PHRASAL COMPARATIVES AND DP-STRUCTURE

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1.   INTRODUCTION[1]

Over that last couple of years, the heuristics of uniformly right-branching phrase markers has been fruitfully exploited in the analysis of a wide range of phenomena (Haider 1993a,b 1995; Kayne 1994; Zwart 1993). However, while the majority of the studies investigate the structural organization of clauses, concentrating on the internal shape of the VP, less work has been dedicated to the exploration of the phrase-structural properties of the DP (see however Haider 1993b: 23; Hoekstra 1997; Kayne 1994; Johnson 1996, 1997). In this paper, I claim that direct empirical support for a right-branching extended projection of the DP can be drawn from attributive phrasal comparatives as exemplified by (1):

(1)   Mary knows [$_{DP}$ younger authors than Peter$_{NOM}$ △]
        (△ = knows d-young authors)

Evidence for a right-branching DP will be derived from three different sources: First, A'-binding facts indicate that the *than*-phrase (*than Peter* in (1)) is base-generated in a position structurally lower than categories preceding it within the DP. Second, the analysis offers a simple and straightforward solution to a long-standing problem in the analysis of the empty operator chain in attributive comparatives. Third, I will demonstrate that the *than*-phrase displays complement-like - as opposed to adjunct-like - behavior under movement.

The diagnostics for movement that will be employed in establishing the complement-like properties of the *than*-phrase is in turn based on the hypothesis that the class of phrasal comparatives under consideration is elliptical in nature. It will be shown that a new set of data receives an immediate explanation once the widely shared assumption is adopted that

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ellipsis is restored under LF-identity between the phonetically null constituent (typographic symbol '△') and the antecedent. Thus, the second major objective of the present investigation consists in establishing an ellipsis based account for (a group of) phrasal comparatives.

The paper is organized as follows: Section 2 introduces a new set of data which will serve as the background of the discussion. In section 3, two different ways of treating Antecedent Contained Deletion ('ACD') in comparatives will be outlined. Section 4 presents the core analysis, which will be empirically supported by two additional paradigms. Section 5 investigates the ramifications of the analysis for the structural organization of the DP and section 6 is finally devoted to a discussion of the empty operator chain in comparatives.

2.   PHRASAL COMPARATIVES IN GERMAN

2.1.   Preliminaries

Comparative constructions can be divided into two groups according to the shape of the comparative clause: In clausal comparatives, as in (2) below, the overt item of comparison (*younger authors*) is correlated with a whole CP following the comparative marker *than*:

(2)   Mary knows younger authors than Peter knows △
          (△ = d-young authors)

The standard of comparison *d-young authors* has been elided by the obligatory rule of Comparative Deletion (Bresnan 1973). If a language licenses reduction processes such as VP-ellipsis, these truncation rules are free to apply to the output of Comparative Deletion, as shown by (3) (Napoli 1983):

(3)   Mary knows younger authors than Peter does △
          (△ = know d-young authors)

In phrasal comparatives, the comparative marker *than* is followed only by a single constituent - henceforth also 'remnant'-, as e.g. in (4) below:

(4)   Mary knows younger authors than Peter △
          (△ = knows d-young authors)

In what follows, I will refer to the category comprising of the comparative marker and the remnant also as '*than*-XP' or '*than*-phrase', and I will reserve the term 'DP-comparative' for DP's that are attributively modified by a comparative AP.

2.2.   The Data

While German lacks VP-ellipsis, and therefore also VP-elliptical clausal comparatives of the sort exemplified under (3), phrasal comparatives as under (4) are widely

attested. Restricting the attention for present purposes to DP-comparatives in which item and standard of comparison share the same grammatical function, it can be observed that there are strict conditions governing the relation between item of comparison and the remnant: As shown by (5), it is possible to construe phrasal comparatives in which a subject remnant ('Peter') is correlated with an item of comparison in object position ('younger authors'):

(5) a. weil die Maria jüngere Autoren als der Peter   kennt
     b. weil die Maria jüngere Autoren   kennt als der Peter
         since the Mary younger authors than the Peter$_{/SU}$ knows than the Peter$_{/SU}$
         "since Mary knows younger authors than Peter △" (△ = knows d-young authors)

The reversal of the grammatical roles between remnant and item of comparison leads to strongly deviant structures, though[2]. A *than*-XP containing an object remnant may not be construed as being dependent upon a subject item of comparison, as witnessed by (6):

(6) a. *weil jüngere Autoren als den Peter die Maria   kennen
     b. *weil jüngere Autoren   die Maria als den Peter kennen
     c. *weil jüngere Autoren   die Maria   kennen als den Peter
         since younger authors than the P.$_{/DO}$ the Mary than the P.$_{/DO}$ know   than the P.$_{/DO}$
         "since younger authors know Mary than △ Peter " (△ = d-young authors know)

Note that the position of the *than*-XP does not influence grammaticality judgements. The contrast between (5) and (6) can be cast in terms of the following descriptive generalization:

(7) If the item of comparison is an **object**, the remnant may function as a **subject**.
     If the item of comparison is a **subject**, the remnant cannot function as an **object**.[3]

In the sections to follow, I will develop an account of this asymmetry and explore theoretical implications of the analysis while systematically extending the empirical scope of the investigation. Before we can turn to a more detailed discussion of the data, it will however be instructive to have a brief look at ACD-configurations in comparatives and their analysis.

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[2]Even though the data will be drawn from German exclusively, the contrast holds for a wider variety of languages, including Spanish, Italian, Hebrew and Modern Greek.

[3] The observation naturally extends to equatives, which pattern along with comparatives:
(i)   weil die Maria so junge Autoren kennt wie der Peter
         since the M.   as young authors knows as the P.
         "since Mary knows as young authors as Peter △"   (△ = knows d-young authors)
(ii)   *weil so junge Autoren die Maria kennen wie den Peter
         since as young authors the M.   know   as   the P.
         "since as young authors know Mary as △ Peter "   (△ = d-young authors know)

3.   ACD-RESOLUTION IN CLAUSAL COMPARATIVES

Clausal comparatives that contain an elliptical VP constitute instances of ACD, as initially pointed out by Larson (1987).[4] The comparative in (3), repeated below, structurally resembles standard examples of ACD (vd. (8)) in that the elliptical VP is dominated by the antecedent VP at Spell-Out:

(3)   Mary [$_{VP}$ knows younger authors than Peter does △]
(8)   Mary [$_{VP}$ knows every author that Peter does △]

Ellipsis resolution by copying the antecedent VP into the position of the gap prior to Spell-Out results in an endless regress in both constructions:

(9)   Mary [$_{VP}$ knows younger authors than Peter [$_{VP}$ knows younger authors than Peter...]]
(10)   Mary [$_{VP}$ knows every author that Peter [$_{VP}$ knows every author that Peter...]]

The widely accepted standard analysis of (8) is based on covert raising of the object ((11)a) followed by ellipsis identification, as shown by (11)b (May 1985, Fiengo & May 1994):

(11)   a.   **[every author OP that Peter does △]** Mary [$_{VP}$ knows **t**]
        b.   [every author OP$_i$ that Peter **[$_{VP}$ knows t$_i$]**]$_j$ Mary [$_{VP}$ knows t$_j$]

Let me for reasons of concreteness - and for the moment without justification - assume that the comparative clause in (3) is base-generated in a complement position within the extended projection of the object NP. Then, the infinite regress problem evidenced in comparatives can in principle be resolved by employing one of two strategies. Either we adopt the approach initiated by May (1985) and recently adopted by Lerner & Pinkal (1995) for phrasal comparatives, according to which the whole object NP in (3) is shifted leftward, pied-piping along the comparative clause (vd. also Larson 1987). The resulting LF-representation is given under (12):

(12)   a.   Mary [$_{VP}$ knows younger authors than Peter does △]
        b.   **[younger authors than Peter does △]$_i$** Mary [$_{VP}$ knows **t$_i$**]

In a second movement step, depicted in (13)a, the subject raises out of the matrix clause, and the resulting IP is subsequently copied into the ellipsis site, yielding the LF-output (13)b:

(13)   a.   [[younger authors than Peter does △]$_i$ [$_{IP}$ **Mary$_j$** [$_{IP}$ **t$_j$** [$_{VP}$ knows t$_i$]]]]
        b.   [[younger authors [$_{CP}$ OP$_m$ than [$_{IP}$ Peter$_k$ **[$_{IP}$ t$_k$ [$_{VP}$ knows t$_m$]]**]]]$_i$
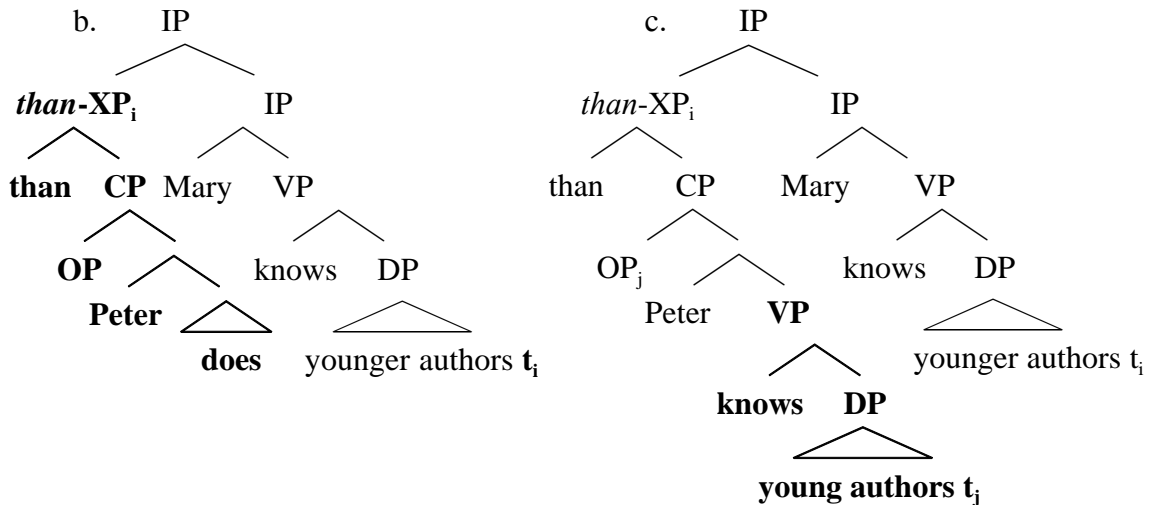   [$_{IP}$ Mary$_j$ [$_{IP}$ t$_j$ [$_{VP}$ knows t$_i$]]]]

Observe that in (13)b, the empty operator in SpecCP of the comparative clause binds a trace that originally derived from QR of the object NP. Thus, in Lerner & Pinkal's system, (3)

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[4]Larson deals with comparative predicative AP's only. See however Moltmann (1992) and Lerner & Pinkal (1995) for discussion of ACD with clausal and phrasal attributive comparatives.

receives a treatment very similar to the one given to standard cases of ACD as under (8).

Alternatively, it is also conceivable to restrict LF-movement to the comparative clause itself, following a suggestion dating back to Russell (1905) that has - for independent reasons and in a different context - been revived more recently by von Stechow (1984). I will refer to the procedure of comparative movement as *'Than*-Phrase **R**aising' ('TR'). Covert TR with subsequent copying leads to a derivation which is equally qualified as a basis for the resolution of infinite regress. According to the TR-analysis, the *than*-XP shifts to a position higher than the antecedent-VP first, as shown by (14)b in an intitial step. Then, the antecedent VP can be copied into the empty VP-node, resulting in the LF-output representation (14)c.[5]

(14)   a.   Mary [$_{VP}$ knows younger authors than Peter does △]

b.   IP
    than-XP$_i$ IP
    than   CP   Mary   VP
    OP   knows   DP
    Peter   does   younger authors t_i

c.   IP
    than-XP$_i$ IP
    than   CP   Mary   VP
    OP$_j$ knows   DP
    Peter   VP   younger authors t_i
        knows   DP
        young authors t_j

In (14)c, the empty operator binds the (copy of the) trace left by TR, and not a (copy of a) QR-trace, as in Lerner & Pinkal (1995). This point will be taken up again in section 6.

I would like to propose that (3) should in fact be analyzed in terms of TR, and not by the competing derivation under (13), which raises the whole object. The main argument for this view will be taken from the observation that only the TR-account is able to handle the German contrast of section 2 in an adequate fashion.

4.   ACD-RESOLUTION IN PHRASAL COMPARATIVES

4.1.   The Subject-Object Asymmetry
Let us return now to the initial contrast observed with phrasal comparatives in German, and to a discussion of the paradigm (5) vs. (6), repeated below. Recapitulating

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[5]The comparative AP *younger* is restored as positive *young* in the Comparative Deletion site. See Moltmann (1992) on 'vehicle change' and Lechner (1997a) for an alternative account in terms of AP-Raising.

briefly, a subject remnant can be paired with a comparative AP embedded in an object NP (vd. (5)), while the reverse situation - object remnant plus comparative AP embedded in a subject NP - yields ungrammatical results (vd. (6)).

(5)   a.   weil die Maria jüngere Autoren als der Peter kennt
         b.   weil die Maria jüngere Autoren   kennt   als der Peter
               since the M.   younger authors than the P.   knows than the P.
               "since Mary knows younger authors than Peter △" (△ = knows d-young authors)

(6)   a. *weil jüngere Autoren als den Peter die Maria   kennen
         b. *weil jüngere Autoren   die Maria als den Peter kennen
         c. *weil jüngere Autoren   die Maria   kennen als den Peter
               since younger authors than the P.   the M.   than the P.   know   than the P.
               "since younger authors know Mary than △ Peter " (△ = d-young authors know)

Assume now that the phrasal comparatives above contain an elliptical constituent and are assigned an analysis similar to the one outlined for clausal comparatives in the last section. Let us moreover disregard the effects of extraposition, and adopt the view that extraposition is undone at LF. Then, it becomes possible to resolve ACD in example (5) by covert TR of the *than*-XP ((15)a). Subsequent reconstruction of the ellipsis site yields the LF-output representation (15)b:[6]

(15)   a.   [[**als der Peter △**]$_i$ [die Maria [$_{AgrOP}$ [jüngere Autoren **t$_i$**] kennt]]]
         b.   [als OP$_j$ Peter **[[junge Autoren t$_j$] kennt]**]$_i$ [die Maria jüngere Autoren t$_i$ kennt]

What is now of specific relevance for the explanation of the subject-object asymmetry is the fact that extraction by TR reaches into an object in (15)a. The resulting TR-chain obeys locality. (Recall that the *than*-XP was assumed to originate in a complement position inside DP.) In the ill-formed structure (6), however, the *than*-phrase is base-generated inside a transitive subject, and TR of the *than*-XP in (6) triggers a CED violation at LF (vd. fn. 9):

(16)   *[[**als OP den Peter △**]$_i$ [$_{AgrSP}$ [jüngere Autoren **t$_i$**] [die Maria kennen]]]

Thus, the deviance of (6) can be traced back to the incompatibility of two competing requirements, one forcing movement by TR in order to resolve ACD, and the other one

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[6] I adopt for present purposes the German clausal architecture of Munaro (1991) and Brugger & Poletto (1993), according to which verbal arguments overtly move to their respective SpecAgrP positions.

proscribing TR as an instance of a CED-violation.[7] [8]

It should be pointed out in this context that even though the more general issue of whether all instances of LF-movement - and therefore also TR - are constrained by Subjacency is a topic of constant debate (vd. Fiengo, Huang, Lasnik & May 1988, Pesetsky 1987, Lasnik & Saito 1992 and Reinhart 1991 for some diverging views), a consensus has emerged in the recent literature that ellipsis resolution is sensitive to islands (Haik 1987, Fiengo & May 1994). That much suffices in order to establish the argument developed in this section.[9]

The contrast (5) vs. (6) was taken to reflect the interaction between TR and the CED.

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[7]Amount comparatives headed by *more* are not subject to the restriction observed in the text:
(i)   weil mehr Leute Bach mögen als Wagner
         "since more people like Bach than Wagner"
In (i), it is arguably the whole DP headed by *mehr*/'more' and not only the *than*-phrase that undergoes raising. Thus, CED-effects are not expected to show up in contexts such as (i). See Lechner (1997b) for details.

[8]Two important remarks are in order here. First, Diesing (1992) observes that subextraction out of subjects - *Was-für*-Split and Split Topicalization - is permitted if the NP resides in the lower subject position reserved for weak indefinites and subjects of Stage Level predicates. Hence, one is at first sight lead to expect that phrasal comparatives are licensed if contained within a weak subject. This prediction is not borne out. Note however that not all movement processes are sensitive to Diesing's distinction. Wh-movement out of subjects is for instance generally blocked, even if the subject falls into the class of weak NP's, as below:
(i)   *[Von wem]$_i$ glaubst du hat [ein Freund t$_i$] den Peter besucht
         of   whom believe you has a friend   the Peter   visited
         "Who do you think that a friend of visited Peter"
         A second problem proves to be more recalcitrant. A quantifier embedded within a subject may receive an 'inversely linked' construal (May 1985), as shown by (ii)a:
(ii)   a.   A barber from [every city]$_i$ hates it$_i$
         b.   [$_{IP}$ [every city]$_i$ [$_{IP}$ [a barber from t$_i$] hates it$_i$]]
K. Johnson (pc) points out that if (ii)b is the LF-representation of (ii)a, it remains mysterious why LF-movement of an NP out of a subject is licit, while LF-movement of a comparative clause out of the same context is blocked. But once again, the evidence for the transparency of subjects is not conclusive. Pesetsky (1987: 115) notes that non-D-linked wh-phrases are - unlike D-linked wh-phrases - trapped inside subjects, as shown by the deviance of (iii):
(iii)   *Pictures of who the hell cost the most at the sale   (Pesetsky 1987, ex. (52b))
According to Pesetsky, (iii) violates Subjacency at LF. I will therefore tentatively conclude that (for some reason yet to be explored) TR patterns along with covert wh-movement, and not with QR.

[9]The CED-violation in (6) is also amenable to an alternative analysis, which is not committed to the view that the bounding conditions apply at LF. Fiengo & May (1994: 261) point out that in (i), the ellipsis site, which is embedded in an island, can only be reconstructed as the lower VP:
(i)   John wondered who visited every city that Bill did △   (Fiengo & May 1994; ex. (50)a)
         (△ = visited t, *△ = wondered who visited t)
The higher construal of (i) is excluded by the assumption that the elliptical VP in (i) contains phonetically unrealized structure throughout the derivation, and that this VP is matched against an identical antecedent at LF. A more precise rendering of the Spell-Out of (i) according to Fiengo & May is provided in (ii):
(ii)   John wondered who visited every city [**OP$_i$** that Bill did [$_{VP}$ ~~wondered who visited~~ **t$_i$**]]
In (ii), the chain formed by the relative operator and its trace violates Subjacency already in overt syntax.
         Applying Fiengo & May's rationale to example (6), the Spell-Out of (6) can be rendered as under (iii) (see section 4.2 for discussion of discontinuous ellipsis):
(iii)   [[younger authors [than **OP$_j$** [$_{IP}$ [~~young authors~~ **t$_j$**] Peter ~~know~~]]] Mary know]]]
In (iii), the comparative operator illicitly binds a variable (t$_i$) contained in a left branch subject in overt syntax.

Moroever, movement was driven by the need to properly identify the ellipsis site inside the comparative. If the analysis is on the right track, it therefore also offers a strong argument against 'reconstruction-free' analyses of phrasal comparatives, according to which the *than*-XP is submitted to semantic interpretation without prior reconstruction of a clausal source (Hankamer 1973; Napoli 1983; Pinkham 1982; Heim 1985). Such direct approaches would not be able to capture the subject-object asymmetry, because they deny the very existence of an elliptical constituent within the *than*-XP.[10]

4.2.   Additional Evidence

The TR-analysis leads us to expect that environments in which the *than*-XP is contained within a passive or unaccusative subject - which are both well-known to be transparent for subextraction - are well-formed. This prediction is born out, as witnessed by the acceptability of the examples below:

(17)   weil [$_{IP}$ [ein besserer Vertrag als der Maria △] nur dem Peter angeboten wurde]
         since   a besserer contract than the M.   only the P.   offered   was
         "since only Peter was offered a better contract than Mary △"
         (△ = was offered a d-good contract)

(18)   weil [$_{IP}$ [ein schlimmerer Fehler als der Maria △] nur dem Peter unterlaufen ist]
         since   a   worse   mistake than the M.   only the P.   occurred   is
         "since a worse mistake happened to Peter than △ to Mary "
         (△ = a d-bad mistake happened)

The subjects in (17) and (18) do not establish barriers for movement by TR, and ACD can accordingly be resolved in both cases above.

While accusative objects in the German double object construction are transparent for extraction, dative objects generally constitute islands for movement. This generalization lies at the basis of the contrast between (19)b and (20)b below (vd. Müller 1993):

(19)   a.   Maria hat dem Peter [den Autor von diesem Roman]$_{DO}$ vorgestellt
            M.   has the P.   the author of this   novel   introduced
            "Mary introduced the author of this novel to Peter"
     b.   [Von welchem Roman]$_i$ hat die Maria dem Peter [den Autor t$_i$]$_{DO}$ vorgestellt?
          of   which   novel   has the M. the P.   the author   introduced
          "Which novel did Mary introduce [the author of t] to Peter"

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[10]It should be pointed out that there is also evidence *against* a general ellipsis analysis of phrasal comparatives, which does however not materialize in the contexts considered here. Pinkham (1982) observes e.g. that example (i) is not amenable to a clausal analysis, since it lacks a well-formed clausal source:
(i)   She ran faster than the world record △   (Pinkham 1982; (86)a: 112)
      (*△ = is d-fast, *△ = ran d-fast)

(20) a. Maria hat [dem Autor von diesem Roman]$_{IO}$ den Peter vorgestellt
           M.   has the author of this   novel   the P.   introduced
           "Mary introduced Peter to the author of this novel"
      b. *[Von welchem Roman]$_i$ hat die Maria [dem Autor t$_i$]$_{IO}$ den Peter vorgestellt?
            of which   novel   has the M.   the author   the P.   introduced
            "Which novel did Mary introduce Peter to [the author of t]"

Given the TR-analysis, it should be possible to correlate a phrasal comparative with an accusative NP in the double object constructions, but not with a dative object. And indeed, the data corroborates the TR-hypothesis. A phrasal comparative can be embedded in a direct object (vd. (21)), but not in an indirect one (vd. (22)), since datives block TR:[11]

(21) weil Maria dem Peter$_{IO}$ [jüngere Autoren [als dem Fritz$_{IO}$ △]]$_{DO}$ vorgestellt hat
      since M.   to P.   younger authors than to F.   introduced has
      "since Mary introduced younger authors to Peter than △ to Fritz"
      (△ = Mary introduced d-young authors)

(22) *weil Maria [jüngeren Autoren [als den Fritz$_{DO}$ △]]$_{IO}$ den Peter$_{DO}$ vorgestellt hat
      since M.   younger   authors than the F.   the P.   introduced has
      "since Mary introduced Peter to younger authors than △ Fritz$_{ACC}$"
      (△ = Mary introduced t$_{DO}$ to d-young authors)

As was demonstrated above, movement of the *than*-XP obeys bounding conditions in wider range of construction, furnishing additional support for the TR-analysis. However, even though the intuition that the derivation of the grammatical structures (17), (18) and (21) involves TR seems to be well-founded, an exemplary look at the LF-representation for (18) in (23)b reveals that the system does not capture the details in an adequate way yet:

(23) a. ... [ein schlimmerer Fehler [als der Maria △]] nur dem Peter unterlaufen ist
            a   worse   mistake than the M.   only the P.   occurred   is
      b. ... [als der Maria △]$_i$ [ein schlimmerer Fehler t$_i$] dem Peter unterlaufen ist
            (△ = ein d-schlimmer Fehler unterlaufen ist)

The problem we are confronted with pertains to the correct shape of the antecedent for the ellipsis: In (23)b, the elision site should be reconstructed as *ein d-schlimmer Fehler t unterlaufen ist* ('a d-bad mistake occured [to t]') and not as *ein d-schlimmer Fehler **dem Peter** unterlaufen ist* ('a d-bad mistake occured to Peter'). However, in the LF-representation (23)b, there is no node that includes the subject but excludes the dative object. The question arises of how to reconcile this conflict between constituency and appropriate choice of antecedent.

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[11]A challenge for the TR-account comes from the observation that phrasal comparatives may be correlated with dative objects of verbs like *help*, although these datives equally constitute islands for overt extraction.

A natural solution to the constituency conflict presents itself in the mechanism of covert object shift, an operation which has independently been motivated in the analysis of Pseudogapping and Gapping (vd. Jayaseelan 1990, Johnson 1996, Lasnik 1995). Covert object shift permits a more liberal interpretation of the LF-identity condition on ellipsis by moving categories which should not be copied into the ellipsis out of the antecedent. More precisely, the object shift hypothesis maintains that e.g. the Pseudogapping structure in (24) can be seen as a run-of-the-mill instance of VP-Deletion, in which the object *pork roast* has scrambled out of the VP ((24)a) prior to the application of VP-ellipsis ((24)b):

(24)   Mary made soup more often than Peter did pork roast
   a.   Mary made soup more often than Peter [$_{AgrOP}$ **[pork roast]$_i$** did [$_{VP}$ make **t$_i$**]]
   b.   Mary made soup more often than Peter [$_{AgrOP}$ [pork roast]$_i$ did [$_{VP}$ △]]
        (△ = make t$_i$)

We can now adopt a very similar line of reasoning in the analysis of (17), (18) and (21). Restricting the attention again to (18), the *than*-clause moves out of the dominating NP first, resulting in (25)b. Next, the indirect object scrambles to the left of the subject, as in (25)c:[12]

(25)   a.   ...ein schlimmerer Fehler [als der Maria △] dem Peter unterlaufen ist
             a worse   mistake than the M.   the P.   occurred   is
   b.   [$_{IP1}$ **[als der Maria △]$_i$** [$_{P2}$ [ein schlimmerer Fehler **t$_i$**] dem Peter unterlaufen ist
   c.
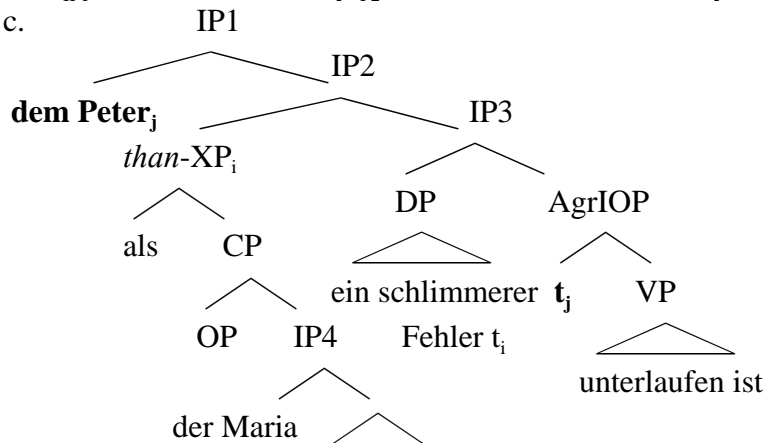
Finally, the node IP3 can be copied into the elliptical node, yielding the desired output.

(26)   [$_{IP2}$ [als OP$_m$ [$_{IP4}$ Maria$_k$ **[$_{IP}$ [schlimmer Fehler t$_m$][$_{AgrIOP}$ t$_k$ [$_{VP}$ unterlaufen ist]]]]]]$_i$
                    [$_{IP3}$ [ein schlimmerer Fehler t$_i$] [$_{AgrIOP}$ t$_j$ [$_{VP}$ unterlaufen ist]]]]]

Similar derivations account for examples (18) and (21).

Thus, mismatches between constituency and the shape of the antecedent for an ellipsis site can be repaired at LF by the independently motivated process of covert object shift.

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[12]In this specific case, the subject could also be assumed to reconstruct.

5. DECOMPOSING THE DP

In the current section, I will turn to a discussion of the fine-grained structural relations between the DP, the AP-modifier and the degree system in DP-comparatives.

To begin with, I will adopt the functional AP-hypothesis, which holds that graded AP's are embedded under a functional Deg(ree)P(hrase) (Abney 1987, Bresnan 1973, Corver 1990, 1997, Kennedy 1997). Contrary to the positions taken in the literature, I will however argue that the comparative clause serves as a complement to Deg°, while the AP originates in SpecDegP.[13] One of the advantages of this specific perspective is that AP and Deg° are in a Spec-Head configuration in the pertaining structure (27):

(27) $[_{DegP}$ AP $[_{Deg'}$ Deg°$_{[+comparative]}$ $[_{than-XP}$ than Peter]]]

Comparative morphology can therefore be directly base generated on the adjectival head, and checked by a [+comparative] feature on Deg° under Spec-Head agreement.

Assume now for the sake of the argument that DegP is left-adjoined to the NP it modifies, along the lines of the standard analysis of attributive prenominal modifiers:

(28) $[_{NP}$ $[_{DegP}$ $[_{AP}$ younger] $[_{Deg'}$ Deg°$_{[+comparative]}$ $[_{than-XP}$ than Peter]]] $[_{NP}$ authors]]

(28) as its stands suffers from two flaws. First, the predicted word order does not correspond to the actually attested one. The *than*-XP intervenes between the AP and the head noun it modifies. Second, the *than*-XP is contained within an adjunct - the NP-adjoined DegP - and should therefore resist extraction. But according to present assumptions, the comparative clause is able (in fact has) to escape from the containing DP at LF. Thus, we are faced with the problem of how to reconcile phrase structure both with serialization and conditions on TR. One plausible alternative solution that comes to mind is to base-generate DegP not as an adjunct to NP, but rather to let DegP originate on a right branch. Implementing this idea, we arrive at the new DP structure in (29).[14] In (29), the *than*-phrase is no longer contained

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[13]According to Bresnan (1973) and Lerner & Pinkal (1995), the *than*-phrase originates in NP-adjoined location. Corver (1990) and Kennedy (1997) propose to adjoin the *than*-XP at the Deg'-level.

[14]The tree (29) renders the complex 'AP+NP' somewhat misleading as an adjunction structure. More accurately, I would like to suggest that the AP applies to the NP in semantics (eg. Hellan 1981, Lerner & Pinkal 1995), but that the syntactic relation between AP and NP should be seen parallel to instances of coordination of unlike categories, as in (i):
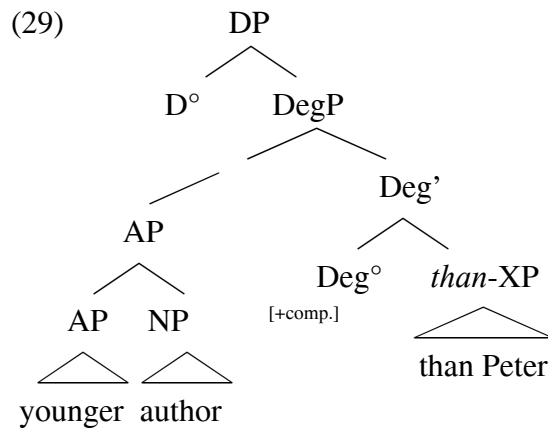(i)   They are $[_{XP}$ $[_{AP}$ proud of their daughter] and $[_{NP}$ a happy couple]]
Both constructions share relevant syntactic properties under current assumptions. For instance, the XP in (i) is categorically underspecified (Sag et al. 1985), and so is the complex 'AP+NP' in (29): the category in SpecDegP behaves like an AP w.r.t. checking of comparative morphology, but like an NP w.r.t. endocentricity. Moreover, features of the individual conjuncts can be checked asymmetrically. In (i), the subject checks (abstract) number feature of the first conjunct only. Similarly, in (29), Deg° checks morphological features of the AP - i.e. the 'first conjunct' - only. For further details of the semantics see Lechner (1997a).
    Note on the side that the tree in (29) is right-branching without commiting one to a reduced relative analysis of prenominal attributive modifiers, as e.g. in Kayne (1994) (vd. Bolinger 1976 and Siegel 1976 against

in an adjunct, but base generated within a complement (i.e. DegP). TR out of the containing DP is therefore no longer blocked:[15]

(29)

```
                    DP
                   /\
                  /  \
               D°    DegP
                    /\
                   /  \
                  /   Deg'
                 AP    /\
                /\    /  \
               /  \ Deg°  than-XP
              AP  NP [+comp.]  /\
             /\   /\      than Peter
          younger author
```

A further diagnostic test for the position of the *than*-phrase is provided by pronominal variable binding. As can be seen from example (30), a quantificational NP-adjunct is able to bind a pronominal variable which is embedded in the subject of the comparative:

(30)   weil Hans eine bessere Beschreibung [eines jeden Buches]$_i$ als sein$_i$ Autor lieferte
         since H.   a   better   description   of   each book   than its author provided
         "since Hans provided a better description of each book than its author"

The availablity of variable binding into the *than*-XP follow immediately from the phrase structure advocated here, according to which the *than*-XP is generated lowest within the DP (vd. Haider 1993b, Johnson 1997 and Kayne 1994 on the position of DP-internal modifiers).[16]

Recapitulating briefly, section 5 demonstrated that evidence from serialization, c-command and movement strongly supports a right-branching DP-structure for attributive

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[14](...continued)
reduced relative analyses of prenominal modifiers).

[15]In periphrastic comparatives, the degree marker *mehr*/'more' arguably moves from Deg° into a higher functional projection (marked as 'QP' in (i); vd. also Izvorski 1995).

(i)   a.   mehr engagierte Autoren als Peter
                 more engaged   authors than Peter
          b.   [$_{QP}$ **mehr$_i$** [$_{DegP}$ [$_{AP}$ engagierte Autoren][$_{Deg'}$ [$_{Deg°}$ **t$_i$** [$_{than-XP}$ als Peter]]]]]

[16]In addition, the *than*-XP invariantly has to follow all nominal modifiers, indicating once again that the *than*-XP is generated low at the right periphery:
(i)   a.   Hans lieferte eine bessere Beschreibung eines jeden Buches als Peter
                 Hans provided a   better description   a$_{Gen}$ each book   than Peter
          b.   *Hans lieferte eine bessere Beschreibung als Peter einer jeden Buches/von jedem Buch
                 Hans provided a   better   description than Peter a$_{Gen}$ each book /of   each   book
For detailed discussion and criticism of alternative phrase structures see Lechner (1997a,b).

comparatives. Section 6 will elaborate on this point and examine a a long- standing problem in the analysis of the empty operator chain in clausal and phrasal DP-comparatives.

6. THE SORTAL CONFLICT IN THE MPTY OPERATOR CHAIN

Comparative constructions involve the formation of an empty operator chain between an operator in SpecCP and a trace in the position of the Comparative Deletion site (Chomsky 1977). But the relation between the operator and its trace enshrouds an intriguing puzzle (Heim 1985:8; Moltmann 1992). Although the operator seems to bind an individual variable in overt syntax, as indicated by (31), its trace semantically ranges over degrees, and not over individuals. This sortal mismatch between the head and the tail of the chain can be circumvented by restoring the Comparative Deletion site as a DP with an embedded movement trace, as shown by the alternative representation in (32).

(31)   Mary knows younger authors [than OP_i Peter does $\triangle$]
        ($\triangle$ = knows t_i)

(32)   a. Mary knows younger authors [than OP_i Peter does $\triangle$]
            ($\triangle =$ knows d_i -young authors)
        b. than [$_{CP}$ **OP_i** Peter knows [$_{NP}$ [$_{AP}$ **d_i** -young] authors]]

However, given standard assumptions about the structure of prenominal modifiers, the trace in (32)b is now contained in a left-branch adjunct island and the operator chain violates the Left Branch Condition (Corver 1990).

The TR-approach offers a natural solution to that conflict. To begin with, notice that according to the TR-analysis, the trace left by movement of the *than*-phrase ranges over degrees, and not over individuals. This is so since the antecedent of the trace - i.e. the fronted *than*-XP - denotes a degree expression (e.g. the maximal element of a set of degrees, as in vonStechow 1984):

(33)   [[**than OP_i Peter does $\triangle$**]$_j$ [Mary knows younger authors **t_j**]]

Moreover, observe that the TR-trace t_j resides in a complement position according to current assumptions, it serves as a complement to Deg°. Hence, the TR-chain possesses exactly the two properties that are also characteristic of the empty operator chain in the comparative clause: it is local and its foot position denotes a degree. Since the ellipsis site is now restored as a copy of the antecedent VP which contains the foot of the TR-chain, these properties are carried over into the comparative clause. Consider the LF-output of (33) below, in which the ellipsis has been reconstructed:

(34)   [[than **OP_i** Peter [$_{VP}$ knows young authors **t_i**]]$_j$ [Mary [$_{VP}$ knows younger authors t_j]]]

The structure in (34) is - as opposed to (32)b - both syntactically well-formed and directly interpretable. First, the empty operator chain conforms with the Left Branch Condition, since OP binds a trace that resides on a right branch. At the same time, the trace is translated as

a degree term, as desired.

Thus, the interplay between the TR-account and a righ-branching architecture of the DP opens up a new perspective on the construal of the operator chain, thereby contributing to a better understanding of the complex behavior of NP-comparatives.

7.   RÉSUMÉ

Summing up the main results, the TR-approach proved to be capable of handling a variety of essential properties of Phrasal comparatives in German. The observation that bounding conditions restrict TR served as a strong indication that (at least some) phrasal comparatives derive from a clausal source. Moreover, it was argued that comparatives supply evidence for a novel treatment of prenominal modifiers, which assigns them a right-branching parse. This specific assumption also enabled us to arrive at a simple and adequate analysis of the empty operator chain in comparatives.

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