# Distributed Deletion[*]

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## 1   Introduction

DPs and PPs often surface in a discontinuous manner. Standard *Wh*-movement extracts constituents out of DPs and PPs (1). Quantifiers may appear to the right of the DP which they modify semantically (as in (2)). According to Sportiche (1988), this construction emerges by the stranding of the quantifier when DP moves to Spec,IP. Whether "extra-position from NP" in (3) involves rightward movement depends on the status of the anti-symmetry hypothesis (Kayne 1994, Chomsky 1995), but independent considerations may militate against a rightward movement explanation as well (see Culicover & Rochemont 1990). Noun incorporation also gives rise to discontinuous noun phrases, as (4) illustrates for Greenlandic. Finally, DPs and PPs may simply be 'split' in a considerable number of languages such as German, Croatian, Polish, Russian, Hungarian, Finnish, Latin, Ancient Greek, and Warlpiri, as (5) and (6) illustrate.

(1)   <u>Who</u> did you see <u>a</u> <u>photo</u> <u>of</u>?

(2)   <u>The</u> <u>students</u> have <u>all</u> written a paper on logic.

(3)   <u>A</u> <u>book</u> appeared <u>about</u> <u>Chomsky.</u>

(4)   *<u>Marlun-nik</u> <u>ammassat</u>-tur-p-u-nga*.        (Greenlandic, Geenhoven 1998:16)
       two-INST.PL  sardine-eat-IND-[-TR]-1SG

(5)   a.  *<u>Interessante</u> <u>Bücher</u> hat sie mir <u>keine</u> <u>aus</u> <u>Indien</u> empfohlen.* (German)
            interesting  books  has she me none  from India   recommended
            "She has not recommended any interesting books from India to me"

       b.  *<u>Knjige</u> mi je  Marija <u>zanimljive</u> preporučila.*                 (Croatian)
            books  me has  Mary  interesting  recommended
            "Mary has recommended interesting books to me."

       c.  *<u>Książki</u> mi Marek <u>interesujące</u> zaproponował.*                   (Polish)
            books   me Marek interesting    suggested

(6)   a.  *<u>Mit</u> <u>was</u> hast du <u>für</u> Frauen gesprochen*?              (German)
            with  what  have  you  for  women  spoken
            "With what kind of women did you speak?"

       b.  *<u>Na</u> <u>kakvo</u>     se Ivan <u>stablo</u> penje*?                  (Croatian)
            on   what-kind-of  self I.    tree     climbs
            "On what kind of tree does Ivan climb?"

       c.  *<u>Na</u> <u>jakie</u>      się Marek <u>drzewo</u> wspina*?             (Polish)
            on   what-kind-of  self M.     tree     climbs

The empirical focus of the present article lies on the constructions in (5) - (6), which we will call *(XP-) split constructions*[1]. The standard analysis of (5) was proposed by van Riemsdijk (1989): the part of the XP that appears in clause-initial position is moved out of XP, stranding the material left behind. If left branch extraction is impossible, the analysis of (6) must be more complex. It involves remnant movement of an XP out of which some material has been extracted before it was placed into the clause-initial slot.

However, movement analyses face serious problems with respect to syntactic islands and the phonetic shape of the parts of the split phrase (the "regeneration" problem discovered by van Riemsdijk). We will argue that these problems render a simple movement analysis of the XP-split construction impossible. However, it does not seem amenable to a treatment in which both parts are base-generated *in situ*, either. A way out of this apparent paradox is offered by the copy & deletion (CD-) approach to movement (Chomsky 1995) if it is implemented in such a way that the deletion operation following the copying step of movement may affect *both* copies. The CD-approach offers a unified analysis for both type of constructions, i.e., DP-splits as in (5) and PP-splits as in (6). How such a derivation may proceed is illustrated in (7) for Croatian.

(7)　*mi je　Marija **zanimljive knijge** preporučila*　　　　→
　　　me has Mary　interesting books　recommended　　<u>Complete</u> <u>copying</u>
　　　***zanimljive knijge*** *mi je Marija **zanimljive knijge** preporučila*　→
　　　　　　　　　　　　　　　　　　　　　<u>Partial</u> <u>deletion</u> <u>in</u> <u>upper</u> <u>copy</u>
　　　~~***zanimljive***~~ ***knijge*** *mi je Marija **zanimljive knijge** preporučila*　→
　　　　　　　　　　　　　　　　　<u>Complementary</u> <u>deletion</u> <u>in</u> <u>lower</u> <u>copy</u>
　　　~~***zanimljive***~~ ***knijge*** *mi je Marija **zanimljive** ~~**knijge**~~ preporučila*

This account for XP-splitting may suggest itself, so the major virtue of the present paper lies in the presentation of the empirical arguments in its favor, and in developing the approach in some detail. Our account may also be applicable to (3) and (4), and its general idea seems helpful for a number of further puzzles of syntax.

The article is structured as follows. Section 2 introduces core properties of the split construction, and distinguishes two types of splits. Section 3 is dedicated to a discussion and refutation of previous analyses. Sections 4 and 5 presents the distributed deletion theory in some detail. Section 6 briefly discusses loose ends and possible extensions of the present approach.


## 2　Some Core Properties

In an XP-split construction, the phonetic material of a single phrase appears in more than one position. There is no principled limit to the number of slots on which a phrase can be scattered, as German (8a) and Croatian (8b) illustrate. Similarly, more than one phrase can be split up in a single clause[2], as (9) shows for German and Polish:

(8)　a.　<u>*Bücher*</u> *hat　man damals* <u>*interessante*</u> *in den Osten* <u>*keine*</u> *mitnehmen*
　　　　　books　has one then　　interesting　in the East　no　　with-take
　　　　　*dürfen.*
　　　　　may
　　　　　"As for books, one could not take any interesting ones to the East then"
　　　b.　<u>*Koje*</u>　*je Ivan* <u>*zanimljive*</u> *kupio* <u>*knjige*</u>.
　　　　　which is　Ivan　interesting　bought books
　　　　　"Which interesting books did Ivan buy?"
(9) a.　<u>*Sonaten*</u> *haben* <u>*Frauen*</u> *bislang*　<u>*nur*</u> <u>*wenige*</u> <u>*welche*</u>　*geschrieben.*
　　　　sonatas　have　women　up to now　only　few　　some　　　written
　　　　"As for sonatas: Up to now, only few women have composed some"

b. *Piotr powiedział, że żaden ładnei chopiec dziewczyny nie zignoruje.*
Piotr said     that not-one beautiful boy     girl        not ignores
"Piotr said that no boy ignores beautiful girls"

XP-splits arise in *wh*-movement contexts, as (10) illustrates, and when there is focus/ topic movement to various positions, as exemplified in (8). Frey (2000) argues from contrasts such as the one in (11) that XP-splits are confined to movement to topic/focus-positions (preceding the normal position of sentential adverbials in German), and do not arise in the context of standard (A-) scrambling (targeting positions following sentence level adverbs). Thus, it seems that XP-splits are confined to operator movement.

(10) a. *Na kakav je Ivan krov skočio?* (Croatian)
    on   what-kind has Ivan roof jumped?
    "On what kind of roof has Ivan jumped?"

    b. *Wieviel hat er Schweine gekauft?* (German)
    how many has he pigs      bought
    "How many pigs has he bought?"

(11) a. *dass er teure Bücher wahrscheinlich der Frau keine*
    that he expensive books probably        the.DAT woman no
    *schenken wollte.*
    give          wanted
    "… that he probably did not want to give the woman expensive books as a presents."

    b. ?**dass er wahrscheinlich teure Bücher der Frau keine schenken wollte.*

XP-splits come in two varieties. XPs can simply be pulled apart (*Pull-splits*), leaving XP-internal order intact. This is illustrated in (12). German differs from the Slavic languages in allowing pull-splits for simple *wh*-extraction only (13).

(12) *Na kakav je Ivan krov skočio?* (Croatian)
    on   what-kind has Ivan roof jumped?
    "On what kind of roof has Ivan jumped?"

(13) a. *Wieviel hat er Bücher gelesen?*
    how many has he books  read
    "How many books has he read?"

    a'. *Wieviel Bücher hat er gelesen?*

    b. **Keine hat er Bücher gelesen.*
    no        has he books   read
    "He has not read any books."

    b'. *Keine Bücher hat er gelesen.*

The internal order of the XP can also be inverted in the split construction, as illustrated in (14). *Inverted splits* are well-formed for noun phrases only, but not for PPs (15). Therefore, PP-splits are confined to *wh*-movement in German.

(14) a. *Crveni je Ivan auto kupio.* (Croatian)
    red     has Ivan car    bought
    "Ivan has bought a red car"

    a'. *Auto je Ivan crveni kupio.*

    b. *Autos besitzt er (nur) schnelle.* (German)
    cars  owns    he  only  fast
    "As for cars, he owns only fast ones."

    b'. **(Nur) schnelle besitzt er (nur) Autos.*

(15) a. <u>*Na*</u> <u>*kakav*</u>  *je Ivan* <u>*krov*</u> *skočio*?          (Croatian)
    on   what-kind has Ivan  roof  jumped?
    "On what kind of roof has Ivan jumped?"

   b.  *<u>*Krov*</u> *je Ivan* <u>*na*</u> <u>*kakav*</u> *skočio*?

PPs can be torn apart in a different way in German (and certain dialects of Croatian), however. In (16), the prepositional head of the PP appears in *both* parts, while the DP-part of the PP is split in the inverted way (as compared to *in keinen Schlössern* "in no castles", **in Schlössern keinen*).

 (16) <u>*In*</u> <u>*Schlössern*</u> *habe  ich   noch*  <u>*in*</u> <u>*keinen*</u> *gewohnt*
    in castles      have  I    yet    in  no      lived
    "I have not yet lived in any castles."

The core properties of XP-splits can thus be summarized as follows:
   a)  XP-splits arise in the context of operator movement only.
   b)  XP-splits can retain or invert the order of the elements found in the continuous counterpart. The latter type of split cannot show up with PPs – it is replaced by a construction that differs from XP-splits only in the presence of copies of the preposition in *all* slots where parts of the PP appear.
   c)  Pull splits do not show up for all types of operator movement in German.


## 3   Previous Analyses

### 3.1  Simple Movement Theories

The standard account for XP-discontinuity is movement. In (17a) the verb phrase is serialized discontinuously, because *who* has been extracted from it. That (17b) involves movement, too, seems to be the standard view, though alternative accounts have been proposed (see Horn 1975). The null hypothesis for XP-splits thus should also involve the creation of discontinuity by movement, as has been proposed for German by van Riemsdijk (1989), Tappe (1989), Diesing (1992), Kniffka (1996) among others, and by Franks & Progovac (1994) for Croatian, or Yearley (1993) and Sekerina (1997) for Russian.

   (17) a. *who* did you [$_{VP}$ *see t*] ?
      b. *who* did you see [$_{DP}$ *a picture of t*] ?

At early stages of generative theory, movement analyses for XP-splits were confronted with the problem that movement is restricted to minimal or maximal projections, while the analysis of split noun phrases seems to presuppose that submaximal projections are moved, cf. (18) for an illustration, and Fanselow (1988) for the pertinent argument.

   (18) a. *Sie  hat  keine  interessanten  neuen Bücher gekannt*.
      she  has  no    interesting    new  books  known
      "She did not know any interesting new books."
      b. [ *Bücher* ]$_i$ *hat sie* [ *keine interessanten neuen* t$_i$ ] *gekannt*.
      c. [ *Neue Bücher* ]$_i$ *hat sie* [ *keine interessanten* t$_i$ ] *gekannt*.
      d. [ *Interessante neue Bücher* ]$_i$ *hat sie* [ *keine* t$_i$ ] *gekannt*.
      e. [ *Keine interessanten neuen Bücher* ]$_i$ *hat sie* t$_i$ *gekannt*.

As (18) shows, *any* segment of [*keine* [*interessanten* [*neuen* [*Bücher*]]]] can undergo movement in an extraction account of XP-splits, and at first glance, only one of these segments can be maximal. But, as was noted by Tappe (1989) and Kniffka (1996), this line of reasoning is problematic because of the additional layers of functional structure that have been discovered in the DP, following the seminal work of Abney (1987) – in fact, the movement facts of (18) themselves constitute evidence for an elaborate internal structure of noun phrases, which might look as in (19). A movement analysis of inverted splits can thus pick any of the functional projections in the noun phrase, and move it to the front.

(19) [$_{DP}$ [$_D$ *keine*] [$_{AGR-A1-P}$ [$_{AP}$ *interessanten*] [[$_{AGR-A1}$ e] [$_{AGR-A2-P}$ [$_{AP}$ *neuen* ] [[$_{AGR-A2}$ e][$_{Nom-P}$ *Bücher*]]]]]]]

Pull splits require a slightly more complex derivation. Since P+Det does not form a constituent, the derivation of (20) must involve remnant movement in the sense of den Besten & Webelhuth (1990), Müller (1998), see, e.g., Corver (1990) and the discussion in Sekerina (1997): first, *krov* is extracted from *na kakav krov* (this involves an inverted split), then [*na kakav* t] is moved to sentence initial position.

(20) <u>*Na*</u>  <u>*kakav*</u>    *je Ivan* <u>*krov*</u> *skočio*?                      (Croatian)
on    what-kind  has Ivan  roof   jumped?
"On what kind of roof has Ivan jumped?"

This analysis has the advantage of reducing pull splits to inverted splits followed by remnant movement, and thus seems to explain why languages allow pull splits only if inverted ones are licensed, too – but it faces the problem that PPs disallow inverted splits though pull splits of PPs are fine.

   Simple movement theories face at least two kinds of problems, both of which have already been alluded to. First, inverted splits can be "imperfect" in the sense that the two parts contain *more* phonetic material than fits into a single constituent. The case of preposition doubling (21a,b) has been discussed above[3], but a similar constellation arises with determiners, too, as (21c-d) illustrate[4].

(21) a. <u>*In*</u> <u>*Schlössern*</u> *habe ich noch* <u>*in*</u> <u>*keinen*</u> *gewohnt.*
in    castles        have I    yet    in    no      lived
"As for castles, so far I have not lived in any."
   b. *<u>*In*</u> <u>*keinen*</u> <u>*in*</u> <u>*Schlössern*</u> *habe ich gewohnt.*
   c. <u>*Einen*</u> <u>*amerikanischen*</u> <u>*Wagen*</u> *kann ich mir* <u>*keinen*</u> <u>*neuen*</u>  *leisten.*
an    American        car    can I me    no      new      afford
"As for American cars, I cannot afford a new one."
   d. *<u>*Keinen*</u>  <u>*neuen*</u> *einen* <u>*amerikanischen*</u> <u>*Wagen*</u>
no      new    an    American        car

The indefinite article and the negative quantifier *kein* do not go together in German noun phrases (as (21d) shows), because they compete for the same structural position, but they may occur in different parts of a split noun phrase (21c). Imperfect splits such as (21a,c) have no well-formed source in a movement account - there is not enough space in a single continuous XP for the material present in the split case.

   Van Riemsdijk (1989) attributes the imperfection of the split in (21c) and similar examples to a "regeneration" process: according to his theory, what moves to first position in (21c) is just *amerikanischen Wagen*. This sequence, however, is not a legal independent noun phrase in German[5]. Therefore, phrase structure rules re-apply after movement and insert an indefinite article in order to guarantee well-formedness. At the

present moment, one can at least say that "regeneration" adds a complication to the movement analysis, which one would hope to be able to avoid.

The second problem of the movement account of split XPs has also been mentioned already. Recall that, (6), (8b), or (10) require a remnant movement analysis, in which a nominal projection is moved out of PP. But this ingredient of an extraction analysis of splits is confronted with the serious problem that PPs are **islands** for movement in Croatian otherwise, as (22) illustrates:

(22) a. *Ivan   se   popeo*   [PP *na veliko drvo*]
        Ivan   self   climbed   on big   tree
        "Ivan climbed on a big tree."

    b. *$\check{S}to_i$   *se   Ivan   popeo*   [PP *na   veliko* $t_i$ ]
        what   self   I.   climbed   on big

    c. *$Drvo_i$   *se   Ivan   popeo*   [PP *na   veliko* $t_i$ ]
        tree   self   I.   climbed   on   big

    d. **Ivan   se   $drvo_i$   popeo*   [PP *na   veliko* $t_i$ ]
        I.   self tree   climbed   on   big

    e. <u>*Na   veliko*</u> *se Ivan   <u>drvo</u>   popeo*.
        on   big   self I.   tree   climbed

The examples in (22) show that PPs are islands for *wh*-extraction (b), topicalization (c), and scrambling (d). However, a split of the complex PP is possible, as (22e) shows. Thus, the movement step necessary for creating the discontinuous PP is not well-formed, since it violates a strong island restriction[6].

The problem is not confined to split PPs. In German, split noun phrases do not respect at least three types of islands, as the following data illustrate. First, (23) shows that subjects (of non-unaccusative verbs, at least) are islands for the extraction of PPs (cf. e.g. Müller 1996). Nevertheless, subjects can be split up, as Fanselow (1988, 1993) observes (24)[7].

(23) a. *[<u>*An   Maria*</u> ] *haben mir* [<u>*keine   Briefe*</u> *t* ] *gefallen*.
        to   Mary   have   me   no   letters   pleased
        "No letters to Mary have pleased me."

    b. *[<u>*An   Maria*</u> ] *hat   mich* [<u>*kein   Brief*</u>   *t* ] *erschreckt*.
        to   Mary   has   me   no   letter   frightened
        "No letter to Mary has frightened me."

(24) a. <u>*Briefe*</u>   <u>*an*</u>   <u>*Maria*</u> *gefallen mir* <u>*keine*</u>.
        letters   to   Mary   please   me no
        "As for letters to Mary, they do not please me."

    b. <u>*Briefe*</u>   <u>*an Maria*</u> *haben mich* <u>*keine*</u>   *erschreckt*.
        letters   to   Mary   have   me   no   frightened
        "As for letters to Mary,  they have not frightened me."

Kniffka (1996:52) shows that subjects can be split up even when they precede modal particles which are often claimed to mark the boundary of VP. Likewise, in contrast to claims made in Diesing (1992), subjects of individual level predicates fail to disallow XP-splits:

(25) a. <u>*Ärzte*</u>   *dürften schon* <u>*ein*</u>   <u>*paar*</u> *altruistisch   sein*
        doctors   may   really a   few altruistic   be
        "As for doctors, a few will be altruistic"

b. *Skorpione sind ziemlich viele giftig*
scorpions are rather many poisonous
"As for scorpions, rather many of them are poisonous"

Dative indirect objects (26a-b) and many genetive (26c-d) noun phrases illustrate essentially the same point. They are islands for movement (Müller 1996, Vogel & Steinbach 1998), yet split noun phrases can be formed on their basis (Fanselow 1993, Kniffka 1996:33).

(26) a. *[*Über Polen* ] *ist hier noch* [*keinen Büchern* t ] *ein Preis verliehen*
about Poland is here yet no books-DAT a prize awarded
*worden*
been
"No books about Poland have been awarded with a prize here."
b. *Interessanten Büchern über Polen ist hier noch keinen ein Preis*
interesting books about Poland is here yet no a prize
*verliehen worden.*
awarded been
"As for interesting books about Poland, no prize have been awarded to any of them here so far."
c. *[*An Studenten* ] *habe ich ihn* [*schrecklicher Morde* ] *angeklagt*
at students have I him horrible-GEN murders-GEN accused
"I have him accused of horrible murders of students."
d. *Schrecklicher Morde an Studenten ist er vieler beschuldigt worden.*
horrible murders at students is he many accused been
"He has been accused of many horrible murders of students."

Similar arguments can be formulated with respect to the Specific Subject Condition and pragmatic constraints on movement. Thus, a number of stable generalizations concerning extraction[8] are not fulfilled by split noun phrases in German.

Mohawk is also in line with this picture. As Baker (1991, 1995) shows, *wh*-movement is subject to standard CED effects in Mohawk, cf. (27) (= (28), (29), and (30a) in Baker (1991)).

(27) a. *uhka i-hs-ehr-e' v-ye-atya'tawi-tsher-a-hnhnu-'*
who ∅-2sS-think fut-FsF-dress-nom-buy-punc
"Who do you think will buy a dress?" **Complement**
b. *\*uhka wa'-te-s-ahsvtho-' ne tsi wa'-e-ihey-e'*
who fact-dup-2sS-cry-punc because fact-FsF.die-punc
"*Who do you cry because (he) died?" **Adjunct Islands**
c. *\*uhka we-sa-tsituni- 'tsi wa'-t-ha-a'shar-ya'k-e'*
who fact-NsS2sO-make.cry-punc -dup-MsSknife-break-punc
"Who did that he broke the knife upset you?" **Subject Islands**

Noun phrases are intransparent for movement (28) (= (34) in Baker (1991)), but they can be split up irrespective of grammatical function (29) (= (40)-(41) in Baker (1991)).

(28) a. *\*uhka_i se-nuhwe'-s ne t_i ako-kara*
who 2sS-like-hab NE FsP-story
"Whose story do you like?"
b. *\*uhka we-sa-tsituni-' ne t_i ako-kara*
who fact-2sO-make.cry-punc NE FsP-story
"Whose story made you cry?"

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(29) a. *to ni-hati  wa'-she-kv-'  rati-ihn-a-rakv*
        how part-MpS  fact-2sS/3pO-see-punc  MpS-skin-be-white
        "How many white men did you see?"

   b. *to ni-hati wa-esa-kv'- rati-ihn-a-rakv*
        "How many white men saw you?"

   c. *ka nikayv  wa-hse-nut-e'  ne  kweskwes*
        which  fact2sS-feed-punc  NE  pig
        "Which pig did you feed?"

   d. *ka nikayv  wa'-ka-nvst-a-k-e'  ne  kweskwes*
        which  fact-ZsS-corn-eat-punc  NE  pig
        "Which pig ate the corn?"

The same problems arise in Slavic languages, as Sekerina (1997) shows. One of the most fundamental predictions of a movement account of split constituents, namely those of the bounding theory, is thus *not* borne out[9].

   There are further data that require additional complications in a movement account. In (30), one part of a split noun phrase occupies a position in a VP moved to clause-initial position, whereas the other part is left behind.

(30) [$_{VP}$ *Bücher gelesen* ] *habe ich keine*.
          books  read  have I  no
     "I have not read any books."

In principle, (30) might involve remnant VP movement (Thiersch 1985, den Besten & Webelhuth 1990, Müller 1998, but see Fanselow, in press) as exemplified by the derivation in (31). But the movement that precedes remnant VP-topicalization for (30) would not yield grammatical results in isolation, as (32) shows, and it would have to affect non-constituents in cases like (33):

(31) a. *hat man wahrscheinlich* [$_{VP}$ *den Mann geküsst* ]  ⇒
          has one probably  the man  kissed

   b. *hat man den Mann$_i$ wahrscheinlich* [$_{VP}$ *t$_i$ geküsst* ]  ⇒

   c. [$_{VP}$ *t$_i$ Geküsst* ] *hat man den Mann$_i$ wahrscheinlich*.
        "One has kissed the man probably."

(32) *dass ich keine damals Bücher gelesen habe.*
       that I  no  then  books  read  have
       "that I did not read any books at that time"

(33) a. *Ich habe* [*keine* [*Bücher über Maria* ]] *gelesen*.
        I  have no  books  about M.  read
        "I haven't read any books by Mary."

   b. *Bücher gelesen  habe ich noch keine über Maria*.

On the other hand, the overtly legal split operation (34a) does *not* feed remnant VP topicalization (34b) – in contrast to all other movement types.

(34) a. *weil  Bücher selbst der Fritz noch keine t geschrieben hat*
        because books  even  the F.  yet  no  written  has
        "Because even Fritz has not yet written any books"

   b. *\[[ noch keine t ] geschrieben ] hat Bücher selbst der Fritz*

   c. *Bücher geschrieben hat selbst der Fritz noch keine*.
        books  written  has  even the F.  yet  no
      "Even Fritz has not yet written any books."

If one finds a way of blocking (32), one could try harder and attempt to explain well-formed (30) or (34c) by two -rather than one- steps of movement preceding remnant VP topicalization. Thus, one could first move *Bücher* out of *keine Bücher*, so as to yield (35b). If it is now possible to front the remnant noun phrase *keine t*, as in (35c), one would have produced a constituent (in italics in (35c)) that contains exactly the phonetic material one needs to front in remnant VP topicalization for (30).

(35) a. (*habe*) *ich* [ <u>*keine*</u> <u>*Bücher*</u> *gelesen*]
     b. (*habe*) *ich* [ <u>*Bücher*</u> [ [ <u>*keine*</u> t ] *gelesen* ]]
     c. (*habe*) *ich* [ <u>*keine*</u> t ] [ [ <u>*Bücher*</u> [ t *gelesen* ]]

This last step preceding VP-fronting is problematic, however: it involves the scrambling (adjunction to VP/IP) of a category containing a scrambling trace itself. As Müller (1998) has observed, the ban against such a kind of movement is the core restriction on remnant movement:

(36) Unambiguous Domination:
     In … [$_A$ …B …]…, A and B must not undergo the same kind of movement.

We have seen, then, that simple movement theories of XP-splits face at least three types of problems:
     a) they cannot account for the repetition of phonetic material in imperfect splits.
     b) they cannot cope with the fact that XP-splits disrespect standard islands for movement (PP-islands, barriers by lack of l-marking).
     c) they cannot handle the existence of XP-splits in VP-fronting constructions easily.

## 3.2    Base generation theories

At least the first two of the three problems for movement accounts would not arise if the parts of split constituents would be base-generated in place. The idea that discontinuous phrases are generated as two (or more) independent constituents goes back to Hale (1983). According to him, split noun phrases (in Warlpiri) are a diagnostics for non-configurationality.

Thematic theory seems to militate against the view that more than one phrase is linked to a single thematic role, but whether this constitutes a problem depends on the nature of thematic linking. Hale (1983) proposed a theory of Lexical Conceptual Structure and its relation to phrase structure in which multiple linking of more than one NP to a single role is unproblematic. Furthermore, NPs fulfill functions other than the referential closing of argument slots in Warlpiri. It may even be the case that the *only* function of non-pronominal NPs in Warlpiri (Jelinek 1984) or Mohawk (Baker 1995) is that of adjuncts, so that no conflict with standard theta-theory arises. Van Geenhoven (1998) presents a semantic theory that is able to handle multiple XPs that are linked to the same argument slot, at least for the case of direct objects.

Hale, Jelinek, and Baker attribute the presence of (base-generated) split constituents to non-configurationality. This is not appropriate, since a survey of Australian languages (Austin & Bresnan 1996:262) revealed that the existence of split noun phrases neither depends on generally free constituent order (Diyari refutes such a connection) nor on enclitic pronouns bearing the argument function (Jiwarli has split noun phrases but no pronominal clitics). Therefore, a base generation account needs to assume that NPs may have non-argumental, attributive functions quite independent of non-configurationality, a possibility entertained, e.g., in Fanselow (1988), van Geenhoven (1998). See also Kuhn

(1998, to appear) for a base generation approach for split NPs within the framework of LFG.

Just as movement seems to be optimal for (37), base generation accounts are correct for (apparent) XP-splits in Japanese. As Tanaka (in prep.) observes, the type of NP-discontinuity exemplified in (38) must not involve movement in the crucial derivational steps, because no islands for movement such as the Coordinate Structure Constraint are respected (see (39a) vs. (39b)).

(37) a.  Who did you see a photo of?
     b.  *Who did a photo of please you?

(38) *Peter-wa  kuruma-wa  itsumo  akai-no-o  kat-teiru  yo*
     Peter-TOP  car-TOP     always  red-NO-ACC buy-PRES   PRT
     "As for cars: Peter always buys red ones"

(39) a.  *isu-wa     Peter-wa kinoo     rampu-to  kurashikkuno-no-o kat-ta*
        chair-TOP Peter-TOP yesterday  lamp-AND classical-NO-ACC   bought
        "Peter bought a lamp and a classical chair yesterday"
     b.  ??*isu-wa   Peter-wa  kinoo     rampu-to  kat-ta*
        chair-TOP Peter-TOP yesterday  lamp-AND bought
        "Peter bought a lamp and a chair yesterday"

The Japanese XP-splits (38), (39a) involve two independent noun phrases, one generated in an A-position, the other being merged in a Topic position. XP-splits of the Slavic and German type differ from Japanese, however, in that *certain kinds* of islands have to be respected. This fact can be accounted for in a base generation account only indirectly. (40a) illustrates the fact that the relation between the parts of an XP-split respects the Complex Noun Phrase Constraint in German. Similarly, the complex noun phrase (40b) is an island for both movement (40c) and split constituent formation (40d) in Croatian.

(40) a.  *\*Bücher habe ich *[*eine Geschichte dass sie  keine liest* ] *gehört.*
        books   have I    a      story        that she no    reads heard
        "I have heard a story that she does not read any books."
     b.  *Ivan je vidio* [$_{NP}$ *auto*[$_{RelCP}$ *koji  je Marija svojoj sestri kupila* ]]
        I.   is  seen     car       which is M.   her    sister bought
        "Ivan has seen the car which Mary bought for her sister."
     c.  *\*[$_{NP}$Čijoj sestri* ] *je Ivan vidio* [$_{NP}$ *auto* [$_{RelCP}$ *koji  je Marija* t$_i$ *kupila*]]?
        whose   sister is I.   seen     auto     which is M.       bought
        "Whose sister is such that Ivan saw the car which Mary bought for her?"
     d.  *\*Čijoj$_i$ je Ivan vidio* [$_{NP}$ *auto* [$_{RelCP}$ *koji je Marija* t$_i$ *sestri kupila* ]]?

Fanselow (1988) tries to account for such facts by assuming that one of the two parts of an XP-split has to obligatorily undergo movement to Spec,CP after having been merged independently of the other part of the split construction. Since the two NP parts are merged independently of each other, it is obvious why the relation between *keine* and *Bücher* itself need not respect islands for movement as such (41a). If *Bücher* has to under-go later movement (41b), the relation between *Bücher* and its trace must be compatible with subjacency, however – a fact Fanselow claims is able to capture (40a).

(41) a.  *er*   [$_{NP}$ *keine* ][$_{NP}$ *Bücher* ] *gelesen hat*
        he        no        books    read      has
     b.  [$_{NP}$ *Bücher* ]$_i$ *hat er* [$_{NP}$ *keine* ] t$_i$ *gelesen hat*
        "He has not read any books."

This argument is valid, however, only if there are additional constraints on the distance at which two XPs may be merged independently of each other when they are linked to the same thematic role. Otherwise, one could circumvent all islands constraints by simply merging the XP-parts at any distance. Even if such locality constraints on merger can be identified[10], a base-generation account of XP-splits for German leaves it open *why* one of the XPs must move to Spec,CP or the sentence internal "topic"-position in the sense of Frey (2000). Similarly, a theory which merges the parts of XP-splits in Croatian and Polish *in situ* would leave it unexplained why at least one part of a split DP and PP must appear in front of VP proper, in a focus position. There may be technical ways to guarantee that such a kind of movement takes place (see Fanselow 1988) but they are certainly not satisfactory.

A further disadvantage of base generation solutions is that they have little to say about a phenomenon favoring movement analyses. Riemsdijk (1989) observes that some linear order facts are unexpected în base generation theories[11]. Order is not free in German noun phrases. As (42a) illustrates, there is only one option for arranging the prenominal elements *keine, zwei, grüne* – which is mirrored in the discontinuous case, as (42b) shows. We can explain (42b) if the source of a split noun phrase is its continuous counterpart (=42a) – while it is not obvious how a base generation might capture (42b): noun phrases such *zwei Bücher*, *keine grünen*, *keine Bücher* or *zwei Grüne* are perfect if they form a single *complete* phrases. Thus, they should be able to co-occur within a single clause if they can be generated independently of each other.

(42) a. *keine  zwei  grünen  Bücher*
no    two   green   books
*\*keine grünen zwei Bücher*
*\*zwei keine grünen Bücher*
*\*grüne keine zwei Bücher*

b. *Grüne  Bücher  hat  sie  keine  zwei.*
green   books   has  she  no     two
"She does not have two green books."
*\*zwei Bücher hat sie keine grünen*
*\*keine Bücher hat sie zwei grüne*

Similarly, adjective order is not free. (43a) is unmarked while (43b) is not - the latter is fully acceptable only if *amerikanische* bears focal stress.

(43) a. [u]*Ich kaufe  neue  amerikanische  Bücher.*
I    buy     new    American        books
"I am buying new American books."

b. [m]*Ich kaufe AMERIKANISCHE neue Bücher.*
"As for new books, I am buying ones from America."

Interestingly, a similar pragmatic constraint holds for the discontinuous case. (44b) shares the pragmatic well-formedness conditions of (43b), while (44a) is as unmarked as a split noun phrase can be. This is explained if the split category in (44a) is derived from the continuous NP in (43a), and if the same holds for the pair (43b)-(44b).

(44) a. *amerikanische Bücher kaufe ich neue*
b. [m]*neue Bücher kaufe ich AMERIKANISCHE*

It is hard to imagine that such restrictions[12] can be made follow from semantic or related considerations in base generation accounts, at least, no such accounts have been proposed so far.

## 3.3    A Prosodic Option?

Zec & Inkelas (1990) assume that syntactic constituents may be split by enclitics in Serbo-Croatian. They claim that such data provides evidence for a phonological or prosodic placement of enclitics. For Croatian, (45) shows that the clitic-cluster may appear after a complex DP (45a), or apparently 'inside' the complex DP, as in (45b).

(45) a. *Taj čovjek **joj ga je**    poklonio.*
this man     her it    be$_{3sg}$ present$_{ptc}$
"This man presented it to her."

b. *Taj **joj ga je**    čovjek  poklonio.*
this her it be$_{3sg}$ man      present$_{ptc}$

Independent of whether one wants to concede that a prosodic rule of clitic placement can split a constituent, the examples discussed in the preceding sections do not only show that a prosodic solution cannot account for inverted splits in German - rather, many pull splits of Croatian cannot find a prosodic analysis either, because material other than clitics can intervene between the two parts of the split construction. Thus, as has been pointed out by Browne (1976), a *wh*-phrase can be fronted, leaving the head noun *in situ,* as in (46).

(46) *Kakav      je   Ivan  kupio      auto*?
what-kind-of  be$_{3sg}$ I.    buy$_{ptc}$      car
"What kind of car has Ivan bought?"

As Ćavar (1999) points out, the same type of syntactic discontinuity is possible with the constructions discussed in Zec & Inkelas (1990), In (47), a demonstrative is topicalized, being separated from the head noun of the complex DP by the subject *Ivan*, and not just by clitics.

(47) *Taj **je**    Ivan  kupio auto.*
this be$_{3sg}$ I.    buy$_{ptc}$ car
"Ivan bought this car."

Prosodic placement of clitics thus cannot be the general analysis of split constituents. Whether some XP-splits emerge as a result of prosodic clitic placement is an open issue, however. Thus, Browne (1975) argues that (48b) must be due to a non-syntactic clitic placement, because (48c) suggests that proper names can only be split in sentence initial position - quite unlike what we have seen in (46) and (47).

(48) a. *Lav Tolstoj **je**    veliki  ruski    pisac.*
Leo Tolstoy be$_{3sg}$ great   Russian  writer
"Leo Tolstoy is a great Russian writer."

b. ?*Lav **je**    Tolstoj  veliki ruski    pisac.*
Leo  be$_{3sg}$ Tolstoy   great Russian  writer

c. **Lav **je**    bio  Tolstoj veliki ruski    pisac.*
L.    be$_{3sg}$ be$_{ptc}$  T.       great  Russian writer

Franks (1998) and Ćavar (1999) argue, however, that proper names are split in syntax, too. While (49a) illustrates that both parts of a name can be inflected, there is a marginal possibility of inflecting the first word only in a complex proper name only. (50) from Franks (1998) shows that splits arise only when both words are overtly inflected (see also the discussion in section 5).

(49) a. *Lava  Tolstoja  čitam*.
      L.     T.          read$_{1sg}$
      "I am reading Leo Tolstoi."
    b. ?*Lava Tolstoj čitam*.

(50) a. <u>*Lava*</u> **sam** <u>*Tolstoja*</u> *čitao*.
      L.     be$_{1sg}$  T.        read$_{ptc}$
      "I read Leo Tolstoy."
    b. *<u>*Lava*</u> **sam** <u>*Tolstoj*</u> *čitao*.
      L.     be$_{1sg}$  T.        read$_{ptc}$

Similar conditions were observed in Bošković (1997) for syntactic split of proper names. As illustrated in (51), proper names can be split by non-enclitic elements, if both parts are inflected.

(51) a. <u>*Lava*</u>  *čitam* <u>*Tolstoja.*</u>
      L.     read$_{1sg}$T.
    b. *<u>*Lava*</u> *čitam* <u>*Tolstoj*</u>.
      L.     read$_{1sg}$T.

(51a) argues against a simple prosodic account of splitting proper names in Croatian (see also Ćavar (1999), on which the present discussion is based). However, Anderson (2000a) develops an approach to clitic placement in which inflectional affixes may share the distributional properties of clitics, and pied-pipe the verb they are attached to, so that the verb ends up in a position reserved for clitics otherwise. In such an account, (51a) turns out to not be very different from (48b). We will leave the issue of whether proper noun splits should be analyzed like other splits in Croatian open here, but we would like to point out that a purely prosodic account of clitic placement has serious shortcomings quite independent from the present discussion, as argued in detail in Ćavar (1999).

# 4   The Copy and Deletion Approach

## 4.1     The General Mechanism

The evidence considered so far seems paradoxical: some aspects of the split construction require a movement analysis, others rule it out. E.g., split DPs disrespect the subject island condition (52a), but respect the complex noun phrase constraint.

(52) a. <u>*Briefe*</u> <u>*an*</u> <u>*Maria*</u>  *haben   mich* <u>*keine*</u> *erschreckt.*
      letters to Mary  have   me   no     frightened
      "As for letters to Mary, none of them has frightened me"
    b. *<u>*Bücher*</u> *habe ich* [*eine Geschichte dass   sie* <u>*keine*</u> *liest*] *gehört.*
      books   have   I   a     story       that   she   no     reads heard
      "I have heard a story that she does not read any books."

For the contrast in (52), the following characterization suggests itself: a movement barrier $\Sigma$ does not block the formation of a split XP if and only if $\Sigma$ itself is the XP to be split up. This follows if (a) splitting up $\Sigma$ involves movement (then, (52b) is explained), but (b) not movement *out of* $\Sigma$[13]. If splits are not formed by moving something out of the category that will be split up, the subject condition has no chance to block (52a).

    The idea that split formation may involve movement, but not movement of part of XP out of XP is enigmatic at first glance only. It makes sense if we assume that a chain <$\Sigma$,

$\Sigma>$ is formed (so barriers dominating $\Sigma$ must be respected), in which the phonetic material of $\Sigma$ is *partially* realized in the upper position, and *partially* in the lower copy. This is the core idea of the partial (distributed) deletion account of split constituents.

Recall that movement is a combination of copying and movement in the Minimalist Program (the CD-theory of movement, see, e.g., Chomsky 1995, Nunes 2001). Thus, the overt movement of $\alpha$ involves the steps in (53): First, $\alpha$ is copied to its landing site (53b), then the copy left behind is deleted, or made invisible to the phonological component.

(53) a. ………$\alpha$…………
     Copying $\Rightarrow$
 b. $\alpha$……$\alpha$…………
    Full Deletion of lower Copy $\Rightarrow$
 c. $\alpha$……$\alpha$…………

There is evidence that the deletion of the lower copy is not an automatic sequel to movement. Rather, as was argued, e.g., by von Stechow (1992), Groat & O'Neill (1996), Pesetsky (1998) and Sabel (1998), among others, at least some instances of covert movement[14] are better analysed as movement in the overt component, with the upstairs rather than the downstairs copy being made invisible to the phonological component:

(53) Full Deletion of Upper Copy $\Rightarrow$
    c.' $\alpha$……$\alpha$……

While these two modes of realizing chains phonologically may be considered standard, there exist other ways of dealing with copies in chains, which have received less attention. Thus, as was originally pointed out by Höhle (1996), copies of "light" *wh*-phrases may fail to be deleted in the so-called "Copy-Construction", see Hiemstra (1986), Fanselow & Mahajan (2000), Fanselow & Ćavar (2001), and Nunes (2001) for analyses.

(54) *wer denkst du denn wer du bist*?
     who think you ptc who you are?
     "Who do you think you are?"

Furthermore, Pesetsky (1998) argues that (certain) resumptive pronouns reflect the failure of copies of movement to delete completely. Thus, there seems to be some evidence that (53c) and (53c') are not the only legal modes of treating chains in terms of phonological realizations. What we would like to add to this picture is the idea that, under certain conditions, deletion may affect *both* the upstairs *and* the downstairs copy, but in a partial way so, which yields the split XP construction. Thus, simplifying matters first, assume that a movement step maps (55a) onto (55b), by copying a noun phrase. If the downstairs copy deletes completely, we get standard topicalization (55c), if part of the lower material is retained, split topicalization arises (55d).

(55) a. *hat er keine Bücher gelesen*
        has he no books read
        **Copying of the noun phrase** $\Rightarrow$
 b. *keine Bücher* hat er *keine Bücher* gelesen
    **"Overt" movement because of full deletion of lower copy** $\Rightarrow$
 c. *keine Bücher* hat er ~~*keine Bücher*~~ gelesen
    **Split noun phrase because of partial deletion in both copies** $\Rightarrow$
 d. ~~*keine*~~ *Bücher hat er keine* ~~*Bücher*~~ *gelesen*

Under such a view[15], it is obvious why simple island effects fail to arise with split XPs: the step from (55b) to (55d) does not involve movement at all (so the XP to be split up cannot be a barrier), but split formation involves movement, so that barriers containing the lower XP have an effect on well-formedness (52b).

Partial or distributed deletion as envisaged here is an extension of partial reconstruction at LF to the overt component of grammar[16]. Reflections on the failure of quantifier raising or LF-*wh*-movement to bleed Principle C effects (see e.g. Fox 1995, Nunes 1995, Pesetsky 2000) and further considerations (see Chomsky 1995) suggest that the *semantic* material of a phrase may end up being distributed to more than one position in a chain. It has been observed, e.g., that LF quantifier raising normally does not bleed the effects of Principle C of the Binding Theory. Thus, *him* and *John* cannot be coreferent in (56), although Quantifier Raising of the object should yield an LF-representation such as (57), in which *John* is no longer c-commanded and bound by *him*. If, however, as much semantic material of the quantified NP is reconstructed after LF-movement as is compatible with the necessity to keep the quantificational head in place, as in (57'), a structure arises that represents scope, does not fail to imply the Principle C effect and which is, in effect, identical with the kind of structure that arises by partial deletion in overt syntax, according to our account[17]. See Fox (1995), Pesetsky (2000), Wilder (1997) for arguments that show that partial reconstruction is superior to an analysis in which Principle C is checked before LF-movement.

(56) *I sent him$_i$ [every letter John$_i$ expected]

(57) *[every letter John$_i$ expected]$_k$ I sent him$_i$ t$_k$

(57') *[every]$_k$ I sent him$_i$ [t$_k$ letter John$_i$ expected]

## 4.2    Pragmatic Conditioning

Both in Croatian and in German, XP-splits go hand in hand with a particular pragmatic structure that was studied in detail by Kniffka (1996) and de Kuthy (2000) for German, and for Slavic languages, e.g., by Siewierska (1984) (Polish), Lapteva (1976) and Sekerina (1997) (Russian). In a split construction, the right part of XP must be focal, while the lefthand part may be a (link-) topic or a second focus. Note that both Croatian and German sentence structure offer a number of positions reserved for YPs with specific pragmatic functions, such as focus and topic positions (see Frey 2000, Pili 2001). Bringing these observations together, the following generalization suggests itself: the XP-split construction is grammatical only if a single XP must fulfill two different positional requirements defined by pragmatic constraints on order[18]. In other words: Suppose that XP bears a feature $f_1$ that requires that XP be overtly realized in position A, and an additional feature $f_2$ that forces XP into position B. Then XP is split up in languages like Croatian or German.

(58) [[$_A$ XP] ..... [[$_B$ XP] ......]]]

This general idea can be made precise along the following lines. Suppose that an XP = [a$^p$ [b c]$^q$] bears two semantic or pragmatic features p, q, such as [+wh], [+focus], [+link-topic], etc., and suppose that these feature are checked by corresponding heads H$^p$ and H$^q$ in the standard way: the head attracts a phrase bearing a corresponding feature. Consider now a structure such as (59a). If the features p and q must be checked on H$^p$ and H$^q$, respectively, (59b) will arise after two instances of movement/ attraction.

(59) a.   [H$^p$ .... [H$^q$ ... [$_{XP}$ a$^p$ [b c]$^q$]]]
      b.   [[$_{XP}$ a$^p$ [b c]$^q$] [H$^p$ .... [[$_{XP}$ a$^p$ [b c]$^q$] [H$^q$ ... [$_{XP}$ a$^p$ [b c]$^q$]]]]]

In the approach proposed here, the "strength" of the attracting feature does not determine whether movement (copying) applies before Spellout or not. Rather, copying always takes place as soon as possible. The strength of the attracting feature rather determines which of the copies created by movement is spelt out. In the "easy" case, the attracting features of both $H^p$ and $H^q$ are weak, so that the lowest copy is spelt out (=59c) if (60) holds.

(59) c. $[[_{XP} a^p [b c]^q] [H^p \ .... \ [[_{XP} a^p [b c]^q] [H^q ... [_{XP} a^p [b c]^q]]]]]$

(60) In a chain C = $<C_1,C_2>$ of XP, $C_1$ is not spelt out if the feature attracting XP to $C_1$ is weak.

For heads with strong attracting features, the most simple implementation of standard ideas would seem to be (61). (61) yields correct results when only one attracting feature is strong (as sketched in (59d)), but problems arise as soon as two attracting heads have strong features, as seems to be the case in the split construction (both parts appear in positions related to semantic/pragmatic features). (61) would then require that XP be spelt out in both positions.

(61) In a chain C = $<C_1,C_2>$ of XP, $C_1$ is spelt out if the feature attracting XP to $C_1$ is strong

(59) d. $[[_{XP} a^p [b c]^q] [H^p \ .... \ [[_{XP} a^p [b c]^q] [H^q ... [_{XP} a^p [b c]^q]]]]]$

Multiple full copies of a single phrase (caused by the presence of two strong features of different heads attracting the same XP) seem non-existent in natural languages. Thus, (61) cannot be maintained. A situation in which both p and q of $[_{XP} a^p [b c]^q]$ are attracted by corresponding strong features of different heads either implies ineffability, or the XP-split construction. The former situation holds in Dutch (where a constellation in which one part of an NP is focal, the other topical, simply cannot be expressed, as Henk van Riemsdijk (p.c.) points out), the latter in German and Croatian.

(62) Suppose C = $<C_1,C_2>$ is formed because a strong feature of H has attracted XP and suppose that H checks the operators features $f_1 ... f_k$ of XP. Then the categories bearing $f_1 ... f_k$ must be spelt out in $C_1$.

According to (62), operator positions checked by strong features must be filled by phonetic material bearing the corresponding operator feature. This implies an XP-split construction whenever the operator features are checked in two different specifier positions.

When a phrase bears only one operator feature, it is not split up, even if not all of its parts bear that feature. This is guaranteed if the phonetic spellout is governed by a contiguity principle (see Fanselow & Ćavar 2001): material that is contiguous at one step in the derivation (that is, e.g., merged as a single phrase) should remain contiguous unless other principles force a violation of contiguity. The absence of a split construction in languages like Dutch may then be a consequence of a constellation in which contiguity cannot be violated in the interest of (62).

## 4.3    Anti-Freezing

In the preceding section, we have seen why XP-splits arise only if XP bears two different pragmatic or semantic functions. The mechanism of splitting XPs that is implicit in (62) makes a stronger claim: it presupposes that phrases that are split are *moved* to specifier positions linked to operator features. Is this stronger claim really justified? At least for Croatian, the answer seems to be positive.

In section 3.1., we have observed that barriers such as subject islands, dative islands or PP islands are not respected by split constituent. Croatian obeys a further restriction:

descriptively speaking, a constituent cannot be split up in its root position, rather, a split is possible just in case both (all) parts of the XP occupy derived positions. Thus, as (63) illustrates, a PP cannot be split up if part of it remains in the base position following the verb (recall Croatian is an SVO language underlyingly):

(63) a. *<u>na</u> <u>kakav</u> je Ivan bacio loptu <u>krov</u>
      on what   is Ivan thrown ball  roof
  b. *<u>na</u> <u>kakav</u> je Ivan bacio <u>krov</u> loptu
  c. <u>na</u> <u>kakav</u> je Ivan <u>krov</u> bacio loptu

Dative DPs share these properties. They are islands for extraction, as (64a) illustrates. Nevertheless, they can be split up, as expected (64b), but only so if no part of the discontinuous NP follows the verb (65)[19].

(64) a. *<u>čega</u> je policajac pokazao šoferu put za Split
     of what is policeman shown  driver  way to split
     "The policeman has shown the way to Split to the driver of what?"
  b. <u>šoferu</u> je policajac <u>autobusa</u> pokazao put za Split
     driver is policeman of-bus  shown  way to Split
     "The policeman has shown the driver of the bus the way to Split."

(65) a. *<u>čijoj</u> je Ivan dao knjigu <u>sestri</u>
     whose is Ivan given book  to sister
     "Whose sister has Ivan given the book to?"
  b. *<u>čijoj</u> je Ivan dao <u>sestri</u> knjigu
  c. <u>čijoj</u> je Ivan <u>sestri</u> dao knjigu

It thus appears as if splitting up DPs and PPs is possible in derived positions only. This is predicted if the spellout principle (62) refers to chains and attractors, and not to focus or topic positions. However, in Croatian (and in Polish), there is an exception to the generalization just presented: accusative noun phrases can be discontinuous even if part of the DP follows the verb:

(66) <u>Čiju</u>  je Ivan vidio <u>sestru</u>?
    Whose is Ivan seen  sister
    "Whose sister has Ivan seen?"

This difference may find a straightforward explanation if we acknowledge the fact that accusative noun phrases in base generated positions cannot be islands for movement. (66) could thus be due to *normal* extraction, which may reduce to a remnant movement of the accusative NP following standard extraction from NP, or to some sort of left branch extraction[20].

## 4.4     The Two Types of Splits

The formation of XP-splits involves a copying operation followed by two instances of partial deletion. One therefore expects that constraints on copying/ movement exert some influence on the nature of XP-splits. XP-splits arise when an XP = $[_{XP}\, a^p\, [b\, c]^q]$ possesses two operator features p and q attracted by different heads in a constellation such as (59a) repeated here for convenience.

(59) a. $[H^p\, ....\, [H^q\, ...\, [_{XP}\, a^p\, [b\, c]^q]]]$

It is reasonable to assume that the features p and q in XP stand in a c-command relation to each other. In Chomsky (1995), operator features are taken to be "subfeatures" of

categorial features. Recall that overt movement is triggered by the need to check categorial features (or their subfeatures) only, and that it is subject to the Minimal Link Condition. Suppose that p and q are always subfeatures of the same "type" in terms of the functioning of grammar. Then their attraction is *always* subject to relativized minimality[21] and/or A-over-A[22]-effects: in $[_{XP}\, a^p\, [b\, c]^q]$, only p but not q can be attracted. Furthermore, syntactic features (may) become invisible for the computational system after being checked. Thus, a relativized minimality or A-over-effect exerted by $a^p$ in (59a) disappears as soon as p has been checked. The feature q becomes accessible for attraction/movement as soon as p has been checked in $[_{XP}\, a^p\, [b\, c]^q]$.

In other words, a converging (successful) derivation will have the properties sketched in (67): In the constellation (67a), $H^1$ can attract p only and not q, because p is closer to $H^1$ than q. After copying, p is checked in (67b), so that $a^p$ ceases to block further attraction of q. (62) guarantess, however, that $a^p$ must be spelt out in the specifier position of $H^1$. The second copying step moves $[_{XP}\, a^p\, [b\, c]^q]$ to the specifier position of $H^2$, with q being the attracted feature. Because of (62), q must find a phonetic realization in the new landing site. Thus, (67c) is spelt out as in (67d), i.e., an inverted split arises. Recall that in the constellation in question, neither (60) nor (62) imply that any material must be present in the root position, so that no phonetically realized elements will appear there, in order to minimize the degree to which the contiguity[23] of XP is violated.

(67) a. $[H^2\, ....\, [H^1\, ...\, [_{XP}\, a^p\, [b\, c]^q]]]$

   b. $[H^2\, ....\, [[_{XP}\, a^p\, [b\, c]^q]\, [H^1\, ...\, [_{XP}\, a^p\, [b\, c]^q]]]]$

   c. $[[_{XP}\, a^p\, [b\, c]^q]\, [H^2\, ....\, [[_{XP}\, a^p\, [b\, c]^q]\, [H^1\, ...\, [_{XP}\, a^p\, [b\, c]^q]]]]]$

   d. $[[_{XP}\, a^p\text{-}[b\, c]^q]\, [H^2\, ....\, [[_{XP}\, a^p\, \cancel{[b\, c]}^q]\, [H^1\, ...\, \cancel{[_{XP}\, a^p}\, \cancel{[b\, c]}^q]]]]]$

That relativized minimality considerations imply that XP-splits are of the inverted type is a welcome consequence, given that inverted splits are the default version of the split construction.

Pull splits preserve the c-command relations among the overt elements of the continuous XP: an XP merged as [a [b [c]]] appears as [a [X [b [Y [c] ....]]]] at the surface. Therefore, pull splits may be related to the Parallel Movement Constraint (PMC) proposed by Müller (2001).

(68)    Parallel Movement Constraint
        If A c-commands B at level L, then A c-commands B at level L'

The PMC requires that c-command relations generated in the base should be preserved (to the extent that this is possible). If the PMC is interpreted as a principle governing phonetic realizations, pull splits will be generated.

Having identified the two principles of grammar that might be made be responsible for inverted and pull splits, respectively, one has to identify the "traffic rules" for their interaction. Initially, one might suspect that the choice between pull and inverted splits is correlated with the *relative ranking* of the relativized minimality/A-over-A condition and the PMC in the spirit of Optimality Theory. Structures that respect one of the two constraints inevitably violate the other. What is grammatical and what not would thus be a function of which of the two principles has priority over the other.

This simplistic account fails for two reasons, however, First, it predicts that there are languages in which only pull splits exits (in which PMC outranks the A-over-A condition), and this does not appear to be the case. Second, it ignores the fact that the choice among pull and inverted split seems to be correlated with the operator features involved - at least in German. When the split XP involves a wh-feature and a topic/focus

feature, the choice of split type must reflect the hierarchical relations among the attracting heads:

(69) a. *Bücher weiss ich   nicht  wieviel    er    gelesen hat.*
         books  know I     not    how many he    read    has
         "as for books, I do not know how many of them he has read"
     b. *wieviel     denkst  du   dass er    täglich Bücher liest?*
         how many think    you  that he    daily   books  reads
         "how many books do you think that he reads every day?"

When no wh-feature is involved, splits are inverted. This observation suggests a refinement of an assumption made above. Recall that the A-over-A-condition and/ or the Minimal Link Condition affect features only that are *identical* from a grammatical perspective. The distribution of split types in German suggests that topic and focus features are identical from the perspective of the Minimal Link Condition, while the wh-feature is different from the topic-focus feature. Therefore, wh-splits do not have to be inverted.

For Croatian (and perhaps Slavic languages in general), we then only have to add the assumption that topic and focus features may *optionally* be treated as distinct. If they are, the A-over-A condition/the MLC will no longer force an inverted serialization of the split construction, as required.

## 4.5    Island Effects Revisted

Features present on specifiers, determiners, adjectives (and, arguably, the noun) can trigger the pied piping of the complete DP in wh-movement contexts, as (70) illustrates for German.

(70) a. [*das **wievielte**          Buch*] *ist  das*?
         the  "how-many-eth" book  is   that
         "how many books does that make"
     b. [*ein **wie** teueres     Buch*] *hat sie gekauft*?
         a     how expensive  book   has she bought
         "how expensive a book has she bought"
     b'. [***wessen** Buch*] *hat er gekauft*
         whose    book   has he bought
     b''.[***wem** sein Buch*] *hat  er   gekauft*                    (dialectal)
         who  his   book  has  he   bought

     (*sie wollte wissen*) (she wanted to know)
     c. [*den **wievielten**        Geburtstag*] *er      heute  feiert*
         the  how-many-eth birthday         he     today  celebrates
         "how old did he get today"
     d. [*ein **welcher** Student*] *das  geschrieben hat* (dialectal)
         a    which    student    that written       has
     e. ***welches** Buch hat  er   geschrieben*
         which     book has  he   written

On the other hand, there is no pied-piping for features that follow the noun, that is, for features c-commanded by the lexical noun.

(71) *es ist egal* – "it does not matter"

    a. *\*einen    Bruder  von  **wem**  sie liebt*
       a           brother of   whom she loves
       "whose brother she loves"

    b. *\*einen  Bruder  **wessen**  sie  liebt*
       a          brother whose  she  loves    (=a.)

    c. *\*den  Versuch  **wen**  zu  kuessen er  wagte*
       the   attempt  who  to  kiss    he  dared
       "who he made an attempt to kiss"

    d. *\*eine Geschichte, dass sie  **wen**  liebt, er glaubte*
       a     story       that she who  loves he believed
       "who he believed a story that she loved"

    e. *\*einen Mann  der  **wen**    liebt  er kennt*
       a      man   who whom  loves  he knew
       "who he know a man who loves t "

We will not attempt to derive this generalization from general principles, and confine ourselves to stating it: If a head H attracts the feature f, then $\Sigma = [_{DP} \dots f \dots ]$ can be pied piped only if f is not c-command by the nominal "head" of the DP.

    XP-splits involve the attraction of two features residing in XP. We expect, then, that a DP may be split only if both parts contain "prenominal" material. Recall that a DP is split up only if it is attracted twice to specifier positions in which operator features are checked. These features must sit in the prenominal domain for there being a chance of pied piping the complete DP. This prediction is borne out:

(72) a. *<u>Bücher</u>  kaufe  ich  <u>keine.</u>*
       books    buy    I     no
       "I buy no books."

    b. *<u>Bücher</u>  kaufe  ich  <u>nur  Peters.</u>*
       books     buy   I    only Peter's
       "I just buy Peter's books."

    c. *<u>Bücher</u>  kaufe  ich  <u>interessante.</u>*
       books    buy    I    interesting
       "I buy interesting books"

    d. *<u>blaue</u>  kaufe  ich  <u>keine.</u>*
       blue    buy    I    no
       "I don't buy blue ones."

    e. *<u>interessante</u> <u>Bücher</u> kaufe  ich  <u>keine</u> <u>neuen</u>.*
       interesting  books  buy  I    no     new
       "I do not buy any new interesting books"

Furthermore. there can be no XP-splits in which one part contains postnominal material only. This prediction is also borne out in, and (73) illustrates an important consequence. Recall that underlying subjects and indirect objects are barriers for movement in German (Müller 1996), as exemplified in (73). XP-split formation does not respect these islands, because splitting up a DP does not involve extraction *out of* that DP. We must guarantee, then, that (73) cannot arise by moving the complete DP and *splitting it up* by partial deletion. Our model implies this without further stipulations: in [*keine* [*Briefe* [*an Maria*]] the PP *an Maria* is c-commanded by the noun *Briefe*. The attraction of a feature residing in PP thus cannot trigger the pied-piping of the whole DP – which is necessary for the emergence of a split construction involving *an Maria* and *keine Briefe*.[24]

(73) *[DP ~~keine Briefe~~ *an Maria*] *haben* mir [*keine Briefe* ~~an Maria~~] *gefallen*
        no   letters to Mary  have me  no    letters  to Mary   pleased
    "No letters to Mary have pleased me"

For the same reason, the examples in (74a,c) cannot arise. The CNPC cannot be circumvented either by using partial deletion for deriving phonetic strings blocked by movement constraints: *wen* in (75a) could not have triggered pied piping, as (75b) shows.

(74) a. *<u>*den* *ich* *kenne*</u> *mag ich* <u>*jeden*</u>
     who  I   know   like I   everyone

    b. *ich mag jeden*   *den ich kenne*
      I   like everyone who I   know
      "I like everyone who I know."

    c. *<u>*dass* *Maria* *schläft*</u> *machte er* <u>*die* *Behauptung*</u>
      that   Mary  sleeps  made   he the  claim

    d. *er machte die Behauptung, dass*   *Maria schläft*
      he made   the claim     that   Mary sleeps
      "he made the claim that Mary is sleeping"

(75) a. *<u>*wen hast du eine Geschichte, dass sie t liebt*</u> *kritisiert*
     who  have  you  a   story      that   she  loves   criticized
    "Who did you criticize a story that she loves t ?"

    b. *es ist egal*   [CP [DP *eine Geschichte dass sie wen liebt*] *du kritisiert hast*
      it  is equal      a   story       that she who loves you criticized have
    "it does not matter about who you have criticized a story that she loves him"


# 5   Morphological and other wellformedness conditions

## 5.1    Strong and weak inflection

In German, determiners, quantifiers and adjectives take their morphological forms from two paradigms, the "strong" and the "weak" inflection. The choice is determined by the syntactic context. Thus, in the neuter nominative/accusative paradigm, the negative universal quantifier takes the form *kein* if it appears in a noun phrase with a lexical noun (or an adjective), as in (76a). If the noun phrase neither contains a lexical noun nor an adjective, as in (76b-c), the strong form *keines* must be chosen. When a noun phrase is discontinuous, as in (77) - (78), the form which *kein* takes is *not* the one found in the corresponding continuous case (compare (76a) with (77)). Rather, *kein* takes exactly the form it would have if the second part of the split noun phrase would be a single, independent noun phrase.

(76) a. *er hat* <u>*kein* *Geld.*</u>
     he has  no   money

    b. *er hat* <u>*keines/\*kein.*</u>
     he has  none

    c. *er hat* <u>*keines/\*kein*</u> *aus*   *Deutschland.*
     he has none        from  Germany

(77)  <u>*Geld*</u>       *hat*    *er*     <u>*kein-es/\*kein.*</u>
     money      has    he     no
    "he has no money."

(78)  *Geld*     *hat*   *er*    *kein*  *amerikanisches*
     money     has    he     no     American
     "he has no American money"

In other words, the second part of the split noun phrase takes the shape of a well-formed *complete* independent noun phrase with identical lexical content. The same holds for the first part. When an adjective such as *englisch* "English" is preceded by a definite determiner, it appears in the weak form *englische* in a neuter nominative/accusative situation (79a), while the strong form must be used when no determiner precedes or if the adjective follows an indefinite determiner (79b). In the discontinous case, the form of the adjective in the first part of the split noun phrase again is not necessarily the one it would take in the corresponding continuous DP. Rather, it takes the form it would have if the first part would be a simple independent noun phrase.

(79) a. *ich*   *habe*  *nur*   *das*   *englische*   *Geld*      *da.*
       I      have    only   the    English       money      there
       "I just have this English money over there."
     b. *ich*   *habe*  *(ein)*   *englisches*   *Geld.*
       I      have    (an)     English        money
(80)  *englisches*   *Geld*      *hab*   *ich*   *nur*   *das*   *da.*
     English       money      have   I      only   that   there
     "I just have this English money."

This observation concerning the local morphological well-formedness of the parts of a split noun phrase is an old one (cf., e.g., Haider 1985). It has been used as an argument against a movement analysis, which is far from being convincing because there is no reason to believe that the morphological shape of the determiner or adjective is not determined *after* copying and deletion[25]. In other words, the morphemes merged into a syntactic representation are abstract entities. These abstract morphemes can be marked as [-pronounced] after the copying part of a movement operation. How they are spelt out is determined by the constellations they are part of at the spellout level. In a DP-split construction, both parts are dominated by a DP node. Thus, (81) affects both parts of the split DP. The strong-weak distinction in the form of the articles and adjectives is but one of the conditions that must be met by both parts of the split construction.

(81) The phonetic string dominated by a DP node must meet the lexical and morphological wellformedness conditions for DPs.

## 5.2 Overt determiners

The discussion in the preceding paragraph helps to understand a fundamental restriction concerning the formation of pure DP-splits in German. As had already been observed in the early work concerning DP-splits (Fanselow 1988, van Riemsdijk 1989), DP-splits can be wellformed in certain varieties of German only if split phrase is a plural DP, or is projected from a mass noun. Thus, contrasts such as (82) can be observed:

(82) a.  *\*Alten*  *Professor* *kennt*  *sie*   *keinen*
       old       professor  knows   she    no
       "she know no old professor"
     b.  *Alte*  *Professoren* *kennt*  *sie*   *keine*
       old     professors   knows   she    no
       "she knows no old professors"

An informal internet questionnaire study revealed that only 3 out of 45 native speakers of German rated (82a) as grammatical. The "best" comparable structure (83) was accepted by 15 of the 45 consultants (of which only one rejected pure splits of plural DPs).

(83) *Lampe habe ich keine*
     lamp   have  I   no
     "I have not got a lamp"

The restriction in question is easy to understand: unless they are headed by a mass noun, German singular noun phrases are well-formed only if they have an overt determiner – unlike what holds for the plural:

(84) a. *ich kenne Professoren*
        I    know  professors
     b. *\*ich kenne Professor*
        I    know  professor
     c. *ich kenne einen Professor*
        I    know  a      professor

Whatever the nature of the restriction exemplified in (84) is, it creates a problem for the phonetic realization of a split construction [[~~einen~~ *Professor*] …. [*einen* ~~Professor~~] ….], because it implies in conjunction with (81) that the first occurrence of the copied DP cannot be pronounced without a determiner. In this situation van Riemsdijk's regeneration idea comes into play. Since singular count nouns do not constitute well-formed DPs by themselves, *alten Professoren* in (82a) must not be part of a split DP. The problem can be circumvented, however, by 'inserting' an indefinite article into the determiner position of the left copy of the DP.

(82) c. *einen alten Professor kennt sie keinen*
        an    old   professor knows she  no
        "she know no old professor"

If we follow the standard idea that *keinen* is the spellout of a negative operator merged with an indefinite determiner, the following description seems natural: An abstract DP [neg [indef [alt [professor]]]] is copied to two operator positions. If two operator features are present, the constellation [[~~neg [indef~~ [alt [professor]]]] --- [neg [indef [~~alt~~ ~~[professor]~~]]] …. ] arises, in which the abstract morphemes ~~neg~~ and ~~indef~~ have been marked as [-pronounced] in the lefthand copy. This implies a conflict between require-ment (85) blocking the realization of singular count DPs without overt determiners, and the pronunciation principle (86) that requires that no material be pronounced twice. If the former principle is stronger than the latter, the [-pronounced] instruction for abstract [indef] is ignored in the left copy – this is the most economical way of respecting DP well-formedness. Consequently, [indef] is pronounced as *einen* as in (82c). This happens in the dialect of most speakers of German. The minority dialect ranks pronunciation economy (86) (=non-pronunciation of *indef*) higher than the determiner requirement (85a). For these speakers, (82a) is grammatical.

(85) Singular count DPs start with a determiner
(86) Do not pronounce material twice

This dialectal difference constitutes an aspect of the split construction that is easy to account for in Optimality Theory. The same holds for (87). This sentence has been rated as ungrammatical by only 2 of the 45 consultants (9 found the sentence questionable, and

34 grammatical) - which is surprising given the number mismatch between the left and the right part of the split DP.

(87) *Zeitungen*    *liest*    *er*    *nur*   *eine*    -      *die*      *taz*
      newspapers   reads   he   only   one        the      taz
      "As for newspapers, he only reads one: the taz"

Such constructions are grammatical only if the left DP is plural, and the right DP singular. The reverse constellation is strongly ungrammatical. Assume that the DP that was merged originally is *nur eine Zeitung* "only one newspaper-SG" - or rather a constellation of abstract morphemes corresponding to that. After copying and partial deletion, the configuration (88) arises. The left copy in (88) violates (85). One way of dealing with the problem is to 'insert' an article (if (85) outranks (86)), which leads to (90b), while the minority dialect tolerates (90a) since (86) >> (85). But there is a further way of dealing with the problem constituted by (85): one can realize the lefthand DP in the plural, so that (85) is not violated at all. Such a strategy obviously violates a further principle of spellout: abstract formal features should find the proper phonetic realization. But if (85) >> (89), the slight deviation from the input is warranted.

(88)       [$_{DP}$ zeitung, sg] liest er [$_{DP}$ nur eine]
(89)       Feature Faith:
           The Phonetic Realization must respect the formal features of the input
(90) a. *Zeitung*       *liest*    *er*   *nur*   *eine*
          newspaper-SG reads   he   only   one
     b. *eine Zeitung*    *liest*   *er*   *nur*   *eine einzige*
        a    newspaper reads   he   only   a     single

(91) exemplifies a number of puzzles that arise in the context of DP splits in German. The structures exemplified in (91) have been used as arguments in favor of base-generation by Fanselow (1988, 1993), but they can be dealt with successfully in the present theory as well if one assumes more pronunciation principles like (85). Thus, the order of the words in the two copies of the split DPs is *not fully* inverted sometimes. The sequence that *keine nur Bücher* that underlines (91a) in our account is ungrammatical, as (91b) shows, because *nur* 'only' must be left-peripheral in a DP, while relative clauses (91c,d) have to appear at the right edge. Does this argue against deriving (91a,c) from the sources like (91b,d)? If the two serialization constraints just mentioned do not govern the construction process of noun phrases, but rather apply to DPs in isolation at surface structure, the contrast in (91a-d) is explained: by splitting it up, the DP loses its offending properties.

(91) a. *nur Bücher* *liest*   *er*    *keine*
       only books   read   she   no
       "He just does not read any books."
     b. **er liest keine nur Bücher*
     c. *Bücher, die*    *erfolgreich*   *waren,* *kennt*   *er*     *keine von*    *Maria*
       books    which successful    were     knows   he      no     by      Mary
     d. **er kennt keine Bücher, die erfolgreich waren von Maria*
       "He does not know any books by Mary that have been successful."
     e. *Bücher*     *hat*    *er*     *welche*
       books      has    he     some
     f. **er hat welche Bücher*

Likewise, *welche* "some" cannot co-occur with an overt noun in German, a problem that *welche Bücher* manages to solve in (91e) by splitting up.

## 6   Loose Ends

### 6.1      The English - German/Slavic Contrast

So far, we have focused on problems that may arise in the left copy of a split DP. The restrictions affecting the righthand copy of an inverted split seem to have more severe consequences.

In an inverted DP-split, the right copy has no overt nominal head. In German and Slavic, this cannot create a problem because the overt realization of a noun in DP is never necessary. Likewise, Warlbiri noun phrases need no overt noun (Hale 1983), the same holds for West Greenlandic (Fortescue 1984), Latin (Kühner-Stegman 1976, §§61,247, Ostafin 1986), and Dyirbal and Yidiñ (Dixon 1972, 1979). The option for omitting a noun, that is, the option for an ellipsis of the complement of some functional category in the DP, is certainly related to the "strength" of agreement in the noun phrase in these languages. Lobeck (1991) suggests that only agreeing functional heads permit ellipsis of their complements.   Languages tolerating noun ellipsis allow a split construction. In contrast, most English noun phrases need an overt nominal head. The literal translation (92b) of German (92a) is ungrammatical - the empty nominal position must be filled by *one*, as in (92c). No XP-splits exist (92d). Noun ellipsis is also impossible in Japanese, which has no movement-based split construction either.

(92) a. *Ich      kaufe ein      teures*
     b. *I       buy     an       expensive
     c. I buy an expensive one
     d. *books, I bought three expensive

Fanselow (1988) tries to derive the grammaticality of XP-splits from the independent existence of DPs lacking an overt noun. Because of the repair strategies discussed in 5.2, the present model does not correlate XP-splits and the existence of noun phrases without nouns.

### 6.2      PP-splits

Since local wellformedness requirements as discussed in 5.2. imply that the parts of a split DP should come as close as possible to the shape that complete independent DPs have, it is natural to suspect that the same holds for split PPs. (93) seems to be an obvious and trivial condition for the phonetic realization of PPs. It implies that PPs cannot be split in the strict sense (94): only one of the two copies can fulfill (93) if distributed deletion is maximal.

(93)   Left Edge of PP
     PPs begin with an overt preposition
(94) *<u>Bücher</u> hat er <u>in</u> <u>keine</u> geschaut*
     books     has he in no      looked
     "He has not looked into any books."

Just as in the cases discusses in 5.2., the problem can be repaired by choosing a less economical pronunciation, that is, by realizing the preposition in both copies:

(95) *<u>in</u> <u>Schlössern</u> habe ich noch <u>in</u> <u>keinen</u> gewohnt*
     in castles      have I     yet    in no      lived
     "So far, I have not yet lived in any castle."

However, two copies of the preposition are retained in inverted splits only, and not in pull splits, as (96) shows:

(96)    *Na   kakvo       se  Ivan  stablo  penje*?            (Croatian)
        on   what-kind-of  self  I.     tree   climbs
        "On what kind of tree does Ivan climb?"

This difference might be captured if (93) is replaced by two requirements. First, we assume that the preposition and the category it selects should be phonetically adjacent. This implies that *na kakvo* and *in keinen* have to be phonetic neighbors in (96) and (95), respectively. Second, we assume that the highest element in a chain created by a strong categorial feature W must contain an overt element realizing the categorial feature W. If PPs are attracted by a P-feature, the second principle implies the presence of a preposition for *in Schlössern* in (95) (so both copies of *in keinen Schlössern* must realize the preposition) while it does so for *na kakvo* in (96). Consequently, the preposition can be absent in the lower copy of *na kakvo stablo* there.

## 6.3    A Mystery

Some speakers of German (10 out of the 45 informants)[26] find structures such as (97a) un-objectionable - a construction which cannot be integrated easily into the present frame-work because no speaker of German accepts noun phrases with more than one nominal head, that is, *nur Bussarde Raubvögel is completely ungrammatical.

(97) a. *#Raubvögel kennt   Gereon nur  Bussarde*
        birds of prey knows   Gereon only buzzards
        "As for knowing birds of prey, Gereon knows just buzzards."
    b. **er kennt nur Bussarde Raubvögel*
    c. *#Raubvögel   greifen den Gereon immer  nur  Bussarde an*
        birds of prey   attack   the  Gereon always just  buzzards ptc
        "as for being attacked by birds of prey - Gereon is always attacked by buzzards only"

Similar problems arise in the analysis of noun incorporation, as Mithun (1984:870) and Anderson (2000b) point out: the incorporation of 'fish' does not preclude the appearance of a head noun in the object DP in Mohawk (98).

(98) *sha'té:ku nikú:ti   rabahbót wahutsyahní:nu ki   rake'niha*
      eight    of.them bullhead   he.fish.bought  thus my.father
      "my father bought eight bullheads"

How can these structures be analyzed in incorporation models? In many languages, N2 frequently bears a possessor relation to the incorporated noun N1 in the incorporation structure [$_{VP}$ [$_V$ V-N1] [$_{DP}$ … N2 … ]]. We may analyse such a constellation as arising from a movement of N1 out of a DP in which N1 is the head and N2 the specifier. If this is correct, one just needs to account for the objective Case appearing on N1 and N2 – but this simply illustrates Case concord between a head and a specifier amply documented in, e.g., Massam (1986). This account amy then be extended to (98) and even to (97) if the range of "possessive" relations between N2 and N1 can include a general partitive relation, too.

   As (99) shows, the construction (97a) is more restricted than standard splits. (97a) constrasts with (99a-b). (99c) suggests that the first noun phrase must not bear dative case (in contrast to split DPs), while (99d) shows that the problem cannot be solved by simply

assuming that *Raubvögel* is a free topic in (97a). We have to leave the precise analysis of the construction open.

(99)   a.   *<u>Raubvögel</u> kennt er     <u>keine</u> <u>Bussarde</u>*
            birds of prey knows he    no    buzzards

         b.   *<u>einen</u> <u>Raubvogel</u>  kennt er    <u>nur</u>   <u>einen</u> <u>Bussard</u>*
             a bird of prey       knows he    only  a     buzzard

         c.   <u>Raubvögeln</u> ähnelt     ein Dinosaurier   <u>keinen/</u>    *<u>Bussarden</u>
             birds of prey resembles   a dinosaur      no /       *buzzards

         d.   <u>Raubvögel</u> gekannt     hat  er    <u>nur</u>   <u>Bussarde</u>*
             birds of prey known     has  he    only  buzzards

## 6.4        Other Constructions

It is tempting to explain a further construction type that is characterized by properties much similar to the one we have discussed here by distributed deletion, namely extraposition. Haider (1997) notes a number of problems concerning the assumption of an extraposition operation for CPs in German: clauses in "extraposed" position are not barriers, as they should be in a derived position (but see Müller 1998 for considerations weakening this argument), they are c-commanded by the elements preceding them according to evidence involving polarity items, and the movement that extracts them out of their host noun phrase would violate conditions on movement more often than not: In (100a), the relative clause would have been moved out of a PP. This problem shows up with the apparent extraposition of PPs, too, as (100b) shows.

(100)  a.   *ich habe <u>an</u> <u>eine</u> <u>Frau</u>   gedacht, <u>die</u> <u>Bücher</u> <u>liest</u>*
          I have    at a    woman thought  who books  reads
          "I have thought about a woman who reads books"

        b.   *ich habe <u>über</u> <u>den</u> <u>Titel</u> nachgedacht <u>von</u> <u>deinem</u> <u>Buch</u>*
          I   have  about the title    thought    of   your   book
       "I have reflected about the title of your book"

The island problem would be avoided if the whole DP or PP is generated behind the verb, and if its movement to, e.g., the AGR-O position preceding the verb can strand the relative clause or a PP. That this stranding might be an instance of partial deletion was suggested by Mahajan (p.c.), see Hinterhölzl (1999) for a detailed version of this position. We do not want to assess the virtues of these ideas in the present paper, but we wish to point out one difference. First, recall that our account implies that no material may rest in the base position of a phrase, since partial deletion applies only if the phrase in question hosts two or more different features that cannot be phonetically realized in a single position. Obviously, the relative clause in (100a) does not bear such a feature – it seems as if one would have to assume purely phonological principles that enforce partial deletion in the case of relative clause stranding.

    Fanselow & Ćavar (2001) re-analyse the appearance of stranded verbal particles in German and Dutch verb second movement as involving distributed deletion. Hinterhölzl (to appear) derives a number of apparent remnant movement effects from distributed deletion. Thus, the scope of the mechanism proposed here may well go beyond the split construction.

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[1] (5) and (6) belong to the class of "separation constructions" in the sense of Pesetsky (2000). "Split topicalization" and "split scrambling" have been used as further labels for (5) and (6) in the literature. The Slavic constructions have also been discussed as a subtopic of "left-branch extractions".

[2] Speakers differ in the extent to which they accept or reject multiple splits - presumably, because multiple splits involve a highly complex pragmatic structure. Furthermore, multiple splits necessarily involve one phrase which is completely split within IP. Such splits were considered ungrammatical in the early literature (see, e.g., Fanselow 1988, Kniffka 1996), but such claims were based on data that were constructed in a less than optimal way.

[3] The existence of this construction type has been brought to our attention by Josef Bayer.

[4] See Kniffka (1996) for an assessment of the dialectal distribution of imperfect DP splits with two determiners.

[5] More precisely, Riemsdijk (1989) assumes that the clause initial position of German, nowadays the specifier of CP, can host maximal projections only, and considers *amerikanische Wagen* not to be one – certainly a necessary assumption in models of noun phrase structure that did not assume the fine functional structure related to the DP models.

[6] Of course, the problem will not be solved if we assume extraction of non-constituents.

[7] In a questionnaire study carried out together with Reinhold Kliegl and Matthias Schlesewsky, we found a certain nestedness of judgments: there are some (few) speakers who accept splitting for accusative noun phrases only, others accept splits of nominative and accusative noun phrases, and a third group accepts discontinuity for accusative, nominative, and dative phrases. The nesting of the judgements in our questionnaire study reflects the development of judgements in the literature, to a certain extent.

[8] DeKuthy (2000) has argued that German noun phrases are islands for extractions of PPs. Structures showing apparent PP-extraction from NP involve an underlying structure [VP NP PP V] in her approach. A discussion of this view is beyond the scope of the present paper. Note that our major point is *not* affected if her analysis is correct: movement processes have to obey the island conditions, independent of whether the construction one wants to compare XP splits with is a movement construction or not. In fact, we might say that our general point would rather be *strengthened*, because it would be fairly unclear why noun phrases should be islands for extractions of PPs but not for extractions of, say, NomPs. Given that splits affect subjects and indirect objects, a reanalysis option is ruled out as an account for split constituents immediately, because reanalysis processes are assumed to involve direct objects only (if the process exists at all).

[9] The only way to counter this argument against the movement approach of split constituents would be to claim that the bounding theory does not hold for the extraction of XPs from a YP that is an "extended projection" of XP. We do not think that such a proposal could be spelt out in a convincing way, and it would be incompatible with the observation that the extraction of VPs out of IPs or CPs essentially respects bounding theory.

[10] Doing so may in fact be simple: if an XP can be linked thematically to predicate P only if XP is merged in the projection of P, then two XPs sharing a thematic role must be merged in the same maximal projection.

Alternatively, one can assume that one part of the DP merges in VP, the other in the projection of the functional head which licenses the formal features of the DP. If, as argued in Fanselow (2001a, in press) the checking of certain formal features implies theta-role assignment, and if the two DP-parts both check features with the relevant functional head, they share a thematic role and their relation is correctly predicted to be local one. In the interest of space, we will not pursue this idea here.

[11] Note, however, that there are also word order facts that are unexpected in simple movement theories at least, as we show in section 5.

[12] Given the freedom of word order in Slavic noun phrases, no similar argument can be made easily for noun phrase splits in Slavic. For PP splits, the relevant point is obvious however; base generation does not readily explain why the highest part of a PP must contain the preposition.

[13] In this respect, the present account is much in line with base generation theories as proposed in Fanselow (1988) or van Geenhoven (1998): there is movement, but splitting itself is not caused by extraction from something. .

[14] Pesetsky (2000) argues that featural movement of the kind introduced in Chomsky (1995) is nevertheless necessary, in addition to the phonological deletion of the upstairs copy. If Chomsky (2000) is correct in replacing feature movement by agreement at a distance, the analysis sketched above is, of course, the only kind of covert movement.

[15] For a similar approach developed independently of us, see Hinterhölzl (1999, to appear).

[16] Partial deletion effects might be reanalyzed as involving (partial) reconstruction of phonetic material in the overt component: Phrase $\Sigma$ first moves completely from a to b, later, a part of $\Sigma$ is reconstructed to a. At a purely descriptive level, this approach and the theory proposed here have fairly similar consequences.

[17] The effects of partial reconstruction can be reanalyzed as being due to distributed deletion after LF copying. An analysis of all reconstruction phenomena in terms of distributed deletion seems possible, but is well beyond the scope of the present paper. A few remarks can be found in Fanselow (2001b).

[18] In this respect, it resembles other types of NP-discontinuity, cf. DeKuthy (2000).

[19] Ungrammaticality may, however, be repaired for certain speakers with heavy stress,

[20] Note that reference to the fact that an accusative NP occupies a non-derived focus position cannot account for the contrast discussed above: PP objects can occupy non-derived postverbal focus positions, too, yet they cannot be split up there.

[21] Recall that the Minimal Link Condition (MLC) requires that K attracts $\alpha$ only if there is no $\beta$, $\beta$ closer to K, such that K attracts $\beta$ (Chomsky 1995:310). $\alpha$ is closer to target K than $\beta$ if $\alpha$ c-commands $\beta$ (Chomsky 1995:358).

[22] The A-over-A condition (Chomsky 1964) reduces to the MLC if the feature triggering the locality effect is sitting on a syntactic head which projects this feature.

[23] That is, we assume that contiguity is a graded constraint.

[24] Croatian adds a difficulty, however. (i) shows that PPs may be split off noun phrases in a process of partial deletion – recall that dative DPs are islands for movement. At present, we have no account for this difference between German and Croatian.

(i)  *Knjigama*   *je*   Ivan   *o matematici*   *davao ocjene*
    Books-dat   has   Ivan   about mathematics   given   grades
    "Ivan has given grades to books about mathematics."

[25] The morphological facts of German are mirrored in other languages with DNP. In Warlbiri, noun phrases are morphologically well formed if they begin with a (possibly empty) sequence of words not bearing Case morphemes followed by a (necessarily non-null) sequence of words (including the final one) that are Case-marked. This condition must be respected by the parts of a DNP **individually**. See Nash (1980).

(i)  *kurdu-ngku*   *wita-ngku*   ka   maliki   wajilipi-nyi
    child-erg   small-erg   AUX   dog   chase-NP
    *kurdu wita-ngku* ka maliki wajilipi-nyi
    *kurdu-ngku* ka maliki wajilipi-nyi *wita-ngku*
    \**kurdu* ka maliki wajilipi-nyi *wita-ngku*

[26] 18 informants rated (97) ungrammatical, 17 found it questionable.