1-1-2005

A (Remnant) Raising Analysis of English comparatives

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1 Introduction

In this paper, I respond to a syntactic argument for a matching analysis of English comparatives in Kennedy (2002a,b). The structure of the paper is as follows. In section 2, I will review Kennedy's analysis of comparative deletion (CD) and comparative subdeletion (CSD) along with his argument in favor of a matching analysis. In particular, I will focus on Kennedy's claim that there is an overt versus covert movement distinction between CD and CSD, and that a raising theory cannot make this distinction. In section 3, I will provide new data indicating that Kennedy's overt/covert distinction between CD and CSD doesn't exist. In section 4, I will provide an analysis of comparatives that is consistent with the new data. In section 5, I will show how the new analysis accounts for Kennedy's data as well.

2 Unifying Comparative Deletion and Subdeletion

Comparative deletion (CD) is exemplified in (1) and comparative subdeletion (CSD) in (2).

(1)   a. John bought more books than Bill bought.
      b. Violet is taller than the Oompa-Loompas are.
(2)   a. John reads more books than he reads magazines.
      b. Violet is wider than the Oompa-Loompas are tall.

Following others (for instance Bresnan, 1973; Lees, 1961), Kennedy (2002a,b) gives a unified account of CD and CSD. 'Unified' here simply means that since it is obvious that two sortals are base-generated in CSD constructions, there must be two sortals also base-generated in CD constructions. But this brings up Bresnan's Problem.

Bresnan (1973) pointed out that movement theories of comparatives must account for why we get movement and deletion when the correlate and the head match (CD)[1], but no movement or deletion when they don't match (CSD)?

(3)   Comparative Deletion
        a. John reads more books than Bill reads.
        b. *John reads more books than Bill reads books.
(4)   Comparative Subdeletion
        a. John reads more books than Bill reads magazines.
        b. *John reads more books than magazines Bill reads.

Bresnan's solution was to attribute the deletion to an ellipsis mechanism that did not involve movement. But ellipsis accounts have proved untenable.[2] Instead, two types of movement accounts have been proposed.

Raising theories state that the head and the gap inside the comparative clause (the correlate) are related via a movement transformation.

(5)   *Raising*
        John reads [$_{DP}$ more books$_i$ [$_{CP}$ than Bill reads ~~books$_i$~~]

In matching theories, the head and the correlate are base-generated separately and the correlate moves to a position where it can be deleted under identity with the head.

(6)   *Matching*
        John reads [$_{DP}$ more books$_i$ [$_{CP}$ ~~books$_i$~~ than Bill reads ~~books$_i$~~]

These two types of movement theories differentiate themselves from ellipsis theories in necessary ways. But it is difficult to find differences between them. The matching theory in Kennedy (2002a,b) is centered around answering Bresnan's Problem while providing an argument against raising. In this section I will review Kennedy's system and his arguments in favor of it.

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[1] There is an exception to the rule that the correlate must deletion in CD constructions, which I will discuss in section 4.2.

[2] Comparatives show crossover effects, and the gap/correlate cannot be located inside of an island. Furthermore, the gap in CD constructions must be resolved with the head of the comparative, rather than something more distant. Standard cases of ellipsis do not show crossover or island effects, and their antecedents can be much further away (in fact, not even in the same sentence). See Kennedy (2002a) for a discussion of these facts.

2.1 Unifying CD and CSD

Kennedy's system is basically centered around answering Bresnan's Problem within an Optimality Theory framework. His answer: Deletion is optimal, movement is not. First, Kennedy assumes that for the semantics to work out right in comparatives, the correlate *how many* phrase must move to a CP position at least by LF. Kennedy then uses two constraints: DELETE, a constraint favoring deletion of as much as possible, and STAY, a constraint against movement. DELETE is ranked higher than STAY. So, items are not supposed to move, but they can move *in order to delete*. (A locality constraint is built into the system so that the correlate must move in order to delete.) That is exactly what happens in CD constructions resulting in a PF and LF that are identical.

(7)   *Comparative Deletion*
      a. Michael has more scoring titles than Dennis has.
      b. (PF)
         ... [more [titles] [than [$_{CP}$ λn [$_{NumP}$ ~~n-MANY scoring titles~~] Dennis
         has [$_{NumP}$ ~~n-MANY scoring titles~~]]]]
      c. (LF)
         ... [more [titles] [than [$_{CP}$ λn [$_{NumP}$ n-MANY scoring titles] Dennis
         has [$_{NumP}$ ~~n-MANY scoring titles~~]]]]

The PF-deletion mechanism is the same mechanism that deletes lower copies in a chain. Essentially, it treats the correlate and head as if they comprised one chain, and therefore the top copy (the head) will be the only copy pronounced — a kind of 'chain merger.'

In CSD, the correlate does not match the head. Therefore, if the correlate were to move, it could not delete. Since it cannot delete, it does not move. Since the semantics requires that the correlate moves, it will move covertly and there is a difference between the PF and LF structures.

(8)   Comparative Subdeletion
      a. Michael has more scoring titles than Dennis has tattoos.
      b. (PF)
         ... [more [titles] [than [$_{CP}$ λn Dennis has [$_{DP}$ n-many tattoos]]]]
      c. (LF)
         ... [more [titles] [than [$_{CP}$ λn [$_{NumP}$ n-many tattoos] Dennis has
         [$_{NumP}$ n many tattoos]]]]

Kennedy has generalized comparatives to the CSD case by base-generating

two sortals for both CSD and CD.

The system is designed to answer Bresnan's Problem. There is overt movement in CD *because* the correlate is identical to the head and therefore *can* be deleted. There isn't overt movement in CSD because the correlate is *different* from the head and therefore *cannot* be deleted. The analysis rests on an overt versus covert distinction between CD and CSD, predicting that CD should show PF effects of movement while CSD should not.

Kennedy's analysis explains several differences between CD and CSD constructions which we can attribute to behavior at PF.[3] First, in languages that prohibit preposition stranding, CD constructions obey the constraint, while CSD constructions do not as in the Czech example in (59). This seems to indicate that CD involves movement, but not CSD. The following examples (9–12) are all taken from Kennedy (2002a).

(9)   a. *Kterych mestech Vaclav bydlel ve?
          which   city   Vaclav live   in
          'Which city does Vaclav live in?'
       b. *Bydlel jsem ve vice   mestech nez ty   jsi   bydlel v.
          lived   have in more cities   than you have lived   in
          'I have lived in more cities than you have lived in'
       c. Chci bydlet ve vice   americkych mestech nez   jsem bydlel v
          want lived   in more American   cities   than have lived   in
          europskych mestech.
          European   cities
          'I want to have lived in more American cities than I have lived in
          European cities'

Second, CD constructions show a comp-trace effect, while CSD constructions do not.

(10)   *Comp-trace effects*:
       a. More books were published than editors said (*that) would be.
       b. More boys flunked than I predicted (*that) would pass.
       c. More books were published than editors said (that) articles would be.
       d. More boys flunked than I predicted (that) girls would pass.

Third, contraction is disallowed in English when a trace immediately follows

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[3]There are a few more arguments given in Kennedy (2002a,b) that I do not review here. See Fults (2003) for a more thorough discussion.

the contracted element. CD constructions disallow contraction of the copula, while CSD constructions allow contraction. This again seems to indicate that the correlate moves overtly in CD but not in CSD.

(11) *Contraction:*
    a. I thought there was more than there is/*'s.
    b. John was more upset than he is/*'s now.
    c. There is more meat than there's rice.
    d. John was more upset than he's angry now.

Fourth, parasitic gaps have been taken as evidence for overt A-bar movement. CD licenses parasitic gaps, but CSD does not.

(12) *Parasitic Gaps:*
    a. I threw away more books than I kept without reading.
    b. Jerome followed more suspects than Arthur interrogated without arresting.
    c. *I threw away more books than I kept magazines without reading.
    d. *Jerome followed more leads than Arthur interrogated suspects without arresting.

2.2 Comparatives and Ellipsis

Recall from the previous section that because the correlate of CD constructions can delete in the spec of CP position, it does so overtly. In CSD, the correlate cannot delete in spec of CP, so it moves only covertly for semantic reasons. This analysis predicts that if VP-ellipsis (VPE) were applied to a CD construction, then there would be no motivation for the correlate to move to spec of CP. Therefore, Kennedy predicts that the correlate in CD constructions with VPE will move covertly, a kind of "hidden sub-deletion."

(13) *Comparative Deletion with VP-ellipsis*
    a. Michael has more scoring titles than Dennis does.
    b. (PF)
        ... [more [titles] [than [$_{CP}$ λn Dennis does [$_{VP}$ ~~has n-MANY scoring titles~~]]]]]
    c. (LF)
        ... [more [titles] [than [$_{CP}$ λn [$_{NumP}$ n-MANY scoring titles] Dennis has [$_{NumP}$ ~~n-MANY scoring titles~~]]]]

CD with VPE constructions should behave like CSD, not CD. Raising ac-

counts cannot make this prediction since the correlate must *always* move in CD constructions whether VPE has applied or not. Therefore, if the prediction of hidden-subdeletion is borne out, it is only matching that can account for it.

Kennedy makes a compelling argument in favor of hidden-subdeletion and matching using parasitic gap configurations. Recall from 2.1 that CD licenses parasitic gaps, but CSD does not. The hidden-subdeletion theory predicts that VPE should bleed parasitic gaps in CD constructions. This appears to be the case.

(14)   a. I threw away more books than I kept without reading <pg>.
        b. *I threw away more books than I did without reading <pg>.

Kennedy concludes that VPE forces hidden sub-deletion in CD constructions, and therefore, the correlate has not A-bar-moved overtly and cannot license a parasitic gap. A raising analysis cannot account for this distinction, since there will always be overt A-movement of the correlate to the head position followed by A-bar movement of the DegP.

3 Parasitic Gap Licensing in Comparatives

The parasitic gap data from section 2.2 seems unconvincing, however. It is difficult at best to interpret the adjunct clause as not modifying both the matrix and the comparative clauses. If that is the case, then what would (14b) actually mean?

(15)   a. *I threw away more books than I did without reading <pg>.
        b. #I threw away more books (without reading them) than I threw
           away books (without reading them).

When we correct for this semantic problem, the sentence seems much better.

(16)   ?I threw away more books than John did without reading <pg>.

So, there doesn't appear to be very compelling evidence for hidden subdeletion.

There is evidence, however, that the overt/covert distinction between CD and CSD doesn't actually exist anyway. If we add an adjunct phrase with a parasitic gap to the matrix clause, each of the comparatives allow parasitic gaps.

(17)   a. I threw away more books without reading than I kept without open-
           ing.
       b. I throw away more books without reading than I keep magazines
           without opening.
       c. I throw away more books without reading than I do without open-
           ing.

It appears as if there is simply some type of parallelism constraint being vio-
lated with Kennedy's examples, something we would expect if comparatives
are closely related to coordinate structures as Lechner (1999) claims. Once
we satisfy this constraint by overtly providing two adjuncts containing para-
sitic gaps, the examples seem to offer no distinction between CD and CSD
whether their VPs are elided or not. If we follow Kennedy's method of ar-
gumentation here, then it would seem that, as long as parallelism is obeyed,
the parasitic gap evidence indicates that both CD and CSD involve overt A-
bar movement.[4]

There is another reason to think that overt movement of the NumP to a
CP position is necessary. A dialect of English (that I speak) allows pronun-
ciation of the NumP in the spec of CP position in each of the cases under
consideration here. (Chomsky, 1977 notes the acceptability for (18d).)

(18)   a. John bought more books than how many books Bill bought.
       b. John bought more books than how many magazines Bill bought.
       c. John bought more books than how many books Bill did.
       d. John bought more books than what Bill bought.

So, in this dialect, movement to spec of CP can be overtly pronounced in a
CP position.

To summarize this section, we've seen that a matching theory can ac-
count for Bresnan's problem provided the PF interface deletes all the copies
of the lower chain. Also, a matching theory rests on an overt/covert distinc-
tion between CD and CSD. However, I've provided evidence that this
overt/covert distinction doesn't exist. In the next section, I will provide an
analysis of CD and CSD that can account for Kennedy's data.

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[4] I should note here that Kennedy (2002) also points out that VP-ellipsis in rela-
tive clauses does not bleed parasitic gaps (his example):
(i) Hillary bought the same car that I bought after seeing advertised <pg> on TV.
He uses this to buttress his claim that relatives are raising structures while compara-
tives are matching structures. But if the data I presented in (17) is acceptable, then
there is no difference between comparatives and relatives regarding the licensing of
parasitic gaps (except for parallelism.)

4 CSD and CD as Remnant Movement

The conclusion of the previous section was that we have motivation for analyzing CSD as overt A-bar movement of the correlate. But in canonical CSD constructions, the sortal does not appear to have moved. To account for this, I propose that we should analyze CSD constructions as a case of remnant movement (Müller, 1998). I will spell out the details of the remnant movement analysis of CSD in section 4.1 and CD in 4.2. The analysis of CD is very similar to Lechner (1999) with a few modifications needed to account for Kennedy's data.
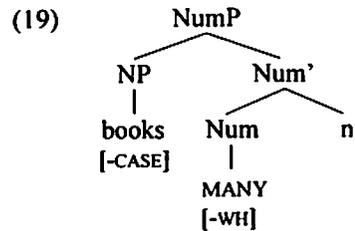
4.1 The Remnant Analysis of CSD

I will assume the basic tenets of the Minimalist Program (Chomsky, 1995). There are several additional assumptions that I will make. First, a NumP (or DegP) projects from an NP (Abney, 1987). Second, NPs carry an uninterpretable case feature that must be checked in a spec-head relationship with a head that bears an interpretable case feature. I will assume a split VP analysis along the lines of Koizumi (1993) in which an Agr projects from the VP which is then dominated by vP (see also Lasnik, 1999). Therefore, objects check their case in the spec of AgrO and subjects check their case on an AgrS projection that dominates TP. Third, DP projections that dominate NPs may act as a mediary between the case feature on the NP and the case feature on the checking head, allowing a DP to stand in the spec-head relationship with the case assigner. But, NumPs, DegPs, or empty DPs cannot act in this fashion. Perhaps this is reasonable since determiners bind variables within the NP and degree heads do not (sort of like 'feature percolation'). Therefore, an NP must move out of the NumP in order to get case. I also assume a strong version of the copy theory of movement (Hornstein, 2001; Nunes, 1995), so that when the NP moves out of the NumP, it leaves a copy that can move along with the NumP if it moves.

I will give the derivation of the CSD construction *John bought more magazines than Bill bought books.*[5] To begin, the numeration includes both sortals (*books, magazines*), as well as the comparative morpheme *more* and the absolutive morpheme *many*. (I will ignore irrelevant parts of the derivation.) MANY is first merged with the degree variable and then the NP *books*.
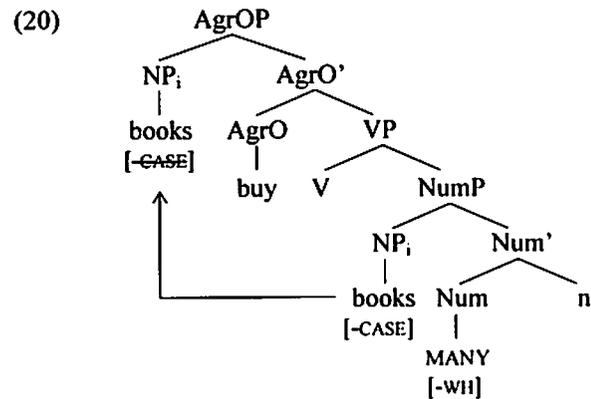
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[5]This is a quantity comparative. While I hope that a similar analysis to the one about to be presented can be extended to adjectival comparatives, I can find no easy way to do this. Therefore, I will leave this up to future research.

The NP has an uninterpretable case feature that must be checked. MANY carries a [-WH] feature.

(19)

```
            NumP
          /      \
        NP       Num'
         |       /    \
       books   Num     n
       [-CASE]   |
               MANY
               [-WH]
```

Next, the NumP combines with the V, which projects an Agr position. The verb must move to the AgrO head and the NP must move out of the NumP into the spec of AgrO where it can check its case feature.

(20)

```
               AgrOP
             /        \
          NP_i        AgrO'
           |         /      \
         books     AgrO      VP
         [-CASE]    |       /    \
              ^    buy    V      NumP
              |              /        \
              |           NP_i        Num'
              |            |          /    \
              |_____ books     Num      n
                         [-CASE]     |
                                  MANY
                                  [-WH]
```

The derivation continues as expected until the CP position, where the entire correlate will A-bar move (remnant move) to CP to check its [-WH] feature as shown in (21). The rest of the derivation follows naturally. The comparative clause merges with *more* which heads the matrix NumP, followed by the merger of *magazines*. To get the word order right, I'll assume that *more* raises to an empty D head position.[6] This is exemplified in (22). The matrix clause is then built in the normal fashion to yield the comparative subdeletion sentence *John bought more books than Bill bought magazines.*

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[6] There is at least one good reason to think that the comparative clause is the complement of *more*. Comparative morphemes like *more, as, less* choose which type of complementizer must head the comparative clause: *more... than, less... than, as many ... as.* (see Larson, 1991)

(21)
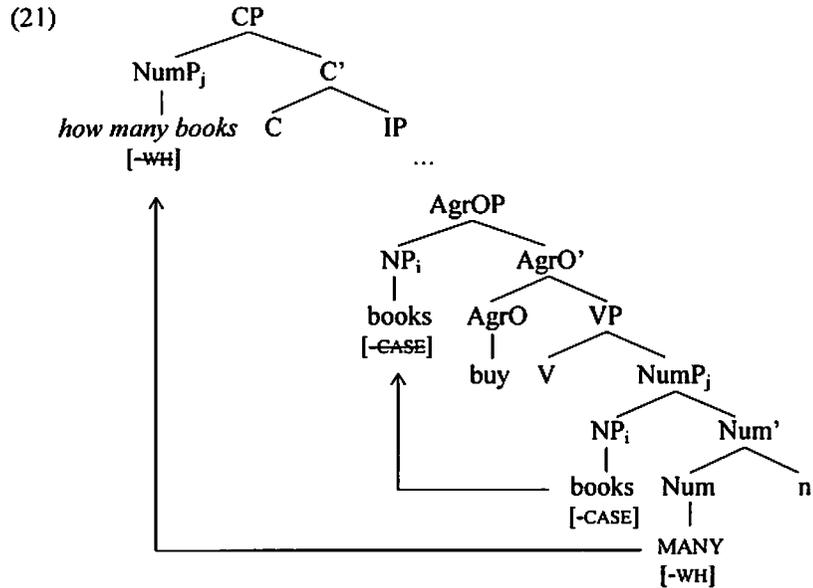
(22) John bought [DP more_k [NumP ~~more_k~~ magazines [CP than ~~how many~~ ~~books_j~~ [Bill bought books_i [~~how many books_i~~]_j]]]]

4.2 The Remnant Analysis of CD

In Lechner's (1999) raising analysis the sortal moves out of the NumP directly to the head position in the matrix followed by covert remnant movement of the NumP. The remnant analysis of CSD offers us a reason for thinking the sortal must first move to a case checking position before it moves to the matrix head position. If it did not first check case, then the lower V head would not get its case feature checked and the derivation would crash. Therein will lie the difference between CD and CSD: In CSD, the correlate stops after it has checked case in the comparative clause; in CD, the correlate continues to move up to the matrix position. I will adopt Lechner's mechanics for forcing this extra movement. Movement from the case position to the matrix head position is required by a [-COMP] feature on the sortal that must be checked by the lexical entry *more* in the matrix clause. The difference between the analysis presented below and Lechner's (1999) analysis is that the sortal will move through the case position of the comparative clause and the remnant movement will be overt.

The derivation of the comparative clause in a CD construction such as *John bought more books than Bill bought* is exactly the same as it is for the CSD construction, except that *books* is introduced with not only an uninterpretable case feature but also an uninterpretable comparative feature. (23) is the result of the derivation of the comparative clause.
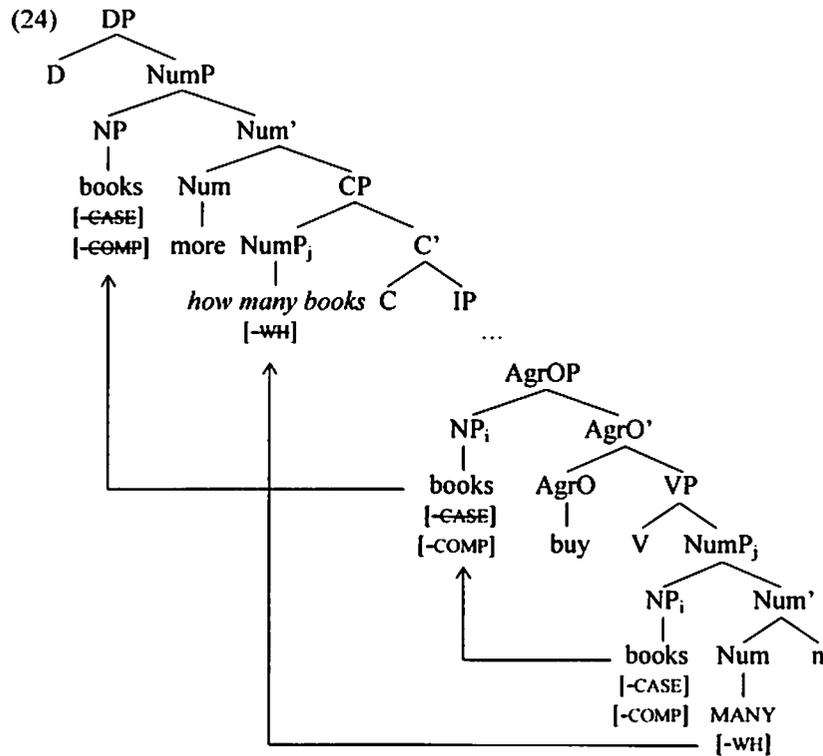
(23)
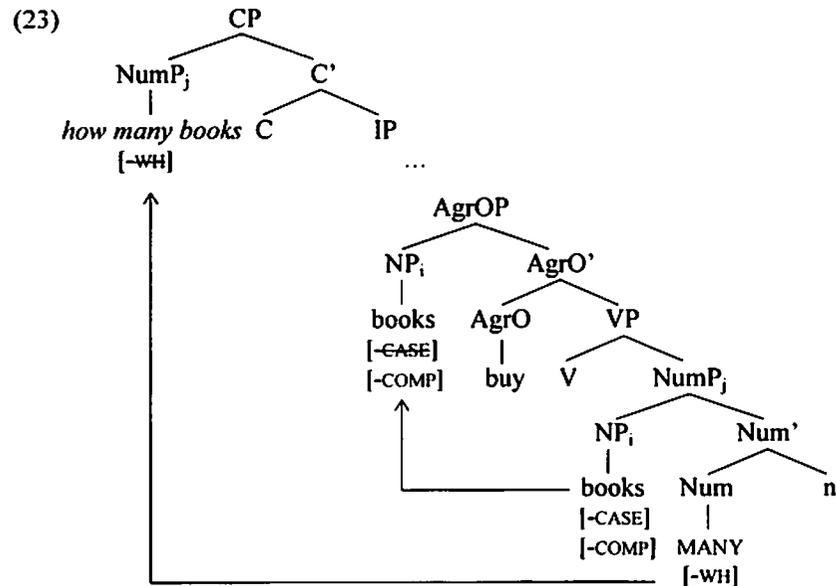
At this point the comparative morpheme *more* merges containing a [+COMP] feature that can check the uninterpretable [-COMP] feature on the sortal. The sortal *books* copies and remerges in the spec of NumP.

Compare (24) with the CSD derivation in (21). Under the remnant movement analysis, the difference between CD and CSD is whether the downstairs sortal moves one more time *from its case position* in the comparative clause. This difference will give us the distinctions between CD and CSD that Kennedy observed.

5 Arguments for an Overt/Covert Distinction Revisited

With the remnant analysis of comparatives we can account for the new parasitic gap data. The parasitic gap in the comparative clause is licensed by overt movement of the NumP to spec of CP. Kennedy's other arguments for an overt/covert distinction can now be responded to.

(24)

```
         DP
        /  \
       D    NumP
           /    \
         NP      Num'
          |      /   \
        books  Num    CP
       [-CASE]  |     /  \
       [-COMP] more  NumPⱼ  C'
                      |    /  \
              how many books C   IP
                    [-WH]        ...
                              AgrOP
                             /     \
                           NPᵢ      AgrO'
                            |       /    \
                          books   AgrO    VP
                         [-CASE]   |     /  \
                         [-COMP]  buy   V   NumPⱼ
                                           /    \
                                         NPᵢ     Num'
                                          |      /   \
                                        books  Num    n
                                       [-CASE]  |
                                       [-COMP] MANY
                                              [-WH]
```

5.1 Testing for a Gap

The diagnostics Kennedy used to tested the case position for a gap, not the base-generated position of NumP. The remnant movement analysis distinguishes CD from CSD based on whether or not there is a trace in the case position, that is whether or not the sortal moves one more time from the case position to the matrix head. Kennedy's data falls out of the remnant analysis quite easily.

CD constructions do not allow contraction, while CSD does. This can be explained because the contracted copula sits next to the case position of the comparative sortal, not the base-generated position of the NumP.

(25)   a. I thought there was more [meat]ᵢ than there is/*'s [meat]ᵢ
            [NumP [meat], MANY *n*]

b. There is more meat than there's [rice]$_i$ [$_{NumP}$ [~~rice~~]$_i$ MANY n]

In the remnant analysis, there is a trace immediately following the contracted copula in CD, but not in CSD. Therefore, the remnant analysis predicts that contraction should be licensed in CSD cases only.

A similar prediction is made concerning comp-trace effects. In these examples the correlate is located in subject position, so the remnant analysis of CD and CSD predicts that the NP raises out of the NumP into spec of AgrS to check case, and then moves further for CD. We should find a comp-trace effect with CD, but not with CSD.

(26) a. More [books]$_i$ were published than editors said (*that) [~~books~~]$_i$ would be [$_{NumP}$ [~~books~~]$_i$ MANY n] published.

b. More [books] were published than editors said (that) [articles]$_i$ would be [$_{NumP}$ [~~articles~~]$_i$ MANY n] published.

Finally, if we assume along with Soltan (2003) (among others) that PPs project a functional category for case checking, we can derive the P-stranding effects in the same manner. The NP will move out of the NumP to check case and then either stays in its case checking position for CSD (no P-stranding), or moves to the head position for CD (P-stranding).

(27) a. *Bydlel jsem ve vice [mestech]$_i$ nez ty   jsi   bydlel
        lived   have in more cities   than you have lived in
        [$_{pP}$ v [$_{AgrPP}$[~~mestech~~]$_i$ [$_{PP}$ [$_{NumP}$ [~~mestech~~]$_{i,}$ ~~n MANY~~]].

b. Chci bydlet ve vice [americkych mestech] nez jsem bydlel
   want lived in more American   cities   than have lived
   [$_{pP}$ v [$_{AgrPP}$[europskych mestech]$_i$ [$_{PP}$ [$_{NumP}$ [~~europskych~~
        in   European cities
   ~~mestech~~]$_i$ ~~n MANY~~]]

5.2 An Answer to Bresnan's Problem

Bresnan's Problem, which asks why we get movement when the head and correlate match and no movement when they don't match, doesn't even arise here since we haven't reduced CD to a case of CSD. The sortal either moves or it doesn't. However, there is one prediction that this analysis makes which looks like a form of Bresnan's Problem: We should be able to get a CSD construction where the sortals match.

(28)   John bought more books than Bill bought books.

In fact, (28) looks like exactly Bresnan's point: The sentence should be ruled out, so why isn't it? It has been noted before (Chomsky, 1977; Sag, 1976; Kennedy, 2002a) that (28) can actually be acceptable under certain circumstances. For instance, when contrastive focus is placed on the correlate, and it is uttered in a conversation such as in (29), (28) is more acceptable.

(29)   A: Did John buy more books than Bill bought magazines?
       B: Not only did John buy more books than Bill bought magazines, but he bought more books than Bill bought BOOKS!

This contrasts with relative clauses which, even under similar circumstances, can never pronounce the correlate.

(30)   A: Did John buy the magazines that Bill bought?
       B: #Not only did John buy the magazines that Bill bought, but he bought the books that Bill bought BOOKS!

The conclusion I want to draw here is that examples like (29) really are just cases of CSD. One might expect that examples like (29) are the "deep structure" of the CD construction *John bought more books than Bill bought*. But I'm claiming that is a CSD construction with two base-generated sortals and not a CD construction with only one base-generated sortal. Whatever is responsible for disallowing subdeletion in relatives is what is responsible for ruling out (30). The fact that (29) is predicted to be acceptable under the analysis presented above as an attribute of the system, not a fault.

6 Conclusion

In this paper I have tried to show that there is no overt/covert A-bar movement distinction between CD and CSD. Rather, by adopting a remnant movement analysis, we can account for the data that Kennedy uses to argue for this distinction and the new parasitic gap data. Also, it was shown that an account of CSD can be given that is consistent with a raising account of CD. Raising handles the deletion in CD very well since we expect deletion of lower copies in a movement chain. The problem has always been CSD. If we generalize to the CSD case, then there must be two sortals in CD constructions, and we must resort to a constructions specific deletion mechanism. But, if we don't generalize to CSD, we don't have a problem. CD base-generates one sortal, CSD base-generates two sortals, and we don't need any matching mechanism.

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