3.1   About project B8

3.1.1   Title: Alternations and binding

3.1.2   Research areas

104-01 Allgemeine und Angewandte Sprachwissenschaft, syntax-semantics interface, event structure, comparative syntax

3.1.3   Principal investigator(s)

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Do the above mentioned persons hold non-permanent positions? no

3.1.4   Legal issues

This project includes

1.	research on human subjects or human material.	yes
	A copy of the required approval of the responsible ethics committee is included with the proposal.	yes[1]
2.	clinical studies.	no
3.	experiments involving vertebrates.	no
4.	experiments involving recombinant DNA.	no
5.	research involving human embryonic stem cells.	no
6.	research concerning the Convention on Biological Diversity.	no

3.2   Summary

A new trend in the syntax-semantics literature assumes that clause-internal binding and coargument binding is triggered by verbal functional heads (Kratzer 2009 for reflexivity, Hole 2008 for reflexivity and "free dative" binding). On this view, theta heads that are first merged above the VP assume a central role in the modeling of binding, thereby backgrounding the contribution of anaphors and pronominals to the bringing about of (non-)binding relationships.

The project takes as a guiding assumption that more voices and alternations than previously thought involve such binding relationships. We will put this novel view to the test for an array of alternations, the bulk of them underinvestigated or non-canonical ones. The findings of this project will thus complement the findings of project B6. Novel descriptive generalizations will be matched with a deeper understanding of the general workings of voice, alternations and binding.

One underinvestigated and non-canonical construction is the Stative Locative Alternation (SLA) of German, which features a locative subject in the non-base alternant ([*Der Flur*]$_{LOC}$ *stand voll mit Kartons* 'The corridor was full of cardboard boxes standing there' vs. *Kartons standen auf dem Flur* 'Cardboard boxes were standing in the corridor'). Building on work for Dutch (Mulder & Wehrmann 1989, Hoekstra & Mulder 1990), Hole (2013b) develops the first preliminary analysis of this alternation for German. Under this analysis, the movement relationship that the literature proposes for the non-base alternant of the Dutch SLA, in accordance with analyses of the passive, is replaced with a binding dependency without movement. The analysis relies in crucial ways on the presence of an underspecified null element, an ambiguity which gets resolved in context. Other non-canonical areas involving both alternations and binding phenomena are autobenefactive voices/alternations ('to do sth for oneself'; Yamashita Smith 2010), the shared-benefit voice in Lai (Tibeto-Burman) ('to do sth for oneself and somebody else'; Peterson 2007), or the anti-binding configurations of non-self-benefactive constructions in Dravidian, which require the agent and the beneficiary to be referentially distinct ('to do sth for somebody else'; Pardeshi 1998).

A special feature of the project is that it will advocate proposals for the syntax-semantics interface which are informed by the rich findings from typological research in the functionalist tradition, thereby yielding a more more comprehensive picture than has so far been arrived at in either framework.

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[1]This document is included in the appendix of the main proposal.

3.3   Research rationale

3.3.1   Current state of understanding and preliminary work

Ever since the 1980s, the **generative analysis of the passive** in German or English has centered around two ingredients. (i) The subject-to-be is theta-marked as an internal argument by the participial main verb. (ii) Since the participle is unable to assign/check Case, the internal argument has to move to become the subject and receive Case from/check Case with the auxiliary. The movement analysis of the passive has inspired much research in the domain of voice and alternations.

The majority of generative analyses of "**possessor datives**" in German and other languages advocates a movement analysis for datives as in (1) (cf. among many others Aissen 1983 for Relational Grammar, Gallmann 1992, Landau 1999).

(1) *Die Paula strich dem Paul*$_i$ *über den* t$_i$ *Kopf.*
      'Paula stroked Paul's$_{DAT}$ head.'

       On a possessor raising analysis, the possessor of the head in (1), which is first merged inside the prepositional object, moves out of the PP to a position where it behaves very much like an indirect object. It is a major embarrassment for movement analyses in this domain that subcategorization requirements for DP-internal possessors and "possessor datives" are different: DP-internal possessors need not be sentient/alive, while most "possessor datives" do; cf. the contrast in (2) (Hole 2005a, Hole 2006: 387-388).

(2) a. [The king died first.]   b. [The king died first.]
         Dann starb sein Sohn.   *#Dann starb ihm der Sohn.*
   'Then his son died.'   '#Then his son died on him.'

In response to this challenge, Lee-Schoenfeld (2006) defends a movement account which allows the raised element to pick up theta roles and fulfill subcategorization requirements in the base position and in the target position. The subcategorization and theta issue is not the only problem that movement analyses of "possessor datives" need to tackle (cf. Hole 2008: 270-273). A particularly strong syntactic argument against the assumption of "possessor raising" lies in the fact that what must be analyzed as the trace of the dative DP under a movement account may always receive spell-out as a possessive pronoun in German; i.e., (2b) has the variant *Dann starb ihm*$_i$ *sein*$_i$ *Sohn*. While the spell-out of traces as pronouns is not completely unheard of (Fanselow & Mahajan 1995), it has, to the best of my knowledge, never been postulated for movements with extremely short movement paths as in the variant of (2b) with a possessive pronoun.

Hole (2004, 2005a, 2006, 2008, 2012) advocates a **non-movement** analysis for "possessor datives" and other "free datives" in German, i.e. dative arguments that behave very much like indirect arguments, but are not selected by the verb (cf. Vergnaud & Zubizarreta 1992 for French, or Brandt 2006 for other non-movement accounts of different subsets of similar data). He proposes that the presence or absence of two theta heads above the agent-severed VP (Kratzer 1996) – an **experiencer** head and a locative **landmark** head – leads to external merge of the dative argument in the specifier position of those heads. Much as in Kratzer's (2009) new analysis of reflexivization involving a reflexivizing agent head (cf. 3.4.1 below), the experiencer or landmark theta heads of free datives come with a reflexivization requirement for their c-command domain. What is more, the variable to be bound by the experiencer or locative argument must always be located at the left edge of a clause-mate DP (*ihm*$_i$ *auf seinen*$_i$ *Fuß treten* 'to step on his foot'). One such structure with a landmark dative is provided in (3).

(3) *dass Paul* θ_{LOC} *das Hemd   aus der Hose   hing.*
         LDM/Ground2 [Figure   Ground1   ] V
       that **Paul**$_i$ θ_{LOC} his$_i$/the shirt from his pants hung

Hole (2008, 2012) dubs this unusual tree-geometric requirement **Knight Move Binding** (by making use of a chess metaphor; knights in a chess game move two positions in one direction, and then one position to the left or right). This is schematically depicted in (3).

(4) Knight Move Binding
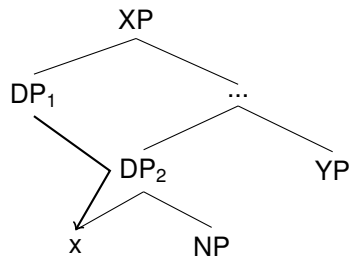
The **Stative Locative Alternation (SLA)** in Dutch is an example of a non-canonical construction which has received a movement account similar to the one for the passive and "possessor datives" (Mulder & Wehrmann 1989, Hoekstra & Mulder 1990). In the German SLA, for which no analysis has been proposed so far apart from preliminary work by the PI (Hole 2013b), the subject in (5b) is a locative which corresponds to a PP argument of the base variant (5a).

(5) a. *Menschen standen auf dem Platz.*   (base)
        'People were standing on the square.'
     b. *Der Platz stand voll mit Menschen.*   (non-base)
        'The square was full of people standing there.'
        (lit.: 'The square was standing full of people')

The gist of the movement analyses for the Dutch SLA is given in (6) for German examples.

(6) a.   [**NP$_{MATERIAL}$** LOC   ]$_{SC}$ V   (base)
        *dass **Menschen**$_i$ ← t$_i$ auf dem Platz   stehen.*

     b.   [**NP$_{LOC}$** *voll* MAT   ]$_{SC}$ V   (non-base)
        *dass [**der Platz**]$_i$ ← t$_i$ voll mit Menschen   steht.*

In both alternants, first a small clause assembles the material argument and the locative argument. In the base variant in (5a), NP$_{MATERIAL}$ receives its theta role as the external argument of the locative PP. The **leftmost argument** then moves to the subject position for Case reasons. In (5b), the theta relations within the small clause are different. Both the material argument and the locative argument are theta-marked by *voll* 'full'. Note that NP$_{LOC}$ in (6b) is not a PP, but a DP/NP. Again, the leftmost argument moves out of the SC to become the subject. Crucially though, the base variant and the SLA have **no single underlying argument structure** in (6a/b).

There is a surprising fact which blocks an analysis as in (6) for the non-base variant of the SLA. To appreciate this fact, one needs to consider the innocuous behavior of the stative passive, a construction for which a movement analysis makes perfect sense (as implied, for instance, by Kratzer 2000). (7) is an example with a stative passive which involves both movement and conjoined material arguments with a locally distributed reading.
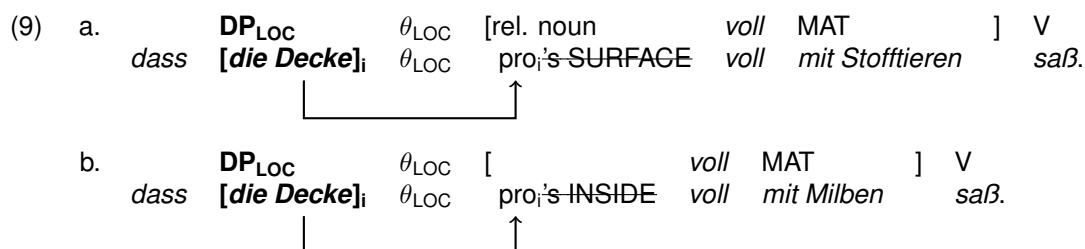
(7) **stative passive**
    [*Der Baum*]$_i$ *ist* [t$_i$ *geschmückt mit Bändern und Lichtern*].
    'The tree has been decorated with ribbons and lights' (stative passive)

In (7), the ribbons and the lights may decorate different substructures of the tree: the ribbon may be around the stem, and the lights may shine in the branches. This distributed reading is compatible with an analysis in which *der Baum* 'the tree' is theta-marked by *geschmückt* and moves to subject position in the further course of the derivation. The exact positions of the ribbon and the lights may get specified in context. (7a/b) show, by contrast, that a parallel derivation for the SLA is not feasible.

(8) **SLA** (analysis along the lines of Mulder & Wehrmann 1989, Hoekstra & Mulder 1990)

     a. [*Die Weihnachtsorange*]$_i$ *steckt* [t$_i$ *voll mit Nelken* (#*und Vitaminen*)].
        'The Christmas orange is full of cloves (#and vitamins)'

     b. [*Die Decke*]$_i$ *saß* [t$_i$ *voll mit Milben* (#*und Stofftieren*)].
        'The duvet was full of mites (#and plush toys).'

The SLA examples with the parenthetical material pronounced in (8) are deviant because here the conjoined material nominals lead to a comical, or non-sensical, effect. For (8a) with the vitamins pronounced, both the cloves and the vitamins must be located at the same substructure of the orange, namely either inside or on its surface. This is contrary to world knowledge, hence the comical effect. Same in (8b), where the plush toys and the mites must either both be on the duvet's surface or both be inside, again contrary to world knowledge. If *die Weihnachtsorange* 'the Christmas orange' and *die Decke* 'the duvet' are theta-marked by *voll* 'full' in the same way as *der Baum* 'the tree' is theta-marked by *geschmückt* in the stative passive in (6), as the analyses for Dutch have it, the differences between the stative passive structure in (7) and the analogous SLA structures in (8) cannot be explained. However, if we assume the structures in (9) for the two locative construals of material nominals, the deviance of (8a/b) with their conjoined material nominals can be derived.

(9) a.   **DP$_{\text{LOC}}$** θ_{LOC} [rel. noun   *voll* MAT   ] V
         dass **[die Decke]$_i$** θ_{LOC} pro$_i$'s SURFACE   *voll* *mit Stofftieren*   *saß*.

     b.   **DP$_{\text{LOC}}$** θ_{LOC} [*voll* MAT   ] V
         dass **[die Decke]$_i$** θ_{LOC} pro$_i$'s INSIDE   *voll* *mit Milben*   *saß*.

(9) has different unpronounced **relational part DPs as external arguments of *voll*** – and theta-marked by *voll*: pro's SURFACE in (8a), and pro's INSIDE in (9b). Their possessor variables get bound by the locative DPs in subject position. The phonetically underspecified relational DPs in (9) have the optional pronounced counterparts *obendrauf* 'on its surface' and *innen drin* 'inside'. These structures predict that one and the same non-base alternant of the SLA may not be vague between different subpart readings, as was the case with the stative passive in (7). Rather, it is underspecified and requires specification in context. In this analysis, the DP$_{\text{LOC}}$ of (9a/b) receives its theta role from a VP-external theta head θ_{LOC}. Another aspect of the contrast between (7) and (8) concerns the use of the copula in the stative passive as opposed to verbs of contact/posture in (8). It is an open question whether the non-base alternant of the SLA is a copula construction (Geist 2006) modified by contact/posture features, or whether a pure locational semantics underlies it.

The standard proposals for passives, alternations and "possessor raising" surveyed here have in common that they rely on movement to establish a distance relationship between a DP and a variable bound by it. However, we have seen for "possessor datives" and the SLA that movement analyses encounter serious difficulties. Starting from the recent reformulation of the mechanics of reflexivization (Hole 2008, Kratzer 2009) and from the modified view of "free datives" and the SLA in terms of theta-induced binding, 3.4 will develop a research program which relies heavily on this new notion of theta-induced binding coupled with Knight Move Binding.

3.3.2   Own project-related publications

(a) **Peer-reviewed publications**
   1. Gast, V., Hole., D., 2003. On paradigmatic (in)coherence in Romance and Germanic reflexives. In: Gunkel, L., Müller, G., Zifonun, G. (Eds.), Arbeiten zur Reflexivierung. Niemeyer, Tübingen, pp. 75–89
   2. Hole, D., 2004. Extra argumentality – a binding account of "possessor raising" in German, English and Mandarin. In: Kim, J.-Y. Lander, Y., Partee, B. (Eds.), Possessives and Beyond: Semantics and Syntax. GLSA Publications, Amherst, MA, pp. 365–383
   3. Hole, D., 2005b. Zur Sprachgeschichte einiger deutscher Pronomina. Sprachwissenschaft 30, 49–75
   4. Hole, D., 2005a. Reconciling "possessor" datives and "beneficiary" datives – towards a unified voice account of dative binding in German. In: Maienborn, C., Wöllstein, A. (Eds.), Event Arguments: Foundations and Applications. Niemeyer, Tübingen, pp. 213–242
   5. Hole, D., 2006. Extra argumentality – affectees, landmarks and voice. Linguistics 44 (2), 383–424
   6. Hole, D., 2012. German free datives and Knight Move Binding. In: Alexiadou, A., Kiss, T., Müller, G. (Eds.), Local modelling of non-local dependencies in syntax. de Gruyter Mouton, Berlin/Boston, pp. 213–246

(b) **Other publications**
1. Hole, D., 2002. *Er hat den Arm verbunden* – Valenzreduktion und Argumentvermehrung im Haben-Konfigurativ. In: Grammatische Kategorien aus sprachhistorischer und typologischer Perspektive. Akten des 29. Linguisten-Seminars (Kyoto 2001). Japanische Gesellschaft für Germanistik, Iudicium, München, pp. 167–186
2. Hole, D., 2013a. Binding – data, theory, typology. In: Logic, Language, and Computation. Lecture Notes in Computer Science. Springer, Heidelberg/New York, pp. 4–11

3.4   Research plan

3.4.1   Aims and hypotheses

The aims of the project are theoretical and, to a lesser extent, descriptive.

(A) At a theoretical level, the project will contribute to elucidating the interplay of non-canonical alternations, theta-triggered binding and the tree geometry of Knight Move Binding.

(B) At a descriptive level, we will study properties of non-canonical alternations insofar as these generalizations have the potential to further our understanding of the theoretical aspects of our empirical domain.

(A) The **theoretical issues** will be addressed from the perspective of three overarching general questions:

  (i) Why do theta heads and variable binding/reflexivization appear to be such a good match?
  (ii) Can the theta-heads-as-binders idea be generalized further?
  (iii) Why is Knight Move Binding such a privileged tree-geometrical instantiation of variable binding?

(i) Kratzer (2009: 193) states a new way of looking at clause-level reflexivity: "**[S]emantic binders** (λ-operators represented as binder indices) **are introduced by verbal functional heads**, rather than by 'antecedent' DPs [...]. Verbal functional heads, rather than DPs, are then the true syntactic antecedents for bound pronouns". Part of the general perspective of the present research project is aptly characterized by this quote, except that we will narrow down the empirical domain from verbal functional heads to theta heads. In Kratzer's (2009) and Hole's (2008, 2012) implementations of reflexivity, it is a reflexive variant of the agentive Voice theta head which leads to reflexivization of the predicate before the subject/agent argument is externally merged in the next step.

The **integration of theta heads and reflexivization triggers is a direct consequence of Neo-Davidsonianism** in semantics (Parsons 1990, Kratzer 1996), **and of the v-V dichotomy** (and its consequences) in syntax (Chomsky 1995). If many non-internal arguments are first merged/theta-marked dependent on theta heads, and not on transitive predicative lexemes like verbs or adjectives, then the lowest syntactic position where a reflexivization/binding requirement can be stated is at the level where the functional theta assigner of the v domain combines with its sister argument. Before this, no reference to a predicate with an "external" and an internal argument is possible. At this level, the next argument to be merged is the "external" argument of previous analyses. Hence the reflexivization/binding requirement should not be stated any later/higher. This state of affairs can be considered an interesting and desirable consequence of Neo-Davidsonianism and little v, because a clean picture emerges: theta heads will have their domain above VP (VP-external arguments "severed" from Vs), while theta-marking inside VP may still be performed by the lexical items in it. Still, at this point it sounds like the binding configuration cannot arise earlier, and it may not arise later, so it arises here. We will explore the idea of adding more conceptual coherence to the tight bond between theta heads and binding triggers. Our starting hypothesis is given as Hypothesis 1 below.

Hypothesis 1: Theta-induced binding relationships increase the complexity of event structure without increasing the number of discourse referents in a given event description. This is a way of **restricting complexity in natural language**.

(ii) There are two strengthened versions of the hypothesis that many theta heads trigger binding relationships: (α) **All theta heads trigger binding relationships**; (β) **Only theta heads may trigger binding relationships**. Hypothesis (α) would, first and foremost, have to demonstrate that agentive-causative theta heads of Kratzer's (1996) Voice type can be subsumed under this generalization. One possibility is to say that Voice triggers vacuous predicate abstraction, which would then lead to the unmarked case of theta composition (one without binding, that is). For this idea to work out, one would have to show how Kratzer's (1995) ban on vacuous quantification in natural language can be suspended in the standard agentive Voice configuration. Another obstacle for hypothesis (α) is that those VP-external functional heads that are under scrutiny in project B6 typically do not have the obligatory binding trigger as part

of their endowment. Modern Greek, for instance, combines the anti-assistive verbal prefix afto- with non-active voice morphology to arrive at reflexive meanings (Alexiadou to appear). A prediction of the converse hypothesis (β) is that no VP-internal argument which is theta-marked by a V head may be the antecedent in a binding configuration. In other words, VP-internal arguments cannot bind variables. This appears to be worth exploring in some detail, and it would shed new light on infamous examples such as *Der Doktor zeigte* [*dem Patienten*]ᵢ [*sich ?*(selbst)*]ᵢ *im Spiegel* 'The doctorᵢ showed the patientᵢ himselfᵢ in the mirror' (Grewendorf 1985, Featherston & Sternefeld 2003). A possible line of analysis for such marginal cases of apparent VP-internal binders would be to assume that if such binding is possible, the dative must have been theta-marked by a functional element above VP, and not by the verb *zeigen* 'show', as one would standardly assume.

Hypotheses 2/3: Strengthened versions of the Theta-Induced Binding Hypothesis:
    (α) All theta heads trigger binding relationships;
    (β) Only theta heads may trigger binding relationships.

(iii) Knight Move Binding
Knight Move Binding enters the picture of theta-induced binding at a very general level. Reflexive pronouns most often grammaticalize from relational nouns, typically body-part nouns meaning 'head' (Georgian), 'bone' (Hebrew), or others. The leftmost possessor arguments of those relational nouns then come out as the bound variables in reflexive constructions (Schladt 2000). Conversely, reflexive pronouns never seem to grammaticalize from relational nouns with a bound variable in complement position ('idea of x', 'thought about x', 'statue representing x' etc.). Knight Move Binding is thus *the* privileged binding configuration for reflexivity. What is more, Reuland (2011: 275) presents independent evidence to the effect that a left-peripheral DP-internal position of the bound variable pronoun/anaphor *sich* must be assumed for German, too, even though *sich* would not seem to require such an analysis at first sight. Hole (2008, 2012) shows for German free datives that the Knight Move Binding requirement does not just cover "possessor datives", but extends to *iudicantis* datives and benefactives. Finally, the non-base-alternant of the SLA was given an analysis featuring Knight Move Binding in (9). It will be interesting to explore the idea that all alternation-and-reflexivity binding involves Knight Move Binding, and that this is so because left-peripheral positions in DPs are escape hatches from phase-level spell-out.

Hypotheses 4/5: Theta-Induced Binding and Knight Move Binding
    (α) All clause-level binding relationships involve Knight Move Binding;
    (β) Derivation and interpretation by phases necessitates Knight Move Binding.

(B) **Descriptive generalizations** and phenomena in the domain of alternations and voice pertaining to the theoretical aspects of the project.

The **constraints governing the use of the SLA** and other similar alternations will be examined, or stated for the first time, thereby arriving at a more complete understanding of what constitutes the class of alternations that trigger binding. Constraints known to date for the SLA and similar patterns are given in (I)-(VII) (Hole 2013b).

(I) Verbs of stative contact with a firm supporting ground (Kaufmann 1995) allow for SLA formation: *sitzen* 'sit', *stehen* 'stand', *liegen* 'lie', *stecken* 'be stuck', *kleben* 'stick, be glued to'. Note that this verb class does not correspond to a natural class of English verbs (Levin 1993; but cf. Lemmers 2002 for Dutch). We will explore the topological peculiarities of this German verb class and contrast them with similar word classes and copular verbs. Preliminary results for *sitzen* 'sit' show, for instance, that it is not the verb sense involving ground contact of the buttocks that is most productive in the alternation. Instead, a verb sense which describes a compact posture and a relatively large contact area is fully productive, but not all speakers have this fully productive verb sense in their lexicons. Moreover, SURFACE and INSIDE readings are both attested for this sense of *sitzen*, contrary to what one expects for 'BUTTOCK-sit' (SURFACE: *Das ganze Feld saß voll mit diesen Käfern* lit.: 'The whole field was sitting full of these bugs'; INSIDE: *Die ganze Pumpe saß voll mit Bakterienschleim* lit.: 'The whole pump was sitting full of bacteria slime.')

(II) So far, it is but a mere descriptive generalization that only the unpronounced relational nouns INSIDE and SURFACE occur in the SLA, but not, for instance, DOWNSIDE or TIP. The former relations appear to be privileged across constructions (cf. related work in project B4; Roßdeutscher 2013), and the most promising strategy will probably be to search for preferences in conceptualization to derive this restriction.

(III) The mereological, or part-whole, properties of the material argument of the SLA are to be derived. Basically, only non-atomic material referents are allowed as material arguments. If material NPs typically describing atomic individuals are selected, incremental specification or coercion leads to collective readings (*Das Zimmer lag voll mit dem Kostüm* lit.: 'The room was lying full of the costume' implies that the costume has several atomic individual parts.)

(IV) The fact that the German SLA (just like its underinvestigated Chinese counterpart involving the functional element *mǎn* 'full', or the Dutch SLA) has a pronounced FULL morpheme warrants the postulation of the same morpheme in English, either as a constituent, or, with individual verbs, as an abundance feature in verb meanings (*swarm*) (cf., again, Roßdeutscher 2013 for a formalization).

(V) In addition to stative verbs with a firm supporting ground, stative verbs with a non-firm supporting ground are also attested: *Die Spree schwamm voll mit toten Fischen* (lit.: 'The River Spree was swimming full of dead fish'). It is as yet unclear why such examples are harder to come by, and are often judged as marginal compared to verbs relating to firm supporting grounds. One reason for their marginality may lie in the fact that non-firm supporting grounds do not have clear SURFACE or INSIDE regions, thereby defying the descriptive generalization stated in (II) above.

(VI) There is a dynamic counterpart of the SLA, the D(ynamic)LA: *Das Becken lief voll mit Öl* (lit.: 'The basin was flowing/running full of oil.'). Again, SURFACE and INSIDE are the only relational locative notions licensing it.

(VII) The interplay of cross-linguistic differences in verb classes relevant for SLA formation, of FULL/ abundance encapsulation in verb stems (*swarm*) as opposed to syntacticization of FULL morphemes, and the aspectual array of similar constructions will be subjected to close scrutiny.

(Non-)Auto-benefactives: In a recent typological overview, Yamashita Smith (2010) assembles crosslinguistic data on grammaticalized autobenefactive and non-autobenefactive constructions ('do sth for oneself' vs. 'do sth for somebody else'), and she includes interesting cases such as the Shared-Benefit Voice of Haka Lai (Tibetan) in her survey ('do sth for oneself and somebody els'; Peterson 2007). Most of these constructions have never been investigated with the tools of reflexivization theory, even though they wear their reflexive nature on their sleeves. An interesting finding in the domain of autobenefactive and non-autobenefactive voices is the fact that there is a markedness cline. Autobenefactive construals may be marked or unmarked voices depending on the analysis and on the language at hand, but if a language has the autobenefactive vs. non-autobenefactive contrast , then the non-autobenefactive construal always appears to be marked vis-à-vis autobenefactive construals (Yamashita Smith 2010: 83). It will be interesting to relate this finding to what is known about the markedness of prototypical reflexivity construals. It has long been known that "Principle-A Languages" like English mark the reflexive case with extra morphology with a low token frequency in texts, whereas "Principle-B Languages" like German mark the reflexive case with more basic, and more text-frequent morphology (*mich-dich-sich*) than the non-reflexive case (*ihn-sie-es*) (Levinson 1991, Gast & Hole. 2003, Hole 2005b). In the context of project B8, the most interesting property of these constructions is, however, that many of them may be amenable to an analysis in terms of Knight Move Binding. Hole (2008, 2012) argues that benefactivity should best be analyzed as binding of the possessor variable of a purpose nominal 'to x's benefit'. The antecedent of this can be an experiencer dative, as with the free datives in German, or a subject, as is the case with the autobenefactive constructions surveyed by Yamashita Smith (2010).

Hence, the project will, at the descriptive level, aim at determining the cross-linguistic array of constructions which lend themselves to an analysis in terms of theta-triggered (Knight Move) binding.

Taking together the theoretical and descriptive agendas of the project, we will study non-canonical or underinvestigated alternations like the SLA to add to the evidence for theta-related Knight Move Binding triggers, and to state where the limits of this pattern are to be found.

3.4.2 Methods

The project will rely on data drawn from the literature and corpora, data obtained with the help of questionnaires, data from the database of the Leipzig Valency Classes Project, by elicitations and by introspection. The silver standard corpora to be compiled in the INF project will be extremely valuable in spotting a large number of instances of the underinvestigated and low-frequency alternations which the project will concentrate on. Moreover, we are planning to use those corpora to identify Knight Move Binding patterns in German which are as yet unknown or underinvestigated (cf. auto-possessor transitives *Jeder hob die Hand* 'Everybody raised their hand'). While the project is theoretically grounded in current generative syntax and formal (event) semantics, it will integrate results from functional and cognitive

approaches as well. This will be especially fruitful in those empirical domains that have Figure/Ground, i.e. *gestalt* partitionings underlying them.

3.4.3   Work plan

WP 1: The investigation of theta-induced binding in natural language

The evidence coming from the free datives in German, from the SLA, from reflexivity and from auto-benefactive constructions will be pooled to make a strong case for the pervasiveness and theoretical relevance of theta-induced binding (Hypotheses 1-3). So far, the relevance of this is not clearly visible within the syntax-semantics community. Kratzer (2009) has theta-induced binding underlying her new analysis of reflexivity, but she does not put much emphasis on the bundling of theta information and reflexivization. Hole (2008, 2012) proposes a fully generalized machinery for theta-induced binding, but it lacks sufficient empirical underpinnings from different constructions and languages. WP 1 will benefit from collaboration with B4 and B6, because these projects, just like our project, will explore clause-level binding relations and, more generally, formats of altering argument structures. We are aiming at publishing at least one international journal article to raise awareness of this whole complex, and we will aim at presenting our findings at international syntax-semantics conferences (CSSP, GLOW, WCCFL, NELS, SuB).

WP 2: The investigation of Knight Move Binding in natural language

Kratzer (2009) mainly discusses Knight Move Binding data (without calling it such), but she does not single out the pattern as a theoretically interesting phenomenon. Reuland (2011) identifies the binding of possessors as a way to deal with the *horror aequi* of natural language that he postulates. WP 2 will take up these two prominent lines of argumentation, couple them with the findings arrived at by the PI so far and will propose a derivation-by-phase account of the privileged status of Knight Move Binding (Hypotheses 4-5). WP 2 targets roughly the same audiences as WP 1, but with a slightly stronger emphasis on syntax than in WP 1. WP 2 is another natural place for interaction with project B6, which investigates largely complementary phenomena from the same functional V-to-v domain. Moreover we will make use of the DIRNDL corpus and silver standard corpora to be developed in INF, to track down enough examples for the testing of hypotheses, and to find hitherto unknown or underinvestigated Knight Move Binding configurations.

WP 3: Exploring the SLA and similar locative alternations in German and across languages

In WP 3, we will explore the typological array of phenomena which are amenable to an analysis in terms of theta-induced Knight Move Binding. WP 3 relates to the descriptive part (B) of 3.4.1. We will both make systematic use of single language descriptions (Levin 1993, or Kaufmann 1995 for instance) and target typological breadth by exploiting the database of the Leipzig Valency Classes Project and by using as many single language descriptions as possible given time and funding limits (20-40 languages from diverse language families and typological profiles). B4 will be a natural associate for many issues to be explored in WP 3.

The researcher of B8, PD Dr. Ljudmila Geist will, supported by the student assistants and supervised by the PI, perform the work to survey the breadth of data collected here and inform the theoretical tier of the project. It is thus hoped that the patterns and limits of variation in the domain investigated will come out most clearly and have repercussions on a refined statement of Hypotheses 1-5. The results of this WP will be of interest to researchers in the syntax-semantics theory camp as well as in typology and in cognitive linguistics. This means that we will include ALT and SLE conferences in our array of audiences and will launch a paper in *Linguistic Typology* or *Studies in Language*.

WP 4: Developing a typology of theta-induced binding and Knight Move Binding constructions

WP 4 will integrate the findings from WPs 1-3. The PI and the researcher PD Dr. Ljudmila Geist will jointly work on this WP.

Timeline

2/2014	1/2015	2/2015	1/2016	2/2016	1/2017	2/2017	1/2018
WP 1, WP 2							
WP 3							
						WP 4	

3.5   Role within the Collaborative Research Centre

Project B8 is a theory-driven project with a strong descriptive tier. It focuses on constructions which often do not wear their built-in reflexivity on their sleeves and which require specification in context to render visible their binding nature. This is aptly illustrated by the "possessor datives" in German, which commonly bind a variable "hidden" in a bridging article. This puts B8 in the very center of SFB 732. Moreover, the project aims at rendering visible a large empirical domain as being subsumable under just two new powerful analytical notions: theta induced binding and Knight Move Binding. This will complement the perspective of B6, a project which focuses on a different type of reflexivization which one may characterize as "reflexivization along the way" in the case of non-active voice morphology. The area B workshops will yield good opportunities for collaborations with other B projects (especially B4 and B6) in addition to the ones mentioned in the WPs. The underinvestigated and non-canonical, i.e. token-infrequent, nature of the phenomena to be addressed will render necessary the use of large language corpora, which have to be bigger than corpora with gold standard annotations. The silver standard corpora to be compiled by INF will be a major boost for our research on German. In turn, our user experience of the new corpora will inform the refinement of parallel and automatic corpus annotation algorithms employed for those corpora. In sum, project B8 brings together aspects of language theory, language description and of computational and corpus approaches to language analysis.

3.6   Delineation from other funded projects of the principal investigator(s)

Not applicable.

3.7   Project funds

3.7.1   Previous funding

The project is currently not funded and no funding proposal has been submitted.

3.7.2   Funds requested

B8 (N)	2014/2		2015		2016		2017		2018/1	
Staff	Qty.	Sum	Qty.	Sum	Qty.	Sum	Qty.	Sum	Qty.	Sum
Postdoc, 100%	1	31.100	1	62.100	1	62.100	1	62.100	1	31.100
Total	■	31.100	■	62.100	■	62.100	■	62.100	■	31.100
Total		31.100		62.100		62.100		62.100		31.100

(All figures in Euro)

3.7.3   Staff

B8 (N)	No.	Name, academic degree, position	Field of research	Dept. of university or non-university institution	Commit-ment in hrs/week	Category	Funded through
Available							
Research staff	1	Daniel Hole, Prof. Dr.	theoretical and Germanic linguistics, semantics	ILG	5	■	CS
	2	N.N., student assistant	linguistics, syntax, semantics	ILG	5	■	CS
Requested							
Research staff	3	Ljudmila Geist, PD Dr.	theoretical and Germanic linguistics, syntax, typology	ILG	■	Postdoc	■

Job description of staff (supported through available funds):

1 Prof. Dr.Daniel Hole: Principal investigator.
Daniel Hole will be responsible for management. In addition, he will feed his expertise in for-
mal event semantics and of the syntax and semantics of binding into the project. His typological
expertise with a focus on Chinese and other languages of East and South East Asia will be com-
plemented by the emphasis on Indoeuropean languages provided by the postdoctoral researcher
Ljudmila Geist.
Daniel Hole will supervise and (co-)manage WP 1, WP 2 and WP 4, and he will contribute theo-
retical and empirical content to WP 1, WP 2 and WP 4.

2 Student assistants
The student assistant (5 hrs/week) will be responsible for researching and retrieving grammatical
descriptions of up to 40 different languages, and for extracting information from them. This work
will support research in all WPs and will directly contribute to WP 3.

Job description of staff (requested):

3 PD Dr. Ljudmila Geist
Ljudmila Geist will complement the PI as the post-doctoral researcher (100%). She combines
a strong syntax-semantics background with a specialization in Indoeuropean languages, thereby
complementing the PI's research languages. She is experienced in the analysis of alternations
and voice phenomena across languages.
Ljudmila Geist will contribute to all WPs and will manage WP 3.

Student assistants (10hrs/week), N.N. (applied for centrally)
The student assistant will be in charge of exploiting the database of the Leipzig Valency Classes Project
and of charting the results together with data retrieved from grammars for further use in the project.

3.7.4   Direct costs

B8 (N)	2014/2	2015	2016	2017	2018/1
Funds available	2.500	1.000	1.000	1.000	500
Funds requested	-	-	-	-	-

(All figures in Euro)

Computer equipment: The university provides 2.000 EUR for computer equipment for the postdoc in
B8 (in 2014).
Travels (money will be applied for centrally): We apply for 3.800 EUR/year (1.900 EUR in 2014/2
and 2018/1) to enable our project staff to travel to international conferences both in the field of syn-
tax/semantics (GLOW, NELS, WCCFL) and in the field of typology (ALT, SLE) to present our results to
the international audience.
Guests/workshops: The project will partake in organizing and contribute to the planned workshops and
will invite guests for the guest lecture series – money for these activities will be applied for centrally.

3.7.5   Major research equipment requested

Will be applied for centrally in project INF.

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