Binding by Voice
Ljudmila Geist & Daniel Hole (University of Stuttgart)
This paper introduces the new phenomenon of obligatory possessor binding with psych verbs that has, to the best of our knowledge, not previously been noticed in the literature. It suggests an analysis at the syntax-semantics interface in terms of binder Voice heads or theta heads, based on Kratzer's (2009:193) assumption that "semantic binders (λ-operators represented as binder indices) are introduced by verbal functional heads, rather than by "antecedent DPs" ".

Empirical realm and previous analyses: It is known from Control Theory that verbs can be divided into subject control verbs like *zugeben* and object control verbs like *befehlen*.

(1) Er$_i$ gab uns$_j$ zu, [PRO$_{*j/i}$ gelogen zu haben]   (2) Er$_i$ befahl   ihm$_j$, [PRO$_{j/*i}$ zu gehen]
    he admitted   to-have-lied   he ordered him   to-go

We observe a similar distinction in the domain of binding. Object experiencer verbs like *amuse*-type psych verbs of Levin (2006) (*beeindrucken* 'impress', *nerven* 'annoy', *faszinieren* 'fascinate', etc.) require the possessors in the PP complements to be bound by the subject (3)/(4). Subject experiencer verbs, such as judgement verbs (*verurteilen* 'damn' or *gratulieren* 'congratulate') and *admire*-type verbs (*bewundern* 'admire', *beneiden* 'envy'), require the binding of the possessor in the PP by the object (5)/(6).

subject binding

(3) *Jeder Artikel$_i$* beeindruckte mich durch seinen$_i$ guten Stil.   [Object Exp verb]
    every paper   impressed   me   with its   good style

(4) *Jeder$_i$*   nervte Peter$_j$ mit seinen$_{i/*j}$ Fragen.   [Object Exp verb]
    everyone annoyed Peter$_{ACC}$ with his   questions

object binding

(5) Er$_i$ verurteilte *jeden$_j$*   für seine $_{j/*i}$ Lüge.   [Subject Exp verb]
    he condemned everyone for his   lie

(6) Er$_i$ bewundert *jeden$_j$*   für seinen $_{j/*i}$ Scharfsinn.   [Subject Exp verb]
    he admires   everyone$_{ACC}$ for his   acumen

Hole (2014) accounts for the obligatory local binding attested for extra argument datives, as in (7). He observes that extra argument datives, in contradistinction to lexical datives, as in (8), obligatorily bind a variable in their local domain.

(7) Der Udo$_i$ trat   *jedem$_j$*   gegen   sein $_{j/*i/*k}$ Schienbein.
    the Udo kicked everyone$_{DAT}$ against   his   shin

(8) Der Udo$_i$ zeigte jedem$_j$ sein $_{j/i/k}$ Schienbein.
    the Udo   showed everyone$_{DAT}$ his   shin

Note that not only lexical datives, but also other arguments normally assumed to be lexically-selected/theta-marked by the verbal root, do not require obligatory possessor binding:

(9) Peter$_j$ stellte das Kind$_i$ auf   seine$_{i/j/k}$ Füße.
    Peter placed the child on(to) his   feet

Hole (2012, 2014) suggests that an extra argument dative, as in (7), unlike the lexical dative in (8), is introduced by a functional theta head, a type of an argument-introducing head in the sense of Wood & Marantz (to appear), or a Voice head in the sense Alexiadou & Schäfer (2014) and Kratzer (1996). Given a proposal made by Kratzer (2009), this verbal functional head ties in well with the fact that extra argumental datives have only two thematic contributions across constructions and always co-occur with a bound variable further down in the co-phasal structure. According to Kratzer, "semantic binders (λ-operators represented as binder indices) are introduced by verbal functional heads, rather than by "antecedent" DPs, as assumed in Heim and Kratzer (1998), for example. Verbal functional heads, rather than DPs, are then the true syntactic antecedents for bound pronouns" (Kratzer 2009:193). Instead of verbal functional heads, we will speak of Voice heads or, more generally, of theta heads, in order to refer to heads that introduce a theta role and host DPs in their specifiers. Such heads are unifications of Pylkkänen's (2002) "low" and "high" applicative heads.

Challenge: Now, the question is whether our analysis of binding by theta heads can cover the new data of obligatory binding in (3) - (6). This would be the case if the binder arguments here are extra arguments, rather than lexical arguments of the verb.

Analysis: We will argue that binder arguments in (3) - (6) have the status of extra arguments. We start with subject arguments in (3) - (4), which are external arguments. According to Kratzer (1996) external arguments are not syntactic arguments of the verbal root being not always structurally available. They must be introduced by a verbal functional head in the syntactic structure. But what about internal arguments? Traditionally they are assumed to be lexically represented on the verb. However, Borer (2005) and Lohndal (2014) argue that all internal arguments are extra arguments. Can we assume that internal binder arguments in (5)/(6) as well as internal arguments in (8)/(9) both have the status of extra arguments? The argument dropping test reveals differences between them. For this test, we exchange relational nominals, such as body part terms, etc., with non-relational ones, in order to avoid conceptually determined binding. In (10), dropping the lexical dative argument of *zeigen* 'show' in (10b) preserves its existential closure (the fact that there was some recipient of *zeigen* is stable). The situation is different with binder objects of extra argument datives in (11). Here, dropping the binder argument in (11b) goes along with complete nullification of the involvement and presence of the respective participant in the event denoted by the verb.
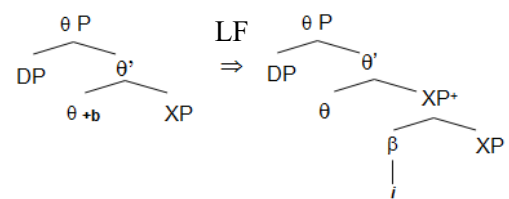
(10) a. Der Udo zeigte dem Peter sein Haus.   b. Der Udo zeigte   sein Haus.
         the Udo showed Peter$_{DAT}$ his house   the Udo showed his house

(11) a. Der Udo$_i$ trat   *dem Ede$_j$* gegen seine$_{j/*i/*k}$ Tür. b. Der Udo trat   gegen seine Tür.
         the U. kicked the Ede$_{DAT}$ against his   door   the U. kicked against his   door

Binder arguments of psych verbs in (12) and (13) pattern like extra argument datives. If the binder argument is dropped as in (12b) and (13b), the entailed involvement of the respective participant goes away, too. This suggests that binder objects of psych verbs are extra arguments and an analysis of binding in terms of binder theta heads can be applied to them.

(12) a. Er$_i$ verurteilte *Peter$_j$* für seine$_{j/*i}$ Lüge.   b. Er verurteilte   seine Lüge.
         he condemned Peter for his   lie.   he condemned his   lie

(13) a. Sie$_i$ bewundern *Anna$_j$* für ihr$_{j/*i}$ Kunstwerk.   b. Sie bewundern ihr   Kunstwerk.
         they admire   Anna for her   artwork   they admire   her   artwork

We extend the analysis of extra argument datives by Hole (2012, 2014) to cases in (3)-(6). The core of this analysis elaborates on Kratzer's (2009) proposal to implement reflexive binding in an agent-severed system with theta heads. Spelling out Kratzer's (2009) program, binding must be tied to a theta head. We assume that all theta heads introducing non-lexical internal arguments and some theta heads introducing external arguments enter the derivation with a binder feature [+b] that leads to structure expansion along the lines of Hole's Generalized Binder Rule in the tradition of Büring's (2005) Binder Rule; cf. (14).

The ensuing structure can be interpreted with standard machinery (FA, predicate abstraction, (Davidsonian) predicate modification; derivation not shown here). The output of (14), with the bare index c-commanding the XP, makes sure that, after Predicate Abstraction, a variable in the XP gets a value determined by the argument introduced by the theta head. We assume that constructions with psych verbs involve the configuration in (14).

(14)

Conclusion: Our analysis of subject binding and object binding verbs suggests that only extra arguments may require obligatory local binding. While subject arguments are extra arguments, not all internal arguments have the status of extra arguments (contra Borer 2005 and Lohndal 2014). We show that a unified analysis of obligatory binding in constructions with psych verbs is possible if we assume binder theta heads.

Selected References

Alexiadou A. and Schäfer F. (2014). Towards a Non-uniform Analysis of Naturally Reflexive Verbs. In: Santana-LaBarge, R.E. (ed.) Proceedings of the 31st WCFL, ed. 1-10. Somerville, MA: Cascadilla Proceedings Project.

Hole, D. (2012). German free datives and Knight Move Binding. In: A. Alexiadou, et al. (Eds.). *Local modelling of non-local dependencies in Syntax*. Berlin/Boston: de Gruyter. 213-246.

Kratzer, A. (2009). Making a pronoun – fake indexicals as a window into the properties of pronouns. *Linguistic Inquiry 40*, 187-237.

Pylkkänen, Liina (2002). Introducing arguments. *PhD Dissertation*. MIT, Cambridge, MA.

Wood, Jim & Marantz, Alec (to appear). The interpretation of external arguments. In D'Alessandro, R. et al. (eds.) *The Verbal Domain*. Oxford: Oxford University Press.