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NOTES ON COMPARATIVES AND RELATED MATTERS  
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This is less than a rough draft: it is merely an assortment of notes that I have put together since July 1984 and on the basis of which I gave talks at Stanford, USC, and UMass in January and February 1985. Several sections are extremely sketchy and/or incomplete (especially section 5).

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1. Introduction.

I got started on the work that these notes are about when I noticed that certain superlatives, such as *John ate the biggest apple*, were ambiguous in a way that at first sight isn't clearly a matter of logical form (scope relations and the like) as opposed to mere pragmatics (size of relevant universe of discourse etc). I soon convinced myself of two (related) things: that the ambiguity was a genuinely logical one, and that it was intimately related to an analogous ambiguity in comparatives like *I need a taller man than John*, which can express either a comparison between John and myself, or else a comparison between John and other men. This led me to start by thinking about comparatives, in particular about the proper semantic (and syntactic) analysis of 'phrasal' (Comparative Ellipsis) comparatives. There is some amount of literature on that topic, including two recent articles, which I will make some critical comments about along the way. I also noticed that the issues I was concerned with generalized to sentences containing *same* and *different*, so there will be some sketchy remarks on those expressions and their connection to comparatives below. I was not at first aware of anyone else's work on the superlative ambiguities, but eventually learned that Jackendoff (1972) cites a paper by Bowers (1969), which in turn replies to a paper by Ross. (I haven't seen either Bowers or Ross, just some 1970-comments by Baker on Bowers.) More recently, Rooth and Szabolcsi have attended to this phenomenon (Rooth, pers. communication, Szabolcsi 1985).

This manuscript deals predominantly with "phrasal", rather than "clausal", comparatives. To clarify the distinction, I need to start with a few remarks about syntax. By "clausal" comparatives, I mean those which have a clause after the *than*. This may be a clause with a comparative "subdeletion" or "deletion" gap, as in examples (1) and (2), but it might in principle also be a clause truncated by further ellipsis rules such as Gapping and VP-deletion, as in (3) or (4). (Actually, it is rather questionable that (3) and (4) involve genuine Gapping and VP-deletion.)

- (1) The desk is higher than the door is wide.
- (2) I always have more paperclips than I need. \*(does)
- (3) <sup>the</sup>Cherry plays the trumpet less assertively than Coleman <sup>the</sup>alto.
- (4) I have listened to this more often than you have.

By "phrasal" comparatives, on the other hand, I mean those where a single phrase follows the *than*. It has been persuasively argued, by Hankamer (1973) and subsequent writers<sup>1</sup>, that these subdivide into two syntactically distinct groups. The first group contains a phrase of any category after *than*, which agrees in category and, where applicable, in case with some other phrase in the sentence, as in (5) or (6).

- (5) I care more for you than for that.
- (6) Ich kenne ihn <sup>laenger</sup> als dich.  
I know him (acc) longer than you (acc)  
'I have known him longer than (I have known) you'.

In the second group, *than* is a preposition, is followed by an NP (or other category, to the extent that prepositions can take non-NP complements), and assigns that NP some fixed case. This appears to be the situation in (7), and also, if we accept Hankamer's arguments to this effect, in English sentences like (8) or (9) (as well as in one of two possible analyses of many other English sentences).

- (7) Tiene mas de mil dolares.  
(he) has more (prep.) a thousand dollars  
'He has more than 1000 dollars'.
- (8) He has finally met somebody he is smarter than.
- (9) He can't be taller than himself.

It would seem likely that these two groups differ in ways that are somehow relevant to semantic interpretation, but it is not clear to me yet just how they do.

One recurrent theme of these notes is the question whether phrasal comparatives, or at least some of them, should be analyzed as elliptical variants of clausal ones. To make sense of this question, it is necessary to be more concrete about what such an ellipsis analysis would amount to. I will consider several distinct types of ellipsis analyses, and accordingly distinct questions concerning their desirability. The main result of these deliberations will be destructive: Contrary to what is suggested in two recent publications, Hoeksema (1983) and Napoli (1983), there have not been furnished any conclusive arguments against ellipsis analyses of phrasal comparatives in general, or even against some well-identified types of such analyses in particular.

Ellipsis analyses come in two variants, deletion and reconstruction

analyses. A given deletion analysis and a given reconstruction analysis may well be mere notational variants of each other, especially when it is taken for granted that deletion or reconstruction take place under identity, and that the representation which is semantically interpreted is the one preceding deletion in a deletion analysis and the one following reconstruction in a reconstruction analysis. If the identity requirement is taken in its most literal sense, then one's choice between a deletion and a reconstruction version of otherwise analogous analyses will sometimes be determined by one's other choices of directionality, e.g. one's choice between quantifier lowering and quantifier raising to deal with scope assignment. Notice, for instance, that Bresnan's (1973) derivation of (10) from (11) presupposes that *-er* and *x-* are, though obviously not identical, 'non-distinct' enough to license deletion.

- (10) I have listened to this *-er* much often than you.
- (11) I have listened to this *-er* much often than you have listened to this *x-much* often.

If she had wanted to require strict identity, she would have had to assume that *-er* lowers into its phrase-internal position from some clause-peripheral place after the deletion has been effected. Analogously, a reconstruction version of Bresnan's analysis committed to strict identity would have to let the reconstruction occur after *-er* has undergone some sort of QR (as e.g. in Williams 1977). ✓

Another subdivision of ellipsis analyses concerns the treatment of the overt phrase (the 'deletion remnant'), which may either be located in situ within the deleted or reconstructed sentence, or else may be moved to a clause-peripheral position before deletion or reconstruction. (Such a distinction is drawn by Pesetsky (1982) in his discussion of Gapping, where he presents empirical evidence favoring the latter option.) To illustrate with an example, the first type of analysis would relate the phrase *than for that* in (5) to a pre-deletion (post-reconstruction) representation like (12), the second to one like (13).

- (12) ... than [I care *x-much* for that]
- (13) ... than [[for that] I care *x-much* t]

connections  
highlighting?

It will be seen that the second option, unlike the first, gives rise to an ellipsis analysis that is almost indistinguishable from the sort of "direct", i.e. non-ellipsis, analysis that I will spell out shortly.

## 2. Sketch of the analysis of clausal comparatives.

The main prima facie advantage of any ellipsis analysis is that it reduces the task of interpreting phrasal comparatives to that of interpreting clausal ones. For this and other reasons, a few words about the latter task are in order before we turn to phrasal comparatives. I will assume here, without argument, that all comparative clauses involve wh-movement of a non-overt wh-element whose closest overt analogue is *what*. Semantically, they involve binding of a degree variable by a definite description operator ( $\iota$ ).

What does she mean by degree?

This would capture a similarity between comp-clauses & relative clauses.

(Actually, it may also be possible to use a lambda operator here, with appropriate modification of assumptions concerning the meaning of *-er*.) Subdeletion cases are the simplest in that the wh-element and its trace in the syntax correspond exactly to the descriptor and the degree variable in the semantics. E.g. the *than*-clause of (1) is syntactically (13) and

semantically (14).

- (13) (than) [[COMP wh<sub>i</sub>] [<sub>S</sub> the door is t<sub>i</sub> wide]]  
(14)  $\lambda x$ [the door is x-wide]

by ix?

Notice that it is not self-evident that the open sentence in the scope of the iota operator will always be satisfied by exactly one degree, as the semantics of this operator is generally taken to require. In (14), things would seem to be unproblematic, provided that we take  $x$ -wide( $y$ ) to be a relation that holds between any object  $y$  and its exact, i.e. maximal, degree of width, rather than, as has sometimes been suggested, a relation that holds between  $x$  and  $y$  as long as  $y$ 's (exact) width equals or exceeds  $x$ . However, this will not help us when it comes to *than*-clauses like *than John or Bill is tall*. If this is to have a well-defined denotation, it seems better to assume that  $x$ -wide( $y$ ) means merely that  $y$ 's width is at least  $x$ , and to interpret  $\lambda x$ : ... as picking out the maximal  $x$  that satisfies ... (cf. Stechow 1984 for discussion of this point).

cf. von Stechow

Following Cresswell (1976) and others, I further assume for the time being that the comparative operator *-er* forms a semantic constituent with the *than*-clause, and that this constituent is, in essence, an indefinite degree-description, meaning "a degree exceeding the one denoted by the *than*-clause". This indefinite description is interpreted as binding a degree variable in the surface position of the *-er*, so that the full LF representation of (1) would be (15), with the intended interpretation of (16).

- (15) [-er (than) [wh<sub>i</sub>: the door is t<sub>i</sub> wide]]<sub>j</sub> [<sub>S</sub> the desk is t<sub>j</sub> high]  
(16)  $\exists y$ [ $y > \lambda x$ [the door is x-wide]] & [the desk is y-high]

Comparative clauses that have undergone 'Comparative Deletion' have a slightly more complex analysis. Syntactically, the gap is an NP, AP<sup>2</sup>, PP, or ADV<sup>P</sup>, but semantically, they still seem to be degree descriptions, rather than descriptions of individuals, properties, or whatever the semantic type of the gap would be. E.g. the *than*-clause of (2) is syntactically (17), but semantically (18) rather than (19). (For reasons, see Carlson 1977 and Heim, Groningen paper.)

- (17) (than) [wh<sub>i</sub> [I need t<sub>i</sub> ]]  
(18)  $\lambda x$ [I need x-many paperclips] ← ✓  
(19)  $\lambda x$ [I need x]

Some sort of reconstruction is apparently needed here to get from the syntax to the semantics.<sup>3</sup> As for the integration of the *than*-clause into the logical analysis of the whole sentence, we may then proceed exactly as in the Subdeletion cases.

### 3. Potential evidence bearing on the choice between 'direct' and 'ellipsis' analyses of phrasal comparatives.

#### 3.1. Sketch of the analyses to be compared.

Under an ellipsis analysis, (1) is derived from or reconstructed to something like (2), and accordingly interpreted as in (2').

- (1) Booker Little died earlier than Eric Dolphy.
- (2) Booker Little died earlier than wh<sub>i</sub> Eric Dolphy died x<sub>i</sub> -early.
- (2')  $\exists x$ (Booker Little died x-early & -er(x,  $\iota y$ (Eric Dolphy died y-early)))

In accordance with what I said above, the wh-clause after *than* has here been treated as involving abstraction over a degree variable, forming a definite description of a degree, and the comparative morpheme *-er* is a 2-place relation between degrees, which amounts to  $>$ . An analogous ellipsis analysis has been suggested for phrasal equatives.

The alternative with which I will contrast such ellipsis analyses here is what I will call the 'direct' analysis. Under such an analysis, a sentence like (1) is not primarily a comparison between two degrees, but rather a comparison between two people with respect to a certain 'dimension', here the dimension earliness of death. Dimensions can generally be thought of as functions from individuals  $x$  to degrees  $y$ , and any such function can be described by a lambda-iota expression of the form " $\lambda x \iota y [\dots x \dots y \dots]$ ". For instance, (3) below represents the dimension earliness of death w.r.t. which (1) compares Little and Dolphy.

*Dimensions  
functions from  
individuals  
to degrees.*

*what would a degree of earliness be?*

- (3)  $\lambda x \iota y$  [x died y-early]

Here is a first sketch of this 'direct' analysis, which will be expanded upon and made more precise in subsequent sections and the appendix:

In a phrasal comparative or equative, there are generally two phrases that denote the two compared items. One is the phrase after *than* or *as*, and the other is what I will call its 'correlate', some phrase which agrees with it in syntactic category and (in German) in case. These two phrases are capitalized in the following examples.

- (6) ICH habe dir bessere Schlagzeuger als DER  
I (nom) have you (dat) better drummers (acc) than the  
KARLHEINZ vorgestellt.  
Karlheinz (nom) introduced.  
'I have introduced better drummers to you than Karlheinz (has).'
- (7) Ich habe DIR (dat) bessere Schlagzeuger als DEM KARLHEINZ (dat)  
vorgestellt.  
'I have introduced better drummers to you than (to) Karlheinz.'
- (8) Ich habe dir BESSERE SCHLAGZEUGER (acc) als DEN SHELLY  
MANNE (acc) vorgestellt.  
'I have introduced better drummers than Shelly Manne (is a  
drummer) to you.'
- (9) Ich habe dir bessere SCHLAGZEUGER (acc) als BASSISTEN (acc)  
vorgestellt.  
'I have introduced better drummers than bassists to you.'

We will momentarily disregard cases like (8), where the comparative

morpheme seems to be contained within the correlate, and concentrate on the remaining cases, where it isn't. To interpret those, I take it that the two compared items, i.e. the  $\lambda/\lambda'$ -phrase and its correlate, somehow form a pair that is assigned scope as a pair. We represent this as follows:

- (6')  $\langle I, Karlheinz \rangle \lambda x [x \text{ has introduced better drummers to you}]$
- (7')  $\langle \text{you, Karlheinz} \rangle \lambda x [I \text{ have introduced better drummers to } x]$
- (9')  $\langle \text{drummers, bassists} \rangle \lambda x [I \text{ have introduced better } x \text{ to you}]$

(To make sense of (9'), one obviously needs to let  $x$  range over common noun meanings.) I further assume that the joint scope of the two compared items is also the scope of the comparative (or equative) operator and of the degree abstractor that goes with it. So the logical structure for (6) comes out as something like (6'').

(6'')  $\text{-er} \langle I, Karlheinz \rangle \lambda x \lambda y [x \text{ has introduced } y\text{-good drummers to you}]$

Notice that the rightmost constituent of this, i.e. the constituent of the form  $\lambda x \lambda y [\dots]$ , expresses a function from people to degrees: it maps any given person onto the degree of goodness of the drummers that that person introduced to you.<sup>4</sup> The general meaning of  $\text{-er}$  can then be specified as follows.

(10) " $\text{-er} \langle a, b \rangle f$ " is true iff  $f(a) > f(b)$ .

Everything I have just said holds mutatis mutandis for the equative, whose interpretation would be as in (11).

(11) " $\text{as} \langle a, b \rangle f$ " is true iff  $f(a) = f(b)$ .

Before we survey the literature for potential evidence bearing on the choice between such a direct analysis and an ellipsis analysis, let us note in the abstract the following two characteristics of the direct analysis that are absent from at least some versions of the ellipsis analysis and that we might be able to capitalize on in the search for decisive empirical evidence. First, the logical forms implied by the direct analysis never contain a description of the second degree, i.e. the degree  $x$  such that Dolphy died  $x$ -early in (1), or the degree  $y$  such that Karlheinz introduced  $y$ -good drummers to you in (6). Even though the truth conditions of these sentences depend on a property of that degree, as made explicit in the interpretation rule (10), it is not denoted by any integral constituent of LFs like (12) below or (6'').

(12)  $\text{-er} \langle \text{Little, Dolphy} \rangle \lambda x \lambda y [x \text{ died } y\text{-young}]$

Under any type of ellipsis analysis, on the other hand, these sentences will be represented at the semantically relevant level by something that contains an explicit and integral description of that second degree. I will point out a potential empirical consequence of this difference below (sec. 3.4.).

Second, there are implicit in the direct analysis certain claims about the scope of the correlate and of the comparison operator. Consider e.g. (13), whose LF under the direct analysis has to be (14).

(13) Mehr Leute haben versucht, Dolphy zu imitieren, als Coleman.  
more people have tried D. to imitate than C.

'More people have tried to imitate Dolphy than Coleman'.

(14)  $\text{-er} \langle \text{Dolphy, Coleman} \rangle \lambda x \lambda y [y\text{-many people have tried to imitate } x]$

Differences between direct & ellipsis analysis  
what is the syntactic def of a description? i.e. must a description be atomic?

②

Direct counterexample? → More people were trying to find a symphony than a drugstore.

Since the correlate always has the same scope as the comparison operator in the direct analysis, and since the *-er* here is in the main clause, *Dolphy* must be analyzed with main clause scope as well to derive a well-formed reading, even though it is in the embedded infinitive.

Compare this with what an ellipsis analysis like that of Bresnan (1973) predicts. There, *als Coleman* is the post-deletion remnant of a clause such as *als x-viele Leute versucht haben, Coleman zu imitieren*, which combines semantically with the *-er* to form an indefinite degree description, and the scope relations seem to be as follows.

- (15)  $\exists y: -er(y, \lambda x(x\text{-many people have tried to imitate Coleman}))$ :  
[y-many people have tried to imitate Dolphy]

Certainly, this analysis does not force *Dolphy* to take any but the narrowest possible scope; it may permit wider scope options for it, but the constructibility of a wellformed and interpretable LF does not depend on them. This difference would seem to be a promising candidate for a source of divergent empirical predictions. (Cf. section 5 below.)

scope in intensional contexts.

Notice, however, that not all ellipsis analyses are alike in this regard. I alluded above (sec. 1) to a type of ellipsis analysis which implies (like Pesetsky's analysis of Gapping) that the non-ellided remnant be clause-peripheral w.r.t. the ellided clause. If moreover ellipsis requires a strictly identical antecedent, that means that the correlate of the non-ellided remnant must be correspondingly peripheral within its clause. In effect, then, such an ellipsis analysis coincides with the direct analysis in its predictions concerning the scope of the correlate.

### 3.2. Prima facie advantages of ellipsis.

#### 3.2.1. Case and category matching.

One thing that is initially appealing about ellipsis analyses has to do with the regularities governing the distribution of case on *als* ('than') and *wie* ('as') phrases. Under an analysis where phrasal comparatives derive by deletion from clausal ones, one would most naturally expect that the case of the phrasal remnant is determined by whatever its environment was in the deleted clause. This expectation is borne out in a number of instances (cf. (6) and (7) above; see also Stechow 1984), but it is violated in certain others, such as (8) above, whose full variant would have to be (5b) below.

- (5b) Ich habe dir bessere Schlagzeuger vorgestellt, als  
der<sub>nom</sub> / (\*den<sub>acc</sub>) Shelly Manne ein guter Schlagzeuger ist.

How does the direct analysis fare with respect to these case facts? Before we can tell, we need to elaborate it a little further, for notice that the (informal) procedure by which we constructed the logical structure (6") for (6) will not work for (8). If we extract the apparent correlate *bessere Schlagzeuger* ('better drummers') from the sentence, the remainder will no longer be able to express a function into degrees, because the degree variable has already been removed as part of the correlate. What we want to end up with is presumably this:

- (8')  $\exists x[[-er <x, Shelly Manne> \lambda y \lambda z(z\text{-good drummers}(y))]$   
& [I have introduced x to you]]

(Because of the plural,  $x$  and  $y$  here must be able to range over groups of individuals, not just single individuals.) To arrive at (8'), we have to assume that the 'real' correlate of *den Shelly Manne* is not so much *bessere Schlagzeuger* as it is the referential index of the latter, i.e. the variable that is (existentially) quantified over in its interpretation. And we must assume that the scope of those two paired items, and consequently of *-er* and the degree abstractor, is not the whole sentence, but merely the predicative part of the NP *bessere Schlagzeuger*<sup>5</sup>.

So what about the case facts? One way of predicting them correctly within a direct analysis would be to simply stipulate case agreement as a condition on correlate choice, i.e. as a constraint on the first step in our informal algorithm for constructing logical forms, the step in which the *than*-phrase is matched with a correlate. Together with the not unnatural assumption that the case of an NP automatically counts as the case of its referential index, this will get all our examples right. While this may not be the most insightful treatment, it seems fair to conclude tentatively that case facts don't provide a convincing argument in favor of an ellipsis analysis.

### 3.2.2. Sortal correctness violations.

Selkirk (1969), Bresnan (1973), Berman (1973), and others have discussed minimal pairs like the following.

- (59a) I have never seen a man taller than my mother.  
 (59b) I have never seen a taller man than my mother.

Unlike its (a)-counterpart, (59b) implies that my mother is a man (hence its deviance). Bresnan offers an explanation which crucially exploits her assumption that *than*-phrases derive from full clauses via deletion. This could be cited as an argument in favor of such a deletion analysis, unless we can show that an equally natural account falls out from the direct analysis. In fact, we will see that the direct analysis treats this contrast in a way that differs only minimally from Bresnan's proposal.

To Bresnan, the semantic judgment concerning (59a,b) indicates that the pre-deletion structures of (59a) and (59b) differ roughly as follows.

- (59a') a man [<sub>AP</sub> taller than my mother is x-tall]  
 (59b') [<sub>NP</sub> a taller man than my mother is an x-tall man]

More precisely, they indicate that (59b) cannot derive from anything like (59b").

- (59b") a taller man than my mother is x-tall

The task of explaining the semantic difference thus reduces to the task of explaining why the pertinent deletion rule cannot apply to (59b"). According to Bresnan, this is (roughly) because the *than*-clause is here adjoined to NP, not to AP, and what gets deleted in the clause always has to be identical to the adjunction site (up to the *-er* morpheme in the latter, and disregarding the copula in the former). So in (59b") it would have to delete an NP, while in (59a'), where the clause adjoins to AP, it can delete an AP. -- As apparent from the sketch just given, Bresnan's analysis is committed to a very straightforward correlation between surface adjunction site and scope in *than*-phrases. It is not quite clear to me just what she takes that

Bresnan



correlation to be.<sup>6</sup>

In the context of the present analysis, we will want to blame the contrast in (59) on suitable differences in the scopes of the comparison operators, which in turn are determined by the possible choices of correlates. As I just said, I do not at this point understand the connection between surface adjunction site of the *than*-phrase and constraints on what its correlate can be in any systematic way. All that I can show here is that the observed sortal implications are an automatic byproduct of the scope of the comparison operator, so they will be accounted for once the appropriate principles of correlate and scope choice have been clarified.

To show this, let's take for granted that in (59a), the correlate of *than my mother* is the referential index (i.e. the "external argument" index in the sense of Williams) of the AP, and in (59b), it is that of the NP. This means that the two NPs have the following logical forms (with x the external argument of NP, which may be existentially bound in the sentence that the NP is part of).

(62a) ... man(x) & -er <x, my mother>  $\lambda x y [y\text{-tall}(x)]$

(62b) ... -er <x, my mother>  $\lambda x y [y\text{-tall}(x) \& \text{man}(x)]$

|| How exactly are we supposed to license the kind of extraction necessary to get (62a)?

Consider the different function terms in these two logical structures. The one in (62a) denotes a function which is defined for anything that is related to a (unique maximal) degree of tallness. But the one in (62b) denotes a function which is undefined for any argument that fails to be a man: if x is not a man, no pair of x and any degree y will ever verify  $[y\text{-tall}(x) \& \text{man}(x)]$ . Now the meaning of the comparative operator *-er* requires that, if its arguments are <a,b> and f, we must compare f(a) with f(b) to determine the truth value of the sentence. Therefore, if f is undefined for either a or b, the sentence has no truth value at all. In other words, it presupposes that f be defined at least for a and b. Applied to the examples at hand, this means that (62a) presupposes merely that my mother have some (unique maximal) degree of tallness, but (62b) presupposes that she be a man with a (unique maximal) degree of tallness.

a semantic account of (62b) —

### 3.3. Hoeksema on negative polarity items.

An apparently problematic fact for any ellipsis analysis was brought up by Hoeksema (1983). Certain negative polarity items that are okay inside *than*-clauses are not okay in mere *than*-phrases. His examples, all involving the Dutch NPI *ook maar*, include the following minimal pair.

(20) Wim was minder vervelend, dan ook maar iemand voor hem was geweest.  
W. was less obnoxious than (NPI) someone before him had been

'Wim was less obnoxious than anyone at all before him had been'.

(21) \*Wim is gevaarlijker dan ook maar iemand.  
W. is more dangerous than (NPI) someone  
'Wim is more dangerous than anyone whosoever'.

He argues that this contrast follows when Ladusaw's (1979) theory of NPI-distribution is combined with appropriately distinct semantic analyses

of clausal and phrasal comparatives. This argument falls into two essential parts. The first part consists of laying out a semantic analysis for clausal comparatives and showing that they constitute downward entailing environments in the sense of Ladusaw. The second part consists of presenting an analysis of phrasal comparatives and showing how they are not downward entailing.

Notice that, to the extent that one can establish such an argument, one predicts not just that some particular NPI, such as Dutch *ook maar*, will be barred from phrasal comparatives, but more generally that no NPIs whatsoever can occur in phrasal comparatives in any language. Hoeksema is conscious of the strength of this prediction and discusses some apparent counterexamples, in particular the appearance of *any* in English phrasal comparatives such as (20).

(20) John is taller than anyone else.

He deals with (20) by analyzing it as an instance of free choice *any* rather than negative polarity *any*. This is consistent with the facts insofar as Hoeksema can show that free choice *any* must at any rate be permitted to appear in this environment (see also Carlson 1980). The same response can presumably be made to the first three putative counterexamples below, but it does not seem available with the remaining ones.

- (21) John is taller than either one of you.
- (22) Cockroaches and leaky faucets would annoy him less than even the slightest noise from the neighbors.
- (23) This man makes more sense than even a single one of you experts.
- (24) He would rather lose his honor than [so much as a dime.]
- (25) She is now happier than [ever before.]
- (26) He would rather die than [lift a finger.]

Discussion of  
"would rather"

The point is that *either one of you*, *even the slightest noise*, and perhaps *even a single one of you experts*, have free choice as well as NPI uses, but *so much as a dime*, *ever before*, and *lift a finger* presumably don't. To be sure, some of these (especially (26)) may not be a phrasal comparative of the sort that Hoeksema would want to extend his claims to. (Even (25) falls outside the range of cases he treats, namely just cases where *than* is followed by an NP.) Still, they are prima facie a challenge for Hoeksema, and we will return to the question of what analysis these cases should receive, and how such an analysis would have to be designed so that it predicts downward entailingness and is prevented from automatically generalizing to the cases Hoeksema wants to rule out.

Should I address this in my prospects?

Suppose for now that the questions just raised can be answered to Hoeksema's satisfaction and that there is some principled connection between whether a comparative is phrasal or clausal, and whether it licences NPIs. Let us look at Hoeksema's proposal. First, why are clausal comparatives downward entailing? Hoeksema's analysis of clausal comparatives differs a little from the one I sketched above (in particular, he assumes that *than*-clauses denote sets of degrees, rather than one unique degree), but the essential logical properties he points out carry over to our analysis. In particular, it is easily seen that whenever two sentences that contain a free degree variable  $x$  stand in an entailment relation, i.e.  $S(x) \Rightarrow S'(x)$ , then  $y > \lambda x S(x)$  will entail  $y > \lambda x S'(x)$ . (Recall that " $\lambda x ..$ " is meant to read "the maximal  $x$  such that ..".) This suffices to establish downward entailingness.

Second, why are phrasal comparatives not downward entailing? Given our current analysis, what would it mean for them to be? It would seem that the relevant test would consist of strengthening the argument represented by *b* in (27).

(27) -er <*a, b*> *f*

But if *b* represents simply an individual constant or variable, there is no sense in which it could be strengthened. Only where *b* is of some higher type, e.g. a predicate or a generalized quantifier, can the test be applied, and the outcome would then depend on what *f* happens to be. Consider examples like (28) and (29), with LFs as indicated.

(28) I heard better drummers than bassists.

(28') -er <drummers, bassists>  $\lambda x \lambda y [I \text{ heard } y\text{-good } x\text{'s}]$

(29) Fewer people came than left.

(29') -er <came, left>  $\lambda x \lambda y [y\text{-few people } x\text{'d}]$

*what is being compared here?*

To determine whether *bassists* is in a downward entailing environment, one presumably needs to decide whether (30) entails (31) whenever *B* is a subset of *A*.

(30) -er <drummers, *A*>  $\lambda x \lambda y [I \text{ heard } y\text{-good } x\text{'s}]$

(31) -er <drummers, *B*>  $\lambda x \lambda y [I \text{ heard } y\text{-good } x\text{'s}]$

Given the way we have fixed the truthconditions of such representations, this reduces to the question whether the maximal degree of quality of any *A* I have heard is necessarily no lower than the maximal degree of quality of any *B* I have heard. This seems to be so, hence downward entailingness obtains in this case. Not so with (29). Suppose again *B* is a subset of *A*. Then the number of people that *B*'d will be at most as large as the number of people that *A*'d. But this means that the degree of fewness of the people that *B*'d will be higher or equal to that of the people that *A*'d. Therefore, it may well be that some given degree, such as the degree of fewness of the people who came, exceeds the latter while not exceeding the former. So downward entailness fails to obtain here. Whether the predictions concerning NPI-distribution that this implies can be defended, I don't yet know.

*is it really a phrasal comp?*

Now, what about quantifying NPs as *than* phrases? We have so far used only examples with referential NPs (such as names and pronouns), and there are in principle two different ways in which we could extend the analysis to examples like (32).

(32) He played better than everyone else.

We could assume that we first construe it as (33) and then construe that in the usual manner as (33').

(33) He  $\lambda x [everyone \text{ else } \lambda y [x \text{ played better than } y]]$

(33') He  $\lambda x [everyone \text{ else } \lambda y [-er \langle x, y \rangle \lambda z [x \text{ played } z\text{-well}]]]$

But we could also assume that -er here relates two generalized quantifiers w.r.t. to a function which takes generalized quantifiers as arguments. Then the LF would look like (34), with *x* a second-order property variable.

(34) -er <he, everyone else>  $\lambda x \lambda y [x \text{ played } y\text{-well}]$

Notice that the truthconditions of (33') and (34) are not the same. (33') is true if he played better than John, and better than Bill, and better than Fred, etc., for all the people there are. (34), on the other hand, is true if the quality of his playing exceeds that degree of quality which everyone's playing has. Depending on whether we choose the 'at least' or the 'exactly' interpretation of *x plays y-well*, this will either mean that he plays better than the least accomplished of the others, or else will presuppose that all others play equally well and assert that he plays better than that common degree. Neither of these two options corresponds to an intuitively available reading.

ff  
we don't  
get this  
reading at  
all. we  
get a  
max reading  
instead.

By the way, (34) is equivalent to the predicted truthconditions for the corresponding clausal example (35), unless we quantify *everyone else* into the *than* clause from outside.

(35) He played better than everyone else played.

It is curious that not even (35) has that reading.

On the other hand, if we consider (36) and (37), both the phrasal and the clausal variant are preferably read in the manner of (34) above, i.e. with *Konstanz or Northampton* apparently taking narrower scope than the degree descriptor.

(36) Austin has more to offer than Konstanz or Northampton.

(37) Austin has more to offer than Konstanz or Northampton have to offer.

Both seem to say that Austin does better than both of the other two towns. (36) also permits a non-preferred alternative reading according to which it suffices for Austin to outdo at least one of the two other places. This reading may be slightly less available for (37), but it isn't entirely impossible there either.

What are we to make of these data? Hoeksema claims that, despite of what this superficial examination suggests, phrasal comparatives have a semantics by which, in effect, they always receive truthconditions like (33') and unlike (34). In other words, in his analysis the NP after *than* always acts as though it were quantified in. This forces him to explain away the apparent counterexample provided by the first reading that I attributed to (36). He reanalyzes this sort of case as an instance of *free choice or*. It should be clear, then, why the lack of downward entailingness in phrasal comparatives follows from his analysis. But one can also convince oneself that no such thing would follow from the equally conceivable alternative analysis under which the function representing the dimension of comparison applies to generalized quantifiers, and which would give us readings like (34).

For the clausal comparatives, Hoeksema's analysis (as anyone else's, for that matter) implies that an NP in the *than*-clause will be interpreted as taking narrower scope than the degree descriptor, unless it has been quantified into the *than* clause from the matrix. This seems at odds with the relative ease with which we get the second reading for (37), and especially with the strong preference for what would amount to a quantified-in reading in (35). I will leave this fact unexplained.<sup>8</sup>

} predicted preference?

This means that Hoeksema's decision to draw a fundamental semantic distinction between phrasal and clausal comparatives is arguably consistent with the data. But it also means that there is no evidence for it that is independent of the very NPI data he seeks to explain. The overwhelming impression is that the phrasal comparatives have the same readings as their clausal counterparts, and the ease with which 'wide scope' is gotten for the former does not drastically exceed that with which it is gotten for the latter. A minimal pair that further illustrates this last point is (39) vs. (40), which are both substantially worse than e.g. (38).

(38) ?He ranks below nobody else.

(39) ?\*More people admire him than nobody else. But: \*? More people admire him than John.

(40) \*More teenagers admire him than adults admire nobody else.

Here, the 'narrow scope' reading happens not to make any sense (cf. Cresswell 1976, von Stechow 1984), so the 'wide scope' reading must be chosen, if any one at all. This should not create any strain with (39), as opposed to (40), but in fact does seem to do so. // ✓

In sum, I have not refuted, much less replaced, Hoeksema's explanation for the contrast between (20) and (21). But I hope to have shown that the drastic truthconditional differences between phrasal and clausal comparatives that his analysis *ceteris paribus* implies are not in fact observed. Rather, the overwhelming impression is that phrasal comparatives do share the readings of their clausal counterparts, just as one would expect under an ellipsis analysis. This remains an area full of open problems, and Hoeksema may eventually be vindicated. As yet, however, he has not provided us with a very compelling argument against interpreting phrasal comparatives in terms of their clausal 'sources'<sup>9</sup>.

### 3.4. Napoli on Russell's ambiguity.

Another potential problem for the assumption that phrasal comparatives are generally elliptical variants of clausal ones is the fact that the well-known ambiguity of (14a) does not show up in (14b) (see McCawley (1967), Hellan (1981), Napoli (op.cit.) and elsewhere).

(14a) John thinks that Mary is taller than she is.

(14b) John thinks that Mary is taller than herself.

The non-contradictory reading is unavailable for (14b). Napoli, without actually indicating any particular semantic analysis for either sentence, takes it for granted that this is evidence against an ellipsis analysis. She reasons that if a phrasal comparative has fewer readings than its putative clausal source, then it cannot be right to assign the two a common representation at the semantically relevant level of representation. While the logic of this argument is impeccable, one of its premises is highly debatable, namely that (14a) would indeed be the clausal source of (14b) under an optimally designed ellipsis analysis. Following Stechow (1984), I will show that there is compelling reason to assign to (14b) a clausal source that resembles (14a) only superficially.

As Stechow observes, many examples of Russell's ambiguity show an overt discrepancy in verbal mood between the main clause and the *than*-clause. This is best illustrated in counterfactuals. The normal thing to say is (15), not (16).

} A. The German esse (subj- vs. indic.)

English evidence for indexical analysis; possible evidence that  $C^0$  encodes indexical info.

- (15) If Mary were taller than she is, she could play basket ball.  
(16) If Mary were taller than she were, ...

Now any ellipsis analysis that remains within the bounds of standard assumptions would at least require identity as a precondition for deletion or for copying. It follows that (15) could not possibly be the source for (17) (quite apart from the question of accounting for the reflexive, which I am ignoring here -- but see note 12 below).

- (17) If Mary were taller than herself, she could play basket ball.

Therefore, it is quite irrelevant for the point that Napoli wants to make whether (17) is synonymous with (15); what matters is whether (17) is synonymous with (16). On this latter question, intuitions are obscure: (16) may quite simply be deviant. But it strikes me as not too counterintuitive a claim that it in fact shares the contradictoriness of (17). At any rate, (16) clearly lacks the sensible reading of (15), and insofar as this is so, it scores a point for, and not against, an analysis that makes (16) the source of (17). Let us return to Napoli's own example, (14a), where admittedly the verb in the *than*-clause is morphologically identical to the main verb. Here I will say that morphological identity should not and need not be taken to be the relevant sort of identity to license deletion (or copying). Rather, it is absolutely required that all variables contained in the 'delendum' be (non-vacuously) identical to those in the 'antecedent'.<sup>10</sup> This includes in particular the world (and time) variables that I take to be implicit in the verbal inflection. I have in mind roughly the following two disambiguated representations for the two readings of (14a).

- (18) John thinks<sub>w</sub> that  $\lambda w'$ [Mary is<sub>w'</sub> taller than she is<sub>w'</sub>].  
(19) John thinks<sub>w</sub> that  $\lambda w'$ [Mary is<sub>w'</sub> taller than she is<sub>w</sub>].

The point is that in (18), which represents the contradiction reading, the second *is* is evaluated w.r.t. the same world variable that is bound by the abstractor that defines the complement proposition of *think*, whereas in (19), the sensible reading, it is evaluated w.r.t. the world in which the thinking is supposed to take place (usually the actual world). If ellipsis requires identity on the level that (18) and (19) exemplify, then only (18) can be the source of (14b), and the absence of the sensible reading is predicted.

The reader may be wondering how representations like (18)/(19) are generated in a principled way and what the relation between world variables and choice of inflectional morphology is supposed to be. I have little to say here that goes beyond the discussion in Stechow (op. cit.). Presumably, the 'subjunctive' mood in (15)/(16) reflects the binding of the world variable to the necessity operator inherent in the counterfactual (cf. Lewis, Kratzer, etc.).<sup>11</sup> In general, the analysis that I favor for Russell's ambiguity is more like Stechow's 'double indexing' analysis than like a scope analysis that gives wide or narrow scope to the degree description in the *than*-clause. I think that the latter runs into scope paradoxes with sentences like

- (20) If at least one member of the team were faster than he is, we could win the game,

where it seems possible to read *at least one member of the team* and consequently the *he* bound by it, with scope inside the counterfactual

This is like Hetsuwa's sentence.

necessity operator. But these are topics for another paper.

Napoli (op. cit.) notes another semantic contrast between phrasal and clausal comparatives, which actually is just another manifestation of the same phenomenon, and which will consequently yield to the same sort of explanation from the point of view of an ellipsis analysis. According to her judgments, a speaker who knows (and takes her audience to know) that Susan is five feet tall can truthfully report John's utterance of (18) in terms of (19), but not in terms of (20).

- (18) Mary is taller than five feet.
- (19) John claims that Mary is taller than Susan is.
- (20) John claims that Mary is taller than Susan.

Another aspect of Russell's ambiguity.

(20) would only be an appropriate report of John's utterance if that utterance actually included a claim about Susan.<sup>12</sup>

Speaker's indexing vs. subject indexing

The reading of (19) under which it is an accurate report of John's claim (18) presumably involves a de re use of the degree description expressed by the *than*-clause. (*Than*) *Susan is* is analyzed either as an XP-deletion variant of *(than) Susan is tall*, or as *(than) what Susan is t*. In either event, it is interpreted as  $\lambda x[Susan \text{ is}_w x\text{-tall}]$ . In other words, (19) is read as saying that John claims of Susan's height that Mary is taller than *it*. Such a reading, however it is best analyzed, is probably intrinsically incompatible with binding the world variable in the *is* of the *than*-clause to the proposition abstractor governed by the verbum dicendi *claim*. This suffices to rule out an equivalent reading for (20), since the source of (20) would have to exhibit just this binding relation.

Because of alphabetic variance (or some equivalent constraint)

To sum up what has been argued so far: Napoli's contrasts are not evidence against an ellipsis analysis of phrasal comparatives. In fact, such an analysis seems to make exactly the right predictions, so long as it is based on the same (fairly 'abstract') notion of identity that has been motivated in the study of other elliptical constructions. Given that Napoli herself doesn't even hint at an alternative explanation, this is *prima facie* an argument for an ellipsis analysis. However, I will now show that the sort of 'direct analysis' under consideration in this paper is equally successful here; in fact, it analyzes the facts in essentially the same way. After showing this, I will unfortunately have to note some further data that cast doubt on the very empirical generalization that I, following Napoli, have been trying to explain. Not surprisingly, these data will appear equally problematic for the ellipsis and the 'direct' analysis.

Applying the direct analysis to (14b) will yield an LF roughly like (21). (As for (14a), the direct analysis is of course not applicable there, since it is a clausal comparative; in other words, it is assumed to be represented just as we have been assuming so far.)

- (21) John thinks<sub>w</sub>  $\lambda w'[-er \langle \text{Mary, herself} \rangle \lambda x \iota y [x \text{ is}_w y\text{-tall}]]$

This clearly expresses the contradiction reading, and no significantly different alternative LF can be generated. A similar analysis applies to (20). The construal rules of the direct analysis basically generate the following:

Right

- (22) John claims<sub>w</sub>  $\lambda w'[-er \langle \text{Mary, Susan} \rangle \lambda x \iota y [x \text{ is}_w y\text{-tall}]]$

Presumably, (22) can be elaborated further into different LFs, depending on

Comparison of individuals vs. degree description

which constituents are read de re. For instance, if John's actual utterance was (23),

(23) Mary is taller than the woman over there (is).

then *Susan* should be read de re in (22), however exactly this is represented. But notice that there is no way of assigning a de re reading to the description of Susan's height in (22), quite simply because (22) doesn't contain any such description. But this would be necessary to get the reading whose absence Napoli observes.

We seem to have arrived at the unexciting conclusion that Napoli's observations concerning Russell's ambiguity have no bearing on the choice between ellipsis and direct analyses. Let me conclude with two more example sentences.

(24) If your sister hadn't been born, they would have spoiled you even more than (a) her/ (b) they spoiled her.

(25) I would prefer for you to be as tall as me and me as short as you.

Concerning (24), we would seem to predict (under either of the accounts considered) that (a) sounds strange: the *if*-clause introduces a counterfactual world in which your sister wasn't born at all, but then the *than*-clause makes reference to the degree to which she was spoiled in that counterfactual world. By comparison, (b) should be fully okay, because there the reference in the *than*-clause can simply be to the degree to which your sister was spoiled in the actual world. Intuitions are very shaky, but with this particular example, I thought at least upon first reading that I had the predicted judgment. -- Not so, however, with (25). This is predicted to mean unambiguously that I would prefer for the two of us to have the same height. But in fact, it can perfectly well mean that I would prefer for us to swap heights. To generate such a reading, one would need to interpret *as me* and *as you* in the sense of 'as my actual height' and 'as your actual height'. But if this is possible in (25), then why can't we get the sensible readings for (14b) etcetera? I have no idea what is going on here.

not true

nor do I!

### 3.5. Further problems.

go over this part again.

In this section, I will briefly mention a few more cases where a phrasal comparative seems to have a different meaning than what appears to be its most plausible clausal source. All of these are, as far as I can see, equally problematic for ellipsis analyses and my 'direct' analysis.

#### 3.5.1. Degree terms.

As another instance of the non-equivalence between phrasal and clausal comparatives, Napoli (op. cit.) cites cases like the following, where the phrasal variant (3a) is not synonymous with its putative clausal source (3b).

- (3a) He didn't get older than 23 years.
- (3b) He didn't get older than 23 years got old.

Notice, however, that this observation doesn't warrant the conclusion that no clausal paraphrase is equivalent to (3a). In fact, at least one proponent of an analysis where all *than*-phrases are underlyingly clausal, namely Bresnan (1973), was well aware of such cases and derived them from



sources not like (3b), but rather along the lines of (3c) (pp.328ff.).

(3c) He didn't get older than how old 23 years is.

From the perspective of the 'direct' analysis, the point about this type of example is that it is not obvious what the 'correlate' of *23 years* is. Apparently, it is neither *he* nor any other manifest phrase in the syntactic surface structure.<sup>13</sup> In fact, the situation is similar to what we saw in sec. 3.2.2. above, where correlates were seen to be sometimes as abstract as external-argument-indices, and their scopes were accordingly more or less narrow. Let's focus on the following minimal pair of adjective phrases.

- (11) older than Booker Little
- (12) older than 23 years

The intended readings of these suggest that we take as the correlate of *Booker Little* the external argument of the AP, but as the correlate of *23 years* the degree variable itself. Given these choices of correlates, what is the scope of *-er* in each case? Informally, the rule we have been following is that the scope corresponds to whatever is predicated of the correlate. In the case of (11), where the correlate is the external argument of the AP, this means that the scope is the AP. In the case of (12), the correlate is the degree variable of which, it seems, nothing is predicated. If we exploit the fact that predicating nothing is equivalent to predicating something trivial, such as self-identity, we can nevertheless represent the logical structures of both (11) and (12) in the form "*-er* <a, b> f", as for other phrasal comparatives.

- (11')  $\lambda x[-er \langle x, \text{Booker Little} \rangle \lambda x_1 y(y\text{-old}(x))]$
- (12')  $\lambda x \exists y(y\text{-old}(x) \ \& \ [-er \langle y, \text{23 years} \rangle \lambda y_1 z(y=z)])$

why not

Suppose that (12') does represent the truthconditions we want. That brings us closer to an account of this type of example, but it isn't quite satisfactory yet. We would somehow want to generate LFs like (12') in a non-ad-hoc way. As you may suspect (and the slightly more explicit construal algorithm in the appendix will bear out this suspicion), the simplest rules that will generate the other LFs we have posited so far will not automatically produce (12'). We will need some extra stipulation, and it is not clear to me which of several conceivable routes is the right one to take here.

One possible approach derives from the observation that we can already treat (13).

(13) more than 23 years old

(let (12) be derived from (13))

Here we can choose as the correlate the external argument index of the QP *more* and thereby make the LF come out as follows.

(13')  $\lambda x \exists y([-er \langle y, \text{23 years} \rangle \lambda u_1 z(z\text{-much}(u)) \ \& \ y\text{-old}(x)])$

So we might resort to saying that (12) actually also has a structure as elaborate as (13), except that the element *much* has been deleted in surface structure. (Bresnan 1973 actually assumes that every comparative adjective comes from an underlying form involving *-er MUCH*, via a MUCH-deletion rule.) But this move is not obviously satisfactory either. Before we settle on any particular solution, we probably need to find out

more about the phenomena in this area. E.g. the existence of contrasts like *younger than 23 years* vs. \**more than 23 years young* (see e.g. Bresnan 1973, Bierwisch 1984) suggests that remedies like the one considered above are somehow missing the point.<sup>14</sup>

### 3.5.2. Miscellaneous missing correlates.

Napoli (op. cit.) also cites non-equivalent pairs like the following as evidence against ellipsis analyses.

- (4a) Mary eats faster than a tornado.
- (4b) Mary eats faster than a tornado eats.

Again, the problem that (4a) raises is essentially the same for an ellipsis analysis and for the 'direct' analysis: What exactly has been 'deleted' here, or equivalently, what is the correlate of *a tornado* and its scope? In this case, the answer depends on the proper analysis of manner adverbs like *fast*. Perhaps they are predicated of some implicit 'manner argument' of the verb<sup>15</sup>, in which case that could serve as the correlate and (4a) would be analyzed in the sense of "Mary's eating is faster than a tornado is fast". There are many other cases of superficially missing correlates:

- (15) He played longer than the night before.
- (16) I will be happier than in Austin.
- (17) You can get there faster than by bicycle.

This would be a good thing to investigate.

In (15), the correlate is presumably the reference time and in (16) an implicit place of reference. I have not yet given much thought to the problems that might arise here.<sup>16</sup>

### 3.5.3. Generic readings.

Contrary to what either type of analysis leads us to expect, (18) need not mean (19), but rather is naturally read as something like (20). (See Rappaport 1983 for more examples and discussion.)

- (18) He loved him more than a brother.
- (19) He loved him more than he loved a brother.
- (20) He loved him more than one loves a brother.

good contrast.

This phenomenon is reminiscent of one discussed in Sag (1977) and Carlson (1983), namely that 'deleted' VPs need not include the tense and aspect of their antecedents:

- (21) John left, although he didn't have to.

But while I can see pretty clearly how to handle (21) (cf. Carlson's suggestions), I haven't been able to make anything similar work for (18).

Harper Collins

#### 4. Extensions of the analysis.

##### 4.1. Superlatives.

There is a simple semantic relation between the superlative and the comparative that permits us to paraphrase any superlative by a comparative:

- (1) He sang the loudest.
- (2) He sang louder than anyone else.

In a (phrasal) comparative, two things a and b are compared to each other with respect to a dimension f. In a superlative, one thing a is compared to all its fellow-members in some set B with respect to a dimension f. So if comparatives have LFs of the general form "-er <a,b> f", we should expect superlatives to have LFs of the form "-est <a,B> f", with interpretations as indicated in (3).

- (3) "-est <a,B> f" is true iff for all x in B \ {a}: f(a) > f(x).

This fits straightforwardly for an example like (4).

- (4) Of all my friends, he sang the loudest.

The *of*-phrase plays a role analogous to that of a *than*-phrase in a comparative and serves to express the set B, *he* is its 'correlate' and supplies a, and the dimension f is determined in exactly the same way as in comparatives or equatives: Having identified *he* as the correlate, give it and the superlative morpheme *-est* an appropriate scope and abstract from the material in its scope a certain function from people into degrees. The result is the following LF, which receives the intended truthconditions under (3).

- (5) -est <he, all my friends>  $\lambda xiy[x \text{ sang } y\text{-loudly}]$

Sentence (1) has essentially the same analysis, except that the *of*-phrase has been omitted and the set B therefore needs to be supplied pragmatically. Notice that comparatives and equatives also permit leaving out the *than* or *as* phrases freely, although this is perhaps not as common with them as it is with superlatives. (When I give LFs for sentences that lack those phrases, I will simply put "... " for the second term in <a, ...>.)

If it is true that the logical analysis of a superlative sentence always involves choosing a correlate, then it should be easy to construct examples that are ambiguous as a result of there being more than one permissible choice of correlate. Superlatives should be just like comparatives in this respect, except that the case on the *than* (*als*) phrase will often play a disambiguating role, while *of* (*von*) phrases always show the same fixed case that this preposition happens to assign (dative in German). Indeed, such ambiguities are easily found. Jackendoff (1972) credits examples like (6) to Bowers (1969).

- (6) Of these three men, John hates Bill the most.

Depending on whether the correlate is *John* or *Bill*, the reading is (7) or (8).

- (7) -est <John, these three men>  $\lambda xiy[x \text{ hates Bill } y\text{-much}]$
- (8) -est <Bill, these three men>  $\lambda xiy[\text{John hates } x \text{ } y\text{-much}]$

why?

(Apparently, the correlate is always marked by focus, so that the sentence is actually never ambiguous in spoken language; I will ignore this fact for the time being. See Ross (), Bowers 1969, and Szabolcsi 1985.) Not surprisingly, when there is no overt *of*-phrase at all, ambiguities of this sort will be particularly easy to come by (likewise with comparatives that lack overt *than*-phrases).

In examples where the superlative adjective is part of an NP, as in (9) below, the referential index of that NP will usually be one of the possible correlates. This gives rise to the "ordinary" reading of the superlative, i.e. the one under which *the best drummer* denotes the best one of all the drummers. (In Szabolcsi's terminology, this is the "absolute" reading, and all other readings are called "comparative" readings.) Our representation for this reading is (10). This has clearly different truthconditions from (11), in which *I* is the correlate.

(9) I have heard the best drummer.

(10) I have heard  $\lambda x[-est <x, \dots> \lambda y \iota z [z\text{-good drummer}(y)]]$  - index of NP is correlate

(11)  $-est <I, \dots> \lambda x \iota y [x \text{ has heard a } y\text{-good drummer}]$  - I is correlate

It could well be the case that (11) is true, but (10) is false; suppose that noone ever heard any of the really good drummers, but still I was the one who heard the best one that was heard at all. From the point of view that I am pursuing in this manuscript, this ambiguity is a scope ambiguity, and in fact the same as is we find in a comparative like *I have never heard a better drummer (than Max Roach)*.

The careful reader will have noticed that on the way from sentence (9) to LF (11), I cheated a little with the articles. What was *the* in the sentence had to become *a* in the LF, or else the meaning would not have seemed quite right. Surely, one would want to accomplish this adjustment in a non-ad-hoc way. I am not sure how to go about this yet, but it may be worth reviving an old idea (expressed e.g. in Bresnan 1973 and Selkirk 1975) to the effect that the definite article is merely a surface reflex of the superlative morpheme and not at all present at more abstract levels of representation. As Szabolcsi (1985) points out, however, this applies only when the scope of *-est* is actually wider than the domain of the definite article. If it is narrower, as e.g. in (10), the definite article is interpreted in its usual way. I don't know if there is any genuine parallel, but this reminds me of the situation with the plurality feature (cf. section 4.2 below), which sometimes also seems to be semantically inactive within the scope of a triggering comparison operator such as *different*.<sup>17</sup>

Before I conclude this brief sketch of the analysis of superlatives, I would like to relate what I just said about the superlative to the discussion above about the merits of ellipsis vs. 'direct' analyses for phrasal comparatives. As things have been looked at here, (phrasal) comparatives and superlatives have in common that their logical structures contain a function-expression, i.e. a constituent of the form  $\lambda x \iota y [\dots x \dots y \dots]$ , where *y* is a degree. Ambiguities in superlatives arise because there may be several options for the scope of the abstractors by which this function-expression is formed, and the existence of such ambiguities follows directly from the assumption that superlatives differ only minimally from their phrasal-comparative analogues. But now suppose we had adopted the view that the logical structures of comparatives are always based on representations in which a full clause has been reconstructed after the *than*. Under such a view, the

Dimension

logical structures of comparatives would not have involved a function-expression along with two terms for the compared items, but rather just two degree-descriptions. What would this have led us to expect for superlatives? To capture the intuitive relation between superlative and comparative, as expressed in the equivalence between *a is X-est among the b's* and *a is X-er than any other b*, we would have assumed that *-est* expresses a relation between a degree and a set of degrees, essentially the relation 'maximum of'. So the logical structure of a superlative would have had to contain a degree description and a degree predicate, roughly as follows for an example like (9) under the reading represented as (11) above:

(28)  $\text{-est} \langle \lambda x[\text{I have heard } x\text{-good drummers}],$   
 $\lambda x[\text{someone has heard } x\text{-good drummers}] \rangle$

To construct this sort of representation, one would posit an algorithm that somehow reconstructs the clause *someone heard x-good drummers*. In cases where there is an *of*-phrase present, the clause would have to be reconstructed 'around it'; e.g. instead of (7), we would want something like (29).

(29)  $\text{-est} \langle \lambda x[\text{John hates Bill } x\text{-much}],$   
 $\lambda x[\text{one of these three men hates Bill } x\text{-much}] \rangle$

Now it is certainly possible to formulate an appropriate algorithm of reconstruction rules to accomplish this, even though there is no precedent for this in the literature (unlike in the case of the comparative, where syntacticians such as Bresnan (1973) have worked out a pertinent system of deletion rules). But is there any independent justification for this? In particular, is there going to be some general theory of the possible format and power of reconstruction (or deletion) rules that such an analysis will be embedded in? I cannot know that the answer to these questions is negative, but the challenge certainly hasn't been faced.

#### 4.2. *Same and different.*

The comparatives, equatives, and superlatives that we have been considering so far all involve comparisons between degrees, be they extents (such as ages, heights, etc.), degrees of quality (such as how good a drummer one is), or amounts and cardinalities. In terms of conceptual complexity, such comparisons between degrees are not the most primitive type of comparative judgment that there is. We will now attend to a more basic type, where the items compared can be entities of any sort (not just degrees) and where the issue is simply whether they are the same or different. (No further differentiation beyond this binary option arises if the items compared don't happen to be arranged along some natural scale. Only if they are does it become possible to make not just the symmetrical judgments of sameness and difference, but also asymmetrical judgments of 'more' or 'less'.) Consider these examples:

(28) Ornette Coleman played a different tune than Don Cherry.  
 (29) Ornette Coleman played a different tune than this one.

This pair of sentences illustrates the by now familiar option of assigning various correlates to *than*-phrases. The logical structures ought to be more or less these.

- (28') different <Ornette Coleman, Don Cherry>  
 $\lambda x \lambda y [x \text{ played } y \ \& \ \text{tune}(y)]$   
 (29')  $\exists x [ [ \text{Ornette Coleman played } x ] \ \& \ \text{different} \langle x, \text{this one} \rangle \lambda x \lambda y [ \text{tune}(y) \ \& \ x=y ] ]$

The intended interpretation for *different* is obvious:

- (30) "different <a, b> f" is true iff  $\sim \{f(a)=f(b)\}$ .

Analogously, we have (31) and examples like (32) and (33).

- (31) "same <a, b> f" is true iff  $f(a)=f(b)$ .  
 (32) Ornette Coleman played the same tune as Don Cherry.  
 (33) Ornette Coleman played the same tune (?\*as this one).

*I know that OC played the same tune as this one.*  
 (32) is fully parallel to (28), whereas the expected exact counterpart to (29) is, for some reason, very marginal. The corresponding reading, however, does exist as one of the readings that (33) without the parenthesized phrase admits of, provided that the speech context furnishes a salient tune as the implicit item of comparison.

In addition to the cases covered by (30) and (31), there are also identity comparisons of the following sort<sup>18</sup>.

- (34) Ornette Coleman and Don Cherry played different tunes.  
 (35) Ornette Coleman and Don Cherry played the same tune.

Concentrate on the readings where these are paraphrases of (28) and (32) respectively. Under those readings, (34) and (35) have as their subject a non-distributive ('collective') plural NP, which simultaneously plays the role of the *as* or *than* phrase and that of its correlate, and which I will therefore call a 'pseudocorrelate'. The fact that this plural NP happens to be a conjunction in our examples is inessential; analogous readings show up in (38).

- (38) The soloists/they played different/the same tune(s).

Instead of (30) and (31), these examples require the following interpretative conventions.

- (39) "different <A> f" is true iff for some  $x, y$  in A:  $\sim f(x)=f(y)$ .  
 (40) "same <A> f" is true iff for all  $x, y$  in A:  $f(x)=f(y)$ .

I take it that the NP *Ornette Coleman and Don Cherry* denotes the set {Ornette Coleman, Don Cherry}<sup>19</sup>. The logical structure of (34) will thus be (34'), which is equivalent to (28) (analogously for (35)).

- (34') different <Ornette Coleman and Don Cherry>  
 $\lambda x \lambda y [x \text{ played } y \ \& \ \text{tune}(y)]$

This is of course not the only reading that (34) can have. Another possibility is that Coleman and Cherry (both, or together) played a set of tunes that were different from each other. This is also representable under our current assumptions, if we pick the referential index of the object as the pseudocorrelate.

- (34")  $\exists X [ [ \text{Ornette Coleman and Don Cherry played } X ] \ \& \ \dots ]$

[different <X>  $\lambda xiy$ [tunes(x) & x=y]]

There is of course a transparent relation between (39) and (30), and likewise between (40) and (31). Quite generally, we expect that every symmetrical comparison operator OP will have a variant OP' (sometimes, though not always, realized by the same lexical item) that relates to it as (39) does to (30). To be more precise:

- (41) Suppose "OP <a, b> f" is generally equivalent to "OP <b, a> f".  
Then OP has a variant OP' such that "OP' <a, b> f" is equivalent to "OP <a, b> f".

For instance, (41) predicts that the equative operator *as* of (42), with the interpretation given earlier in the manuscript, should exhibit the variant that does in fact show up as the lexical item *equally* in (43).

- (42) Billy Higgins played *as* often as Ed Blackwell.  
(43) Billy Higgins and Ed Blackwell played *equally* often.

The reader has probably been wondering how I would derive LFs like the ones in this section in a non-ad-hoc way from the English sentences. I am not sure how best to proceed here, but let me offer some preliminary speculation. One's natural first guess would seem to be that the adjectives *same* and *different* simply are the comparison operators of identity and non-identity. But it looks to me like that isn't feasible technically. We need to decompose them further into a comparison operator proper and a predicative remainder, which I will write as either "y-JENIG(x)" or "y-ARTIG(x)", depending on whether the reading involves token or type identity (a difference that the examples above made it easy to gloss over). "y-ARTIG(x)" is to stand for the relation between things x and the 'kinds' or 'types' y they instantiate. "y-JENIG(x)" is plainly the identity relation x=y. This implies the following sort of decomposed structure for an NP like *a different tune*.

- (55) [<sub>NP</sub> a [<sub>AP</sub> different-JENIG] tune]

When generating LFs from such structures, *different* or *same* will be extracted and leave behind a variable, just as we assumed for *-er*, *-est*, and *as*. For instance, in deriving the LF for (28), we arrive at (56), which can then be further analyzed as (57) by spelling out the indefinite NP as an existential quantifier. Given the definition of *JENIG*, this is equivalent to (28') above.

- (56) different <Coleman, Cherry>  $\lambda xiy$ [x played a y-JENIG tune]  
(57) different <Coleman, Cherry>  $\lambda xiy\exists z$ [(y-JENIG tune)(z) & x played z]

Similarly, (34) will get the two LFs (58) and (59). In (58), the pseudocorrelate is the subject NP, and in (59), the referential index of the object NP (represented here by the plural variable X). (Notice the equivalence to (34') and (34'') above respectively.)

- (58) different <Coleman and Cherry>  
 $\lambda xiy\exists z$ [(y-JENIG tune)(z) & x played z]  
(59)  $\exists X$ [[different <X>  
 $\lambda xiy$ [(y-JENIG tune)(x)]] & [Coleman and Cherry played X]]

To arrive at the LFs given in this section, I again had to do some cheating,

this time with the number features. The plural on *tunes*, as well as the plural on the pseudocorrelate, must be treated as semantically singular inside the scope of the lambda and iota abstractors that define the dimension argument of *different*, i.e. we have to let these abstractors bind variables that range over individual people and individual tunes. (At least there is always one reading where this is so. Notice that e.g. (34) is perfectly appropriate if each musician played only one tune.) In other words, I am thinking of these plurals as "dependent plurals", or as akin to the plurals on "semantically singular" bound variable pronouns<sup>20</sup>. For some obscure reason, analogous examples with *same* instead of *different* ceteris paribus take the singular; see e.g. (35) vs. (34). On the other hand, the definite article in the *same*-examples does not seem to play any semantic role (which is reminiscent of the situation with superlatives, cf. above). I am far from understanding what is going on here.



## 5. Constraints on the scopes of comparison operators and correlates.

As I noted in section 3.1 above, the 'direct' analysis for phrasal comparatives, and also its extensions to superlatives and *same* and *different*, implies certain predictions about scope, both the scope of the comparison operator itself and the scope of the (pseudo)correlate. The same predictions (for phrasal comparatives at least) will follow from a certain kind of ellipsis analysis, namely the kind that assumes that the 'deletion remnant' following *than* is moved to the periphery of and binds a trace inside the 'deleted' *than*-clause, but they will not follow from ellipsis analyses of other conceivable kinds. In this section, I want to look at examples that show that the scopes of comparison operators and correlates cannot be indefinitely wide, and to speculate on the nature of the constraints involved.

### 5.1. Scope of the comparison operator.

Consider an example where the comparison operator *-er* is embedded inside a relative clause, whereas the correlate (whose choice is determined unambiguously by the *than*-phrase here) is in the matrix sentence:

- (38) \*Someone who could answer fewer questions made a good impression on Bill than on Fred.

OUT of. \*Someone who could answer questions made a good impression on Bill about why should this be bad? A look at the LF that our analysis would predict for (38) suggests a plausible explanation:

- (39) *-er* <Bill, Fred>  
 $\lambda xiy[[NP_{\text{someone}} [S_{\text{who could answer } y\text{-few questions}}]]$   
made a good impression on  $x$ ]

The 'structural distance' between the degree variable  $y$  and its binder  $i$  (or equivalently, the *-er* itself) is probably not allowed to be indefinitely great, and one would not be surprised to find it obeying the same constraints as other antecedent variable relations, such as those created by *wh*-movement or by Quantifying-in (QR). Indeed, relative clauses are generally islands for both of the latter (cf. the absence of a wide scope every reading in *Someone who could answer every question made a good impression*). The same is true for *wh*-islands, and here too the constraints seem to carry over to the scope of *-er*. Notice that (40), while fully grammatical under a reading where Bill and Fred are compared, cannot be read as a comparison between Fred and John.

- (40) John wonders whether Bill has more money than Fred.

For the comparison operators *same* and *different*, Carlson (handout) arrives at the generalization that their scopes obey the same constraints as *wh*-movement. His examples include the following (the judgments indicated apply to the readings in which the underlined phrase is the pseudocorrelate):

- (41) \*The two gorillas saw a woman who fed different men.  
(42) \*Max and Frank wanted to see Jill's pictures of different dogs.  
(43) Fred and Mike are more impressive than different painters (\*are).

(41) is analogous to (38) above; comparative (or equative) counterparts for (42) and (43) also seem to behave analogously<sup>21</sup>:

- ✓ ⊙
- (44) <\*>Max wanted to see Jill's pictures of more sunsets than Frank.  
 (45) Fred is more impressive than almost as many painters <>(<\*>are) as Mike.

How about the superlative operator? The most natural expectation at this point would be that it obeys the same constraints as the other comparison operators. However, Szabolcsi (1985) (who is to my knowledge the only one to have investigated this question systematically) comes up with a different generalization than Carlson's: according to her, the correlate "must be in the same domain with independent tense as the superlative" (p.8). (Tensed indicative clauses, but not subjunctive or infinitive clauses, count as domains with independent tense.) This is a tighter restriction than Carlson's in certain respects, e.g. it rules out a reading for (46) (=Szabolcsi's (26a), her judgment) where the *who* (or its trace) acts as correlate:

(46) \*Who said that you got the fewest letters?

On the other hand, it would not rule out cases analogous to Carlson's (42):

(47) <\*>Fred liked Jill's pictures of the fewest movie stars.

If both Carlson and Szabolcsi are right, then the constraints on the scope of *same* and *different* are different from those on the scope of *-est*. This would of course contradict what my semantic analysis leads me to expect, namely that all comparison operators should obey essentially the same constraints and that apparent differences should somehow be explainable on independent grounds. I think that it will be a while until the last word is spoken on this issue, or even until we have a reasonably good overview of the relevant data. To make matters worse, there are even some examples that appear to violate all the generalizations that I have so far alluded to.

- (48) No one saw pictures that were admired by more excellent critics at the exhibition than John. (Chomsky 1981, p..)  
 (49) The two gorillas saw women who fed different men. (Dowty, handout (11))  
 (50) The students visited places where different famous persons were born. (Dowty, handout (13))  
 (51) <OK> John won the prize that had the greatest value.

## 5.2. The scope of the (pseudo)correlate.

While the previous section was concerned with examples in which the comparison operator is more deeply embedded than the correlate, we now have to look at the reverse kind of situation. Suppose, e.g. *-er* appears in the main clause, but its correlate (again identified unambiguously by an appropriate *than*-phrase) is embedded inside a relative clause or other potential scope or movement 'island'.

- (52) ?\*I spent more time with a woman that played the clarinet than the lute.  
 (53) ?\*It happens less often that Austin gets snowed in than Buffalo.  
 (54) \*More people think they are as good as Dolph than as Coleman.  
 (55) ?\*We were more divided on the question whether John should be admitted than Fred.

Under the analysis pursued in this paper, the badness of these examples is plausibly attributed to constraints on the scope of the correlate, i.e. on the structural distance between the lambda operator in the dimension term and the variable it binds. Notice e.g. that the LF of (52) would have to be (55), where x is separated from its binder by a complex-NP boundary.

- (56) -er <the clarinet, the lute>  
 $\lambda x \lambda y$  [I spent y-much time with [<sub>NP</sub>a woman [<sub>S</sub>that played x]]]

Unlike the scope limitations affecting comparison operators, those that affect the correlates have not, to my knowledge, received systematic attention in the literature so far<sup>22</sup>, and I have only taken a very superficial look at the data myself. The phrasal comparatives just given seem to behave roughly the same as analogous superlative examples with overt *DP*-phrases, at least in German. (In English, such superlatives appear to be appreciably more acceptable, for reasons that I don't understand.)

- (57) ?\* Von diesen Leuten waren wir am zerstrittensten in der Frage,  
of these people were we most divided in the question

ob Hans zugelassen werden sollte.  
whether Hans be admitted should

'Of these five people, we were most divided on the question whether Hans should be admitted.'

- (58) \* Von diesen drei Staedten kommt es am seltensten vor,  
of these three cities happens it most rarely (Prt)

dass Austin eingeschneit wird.  
that Austin is snowed in

'Of these three cities, it happens least often that Austin gets snowed in.'

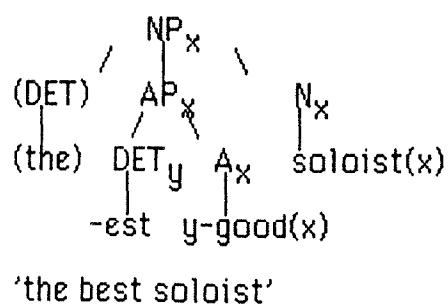
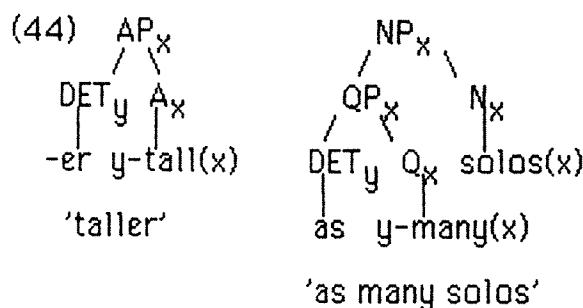
I add a few examples involving *same* and *different*:

- (59) <?\*> Different judges thought that the two contestants deserved to win. (inspired by an example of Stump's cited by Dowty) v  
(60) <OK> It happened on different days that Austin and Buffalo were snowed in.

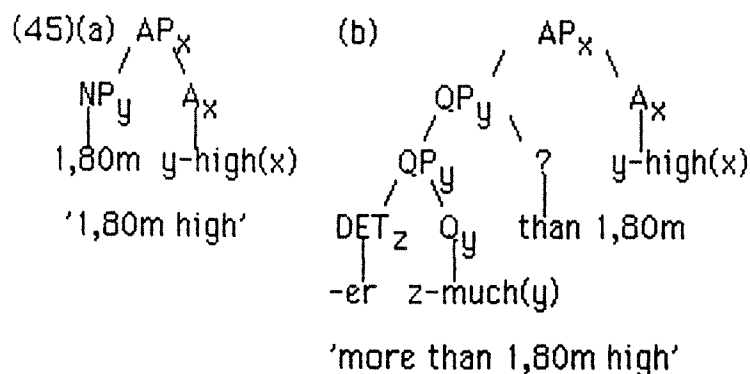
It is not transparent at this point what the relevant generalizations are<sup>23</sup>. All that we can be reasonably sure of is that there are some structural constraints on correlate scope -- not a spectacular conclusion, but still one that would not be expected under just any old semantic analysis of the data in question.

Appendix: Deriving the Logical Forms.

Eventually we will want to know how logical structures of the kind envisaged above can be systematically associated with syntactic representations. To this end, we first have to settle on some assumptions concerning phrase structure in AP and NP. Roughly in line with Bresnan (1973), Selkirk (1970), and many others, I take *-er*, *-est*, and *as* to be AP-determiners<sup>24</sup>. So we have structures like these. (Ignore the indices for the moment, they will be explained shortly.)



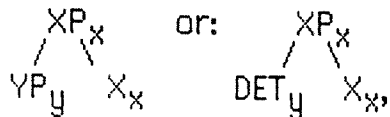
We also permit another NP or QP instead of DET under AP, to generate, e.g.:



(*Than*-phrases, I will take to be adjoined to some maximal projection wherever they show up; NP-determiners, I will often ignore for the time being.)

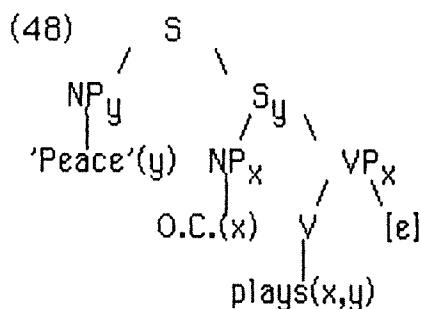
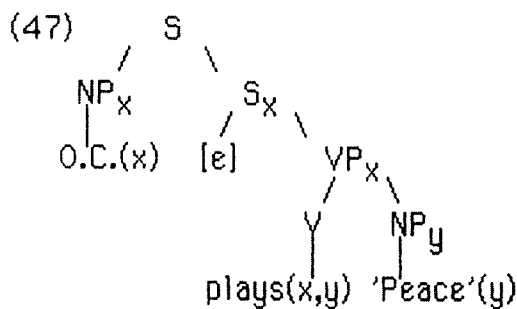
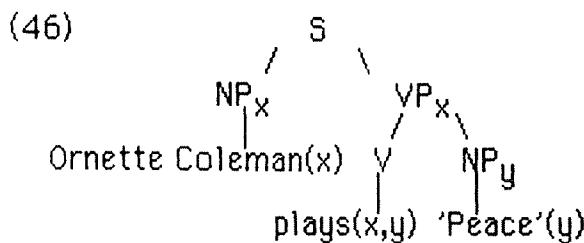
Next, we need some assumptions about argument structure and indexing. I take As to be generally 2-place relations between a degree and a thing, e.g. 'y-high(x)' holds between the thing x and the degree y iff x is high to (at least) degree y. Ns, on the other hand, are generally 1-place, e.g. 'trumpet(x)'. The underlined argument is the "external" argument, the one whose index percolates to the mother AP or NP.

In structures of the form



we distinguish two cases for indexing purposes: (i) YP or DET "determines" X, or (ii) YP is "attributed" to X. Case (ii) is exemplified in structures with X=N and Y=A, and it requires that x=y. Case (i) is exemplified in various other cases: whenever there is a DET, also in (45b) above, and presumably when X=V and Y=N. All of these have in common that y equals some internal argument of  $\text{XP}_x$ , e.g. the degree argument when X=A. Well-formed indexings for (44), (45) are thus the ones given above.

Any maximal category with an external argument (represented by its index) is a predicate. This holds for the APs, NPs, and QPs in the above examples, and presumably also for VPs. Ss are ordinarily not predicates, and accordingly don't carry indices. However, we permit an operation in the derivation of logical forms, namely May's QR, here called "NP Externalization", which will turn an S into a predicate. It adjoins an NP to S, leaving a coindexed variable on the S from which the NP has been removed. E.g. it may turn (46) into (47) or (48).



Concerning the interpretation of the structures constructed so far, I take the lexical items  $y$ -high(x),  $plays(x,y)$ ,  $solos(x)$ , etc. to be sentence functions (open formulas), in the obvious way. (The variables will have to range over various sorts of entities, e.g. degrees, collections of individuals, etc., as needed.) With proper names,  $\text{'Peace'}(y)$  means  $y = \text{'Peace'}$ . The general mode of semantic composition is taken to be conjunction, i.e. when X's daughters Y and Z express the two open formulas p and q respectively, X expresses p&q. (This is probably not adequate for the attribution of such

'criteria sensitive' adjectives as *good*, a problem that I will ignore here.) This will leave us with lots of free variables, a matter to be taken up presently.

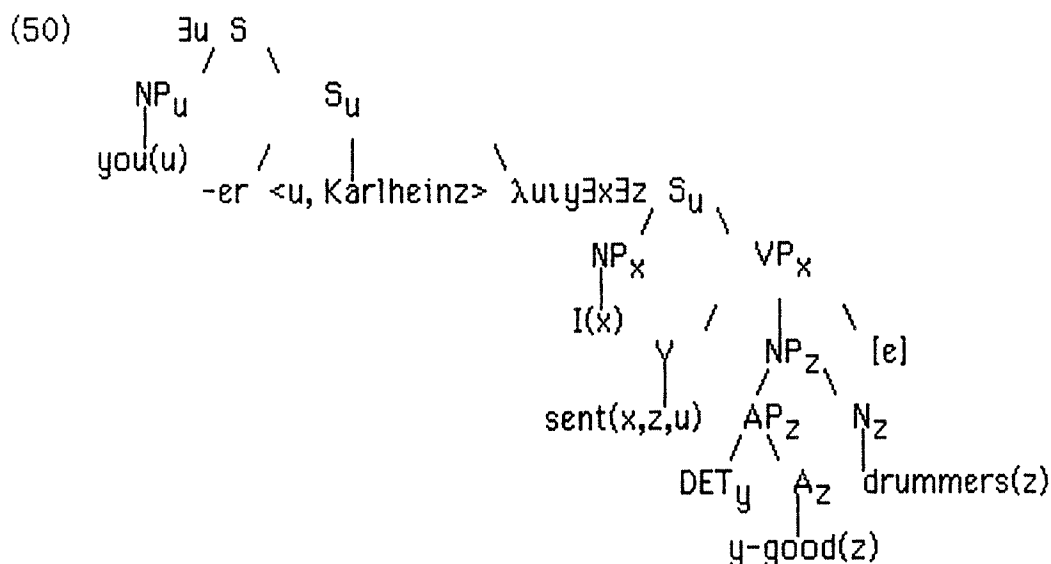
Now what about our comparison operators *-er*, *-est*, and *as*? We already know what argument structure they have: they have two argument places, one for a function *f*, the other for either a pseudocorrelate *<a>* or a pair *<a,b>* of a correlate and a *than/as/of*-phrase. I will remain silent on how the *b*-slot (if any) is filled and confine my attention to the *a*- and *f*-slots. The crucial step is the assignment of a scope to the comparison operator:

- (49) Comparison Operator Scope Assignment:  
 Adjoin OP to some containing predicate X while turning the latter into a function. More precisely, perform the following change:

$$[X_x \dots [DET_y OP] \dots] \Rightarrow [X_x OP \langle x, (...) \rangle \lambda x \lambda y [X_x \dots [DET_y -] \dots]]$$

Finally I assume a mechanism of 'Existential Closure': All free variables are read as existentially bound in the scope of the lowest operator where they are new. (Cf. Heim 1982. This could be built directly into the interpretation rules, but for perspicuity, I will here treat it as an instruction to insert appropriately indexed existential quantifiers in designated places in the logical forms.)

For a simple illustration, here is the logical structure for our earlier example *I sent better drummers to you than to Karlheinz*, as generated by the rules just sketched. (I am taking for granted some appropriate implementation of the case and category matching requirements for @i[than]-phrase and correlate that will sanction this construal while ruling out alternative ones.)



We can write this out linearly as a formula, as in (51), which is equivalent to (52).

- (51)  $\exists u[u = \text{you} \ \& \ [-er \ \langle u, \text{Karlheinz} \rangle \ \lambda u \lambda y \exists x \exists z [x = I \ \& \ \text{sent}(x, z, u) \ \& \ y\text{-good}(z) \ \& \ \text{drummers}(z)]]]$   
 (52)  $-er \ \langle \text{you}, \text{Karlheinz} \rangle \ \lambda u \lambda y \exists z [\text{sent}(I, z, u) \ \& \ y\text{-good}(z) \ \& \ \text{drummers}(z)]$

NOTES:

<sup>1</sup> Notice that I am deviating from Hankamer's terminology. For him, the term "phrasal comparative" is restricted to the cases where *than* is a preposition.

<sup>2</sup> When the gap is an AP, such sentences generally have an alternative analysis in terms of XP-deletion (cf. Williams 1984 for generalization of the term 'VP-deletion' to 'XP-deletion'). An example is *I am younger than I was then*. Notice, however, that the German translation of this, *Ich bin jünger, als ich damals war*, is also grammatical, despite the absence of XP-deletion in that language (cf. \**Ich bin jung, aber du bist nicht*). So it appears that Comparative Deletion may affect APs, at least in the general case.

<sup>3</sup> Sometimes even more substantial reconstruction is needed. This may be because of independently attested ellipsis-cum-reconstruction processes, such as VP-deletion under Williams' or Sag's analysis. But there are other cases as well, such as (20), to which I would assign syntactic and semantic analyses along the lines of (21), (22).

- (20) It moved me more than I expected.
- (21) ... (than) [ $wh_i$  [I expected  $t_i$ ]]
- (22) ...  $\lambda x$ [I expected it to move me  $x$ -much]

Notice that it does not make sense to analyze (20) as a case of Null Complement Anaphora, as Napoli (1983) would have it. For one thing, *expect* isn't an NCA verb, cf. *He played in Forth Worth. If I had known (\*expected), I would have driven up there.* A *wh*-movement analysis is therefore more plausible, especially since it would presumably generalize to cases like *It was repeated more often than was necessary.*

<sup>4</sup> Actually, it is not *prima facie* obvious that there should be such a function; in what sense is there a unique degree  $y$  such that the drummers that a given person introduced to you were  $y$ -good drummers? Let's suppose for now that the well-definedness of such functions is unproblematic, and in particular that they are welldefined at least for the two arguments specified by the *than*-phrase and its correlate.

<sup>5</sup> As Bresnan (1973) and Berman (1973) have observed, there are severe distributional restrictions for NPs whose referential indices are correlates for comparative operators, at least in English. They are more or less restricted to predicate nominal positions. I am ignoring this fact for the time being, but I strongly suspect that it will have to be attended to in the further elaboration and evaluation of the ideas I am pursuing in this manuscript.

<sup>6</sup> For instance, how does she prevent a derivation where the *as*-phrase of (59b) is adjoined to the prenominal AP at the time when deletion occurs, but is subsequently extraposed further? Notice that in other cases, it does seem permitted to further extrapose the remnants of comparative deletion, e.g. *Das haben schon grössere Geister gedacht als du.*

<sup>7</sup> Let me speculate, however, that (26) above can be accounted for along these lines.

<sup>8</sup> Might it be related to the fact that even relative clause constructions sometimes show an unexpected degree of permeability for the scopes of clause-internal NPs, cf. Engdahl-examples like *The grade that every student got was recorded in his file?*

<sup>9</sup> Here and below, I mean by the 'clausal source' of a phrasal comparative that clausal comparative which has an identical representation either at the pre-deletion (D-str) level or at the post-reconstruction (LF) level, depending on whether one thinks in terms of a deletion or a reconstruction analysis. This manner of speaking suggests a deletion analysis, but is meant to be neutral between the two types of ellipsis analysis.

<sup>10</sup> For variables in the form of bound variable pronouns, this is well-known from treatments of VP-Deletion (Sag 1977, Williams 1977) and easy to illustrate for Comparative Ellipsis as well: *Every man thinks that Mary likes him more than Jane* cannot mean that every man  $x$  thinks Mary likes  $x$  more than Jane likes  $y$  (where  $x$  is distinct from  $y$ ).

<sup>11</sup> In the complements to propositional attitude verbs, the verb form is often ambiguous between bound and free readings for the world variable. I think, however, that only bound readings are subject to the so-called 'sequence of tense' rules. Cf. the minimal pair *John thought that 2 plus 2 was more than it was* 'is.

<sup>12</sup> While the judgments here may be less clear than in the case of (14a,b), these examples have the advantage of not involving a reflexive/non-reflexive contrast. If indeed they exhibit essentially the same phenomenon, then this justifies the decision that is implicit in my discussion throughout this section, viz. to ignore potential explanations of the unambiguous contradictoriness of (14b) that crucially exploit the binding requirements of reflexives.

<sup>13</sup> Incidentally, in German we can see that *he* wouldn't even have the right case to qualify as a potential correlate: *Er(Nom.) wurde nicht aelter als einen Tag(Acc.)*. This is obviously related to the fact that we get accusative in *Er wurde einen Tag(Acc.) alt*.

<sup>14</sup> Isn't there a distinction in French between *plus que* and *plus de*? Perhaps it could be argued that precisely those *than*-phrases which are not handled by our original rules involve a preposition *than*, which is distinct from the 'coordinator' *than* in that it does not get matched with a correlate, but contributes to the semantic structure in a somehow more primitive way? -- Notice also that in German the phenomenon shows up with comparatives (*aelter als 23 Jahre*), but doesn't generalize to equatives: (\*) *so alt wie 23 Jahre* (unlike English *as old as 23 years*) lacks the relevant reading.

<sup>15</sup> I don't know exactly what that would amount to, but see McConnell-Ginet (1982) for a proposal in vaguely the direction I have in mind.

<sup>16</sup> Potentially relevant literature: L. Levin on "Sluicing".

<sup>17</sup> This is a topic which I hope to address much more extensively in the next version of this manuscript.

<sup>18</sup> Examples like the ones below are treated in Stump (1980?), Carlson (handout) and Dowty (handout). (I actually have not seen Stump's paper.) Some of Carlson's and Dowty's data will be used in section 5 below. As for



terminology, I understand that Stump refers to my 'pseudocorrelate' as the 'focus', and that Dowty calls the use of *same* and *different* that we are about to consider in (34) and (35) an 'internal distributive anaphoric' reading.

<sup>19</sup> See e.g. Stechow (1981) for an appropriate treatment of conjunction to accomplish this.

<sup>20</sup> Presumably, this will (when properly spelled out) provide an explanation for Carlson's observation that choosing an NP as the pseudocorrelate for *same* or *different* is incompatible with collective predication on that NP. E.g. *John and Mary got married on different days; on the same day* has no reading where *marry* is understood reciprocally and at the same time *John and Mary* is the pseudocorrelate.

<sup>21</sup> Angled brackets indicate judgments that I have not yet confirmed with native speakers.

<sup>22</sup> An exception, I think, is Rappaport's (1983) paper on Russian, but I haven't studied it carefully enough to report on it yet.

<sup>23</sup> There is one interfering factor here that should be borne in mind when assessing the data in this area: The intended truth conditions do not always determine the correlate uniquely. Consider e.g. a variant of (53) without the *than*-phrase:

(i) It happens less often that Austin gets snowed in.

Surprisingly at first, this does have a reading where Austin is compared to some contextually salient place, at least when *Austin* is given focus stress. Prima facie, that creates a problem for my analysis: From what I have said so far, the LF of (i) under that reading should look like that of (53) in all relevant respects, so why wouldn't it be ruled out for the same reason? The answer, I think, is that the correlate actually isn't *Austin*, but rather *that AUSTIN gets snowed in*. The capitalization here represents focus, and I assume that Rooth's (1985) theory of focus will apply here to reduce the domain of contextually relevant alternatives to propositions (or event types or whatever) of the form "that x gets snowed in". It is natural to expect that the contextually furnished item of comparison will have to be an element of this domain of alternatives. The overall truthconditional impact of the utterance then will be indistinguishable from a reading where just *Austin* is the correlate, but the assumption that the real correlate is more inclusive solves the problem of predicting the contrast in acceptability between (53) and what appeared to be a fully analogous reading of (i). -- The moral of this discussion is that we need to choose our examples cautiously if we want to test for constraints on correlate scope: the only 'safe' examples to use are those with an overt *than*, *as*, or *of* phrase that unambiguously fixes the choice of correlate.}

<sup>24</sup> They may also be QP-determiners. I will be quite negligent about the distinction, if any, between APs and QPs. Perhaps QPs are actually a subcategory of APs and/or NPs.