Extra Argumentality – a Binding Account of "*possessor raising*" in German, English And Mandarin

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1. The topic: extra argumentality and interparticipant relations

The sentences in (1) from Mandarin, English and German have at least two things in common.[1]

(1) a. *Tā*   sǐ-le   <u>mǔqīn</u>.
         (s)he die-PRF mother
         'His/Her mother died on him.'
     b. *The ship* tore <u>a sail</u>.
     c. Hans trat   *Paul*   gegen <u>das   Schienbein</u>.
         Hans kicked Paul.DAT against the   shin
         'Hans kicked Paul in the shin.'

(i) The italicized syntactic core arguments (subjects in (1a) and (1b), an indirect object in (1c)) are unexpected if one considers the canonical valency properties of each verb, and if one considers the thematic relations typically associated with eventualities encoded by these verbs. Arguments with syntactic core functions of this kind will henceforth be called 'extra arguments', and they are invariably italicized.

(ii) The referents of extra arguments are typically felt to stand in a special relationship to the referents of the more deeply embedded and c-commanded arguments (the more deeply embedded argument is underlined throughout). This relationship will be called 'interparticipant relation'.

For (1a) and (1b) a further characteristic frequently encountered with extra arguments holds: The extra arguments may fulfill syntactic functions that are canonically fulfilled by the more deeply embedded arguments. Thus, in (1a/b) the extra arguments are subjects, even though from the point of view of canonical intransitive uses of the respective verbs one would expect the underlined arguments to appear in subject position.

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[1] The following abbreviations are used in glosses: ACC – accusative; BA – cf. section 3.2.; CL – classifier; DAT – dative; IND – indicative; NOM – nominative; PASS – passive marker; PRF – perfective aspect; PRT – particle; PST – past tense; REFL – reflexive pronoun.

In this paper I would, first and foremost, like to state some cross-linguistic descriptive generalizations that have to be covered by an account of extra argumentality and interparticipant relations. It is argued that such an account cannot be one in the tradition of "possessor ascension" or "possessor raising". The languages used to state the generalizations are German, English, and Mandarin, but the claim has a universal scope. I sketch a way to model extra argumentality and interparticipant relations in terms of binding: Extra arguments, themselves instantiating the thematic relations of AFFECTEES, EXPERIENCERS or LOCATIONS, bind the (implicit) variable of the relational noun inside the more deeply embedded argument below in the tree. The interpretation of these bound variables in appropriate structures accounts for the interparticipant relations felt to be present in sentences instantiating the phenomenon of extra argumentality. A detailed semantic implementation of the binding mechanism involved is provided in Hole (to appear a) for German so-called possessor datives. Before this implementation is summarized and slightly extended in section 4, section 2 assembles empirical problems that the raising paradigm underlying most analyses of extra argumentality and interparticipant relations faces. Section 3 is devoted to demonstrating how surprisingly large the empirical domain that is amenable to an analysis in terms of extra argumentality and interparticipant relations really is.

2. Against possessor raising approaches

The most influential approach to the grammatical modeling of facts as in (1c) dates back to Perlmutter and Postal's (1983; the paper has been circulating since 1974) seminal idea that such facts should be treated as phenomena akin to passives and raising structures. On some non-surface level of derivation, some argument of a sentence has a syntactic position lower in the tree than in the surface version of the sentence. (See also Isačenko 1965 for a much earlier Generative account in the same vein.) In the case of the passive, the direct object (or 'initial 2') becomes the subject. In the case of possessor raising, a POSSESSOR nominal which is base-generated as a constituent within some argument constituent (often a direct object in European languages) is raised or ascended to assume a syntactic function of its own (often the function of an indirect object in European languages). Take (2) from German as an example.

(2) a. Paul zerbrach *ihr*$_{DAT}$ die Brille$_{ACC}$.
         'Paul broke her glasses (on her).'
     b. Paul zerbrach [ihre Brille]$_{ACC}$.
         'Paul broke her glasses.'

On the possessor ascension analysis, (2a) is derived from (some underlying version of) the more basic (2b). Specifically, the POSSESSOR of the glasses, which is expressed as a determining modifier in (2b), becomes the indirect dative object in (2a). The large number of papers treating phenomena in individual languages in terms of possessor raising or possessor ascension is proof of the strong impact the

idea of possessor raising has had over the decades, and this impact has not at all been limited to Generative (sub-)paradigms (cf., to name just a few, Aissen 1987, Fox 1981, Keenan and Ralalaoherivony 2000, Landau 1999, some of the contributions to Perlmutter (ed.) 1983 or Perlmutter and Joseph (ed.) 1990).[2] This holds despite Bresnan's (1983) seminal Lexical-Functional paper which fostered growing reservations against raising analyses in other areas. But since Bresnan did not treat extra argumentality in her paper, the ascension/raising analyses remained – on the whole – unchallenged. Apart from the partially theory-dependent arguments exchanged by Generative and Lexical-Functional grammarians, there are empirical reasons to discard any kind of possessor ascension analysis. We will turn to them in section 2.

In typological studies of the recent past, the terminology of 'external' vs. 'internal' possession has gained ground (König and Haspelmath 1998, Payne and Barshi (ed.) 1999; the terminology dates back to Vergnaud and Zubizarreta 1992, but this latter paper was written in the Government and Binding paradigm). Whenever a body-part or a possessor is encoded as an extra argument, this is called external possession, and whenever the possessor term and the possessum term form a single complex DP constituent, this is a case of internal possession. Inasmuch as generalizations in this terminological paradigm rest on the assignment of the POSSESSOR role to external possessors/extra arguments, the same objections as will be stated in subsections 2.3. and 2.4. can be used to criticize this analysis. While typological analyses of extra argumentality in terms of external possession are typically syntactically less committed than the possessor raising solutions, they have greatly enlarged our knowledge of the typical semantic differences between external possession or extra argument constructions and internal possession constructions across languages.[3, 4] Let us now turn to the problems that accounts of extra argumentality in terms of POSSESSOR raising/ascension face.

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[2] Among researchers with an intimate knowledge of continental European languages, the idea of syntactic possessor raising has often met with criticism. Cf. Tuggy (1980) for such a strongly opposing view.

[3] Cf., moreover, O'Connor (1996) for a diligent overview of relevant contrasts in Northern Pomo which, even though the possessor raising/ascension terminology is agnostically adopted, points to the manifold semantic-pragmatic differences between "raised" and "non-raised" structures. Unfortunately O'Connor does not challenge the claim of truth-conditional irrelevance of the choice between the two structures.

[4] Independently of the external possession paradigm, Shibatani (1994) makes an attempt to explain extra argumentality or, as he calls it, extra-thematic licensing of arguments, in terms of relevance. It is not clear to me what the exact empirical predictions of a relevance account as opposed to a thematic-role account are and what they mean in terms of a syntactic and semantic implementation. However, Shibatani's work must be acknowledged for widening the perspective such that a broad range of extra argumentality facts from many different languages are integrated into a single picture.

2.1. The dead possessor argument If the extra argument in a sentence like (3b) were a POSSESSOR it would be a mystery why its use renders sentences deviant if the alleged POSSESSOR is not alive anymore, since *bona fide* POSSESSORS in genitival constructions as in (3a) are not deviant if their referents are not alive or sentient anymore. A similar point is made in (4) for English, where the contrast arises between a sentient/conscious whole (*him*) and a non-sentient whole (*leg*).[5]

(3)   [Paul died first.]
   a. Dann   starb auch seine Mutter.
      then   died also his   mother
      'Then his mother died, too.'
   b. #Dann   starb *ihm*   auch <u>seine Mutter</u>.
      then   died him.DAT also his   mother
      'Then his mother died on him, too.'
(4)   She kicked *him*/???*the leg* in <u>the shin</u>.

The contrast in (3) is easily reproduced in Mandarin (cf. (5)), the difference being that the AFFECTEE argument is a subject in Mandarin. See section 3.1. and, in particular, ex. (16) for evidence that *tā* '(s)he' is a subject, and not just a topic, in (5b).

(5)   [Paul died first.]
   a. Hòulái,   tāde   mǔqīn yě   sǐ-le.
      afterwards his   mother also die-PRF
      'Then his mother died, too.'
   b. #Hòulái,   *tā* yě   sǐ-le   <u>mǔqīn</u>.
      afterwards he   also die-PRF mother
      'Then his mother died on him, too.'

2.2. The dative passive argument The German dative passive is formed with the passive auxiliary *bekommen* 'get' and the past participle of a verb. Dative arguments of active sentences are encoded as subjects while the direct objects remain unaffected (Reis 1985, Leirbukt 1997). The subject of the active sentence is demoted to an optional PP. The passive sentence in (6b) exemplifies this construction by opposing it to the corresponding active sentence in (6a).

(6) a. Die Wachen öffneten [dem   Angreifer]_DAT das   Tor.
        the guards opened the.DAT attacker   the   gate
        'The guards opened the gate for the attacker.'

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[5] Note that extra arguments in English do not occur in postverbal position as frequently as, for instance, in German. They are restricted to certain configurations with directional complements that encode bodily action. Extra subjects are more widespread in English (see section 3.1.).

b. [Der   Angreifer]$_{NOM}$ bekam das Tor   (von den   Wachen)   geöffnet.
   the   attacker   got   the gate by   the   guards   opened
   'The guards opened the gate for the attacker.'/lit.: 'The attacker got the
   gate opened (by the guards).'

Not just any dative going along with an active verb can become the subject of a dative passive. There is a constraint requiring the subjects of such passives to be AFFECTEES, with AFFECTEE-hood necessarily implying sentience or consciousness and causal affectedness.[6] Therefore, as witnessed by (7b), (7a) doesn't have a good dative passive counterpart.

(7)   a. Die Zensur   öffnete   [der   Beeinflussung]$_{DAT}$ das   Tor.
      the censorship opened   the.DAT manipulation   the   gate
      'Censorship opened the floodgates to manipulation.'
    b. #[Die Beeinflussung]   bekam das   Tor geöffnet.
      the   manipulation   got   the   gate opened
      lit.: #'Manipulation got the gate opened.'

The referent of *die Beeinflussung* 'the manipulation' is not conscious or sentient, therefore the dative passive in (7b) is out. Now consider (8) and (9). Extra dative arguments regularly become the subjects of dative passives, and in my own dialect this is true of all extra dative arguments.

(8)   a. Die Ärztin   hat   [*Paula*]$_{DAT}$ <u>Blut</u>   abgenommen.
      the doctor   has   Paula   blood   taken
      'The doctor took some of Paula's blood.'
    b. [Paula]$_{NOM}$ hat (von der   Ärztin) Blut   abgenommen bekommen.
      Paula   has by   the   doctor   blood   taken   got
      'The doctor took some of Paula's blood.'
(9)   a. Sie streichelte [*dem   Jungen*]$_{DAT}$ <u>den Arm</u>.
      she stroked   the.DAT boy   the arm
      'She stroked the boy's arm.'
    b. [Der Junge]$_{NOM}$ bekam   (von ihr)   den   Arm gestreichelt.
      the boy   got   by   her   the   arm stroked
      'She stroked the boy's arm.'

If dative passives are only grammatical with subjects whose referents are AFFECTEES, extra arguments must be AFFECTEES, too. We will therefore have to say that AFFECTEE, but not POSSESSOR, is the correct thematic relation of the pertinent extra dative arguments in German. A parallel argument can be made for the Chinese passive promoting indirect objects or immediately post-verbal extra arguments to subject function. Turn to section 3.2. (exx. (18)/(18'))for the relevant data.

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[6] Adopting the general ideas laid out in Dowty (1991), I propose that AFFECTEE is a thematic relation which combines at least one Proto-Agent property (sentience/ consciousness), and one Proto-Patient property (causal affectedness).

2.3. Non-redundancy of additional extra arguments/Truth-conditions A whole family of arguments against possessor raising analyses may be derived from the fact that the simultaneous use of an extra argument, i.e. an allegedly raised POS-SESSOR, and a DP-internal genitival or possessive expression need not lead to re-dundancy. The example in (10) illustrates this fact.

(10)   Die Schwester zog   *dem   Patienten* den Mantel des   Nachbarn   aus.
        the nurse   pulled the.DAT patient   the coat   of.the room-mate off
        'The nurse helped the patient to take his room-mate's coat off.'/
        lit: 'The nurse took the patient the room-mate's coat off.'

The coat in (10) is owned by the room-mate. This relation of possession is en-coded in the genitival term inside the object argument. However, the one who wore the coat was the patient. Researchers defending a possessor raising analysis would have to explain why the allegedly raised 'wearer'/POSSESSOR may be used alongside a non-raised POSSESSOR. Moreover, there is no version of (10) with a second "unraised" POSSESSOR which would mean the same thing as (10). This is shown in (11).

(11)   Die Schwester zog   den Mantel des   Patienten des   Nachbarn   aus.
        the nurse   pulled the coat   of.the patient of.the room-mate off
        'The nurse took off the coat of the patient's room-mate.'

(11) has truth-conditions that differ dramatically from those of (10). I take this as further evidence that POSSESSOR raising analyses of extra argumentality should be discarded. A second conclusion to be drawn from these data is that the informa-tion encoded by the extra argument is not necessarily redundant even in sentences like (12) in which the dative argument and a concomitant DP-internal POSSESSOR refer to the same referent. The dative argument refers to an AFFECTEE, and the genitival or possessive expression is a POSSESSOR (more on this will be said in the subsection to follow).

(12)   Die Schwester zog   *dem   Patienten* seinen   Mantel aus.
        the nurse   pulled the.DAT patient   his   coat   off
        'The nurse helped the patient to take his coat off.'

The truth-conditional contribution of this becomes especially clear if two POSSES-SORS are contrasted as in the augmented postverbal half of (12) in (12').

(12')   *dem   Patienten* seinen Mantel und die Schuhe des   Nachbarn   aus.
        the.DAT patient   his   coat   and the shoes   of.the room-mate   off
        '…the patient to take his coat and his room-mate's shoes off.'

2.4. Presupposition vs. entailment The relation of possession felt to hold between the referent of the extra argument and the referent of the more deeply embedded

argument is presupposed. If the extra argument encoded a POSSESSOR, it would be the only kind of DP argument that I know which conveys presupposed information. This in itself speaks against extra dative arguments as encoding the POSSESSOR role. The AFFECTEE information conveyed by extra dative arguments in German (cf. section 2.1.) is, however, part of the assertion and, thus, entailed. (13) with a dative extra argument in a conditional clause illustrates the difference.

(13) a. Falls die   Schwester *dem   Patienten* auf <u>den Mantel</u> tritt, …
         if   the   nurse   the.DAT patient   on   the   coat   steps
         'If the nurse steps on the patient's coat …'/
         lit.: 'If the nurse steps the patient on the coat…'
     b. presupposition: 'The patient possesses a coat, and he is wearing it, or is keeping it close to his body in some other way.'
     c. lost entailment: 'The patient is consciously involved in an event in which he is causally affected.'

As expected in such clauses, the presupposition persists, while the entailment is lost. On the assumption that the dative argument expresses the AFFECTEE involvement of the relevant referent, no problem arises, because the AFFECTEE involvement is just as inactive in (13) as, say, the agentive involvement of *die Schwester* 'the nurse'. If we can make plausible where the presupposed relation of possession has its source in (13) outside the dative DP, the situation will be a lot easier to handle. No two thematic involvements of differing information statuses would have to be expressed by a single DP. In section 4.2. we will see how the intuition of possession can be taken care of within the more deeply embedded DP.

3. The range of syntactic functions of extra arguments

Extra arguments occur in all syntactic functions associated with verbs, except for the function of the most deeply embedded complement in a given syntactic structure. We thus find extra arguments that are subjects or objects. If the extra argument is a direct object, the most deeply embedded complement is (most often) a (directional) PP.[7] I will look at instances of the different syntactic functions of extra arguments in the following, providing examples from each of the languages mentioned above (English, German, Mandarin), supplemented by one Korean example.

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[7] Korean double accusative structures (cf. ex. (19)) consitute the case of an accusative-marked object extra argument c-commanding another complement that is accusative-marked. Such cases do not constitute a problem for the proposal defended in section 4. They may just be rarer cross-linguistically than those cases in which an extra argument in object function c-commands a complement PP.

3.1. Extra arguments as subjects Some English sentences with extra arguments in subject function are listed in (14) (cf. Rohdenburg 1974).

(14) a. *The ship* tore <u>a sail</u>.
     b. *The car* burst <u>a tire</u>.
     c. *The boy* grew <u>breasts</u>.
     d. *The athlete* tore <u>a muscle</u>.

All the examples in (14) feature unaccusative verbs, and the direct objects are the arguments that would, in the absence of the extra arguments, figure as the subjects of the sentences. Note that none of the sentences in (14) involves a causativized use of the intransitive verbs. Take (14c) as an illustration. The sentence does not mean that the boy grew breasts the way farmers grow tomatoes, it rather states that it happened to the boy that breasts grew on his body. In all of the examples the extra argument denotes the whole of which the referent of the more deeply embedded argument constitutes a part. Analogous examples from Mandarin are provided in (15).[8]

(15) a. *Tā*   diào-le <u>hěn duō   tóufa</u>.
       (s)he fall-PRF very much   hair
       'A lot of his/her hair fell out.'/lit.: '(S)he fell very much hair.'
     b. *Tā*   duàn-le   <u>tuǐ</u> le.
       (s)he break-PRF leg   PRT
       '(S)he broke his/her leg.'

It can be shown that the extra arguments are really subjects, and not Chinese-style topics. Chinese-style topics, because of their backgrounded discourse status, can-

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[8] In German, extra arguments in subject function as defined here do not exist, except for some marginal examples typically used in medical contexts. (i) provides an example.
(i)   *Der Junge* entwickelte <u>Brüste/einen Tumor</u>.
      'The boy developed breasts/a tumor.'
However, even in those contexts in which a sentence like (i) is good, it will not count as a prototypical case of extra argumentality as characterized in the first section. The corresponding intransitive sentence in (ii) has an anti-causative marked (reflexive) verb *sich entwickeln* 'develop (itr.)' instead of simple *entwickeln* 'develop (tr.)'.
(ii) Die Brüste   entwickelten sich.
      the   breasts   developed   REFL
      'The breasts developed.'
Cf. Hole (to appear b) for an attempt at stating the reasons why German extra arguments in subject function have such a marginal status.

not be focal information in a question-answer sequence.[9] This is, however, easily possible for *tā* '(s)he' as in (15). (16) is a pertinent question-answer pair.

(16) Q: *Shéi* duàn-le   <u>tuǐ</u>   le?
          who   break-PRF leg   PRT
          'Who broke his leg?'
      A: *Tā*   duàn-le   <u>tuǐ</u>   le.
          (s)he break-PRF leg   PRT
          '(S)he broke his/her leg.'

A second argument for the subjecthood of extra arguments in such sentences is the fact that the internal argument of the unaccusative verb surfaces as a postverbal complement. This is so, because the preverbal subject function has been "snatched" by the extra argument. Chinese-style topics don't trigger the *in-situ* surface realization of arguments of unaccusative verbs.

3.2. Extra arguments as objects In German, extra arguments with the function of indirect objects are the paradigm cases of so-called external possession. (17) is an example, and (18) presents a structurally similar sentence from Mandarin.

(17) Die Mutter flocht *der*   *Tochter*   <u>die</u> <u>Haare</u>.
      the mother braided the.DAT daughter   the   hairs
      'The mother braided her daughter's hair.'
(18) Xiǎo Wáng   chī-le   *wǒ*   <u>yī-ge</u>   <u>dàngāo</u>.
      little Wang   eat-PRF I   1-CL   cake
      'Little Wang ate a cake of mine.'

(17) does not require a lot of explanation since we have seen similar examples above. The hair is part of, or possessed by, the daughter, and the verb *flechten* 'braid' is transitive, but not usually ditransitive. (18) from Mandarin is more of a challenge. Deviating from the pattern found with verbs of transfer or verbs of creation in other languages, the referent of the indirect object loses the cake in (18) instead of getting it. Note that it is easily shown that *wǒ* 'I' in (18) is not a modifier of the more deeply embedded complement (see Zhang 1998a, 1998b for details concerning the relevant construction in Mandarin). Moreover it should be noted that, quite generally, the ditransitive construction with minimal coding devices (no preposition) in Mandarin is typically found with verbs that have the referents of the indirect objects lose something, or that exempt them from something, but only rarely with verbs that have the referent of the indirect object come into the possession of something. Among the few verbs of the second kind are the most general verbs of transfer *gěi* 'give' and *sòng* 'give as a present', which take an indirect and a direct object with the same zero marking as *chī* 'eat' in (18). At

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[9] I would like to thank Waltraud Paul for reminding me of this sound criterion of non-topic-hood.

this point readers may be suspicious about the objecthood of the extra arguments in (17) and (18). Supporting evidence for the claim that we are really dealing with objects, and not with adjuncts or modifiers, comes from passivization. As shown in (17') and (18'), both the Mandarin and the German extra argument may be the subject of a corresponding passive sentence (cf. section 2.1.1. above).

(17')   Die Tochter   bekam   die   Haare   geflochten.
        the daughter   got   the   hairs   braided
        'The daughter's hair got braided.'
(18')   Wǒ bèi   chī-le   yī-ge   dàngāo.
        I   PASS eat-PRF 1-CL   cake
        'I suffered from someone eating a cake of mine.'

I have chosen to present the Mandarin case in (18) as one involving a sequence of indirect and direct object because Zhang (1998a, 1998b) uses the same terminology. It is, however, possible that the Mandarin case really patterns with the double accusative sentences from Korean and other languages as exemplified in (17) (cf. Shibatani 1998: 475).

(19)   John-i   *Mary-lul*   <u>son-ul</u>   ttayli-ess-ta.
        John-NOM   Mary-ACC   hand-ACC   hit-PST-IND
        'John hit Mary on the hand.'

A further sub-type of sentences with object extra arguments are sentences with directional complements. Some such examples from English and German have already been presented above; they are repeated in (20) and (21) for convenience. (22) is a German example with an accusative extra argument, and not necessarily with a dative extra argument as in all the other German sentences with extra argument objects that we have seen so far.

(20)   Hans kicked *him* in <u>the shin</u>.
(21)   Hans   trat   *ihm*   gegen   <u>das   Schienbein</u>.
        Hans   kicked   him.DAT   against   the   shin
        'Hans kicked him in the shin.'
(22)   Hans   zwickte *ihn*   (/*ihm*)   in <u>den   Bauch</u>.
        Hans   pinched him.ACC him.DAT   in the   belly
        'Hans pinched him in the belly.'

The rationale behind the use of accusative vs. dative arguments in German sentences as in (22) seems to be that the use of an accusative argument is likely to the extent that the denoted body-part is a central body-part, or has the potential to stand metonymically for the whole person.

Mandarin has a peculiar system of preverbal objects marked by the notoriously controversial functional element *bǎ* (see Li 2001 for an elegant overview of the relevant discussion). Extra arguments are found in this position, too. To understand these data we first have to familiarize ourselves with the way the more

typical *bă*-sentences work, i.e. those *bă*-sentences not involving extra arguments. Direct objects are (often obligatorily) shifted into the preverbal *bă*-position if other complementational material is to follow the verb, if a resultative construction is involved, or if, more generally, a highly transitive event (in the sense of Hopper and Thompson 1980) is encoded. A prototypical instance of a preposed *bă*-object is shown in (23b), while (23a) involves no preposing.

(23) a. Wŏ chī-wán-le   zhèi-dùn   fàn.
     I   eat-up-PRF   this-CL   food
     'I've eaten up that dish.'
   b. Wŏ bă   zhèi-dùn   fàn chī-wán-le.
     I   BA   this-CL   food eat-up-PRF
     'I've eaten up that dish.'

   Bă-sentences instantiate extra argumentality if a preverbal *bă*-object and a postverbal object co-occur. Examples from Tsao (1987), who in some cases quotes Cheung (1973), are given in (24) and (25).

(24) a. Tā   bă   *júzi*   bō-le   <u>pí</u>.
     (s)he BA   orange peel-PRF   peel
     '(S)he removed the peel of the orange.'
   b. Tāmen bă   *zhū*   fàng-le   <u>xué</u>.
     they BA   pig   release-PRF blood
     'They drained the pig of its blood.'
   c. Zhāngsān   bă   *zhè wŭ-ge píngguŏ* chī-le   <u>sān-ge</u>.
     Zhangsan   BA   this 5-CL   apple   eat-PRF   3-CL
     'Zhangsan ate three of these five apples.'
(25) a. Zhāngsān   bă   *mén* shàng-le   <u>suŏ</u>.
     Zhangsan   BA   door put.on-PRF lock
     'Zhangsan put a lock on the door.'
   b. Tā   bă   *qiáng*   tì-le   <u>yi-ge dŏng</u>.
     (s)he BA   wall   kick-PRF 1-CL hole
     '(S)he kicked a hole into the wall.'
   c. Tā   bă   *bìlú*   shēng-le   <u>huŏ</u>.
     (s)he BA   fireplace   ignite-PRF fire
     '(S)he put on a fire in the fireplace.'

(24) is a collection of examples in which the referent of the extra argument gets diminished in the course of the encoded event. The examples in (25) have it that something is added as a part to some functional whole or location.

3.3. Extra arguments as objects with subject-like properties A special kind of object extra argumentality is found with verbs of bodily sensation and some psych verbs. To get a better understanding of the domain, let us start out from a well-known quirky case fact from Icelandic. Among the Germanic languages, Icelandic

is an extreme case in that it allows for non-nominative subjects with certain verbs. These non-nominative arguments control coordination reduction. An example is given in (26) (Faarlund 1999).

(26)   Haraldi̥   geðjast vel   að Maríu og [øi̥] býður henni oft   í   bíó.
       Harald.DAT pleases good to Maria and   invites her   often in cinema
       'Harald likes Maria and often invites her to the movies.'

The facts of coordination reduction clearly show the subject properties of the dative argument *Haraldi*. If subjects, and only subjects, control coordination reduction in Icelandic, then *Haraldi* in (26) must be the subject. German dative EXPERI-ENCERS are not subjects; it is clearly the nominative (stimulus) arguments in sentences with psych verbs that have the morphosyntactic properties of subjects, such as controlling coordination reduction or triggering agreement on the verb. In terms of word order things are different, though. The neutral relative order of nominative arguments on the one hand and dative or accusative arguments on the other in German psych verb constructions is as in (27). This means that in psych verb constructions and with many verbs of bodily sensation the nominative argument doesn't have its canonical position to the left of the accusative or dative argument, but rather to its right. Thereby accusative or dative EXPERIENCERS (with psych verbs) or AFFECTEES (with verbs of bodily sensation) conform to the (tendential) subject property of being the first argument in a clause. (28) is an example, and (28') is the same example with a different word order: NOM > ACC; the marked order of this sentence is the unmarked order of the canonical verb classes (cf. Lenerz 1977, Höhle 1982).

(27)   DAT/ACC > NOM
(28)   Einem   Zeugen ist   ein   Hund   aufgefallen.
       a.DAT   witness is   a.NOM   dog   (be.)noticed
       'A witness noticed a dog.'
(28') Ein   Hund   ist   einem   Zeugen aufgefallen.
       a.NOM dog   is   a.DAT   witness (be.)noticed
       'A witness noticed a dog.'

Without going into the details of the arguments from the relevant literature let us just note one piece of evidence supporting the claim of a special neutral word order with such verbs. Typically a focus accent on the most deeply embedded argument of a sentence will allow for an interpretation as an all-new utterance in German. This effect does hold for (28) if we make the assumption that the nominative is the most deeply embedded argument. If, on the other hand, we put a focus accent on the dative in (28'), the only possible reading is a narrow focus on *einem Zeugen* 'a.DAT witness'. With German verbs denoting sensations or trans-formations on or in body-parts we get both things, (i) extra-argumentality and,

(ii), non-canonical neutral word order with the expected all-new utterance readings with stress on the nominative argument. (29) lists some examples.[10]

(29) a. *Ihm*   juckt   <u>die</u>   <u>Kopfhaut</u>.
      him. DAT itches   the.NOM scalp
      'His scalp itches.'
  b. *Mir*   drückt   <u>der</u>   <u>Magen</u>.
      me.ACC   presses the.NOM stomach
      'My belly hurts.'
  c. *Dir*   bricht   <u>das</u>   <u>Herz</u>.
      you.DAT breaks   the.NOM heart
      'Your heart is breaking.'

4. Interparticipant relations

4.1. Modeling interparticipant relations in terms of binding It has become clear in section 2. that extra arguments will have to be assigned thematic relations that are dependent on the main events of the sentences in which they occur. This means that, in terms of thematic relations, *Paul* in *She kicked Paul in the shin* is not the POSSESSOR of *the shin*, but the AFFECTEE in an event of kicking. This, however, doesn't cover the whole range of native speakers' intuitions. The typical intuitions are that Paul is (indirectly) affected, and that it is Paul's shin that is kicked into. Even if raising cannot be the answer, we somehow have to model the interparticipant relation felt to hold between the referent of the extra argument and the more deeply embedded argument.

     I propose that the semantics of possession or, more generally, of relationality of the more deeply embedded argument in extra argument constructions should be modeled in terms of binding. The extra argument binds the unsaturated variable of the c-commanded relational noun within the DP that denotes the possessum or (body-)part of the referent of the extra argument.[11] Implementing this idea in an explicit syntax-semantics framework is not trivial, though. If we don't want to contend ourselves with a purely syntactic notion of binding, we will have to say where quantification enters the picture. Extra arguments may be, and typi-

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[10] Such configurations are typical of most languages of Europe, except for some languages on its (insular) fringes, among them Breton, English and Turkish (cf. Bossong 1998).

[11] Vergnaud and Zubizarreta (1992) defend a similar claim for French indirect objects in what they call the Inalienable Construction in French. Their account stands in the tradition of Guéron (1985). For Vergnaud and Zubizarreta's analysis it is crucial to assume an ambiguous definite article. Even though the general ideas of Vergnaud and Zubizarreta's proposal are similar to the one made in section 4.2., the present analysis is not just a variant of the analysis of the Inalienable Construction in French. See Hole (to appear a) for more discussion.

cally are, non-quantificational definite DPs, but semantic binding requires a quantifier. In the next subsection I will briefly sketch the implementation proposed for German "possessor datives" as laid out in Hole (to appear a). We will then move on to state the adjustments that are needed to cover the wider empirical domain of this paper.

4.2. The implementation for German dative extra arguments ("possessor datives") The account proposed in Hole (to appear a) is couched in a neo-Davidsonian event semantics in the spirit of Kratzer (1996, 2003). In Kratzer's framework, as in many current syntactic approaches to argument structure, only the internal argument(s) of a verb is (/are) required by the valency of the verb. AGENT arguments that surface as subjects of transitive predications, for instance, are merged outside VP, they do not correspond to an argument position pre-specified by the verb, and their thematic role is likewise introduced independently of the verb; an agentive voice head (Kratzer 1996) performs this task. A special rule of composition, Event Identification, makes sure that the AGENT argument introduced in the specifier of the voice phrase denotes a participant in the event that is characterized by the VP, and not in some other event.

The voice phrase implementation for "possessor datives" proceeds along similar lines. An AFFECTEE voice head right above VP introduces an AFFECTEE argument into the structure. By way of a combination of an abstraction rule and Variable Identification – a more general version of Kratzer's Event Identification – the identity of the POSSESSOR referent of the more deeply embedded argument and of the AFFECTEE referent is ensured alongside the identity of the two event variables involved. The combined effect of predicate abstraction and Variable Identification may be seen as a specific kind of binding.

We will use the bracketed consituent in (30) for illustration (the same sample computation is presented in much greater detail in Hole to appear a).

(30)   Sie will   [*dem   Jungen* <u>den   Kopf</u>   streicheln].
        she wants   the.DAT boy   the   head   stroke
        'She wants to stroke the boy's head'

One possible interpretation of the VP is given in (31).

(31)   ⟦den Kopf streicheln⟧ = $\lambda e.\text{stroke } g(5)\text{'s head}(e)$

In accordance with Kratzer's theory, the denotation of the VP in (31) has no un-saturated argument position except for the one of the event argument. With existential binding the denotation in (31) may be paraphrased as 'There is an event of stroking Paul's head', provided the assignment function *g* maps the index *5* to Paul. Note that, quite standardly, *Kopf* 'head' in (31) is analyzed as a relational noun which brings along an argument slot for a POSSESSOR even in the absence of an overt POSSESSOR DP. An implicit argument with the index *5* fills this argument slot in our example, and the argument with this index is mapped to Paul, but other

index numbers would also be good possibilities as long as they are mapped to individuals in the universe of discourse that have a head. The VP then merges with the AFFECTEE head. The function of this head is spelled out in (32).

(32) Function of Aff^0:
    a. Denotation: $[\![Aff^0]\!] = \lambda x \lambda e.\text{Affectee}(x)(e)$
    b. Abstraction:
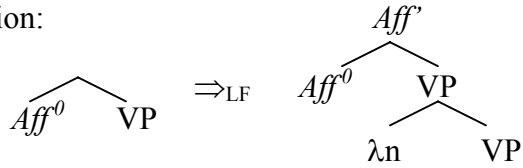
    c. Variable Identification: $f\,(Aff^0)$ $g\,(VP)$ $\Rightarrow$ $h\,(Aff')$
                                   $<e,<s,t>>$ $<e,<s,t>>$ $<e,<s,t>>$

The denotation of Aff^0 in (32a) states that an AFFECTEE as characterized in fn. 6 is involved in the event. This argument slot will eventually be filled by the dative argument, which enters the computation in SpecAffP. But before this happens, the abstraction rule (32b) applies. What it does is turn the VP denotation, which only had one unsaturated argument position for the event argument, into a denotation with another unsaturated argument position in the position where the argument with the index *n* is located. Let's say *n* is *5*. (33) states the denotation of the VP before predicate abstraction again, (34) provides the denotation after predicate abstraction. The outcome of combining the VP denotation of (34) with Aff^0 (cf. (32a) is (35).

(33) $[\![\text{den Kopf streicheln}]\!] = \lambda e.\text{stroke } g(5)\text{'s head}(e)$
(34) $[\![\text{den Kopf streicheln}]\!]^{[5\rightarrow x]} = \lambda x \lambda e.\text{stroke } x\text{'s head}(e)$
(35) $[\![\text{Aff}^0 \text{ den Kopf streicheln}]\!]^{[5\rightarrow x]} = \lambda x \lambda e.\text{stroke } x\text{'s head}(e)\&\text{Affectee}(x)(e)$

I gloss over the (possibly controversial) part that (32c) plays in arriving at the denotation in (35). The interested reader is referred to Hole (to appear a) for more details. We can now merge *dem Jungen* 'the.DAT boy'. The result is given in (36).

(36) $[\![\text{dem Jungen Aff}^0 \text{ den Kopf streicheln}]\!]^{[5\rightarrow x]} =$
        $\lambda e.\text{stroke the boy's head}(e) \& \text{the boy is an Affectee in } e$

With existential closure of the event argument this comes out as 'There is an event in which the boy's head is stroked, and the boy is an AFFECTEE in this event' (with 'AFFECTEE' taken in the sense of fn. 6). These truth-conditions appear to be empirically correct. The account carries over, I think, to all the examples with AFFECTEE participants that we have seen in this paper.[12] With the minimal adjustments made in the subsection to follow the remaining cases may also be covered.

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[12] Cf. (1a/c), (2a), (3b), (4), (5b), (8a), (9a), (10), (12), (12'), (13a), (14c/d), (15a/ b), (16A), (17), (18), (19), (20), (21), (22), (29c).

4.3. EXPERIENCER and LOCATIVE extra arguments We may assume that EXPERI-ENCERS have the same defining Proto-Role entailments as AFFECTEES (viz. sentience/consciousness and causal affectedness). They differ from AFFECTEES only in that EXPERIENCERS occur in sentences in which the main predicate is a psych verb or psych adjective. If this is so, then the extra arguments and the binding facts in (29a/b) may also be taken care of by the mechanism proposed in section 4.2. LOCATIVE extra arguments as in (1b), (14a/b), (24a/b/c) and (25a/b/c) may be said to be the inanimate counterparts of AFFECTEES. Quite naturally, they may not be characterized as sentient or conscious. I propose that from among Dowty's (1991: 571) Proto-Agent properties only the last one applies to LOCATIVES, they exist independently of the event described by the verb. This is relevant especially with respect to (25b/c), repeated here as (37a/b), because the referents associated with the underlined arguments do *not* exist independently of the event decribed by the verb.

(37) a. Tā   bǎ   *qiáng*   tì-le   <u>yi-ge dǒng</u>.
         (s)he BA   wall   kick-PRF 1-CL hole
         '(S)he kicked a hole into the wall.'
     b. Tā   bǎ   *bìlú*   shēng-le   <u>huǒ</u>.
         (s)he BA   fireplace   ignite-PRF fire
         '(S)he put on a fire in the fireplace.'

The Proto-Patient property of causal affectedness holds for LOCATIVES just as for AFFECTEES, and they may have the further Proto-Patient property of being stationary relative to the movement of another participant, i.e. the referent of the more deeply embedded argument. The stationary semantics of the referent of the extra argument relative to the movement of the referent of the more deeply embedded argument is especially obvious in (38) (=(24a/b), (25a)).

(38) a. Tā   bǎ   *júzi*   bāo-le   <u>pí</u>.
         (s)he BA   orange   peel-PRF peel
         '(S)he removed the peel of the orange.'
     b. Tāmen bǎ   *zhū*   fàng-le   <u>xué</u>.
         they BA   pig   release-PRF blood
         'They drained the pig of its blood.'
     c. Zhāngsān bǎ   *mén* shàng-le   <u>suǒ</u>.
         Zhangsan BA   door put.on-PRF   lock.
         'Zhangsan put a lock on the door.'

        With these amendments to the semantic specifications of thematic roles, all the extra arguments assembled in this paper may be covered by the same voice-based analysis as proposed in section 4.2.
        An obvious blind spot of the proposal concerns the lexical or categorial status of the variable that gets bound in the more deeply embedded argument. Here and in Hole (to appear a), I have nothing to say about this problem. Still, arguments supporting the existence and linguistic activity of this variable are de-

livered in Hole (to appear a), and locality constraints for extra argumental binding are stated. We may, therefore, be confident that the variable in the more deeply embedded argument is not just a chimera.

5. Conclusions and outlook

This exploration into the territories of extra argumentality leaves us with many loose ends. Even though the empirical domain has provisorily been circumscribed, no attempt has been made to give a complete catalogue of constructions that will fall under the proposed analysis. Pertinent phenomena from only three languages have been investigated in some detail, even though other languages (e.g. Kartvelian languages) probably have richer, and morphosyntactically more reliably marked, systems of extra argumentality than any of German, English or Mandarin.[13] But even if many things remain to be worked out in the future, some points can, I think, be brought home. First, extra argumentality should not be treated as resulting from raising the extra arguments out of the more deeply embedded arguments. Second, extra arguments do not bear the thematic relation POSSESSOR (OF A BODY-PART) or the like. Third, every extra argument as understood here binds a variable introduced by the more deeply embedded argument, on some specific understanding of the term 'binding'. Fourth, extra argumentality is not at all a rare phenomenon. It is only the narrow perspective of single philologies, or of concentrating on, say, dative extra arguments that has in most cases obscured the recognition of the cross-linguistic and cross-constructional pervasiveness of the phenomenon. In those cases in which researchers have recognized the large size of the cross-linguistic domain to be explored (as for instance in Shibatani 1994) the rich tool sets of a more rigorous semantics, and of a syntax with more predictive power, have, to the best of my knowledge, never been put to use. I hope this will change.

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[13] I am indebted to Yakov Testelets for pointing out the Caucasian phenomena to me. Relevant literature on Kartvelian languages includes Boeder (1968) and Harris (1981).

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