

1. Introduction

This paper is concerned with German free datives and their peculiar binding behavior.* I argue that free datives are best described in terms of voice. The free dative voice turns out to be very similar to run-of-the-mill cases of reflexivity, which must likewise be modeled as a kind of voice under the theoretical assumptions of Kratzer's (1996) agent severance. The free dative, just like a reflexive antecedent in German, binds a variable in the local tense domain. What is highly peculiar about the free dative voice is the tree-geometrical requirement that goes along with it. The variable that free datives bind must be at the left edge of a clause-mate coargumental possessum phrase or purpose phrase ('Knight Move Binding'). Standard implementations of binding don't include requirements of this kind. The argumentation strives to show that the requirement of Knight Move Binding really exists, and that this kind of binding is a privileged configuration in the grammaticalization of reflexive pronouns crosslinguistically.

The paper delimits the empirical domain of free datives in sects. 2 and 3. Sect. 4 establishes the parallel locality restrictions of dative binding for "possessor" and "beneficiary" datives. Sect. 5 establishes the Knight Move Binding requirement of free datives. Sect. 6 develops the semantic implementation of free dative binding with a large detour via semantic theories of reflexivization. Competing proposals are briefly discussed in sect. 7. Sect. 8 concludes the paper.

2. The empirical domain

Free datives in German are those dative arguments of German tensed clauses that may be dropped without any syntactic or semantic residue (see sect. 3 for elaboration). Free datives contribute to sentence meanings in fully predictable ways. I will present my view of the thematic content of structures that license free datives in the context of sect. 6.3. The predictability of the thematic content of free datives forms a sharp contrast with dative arguments that are subcategorized for by verbs or adjectives. With verbs like *geben* 'give', *schicken* 'send', *zeigen* 'show', *gratulieren* 'congratulate', to name just a few verbs with datives that are subcategorized for, the absence of a dative argument leads to highly marked structures, and the thematic contribution of the dative arguments is often hard to pin down, or generalize over (Blume 2000, Maling 2001).

The subclassification of free datives has been a source of debate. Terms frequently used to single out subclasses include "beneficiary dative" or "*dativus (in)commodi*", "possessor dative" or "dative of pertinence", and "*dativus iudicantis*" (dative of the one who judges). Examples are provided in (3).

- (1) *Paul backte Maria einen Kuchen.* (classical "beneficiary" dative/
Paul baked Maria_{DAT} a cake "*dativus commodi*")
'Paul baked Maria a cake.'

* I would like to thank the editors for creating a highly stimulating atmosphere during the Bamberg workshop. I benefitted a lot from comments made by the audience, especially Hans-Martin Gärtner, Dalina Kallulli, Gereon Müller and Florian Schäfer. Thanks are also due to Rajesh Bhatt, Joanna Błaszczak, Daniel Büring, Gisbert Fanselow, Gerson Klumpp, Manfred Krifka, Ewald Lang and Peter-Arnold Mumm for discussing, or commenting on, various details of the thoughts presented in this paper. The insightful comments made by an anonymous reviewer ('Friendly Voice') have likewise had an important impact on the way the views in the final version of this paper are presented. Remaining mistakes are mine.

- (2) *Paul verband Maria den Arm.* (“possessor” dative (sometimes with a beneficiary undertone))
 Paul bandaged Maria_{DAT} the arm
 ≈ ‘Paul bandaged Mary’s arm.’
- (3) *Paul ist die Treppe zu steil.* (“*dativus iudicantis*”)
 Paul_{DAT} is the staircase to steep
 ≈ ‘Paul finds the staircase to steep.’

Maria in (1) can be seen as a beneficiary because the speaker thinks that Paul intended Mary to have a benefit of the cake that Paul made. In (2), Maria is the possessor of the arm that was bandaged, hence the term “possessive” dative. Paul in (3) is the one who makes the judgment that the stairs are too steep, and this is the motivation for the traditional label “*dativus iudicantis*”. “*Dativus iudicantis*” structures always occur with a predication that asserts a degree of a property with respect to some lower or upper threshold of appropriateness.

The range of meanings associated with free datives just enumerated (“beneficiary”, “possessive”, “judging”) has been a theoretical challenge in German linguistics for a long time. We will take a reductionist and categorical stance towards the thematic involvement of free datives in sect. 6.3. The truth-functional import felt to be present in free dative sentences that goes beyond the minimal thematic entailments assumed there will be tied to other parts of the interpreted structure, namely to the phrases that host the variables bound by the respective datives. Like this, we will for instance be able to reconcile the intuition of possession in (2) with components of event perception and beneficiary.

3. The criterion for free datives

The criterion applied here to distinguish free datives from subcategorized-for datives is the complete syntactic and semantic omissibility of free datives. What this means can be illustrated with the minimal pairs in (4) and (5).

- (4) a. *Paul zeigt Touristen die Stadt.*
 Paul shows tourists_{DAT} the town
 ‘Paul shows the town to tourists.’
 b. *Paul zeigt die Stadt.*
 Paul shows the town
 ‘Paul shows the town.’
 c. (4b) **entails** ‘There is someone who is shown the town.’
- (5) a. *Paul kocht Maria eine Bouillon.*
 Paul cooks Maria_{DAT} a broth
 ‘Paul cooks a broth for Mary.’
 b. *Paul kocht eine Bouillon.*
 Paul cooks a broth
 ‘Paul cooks a broth.’
 c. (5b) does **not entail** ‘There is someone who is cooked a broth.’

(4a) is a sentence with a dative that is subcategorized for by the verb used, viz. *zeigen* ‘show’. If the dative is dropped, as in (4b), the meaning changes in certain ways, but, crucially, the fact that someone is shown the town remains stable. Put differently, dropping the dative argument preserves the existential closure of the dative argument of *zeigen* ‘show’.

The situation is different in (5). Here dropping the dative argument goes along with the complete nullification of the dative involvement. Thus, (5b) does not entail that there is someone who is cooked a broth.

(6) states our criterion for free datives.

(6) SYNTACTICO-SEMANTIC DELETION TEST FOR FREE DATIVES

A dative argument D not dependent on a preposition is *free* in a simple positive declarative sentence S of German **iff**

- (i) S without D is grammatical;
- (ii) S without D does not entail that there is an individual
 - (α) which participates in the event described by S and
 - (β) which could be encoded as a dative argument.

Let us return to sentences (2) and (3) from above (repeated here as (7) and (8)), because they are not as easily seen to conform to (6) as, for instance, (5).

- (7) *Paul verband Maria den Arm.* (“possessor” dative (sometimes with a beneficiary undertone))
Paul bandaged Maria_{DAT} the arm
≈ ‘Paul bandaged Mary’s arm.’
- (8) *Paul ist die Treppe zu steil.* (“*dativus iudicantis*”)
Paul_{DAT} is the staircase to steep
≈ ‘Paul finds the staircase to steep.’

If we drop *Maria* in (7), the intuition persists that there is someone who gets his or her arm bandaged. This is, however, a fact about the real world, and not about grammar; arms are typically parts of human bodies. Therefore the intuition of an additional individual participating in the event at hand can be classified as an inference. This conclusion is supported very clearly if we keep the construction stable, but exchange a body-part nominal for a possessum that doesn’t partake in a part-whole structure. This is done in (9).

- (9) *Paul stopfte (Maria) den/ihren Ärmel.*
Paul darned Maria_{DAT} the/her sleeve
‘Paul darned the/her sleeve (for Mary).’

If the dative argument is dropped, the entailed involvement of Mary in the event goes away, too. This holds even if a possessive pronoun is used instead of a definite article in the accusative argument. If the dative is dropped in (9), Mary need not be present in the situation, or be intended by Paul to know what Paul did. These are the thematic entailments free datives may have (cf. sect. 7.3 and Hole 2008: chs. 9, 10). This proves that datives as in (9) are free if (6) is the diagnostic.

For (8), too, it may seem at first that without a dative (cf. (10a)) the existential closure of the dative involvement persists. The important point is that someone who has no personal benefit from a different degree of steepness and who may utter (10a) may not felicitously utter (10b) (= (8)). The context given in (10) makes this clear.

- (10) [Paul is an inexperienced carpenter. He has built a staircase in a new house, but after he’s done he notices that the staircase doesn’t conform to the blueprint. He thinks:]
 - a. *Die Treppe ist zu steil.*
the staircase is too steep
‘The staircase is too steep.’
 - b. [#]*Mir ist die Treppe zu steil.*
me_{DAT} is the staircase to steep
≈ ‘I find the staircase to steep.’

The fact that (10b) is bad in the given context (this is not fully reflected in the approximate translational equivalent) has something to do with the fact that the staircase is too steep if

compared with the sketches, and not with a use that the staircase could have for Paul. We will see in the following section 4 how the tie-up between free datives and purposes can be explicated. What is important here is that the constructional environment of the *dativus iudicantis* alone (the threshold-related assertion of a degree) does not entail the existence of a participant that could be expressed with a free dative.

We may say by way of a summary that datives are free iff they conform to (6), i.e. iff they can be omitted without any syntactic or semantic residue, and that at least the following traditional categories fall under the category label ‘free dative’: “beneficiary” datives (*dativus (in)commodi*), “possessor” datives, and the *dativus iudicantis*. In the remainder of this paper, only “possessor” datives and “beneficiary” datives will be treated. Cf. Hole (2008) for details concerning other types of free datives.

4. Free datives bind a variable in the local tense domain

In this section, I will provide arguments to the effect that (i) free datives are binders and that (ii) they bind a variable in the local tense domain. Just like a subject of a German sentence with a reflexive pronoun binds a reflexive pronoun, i.e. a variable, in the local tense domain, the free dative binds a variable further down in the structure of the local tense domain. Since, in the case of free datives, the variable (and even the larger constituent containing it) is frequently not pronounced, this property is easy to overlook.

4.1 Sloppy identity

The example in (11) shows a sloppy-identity effect for so-called “possessor” datives. (Here and in the following, I use indexes not just on pronominals proper, but also on other elements with anaphoric uses that may be targeted by dative binding – which is to say that each of the indexed elements is assumed to have a variable in its denotation, at least in the uses discussed here. Elements of this kind are prepositions with definite endings (*vom* ‘from the’ as in (11)), bridging definites in general and particles with anaphoric components (*hin* ‘away from perspectival center’, *her* ‘to perspectival center’).)

(11) *Dem Patienten_i platzte ein Stück Gips* $\left. \begin{array}{l} \text{vom}_i \\ \text{von seinem}_i \end{array} \right\}$ *Arm ab, und dem Arzt auch.*
 [the patient]_{DAT} cracked a piece cast $\left. \begin{array}{l} \text{off.the} \\ \text{off its} \end{array} \right\}$ arm off and [the doctor]_{DAT} too

✓ ‘It happened to [the patient]_i that part of the cast on his_i arm came off, and it happened to [the doctor]_j that part of the cast on his_j arm came off, too.’

* ‘It happened to [the patient]_i that part of the cast on his_i arm came off, and it happened to [the doctor]_j that another part of the cast on the arm of [the patient]_i came off.’

Given coindexation as indicated in the first conjunct, the second conjunct has no mishap reading where it happens to the doctor that part of the cast on the arm of the patient came off; this would be a strict identity reading. The only available reading is the one where the doctor, just like the patient, has a cast on his arm, and part of that cast came off, too. This is the sloppy identity pattern indicative of a binding relationship in both conjuncts and, crucially, in the first conjunct. Either dative thus binds a possessor variable in the possessum DP which forms part of *vom/von seinem Arm*. This holds even though possessive pronouns as such are not restricted to bound uses in German. The binding requirement thus stems from the particular configuration in which the pronoun is used in (11). We will argue in sect. 6.3 that the thematic contribution of the dative DP itself is a locative LANDMARK entailment requiring the VP eventuality to be valid relative to the neighborhood region of the dative referent. (Simultaneously,

the dative referent must be able to perceive the VP eventuality, an entailment that we will dub P-EXPERIENCERhood in sect. 7.3).

A parallel sloppy identity effect can be observed with “beneficiary” datives.

- (12) *J.R. mixte Sue-Ellen_i einen Drink $\left\{ \begin{array}{l} \text{zur}_i \\ \text{zu ihrer}_i \end{array} \right\}$ Entspannung, und seiner Mutter auch.*
- J.R. fixed Sue-Ellen_{DAT} a drink $\left\{ \begin{array}{l} \text{for.the} \\ \text{for her} \end{array} \right\}$ relaxation and [his mother]_{DAT} too

lit.: ‘J.R. fixed [Sue-Ellen]_{DAT} a drink for her relaxation, and [his mother]_{DAT}, too.

✓ ‘J.R. fixed Sue-Ellen a drink so that Sue-Ellen could relax, and J.R. fixed his mother a drink so that his mother could relax.’

*‘J.R. fixed Sue-Ellen a drink so that Sue-Ellen could relax, and J.R. fixed his mother a drink so that Sue Ellen could relax.’

If the dative referent and the person to relax are to be identical in the first conjunct, the same must hold for the second conjunct. Both Sue-Ellen and J.R.’s mother are thus to relax. This is the binding construal with both the first variable and the variable in the elided conjunct bound by the local antecedent. This state of affairs differs from a coreference construal:¹ (12) could not be used to describe a situation where Sue-Ellen has been busy serving everybody, and finally J.R. helps her by preparing a drink for her and his mother so that Sue-Ellen alone can relax. This would be a coreference construal where both variables are interpreted as referring to Sue-Ellen. What renders (12) interesting beyond the forced sloppy-identity construal are two things. For one thing, (12) gives us a first impression of how the alleged “beneficiary” thematic involvement of free datives can be reduced. Since the benefactive involvement is spelled out inside the purposive PP in (12), the dative argument itself is free to encode a thematic involvement other than beneficiency, namely P(OTENTIAL)-EXPERIENCERhood, as was the case with the example in (11), where we argued that a LANDMARK semantics was combined with a P-EXPERIENCER semantics. The second noteworthy thing about (12) is that the way its thematic dative involvement is separated from the purposive involvement parallels the case of the “possessor” dative in (11). In (11), too, the purported possessive semantics of the free dative was stated to have its real locus in the position of the bound variable in the PP containing the possessum phrase (*vom/von seinem Arm*). Like this, the dative in (11) was “set free” to encode a LANDMARK (and P-EXPERIENCER) relationship alone. In (12), the beneficiary semantics is encoded in the purposive PP, and the dative is again “set free” to encode a P-EXPERIENCER relationship. This paves the way for a parallel treatment of “possessor” datives and “beneficiary” datives. While it is conceded that possessor raising analyses make the same

¹ Friendly Voice wonders whether there’s a difference between binding on the one hand and coindexation plus c-command on the other. Indeed there is a difference, but it only materializes if it *makes* a difference. In the standard case of identical reference of an antecedent and, say, a possessive pronoun, the ambiguity between binding and co-reference is spurious; the interpretation of *Paul_i phoned his_i father* comes out the same no matter if a binding relationship enforces identical reference of *Paul* and *his* (which means that the pronominal variable is bound), or if *his* just happens to have the same index as its antecedent (which means that there is mere co-reference as mentioned in the main text). Contexts in which an ambiguity between binding/sloppy-identity readings and co-reference/strict-identity readings crops up are precisely those diagnostic contexts that are used in the main text: *Paul_i phoned his_i father, and Mary did, too* has a binding and a co-reference reading (binding: Mary called her own mother; co-reference: Mary called Paul’s father).

In the recent literature, the (unwanted) spuriousness of the ambiguity in simple cases, and its highly relevant non-spuriousness in the ellipsis cases is given an account in terms informativeness: Derive an ambiguity just in case the readings differ in truth-conditions; derive a binding relationship otherwise. This is the content of Büring’s (2005a: 121) Rule *Have Local Binding!* as in (i) (cf. also Reinhart 1983, Heim 1993, Fox 2000).

- (i) For any two NPs α and β , if α could bind β (i.e. if α c-commands β and β is not bound in α ’s c-command domain already), α must bind β , unless that changes the interpretation.

binding predictions that we make for (11) – traces must be bound – the parallel treatment of “possessor” datives and “beneficiary” datives is beyond the reach of such analyses. This constitutes a first clear advantage of our voice-based binding account of free datives.

4.2 Accommodated possessors and beneficiaries

(13) through (15) combine free datives with VP-internal material that includes no pronounced pronoun that could be bound by the dative. Nonetheless, the sentences receive interpretations in which a variable bound by the dative DP forms part of the interpreted structure.

- (13) *Paul trat Maria gegen einen Stein.*
 Paul kicked Maria_{DAT} against a stone
 lit.: ‘Paul kicked Maria_{DAT} against a stone’ (i.e. ‘Paul kicked against a stone of Maria’s, and it wasn’t excluded that Maria noticed that.’)
- (14) *Paul wischte Maria einen Stein sauber.*
 Paul wiped Maria_{DAT} a stone clean
 lit.: ‘Paul wiped Maria_{DAT} a stone clean.’ (i.e. ‘Paul cleaned a stone, and Paul intended Maria to benefit from the stone being clean, and it wasn’t excluded that Maria noticed the eventuality at hand.’)
- (15) *Die Treppe des Mondmoduls war meiner Großmutter zu steil.*
 the stairs of.the.lunar.module was [my grandmother]_{DAT} too steep
 ≈ ‘The stairs of the lunar module were too steep for my grandmother, and she noticed that.’

In (13) the indefiniteness of the prepositional object *einen Stein* ‘a stone’ and the absence of a pronounced possessive pronoun does not preclude its being interpreted as ‘one of her stones’, where *her* is Maria. Maria may own a valuable collection of stones, or she may be responsible for them. Whatever the exact relationship is, it is one that may be encoded by the possessive pronoun *ihrer* ‘her’ in a phrase like *einen ihrer Steine* ‘one of her stones’, and this amounts to a binding relationship between *Maria* and the implicit pronoun.²

Without a context for (14), we don’t know what benefit Maria is to have if the stone is clean as opposed to dirty, but it is implied that (the speaker thought) Paul thought the clean stone will have a benefit for her. Structurally, this may be explicated as *Maria* binding a beneficiary variable in a purpose phrase of the same type as in (12) above, i.e. *zum ...* ‘to her purpose of ...’ (for instance *zum Draufsetzen* ‘for her purpose of sitting down on it’, or *zum Mitnehmen* ‘for her purpose of taking it with her’).

In (15), finally, the steepness of the stairs must be judged by my grandmother in a context in which the stairs, if they hadn’t been so steep, could have fulfilled a purpose of hers. Perhaps she went to a space museum with me, and if the stairs of the lunar module hadn’t been so steep, she could have entered the module with me. Or she sees the lunar module on TV and simply doesn’t like steep stairs, and thus the steepness of the stairs fail to make a positive or beneficial aesthetic impression on her. Crucially, (15) may not be used if my grandmother finds the stairs of the lunar module too steep for the astronauts to get in and out. Put differently, the dative binds the implicit beneficiary variable, and the accommodated purpose may not be that of a person different from the dative referent.

As said before, the binding relationships between datives and unpronounced pronouns illustrated above are predicted by possessor raising analyses the same way as we predict them in our framework. The approach taken here has a larger empirical coverage, though, since

² If a benefit that (not) kicking against the stone has for Maria is in the context, or can be accommodated, (13) may also receive a beneficiary interpretation. In this case the reasoning for (14) applies in this case, too. Or (13) may receive both interpretations at a time. As will become clear below, our theory predicts this range of interpretive options. Thanks to Friendly Voice for pointing out the benefactive interpretive option for (13).

“possessor” datives are, to a certain extent, treated on a par with “beneficiary” datives and “*iudicantis*” datives.

4.3 Locality

The binding requirement of free datives must be satisfied in the local tense domain. This puts dative binding on a par with reflexive binding in German where the binding domain of reflexives is likewise the local tense domain (at least for the SELF reflexive *sich selbst*; cf. Hole 2008: 55-56). The only difference is that German reflexives are subject-oriented, i.e. their antecedent must – with few exception – be a subject, whereas the antecedent in the case of free dative binding is a dative DP.

(16) states the locality constraint of free dative binding, and (17) through (18) deliver data to underpin the constraint. ((16a) is to be read in such a way that the first three omission marks may not represent material that contains another left TP or CP boundary.)

- (16) a. [_{TP} ... [_{DP} free dative]_i ... [_(*CP/TP) ... [_{*(PRON)_i} ...]_{POSSESSUM/PURPOSE}]_j]
 b. Free datives must bind a variable in the local tense domain.

(17) BINDING INTO DEFINITES: BRIDGING IS STRICTLY LOCAL

- a. *Paul hat Paula_i in die_i Suppe gespuckt.*
 Paul has Paula_{DAT} in the soup spat
 ‘Paul spat (Paula_{DAT}) in Paula’s soup.’
 bridging reading construes without effort: binding of the possessor of the soup
- b. *Paul hat Paula_i in die Tasse, [_{CP} in die [_{TP} die*_i Suppe sollte]], gespuckt.*
 Paul has Paula_{DAT} in the bowl in which the soup should spat
 lit.: ‘Paul spat Paula_{DAT} in the bowl in which the soup was supposed to go.’
 bridging reading unavailable: left CP/TP boundaries intervene

(18) BINDING OF OVERT PRONOUNS ACROSS A TP BOUNDARY IS AVAILABLE,
 BUT IT DOESN’T SATISFY THE SPECIFIC DATIVE BINDING REQUIREMENT

- a. *Der Lehrer hat Paula_i ein [_{TP} von ihr_i weggeworfenes] Buch auf den_i Tisch gelegt.*
 the teacher has Paula_{DAT} a by her thrown.away book on the table put
 ‘The teacher put a book thrown away by Paula on Paula’s table (for Paula).’
- b. *Der Lehrer hat Paula_i ein [_{TP} von ihr_i weggeworfenes] Buch hin_i-gelegt.*
 the teacher has Paula_{DAT} a by her thrown.away book deictic.to-put
 ‘The teacher put a book thrown away by Paula to a place related to Paula (for Paula).’

The definite *die Suppe* ‘the soup’ in (17a) is interpreted as a bridging definite with the denotation ‘Paula’s soup’.^{3,4} The bridging requirement vanishes if a T(ense) node intervenes between the dative antecedent and the definite. This is shown in (17b). (18) illustrates the following: if a pronounced pronoun receives a bound interpretation, but is situated across a

³ If the sentence is construed with a pure “beneficiary” reading (a marginal reading of (17a)), then it gets possible to interpret the definite *die Suppe* without possessive implications. This reading may be rendered as ‘Paul spat in the soup, Maria benefitted from this, and she must have been able to perceive this.’ The fact that this marginal reading is available does not undermine my argumentation. In fact, it supports it. In the absence of material forcing a bridging interpretation, it is generally predicted that the accommodation of a purpose/benefit of the dative referent should be possible. This accommodated purpose will then provide the required variable that is bound by the dative.

⁴ The way the sentences in (17) are presented identifies the definite article of the bridging definite as the element which hosts the variable bound by the dative; cf. also the discussion at the beginning of 4.1. Hole (2008) takes a slightly different perspective in that, there, the NP complement of the article hosts the variable. The variant chosen here results in a certain ease of representation, which I am happy to make use of in this paper. The reason why Hole (2008) assumes that the variable sits in the left edge of the NP complement of D (or whatever category complements D) is the following: There are uses of bare relational nouns with an in-built possessor variable like *Father!* ‘my father!’, but there don’t seem to be such uses of bare D⁰ words, i.e. there is no use of a form like *der* (in its pronominal use) to denote ‘someone’s he/someone’s it’.

Tense node with respect to the dative antecedent, then the binding of a local variable is forced alongside. In (18a) the variable is situated in the definite which, thus, is accommodated to denote a bridging definite with the interpretation ‘Paula’s table’. In (18b), the deictic particle *hin* has a variable as part of its denotation. This variable denotes the individual which is not at the perspectival center, but towards which the motion entailed in the sentence is directed at. It must be bound by the dative even if a binding relationship across a T node has independently been established.

A difference between (17) and (18) concerns the presence of bridging effects in (17), and the presence of overt pronouns in (18). The binding of implicit variables in bridging definites is impossible across a T node. This is what the argument drawn from (17) rests upon. In (18) a pronounced variable (a pronoun) can be bound across a T node, but this binding doesn’t fulfil the local binding requirement postulated for free datives. The converging evidence that may be drawn from (17) and (18) is that whatever may get bound by a free dative across a T node, a local variable must always be bound alongside.

5. Knight Move Binding

“Knight Move Binding” (*Rösslsprungbindung* or *Pferdchensprungbindung* in German) is a term to capture the tree-geometric peculiarity of the kind of binding that free datives trigger. The binding requirement of free datives is not satisfied by coargument binding, or by binding of an argument embedded in the complement of an argument, but only *by binding of the possessor variable of a coargument possessum, or by binding of a beneficiary variable of a coargument purpose phrase*. Similar to knights in the chess game, which may only move in a specific oblique way (two squares in any non-diagonal direction, then one to the left or right), a free dative may only bind the possessor or beneficiary on the left branch of a prepositional coargument. If we are allowed to classify the beneficiary variable of a purpose phrase such as *zur/zu ihrer_i Entspannung* on a par with possessor variables we can rephrase the requirement of Knight Move Binding as in (19).

(19) Knight Move Binding

Binding configuration in which the binder targets the possessor variable of a c-commanded coargumental possessum or purpose phrase.

In this section we will first aim to demonstrate that (19) really holds. We will then move on to present crosslinguistic evidence underpinning the privileged status of Knight Move Binding in grammar and grammaticalization. The section concludes with thoughts on how Knight Move Binding should be modeled, but the matter is left unsettled.

5.1 Free datives must enter into a Knight Move Binding relationship

We want to show that the kind of binding that satisfies the binding requirement of free datives is always Knight Move Binding. Whatever else free datives may bind alongside, they must also enter into a configuration of Knight Move Binding.

5.1.1 Configurations with a bound DP-internal complement variable

For the first argument in support of obligatory Knight Move Binding with free datives a case is checked where, instead of the possessor variable, the free dative binds a complement variable inside a complex DP. (20b) is a pertinent example. (20a) is a similar sentence with Knight Move Binding.

- (20) a. *Sie zerstreuten Paul_i [seinen_i Verdacht].*
 they dispelled Paul_{DAT} his suspicion
 lit.: ‘They dispelled Paul_{DAT*i*} his_i suspicion.’

- b. *Sie_k zerstreuten Paul_i (zu seiner_i Entlastung) [ihren_j Verdacht gegen ihn_i].⁵*
 they dispelled Paul_{DAT} to his exoneration their suspicion against him
 lit.: ‘They_k dispelled [Paul_{DAT}]_i their_j suspicion against him_i (to his_i exoneration).’

Paul has a suspicion about someone. His children talk him out of it. This is a context for (20a). Paul is the possessor of his suspicion, the possessor variable gets bound by *Paul*, and no more need be said. In (20b) things are different. Now somebody else, say, the attorneys (with index *j*), have a suspicion against him. *Paul* binds the complement variable of *Verdacht gegen ihn* ‘suspicion against him’. But, as the altogether different interpretation of the sentence shows, this is not enough. Even in the absence of the material in parentheses a benefit must be accommodated that Paul has from the dispelling of the suspicion. If a purpose is accommodated, or if the material in parentheses is pronounced, *Paul* binds the beneficiary inside the purpose phrase. The contrast in (20) thus shows that Knight Move Binding is enforced by the dative. If, as in (20a), the dative binds the possessor variable of *seinen Verdacht*, Knight Move Binding has also been instantiated. Note that (20a), as opposed to (20b), need not imply that Paul is also a beneficiary, i.e. there needn’t be a purpose phrase in it, not even an implicit one. The people who dispell his suspicion may well have bad intentions if they are, say, his prospective heirs who plan to kill him, and the speaker of (20a) may know this. In (20b) the variable in the complement of *Verdacht* ‘suspicion’ is in the wrong position to instantiate Knight Move Binding. Therefore an additional purpose phrase must be added, explicitly or implicitly.

5.1.2 Concurring binding by a question operator

A second argument in support of obligatory Knight Move Binding with free datives may be derived from the patterns that result if either the free dative or the potential binding target is bound by a question operator *Q*. If free dative binding is always Knight Move Binding, then it is predicted that *Q*-bound datives should pose no problem. They are bound by the *Q*-operator, and they may themselves bind their binding target. But, so the prediction goes, if the binding target of the free dative is *Q*-bound already the dative can’t bind it anymore. Such configurations should either lead to ungrammaticality, or force readings with an accommodated binding target. These predictions are borne out.

- (21) a. *Wem_i hat der Lehrer die/seine_i Hand festgehalten?*
 who_{DAT} has the teacher the/his hand held.tight
 lit.: ‘Who_{DAT*i*} did the teacher hold his_i hand?’
 ≈ ‘Whose hand did the teacher hold tight?’
- b. *(*)Wessen Hand hat der Lehrer ihm festgehalten?*
 whose hand has the teacher him_{DAT} held.tight
 lit.: ‘Whose hand did the teacher hold him_{DAT} tight?’
 good as: ‘Whose hand did the teacher hold tight for him?’
- c. *Seine_{i/j} Hand hat der Lehrer ihm_i/wem_i festgehalten./?*
 his hand has the teacher him_{DAT}/who_{DAT} held.tight

⁵ Friendly Voice doubts the availability of the purposive reading if the parenthesis is not there/not pronounced. I assume that the reading becomes available more reliably if more context is delivered, or if fewer pronouns are used. (i) is a variant of (20b) with reduced pronoun use, and more contextual clues:

- (i) *Die Anwälte zerstreuten Paul_i den Verdacht der Staatsanwaltschaft gegen ihn_i.*
 the lawyers dispelled Paul_{DAT} the suspicion of.the attorneys against him
 ‘The lawyers dispelled the attorneys’ suspicion against him_i for Paul_i.’

lit.: ‘The teacher held him_{DAT_i}/who_{DAT_i} his_i hand tight.’
 ≈‘The teacher held his/whose hand tight./?’

(21a) is the case where the dative is Q-bound, and the dative itself binds the possessor variable. (21b) tests the reverse configuration. The dative cannot bind the possessor variable because the possessor variable is Q-bound. Thus no reading parallel to (21a) is available and hence the sentence turns out deviant on the possessive reading.⁶ But it can be rescued if a purposive interpretation is chosen (i.e., if a benefit of holding the hand for Paul is accommodated). In this case *ihm* can bind the possessor/beneficiary variable in the silent purpose phrase. (21c) just serves to show that the surface order of the *wh*-question is irrelevant to the available binding options (in German). The dative binds the possessor variable even though the possessum DP has been topicalized. Therefore, by analogy, it is not the surface order of (21b) that leads to the (potential) ungrammaticality of this sentence.

5.1.3 Bound coarguments

A third argument to demonstrate the Knight Move Binding requirement comes from sentences where a free dative binds the sole c-commanded coargument. It is again predicted that, even though the dative binds something, binding of an implicit variable in a Knight Move position should be detectable. If only a looser binding requirement held true – say: A free dative must bind a variable c-commanded variable within the same tense domain – then coarguments bound by free datives should do the job. But they don’t. The kind of structure that we’re going to test are sentences similar to *Paula trat ihm_i ihn_i/sich_i* ‘Paula kicked him_{DAT} him(self)_{ACC}’.

A certain concern regarding the German reflexive pronoun *sich* must be dealt with before that. Predictions will differ if *sich* is classified as a subject-oriented reflexive or not. If it is a subject-oriented reflexive, then accusative and dative antecedents of *sich* should anyway be marginal at best. Things get complicated by competing SELF-reflexive forms such as *sich selbst* with a binding behavior of their own, and the contrast between stressed and unstressed variants of *sich* (Grewendorf 2003: 106). Therefore, Hole (2008) evades the problem of third person anaphora altogether and uses the binding behavior of pronouns for speech-act participants for his argumentation. Even though the pronouns for first and second person lack distinguished reflexive forms in German and many other continental European languages, it has long been established that they may be interpreted as bound variables (“fake indexicals”; cf. Heim 1994, Kratzer 2008). Just consider the sloppy-identity effect in the line from a pop

⁶ The ungrammaticality of the relevant reading of (21b) is *not* a WCO effect. Generally, German does not display the typical weak crossover effects (cf. the availability of a good reading of (i)); specifically, bound readings are also available in WCO-prone configurations in German if the antecedent is a direct object and the bindee is a possessor in a dative DP which is undoubtedly of the high kind, and not of the low kind as with *aussetzen* ‘expose to’ or *überschreiben* ‘transfer to’ (Haider 2000) (cf. (ii)). In other words, if dative binding is not obstructed, Q-bound accusatives may bind into free dative DPs, thereby bearing witness of the absence of WCO effects in ACC_i–DAT–t_i sequences, too: in (ii) the dative binding requirement is independently satisfied by binding of a beneficiary in an implicit purpose phrase.

- (i) *Wen_i hat sein_i Onkel angerufen?*
 who_{ACC} has [his uncle]_{NOM} phoned
 ‘Who_i was called by his_i uncle?’ (cf. the ungrammaticality of **Who(m)_i did his_i uncle phone?*)
- (ii) *Wen_i hat die Supper-Nanny seinen_i Eltern zurechtgebogen?*
 who_{ACC} has the Supernanny [his_i parents]_{DAT} straightened.out
 ‘Who_i was straightened out by Suppernanny for his_i parents’/lit.: **Who_{ACC_i} has Supernanny [his_i parents]_{DAT} straightened out?*’

Thanks to Friendly Voice (and Martin Salzmann) for bringing up the WCO issue, and to Daniel Buring for first pointing out to me that the behavior of (21b) cannot be reduced to WCO.

song *I've played all my cards, and that's what you've done too*, which means that the addressee has played his own cards, and not those of the speaker.

With this background in mind, consider the sentences in (22) and (23).

- (22) a. *Paul trat mir_i gegen mein_i/das_i Schienbein.*
 Paul kicked me_{DAT} against my/the shin
 'Paul kicked me_{DAT} in the shin.'
- b. *Paul trat mich.*
 Paul kicked me_{ACC}
 'Paul kicked me.'
- (23) [?]*Wie ausgemacht trat mir_i Paul mich_i unter dem Tisch.*
 as agreed.upon kicked me_{DAT} Paul me_{ACC} underthe table
 lit.: 'As we had agreed upon, Paul kicked me_{DAT} me_{ACC} under the table.'/
 'As we had agreed upon, Paul kicked me under the table to my benefit.'

(22a) is sentence with a standard Knight Move Binding configuration. The free dative binds the possessor variable in the directional complement. In (22b) the same verb *treten* 'kick' as in (22a) is used in a different argument frame; it only takes an accusative argument, and no directional complement. In (23) the latter argument frame is used, and a free dative in addition. If the free dative could bind just any c-commanded local coargument and thereby fulfil its binding requirement, (23) should get the interpretation 'As we had agreed upon, Paul kicked me under the table, and I could notice this'. But these truth-conditions are incomplete. If the sentence gets an interpretation at all (cf. the question mark that marks (23) as odd), we must accommodate a purpose that the kicking has for the speaker. Maybe the speaker knows that he frequently says things that, later on, he wishes he hadn't said, and therefore asks his friend to kick him under the table whenever such a situation comes up. What counts for the argument to go through is not so much that sentences like (23) are impeccable – they are not – but that if they receive an interpretation, a beneficiary semantics is invariably added to the sentence meaning. A beneficiary semantics is the only possibility because the binding target inside a normal possessum phrase as in (22a) is not available due to the use of the argument frame as in (22b). Neither (22a) with the dative nor (22b) with the accusative have the benefactive entailment, so it can neither be the dative nor the accusative as such that triggers it. Our analysis which assumes obligatory Knight Move Binding into a silent purpose phrase makes the right prediction in such cases.

5.1.4 Grammaticalization of reflexives

Our last argument in support of Knight Move Binding does not aim at proving that all free datives enter into Knight Move Binding configurations, but notes the crosslinguistically privileged status of Knight Move Binding in the emergence of reflexive pronouns. To be sure, the argument thus derived has no status in the justification of the Knight Move Binding claim made for German free datives. What it lends support to, though, is the idea that the peculiar configuration under scrutiny here is, for whatever reason, a special binding configuration in natural language. As such, the argument subtracts from the exotic concept that is instantiated by Knight Move Binding *as a requirement*.

The argument is easily stated. Next to the combination of a pronominal with an emphatic particle, possessum phrases of the general make-up "possessor pronoun + body-part noun" constitute the most frequent source of reflexive anaphors in the world's languages (Faltz 1985, König and Siemund 2000, Schladt 2000, Gast et al. 2003). Depending on how far the grammaticalization of such body-part reflexives proceeds, the underlying structure may continue to be transparent (cf. Georgian *tavi* 'head'), or develop into opaque affixes (cf. Lamang (Chadic) *-va < ghvà* 'body').

Note that, to the best of my knowledge, not a single reflexive pronoun is attested which derives from a structure “noun + pronominal complement”. I.e., the following types of reflexive pronoun etymologies are unattested: (i) “picture noun + content pronominal” (e.g., ‘picture of PRON’, where PRON denotes the content of the picture, and not its possessor)⁷; (ii) “propositional noun + complement pronominal” (e.g., ‘thought of PRON’, ‘smell of PRON’ where PRON denotes the content of the thought or smell, and not its possessor). Even though the metonymical relationships between the referents of content and complement DPs on the one side and the referents of the complex containing DPs on the other would seem to be of a plausible kind in individual cases, we do not find reflexive pronouns of this sort. Obviously there is something that possessors have, but complements don’t, which allows for the conventionalization of binder-variable relationships with possessors as binding targets. This fact gains additional weight if we recall that the binding of pronouns in the complement of DPs is possible (cf. (20b)). It just doesn’t seem to lead to conventionalized patterns.

This concludes the empirical part of the paper. Sect. 5.2 states that an implementation of the Knight Move Binding requirement remains as a desideratum, and sect. 6 is concerned with modeling the binding requirement of free datives with Knight Move Binding subtracted.

5.2 How to implement the Knight Move Binding requirement?

I can offer no good analysis of the Knight Move Binding restriction. Hole (2008: 166-7) implements the restriction as a presupposition of the voice heads P-EXPERIENCER and LANDMARK. On this analysis, these voice heads have a presupposition which requires the dative argument to have the same referent as the possessor argument of a coargument.⁸ Although the presupposition probably filters out the undesired binding targets, the solution is highly stipulative and *ad hoc*.

If the DPs whose possessor variables are bound by free datives are phases one may be tempted to implement some version of a Phase Impenetrability analysis (Chomsky 2001). However, phases are not known to block binding relationships from without. Moreover, complements of relevant DPs may be bound by datives just like possessors (cf. (20b)). This kind of binding just doesn’t fulfil the binding *requirement* of free datives. These points speak against a phase analysis.

We will leave the matter unresolved here. I hope it has nevertheless become clear that the Knight Move Binding requirement really exists.

6. Implementing the binding requirement

In this section, we will develop the analysis of obligatory binding that is characteristic of free datives. The proposal combines a special binder rule in the spirit of Büring (2005a,b) with other standards of binding implementations along the lines of Heim and Kratzer (1998). The departure from standard binding implementations resulting from the combination and adapta-

⁷ Schladt (2000: 105-7, 110-1) identifies ‘reflection of PRON on water’ as a rare (<5) source concept for reflexives found in Oceania and Finnish. This would constitute a counterexample to our claim. The etymology of Finnish *itse* is, however, slightly different (Rédei 1988: 79-80). *Itse* derives from the Proto-Finnougric word for a person’s shadow and shadow soul. The latter is one of two souls that humans have. It might be argued that the owner of the shadow soul is a possessor in our sense and does not correspond to the content argument of a concept like ‘shadow’. I have not been able to find out, though, whether the meaning ‘shadow soul’ or ‘shadow’ was more basic in Proto-Finnougric. The Finnish case and, more generally, the situation in Finnougric and some Oceanic languages remains to be investigated in more detail.

⁸ The voice heads with this presupposition look as follows (cf. Hole 2008: 167; “ α ” stands for the sister constituent of the voice head after BR-D and PA have applied, “ $x \gg y$ ” symbolizes “ x presupposes y ”).

(i) $[[[P\text{-EXPERIENCER/LANDMARK/AFFECTEE}]] = \lambda x : \forall s . \forall y . [[[\alpha]]^{[i \rightarrow x]}(y)(s) = 1] \rightarrow [\exists z . \exists s' . \exists f_{\langle e, \langle e, \langle s, t \rangle \rangle} \rangle . t_s \cap t_{\text{REF}} \neq \emptyset \ \& \ f(x)(z)(s') = 1 \ \& \ \neg [\exists u_e . \exists v_e . \exists s'' . \exists g_{\langle e, \langle e, \langle s, t \rangle \rangle} \rangle . g(u)(v)(s'') \ \& \ g(u)(v)(s'')] \gg f(x)(y)(s')] . \lambda s'' . \dots x \dots s'' \dots \langle \text{truth-conditions of P-EXPERIENCER/LANDMARK/AFFECTEE} \rangle$

tion of different proposals is rendered necessary by the adoption of Kratzer’s (1996, in prep.) theory of voice.

We will review semantico-syntactic proposals to capture standard reflexive binding in 6.1. Sect. 6.2 is devoted to a discussion of how the mechanisms to arrive at reflexive binding must be revised in a system with agent severance in the tradition of Kratzer (1996). Sect. 6.3 introduces the binding mechanism put forth for free dative binding.

6.1 Reflexive binding with non-severed agent arguments

In its most general and widespread sense, reflexivization means to make sure that, whatever is the referent of a subject argument is also the referent of a local coargument. The result of reflexivization of a transitive predicate like *pinch* is frequently represented as a lambda-calculus term as in (24a). For our implementation we will make use of an event semantics. This requires an additional event argument on the verb, which amounts to an additional layer of schönfinkelization as in (24b). To avoid unnecessary complications, event arguments will only be taken up again in sect. 5.2, where we really need them.

(24) REFLEXIVIZED PREDICATE ‘pinch oneself’

- a. $\lambda x \in D_e . x \text{ pinches } x$
‘the function which maps each individual x from the domain of individuals D_e to 1 (true) if x pinches x , and to 0 (false) otherwise’
- b. $\lambda x \in D_e . \lambda e \in D_s . x \text{ pinches } x(e)$
‘the function which maps each individual x from the domain of individuals D_e to [the function which maps each dynamic event e from the domain of eventualities to 1 (true) if e is a pinching of x by x , and to 0 (false) otherwise]’

Since the argument positions of the pincher and the pinched individual are each filled by the same λ -bound variable, whatever argument this term is applied to will yield truth-conditions requiring that the subject and object referents are identical. In many frameworks, the reflexivized predicate must be arrived at by taking a lexical entry as in (25) as a point of departure.

(25) A STANDARD LEXICAL ENTRY OF THE VERB *pinch*

- $\lambda x \in D_e . \lambda y \in D_e . y \text{ pinches } x$
‘the function which maps each individual x from the domain of individuals D_e to [the function which maps each individual y from the domain of individuals D_e to 1 (true) if y pinches x , and to 0 (false) otherwise]’

There are different ways to arrive at a representation like (24) with (25) as input. A very simple proposal was made by Keenan (1988) (cf. also Heim and Kratzer 1998: 203). If the reflexive “pronoun” is modeled as a predicate which takes the denotation of *pinches* as its argument, then the identification of the subject and object variables may be implemented without anything further ado.⁹

⁹ Here’s a sample derivation that takes us from (25) to (24) with a reflexivizing predicate. Syntactically, this amounts to merging V and the direct object DP. The reflexive “pronoun” is explicated as the reflexivizing function which, after taking the verb as argument, yields the corresponding reflexivized variant as output. The left-hand part of the second line of (i) is the reflexivizing function. The bracketed right-hand part is the argument of the reflexivizing function, i.e. the denotation of *pinches* (cf. (25)). The rule applied is functional application (FA).

(i) $[[himself]]([[pinches]])$
 $= \lambda f \in D_{\langle e, \langle e, t \rangle \rangle} . \lambda x \in D_e . f(x)(x) [\lambda x \in D_e . \lambda y \in D_e . y \text{ pinches } x]$
 $= \lambda x \in D_e . x \text{ pinches } x$

Keenan's (1988) implementation is simple and elegant, but it lacks generality. For instance, the general application of reflexivizing predicates is rendered absurd if the reflexive is deeply embedded. An example would be *Joschka Fischer wrote a book about the long journey to himself*. If the reflexivizing predicate analysis of the reflexive *himself* were put to use here, the required reflexivizing function would have to take the denotations of *to*, *journey*, *long*, *the*, *about*, *book* and *a* as arguments before, finally, *wrote* could be reflexivized (Heim & Kratzer 1998: 204). Reflexivizing predicates may thus be attractive for simple cases of reflexivization, but since they cannot capture each case (at least not in a non-stipulative way), a more general analysis is called for.

Heim and Kratzer (1998) model reflexive binding with quite a few ingredients: (i) the Traces and Pronouns Rule (TPR), (ii) Quantifier Raising (QR), (iii) Predicate Abstraction (PA) and (iv) Binding Principle A (BP-A). TPR is a mechanism that regulates the interpretation of traces and pronouns. Traces and pronouns have a numerical index which is mapped to a referent by the assignment function. The reflexive pronoun *is* a pronoun, therefore its index is mapped to a referent. The derivation in (26) starts at the point where the subject is to enter the computation. If the subject was merged at this point without anything else happening before that – which would be possible without leading to a problem with interpretation – the sentence would simply have different subject and object interpretations. But this would violate BP-A, which must be abided by because the object is a reflexive. What happens instead is that the most local version of QR applies: an indexed trace is created, a bare index above, and the raised DP above the index. The result is that the subject has moved across the newly created index. The QR rule makes sure that the index on the trace and the bare index are identical.

(26) For any assignment a :

- a. $\llbracket \textit{pinches himself}_5 \rrbracket^a = \lambda y . \lambda e . e \text{ is a pinching of } a(5) \text{ by } y$
- b. Combining VP with the trace of the QRed subject (trace and reflexive happen to be coindexed)

$$\llbracket \textit{pinches himself}_5 \rrbracket^a (\llbracket t_5 \rrbracket^a)$$

$$= [\lambda y . \lambda e . e \text{ is a pinching of } a(5) \text{ by } y](a(5))$$

$$= \lambda e . \textit{pinching}(a(5))(e) \ \& \ \textit{Agent}(a(5))(e) \quad \text{[TPR, FA]}$$
- c. Predicate abstraction triggered by the bare index 5 that QR has added

$$\llbracket 5 \ t_5 \ \textit{pinches himself}_5 \rrbracket^a = \lambda x . \llbracket t_5 \ \textit{pinches himself}_5 \rrbracket^{a[5 \rightarrow x]}$$

$$= \lambda x . \lambda e . e \text{ is a pinching of } a[5 \rightarrow x](5) \text{ by } a[5 \rightarrow x](5)$$

$$= \lambda x . \lambda e . e \text{ is a pinching of } x \text{ by } x \quad \text{[PA]}$$
- d. $\llbracket 5 \ t_5 \ \textit{pinches himself}_5 \rrbracket^a (\llbracket \textit{Paul} \rrbracket^a)$

$$= \lambda x . \lambda e . e \text{ is a pinching of } x \text{ by } x(\textit{Paul})$$

$$= \lambda e . e \text{ is a pinching of } \textit{Paul} \text{ by } \textit{Paul} \quad \text{[FA]}$$

(26b) shows how the trace of subject QR and the VP are computed. The next higher node is the bare index created by QR. This configuration triggers PA (by virtue of the input specification for the PA rule)¹⁰: a new λ -bound argument slot is created in the position of the trace

¹⁰ (i) is a representation of PA.

(26c). If the index on the reflexive happens to be the same as the index that triggered PA (as is the case in (26)), then the object argument gets λ -bound in one swoop by the same λ that binds the subject trace. The “coincidence” of identical indexes on the trace and on the reflexive is indirectly forced by BP-A. If the indexes weren’t identical, the reflexive would have no local antecedent and the structure would be filtered out by BP-A.

The richness of Heim and Kratzer’s (1998) implementation is remedied strongly by the fact that all principles and rules that are used are highly general and are put to use independently in many different parts of grammar.

Büring (2005a,b) dispenses with QR for the modeling of reflexivity and uses a variant of PA (his Binder Index Evaluation Rule BIER). BIER, as opposed to PA, is needed because, in Büring’s framework, the introduction of the binder index is done with the help of a special Binder Rule BR which creates no trace like Heim and Kratzer’s QR. BR may freely apply as an LF rule, and its unnecessary use is barred by the ban on vacuous quantification. The regulation of BR by this ban is a consequence of the fact that the output of BR yields a structure that forms the input to BIER, and BIER invariably abstracts a predicate. If no pronominal index gets bound by this abstraction, the ban on vacuous interpretation is not abided by. The details of Büring’s mechanism don’t matter here, what is important for us is that Büring (2005a,b) uses an LF rule (BR) to introduce an index in the structure where Heim and Kratzer use QR. The feature of making use of an LF rule (as in Büring’s proposal) is shared by our implementation in sections 6.2 and 6.3. In other respects, we will follow Heim and Kratzer’s (1998) model.

Now, if there are quite a few proposals to capture the semantics of (reflexive) binding on the market, why don’t we use one of them? The reason is that none of the standards allows for a smooth implementation of reflexivity if Kratzer’s (1996) agent severance is adopted. The problem, and the solution that I propose, is introduced in the following subsection.

6.2 Reflexive binding with severed agent arguments

There are two sides to agent severance, i.e., to giving up the agent argument slot, and its agentive semantics, in the denotation of verb stems. One is syntactic. With the advent of little v in the wake of Chomsky (1995) it becomes possible to merge the agent argument no earlier than in spec,vP . The other side is semantic. I will not go into it here, but there are good reasons to assume that semantic agent severance captures a fact about agent arguments and other non-VP-internal arguments: only non-internal arguments must be additive, while internal ones needn’t. The interested reader is referred to Kratzer (in prep.) or Hole (2008: 28-32).

Lexical entries of “transitive” verbs in an event semantics without argument positions for external arguments look as in (27).

- (27) $\llbracket \textit{pinched} \rrbracket = \lambda x \in D_e . \lambda e \in D_s . e$ is a pinching of x
 ‘the function which maps each individual x from the domain of individuals D_e to [the function which maps each dynamic event e from the domain of eventualities to 1 (true) if e is a pinching of x , and to 0 (false) otherwise]’

(i) For any assignment a :

$$\left[\left[\begin{array}{c} \alpha \\ \beta \quad \gamma \\ | \\ i \end{array} \right] \right]^a = \lambda x \in D . \llbracket \gamma \rrbracket^{a[i \rightarrow x]}$$

When an object argument enters the derivation, this comes out as in (28). The agentive role head v and its the denotation are introduced in (29).

- (28) $\llbracket \textit{pinched Paul} \rrbracket = \llbracket \textit{pinched} \rrbracket(\llbracket \textit{Paul} \rrbracket)$
 $= \lambda x \in D_e . \lambda e \in D_s . e$ is a pinching of $x(\textit{Paul})$
 $= \lambda e \in D_s . e$ is a pinching of \textit{Paul}
 ‘the function which maps each dynamic event e from D_s to 1 (true) if e is a pinching of \textit{Paul} , and to 0 (false) otherwise’
- (29) $\llbracket v_{\textit{agentive}} \rrbracket = \lambda x \in D_e . \lambda e \in D_s . x$ is the agent of e
 ‘the function which maps each individual from the domain of individuals D_e to [the function which maps each dynamic event e from the domain of events D_s to 1 (true) if x is the agent of e , and to 0 (false) otherwise]’

To combine the resulting terms in (28) and (29) at the level of v' requires a special rule of composition: Event Identification (Kratzer 1996: 122). We will not need it in the reflexive applications further down, so I simply illustrate its use here without justifying it. Event Identification is an interpretive principle which allows one to combine the resulting terms of (28) and (29) so as to arrive at (30). (The semantic types are not of the right kind to allow for Functional Application.) The bullet point symbolizes Event Identification. (31) computes the result when an agent argument is merged in \textit{Spec},vP .

- (30) $\llbracket v_{\textit{agentive}} \textit{pinched Paul} \rrbracket = \llbracket v_{\textit{agentive}} \rrbracket \bullet \llbracket \textit{pinched Paul} \rrbracket$
 $= \lambda x \in D_e . \lambda e \in D_s . x$ is the agent of $e \bullet \lambda e \in D_s . e$ is a pinching of \textit{Paul}
 $= \lambda x \in D_e . \lambda e \in D_s . e$ is a pinching of \textit{Paul} & x is the agent of e
- (31) $\llbracket v_{\textit{agentive}} \textit{pinched Paul} \rrbracket(\llbracket \textit{Maria} \rrbracket)$
 $= [\lambda x \in D_e . \lambda e \in D_s . e$ is a pinching of \textit{Paul} & x is the agent of $e](\textit{Maria})$
 $= \lambda e \in D_s . e$ is a pinching of \textit{Paul} & \textit{Maria} is the agent of e

A denotation as in (31) will then serve as input to the computation above vP where aspectual, modal and temporal quantification is added.

If we do a parallel Kratzer-style derivation with a reflexive pronoun in object position we arrive at (32).

- (32) $\llbracket v_{\textit{agentive}} \rrbracket \bullet \llbracket \textit{pinched himself}_i \rrbracket^a$
 $= \lambda x \in D_e . \lambda e \in D_s . x$ is the agent of $e \bullet \lambda e \in D_s . e$ is a pinching of $\llbracket \textit{himself}_i \rrbracket^a$
 $= \lambda x \in D_e . \lambda e \in D_s . e$ is a pinching of $\llbracket \textit{himself}_i \rrbracket^a$ & x is the agent of e

The outcome of (32) is the first point in the derivation where reference to both the subject and the object argument is made in a single λ -term. I.e., given the mechanics of Kratzer’s neo-Davidsonian implementation, this is the earliest point where any reflexivizing mechanism could be executed. Let us check our options at this point one by one.

Heim and Kratzer (1998) and Buring (2005a,b) base their reflexivization mechanism on the co-occurrence of unsaturated agent and object argument slots in the denotation of a single constituent. Therefore their analyses encounter difficulties with a v projection denotation as in (32) with a single λ -bound argument. The only way for Heim & Kratzer (1998) to arrive at a bound reading of the object reflexive would be to apply the resulting function in (32) to the subject, apply QR to the result and rely on BP-A to indirectly force the index on *himself* to be identical to the one introduced by QR.^{11, 12} This solution has, to the best of my

¹¹ Here is such a derivation.

knowledge, never been proposed. It seems to be a viable option in principle, and it would allow one to maintain the idea that it is the nature of the object argument (a reflexive pronoun) in conjunction with BP-A alone that triggers reflexive readings. There is a reason, though, why we don't adopt it as our official implementation of reflexivity. The reason is that we need a different solution for our principal problem, the implementation of dative binding, anyway. Given that the solution just sketched doesn't work there, and given that the voice implementation to be proposed shortly for dative binding is general enough to cover both dative binding and reflexivity (and, in fact, probably all kinds of binding), the voice implementation is given preference.

Keenan's (1988) reflexivizing predicate as discussed in sect. 6.1 (cf. also fn. 9) could only be used after the first two steps of the implementation discussed a moment ago have been performed, i.e. λ -conversion of the subject argument slot, and QR of the subject. But if QR is assumed anyway, applying a reflexivizing predicate with BP-A in place would be a baroque solution. Put differently, QR and reflexivizing predicates are tools to solve similar problems, so an implementation should not make use of both at a time for a single binding relationship.

The solution proposed here is to encapsulate something akin to the QR requirement in the voice head. I.e., we can define a reflexive variant of the agentive voice head which triggers the introduction of an index underneath the voice head and thereby leads to abstraction of a predicate over the object argument (the reflexive). This is exactly what Buring's Binder Rule does, except that the latter is triggered by a structure with a DP as its left-hand terminal node, whereas our input structure has a voice head as its left-hand terminal element. The identity of the index introduced by our variant of the Binder Rule and the one on the reflexive will again be forced indirectly by BP-A. Our "Binder Rule for the AGENT-oriented voice" is given in (36), and a sample derivation follows in (34).¹³

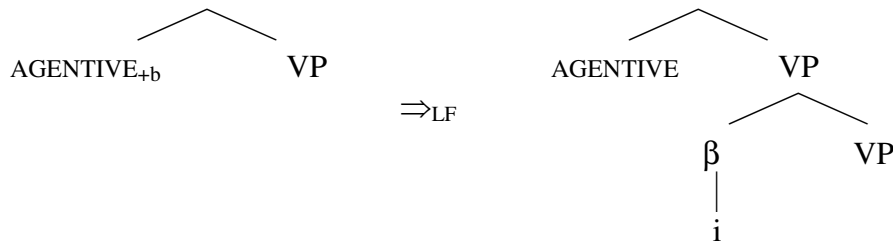
-
- (i) a. PRELIMINARY SATURATION OF THE SUBJECT ARGUMENT:
 $[[v_{\text{agentive}}]] \bullet [[\textit{pinched himself}_i]]^a ([[Paul_j]]^a)$
 $= [\lambda x \in D_e . \lambda e \in D_s . e \text{ is a pinching of } [[\textit{himself}_i]]^a \text{ \& } x \text{ is the agent of } e] ([[Paul_j]]^a)$
 $= \lambda e \in D_s . e \text{ is a pinching of } [[\textit{himself}_i]]^a \text{ \& } [[Paul_j]]^a \text{ is the agent of } e$
 (At this point, *Paul* and *himself* are not coindexed. And even if they were, a strict-identity reading (coreference) would be the result.)
- b. QR, PA, FA of $[[Paul_j]]^a$
 $[[Paul_j \text{ i } t_i v_{\text{agentive}} \textit{pinched himself}_i]]^a$
 $= [\lambda x \in D_e . \lambda e \in D_s . e \text{ is a pinching of } x \text{ \& } x \text{ is the agent of } e] ([[Paul_j]]^a) \text{ [QR, PA]}$
 $= \lambda e \in D_s . e \text{ is a pinching of } Paul \text{ \& } Paul \text{ is the agent of } e \text{ [FA]}$
 (Since a single λ binds both the subject and object variables in the third line of (ib), this derives sloppy identity, i.e., binding readings.)

¹² Buring's (2005a,b) analysis encounters larger difficulties than Heim and Kratzer's (1998) if this route for an implementation is followed. The problem is that Buring strives to dispense with QR in his reflexive binding mechanism, but it would have to be used to generate a licit input to his Binder Rule if agent severance is assumed.

¹³ DPM (Davidsonian Predicate Modification; symbolized with the IPA symbol for the bilabial click "◐" in the derivation) as used in (34) to combine the voice head with the predicate abstract is the event semantics variant of predicate modification. It must be assumed anyway and is, therefore, cost-free. It is defined in (i).

- (i)
- $$\begin{array}{c} \alpha \\ \lambda x . \lambda e . [[\beta]](x)(e) = [[\gamma]](x)(e) = 1 \langle e, \langle s, t \rangle \rangle \\ \swarrow \quad \searrow \\ \beta \quad \quad \gamma \\ \langle e, \langle s, t \rangle \rangle \quad \langle e, \langle s, t \rangle \rangle \end{array}$$

(33) BINDER RULE FOR THE AGENT-ORIENTED REFLEXIVE VOICE (BR-R)



(34) ARRIVING AT A REFLEXIVIZED PREDICATE THROUGH BR-R AND DPM

$$\begin{aligned}
 \llbracket v_{\text{agentive}+b} \textit{ pinched himself}_i \rrbracket^a &= \llbracket v_{\text{agentive}} i \textit{ pinched himself}_i \rrbracket^a && \text{[BR-R]} \\
 &= \llbracket v_{\text{agentive}} \rrbracket \odot \llbracket i \textit{ pinched himself}_i \rrbracket^a \\
 &= \lambda x \in D_e . \lambda e \in D_s . x \textit{ is the agent of } e \odot \lambda y \in D_e . \lambda e \in D_s . e \textit{ is a pinching of } y && \text{[PA]} \\
 &= \lambda x \in D_e . \lambda e \in D_s . e \textit{ is a pinching of } x \ \& \ x \textit{ is the agent of } e && \text{[DPM]}
 \end{aligned}$$

The result of (34) has the standard format of an event semantics predicate before the agent argument is merged, and it will yield a reflexive interpretation, i.e. one that produces sloppy-identity effects. Put differently, we have developed a mechanism to derive reflexive binding in a neo-Davidsonian system with severed agent arguments, not at all a trivial task, as the above discussion has shown. The main ingredient was a suitably defined variant of Kratzer’s (1996) agentive voice head which triggers the Binder Rule BR-R. This leads to predicate abstraction over the object argument. The combination with the agentive voice head (which, after BR-R has applied, is void of its [+b]-feature) is done by way of (Davidsonian) Predicate Modification.

The implementation just developed has several advantages. First, it preserves the frequently undeniable pronoun status of reflexive pronouns, something that Keenan (1993) (and possibly Reinhart and Reuland 1993, for their SELF anaphors) give up on. Second, it allows us to view reflexivity – now in line with Keenan (1988) and Reinhart and Reuland (1993) – as a true voice category. The backbone of reflexivity is no longer the reflexive pronoun, but the [+b]-marked voice head above VP. This squares nicely with the crosslinguistic generalization that reflexivity frequently looks like an affixal voice category on a par with passives or causatives (cf. Hole 2008: 61 for more details). Third, the fact that we used a modification rule to integrate the voice head does justice to the (conceptual) generalization that neo-Davidsonianism renders non-internal arguments (or, rather, their thematic involvements) adjuncts (cf. Beck and von Stechow 2006). The special LF-Rule BR-R that we have proposed modifies a pattern that has been proposed elsewhere in the literature (Büring 2005a,b), and we will see in the next subsection that a generalized variant of BR-R is capable of covering free dative binding, too.¹⁴

6.3 Implementing the binding requirement of free datives

Just like reflexive binding, free dative binding may be modeled as binding triggered by a [+b]-marked voice head. The thematic content of the voice head is not agentive, but reflects a locative or experiencer semantics, or both. I call the locative voice head LANDMARK and the experiencer voice head P-EXPERIENCER (“P” is for “potential”, because referents of free datives with a P-EXPERIENCER semantics need not necessarily perceive the eventualities at hand, but it must be possible for them to do so; cf. Hole 2008: ch. 9 for details). The conjunction of

¹⁴ Hole (2008: 171-5) mentions the possibility that all voice phenomena involve the application of a Binder Rule and that, ultimately, QR may be viewed as an instance of predicate abstraction triggered by a thematically inert voice head. It is beyond the scope of this paper to argue for these generalizations.

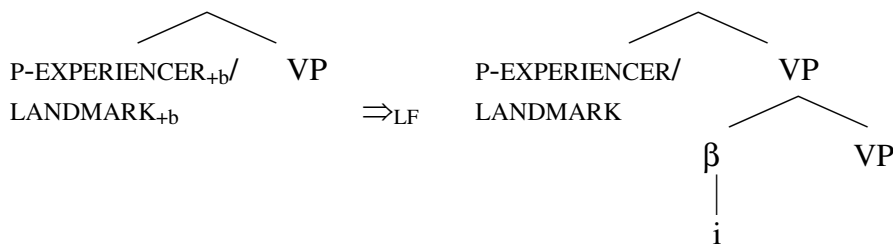
P-EXPERIENCER and LANDMARK semantics is called AFFECTEEHOOD. The point in the derivation where the voice head for free datives enters the derivation is right above VP. Since in our agent-severed event semantics agentive involvements are external to the VP, and since the change-of-state semantics implemented as a BECOME or CAUSE operator is likewise above VP, VPs denote but mere resultative phrases.¹⁵ This derives the aspectual restrictions found with free datives. Free datives must always relate to resulting states.¹⁶

With these preparations in place, our voice heads for free datives may now be given lexical entries as in (35). The truth-conditions are kept very short here; refer to Hole (2008: chs. 9 and 10) for more detailed representations and discussion. Note that the event argument, due to the architecture of event building above VP that we discussed a moment ago, is a state variable in the case of free dative voice heads (*s* as opposed to *e* for (dynamic) eventualities).

- (35) a. $\llbracket \text{P-EXPERIENCER}_{+b} \rrbracket = \lambda x \in D_e . \lambda s \in D_s . x$ is the potential experiencer of *s*
 b. $\llbracket \text{LANDMARK}_{+b} \rrbracket = \lambda x \in D_e . \lambda s \in D_s . s$ is a state of *x* being the landmark of another state *s'* (i.e., *s'* holds in the space of neighborhood regions of *x* as being part of *s*)
 c. $\llbracket \text{AFFECTEE}_{+b} \rrbracket = \lambda x \in D_e . \lambda s \in D_s . x$ is the potential experiencer of *s* & *s* is a state of *x* being the landmark of another state *s'*

Just as the specialized voice head for agents in reflexive structures, the voice heads for free datives come with a [+b] feature which triggers the application of the Binder Rule BR-D in (36) (cf. (35) above).¹⁷

(36) BINDER RULE FOR THE FREE DATIVE VOICE (BR-D)



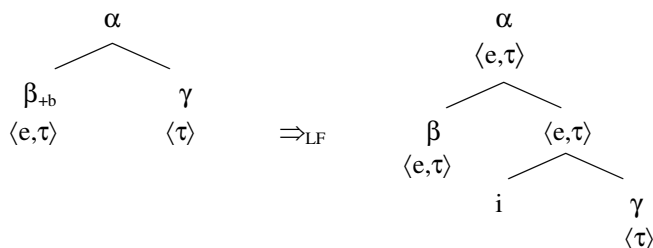
A sample derivation of the phrase (*dass*) *Paul*_{DAT} *ein Kaugummi an der/seiner*_i *Hose klebt* ‘that Paul has a chewing-gum sticking on his pants’ is given in (37).¹⁸

¹⁵ Kratzer (2005) makes no use of BECOME and constrains the use of event-building operators above VP to CAUSE. Hole (2008) follows her in this. Cf. Ramchand (2008) for another proposal where VPs are mere resultative phrases.

¹⁶ Cf. the unavailability of truly progressive dynamic predicates with free datives: *ihm* *(*in den Zaun*) *fahren* ‘him_{DAT} (in his fence) drive’, i.e. ‘drive (against his fence) to his detriment’. The telicity restriction has frequently been noted in the literature (cf., among many others, Wegener 1985).

¹⁷ BR-R and BR-D may be seen as instantiations of a general Binder Rule BR-X which makes no reference to individual voice heads, but only specifies the [+b]-feature and the required node types in the input. This general version is given in (i) (cf. Hole 2008: 94-7 for discussion).

(i) General format of the Binder Rule (BR-X)



(37) a. VP DENOTATION:

$\llbracket \text{ein Kaugummi an der/seiner}_i \text{ Hose klebt} \rrbracket^a$

$= \lambda s \in D_s . s$ is a sticking of a chewing-gum on $\llbracket \text{der/seiner}_i \rrbracket^a$ pants

b. APPLICATION OF BR-D AND PA WITH LANDMARK_{+b}

$\llbracket \text{LANDMARK}_{+b} \rrbracket [\lambda s \in D_s . s$ is a sticking of a chewing-gum on $\llbracket \text{der/seiner}_i \rrbracket^a$ pants]

$= \llbracket \text{LANDMARK} \rrbracket \odot [\lambda x \in D_e . \lambda s \in D_s . s$ is a state of a chewing-gum sticking on x 's pants] [BR-D, PA]

$= \lambda x \in D_e . \lambda s \in D_s . x$ is the landmark of $s \odot \lambda x \in D_e . \lambda s \in D_s . s$ is a state of a chewing-gum sticking on x 's pants [lexical entry of LANDMARK]

$= \lambda x \in D_e . \lambda s \in D_s . s$ is a state of a chewing-gum sticking on x 's pants & x is the landmark of s [DPM]

At this point everything is in place to merge the dative argument. This is done in (38).

(38) $\llbracket \text{ein Kaugummi an der/seiner}_i \text{ Hose klebt} \rrbracket^a(\llbracket \text{Paul} \rrbracket)$

$= \lambda x \in D_e . \lambda s \in D_s . s$ is a state of a chewing-gum sticking on x 's pants & x is the landmark of $s(\text{Paul})$

$= \lambda s \in D_s . s$ is a state of a chewing-gum sticking on Paul's pants & Paul is the landmark of s

The result is a term with the standard agent-severed format to serve as input to the higher system of causation and agentivity (if, for instance, an agentive sentence like *Maria klebte Paul ein Kaugummi an seine Hose* 'Maria stuck a chewing-gum on Paul's pants' is to be derived).

Binding of beneficiary variables in purpose phrases (*zu xs Nutzen* 'to x 's benefit') is structurally analogous, but semantically more complex, because the concept of a benefit involves a modal component which cannot be kept fully extensional. In the present paper the implementation for beneficiary readings is not presented, and the interested reader is referred to Hole (2008: 127-34).

We know now that our system derives the kind of meanings that we need for free datives. The system treats free dative binding as a special kind of a more general voice-based binding mechanism that is probably needed anyway if run-of-the-mill cases of reflexivity are to be implemented in an agent-severed event semantics. In the last subsection of this larger section we will discuss one more issue. It concerns the question alluded to above why we don't generalize the option developed in 6.2 underneath (32) to cover dative binding as well.

6.4 [+b]-marked voice heads vs. generalized BP-A

Recall the alternative to implement reflexivity that was mentioned in 6.2. and implemented in fn. 11. Instead of assuming a [+b]-marked voice head to establish the binding configuration as in our official proposal, we could merge the subject argument without any [+b] feature in the voice head and apply QR. We could then rely on BP-A to enforce that only those derivations converge where the index on the reflexive and the index introduced by QR are identical. We don't make use of this option because in the case of free dative binding and with other constructions it would lead to a result that is less than satisfactory. The problem has to do with the difference between reflexive pronouns and possessive pronouns, i.e. those pronouns that may occur in free dative binding constructions. In the case of reflexive pronouns, BP-A makes sure that only those derivations converge where the reflexive is bound. BP-A is a con-

¹⁸ It is immaterial for our proposal whether proper names and definite descriptions have indexes because co-indexation never depends on the index of an antecedent, but just on the bare index underneath it. This is also what Büring (2005a,b) assumes. This is the reason why *Paul* in (37) bears no index.

straint on the well-formedness of derivations with reflexive pronouns. Possessive pronouns as may be used as targets of free dative binding are not subject to such a well-formedness constraint; possessive pronouns (at least in German) may be locally bound, but they don't have to be locally bound. If this is so, then we can't rely on possessives being reliably bound by the same index that binds the trace of some c-commanding QR structure. The only way to ensure binding here would be to stipulate an ambiguity in possessive pronouns such that there is a homophonous variant of possessive pronouns which is used in dative binding configurations and which is subject to BP-A. This is not a desirable state of affairs. (Note that the observed ambiguity between bound and unbound uses of possessive pronouns is *not* a lexical ambiguity in the framework used here and in Buring (2005a,b). It is an interpretive difference that arises as a result of different contexts.) If generalized BP-A in conjunction with QR can't solve the problem for datives, and if we aim at a restrictive grammar, then this option should not be available in the derivation of reflexivity either. Moreover, there are quite a few additional constructions with obligatorily bound possessive pronouns in Knight Move Binding Configurations in German apart from those with free datives. For instance, the counterparts of *The children turned their heads to the left* ([*Die Kinder*]_{NOM_i} *drehten ihren_i Kopf nach links*), *The children had cold necks* ([*Die Kinder*]_{ACC_i} *fror es an ihrem_i Hals*) have nominative and accusative antecedents, respectively, and such cases should be covered by the same general mechanism, and this mechanism should likewise not make recourse to an ambiguity in possessive pronouns. If a multitude of configurations does not favor an implementation in terms of generalized BP-A, but can be covered by generalized [+b]-marked voice heads, then the latter option should be preferred.

7. Other approaches

There are three major traditions dealing with the empirical domain covered in this study: possessor raising, applicatives, and other binding approaches. I have reviewed those competing approaches in greater detail elsewhere (Hole 2008: ch. 12.1). Therefore, I will just present the gist of the argumentation here.

Possessor raising approaches for German have been developed by Gallmann (1992), Müller (1995: 248-51; the proposal was never endorsed by the author), or, most recently, Lee-Schoenefeld (2005, 2006). In these analyses the dative is first merged in the position of the possessor argument and moves to its position on the main projection line only secondarily.¹⁹ There is a lexicalist variation on this theme that Wunderlich (1996, 2000) has repeatedly argued for. I take his analysis to be a variant of syntactic possessor raising analyses because his lexical derivation of the verb's argument structure yields a predicate which gives the possessor of an argument a verbal argument status of its own. I.e., possessor raising is done in the lexicon. None of the possessor raising approaches has proposed to treat "possessor" datives and "beneficiary" datives on a par. This gives the raising proposals a shorter empirical reach in comparison with the approach defended here. At the same time, the logic of our binding proposal with its potential to bind both a possessor and a beneficiary variable is in principle incompatible with a movement approach. A movement antecedent cannot bind two independent(ly theta-marked) traces. Another problem has to do with the general possibility to pronounce the purported movement trace as a possessive pronoun (*ihm_i auf seinen_i Fuß treten* 'step him_i.DAT on his_i foot'), an option not easily predicted by movement theories.

The basic idea of applicative analyses of free datives (Pylkkänen 2001) is to define appropriate voice heads that alter the argument structure of clauses in the desired way. For "possessor" datives it is assumed that they are licensed in the structure by an applicative head which states that the dative referent possesses, or is to possess, the referent of the internal ar-

¹⁹ Lee-Schoenefeld (2005, 2006) avoids a problem that all older raising analyses have: The "raised" dative has a thematic entailment that the pure possessor doesn't have. This allows her to explain why you can't kick Jim in the shin if Jim is dead, and why you can kick in Jim's shin if he is dead.

gument. The “possessor” applicative head is a deep VP-internal element. Benefactives are implemented as arguments licensed by an appropriate voice head higher up in the structure between V and vP. I think there are three major problems with the applicative analysis. First, it is unclear why high and low applicatives should pattern alike in so many languages, a fact that is broadly covered in the literature, but is somewhat obscured in Pylkkänen’s work.²⁰ The second problem concerns the vagueness of the truth-conditions that Pylkkänen (2001) offers for her applicative heads. The crucial components of meaning are spelled out as ‘benefactive’ in the case of high applicatives, and as ‘to/from-the-possession-of’ in the case of low applicatives. These choices leave many things unclear, among them the matter of whether ‘to-the-possession-of’ is intended to cover merely intended (change of) possession, or not. While we are dealing with the binding aspects of the proposal in the present paper, the more explicit truth-conditions for our voice heads and the larger structures in which they occur have been stated elsewhere (Hole 2008: chs. 5, 9, 10, 11). Pylkkänen’s proposal may thus be said to be less elaborate than the one defended here. A third problem may be theory-internal, but it is very general. Pylkkänen’s low applicative head refers to the THEME argument of the event at hand. If Kratzer (1996, in prep.) is right in negating the severability of THEME arguments from verb denotations, then the reference to a THEME role in an applicative voice head is impossible right from the start. If the reference to the THEME argument was taken out of the applicative head as a remedy, the proposal would no longer work, because it could then not be ensured any longer that what the applied argument referent has or gets is the referent of the internal (so-called THEME) argument of the verb.

The proposal defended here stands in the tradition of binding proposals which have been an undercurrent in the generative literature especially for French (Guéron 1985, Vergnaud and Zubizarreta 1992). None of these proposals, with the exception of Brandt (2003, 2006), strive to cover “beneficiary” datives. Just as with the possessor raising analyses, this constitutes an advantage of our approach. The most explicit proposal in the binding tradition, Vergnaud and Zubizarreta (1992), suffers from an idiosyncratic implementation which, among other things, requires the assumption of a new level of representation, L-structure, which has since not been made use of in any publication that I am aware of. Borer and Grodzinsky (1986) likewise steer in the direction of a binding proposal for pertinent Hebrew data, but no articulate proposal is made. Brandt (2003, 2006) develops an analysis for many German datives which shares certain assumptions with ours, especially concerning locative entailments of LANDMARK datives. However, both the exact empirical reach of Brandt’s proposal and many details of the implementation are left in the dark.

This quick overview over competing research traditions cannot do justice to the other approaches. As stated above, I have tried to weigh the pros and cons of each proposal in some detail elsewhere, and the interested reader is referred to those pages.

8. Conclusions

In this paper, we have argued for an analysis of German free datives in terms of a binding voice akin to reflexivization. We have developed our account in the agent-severed neo-Davidsonian voice framework of Kratzer (1996, in prep.). Free datives always bind a variable in the local tense domain. This is the part of free dative binding that renders it very similar to reflexive binding, because binding is coupled with a locality constraint. But we have also seen that we need an analysis for a second, highly peculiar restriction: the bound variable in the free dative voice is always situated at the left edge of a coargumental possessum or purpose phrase. We baptized this restriction “Knight Move Binding”. So far, Knight Move Binding lacks a satisfactory analysis, but at least we could render the notion less exotic by pointing out its privileged status in the emergence of reflexive pronouns.

²⁰ Pylkkänen’s (2001) semantic types of high and low applicatives are $\langle e, \langle s, t \rangle \rangle$ and $\langle e, \langle e, \langle \langle e, \langle s, t \rangle \rangle, \langle s, t \rangle \rangle \rangle \rangle$, respectively, two types of functions that never constitute a natural class in the sense of type-shifting correspondencies.

I would like to conclude the paper with some general thoughts on what may be called “the directionality of binding”. Generative syntacticians classify pronominal expressions according to their binding behavior. This is what Binding Conditions A and B are about. This leads to a perspective which makes the syntactician “look” from the pronoun or anaphor to its binder, and generalizations about pronominal binding are typically stated from this perspective (“An anaphor/reflexive pronoun must be bound in its governing category”, to take an example). With this conceptualization in mind, many statements about binder-variable relationships made in this paper must be irritating, because the perspective is reversed. Instead of saying “Pronominal *p* must find its antecedent within domain *D*” we say things like “A binder *DP* must bind a pronominal *p* within domain *D*”. We do this for a reason. Generative syntax decomposes sentences more and more to arrive at a format that is general enough to cover all languages. One of the results of this decomposition has been to split up *V* into *v* and *V*. The semantic mirroring of this decomposition, and good semantic reasons of their own, have led to a theory where all structure building above *VP* is productive event building (as opposed to further saturation of argument positions prespecified in the verb as in earlier stages of the theory). Put differently, voice starts as soon as the internal arguments have been merged for the first time. If, furthermore, semantic binding is modeled with the help of predicate abstraction (or a variant thereof as in Büring’s 2005a,b theory), it is natural to bundle up voice and predicate abstraction in voice heads the way we have done it in this paper (cf. Kratzer 2008 for the same move). This, then, means that all pronoun binding can be implemented as voice-related, and the respective marked voice categories have their syntactic positions high up in the tree, viz. right below the binder arguments. This high position of voice-triggered binding relationships justifies the reversal of the binding perspective from the bound variable to the binder (or to the voice head that takes the binder *DP* as its argument). The more recent binding implementations reviewed in this paper all reflect this shift in perspective by downgrading the status of the Binding Conditions. The Binding Conditions are but mere restrictions on possible interpretations of pronominal elements, and if these pronominals enter into binding relationships, they do so “by chance”, and not because they actively “choose” an antecedent. This, then, means that the real locus of reflexivization and of other binding patterns, be it with nominative, or dative, or yet other antecedents, shifts to the voice system, and the voice system “looks down” to the bound variable. No wonder reflexivization and free datives pattern with verbal voice categories in many languages.

References

- Beck, Sigrid und Arnim von Stechow (2006). ‘LFs für Ereignissemantik’. *Ms.* Universität Tübingen.
- Blume, Kerstin (2000). *Markierte Valenzen im Sprachvergleich: Lizenzierungs- und Linkingbedingungen*. Tübingen: Niemeyer.
- Borer, Hagit and Yosef Grodzinsky (1986). ‘Syntactic cliticization and lexical cliticization: The case of Hebrew dative clitics’. In: Hagit Borer (ed.). *Syntax and Semantics. Volume 19*. New York: Academic Press, 175–215.
- Brandt, Patrick (2003). ‘Cipient predication: Unifying double object, dative experiencer and existential/presentational constructions’. *Doctoral dissertation*. Universiteit Utrecht.
- Brandt, Patrick (2006). ‘Receiving and perceiving datives (cipients)’. In: Daniel Hole, André Meinunger and Werner Abraham (eds.), 103–39.
- Büring, Daniel (2005a). *Binding Theory*. Cambridge: Cambridge University Press.
- Büring, Daniel (2005b). ‘Bound to bind’. *Linguistic Inquiry* 36(2), 259–74.
- Chomsky, Noam (1995). *The Minimalist Program*. Cambridge, MA: MIT Press.
- Chomsky, Noam (2001). ‘Beyond explanatory adequacy’. *MIT Occasional Papers in Linguistics* 20, 1–28.
- Eckardt, Regine (2001). ‘Reanalyzing *selbst*’. *Natural Language Semantics* 9(4), 371–412.
- Faltz, Leonard M. (1985). *Reflexivization: A study in universal syntax*. New York: Garland.

- Featherston, Sam and Wolfgang Sternefeld (2003). 'The interaction of factors in judgments of reflexive structures: Data from object coreference in German'. In: Lutz Gunkel, Gereon Müller and Gisela Zifonun (eds.), 25–50.
- Fox (2000). *Economy and Semantic Interpretation*. Cambridge, MA: MIT Press.
- Gallmann, Peter (1992). 'Dativanhebung?'. *Groninger Arbeiten zur Germanistischen Linguistik* 5, 92–122.
- Gast, Volker, Daniel Hole, Peter Siemund and Stephan Töpper (2003). *Typological Database of Intensifiers and Reflexives*. Freie Universität Berlin [<http://noam2.anglistik.fu-berlin.de/~gast/tdir/>].
- Grewendorf, Günther (2003). 'Dynamic binding and the problem of object-related anaphors'. In: Lutz Gunkel, Gereon Müller and Gisela Zifonun (eds.), 91–114.
- Guéron, Jacqueline (1985). 'Inalienable possession, PRO-inclusion and lexical chains'. In: Jacqueline Guéron, Hans-Georg Obenauer and Jean-Yves Pollock (eds.). *Grammatical Representation*. Dordrecht: Foris, 43–86.
- Gunkel, Lutz, Gereon Müller and Gisela Zifonun (eds.) (2003). *Arbeiten zur Reflexivierung*. Tübingen: Niemeyer.
- Haider, Hubert (1985). 'The case of German'. In: Jindřich Toman (ed.). *Studies in German Grammar*. Dordrecht: Foris, 65–101.
- Haider, Hubert (2000). 'Branching and discharge'. In: Peter Coopmans, Martin Everaert and Jane Grimshaw (eds.). *Lexical Specification and Insertion*. Amsterdam/Philadelphia: Benjamins, 135–64.
- Havers, Wilhelm (1911). *Untersuchungen zur Kasussyntax der indogermanischen Sprachen*. Straßburg: Trübner.
- Heim (1993). 'Anaphora and semantic interpretation: a reinterpretation of Reinhart's approach'. SFS report 07-93. Universität Tübingen.
- Heim, Irene (1994). 'Puzzling reflexive pronouns in de se reports'. *Paper presented at the Bielefeld Conference im März 1994*.
- Heim, Irene and Angelika Kratzer (1998). *Semantics in Generative Grammar*. Oxford: Blackwell.
- Hole, Daniel (2002). 'Agentive selbst in German'. In: Graham Katz, Sabine Reinhard and Philip Reuter (eds.). *Sinn und Bedeutung VI, Proceedings of the sixth meeting of the Gesellschaft für Semantik, Osnabrück, Germany, October, 2001*. Universität Osnabrück, 133–50.
- Hole, Daniel (2004). 'Extra argumentality – a binding account of "possessor raising" in German, English and Mandarin'. In: Ji-yung Kim, Yury A. Lander and Barbara H. Partee (eds.), 365–83.
- Hole, Daniel (2005a). 'Reconciling "possessor datives" and "beneficiary" datives – towards a unified voice account of dative binding in German'. In: Claudia Maienborn and Angelika Wöllstein (eds.), 213–42.
- Hole, Daniel (2005b). 'Agentive *selbst* and other instantiations of the identity function in German'. Ms. Ludwig-Maximilians-Universität München.
- Hole, Daniel, André Meinunger and Werner Abrahams (eds.) (2006). *Datives and Other Cases: Between argument structure and event structure*. Amsterdam/Philadelphia: Benjamins.
- Hole, Daniel (2008). 'Dativ, Bindung und Diathese'. *Habilitation thesis*. Humboldt-Universität zu Berlin.
- König, Ekkehard and Peter Siemund (2000b): 'Intensifiers and reflexives: A typological perspective'. In: Zygmunt Frajzyngier and Traci Curl (eds.). *Reflexives: Forms and Functions*. Amsterdam: Benjamins, 41–74.
- Kennan, Edward L. (1988). 'On semantics and the Binding Theory' In: John Hawkins (ed.). *Explaining Language Universals*. Oxford: Blackwell, 105–44.
- Kratzer, Angelika (1996). 'Severing the external argument from its verb'. In: Johan Rooryck and Laurie Zaring (eds.). *Phrase Structure and the Lexicon*. Dordrecht: Kluwer, 109–37.
- Kratzer, Angelika (2005). 'Building resultatives'. In: Claudia Maienborn and Angelika Wöllstein (eds.), 177–212.
- Kratzer, Angelika (2008). 'Making a pronoun – fake indexicals as a window into the properties of pronouns'. To appear in: *Linguistic Inquiry*.
- Kratzer (in prep.). 'The event argument and the semantics of verbs'. Ms. University of Massachusetts at Amherst.

- Lee-Schoenfeld, Vera (2005). 'Beyond coherence: The syntax of opacity in German'. *PhD dissertation*. University of California at Santa Cruz.
- Maienborn, Claudia and Angelika Wöllstein (eds.). *Event Arguments: Foundations and Applications*. Tübingen: Niemeyer.
- Maling, Joan (2001). 'Dative: the heterogeneity of the mapping among morphological case, grammatical functions, and thematic roles'. *Lingua* 11, 419–64.
- Meinunger, André (2006). 'Remarks on the projection of German datives'. In: Daniel Hole, André Meinunger and Werner Abraham (eds.), 79–101.
- Müller, Gereon (1995). *A-bar Syntax. A study in movement types*. Berlin/New York: Mouton de Gruyter.
- Pylkkänen, Liina (2002). 'Introducing arguments'. *PhD Dissertation*. Massachusetts Institute of Technology, Cambridge, MA.
- Ramchand, Gillian (2008). *Verb Meaning and the Lexicon. A first-phase syntax*. Cambridge: Cambridge University Press.
- Rédei, Károly (1988). *Uralisches etymologisches Wörterbuch. Bd. I. Uralische und finnisch-ugrische Schicht*. Wiesbaden: Harrassowitz.
- Reinhart, Tanya (1983). *Anaphora and Semantic Interpretation*. London: Croom Helm.
- Reinhart, Tanya and Eric Reuland (1993). 'Reflexivity'. *Linguistic Inquiry* 24, 657–720.
- Schladt, Mathias (2000): 'The typology and grammaticalization of reflexives'. In: Zygmunt Frajzyngier and Traci S. Curls (eds.): *Reflexives*. Amsterdam: Benjamins, 103–24.
- Vergnaud, Jean-Roger and Maria Luisa Zubizarreta (1992). 'The definite determiner and the Inalienable Constructions in French and English'. *Linguistic Inquiry* 23, 595–652.
- Wunderlich, Dieter (1996). '*dem Freund die Hand auf die Schulter legen*'. In: Gisela Harras and Manfred Bierwisch (eds.). *Wenn die Semantik arbeitet. Klaus Baumgärtner zum 65. Geburtstag*. Tübingen: Niemeyer, 331–60.
- Wunderlich, Dieter (2000). 'Predicate composition and argument extension as general options'. In: Barbara Stiebels and Dieter Wunderlich (eds.). *Lexicon in Focus*. Berlin: Akademie, 247–70.