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Comparative Ellipsis: A Phrase Structure Analysis

This article presents a base-generated analysis of so-called comparative ellipsis sentences in English that accounts for the connection between their form and their interpretation. The analysis crucially depends upon the existence of two *than*'s in English, a preposition and a coordinator.

1. Narrowing Down the Data

At least three rules have been taken to operate in comparatives: *Comparative Deletion* (CD), an obligatory rule that deletes the entire compared constituent under identity with the head of the comparative clause; *Subdeletion,* an obligatory rule that deletes only the quantifier-like element of the compared constituent under identity with the quantifier-like element in the head of the comparative clause; and *Comparative Ellipsis* (CE), an optional rule that deletes material in the comparative clause that is outside the compared constituent, under identity with material in the matrix sentence in which the head of the comparative clause is embedded.[1] These rules are exemplified below, where CD has applied in (1), Subdeletion has applied in (2), and both CD and CE have applied in (3).

(1) Mary wrote more books than John wrote ϕ_{CD}.
(ϕ_{CD} = x many books)

(2) Mary wrote more books than John wrote ϕ_{Sub} articles.
(ϕ_{Sub} = x many)

(3) Mary wrote more books than John ϕ_{CE} ϕ_{CD}.
(ϕ_{CE} = wrote; ϕ_{CD} = x many books)

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[1] These rules are as Bresnan (1975, especially p. 48) would describe them. See also pages 59 and 64 for arguments that Subdeletion is a special case of CD. For other discussions of the distinction between CD and CE, see Hankamer (1971; 1973a) and Bach, Bresnan, and Wasow (1974). For a movement analysis of CD and Subdeletion phenomena, see Chomsky (1977). For an interpretive analysis (using empty nodes) of these two phenomena, see Pinkham (1982). Notice that while I have called CD (and Subdeletion) obligatory, it is not if contrast is present, as many have noted.

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The analysis of CE sentences here is independent of the analysis of CD and Subdeletion phenomena, since CE is taken to operate on different material (precisely, the material outside the compared constituent in the comparative clause) from that affected by CD and Subdeletion. For this reason I will not discuss CD and Subdeletion further here.

Turning to the rule of CE, we need to know exactly what range of data it is needed to account for before we can debate what type of rule it is. Notice that CE is redundant for generating sentences that allow alternative derivations by well-motivated mechanisms needed independently for the analysis of noncomparative sentences. (4a–e) give examples of some types of such sentences.

(4) a. Mary wrote more books than John did.
b. Mary wrote more books than you think.
c. Mary loves Fellini more than John, Bertolucci.
d. John would lie to Sue sooner than Bill would to Jane.
e. I organize more than I actually run her life.

(4a) can be accounted for by VP Deletion. (4b) can be accounted for by Null Complement Anaphora (NCA).[2,3] (4c), for those who accept it, can be accounted for by Gapping.[4]

[2] Kuno (1981) also points out that NCA occurs in sentences like (4b) and his (67b) (p. 147):

(i) John persuaded more boys to go than he persuaded girls.

See his discussion on p. 148. He also takes the position that VP Deletion is responsible for sentences like (4a), as does Sag (1976, 110–112).

[3] NCA sentences can often alternate with sentences that have a proform in the putative gap spot of the NCA sentence.

(i) —Is he coming?
—Yes, I suspect (so).

But in comparatives, alternation with the expected proforms is not possible.

(ii) *Mary wrote more books than you think so. (cf. (4b))
(iii) *Mary wrote more books than it was necessary. (cf. (6))

One might mistake this fact as evidence that NCA is not responsible for sentences like (4b) and (6). The restriction here, however, is not limited to *than* clauses. Instead, note that the sentences of (5b), which are indisputable NCA sentences, also do not alternate with sentences that have the expected proforms in the relevant spot.

(iv) *Mary bought the house {that / when / just as / after} you thought so. (cf. (5b))

(The *when* and *after* sentences are good, but not with the intended reading. Instead, the *so* must not be read as identical to *Mary bought the house*. The claim here is that the putative gap in (5b) does not alternate with the expected proform that would have the same reading.)

Second, at least one property sets CE apart from both VP Deletion and NCA. CE cannot apply to material in an S more deeply embedded than the clause introduced by *than* while leaving behind the *than* clause, but the other two rules can.

(v) Mary wrote more books than you said Sue did. (VP Deletion)
(vi) Mary wrote more books than you said. (NCA)
(vii) *Mary wrote more books than you said Sue. (CE)
(cf. *Mary wrote more books than Sue.*)

Finally, I am not endorsing the claim that VP Deletion and NCA are deletion rules or rules of interpreting phonetically null anaphors. Instead, both VP Deletion and NCA (assumed in Hankamer and Sag (1976)) lend

(4d) can be accounted for by Pseudogapping, as discussed in footnote 4. And (4e) be accounted for by Right Node Raising (RNR). That all of these (putative) rules apply in noncomparatives, and thus are not to be identified with CE, is shown in (

(5) a. Mary said she'd write books {but / and / when / after} Bill did.

themselves readily to base-generated analyses. For VP Deletion, see Schachter (1978); for NCA, see N (to appear).

[4] Kuno (1981, 141) also argues that sentences like (4c) are not to be accounted for by CE. But he fi argues that these are not cases of Gapping. In defense of treating these sentences differently from Ga sentences, he offers the following contrast (his (38) and (43)).

(i) John speaks against many more friends than he does
a. enemies.
b. ??against enemies.
(ii) John spoke against Mary, and Tom
a. *Jane.
b. against Jane.

However, these sentences differ syntactically in significant ways; witness the presence of an auxiliary but not in (ii). (In the text, sentences of type (i) are listed under (4d).) It is therefore impossible to cor that the grammaticality differences between (i) and (ii) are due to the fact that Gapping does not ap comparative clauses. If we instead compare (ii) to a *than* sentence that has no auxiliary, such as (iii), w no difference in grammaticality judgments between the gapped sentence using *and* and the gapped sen using *than*.

(iii) John spoke more vehemently against Mary than Tom
a. *Jane.
b. against Jane.

Furthermore, comparing (i) to an *and* sentence with an auxiliary, such as (iv), reveals that the (a) exa while only marginally acceptable, is much better than the (b) example.

(iv) John speaks against many friends, and he does
a. ?enemies, also.
b. ?*against enemies, also.

Thus, I maintain that sentences like (4c) are gapped. The analysis of sentences like (i) and (4d) in th involves Pseudogapping, a rule discussed in Levin (1978; 1979), which is distinct from Gapping in many

At least two other sources take the position that sentences like (4c) are not gapped sentences. Jack (1971) claims that they are not gapped because the "deletion possibilities" in comparative clauses are ' freer" than in the contexts usually associated with gapping (i.e. coordinate structures). He gives as his ev so-called CE sentences (as in (3)), VP Deletion sentences in comparatives (as in (4a)), and sentences l (that is, pseudogapping sentences).

(v) Bill ate more peaches than Harry did/will grapes.
(cf. *Bill ate the peaches and Harry did/will grapes.*)

Jackendoff gives no further arguments against calling sentences like (4c) gapped sentences. Thus, examples he uses to demonstrate the freer nature of deletion possibilities in comparatives can be analy involving other well-known and independently motivated rules.

Sag (1976, 140) claims that sentences like (4c) should not be called gapped sentences, referring for s of this claim to Jackendoff (1971) and to his own section 2.3. But in his section 2.3 Sag discusses only sen like (i), (v), and (4d): that is, pseudogapping sentences, in which an auxiliary appears but the main missing in the *than* clause. Sag claims that these sentences are derived by way of Subdeletion plus C his arguments aim to establish only that they are not generated by VP Deletion, and they do not b whether or not the sentences are actually generated by CE.

It seems, then, that there is no objection stated on Kuno's, Jackendoff's, or Sag's part to calling sen like (4c) gapped sentences, once we recognize the rule of Pseudogapping, which is distinct from Gappi which can operate in noncomparatives (as in (5d)).

b. Mary bought the house { that / when / just as / after } you thought.

c. Mary loves Fellini and John, Bertolucci.
The villain ended up with the woman instead of the hero with her.
John's putting out his cigarette without Mary hers didn't help at all.

d. John wouldn't lie to Sue but Bill would to Jane.
John wouldn't lie to Sue although Bill would to Jane.
John wouldn't lie to Sue even after Bill did to Jane.
John wouldn't lie to Sue precisely because Bill did to Jane.

e. I organize and I really just basically run her life.
I organize without my really running her life.
I organize although I don't really run her life.

Furthermore, Culicover (1980, 11–14) argues that NCA likewise operates in (6).

(6) Mary wrote more books than was necessary.

Thus, sentences like (6) can be generated without recourse to CE.

Once the above types of sentences are set aside, we are left with a residue of sentences like the following.

(7) a. Mary is taller than John.
b. Mary likes Sue more than John.
c. Mary sings more loudly than beautifully.
d. Mary is more clever than smart.
e. I eat more than drink.
f. I like to eat on the porch more than in the kitchen.

I will show in section 2 that a base-generated analysis is desirable for sentences like these—hence, that a deletion rule of CE is neither necessary nor desirable for generating them. Since CE, being redundant, is not needed to generate sentences like (4a–e), we can conclude that a deletion rule of CE is completely superfluous, without the need to examine further sentences of those types.

Let us turn now to the analysis of sentences like (7a–f). From here on I will use the term *CE sentence* to refer to sentences of the type seen in (7) only.

2. Base Generation

I propose that CE sentences are base-generated. Furthermore, there are two *than*'s in English: a preposition and a coordinator.[5] The explanatory power of this analysis is great and will now be demonstrated.

[5] Dieterich (1978) argued for two *rather than*'s in English: one that coordinates a clause and one that subordinates a clause. While his arguments were ultimately rejected in Dieterich and Napoli (1982), his work has greatly influenced my approach to this question here.

2.1. Form

The proposed analysis can account naturally for the following facts about the form CE sentences.

A. The material following *than* corresponds to a single node in the correspondi full clause comparative (the comparative that has undergone only CD, and not CE) a never to a string that does not form a constituent. To see this, consider (8) and (9).

(8) John sent books to more people than Sue sent books to ϕ_{CD}.
(ϕ_{CD} = *x* many people)

(9) a. *John sent books to more people than Sue sent books ϕ_{CE} ϕ_{CD}.
(ϕ_{CE} = to; ϕ_{CD} = *x* many people)
b. *John sent books to more people than Sue sent ϕ_{CE} ϕ_{CD}.
(ϕ_{CE} = books to; ϕ_{CD} = *x* many people)
c. John sent books to more people than Sue ϕ_{CE} ϕ_{CD}.
(ϕ_{CE} = sent books to; ϕ_{CD} = *x* many people)

Assuming that (8) is the full clause comparative sentence corresponding to (9), we fi that in (9) the strings *Sue sent books* and *Sue sent* are unacceptable, while the stri *Sue* is acceptable.[6] The first two strings do not form a constituent in (8), whereas t

Gazdar (1980) offers a phrase structure syntax for comparative clauses that assigns *than* to "no lexi category" (p. 166). None of the arguments Gazdar brings up are incompatible with my proposal.

Hankamer (1973b) argues for two *than*'s in English, a preposition and a complementizer. He employ deletion rule of CE and analyzes *than* as a complementizer whenever it introduces material other than an I and also certain NPs. As will be clear, my analysis is strikingly different from Hankamer's, while still owi some of its initial motivation to his thought-provoking work.

Hellan (1981) also argues for a preposition and a complementizer *than*. Unlike Hankamer's analys Hellan's has no deletion rule of CE, but it employs an interpretive "principle" to supply the semantics CE sentences (see p. 116). Hellan points out the major differences between his own and Hankamer's analys on p. 86.

Pinkham (1982), a work that came to my attention only after this article had been accepted for publicati argues for a deletion rule of CE (p. 104) to account for some phrasal comparatives, but for base generati of others. She employs an interpretive rule (p. 123) that copies formulae of logical form from the matrix o the comparative to supply the semantics for base-generated phrasal comparatives (a rule similar in spirit Hellan's and reminiscent of Grimshaw's (1979) interpretive rule for NCA sentences). Pinkham perspicaciou notes that phrasal comparatives fall into two types, *parallel* and *prepositional* (pp. 119–120), which larg coincide with my coordinator *than* and prepositional *than* CE sentences. In fact, she mentions at one po (p. 121) that the parallel CE sentences seem like coordination. She does not, however, note that clau comparatives fall into the same two types.

Note that an interpretive rule like Pinkham's (and perhaps Hellan's interpretive "principle") would excluded in a Government-Binding framework by the Projection Principle (see Chomsky (1981; 1982)).

[6] Sentences like (i) are not counterexamples to the claim that CE sentences allow only what correspor to a single constituent in the non-CE sentence to follow *than* in the CE sentence.

(i) Mary wrote more letters to Bill than Jane wrote.

One might assume at first that the full clause comparative sentence corresponding to (i) would include string *to Bill* in the comparative clause. But this is not so. While the contexts for (i) that most readily co to mind involve Jane's writing letters to Bill, this is not the meaning of (i). We can see this by simply construct an appropriate context. Let's say that Jane is well known for writing numerous letters. Now Mary comes alc and begins writing letters to Bill. If the sum of Mary's letters to Bill was greater than the sum of Jane's lett (to everyone she wrote to), we could utter (i). The addition of time adverbs may help to clarify the issue.

(ii) In just one summer Mary wrote more letters to Bill than Jane wrote in her whole life.

third one does.[7] These facts follow if *than* is either a preposition or a coordinator, since both prepositions and coordinators typically introduce single constituents.

B. *Than* can introduce items of any major syntactic category. This follows if there is a *than* coordinator, since any category can be coordinated to a like category.[8]

C. The node following *than* must have the proper morphological form it would assume in the corresponding full *than* clause.

(10) a. Mary is more loud than strong/*strongly.
b. Mary sings more clearly than beautifully/*beautiful.

For prepositional *than*, which introduces only the categories that P can introduce, [9] the question of proper morphological form (other than case marking, which will be handled in point (F)) does not arise. (10) involves items following *than* that could not follow regular Ps. Thus, (10a,b) must be examples of coordinator *than*. The facts now follow, since the node following *than* is coordinated with another node, both of which have their morphological form determined in the same way.

D. The item following *than* must be of the same type as some item preceding *than*, unless that item is an expression of quantity, a measure phrase, or a deictic adverb.

(11) a. Mary more often cries than sings.
b. *Mary more often cries than on the porch.

Thus, neither (i) nor (ii) involves CE; they involve only CD. They are therefore not counterexamples to my claim.

Another putative counterexample is found in Pinkham (1982, 99).

(iii) He buys grain for his horses more often than food for his children.

But (iii) is not a CE sentence, given the guidelines set up earlier in section 1. Instead, whatever rule is responsible for sentences like (iv), noncomparative sentences, could have applied in (iii).

(iv) He buys grain for his horses $\left\{\begin{matrix}\text{and}\\ \text{but not}\\ \text{before}\end{matrix}\right\}$ food for his children.

Thus, (iii) does not demand a CE analysis and is therefore not counterevidence to the claim in the text.

[7] The repetition of verbs in (9a,b) and of objects in (9a) exaggerates the unacceptability of these examples. But even without such repetition the syntactic structures at issue are ungrammatical.

(i) a. John sent books to more people than Sue delivered papers to ϕ_{CD}.
(ϕ_{CD} = *x* many people)
b. *John sent books to more people than Sue delivered papers ϕ_{CE} ϕ_{CD}.
(ϕ_{CE} = to; ϕ_{CD} = *x* many people)
(ii) a. John sent books to more people than Sue delivered books to ϕ_{CD}.
(ϕ_{CD} = *x* many people)
b. *John sent books to more people than Sue delivered ϕ_{CE} ϕ_{CD}.
(ϕ_{CE} = books to; ϕ_{CD} = *x* many people)

[8] This is not to say that coordinators require like categories in the items coordinated, but only that they allow them. There is considerable controversy over exactly what determines the suitability of conjuncts, for example. See Schachter (1977), Dik (1968), and Peterson (1981), among others.

[9] P can introduce NP, deictic adverbs, measure and quantity phrases, and S. For a discussion of P with S, see footnote 25. For the others, consider these examples.

(i) a. up the road/with Sheila/after him
b. (a tale) from last year/(a story) about tomorrow/(memories) of then
c. with an inch to spare/(a distance) of five miles

Since the exceptions to this generalization can all be attributed to prepositional *th* (see footnote 9), this generalization can be viewed as a statement about coordinator *th* sentences. But now fact (D) follows since *than* coordinates the node following it w an item of the same type that precedes it.[10,11]

E. Items that have a very limited distribution can appear after *than* when th conditioning context is present in the material preceding *than*, but cannot appear af *than* otherwise.

(12) The team $\left\{\begin{matrix}\text{made}\\ \text{*liked}\end{matrix}\right\}$ more noise than headway.

(*Headway* is part of the idiom chunk *make headway*.)

If there is a coordinator *than*, this fact follows, since the NP following *than* in (12) part of a coordinated direct object of the verb. Naturally, then, *headway* can occur o if the verb is *make*.

F. For many speakers of English, a pronoun following *than* is never nominat unless the material immediately preceding *than* is nominative.[12,13]

(13) a. She's taller than me/*I.
b. She more than he/*him understands how to proceed.
c. I like him more than her/*she.

(For (13c) these speakers prefer *her* regardless of the reading.) If there is a prepositio

[10] At first glance, sentences like (i) seem to be counterexamples to this claim.

(i) Pat comes to class more often than not.

However, *than* here can be analyzed as prepositional *than* introducing a pro-S. That *not* is a pro-S, like *s* (ii), is shown in Napoli (to appear).

(ii) I think so/not.

Not patterns like *so* in significant ways. For example, like other proforms, *not* obeys the Backwards Anapl Condition (whatever its proper formulation may be).

(iii) a. John might be right, even though I strongly suspect not.
b. Even though I strongly suspect not, John might be right.
c. Even though John might be right, I strongly suspect not.
d. *I strongly suspect not, even though John might be right.

((iiid) is all right, but only on a reading in which *not* derives its interpretation from association with someth outside the S.)

[11] What qualifies as "the same type" is controversial. See the references in footnote 8.

[12] Many other speakers allow both cases of the pronoun in all the sentences of (13). For example, pe have told me that to them (13a) with *I* is of the same degree of acceptability as (i) with *I*.

(i) It's me/I.

(13c) with *she* also has the same register as (i) with *I*, with the added stipulation that the interpretation is in which *she* is agentive. (13b) with *him*, on the other hand, has a lower register, almost a substandard I would need to study case assignment in these varieties of English in its entirety to find out whether present a problem for the present analysis of CE sentences or not. Obviously, I cannot do that here. T point (F) is merely an observation that there are at least some speakers of English whose case assignme CE sentences follows from the proposed analysis, given that only Tense governs nominative in their spe

[13] *More* is positioned in (13b) by a QP Permutation rule, as will be discussed in section 2.3. Notice the sentence with permutation sounds better than the one without. I have no explanation for this fact.

than, its object should be oblique. If there is a coordinator *than*, nominative case should appear just when *than* coordinates an NP with a preceding nominative NP. The facts, then, are as the analysis predicts.

G. Hankamer (1973b) claims that many NPs following *than* can undergo movement, whereas many other NPs and items of any other category cannot. We can explain these facts by calling upon Ross's (1967) Coordinate Structure Constraint (CSC). Items introduced by coordinator *than* are not susceptible to movement. But items introduced by prepositional *than* are.[14]

H. Not only the item following coordinator *than* is immovable (as noted in point (G)), but also the item preceding *than*.

(14) a. Mary sings more sweetly than beautifully.
b. *How does Mary sing more than beautifully?

If *than* is a coordinator in (14), the item preceding *than* is blocked from movement by way of the CSC, since that item is one of the coordinated terms.[15]

I. If *than* can be a coordinator, we would expect across-the-board violations of the CSC. This is the case, as Gerald Gazdar (personal communication) notes. (Examples (15a,b) are Gazdar's.)[16]

[14] Pinkham (1982, 141) likewise observes that extraction is allowed only from prepositional phrasal comparatives and not from her "parallel-type" ones.

Hankamer (1973b) accounts for the immovability of certain items by claiming that a deletion rule of CE exists and that any item following *than* in a CE sentence is part of a syntactic island (where full comparative clauses are syntactic islands) and thus cannot move. He claims there is also a prepositional *than* that can introduce NP in the base and that allows movement of its object, restricted by the "ergative constraint". Dieterich and Napoli (1982) have demonstrated that the ergative constraint is empirically inadequate (with examples like: *Who did you say you get to eat avocados less often than?*). Laying aside the ergative constraint, then, the observation in point (G) is adequately explained by Hankamer's analysis as far as it goes. However, Hankamer's explanation does not extend to cover cases like (14a,b).

Hankamer offers four arguments besides movability for the existence of CE. One is based on data that fall under my discussion in point (D). Another is based on the assumption that CE sentences have corresponding full clause comparative sentences with the same meaning. This assumption is false, as will be demonstrated in section 2.2. Hankamer's two other arguments are based on tense retention and reflexive targets. But both of these arguments use data from other languages that are not duplicated in English. Since this article deals exclusively with the English construction, I will not discuss these other arguments here.

[15] Similar data are discussed in Dieterich and Napoli (1982) for *rather than* sentences.

[16] Alternatively, Right Node Raising (RNR) could have applied first, followed by Topicalization in (15a) and (15c) and Relative Clause Formation (*Wh* Movement) in (15b). Notice that in (15c) coordinator *than* introduces an S node. I will argue in section 3 that both *than*'s can introduce S.

Note also that rules like Subject-Auxiliary Inversion can apply to CE sentences in the same way they apply to other coordinate structures.

(i) Does Mary more often cry than sing?
(ii) a. Does Mary cry or/and sing?
b. Does Mary smile but stab you in the back?

Finally, an anonymous reviewer has raised the question whether (15) might involve parasitic gaps (as discussed in Chomsky (1982), and elsewhere). Note that all the structures in (15) are ones that observe the CSC when only one "gap" is involved.

(iii) a. *Who did you see more pictures of than (you read) books about Ronald Reagan?
b. *Who did you see more pictures of Nancy Reagan than (you read) books about?
(cf. (15a,c))

(15) a. Nancy Reagan, I've seen more pictures of than books about.
b. Chomsky is someone who Sue finds it easier to defend than to emulate.
c. Nancy Reagan, I've seen more pictures of than I've read books about.

J. Some speakers of English do not allow certain sentential adverbs to interven between *than* and a following NP unless that NP is quantified or the adverb is surrounde by heavy pauses.

(16) a. *Bill runs faster than usually Susan.
b. Bill runs faster than usually at least a few other people.

The same speakers under the same conditions bar the same set of sentential adverb from intervening between a P and its object and between a disjunctive coordinator an its object.

(17) a. *Bill will go with usually Susan.
b. Bill will go with usually at least a few other people.
(18) a. *He'd invite Jane or usually Susan.
b. He'd invite the whole class or usually at least a dozen people.

If *than* in a CE sentence is either a P or a coordinator, the facts exemplified in (16) hav the same explanation as those in (17)–(18) (whatever that might be). That *than* shou pattern like a disjunctive coordinator rather than like the conjunction *and* is not surprisi given that comparatives involve implicit negation (to a degree or totally, as in the ca of the exclusivity comparative discussed in Bolinger (1950, 1953)) and are thus s mantically more similar to disjunction than conjunction.[17]

K. Some *than* phrases can be fronted while others cannot, as Peter Binkert (person communication) has pointed out to me.

(19) a. Than John, certainly no one has done more.
b. *Than Mary, I like Bill more.
c. *Than beautifully, certainly Mary sings more loudly.

If both a prepositional *than* and a coordinator *than* are allowed, then (19a) is allow

(iv) a. *Who does Sue find it easier to defend than to emulate Dwight Bolinger?
b. *Who does Sue find it easier to defend Noam Chomsky than to emulate?
(cf. (15b))

By Engdahl's (to appear, section 1) criterion, (15) would not involve parasitic gaps, then. However, as Engd notes (in section 8), some comparatives do seem to involve parasitic gaps. I leave the question open he while pointing out that the analysis of comparatives in this article would predict parasitic gaps in comparati only when the preposition *than* is used.

[17] Perhaps an explanation for Ross's (1980) observation about negatives in comparatives can be made follow from this fact.

because prepositional phrases can appear in initial position, but (19b) and (19c) are disallowed for the same reason that (20), with coordination, is disallowed.[18]

(20) *{And / Or} John, Mary saw Bill.

L. Finally, Hankamer (1973a), who assumes a deletion rule of CE, points out that for the structural recoverability condition he develops (a condition that need not concern us here), CE is problematic, since his analysis has no way to block sentences like (21).

(21) *The twins shouted at more girls than at Harry.

(In Hankamer's analysis with a deletion rule of CE, (21) comes from *The twins shouted at more girls than shouted at Harry.*) Hankamer claims that in order to block sentences like (21), an extra condition on CE is needed: "Comparative Ellipsis cannot apply unless the constituent deleted by Comparative Deletion is in a position in the comparative clause corresponding to the position of its controller in the matrix clause" (pp. 63–64). The effect of this condition is to ensure parallelism on the output of CE. In Hankamer's analysis this condition is a mystery. But all the problematic sentences involve categories that could not have been introduced by a P. That is, they all involve what I have been calling the coordinator *than*. Since coordinators join parallel elements, Hankamer's observation, for which he has no explanation, follows immediately from the present analysis.

2.2. *Interpretation*

The phrase structure analysis proposed here can naturally account for many facts about the interpretation of CE sentences. Below I offer some representative examples, which range from being suggestive (pending further research) to being solid arguments for this analysis.

A. It has often been noted (as in McCawley (1967), McConnell-Ginet (1973), Hellan (1981), and elsewhere) that a wide scope reading of the degree expression is impossible in (22a) but possible in (22b).[19]

[18] It is clear that (19a) must involve the prepositional *than* independently of the fronting facts, since coordinator *than* must be flanked by the two items it coordinates with at most the intervention of a (permutable) QP or AP (as discussed in section 2.3). But *John* here is compared to the subject, which does not immediately precede *than*.

It is equally clear that (19c) must involve the coordinator *than*, since only the coordinator could introduce an AP.

But (19b) seems to be open to two analyses: a P and a coordinator. For some reason everyone I have asked rejects (19b), so I must conclude that they are rejecting it on the coordinator analysis. Why the prepositional analysis cannot emerge to save (19b) is unclear.

[19] See Postal (1974) for an alternative explanation of the semantics of sentences like (22a,b), and see Hellan (1981, 85) for a refutation of Postal's analysis.

Notice that only the reflexive pronoun is accepted in (22a), regardless of the reading. In at least some approaches to reflexivization, (22a) could be taken as evidence that only one clause is involved here, a conclusion compatible with the phrase structure analysis of CE sentences.

(22) a. John thinks Mary is taller than herself.
b. John thinks Mary is taller than she is.

Hellan (1981, 56) points out that this difference is expected if (22a) has a single clau analysis at all points in the derivation, as long as the relevant rule for interpreting wi quantifier scope is constrained to operate only on quantifiers dominating S nodes. Sin a general investigation into quantifier interpretation would take us too far afield, I off the above remarks as a suggestion and recommend chapter 6 of Hellan (1981) and t references cited there for further relevant discussion.

B. *Than* can introduce material that semantically "modifies" the preceding mater or semantically "balances" it. This is certainly a subtle distinction when the phras being compared are NPs, but it is easier to see with other phrases such as APs. F example, in (23a) the *than* phrase is modificational, whereas in (23b) it is balancing w respect to the immediately preceding adjective.

(23) a. Her speech was more insightful than ever before.
b. Her speech was more insightful than clever.

(Notice that (23b) has both the "metalinguistic" reading mentioned in section 4 a footnote 29 below and the regular degree reading.) An AP with a modificational *th* phrase occurs in postnominal position only, whereas one including a balancing *th* phrase occurs in adnominal position or, with a certain stylistic flair, in postnomi position.

(24) a. She wrote a proof more elegant than ever before.
(cf. *She wrote a more elegant than ever before proof.)
b. She wrote a more elegant than interesting proof.
(cf. She wrote a proof more elegant than interesting.)

This behavior corresponds exactly to that of APs that include PPs and APs made up coordinated elements.

(25) a. She sewed a jacket snug in the shoulders.
(cf. *She sewed a snug in the shoulders jacket.)
b. She sewed a snug and smart jacket.
(cf. She sewed a jacket snug and smart.)

If modificational *than* phrases involve the preposition *than* and balancing *than* phra involve the coordinator *than*, the correspondence between syntactic behavior and mantics seen in (24) is expected, given (25).

In section 3 I will argue that both types of *than* can introduce clausal comparativ Notice that clausal comparatives likewise can be modificational or balancing.

(26) a. Her speech was more insightful than I had expected.
b. Her speech was more insightful than it was clever.

Interestingly, the modificational clausal comparative patterns in APs just as the modificational CE comparative does, and just as noncomparative clauses do; but the balancing clausal comparative cannot occur inside an AP, just as sentences cannot be coordinated with nonclausal adjectives inside an AP.[20]

(27) a. She wrote a proof more elegant than I had expected.
(cf. *She wrote a more elegant than I had expected proof.)
b. *She wrote a more elegant than she wrote an interesting proof proof.
(cf. *She wrote a proof more elegant than she wrote an interesting proof.)

(28) a. She sewed a wall hanging fun for the children to touch.
(cf. *She sewed a fun for the children to touch wall hanging.)
b. *She sewed a smart and which I liked jacket.
(cf. *She sewed a jacket smart and which I liked.)

Once more the correlation between syntax and semantics is accounted for if the modificational *than* is a P and the balancing *than* is a coordinator.

C. Often CE sentences involving metaphors are not (nearly) synonymous with the corresponding sentences involving full *than* clauses, as Morgan (1975) points out. Edwin Williams (personal communication) in fact offers examples of metaphorical sentences that have no corresponding grammatical sentence with a full *than* clause, all issues of synonymy aside.

(29) Mary eats faster than a tornado (*does/*eats).

What (29) shows is that a CE sentence involves a comparison between a syntactic constituent of a category that need not be S (the category following *than*) and a syntactic S (the one preceding *than*), whereas a CD sentence involves a comparison between two Ss (or propositions). That is, in (29) a proposition is compared with the denotation of an NP. But since there is no one-to-one correspondence between the parts of the two syntactic elements compared (here S and NP), nor between the parts of the two semantic elements compared (here a proposition and the denotation of an NP), when we interpret these sentences, we in effect compare two situations, one of which is only indirectly invoked by the NP using the context. If this is true, any semantics adequate enough to account for CE sentences must be able to make use of partial models (or functions) and to recognize the "efficiency" of language.[21] By "efficiency" I mean the notion as developed by Barwise and Perry (1983): ". . .expressions, whether simple or complex, can be recycled, can be used over and over again in different ways, places and times and by different people, *to say different things*" (p. 41). Accordingly, a CE sentence

[20] The grammaticality of (i) is expected, since here *than* is coordinating two clauses.

(i) She wrote a more elegant proof than she wrote an interesting proof.

[21] Actually the problem is not limited to CE sentences. As Bartsch and Vennemann (1972) and Sag (1976, 110) point out, the problem of providing a semantics for comparatives of all sorts is very complicated. For some approaches to semantics that seem promising with regard to the types of problems comparatives raise, see Kamp (1975), Klein (1980), McConnell-Ginet (1973), and Barwise and Perry (1983), among others.

allows for a semantically wider range of single constituents that can follow *than* i the range of propositions that can follow *than* in a CD sentence, since the compar in a CE sentence is stated only vaguely and the speaker and listener are free to ima a number of possible comparisons. In (29), for example, the speaker may intend listener to understand that Mary's eating is terrifically fast or that Mary not only fast but also gives a sense of great swirling activity as she is eating, or that Mary only eats fast but also leaves the impression of devastation when she has finished, so forth. That is, in (29) the fact that Mary eats fast is being compared to a torn because there is something tornado-like about her eating fast, but exactly which as of a tornado the speaker intends to focus on is not stated explicitly. The context of is a strong indicator of what the utterance means. While there are restrictions, as Bar and Perry (1983, 137) say, ". . . any situation on which the speaker can focus attent is "potentially accessible" as a resource situation for the semantics of the utteran

This explanation accounts for Morgan's (1975) observation that comparatives CE allow both a literal and a nonliteral reading, whereas comparatives with CD a only a literal reading. It also accounts for Sadock and Zwicky's (1973) essentially i tical observation about comparisons with *like:* the simile in (30) can be taken as hyper or in a literal sense, while the simile in (31) is limited to the literal reading.

(30) Mary eats like a bear.
(31) Mary eats like a bear does.

Of course, (32) also has only the literal reading.

(32) Mary eats like a bear eats.

If we assume that *like* comparisons of the type in (30) are also CE sentences,[22] the v range of readings for (30) as opposed to (31) presents no new problems; the prop analysis in fact even predicts it.

D. The interpretation of deictic *that* in *than* phrases supports the above chara ization of the semantics of CE sentences. Consider (33), which was spontaneously ut by my husband in the given context.

(33) (Barry looks at children rolling on the floor in a restaurant. He says,)
Our family is better than that.

(33) resists paraphrase by any sentence that has the same beginning but a full compar clause. Certainly no good paraphrase has *our family* as the subject of a full *than* cl (see (34a)); but notice that no good paraphrase has *that family* as the subject of the clause either (see (34b)).

(34) a. *Our family$_i$ is better than our family$_i$/it$_i$ is that.
b. Our family is better than that family is. ($\neq$ (33))

[22] I know of no differences between comparatives and *like* comparisons beyond the fact that CD a to one but not the other. This difference follows from the fact that one has a quantified compared const and the other does not.

The *that* of (34b) is a demonstrative, singling out another family. But the *that* of (33) is not meant to single out the family, but instead the children's behavior. That is, the way to describe the behavior of those other children is *that* (as in, *Look at those children acting like that!* or *Don't talk like that!*). Yet (33) cannot be paraphrased by a full *than* clause with *that* as a deictic pronoun referring to the other children's behavior, because the resulting sentence is unacceptable.

(35) *Our family is better than that is.

(33), then, directly compares the simple deictic *that* with a proposition, just as the base-generated analysis would lead us to expect.

E. Contrasts between CE sentences and CD sentences as reports of other sentences further support the base-generated analysis. Consider the situation in which I utter (36).

(36) Mary is five feet tall.

Let's take the case in which Susan is four feet ten inches tall. I can report my utterance of (36) with (37) but not with (38).

(37) I said Mary is taller than Susan is.
(38) I said Mary is taller than Susan.

Speakers agree that (38) requires that I had mentioned Susan in the utterance I am reporting. But this is not necessary for (37). If (38) is base-generated, the derivation does not at any point contain Susan's height (the *x much tall* deleted by CD from (37)). Thus, (38) can report only an utterance in which I mentioned Susan, not simply matters of height. On the other hand, (37) contains Susan's height (before CD) and, accordingly, it can report utterances in which I mentioned simply matters of height (as well as utterances in which I mentioned Susan, of course).

2.3. Permutation

One question that remains is the following. If *than* does not immediately follow the first of the two items it coordinates, how can we possibly talk about "coordination"? Examples like (39) are obviously unproblematic, since here we can analyze *than* as a preposition.

(39) Mary sings more loudly than her sister.

Whenever *than* introduces an item that a regular preposition could introduce, the above question does not arise. But examples like (40a,b) demand an analysis with coordination.

(40) a. Mary sings loudly more than beautifully.
b. Mary cries more often than sings.

Such an analysis is available with permutation rules already motivated on independent grounds elsewhere. Thus, (40a) can be derived from (41a) by way of QP Permutation,

defended in Bresnan (1973), and (40b) can be derived from (41b) by way of its counterpart AP Permutation, defended in Dieterich and Napoli (1982).[23]

(41) a. Mary sings more loudly than beautifully.
b. Mary more often cries than sings.

As expected, whenever coordinator *than* is involved, only QPs or APs (i.e. permutable elements) intervene between the coordinated elements.[24]

(42) John sings more than { talks / he talks }.

(43) John sings more for his own enjoyment than { *talks / he talks }.

Furthermore, only QPs and APs that can also appear immediately before the first coordinated element can intervene between the coordinated elements.

(44) a. *John sings more sweetly than talks.
b. *John more sweetly sings than talks.

Such data suggest that QP/AP Permutation move(s) rightward, as assumed here, rather than leftward, as originally proposed in Bresnan (1973).

In contrast, the positioning of major categories immediately before *than* plus item that a regular P can introduce (that is, before prepositional *than*) is in no way correlated with other positions those categories can assume in the sentence.

(45) a. Mary sings more loudly than her sister.
b. *Mary more loudly sings than her sister.
(46) a. John sings more sweetly than he talks.
b. *John more sweetly sings than he talks.

3. Full Clauses with *Than*

The comparatives discussed thus far mostly involve constituents other than S following *than* (that is, they are CE sentences). At this point I want to argue explicitly that both *than*'s, the preposition and the coordinator, can introduce S.

First, as Gerald Gazdar (personal communication) has pointed out to me, the preposition *than* must be able to introduce S in order to account for sentences like (47).[25]

(47) Kim is happier than Lee is and richer than Sandy was.

Since *happier . . . and richer . . .* is a conjoined phrase, *than Lee is* finds itself in t

[23] Bresnan's (1973) analysis actually goes in the opposite direction, deriving (41a) from (40a). This issue is discussed immediately below in the text.
[24] See section 3 for *than* with a full S complement.
[25] For arguments that prepositions can take sentential complements, see Pullum (1976, especially p. 3 and Kayne (1981), among others.

midst of an AP. If the only *than* that could introduce an S were a coordinator, then *than* would have to coordinate *Lee is* to the preceding clause, *Kim is happier*. But then there would be no way to conjoin *richer . . .* to *happier. . . .* Furthermore, *Sandy was* would have to be coordinated to *Kim is happier than Lee is and richer*. Such a structure is impossible to represent with labeled bracketing and is clearly ridiculous. Instead, if both *than*'s in (47) are prepositions, then they are complements of the compared adjectives that precede them. This analysis predicts that a prepositional *than* with an S complement that is the complement of an adjective can appear with that adjective anywhere the adjective can appear, regardless of what precedes the adjective. This prediction is borne out.

(48) Happier than she had ever been before, Sue picked up her suitcase and boarded the plane.

Second, the coordinator *than* must be able to introduce S in order to account for some of the data in section 1. For example, Gapping (as in (5c)) applies to coordinate structures, comparatives, and very few other structures. If comparatives involve coordinate structures, then we may be able to maintain the claim, made by many (including Sag (1976, 139)), that Gapping applies only to coordinate structures.[26] Likewise, Right Node Raising (RNR) (as in (5e)) applies to coordinate structures, comparatives, and very few other structures. Again, if comparatives involve coordinate structures, we may be able to maintain a more restrictive environment for the application of RNR.[27]

And, finally, if there are two types of *than*—a preposition and a coordinator—for both NP and S, then we might expect to find a sequence of prepositional *than* phrases or clauses. This is because a given head node may have two prepositional complements (as in *the book of interest on the shelf*), whereas the coordinator *than* is a two-place coordinator like *but* (cf. *happy but quiet* (**but thoughtful*)). Though the examples are certainly far-fetched and unlovely, I have found speakers who accept (49) but none who accept (50) even to the slightest degree.[28]

[26] (5c) contains examples of Gapping with an *instead of* clause and with a *without* clause. See Thompson (1972) for an analysis of *instead of* clauses that assigns them the same structure as *rather than* clauses. See Dieterich and Napoli (1982) for an analysis of *rather than* clauses that assigns them comparative clause status. Thus, by way of transitivity, the *instead of* cases of Gapping may also be examples of coordinate structures. Furthermore, it might be possible to analyze *without* as an *and not* coordinator (but see Gazdar and Pullum (1976) for objections to this). If such an analysis were tenable, Gapping applied to a *without* clause would still involve a coordinate structure.

[27] In (5e) RNR applies to a *without* clause (see comments in footnote 26) and to an *although* clause. Unfortunately, the application of RNR to *although* clauses will keep us from being able to restrict RNR to coordinate structures. Still, there are comments in Abbott (1976) about stylistics and RNR sentences suggesting that parallelism may be the crucial factor for RNR. If this were the case, since coordinate structures are parallel, the fact that RNR applies to coordinate *than* structures would follow naturally from the analysis proposed here.

[28] One might object to labeling the deictic adverb *before* in (49c) as an NP. This objection is well taken. All that is relevant is that deictic adverbs can occur as the objects of prepositions (see footnote 9); thus, (49c) is an instance of two prepositional *than* phrases in a row.

(49) Mary was always a little more aggressive than her brother.
  a. (Prep S, Prep S)
     But now she's much more aggressive than he is than she was before.
  b. (Prep NP, Prep S)
     But now she's much more aggressive than him than she was before.
  c. (Prep NP, Prep NP)
     But now she's much more aggressive than him than before.

(50) a. (Coordinator S, Coordinator S)
     *Mary likes beans more than you like potatoes more than Paul likes z
     chini.
  b. (Coordinator AP, Coordinator AP)
     *Mary is more clever than intelligent than pretty.

I conclude that both prepositional *than* and coordinator *than* can introduce S.

4. Preposition vs. Coordinator

At this point we have several distinguishing characteristics for separating prepositio *than* from coordinator *than*. Among them are the following.

1. The preposition can introduce NP, S, deictic adverbs, and quantity and meas phrases, whereas the coordinator can introduce any syntactic category.

2. A prepositional *than* phrase can be fronted, whereas a coordinator *than* phr cannot.

3. A prepositional *than* phrase is not a syntactic island, whereas a coordinator *th* phrase is.

4. The item immediately preceding coordinator *than* (or, at most, separated fr it by a QP or AP) is necessarily in a syntactic island, whereas the item immediat preceding prepositional *than* need not be.

5. A prepositional *than* may be flanked by items of different types, whereas a ordinator *than* must be flanked by items of the same type with the possible interventi of a QP or AP.

6. Gapping and RNR may apply to coordinator *than* clauses but not to prepositio *than* clauses.

7. Sequences of prepositional *than* phrases and clauses can be found, but no quences of coordinator *than* phrases.

8. An eighth distinguishing characteristic for which I have no explanation at t point is that only coordinator *than* comparatives allow an exclusivity or "metalinguisti reading.[29] Thus, although both full *than* clauses and CE sentences exhibit two readir (as in (51) and (52)), only the coordinator *than* can have the exclusivity reading, ne the prepositional *than*. Accordingly, (53a,b) have only a degree reading.

[29] See Bolinger (1950; 1953), Bresnan (1973), Dieterich and Napoli (1982), and Pinkham (1982), am many others, for a discussion of these readings.

(51) Mary is more clever than she is intelligent.
Degree: She is both, but clever is greater.
Exclusivity: She is only clever, not intelligent.
(52) Mary is more clever than intelligent.
(53) a. Mary is more intelligent than you think.
b. Mary is more intelligent than Sue.

5. Conclusion and Implications

Both the form and the interpretation of CE sentences can be explained by way of a base-generated analysis, given the existence of two *than*'s in English: a preposition and a coordinator. To this I would like to add one final suggestion. Notice that all unpermuted coordinator *than* examples are identical to Coordination Reduction (CR) examples with the substitution of *than* for *and, or,* or *but*. For example, (54a–e) are parallel to the last five sentences of (7):

(54) a. Mary likes Sue and John.
b. Mary sings loudly but beautifully.
c. Mary is clever or smart.
d. I eat and drink.
e. I like to eat on the porch or in the kitchen.

This article, then, suggests a base-generated analysis as an alternative to CR for a large body of data that might otherwise be taken as evidence for its existence. It is interesting to note that other linguists have argued for base generation of all coordinate structures (including, of course, CR structures) on entirely independent grounds (Gazdar (1981), Gazdar, Pullum, Sag, and Wasow (1982)).

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