more central status in the grammar than, say, instrumental PP’s. If we want the secondary integration of core arguments into predications to be performed by thematic role heads, we have to pay for their secondary integration, and the price in Kratzer’s system is Event Identification.

The result of combining VP and Voice<sup>0</sup> is given in (9).

(9)  $\lambda x \lambda e. \text{Agent}(x)(e) \ \& \ \text{wash Mary’s shirt}(e)$

This is the right structure to combine with the agent argument *Paul* in SpecVoiceP to yield the structure in (10). This is the denotation of the VoiceP in (5b).

(10)  $\lambda e. \text{Agent}(\text{Paul})(e) \ \& \ \text{wash Mary’s shirt}(e)$

After existential binding of the event argument (above VoiceP), we get the following paraphrase for (10): ‘Paul is the agent in an event of washing Mary’s shirt’. This is where we wanted to arrive at, and we’re done with the argument structure component of the sentence at hand.

### 3.3 Extending Kratzer’s proposal to cover “possessor” datives

In this sub-section we will implement German “possessor” datives into a Kratzerian event semantics. I will make use of the general device to introduce arguments by thematic role or voice heads, but in this case it is not the agent subject which is licensed secondarily right above VP, but rather an affectee argument that is realized as a dative. To get the system to work, we will need a kind of binding mechanism which, in the implementation chosen here, is a function of the affectee voice head.

Before setting out for the analysis let us recapitulate (11), the basic idea of the proposal which was stated as (2) in §2.1.

- (11) a. Intuition of affectedness of the dative referent:  
         local effect, induced by a voice head tying an affectee to the encoded eventuality
- b. Intuition of possession/of a part-whole relationship:  
         non-local effect, induced by the dative argument “binding” the possessor variable of the more deeply embedded noun

#### 3.3.1 Characterizing the affectee role

If we are to make use of a voice head introducing an affectee argument into the structure, we will have to say something about this non-standard kind of thematic involvement. An affectee role has repeatedly been postulated in the literature (e.g. by Gamerschlag 1996 or Huang 2001), but the exact semantic content of this role has, as far as I know, never been spelled out satisfactorily. My generalizations to characterize the affectee role are given in (12), and the notions used in it are taken from Dowty’s (1991) concepts of Proto-Roles as bundles of properties characterizing prototypical agents and patients, respectively. Dowty’s (1991: 572) proto-entailments of agents and patients are listed in (13).

- (12) a. Affectees are consciously/sentiently involved in the eventuality at hand, i.e. they have one property of the Agent Proto-Role.  
 b. Affectees are causally affected by the eventuality at hand, i.e. they have one property of the Patient Proto-Role.
- (13) a. Contributing properties for the Agent Proto-Role:  
 (i) volitional involvement in the event or state  
 (ii) sentience (and/or perception)<sup>4</sup>  
 (iii) causing an event or change of state in another participant  
 (iv) movement (relative to the position of another participant)  
 ((v) exists independently of the event named by the verb)
- b. Contributing properties for the Patient Proto-Role:  
 (i) undergoes change of state  
 (ii) incremental theme  
 (iii) causally affected by another participant  
 (iv) stationary relative to movement of another participant  
 ((v) does not exist independently of the event, or not at all)

(14) is a nice minimal pair that shows the activity of (13a)(ii) beyond any doubt for affectee datives.

- (14) [Paul died first.]  
 a. Dann starb auch seine Mutter.  
 then died also his mother  
 ‘Then his mother died, too.’  
 b. <sup>#</sup>Dann starb *ihm* auch seine Mutter.  
 then died him.DAT also his mother  
 ‘Then his mother died on him, too.’

Paul being dead already, he can’t perceive his mother’s death anymore. This state of affairs is compatible with a DP-internal possessor in (14a), but not with an affectee dative (i.e. the alleged “possessor” dative of large portions of the tradition) in (14b).

### 3.3.2 Deriving a sample denotation

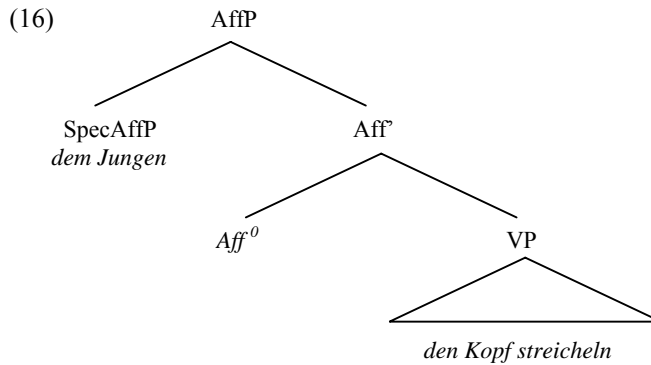
The example that we will use for the implementation of the voice account of “possessor” datives is the bracketed part of (15).

- (15) Sie will [*dem Jungen den Kopf streicheln*].  
 she wants the.DAT boy the head stroke  
 ‘She wants to stroke the boy’s head.’

I will assume a syntax of this constituent as in (16).

<sup>4</sup> I take it that Dowty’s (1991: 572) *sentence* is correctly rendered as *sentience*.





The configuration in (16) is in accordance with most other implementations of dative arguments, the distinguishing factor being that it is the voice head  $Aff^0$  that projects the required structure. Kratzer (1996) presents a case argument for the position of VoiceP right above VP: The agentive voice head does not just introduce the agent argument in the structure, it also checks accusative case in a strictly local configuration right underneath. This mechanism allows her to model the effect of Burzio’s generalization, viz. that the occurrence of accusative case is in some sense tied biconditionally to the presence of an agent argument. A variant of this argument can be used to account for the likewise frequent biconditional tie among accusative and affectee arguments which is traditionally noted in the literature. I will return to the issue at the end of §3.

A possible denotation for the VP in (16) is given in (17).

$$(17) \quad [[\textit{den Kopf streicheln}]] = \lambda e.\textit{stroke } g(5)\text{'s head}(e)$$

This denotation is a predicate of an event, and with existential binding of the event variable it would come out as ‘There is an event of stroking Paul’s head’ if our assignment function maps the index 5 to the individual Paul. I use the  $g(x)$ -notation in (17) for the application of the assignment function to the (arbitrarily chosen) index 5. I could just as well have written  $x$  instead of  $g(5)$ , but, since  $\lambda$ -abstraction will enter the picture shortly, I want to avoid the confusion that may arise from using variables that are interpreted like definite descriptions and variables that are bound by a quantifier side by side.

Why is there a possessor of the head in the denotation of *den Kopf* to begin with? Heads are body-parts, and body-parts are standardly assumed to be relational or functional nouns. This means they will not just have a referential argument (the one for the referent of the body-part), but also another one for the possessor of the body-part. A lexical entry for *Kopf* ‘head’ along these lines is given in (18).<sup>5</sup>

$$(18) \quad [[\textit{Kopf}]] = \lambda x\lambda y.\textit{head}(x) \ \& \ \textit{body-part of}(y)(x)$$

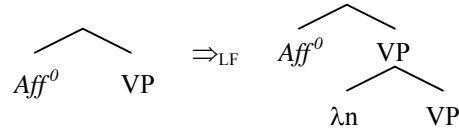
<sup>5</sup> In this paper, I will have nothing to say about the lexical status of the assumed possessor variable in (15)/(17), if it has any.

$Aff^0$  is merged above VP in (16). (19) specifies the contribution of this voice head in terms of semantics and LF-syntax.

(19) Function of  $Aff^0$ :

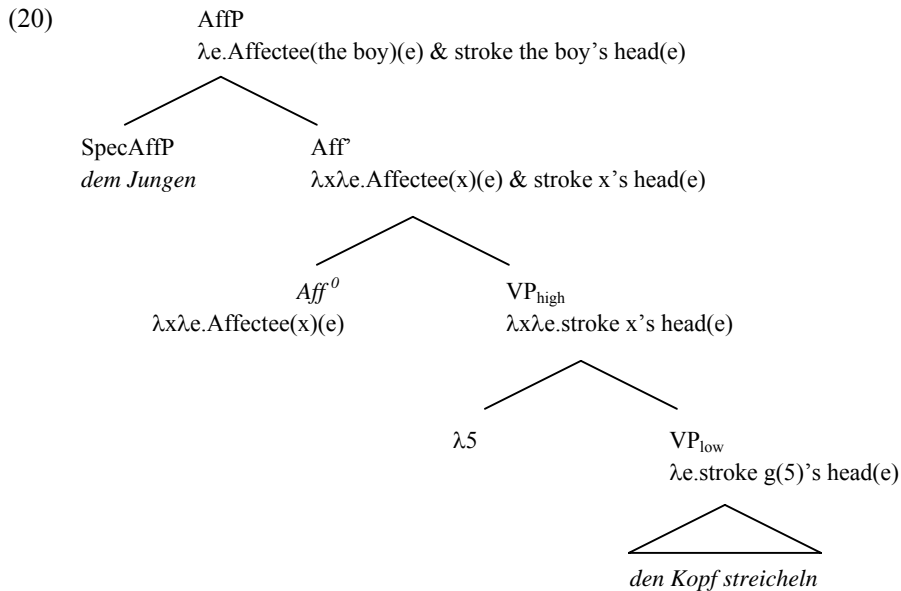
a. Denotation:  $[[Aff^0]] = \lambda x \lambda e. Affectee(x)(e)$

b. Abstraction:



c. Variable Identification:  $f \quad g \quad \Rightarrow \quad h$   
 $\langle e, \langle s, t \rangle \rangle \quad \langle e, \langle s, t \rangle \rangle \quad \langle e, \langle s, t \rangle \rangle$   
 $\quad \quad \quad [ \langle s, t \rangle ]$

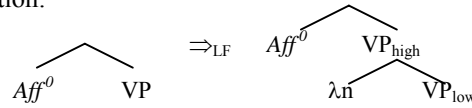
Before we turn to the discussion of the contribution of  $Aff^0$ , (20) gives the complete LF structure and the denotations for each node of the AffP *dem Jungen den Kopf streicheln* ‘stroke the boy’s head’, including the outcome of the abstraction rule (19b).



The first important thing induced by the affectee head is the predicate abstraction in (19b). It is brought about by inserting an abstractor right underneath its merging site by way of an LF-rule. This kind of LF-rule has all the merits and shortcomings of other LF-rules of this kind (cf. the Binder Rule in Buring to appear, ch. 6.4). It allows one to have an argument position in the denotation of a node in the tree where there was none before it has applied. Its theoretical shortcoming is its blatant violation of structure preservation. But this blatant violation is just a consequence of the specific implementation of abstraction by way of an

unpronounced constituent. Let us see in more detail what the proposed abstraction rule (19b), repeated here as (21), amounts to.

(21) Abstraction:



The  $\lambda$ -operator modifies the assignment function  $g$  in such a way that all arguments with index  $n$  are mapped to  $x$ , thereby opening an argument slot in a structure that used to be saturated in that position. In our case, if  $n=5$ , the lower VP-node denotation in (20), which just has an argument slot for the event argument, turns into the higher VP node, which has a second open argument slot for the possessor of the head. What the abstractor really does, then, is change the interpretation function, because the outcome of applying the interpretation function depends on  $g$ , the assignment function. Another way of looking at what the predicate abstractor does in our abstraction rule would be to say that the assignment function is altered the moment the computation reaches the affectee head. In the implementation chosen here, this information is spelled out as a constituent.

We then merge  $\text{Aff}^0$ . This requires a more general variant of Kratzer’s Event Identification, which I have labelled Variable Identification in (19c) and which is repeated here as (22).

(22) Variable Identification

$$\begin{array}{ccc}
 f & g & \Rightarrow h \\
 \langle e, \langle s, t \rangle \rangle & \langle e, \langle s, t \rangle \rangle & \langle e, \langle s, t \rangle \rangle \\
 & [\langle s, t \rangle] & \\
 \lambda x \lambda e. \text{Affectee}(x)(e) & \lambda x \lambda e. \text{stroke } x \text{'s head}(e) & \lambda x \lambda e. \text{Affectee}(x)(e) \ \& \ \text{stroke } x \text{'s head}(e) \\
 & [\lambda e. \text{stroke } g(5) \text{'s head}(e)]_{\text{VP}_{\text{low}}} &
 \end{array}$$

(22) also provides the denotations of the relevant nodes of our example,  $\text{Aff}^0$  ( $f$ ),  $\text{VP}_{\text{high}}$  ( $g$ ) and  $\text{Aff}^*$  ( $h$ ) (the denotation and the type of  $\text{VP}_{\text{low}}$  in brackets are just given for convenience). Variable Identification not only requires the event in which the affectee referent is involved to be the same event as the event described by VP, the affectee referent must also be identical to the referent of the open argument slot of  $\text{VP}_{\text{high}}$ . From a technical perspective, Variable Identification is a yet more powerful and, therefore, costly tool than Event Identification. I still claim that it is a natural mechanism in the context of a neo-Davidsonian event semantics. In such a semantics, it should only be possible to tie thematic roles (and arguments) to a predication that have “something to do” with the VP event. Kratzer’s Event Identification makes sure this is the case, because the event variable of the thematic relation and that of the VP denotation are identified. Variable Identification as in (22) yields an integration of the additional argument that is even tighter. This is so, because whatever will fill the open argument slot of the affectee role will also fill the recently re-opened possessor slot of the internal argument;  $x$  occurs twice in the denotation of  $\text{Aff}^*$  in (20), repeated here as (23).

(23)  $[[\text{Aff}^*]] = \lambda x \lambda e. \text{Affectee}(x)(e) \ \& \ \text{stroke } x \text{'s head}(e)$

I will deliver another argument for Variable Identification in §7.2. It rests on the observation that for the implementation of other voice phenomena like the middle voice of Ancient Greek, or reflexivity, we must make use of a mechanism like Variable Identification anyway if these phenomena are to be stated in a Kratzerian event semantics.

The empirical outcome of abstraction and Variable Identification looks very much like binding, and in the remainder of this paper I will often refer to the combined effect of abstraction and Variable Identification as ‘(dative) binding’.

The denotation of  $\text{Aff}^p$ , then, is of the desired type to combine with the dative argument in  $\text{SpecAffP}$ . The denotation of  $\text{AffP}$ , i.e. the top node of (20), is given again in (24a), and (24b) is a paraphrase for (24a) with existential closure of the event variable.

- (24) a.  $\lambda e. \text{Affectee}(\text{the boy})(e) \ \& \ \text{stroke the boy's head}(e)$   
 b. with existential closure: ‘There is an event in which the boy is an affectee, and the event is an event of stroking the boy’s head.’

This kind of analysis with an  $\text{AffP}$  right above VP will cover all those cases of so-called ‘‘possessor’’ datives in German with a sentient dative referent. The affectedness intuition is taken care of locally by the thematic relation of the affectee which has been characterized as in (12). The intuition of possession is made explicit by the mechanism of abstraction of the possessor position inside the object DP and by Variable Identification. The basic idea underlying the proposal as spelled out in (2) has thus been implemented.

### 3.3.3 Binding into PP complements and relationalized nouns

The same analysis may be given to structures with PP complements as in (25).

- (25) a. Paula trat  $Ede_x$  gegen das Schienbein $_x$ . (cf. (1a))  
 Paula kicked Ede.DAT against the shin  
 ‘Paula kicked Ede in the shin.’  
 b. Er starrte  $ihr_x$  in die Augen $_x$ .  
 he stared her.DAT in the eyes  
 ‘He stared her in the eyes.’  
 c. Paula trat  $Ede_x$  auf den Mantel $_x$ .  
 Paula stepped Ede.DAT on the coat  
 ‘Paul stepped on Ede’s coat.’

The only requirements for the analysis to be applicable to the sentences in (25) are that, (i), there is a relational noun in the structure (marked by an  $x$ -subscript corresponding to an identical index on the dative argument henceforth) and that, (ii), this noun is inside VP. Both requirements are met in (25a) and (25b). What sets (25c) apart is that *Mantel* ‘coat’ is not typically considered a relational noun. Kinship relations and body-parts are the prototypical nominal concepts susceptible of relationality, but clothes are not, or only secondarily so. Inasmuch as clothes are worn on the body, and inasmuch as the clothing DP’s used in affectee dative constructions are almost necessarily interpreted as clothes worn by the dative referent in the situation at hand, it seems legitimate to extend the body-part account to cover clothes. But I would like to go one step further; I claim that all nominal concepts

are polysemous as regards relationality, at least in German. I.e., for every nominal lexical entry as in (26a) there will be a second lexical entry as in (26b).<sup>6</sup>

- (26) a.  $[[noun_I]] = \lambda x.noun_1$ 's truth-conditions(x)  
 b.  $[[noun_I^R]] = \lambda x\lambda y.noun_1$ 's truth-conditions(x) & R-related-to(y)(x)

Whether this polysemy is arrived at by duplicating lexical entries of nouns, or by a general lexical rule, or by type coercion doesn't matter here. The important thing is that for each VP denotation with a non-relational nominal predicate inside the denotation of the internal argument there is a variant with a relational version of the nominal predicate at hand. Since the abstraction rule (19b) is barred from applying vacuously by the general ban on vacuous quantification in natural language (Kratzer 1995), and since abstraction may not be over the referential argument of the relational(ized) nouns (see below), the VP's that are complements of AffP in our construction will always be of the required kind. This requirement is so strong that it will enforce relationality even in those nominal concepts that are prototypical examples of non-relationality or absoluteness, such as *Sonne* 'sun'; cf. (27).

- (27) Paula tritt  $Ede_x$  in die  $Sonne_x$ .  
 Paula steps Ede.DAT in the sun  
 'Ede is affected by Paula stepping in the sun, and the sun is related to Ede in some specific way.'

This example may look absurd, but it serves its purpose quite well. If (27) is to be interpreted, we must accommodate a relation holding between Ede and the sun. *Die Sonne* 'the sun' may be a term used to refer to some body-part of Ede's, or it may be interpreted as the sunlight shining on Ede's body, or as a piece of art created by Ede and destroyed by Paula stepping in it. Many other possibilities are conceivable, but they will all have an argument slot for Ede in the argument structure of *Sonne* 'sun' as used in this sentence.

### 3.3.4 No dative binding of the referential argument of relational nouns

An obvious question to ask with respect to Variable Identification and the abstraction rule is why they always target the possessor variable of relational nouns, but never the referential argument. Put differently, why do we never get sentences like (28a) which are interpreted as (28b)?

- (28) a. Man verhaftete  $Ede_x$  den  $Sohn_x$ .  
 one arrested Ede.DAT the son  
 'They arrested Ede's son, and Ede was affected by this.'  
 b. 'They arrested Ede, Ede being somebody's son, and Ede was affected by this.'

<sup>6</sup> Cf. the same idea in Vergnaud & Zubizarreta (1992: 597).

If the variable of the referential argument of the relational noun *Sohn* ‘son’ were identified with the affectee variable, the dative argument and the internal argument would refer to the same entity, and the possessor variable of *Sohn* ‘son’ would have to be taken care of by some other mechanism. The interpretation would thus be the same as that of the German counterpart of (the bad sentence) ‘They arrested Ede on himself (i.e., on Ede)’. I claim that this interpretation, i.e. the application of Variable Identification to the referential argument of the relational noun, is barred by the local part of whatever lies behind Binding Principle C: R-expressions must be free everywhere and, most notably in our context, they must be free in their local clausal domain. Interpretation (28b) for (28a) will then be bad for the same reason that (29) is bad.

- (29) \*Man verhaftete  $Ede_i$   $Ede_i$ .  
 they arrested Ede.DAT Ede  
 intended: ‘They arrested Ede, and Ede was affected by this.’

### 3.3.5 Accounting for unmarked sequences of type ‘DAT > NOM’

Two sentence patterns that may be integrated into the analysis now are given in (30)/(31).

- (30) a.  $Ihm_x$  juckt die  $Kopfhaut_x$ .  
 him.DAT itches the.NOM scalp  
 ‘His scalp itches.’  
 b.  $Ihm_x$  standen die  $Haare_x$  zu Berge vor Schreck.  
 him.DAT stood the.NOM hairs to mountain with fright  
 ‘His hair stood on end with shock.’
- (31)  $Ihm_x$  ist die  $Mutter_x$  gestorben.  
 him.DAT is the.NOM mother died  
 ‘His mother died on him.’

Both sentences in (30) refer to situations with sensations felt, or causing a change of state, in body-parts, and these sensations or changes are perceived by the referents of the dative arguments. (31) is similar, except that the change of state primarily affects a relative of the dative referent, and not a body-part. What is common to these sentences is that the nominative arguments are canonically c-commanded by the dative arguments (cf. Lenerz 1977, Höhle 1982). On our account, this non-standard syntax is expected. In order for the possessor variables of *Kopfhaut* ‘scalp’, *Haare* ‘hairs’ and *Mutter* ‘mother’ to be identified with the affectee variable, they have to be in the structure already. Together with the standard assumption that the sole argument of unaccusatives (the verbs in (30) and (31) are all unaccusatives) are merged as internal arguments, the (morpho-)syntax of these sentences is not a surprise anymore.

One apparent problem remains. The dative arguments in sentences as in (30) are usually classified as experiencers, and not as affectees. I claim that both affectees and experiencers are characterized sufficiently by sentence plus causal affectedness, i.e. they have one Proto-Agent property, and one Proto-Patient property (cf. (12a) above). The only difference is that we’re used to calling this tie-up of properties ‘experiencerhood’ if the respective

referent is the most agentive participant in the situation at hand, and we call it ‘affectee-hood’ if there is a more agentive participant in the situation.

### 3.3.6 The biconditional link between affectee arguments and internal arguments

So far, we have seen almost no empirical evidence to underpin the plausibility of the present proposal. The only empirical fact that has been made to follow from the proposal is the c-command requirement that holds between the dative argument and the possessum DP.

A second argument can be derived from the fact that a well-known descriptive generalization about datives can be explained with the theory defended here. Frequently datives are good only in the presence of a more deeply embedded argument, or other complementational material. A minimal pair displaying the sharpest possible contrast in this area is provided in (32).

- (32) a. Ed hat *ihr<sub>x</sub>* die Wäsche<sub>x</sub> gewaschen.  
 Ed has her.DAT the laundry washed  
 ‘Ed did her laundry for her.’  
 b. Ed hat (*\*ihr*) gewaschen.  
 Ed has her.DAT washed.laundry  
 ‘Ed did the laundry (\*for her).’

The interesting thing about (32) is the following: There is an intransitive German verb *waschen* with the specialized meaning ‘do/wash laundry’ (as used in (32b)). It is synonymous with a VP like *Wäsche waschen* ‘do laundry’ (as in (32a)). The intransitive variant does not license an affectee in the structure, while the transitive variant does.<sup>7</sup> This behaviour is what we expect if Variable Identification is a necessary condition for the integration of an affectee argument into the structure, because only the structure with the relational(ized) noun *Wäsche* ‘laundry’ provides the abstraction rule and Variable Identification with the input needed to apply non-vacuously.

## 4. Locality constraints on affectee-induced Variable Identification

A whole new area of investigation and potential support for our theory opens up if we ask ourselves what locality constraints we expect to hold for the abstraction rule and Variable

<sup>7</sup> It has long been known that structures with direct objects often allow for dative arguments in German, while their intransitive unergative counterparts do not; cf. (*\*jdm.*) *stricken* ‘to knit (\*s.o.)’ vs. (*jdm.*) *Handschuhe stricken* ‘to knit s.o. mittens’. The contrast in (32) is more valuable than other similar contrasts, though. The VO-construction *Wäsche waschen* ‘do laundry’ has the same meaning as the unergative verb *waschen* in its specialized sense, and not just a related meaning. Therefore, we can virtually be sure that it’s not due to some independent difference between the VP’s that the dative argument is good in (32a), but not in (32b).

Identification to apply. The sub-sections to follow present some relevant generalizations that have, to the best of my knowledge, never been stated before in comparable detail.<sup>8</sup>

#### 4.1 No binding into relative clauses

Consider (32a) together with (33).

- (33) Ed hat *ihr<sub>x</sub>* einen Sack, in den die Wäsche<sub>(\*<sub>x</sub>)</sub> reinpasste, gewaschen.  
 Ed has her.DAT a bag in which the laundry fitted washed  
 ‘Ed washed a bag for her that the laundry would fit in.’

In (33), the potentially relational noun *Wäsche* ‘laundry’ (as witnessed by (32a)) is part of a relative clause modifying the internal argument of the matrix clause. However, we don’t get a relational reading of *Wäsche* ‘laundry’ any longer. The laundry may be her laundry, or the laundry she is responsible for, but this is neither entailed nor presupposed. This is tantamount to saying that there is no dative binding across the boundary of a relative clause.<sup>9</sup>

Yet, there is an obvious problem with (33). If dative affectee arguments always have to bind something, and if this bindee can’t be inside the relative clause, what, then, is bound by the dative argument in (33)? We’ll turn to this question in §6. There, it will be argued that datives as in (33) are interpreted as beneficiary datives that bind into a (possibly implicit) purposive PP.

#### 4.2 No binding into *zu*-CP’s

The relative clause of the preceding section was an example of a most finite CP category. Let us now test a less finite one: *zu*-clauses, which correspond to English clauses headed by *to*. To state my argument for *zu*-CPs I will make use of two near-synonymous structures. One of them, the monoclausal one, allows for extra argument binding, while the one involving a CP boundary does not. Turn to (34) to see the contrast.

- (34) a. Walter hat (?*uns<sub>x</sub>*) den Bau<sub>(x)</sub> der Mauer befürwortet.  
 Walter has us.DAT the construction of.the wall supported  
 ‘Walter supported (for us) the construction of the wall (by us).’

<sup>8</sup> There is some discussion in the literature on locality effects found with the binding of inalienable body-part nouns in French (see the discussion and the references in Vergnaud & Zubizarreta 1992: 620), but researchers have, as far as I know, never explored these locality facts in a systematic way. See also Borer & Grodzinsky (1986: 213) for a cursory remark on the locality of dative binding in Hebrew.

<sup>9</sup> One may ask how we can be sure that *Wäsche* ‘laundry’ is relational in (32a), but not in (33). My answer here makes reference to the different justifications for the use of the definite article of *die Wäsche* in (32a) and (33). The definiteness in (32a) is a typical result of bridging (*die Wäsche* ‘the laundry’ is definite because *sie* ‘she’ is definite), whereas the definiteness of *die Wäsche* in (33) must have been clarified in the context. (32a) is a good answer to *What did Ed do for her?* If the same question without further context is answered by (33), this will trigger a need to clarify the definiteness of *die Wäsche*, for instance by asking a second question (*What laundry?*).



- b. Walter hat (\**uns*) befürwortet, den Bau der Mauer durchzuführen.  
 Walter has us.DAT supported the constr. of.the wall to.carry.out  
 ‘Walter recommended (\*for us) to carry out the construction of the wall.’

Despite the slight difference between the translations of the verb *befürworten* in (34), the two German sentences without the dative arguments are very close to being truly synonymous. Still, (34a) tolerates a dative – and the sentence becomes almost impeccable if a PP like *in seinem Gutachten* ‘in his report’ is inserted behind *uns* ‘us.DAT’ – while (34b) is simply ungrammatical with the dative. The parenthesized relational index on *Bau* ‘construction’ indicates where the justification of the dative argument in (34a) comes from. In the semantic representation of the event noun *Bau* ‘construction’, a possessor or agent variable may be bound by the dative, while the same variable may be mapped to some arbitrary referent, or be absent altogether, in the absence of the extra dative. Even though, on the intended reading, the PRO subject of the embedded clause in (34b) would refer to the same entity as the dative argument, the dative argument is ungrammatical. Whatever controlled PRO is, it cannot be the lexical category of the anaphoric element at stake in (34a), and binding into *Bau* ‘construction’ is likewise impossible for the matrix dative. In short, the phenomenon that we’re discussing cannot be a control phenomenon because the variable that is bound by the dative has an anti-PRO distribution.<sup>10</sup>

The set of examples in (35) serves to corroborate the same point.

- (35) a. Ed stellte *uns<sub>x</sub>* den *Bau<sub>(x)</sub>* der Mauer in *Aussicht<sub>x</sub>*.  
 Ed put us.DAT the construction of.the wall in prospect  
 ‘Ed dangled the prospect of constructing the wall before us.’
- b. Ed stellte *uns<sub>x</sub>* in *Aussicht<sub>x</sub>*, den *Bau<sub>(\*x)</sub>* der Mauer durchzuführen.  
 Ed put us.DAT in prospect the construction of.the wall to.perform  
 ‘Ed dangled before us the prospect to perform the construction of the wall.’
- c. Ed stellte *uns<sub>x</sub>* in *Aussicht<sub>x</sub>*, die Mauer zu bauen<sub>(\*x)</sub>.  
 Ed put us.DAT in prospect the wall to construct  
 ‘Ed dangled before us the prospect to construct the wall.’

(35a) with the event noun *Bau* ‘construction’ inside the direct object allows for a reading on which the dative referents are to construct the wall. This is not a necessary interpretation, though (note the parenthesized index on *Bau* ‘construction’). The requirement of Variable Identification is already satisfied by the relational noun *Aussicht* ‘prospect’ of the set phrase *in Aussicht stellen* ‘to dangle the prospect of’, and the relationality of *Bau* ‘construction’ may be taken care of by whatever is available. On one prominent reading of (35a), the da-

<sup>10</sup> The related facts from Hebrew that Landau (1999: 23) discusses do not represent counterevidence to this generalization. On his assumption that “possessor” datives in Hebrew are really raised possessors, there may be an anaphoric link between the trace of a possessor and PRO, and this would also mean there is an anaphoric link between the “possessor” dative and PRO. But the statement of this link presupposes already that the dative argument has raised. On the account argued for here, the dative argument has not raised, and the control link between an (empty) possessor argument and PRO is to be kept separate from the link between the dative argument and the possessor argument.

tive argument binds into it. No such option exists for (35b) or (35c). The intervening clause boundary blocks it. One might object that the impossibility to arrive at an interpretation with the dative referents as the agents in the construction event in these sentences is just due to the fact that *in Aussicht stellen* ‘to dangle the prospect of’, if used in a control construction, is a predicate inducing subject-control, and that this is all there is to the contrast between (35a) on the one hand, and (35b/c) on the other. But if control is a phenomenon which is independent of dative binding – and this seems to be the case – then the inability of the dative to bind across the boundary of the *zu*-CP into the event noun *Bau* ‘construction’ in (35b) remains as a phenomenon to be accounted for independently.

#### 4.3 No binding into participial relative clauses

The infamous centre-embedded participial relative clauses of German probably constitute the least finite kind of subordinate clauses, if they have clausal status at all. They, too, don’t allow for dative binding into them.

- (36) Ed hat *ihr<sub>x</sub>* einen [die *Wäsche<sub>(\*x)</sub>* fassenden] Sack gewaschen.  
 Ed has her.DAT a the laundry accomodatingbag washed  
 ‘Ed washed a bag for her that the laundry would fit in.’

The intuitions for (36) are the same as for (33). The laundry may be her laundry, or the laundry she is responsible for, but this is neither asserted nor presupposed in (36), and the use of the definite article with *Wäsche* ‘laundry’ may only be justified contextually, but not by way of bridging.

Taking together the evidence from §§4.1 through 4.3, it seems safe to say that dative binding may not be across CP boundaries, however deficient their bundle of finiteness features may be. Let us now turn to the binding possibilities of datives within their host clauses.

#### 4.3 Binding across relational and event nouns

Relational nouns and event nouns are transparent for dative binding. Examples are given in (37).

- (37) a. Binding across the relational noun *Papiere* ‘personal documents’  
 Man zerriss *dem Jungen<sub>x</sub>* die Papiere der Mutter<sub>x</sub>.  
 one tore.apart the.DAT boy the documents of.the mother  
 ‘They tore apart his mother’s documents on the boy.’
- b. binding across the event noun *Auszahlung* ‘payment’  
 Man verweigerte *ihm<sub>x</sub>* die Auszahlung des Lohns<sub>x</sub>.  
 one denied him.DAT the payment of.the wages  
 ‘They denied him the payment of his wages.’
- c. binding across both an event noun and a relational noun  
 Man verweigerte *ihm<sub>x</sub>* die Auszahlung des Lohns der Mutter<sub>x</sub>.  
 one denied him.DAT the payment of.the wages of.the mother  
 ‘They denied him the payment of his mother’s wages.’

The indexed nouns in (37) easily receive a relational interpretation with their variables bound by the dative arguments, and along the lines of the definiteness argument given in fn. 9 the definite articles accompanying those nouns are proof of this. Note in passing that *Lohns* ‘wages.GEN’ in (37c) is just as relational as in (37b), but its possessor variable is not bound by the extra argument, but by the DP *der Mutter* ‘of the mother’ which, in turn, hosts the variable targeted by dative binding.

#### 4.4 No binding across propositional nouns

The following example requires a context in which a comedian needs the approval of some censorship board for his performance. The performer is denied the requisite permission for one particular joke, namely the one about the wages.

- (38) Man verweigerte *ihm<sub>x</sub>* den Witz über den Lohn<sub>(\*x)</sub>.  
 one denied him.DAT the joke about the wages  
 ‘They denied him the joke about the wages.’

There is no dative binding from the dative argument into *Lohn* ‘wages’ in (38). The sentence has no prominent reading which has it that the wages are the performer’s wages. If the wages are interpreted to be the performer’s, this is not due to binding, but to whatever licenses the use of the definite article of *den Lohn* ‘the wages’ in (38). This is in sharp contrast with the examples in (37), especially since the number of DP nodes crossed by dative binding is bigger in (37) than it would be in (38).

The same effect as in (38) obtains with other propositional nouns like *Feststellung* ‘statement’ or *Äußerung* ‘statement’. In other contexts, nouns like *Gerücht* ‘rumour’, *Erzählung* ‘story’ or *Nachricht* ‘news’ lead to the same result.

#### 4.5 Generalizing over the locality constraints on dative binding

Table 1 presents a summary of the discussion of locality phenomena with dative binders.

Binding possible...	Binding impossible...
...into direct objects	...into finite relative clauses
...into PP complements	...into participial modifiers
...across relational nouns	...into <i>zu</i> -clauses
...across event nouns	...across propositional nouns

Table 1: Binding options for datives

The left column of Table 1 allows for the generalization that dative binding into the internal DP and PP arguments of verbs is probably entirely unconstrained as long as no propositional noun intervenes. It is more difficult to generalize over the right column. Disregarding the propositional nouns for a moment, one may wish to subsume relative clauses and *zu*-clauses under a more general CP category. This may be the right generalization, but to maintain it we would have to be sure that participial modifiers as in (36) really have CP status. The bigger problem for the right column seems to be the following: On no plausible

analysis of the syntax going along with propositional nouns would one consider a phrase like *joke about the wages*, or its German counterpart as in (38), to contain a CP boundary. We are thus left with at least two possibilities. We might say that at the present level of generality a disjunction is the best we can state: Dative binding crosses neither CP boundaries, nor propositional nouns. Another possibility would be to say that there is some syntactic or semantic notion that allows us to generalize over the right column of Table 1, but that specific syntactic nodes are not the right kind of category to look at. The concept with the larger descriptive and explanatory potential may turn out to be that of phases as hypothesized by Chomsky over the past few years (cf. Chomsky 1999). One tempting thing about applying the notion of phases is that, on one reading of the term, phases are characterized as constituents with a propositional value (irrespective of illocutionary force). All categories in the right column of Table 1 may be argued to be propositional. An obvious problem is that event nouns, which are arguably propositional, pattern with the non-propositional categories of the left column. There is one more attractive fact about the phase concept. Recall from (21) and (22) in §3 above that abstraction and Variable Identification lie at the heart of what we have come to call dative binding. It is part of the phase notion that phases, once they are complete, cannot be reached by such mechanisms, because they are claimed to be treated by the grammar as wholes that cannot be looked into. Thus, if the completion of phases could be shown to coincide with the blocking of dative binding we would have a desirable correlation between syntax and semantics. If I still don't present an analysis in terms of phases here, that's because I feel that neither the descriptive generalizations as summarized in Table 1, nor the phase notion have so far been explicated sufficiently. We should at least be empirically clear about the range of phenomena falling under either the phase notion, or the categories blocking dative binding, to tie one phenomenon to the other. For the time being, I will stick to the weaker claim that no CP boundary may be crossed by dative binding, or, which is the same thing, that affectee-induced abstraction and Variable Identification cannot be performed across CP boundaries.

## 5. Other proposals

To be sure, there are quite a few competing proposals to cover dative binding. I will look at three such research traditions in this section and state why they should probably be dispreferred to the voice account defended here: syntactic possessor raising, lexical possessor "raising", and an alternative conception of dative binding into internal arguments.

### 5.1 Syntactic possessor raising

Syntactic possessor raising analyses assume that dative "possessors" have started out as possessor DP's within a DP lower in the structure. The possessor DP moves out of the possessum DP to a position where it surfaces as a dative argument with the properties of an indirect object. Leaving details of implementation aside, the PF structure of a "possessor" dative sentence in this tradition will look as in (39).

- (39) Paula trat [Ede]<sub>i</sub> auf den *t<sub>i</sub>* Mantel.  
 Paula stepped Ede.DAT on the coat  
 ‘Paula stepped on Ede’s coat.’

This tradition starts with (the little known) Isačenko (1965) and Perlmutter & Postal (1983 [1974]), and has become the prevalent line of argumentation in the literature with truly hundreds of individual contributions dealing with constructions from a wide array of languages. An implementation along these lines for German is Gallmann (1992). I will present two arguments against this kind of implementation.

The first argument has to do with the different kinds of information that a possessor dative DP would have to encode. The possessor information is presupposed in a sentence like (39), which can be shown if such structures are used as protases of conditionals (see (40) below). It is, to the best of my knowledge, an unparalleled fact in itself that a DP argument that behaves like an indirect object should encode a presupposed thematic relation. A concomitant fact renders the assumption of presupposed information being encoded by the dative argument even less desirable. As stated in some detail in §3.3, and as substantiated by example (14), in particular, the dative DP also encodes asserted information, viz. the information of affectedness of the dative referent. As expected, this information is lost in protases of conditionals. The relevant presupposition and the cancellation of the assertion are spelled out in (40b) and (40c), respectively.

- (40) a. Falls Paul *Ede* auf den Mantel tritt, ...  
 if Paul Ede.DAT on the coat steps  
 ‘If Paul steps on Ede’s coat ...’  
 b. presupposition: ‘Ede possesses a coat, and he is wearing it, or is keeping it close to his body in some other way.’  
 c. lost entailment: ‘Ede is consciously involved in an event in which he is causally affected.’

Even if the theta-criterion has been weakened over the past decade, a combination of presupposed and entailed thematic information in a single non-complex DP is, I think, to be avoided if the same facts can be derived in a different way.

The second argument against syntactic possessor raising for dative binding is based on data involving ellipsis. The problem is illustrated by (41).

- (41) Du sollst [die Haare schneiden] wie *ihm* [~~die Haare schneiden~~].  
 you should the hair cut like him.DAT the hair cut  
 ‘You should cut the hair the way you cut his.’  
 (lit.: ‘You should cut the hair like him.DAT.’)

(41) is natural in a context in which a hair-dresser advises her apprentice to cut a customer’s hair in a specific way, namely in the way another customer’s (*ihm* ‘him.DAT’ in (41)) hair has previously been cut. In a setting with the customer and the apprentice standing in the customer’s back it is natural to phrase the advice without a dative argument in the first half of the sentence. If we concede that some ellipsis of the kind depicted in (41) is relevant, possessor raising analyses run into problems. The elided VP and the pronounced

VP ought to be identical in every important respect, but for the possessor raising analysis to go through, the elided VP would have to contain a possessor trace, while the pronounced one does not. The proposal made in §3.3 does not have this problem. Predicate abstraction enters the picture only above VP, and therefore the two VP's in (41) are fully identical as such. The ellipsis problem will probably persist if one adopts the copy theory of movement (Chomsky 1995). In the second predication the higher copy would be pronounced, while no possessor at all would be pronounced in the first predication. It seems to be a basic property of movement chains, though, that at least one member of the chain should be pronounced.

Even if the copy-theory of movement could somehow be used to remedy the ellipsis problem, the presupposition-plus-entailment problem would persist, and I take that problem to be serious enough to at least pose the question of what should be considered the null hypothesis: the raising analysis with its non-standard presuppositional and assertive behaviour of a DP argument, or the high-initial-merge hypothesis defended here. I think the heavier burden of proof lies with the raising accounts.

### 5.2 Lexical possessor “raising”

Another possibility to account for the intuition of possession tied to many sentences with dative arguments is to write the semantics of possession into the lexical information of a derived verb. Wunderlich (1996, 2000) is a proponent of such an analysis, and his entry for a (derived) verb which takes a possessor dative is given in (42).

- (42) a. Sie wusch ihm die FüÙe.  
 she washed him.DAT the feet  
 ‘She washed his feet.’  
 b.  $\lambda y \lambda z \lambda x \lambda s \{ \text{WASH}(x,y) \ \& \ \text{POSS}(z,y) \} (s)$ <sup>11</sup> (Wunderlich 1996: 339)

On Wunderlich’s account, the verb *waschen* ‘wash’ in (42) has been derived to become a ditransitive verb, and its lexical specification states that the referent of the argument introduced above the internal argument possesses the referent of the internal argument. Precisely the same arguments that have been adduced against syntactic possessor raising apply in this case: (i) a lexical entry mingling presupposed and asserted information in the casual way of (42) would require more explication; (ii) the ellipsis problem with (41) holds for the lexicalist approach no less than for the syntactic one, because two different verbal predicates would have to be present in the pronounced and in the elided VP, the former transitive, the latter ditransitive.<sup>12</sup> A third problem arises from the fact that (42b) doesn’t capture the affectedness entailment that was shown to be active in the interpretation of the dative DP.

### 5.3 Vergnaud & Zubizarreta (1992)

Vergnaud & Zubizarreta (1992) present a binding analysis of what they call the ‘Inalienable Construction in French’ as in *Le médecin leur a radiographé l’estomac* ‘(lit.:) The doctor x-

<sup>11</sup> The *s*-variable is Wunderlich’s event argument.

<sup>12</sup> The same arguments may *mutatis mutandis* also be used with respect to Pylkkänen’s (2002) theory of applicatives.

rayed them the stomach.’ Their account stands in the tradition of Kayne (1975) and Guéron (1985), it is conceptually related to Borer & Grodzinsky’s (1986), and among the competing proposals reviewed here it is the one which is most similar to my own proposal. For Vergnaud & Zubizarreta’s account, it is crucial to establish a binding relation between the dative argument and the possessor variable of the internal argument in the inalienable construction. Since, on their account, the normal interpretation of definite articles always leads to a token interpretation for the whole DP while their semantics requires a type denotation in the inalienable construction, they conclude that the definite article in the inalienable construction must be semantically vacuous (an ‘expletive’ in Vergnaud & Zubizarreta’s terminology). Leaving aside the blurry semantic side of the proposal (cf. p. 614, in particular) and the fact that it would not be a trivial task to restate the proposal in Minimalist terms, its most unattractive component seems to me to be the stipulation of polysemy for the definite article. Moreover, the argument based on VP ellipsis put forward in connection with (41) will not allow us to put to use Vergnaud & Zubizarreta’s analysis, at least for German. The problem would, as with the other proposals discussed above, be that the elided structure would differ from the pronounced structure since the feature specifications of the definite articles would differ (standard features vs. empty set of features).

If Vergnaud & Zubizarreta’s (1992) proposal is similar to the one defended here, how, then, does our proposal escape the problem with VP ellipsis again? As stated in §5.1, the crucial factor is the high position right below  $Aff^0$  where the predicate abstractor enters the structure. There is no variable to bind or identify within VP and no other difference, either, as long as the abstractor above VP does not abstract it. What may have seemed like a haphazard stipulation to some readers when first introduced in §3.3 thus turns out to be a decisive empirical advantage over competing theories.

## 6. Towards an implementation of “beneficiary” datives

If it can be shown that other phenomena that are beyond the reach of possessor raising analyses can also be subsumed under the dative voice hypothesis, we will have one more argument for the present proposal. In this section, I will aim at showing that so-called “beneficiary” datives may be given an analysis along very similar lines. Even though I will only give a sketch of an analysis, it will become clear that such an implementation would be highly desirable. Its major advantages will be that the thematic relation ‘beneficiary’ will be reduced to other more basic notions and that we are thereby getting closer to the aim of understanding dative DP’s as a natural class in syntax and semantics.

### 6.1 Reinterpreting beneficiary semantics as (intended) affectedness plus purposivity

The basic idea for an analysis of beneficiary datives is to say that the beneficiary semantics of many dative DP’s should be restated as (intended) affectedness plus purposivity. Look at (43) to see what is meant by this.

- (43) a. Popeye hat *Olive Oyl<sub>x</sub>* ein Bullauge<sub>x</sub> sauber gewischt.  
 Popeye has Olive Oyl.DAT a porthole clean wiped  
 ‘Popeye wiped off a porthole for Olive Oyl.’
- b. Popeye hat *Olive Oyl<sub>x</sub>* einen Stein<sub>x</sub> sauber gewischt.  
 Popeye has Olive Oyl.DAT a stone clean wiped  
 ‘Popeye wiped off a stone for Olive Oyl.’

We can only make sense of the sentences in (43) if we know what purposes the referents of the internal arguments fulfill for the dative referent Olive Oyl. It is clear what kind of purpose the porthole of (43a) will have for Olive Oyl. She will be able to look through it after it has been cleaned, and it may even be specified in the telic quale of a Pustejovsky-style lexical entry of *Bullauge* ‘porthole’ that portholes are there to look through from inside a ship (Pustejovsky 1995). Since the dative in (43a) must be the binder of the agent argument of a purposive LOOK-THROUGH predication, I use the same indexing convention as for datives binding possessor variables. The lexical entry of *Stein* ‘stone’ arguably doesn’t have a lexically pre-specified purposive entailment; but the way we interpret (43b) demonstrates that in the absence of such a lexical pre-specification we are forced to accommodate one in the presence of a dative. To make sense of (43b) we must accommodate that Olive Oyl is to sit down on the stone, or that she wants to add it to her collection of stones, or some other purpose. The proposal is, then, that affectee-induced Variable Identification may target a variable in the purpose associated with an internal argument.

The natural objection at this point is to ask whether such facts shouldn’t be left to pragmatics. (44) presents an example that seems to me to tip the balance in favour of a syntax-semantics implementation of dative binding into purposes.

- (44) Olive Oyl komponiert *ihrem* *Baby<sub>x</sub>* ein Lied  
 Olive Oyl composes her.DAT baby a song  
 zum Vorsingen<sub>x</sub> bei Omas Geburtstag.  
 to.the perform at granny’s birthday  
 ‘Olive Oyl is composing a song for her baby to perform at granny’s birthday.’

The strongly preferred reading of (44) has the baby perform the song – against our world knowledge that babies cannot perform songs yet. If we were to defend a pragmatic approach to the purposivity of such examples, we would predict that a sentence like (44) should be difficult to make sense of out of context. This is not the case, dative binding simply does its usual grammatical job, and no difficulties in interpretation arise.

It was stated a moment ago that the reading which has the baby perform the song is just strongly preferred. Another scenario might be that the song has been composed by Olive Oyl to act as a kind of lucky charm for her baby, and the song is to be performed by some arbitrary referent at the birthday party. In this scenario, then, the dative does not bind the agent variable of a PERFORM predication. It does, however, bind an argument in the purpose of the song acting as a lucky charm for the baby. Even in the presence of an overt purpose as in (44) dative binding may still be into accommodated purposes. As long as these accommodated purposes are somehow represented in the syntax, the proposal made here can deal with the fact that the prevalent reading of (44) is not enforced without an alternative, but only strongly preferred.



## 6.2 Locality constraints on purposive dative binding

(45) gives us a first hint that the same kind of locality constraints found active with datives binding possessor variables hold for “beneficiary” datives, too.

- (45) Sie komponiert *ihm*<sub>x</sub> ein Lied<sub>x</sub>, vorzusingen bei Omas Geburtstag.  
 she composes him.DAT a song to.perform at granny’s birthday  
 ‘She composes a song for him, which is to be performed at granny’s birthday.’

Even though the gloss looks as if we’re dealing with a reduced relative clause as in English *a song to (be) perform(ed)*, the German construction is clearly less integrated syntactically, and the information conveyed by the second clause is appositive, or conjunctive in the sense that it has the status of an assertion with its own independent discourse update potential. What matters for us is that the dative referent is not at all a likely, let alone preferred candidate for the task of performing the song in (45). Nothing is said about who is to perform the song and there is no preference that the dative referent should perform, and this is what we expect if the comma in (45) marks a CP boundary. Again, to make sense of the dative in this sentence, a purpose that the song may have for the dative referent must be in the background.

It is tempting to make use of the general availability of purposive *zum*-PP’s in German to account for the wide distribution of “beneficiary” datives in German. Here is the sketch of an argument that contrasts the situation in German with that in English. As exemplified in (44), German has a construction that serves as a purposive PP modifier of nominals or VP’s. The make-up of these purposive PP’s is schematized in (46), examples of an adnominal use and of adverbial uses are given in (47a) and (47b), respectively.

- (46) The make-up of purposive *zum*-PP’s:  
*zu*-determiner affix + nominalized infinitive/event noun
- (47) a. ein Schachbrett zum Mitnehmen  
 a chess-board to.the(neuter) take.along  
 ‘a chess-board to take along’
- b. zur Entspannung {musizieren/ein Instrument spielen}  
 to.the(feminine) relaxation make.music/an instrument play  
 ‘make music/play an instrument to relax’

German nominalized infinitives have neuter gender, therefore the purposive preposition *zu* in (47a) takes the neuter (dative) *m*-ending. The event noun *Entspannung* ‘relaxation’ is feminine, therefore *zu* in (47b) takes the feminine (dative) *r*-ending. Moreover, (47a) illustrates the case where a nominal is modified, and (47b) one where an intransitive or a transitive VP is modified. I am not aware of any detailed analyses of this construction, but Grosu’s (2002) Modal Existential *wh*-Constructions certainly belong in the same larger domain. What matters here is that, even though the semantics of this construction probably involves the reference to propositions, its syntactic status is non-finite. Recalling what was said in §4.5 about the binding possibilities of datives, we may say that the dative may bind into *zum*-PP’s because no CP boundary intervenes. If we assume the implicit purposes made responsible for the secondary reading of (44) to be of this syntactic category, the

German facts appear clarified from the syntactic point of view. What remains unclear, though, is in what sense syntactic category (CP) and semantic type (proposition/truth value) may be detached the way stipulated here.

I will have little to say about one obvious problem. The affectedness of the dative referent in sentences like (44) need not be actual, it just has to be intended on the part of the agent. If Paul fixes Mary a drink, the sentence *Paul fixed Mary a drink*, just as its German counterpart, may be true even if Mary never gets to know there is a drink for her, and she doesn't have to be causally affected by the fixing event, either. It will not do to implement the required modalization at the level of the agent only. If we introduce the relevant modalizing predicate at that level, it will be very hard to make the VP event come out true in the real world, but the affectedness in those possible worlds that conform to the agent's intentions. To implement this difference it will probably be necessary to define a thematic role 'intended affectee' with an 'intender' variable as part of the denotation of the affectee head, and this 'intender' variable will have to be bound by the agent argument.

We should now turn to a comparison of the situation in German with that in English. English beneficiary objects as in *She knitted him mittens* are heavily constrained and occur freely only with verbs of creation. At the same time, the structure that is the cognate of German *zum*-PP's has developed into a different, more finite type. Structures like *a book to read* are analyzed as involving (reduced) modalized relative clauses, and Bhatt (2000) analyzes these reduced relatives as full-blown CP's. Even if it they don't have all the finiteness features of non-reduced relative clauses, it is clear beyond doubt that they are more finite than German purposive *zum*-PP's. English thus doesn't make available a structure that purposive dative binding could target. The CP-like status of *to*-relatives blocks dative binding. This doesn't explain yet what makes indirect objects good with verbs of creation in English, but it seems possible to tie the licensing of indirect objects in these cases to a peculiar property of creation verbs, or to the specific lexical endowment of effected objects, or to both. I will leave the argument as sketchy as it is now and use the remaining space to render the notion of Variable Identification more plausible by demonstrating its cross-constructional and cross-linguistic value.

## 7. By way of conclusion: Variable Identification and other voice phenomena

The overall proposal made in this paper is only valuable to the extent that the stipulated mechanism behind dative binding, i.e. Variable Identification, can be shown to be of use in other constructions as well. In particular, it would be useful to find more domains where Variable Identification may be applied, but which, on the other hand, are not susceptible to a raising analysis. One such domain was purposive dative binding. If more such phenomena could be shown to exist, the initially costly assumption of Variable Identification could be rendered a lot more plausible. Two such domains are the middle voice of Ancient Greek, and reflexivity.<sup>13</sup>

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<sup>13</sup> For other cross-linguistic applications, cf. Hole (2004, 2006).

The middle or medium voice in Ancient Greek (not to be confounded with the middle construction in English as in *This book doesn't sell*) is the major non-active voice in the older IE languages. It belongs to the Proto-IE heritage and has a much more central status in the grammar of Ancient Greek than the innovated passive voice. Two examples that differ in important respects are provided in (48b/c). (48a) is the corresponding active sentence.

- |         |   |                   |                   |
|---------|---|-------------------|-------------------|
| (48) a. | louēi<br>wash.3SG.INDICATIVE.PRESENT.ACTIVE<br>'S/He is washing a shirt.'         | khitōna.<br>shirt | (active voice)    |
| b.      | louētai.<br>wash.3SG.INDICATIVE.PRESENT.MIDDLE<br>'S/He is washing her-/himself.' |                   | (middle voice I)  |
| c.      | louētai<br>wash.3SG.INDICATIVE.PRESENT.MIDDLE                                     | khitōna.<br>shirt | (middle voice II) |
|         | 'S/He is washing a shirt for her-/himself.'                                       |                   |                   |

The puzzling thing about the Greek middle voice is that there is no straightforward way to tie the relevant voice generalization to a specific syntactic function or to a specific thematic role. In (48b), there is an identity requirement for the subject referent and the referent of the theme. The theme referent is not expressed in (48b), but the denotation of the predicate before the agent argument is added must be something like  $\lambda x \lambda e. x \text{ washes } x(e)$ . Judging from (48b) alone the middle voice looks like a reflexivizing passive. The picture changes if we turn to (48c). This sentence has a direct object, and the subject referent is identical with the affectee referent. The corresponding predicate before the agent argument merges must be something like  $\lambda x \lambda e. x \text{ washes the shirt}(e) \ \& \ \text{Affectee}(x)(e)$ . In both sentences the subject referent has one more thematic role in the event in addition to ‘agent’, but it is not pre-specified which one. Moreover, the second thematic role is never realized as an argument. The classical generalization in didactic grammars of Ancient Greek is something like the following: ‘The action remains in the sphere of the subject’ (cf., e.g., Palmer 1986: 209 for a formulation in this vein). Variable Identification puts us in a comfortable position to get a handle on this kind of voice, because it is a sufficiently general mechanism to put an identity requirement on two participants in an event. To be sure, there is more to the middle voice in Greek than just this identity requirement, but the identity requirement seems to be a necessary ingredient of the middle voice. The difference with respect to dative binding is that, in the middle voice, Variable Identification need not target (something inside) the internal argument, but may also target indirect objects.

The brief discussion of the middle voice has prepared the ground for a concluding look at reflexivity. The surprising thing in this domain is that a neo-Davidsonian analysis of reflexivity in the spirit of Kratzer leaves us without an obvious predicate-based account of reflexivity as proposed by Reinhart & Reuland (1993). The classical format of reflexive predicates, something like  $\lambda x. x \text{ washes } x$ , is not statable underneath the agentive VoiceP, because the neo-Davidsonian lexical entry of *wash* makes no reference to non-internal arguments. The earliest point where the relevant reflexivity condition may be formulated is the voice head introducing the agent role. But the agentive voice head is also the latest point for the reflexivity requirement to be stated, because the agent argument is merged right

above the voice head. Put differently: To implement reflexivity in a neo-Davidsonian framework in the style of Kratzer (1996, 2003), a mechanism like Variable Identification at the syntactic level of a voice head is needed *at any rate*.

I conclude with the guess that we will most likely be forced to come up with yet more complex mechanisms of Variable Identification beyond Event Identification and Dative-induced Variable Identification in the realm of voice phenomena if we start watching out for them. Identification mechanisms of this kind constitute the neo-Davidsonian tool to capture the fact that a situation is a situation worthwhile to be encoded linguistically to the extent that its participants have as much as possible to do with one another.

## References

- Bhatt, Rajesh (2000): Covert Modality in Non-Finite Contexts. Doctoral dissertation. – University of Pennsylvania.
- Borer, Hagit, Yosef Grodzinsky (1986): “Syntactic cliticization and lexical cliticization: The case of Hebrew dative clitics.” – In: Hagit Borer (ed.): *Syntax and Semantics*. Vol. 19, 175 – 217. New York: Academic Press.
- Büring, Daniel (to appear): *The Syntax and Semantics of Binding Theory*. – Cambridge: Cambridge University Press.
- Chomsky, Noam (1995): *The Minimalist Program*. – Cambridge, MA: MIT Press.
- (1999): “Derivation by phase.” – MIT Occasional Papers in Linguistics 18. Boston, MA: MIT.
- Dowty, David (1991): “Thematic proto-roles and argument selection.” – In: *Language* 67, 547 – 619.
- Gallmann, Peter (1992): “Dativanhebung?” – In: *Groninger Arbeiten zur Germanistischen Linguistik* 5, 92 – 122.
- Gamerschlag, Thomas (1996): “Kasus, Alternationen und Argumentlinking im Japanischen”. *Arbeitspapiere des Sonderforschungsbereichs 282 ‘Theorie des Lexikons’* 80. Universität Düsseldorf.
- Grosu, Alexander (2002): “The syntax-semantics of Modal Existential wh Constructions.” Ms. – University of Tel-Aviv.
- Guéron, Jacqueline (1985): “Inalienable possession, PRO-inclusion and lexical chains.” – In: Jacqueline Guéron, Hans-Georg Obenauer, Jean-Yves Pollock (eds.): *Grammatical Representation*, 43 – 86. Dordrecht: Foris.
- Higginbotham, James (1989): “Elucidations of meaning.” – In: *Linguistics & Philosophy*, 465 – 517.
- Höhle, Tilman (1982): “Explikation für ‘normale Betonung’ und ‘normale Wortstellung’.” – In: Werner Abraham (ed.): *Satzglieder im Deutschen. Vorschläge zu ihrer syntaktischen, semantischen und pragmatischen Fundierung*, 75 – 153. Tübingen: Narr.
- Hole, Daniel (2004): “Extra argumentality – A binding account of ‘possessor raising’ in German, English and Mandarin.” – In: Ji-yung Kim, Yuri A. Lander, Barbara H. Partee (eds.): *Possessives and Beyond: Semantics and Syntax*. Amherst, MA: GSLA, 365 – 283.
- (2006): “Extra argumentality – affectees, landmarks, and voice.” – In: Daniel Hole, Peter Siemund (eds.): *Operations on Argument Structure (Linguistics 44(2))*, 383 – 424.
- Huang, C.-T. James (2001): “Chinese passives in comparative perspective.” – In: *Tsing Hua Journal of Chinese Studies* 29, 423 – 509.
- Isačenko, Alexander V. (1965): “Das syntaktische Verhältnis der Bezeichnungen von Körperteilen im Deutschen.” – In: *Studia Grammatica* V, 7 – 27.

- Kaufmann, Ingrid, Dieter Wunderlich (1998): “Cross-linguistic patterns of resultatives.” *Arbeitspapiere des Sonderforschungsbereichs 282 “Theorie des Lexikons”* 109. – Universität Düsseldorf.
- Kayne, Richard S. (1975): *French Syntax. The Transformational Cycle*. Cambridge, MA: MIT Press.
- König, Ekkehard, Martin Haspelmath (1998): ‘Les constructions à possesseur externe dans les langues d’Europe’. – In: Jack Feuillet (ed.): *Actance et Valence dans les Langues de l’Europe*, 525 – 606. Berlin: Mouton de Gruyter.
- Kratzer, Angelika (1995): “Stage-level and individual-level predicates as inherent generics.” – In: Gregory N. Carlson, Francis Jeffry Pelletier (eds.). *The Generic Book*, 125 – 175. Chicago: Chicago University Press.
- (1996): “Severing the external argument from its verb.” – In: Johan Rooryck, Lauri Zaring (eds.): *Phrase Structure and the Lexicon*, 109 – 137. Dordrecht: Kluwer.
- (2003): “The event argument and the semantics of verbs.” Ms. University of Massachusetts at Amherst. [Downloadable at <http://semanticsarchive.net/Archive/GU1NWM4Z/> ]
- Landau, Idan (1999): “Possessor raising and the structure of VP.” – In: *Lingua* 107, 1 – 37.
- Lenerz, Jürgen (1977): *Zur Abfolge nominaler Satzglieder im Deutschen*. Tübingen: Narr.
- Levin, Beth (1999) “Objecthood: An event structure perspective” – In: *Proceedings of CLS 35. Vol 1: The Main Session*, 223 – 247. Chicago, IL: University of Chicago Press.
- Palmer, Leonard R. (1986): *Die griechische Sprache. Grundzüge der Sprachgeschichte und der historisch-vergleichenden Grammatik*. – Innsbruck: Institut für Sprachwissenschaft.
- Perlmutter, David, Paul Postal (1983 [1974]): “Towards a universal characterization of passivization.” – In: David Perlmutter (ed.): *Studies in Relational Grammar 1*, 3 – 29. Chicago, IL: University of Chicago Press.
- Pustejovsky, James (1995): *The Generative Lexicon*. Cambridge, MA: MIT Press.
- Pylkkänen, Liina (2002): *Introducing Arguments*. Doctoral dissertation. MIT, Boston, MA.
- Reinhart, Tanya, Eric Reuland (1993): “Reflexivity.” – In: *Linguistic Inquiry* 24, 657 – 720.
- Vergnaud, Jean-Roger, Maria-Luisa Zubizarreta (1992): “The definite determiner and the Inalienable Constructions in French and English.” – In: *Linguistic Inquiry* 23, 595 – 652.
- Wunderlich, Dieter (1996): “dem Freund die Hand auf die Schulter legen.” – In: Gisela Harras, Manfred Bierwisch (eds.): *Wenn die Semantik arbeitet. Klaus Baumgärtner zum 65. Geburtstag*, 331 – 360. Tübingen: Niemeyer.
- (2000): “Predicate composition and argument extension as general options – a study in the interface of semantic and conceptual structure.” – In: Barbara Stiebels, Dieter Wunderlich (eds.): *Lexicon in Focus* (Studia Grammatica 45), 247 – 270. Berlin: Akademie-Verlag.