Phonological Form

Attributive comparatives, left branch extraction, and PF-deletion

TWO THEORETICAL CLAIMS:

1. Extraction of attributive DegPs is regulated by Full Interpretation at the PF interface
(the Left Branch Constraint doesn't hold at LF, but at PF)
2. Ellipsis is deletion (or, the ellipsis site has structural content)

TWO ANALYTICAL INNOVATIONS:

1. Ellipsis (including pseudogapping) can save certain LBC violations
2. There's more to left-branch extraction than meets the eye: there must be a layer of structure above the DP to host (extracted) DegPs and other elements

1 Introduction

1.1 Comparative deletion (CD)

(1) Ben's novel was more interesting | than Abby thought it would be __ .

'comparative clause'

Bresnan's (1973, 1975) analysis of CD: (unbounded) deletion of **[x-much interesting]**

(2) ... than Abby thought it would be **[x-much interesting]**

Chomsky 1977: movement of a degree operator **[x-much]**, plus ellipsis of **interesting**
(because of island effects inside the comparative clause)

(3) ... than Op_x Abby thought it would be [t_x interesting]

von Stechow 1984, Heim 1985, Moltmann 1992, Gawron 1995, Hazout 1995, Izvorski 1995, Rullmann 1995 and others; but cf. Hendriks 1995, Hendriks and de Hoop 1998, and Kennedy (to appear) for alternative views.

Kennedy 1997: movement of the whole degree phrase operator (DegP)

(4) ... than Op_x Abby thought it would be t_x .

PINKHAM'S PROBLEM
(Pinkham 1982, see also Pilch 1965)
In attributive comparatives, CD *cannot* target just the corresponding DegP in the c-clause:

(5) * Abby wrote a more interesting novel than Ben wrote a __ play.
(6) * Erik drives a more expensive car than Polly drives a __ motorcycle.
(7) * Jones produced as successful a film as Smith produced a __ play.
(8) * The Twins start a more talented infield than the Sox start an __ outfield.

Bad for deletion, which wasn't supposed to be sensitive to islands (to account for comparative subdeletion); good for movement. Parallel to Left Branch Constraint (LBC) violations (Ross 1967, Corver 1990).

(9) * [How interesting]$_2$ did Ben write [a t_2 play]?
(cf. *How interesting a play did Ben write?*)

LF of (5):

(10) Abby wrote a more interesting novel than [Op_i Ben wrote [a t_i play]]

1.2 Pinkham's Puzzle

A problem in movement-land:
CD *can* target attributive adjectives just in case a constituent that contains the attributive position is also eliminated from the surface form.

Missing containers DP, VP, CP, and IP:

(11) Abby wrote a more interesting novel than Ben {wrote, did, expected, ø} __ .
(12) Erik drives a more expensive car than Polly {drives, does, said, ø} __ .
(13) Jones produced as successful a film as Smith {produced, did, had hoped, ø} __ .
(14) The Twins start a more talented infield than the Sox {do, start, think, ø} __ .

LF of (11) (VP-ellipsis case): [**bold** = **elided**]

(15) Abby wrote a more interesting novel than [Op_i Ben did **write [a t_i novel]**]

(15) is structurally identical to (10).

If the LBC reduces to the ECP (Corver 1990), and the ECP holds at LF, then:
Attributive CD should be impossible in general.

Summary:
1. Deletion approach overgenerates (lets in (5)-(8))
2. Movement approach undergenerates (rules out (11)-(14))

GENERALIZATION (adapted from Pinkham (1982:47)):

(16) *WHEN EVERYTHING GOES, ANYTHING GOES*

Comparative deletion in attributive comparatives is possible only if a constituent that (properly) contains the targeted AP is also eliminated from the surface representation.

1.3 Attributive CD and pseudogapping

PINKHAM'S SOLUTION: Deletion and movement are wrong; comparatives have fully projected, but empty, structure (pronominal categories).

(17) Abby's novel was more interesting than Ben's play was.
(18) Abby's novel was more interesting$_i$ than$_x$ Ben's play was [$_{AP}$ Q$_x$ PRO$_i$]

Constraint: The "Q-binding relation" (between *than* and Q) is subject to subjacency (can't
cross   more than one cyclic node [NP, AP, CP])

This approach correctly rules out (5)-(8), since Q-binding crosses two cyclic nodes (AP and NP):

(19) * Abby wrote a more interesting$_i$ novel than$_x$ Ben wrote [$_{NP}$ a [$_{AP}$ Q$_x$ PRO$_i$] [$_N$ play]]

Stipulation (Pinkham (1982:78)):

Q-binding is not subject to subjacency when all of the compared elements in attributive comparatives are "maximally identical". (Where the material in the comparative clause is *maximally identical* to its antecedent material only when at least the entire NP that contains the targeted AP in the comparative clause is replaced with pronominal subconstituents.)

(20)   Abby wrote a more interesting novel than Ben wrote.
(21)   Abby wrote a more interesting$_i$ novel$_j$ than$_x$ Ben wrote [$_{NP}$ [$_{AP}$ Q$_x$ PRO$_i$] [$_N$ PRO$_j$]]

Problems:
1.   The stipulation is effectively just a restatement of the generalization.
2.   Even a subjacency analysis of the ill-formedness of examples like (5)-(8) is too strong...

NEW FACT: *PSEUDOGAPPING SAVES THE DAY*

The attributive AP in the comparative clause *can* be targeted by CD, leaving the NP that contains it intact, *just in case pseudogapping has also applied*.

Compare (5)-(8) above with (22)-(25).

(22)   Pico wrote a more interesting novel than he did __ a __ play
(23)   Erik drives a more expensive car than he does __ a __ motorcycle.
(24)   Jones produced as successful a film as she did __ a __ play.
(25)   The Sox start a more talented infield than they do __ an __ outfield.

For Pinkham, these should be as bad as (5)-(8):

(26)   Pico wrote a more interesting$_i$ novel than$_x$ he did [$_{NP}$ a [$_{AP}$ Q$_x$ PRO$_i$] [$_N$ play]]

•   No "maximal identity" → Q-binding should respect subjacency

(The pseudogapping facts also show that (5)-(8) aren't bad because of semantic "incommensurability", à la *#Pico's novel is more interesting than it is long.* See Klein 1991 and Kennedy 1997.)

1.4 Where we go from here

REVISED GENERALIZATION:

(27)   *WHEN SOMETHING GOES, ANYTHING GOES*

Comparative deletion in attributive comparatives is possible only if
•   a constituent that (properly) contains the targeted AP is also eliminated from the surface representation, or
•   pseudogapping has also applied.

Our goal:

To construct a principled explanation of the puzzling disjunction in (27).

I.e., to show that the interaction of a particular formulation of the LBC with the grammar of ellipsis, attributive modification, and pseudogapping can derive the generalization in (27).

Battle plan:
•   Section 2
    -    Establish connection between left branch questions and attributive comparatives
    -    Comparative evidence from Polish, Czech, Bulgarian, and Greek

•   Section 3
    -    Argue for a formulation of the LBC in terms of PF principles responsible for pied-piping effects
    -    Ellipsis as deletion at PF gets the first disjunct in (27)
•   Section 4
    -    New evidence that some attributive modifiers may occur outside their DP
    -    This position gets deleted by pseudogapping, getting the second disjunct

2 Attributive CD and Left Branch Extraction

2.1 The syntax of comparative deletion

DegP (headed by {*er/more, less, as, so, too, enough,* etc.}) above AP:
    (Abney 1987, Corver 1990, 1997, Grimshaw 1991, Kennedy 1997)

(28)
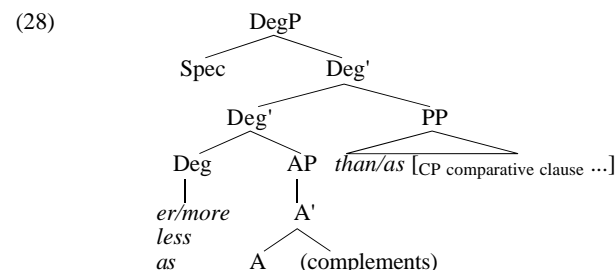
EVIDENCE FOR *WH*-MOVEMENT OF THE COMPARATIVE OPERATOR IN THE COMPARATIVE CLAUSE:

i.   *Wh*-movement sensitivities (islands, crossover)
    Ross 1967, Bresnan 1975, and Chomsky 1977; see also Rullmann 1995

ii.   The occasional overt wh-word
    (see Hankamer 1971, Bresnan 1972:223-4, citing Jespersen MEG III.9:6$_2$); see den Besten 1978, Izvorski 1995, Hazout 1995 for similar facts in Afrikaans, Bulgarian, Dutch, Hebrew, and Hindi; also Greek; cf. Irish and Frisian)

(29)   The flooding was less than what we had thought it would be. (*National Public Radio*, 29 Jan, 1997)

(30)   If we go ... she'll give us a better character [reference letter] than what she would if we stayed. (Dorothy Sayers, *Unnatural Death*, 1927, p.115)

WHAT IS THE SYNTACTIC CATEGORY OF THE COMPARATIVE OPERATOR?

•   Traditional answer: *The comparative operator is a measure phrase, extracted from SpecDegP*

(31)   The desk is [$_{DegP}$ six feet Deg^0 [$_{AP}$ long]]

(Lees 1961, Chomsky 1965, 1977, von Stechow 1984, Heim 1985, McCawley 1988, Bierwisch 1989, Moltmann 1992, Hazout 1995, Izvorski 1995, Lerner and Pinkal 1995, Gawron 1995).

(32)   Pluto is colder than Venus is.
(33)   Pluto is colder than [Op$_x$ Venus is [**DegP** e_x **Deg⁰** [**AP** ~~cold~~]]]

Where the AP [**cold**] is elided by some (other) ellipsis operation.

•   Our answer: *The comparative operator is a DegP*

(34)   Pluto is colder than [Op$_x$ Venus is [DegP e]$_x$]

(Kennedy 1997, to appear; cf. Klein 1980, Larson 1988, Hendriks 1995).
Comparatives are like relative clauses, and don't allow nonlocal antecedents

VP-ELLIPSIS (HERE ACD) ALLOWS A NONLOCAL ANTECEDENT:

(35)   Jones didn't meet all the aliens he wanted to meet, but I bet he liked the ones he did.

CD DOES NOT ALLOW A NONLOCAL ANTECEDENT:

(36)   This spaceship is wider than Smith's spaceship is, but it's not longer than hers is.
(37)   a. This spaceship is not longer than Smith's spaceship is **long**.
        b. *This spaceship is not longer than Smith's spaceship is **wide**.

(38)   #Now that the remodeling has been completed, the space station is longer than it used to be, and it's even wider than it is.

2.2 The syntax of attributive modification (first version)

Traditional external syntax of DegP:
(see Svenonius 1992; *than*-clause is extraposed, Bresnan 1973; cf. Cinque 1993, Kester 1996)

(39)
```
              DP
            /    \
           D      NP
                /    \
             DegP     NP
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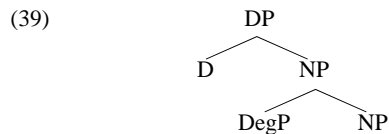
Since CD involves *wh*-movement of a DegP constituent, then the derivation of the unacceptable attributive CD constructions is *exactly* the same...

(40)   a. *Abby wrote a more interesting novel than Ben wrote a play.
        b. *Erik drives a more expensive car than Polly drives a motorcycle.
        c. *Jones produced as successful a film as Smith produced a play.
        d. *The Twins start a more talented infield than the Sox start an outfield.

... as the derivation of the unacceptable questions in (41).

(41)   a. *How interesting did Ben write a play?
        b. *How expensive does Polly drive a motorcycle?

        c. *How successful did Smith produce a play?
        d. *How talented do the Sox start an outfield?

Both (40)a-d and (41)a-d involve movement of a left-branch DegP out of DP:

(42)   *The Twins start a more talented infield than [Op$_x$ the Sox start [DP an [NP e$_x$ [NP outfield]]]]
(43)   *How talented$_x$ do the Sox start [DP an [NP e$_x$ [NP outfield]]]

Whatever rules out left branch extractions in questions such as (41)a-d should apply equally to attributive CD constructions such as (40)a-d.

Cross-linguistic prediction (*ceteris very paribus*):
        1. Languages that allow left-branch extracting questions like (41)a-d should allow attributive comparatives like (40)a-d
        2. Languages that don't, shouldn't (like English, modulo differences in their ellipsis options)

2.3 Left branch extractions and attributive CD in Polish and Czech

Polish and Czech permit left branch extraction of attributive modifiers
        (pied-piping (a) is optional (b))

(44)   a. Jak   dluga stuke napisal Pawel?   *Polish*
            How long play   wrote Pawel
        b. Jak   dluga napisal Pawel stuke?
            How long wrote   Pawel play
            'How long a play did Pawel write?'

(45)   a. Jak   velké auto Václav koupil?   *Czech*
            how big   car Vaclav bought
        b. Jak   velké Václav   koupil auto?
            how big Vaclav   bought car
            'How big a car did Vaclav buy?'

Attributive CD in Polish:

(46)   Jan napisal dluzszy list,   niz Pawel napisal sztuke.
        Jan wrote longer   letter than Pawel wrote play
        'Jan wrote a longer letter than Pawel wrote a play.'
(47)   Jan kupil drozszy   samochod niz Pawel kupil   motocykl.
        Jan bought more.expensive car   than Pawel bought motorcycle
        'Jan bought a more expensive car than Pawel bought a motorcycle.'

And in Czech:

(48)   ?Václav koupil   veˇtsˇí auto nezˇ Tomásˇ   koupil lodˇ.
        Václav bought bigger car than Tomás   bought boat
        'Václav bought a bigger car than Tomás bought a boat.'

(49)   Václav koupil veˇtsˇí auto nezˇ Tomásˇ ztratil lodˇ.
          Václav bought bigger car than Tomás lost boat
          'Václav bought a bigger car than Tomás lost a boat.'

With gapping, these are even better:

(50)   Jan napisal dluzszy list, niz Pawel sztuke.   *Polish*
          Jan wrote longer letter than Pawel play
          'Jan wrote a longer letter than Pawel (did) a play.'
(51)   Václav koupil veˇtsˇí auto nezˇ Tomásˇ lodˇ.   *Czech*
          Václav bought bigger car than Tomás boat
          'Václav bought a bigger car than Tomás (did) a boat.'

2.4 Left branch extractions and attributive CD in Bulgarian and Greek

Greek and Bulgarian do not permit extraction of attributive modifiers

(52)   a.   Poso megalo aftokinito agorase o Petros?   *Greek*
               how big car bought the Petros
         b.   *Poso megalo agorase o Petros aftokinito?
               how big bought the Petros car
               'How big a car did Petros buy?'
(53)   a.   Kolko skipa kola kupi Ivan?   *Bulgarian*
               how expensive car bought Ivan
         b.   *Kolko skipa kupi Ivan kola?
               how expensive bought Ivan car
               'How expensive a car did Ivan buy?'

Attributive CD in Greek cannot target only the DegP in the comparative clause:

(54)   *O Petros agorase ena megalitero aftokinito apoti o Giannis agorase ena dzip.
         the Petros bought a bigger car than+what the Giannis bought a jeep
         '*Petros bought a bigger car than Giannis bought a jeep.'
(55)   *I Anna dhiavase ena megalitero arthro apoti i Roxani dhiavase ena vivlio.
         the Anna read a bigger article than+what the Roxani read a book
         '*Anna read a longer article than Roxani read a book.'

Rudin 1984 shows that Bulgarian obeys the same constraint:

(56)   *Az imam po-goljam apartamen otkolkoto ti imasˇ kusˇta.
         I have bigger apartment than+how-much you have house
         '*I have a bigger apartment than you have a house.'
(57)   *Ivan napisa po-dobar roman otkolkoto Sasˇa napisa drama.
         Ivan wrote better novel than+how-much Sasha wrote play
         '*Ivan wrote a more successful novel than Sasha wrote a play.'

As in English, when something goes, anything goes: Attributive CD is possible if the containing DP or IP is gone ((58)-(59)), or if gapping occurs ((60)).

(58)   O Petros agorase ena megalitero aftokinito apoti agorase o Giannis.
         the Petros bought a bigger car than+what bought the Giannis
         'Petros bought a bigger car than Giannis bought.'
(59)   O Petros agorase ena megalitero aftokinito apoti o Giannis.
         the Petros bought a bigger car than+what the Giannis
         'Petros bought a bigger car than Giannis (did).'
(60)   O Petros agorase ena megalitero aftokinito apoti o Giannis __ ena dzip.
         the Petros bought a bigger car than+what the Giannis a jeep
         'Petros bought a bigger car than Giannis did a jeep.'

Likewise in Bulgarian:

(61)   Az imam po-goljam apartamen otkolkoto ti imasˇ.
         I have bigger apartment than+how-much you have
         'I have a bigger apartment than you have.'
(62)   Ivan napisa po-dobar roman otkolkoto Sasha.
         Ivan wrote better novel than+how-much Sasha
         'Ivan wrote a more successful novel than Sasha (did).'
(63)   Ivan napisa po-dobar roman otkolkoto Sasˇa drama.
         Ivan wrote better novel than+how-much Sasha play
         'Ivan wrote a more successful novel than Sasha (did) a play.'

CONCLUSIONS:
       1.   Constraints on attributive CD and *wh*-extraction of attributive modifiers are the same (so CD involves some kind of *wh*-movement)
       2.   "Bypassing" these constraints with ellipsis is cross-linguistic.

3 The Left Branch Constraint, Ellipsis, and Phonological Form

3.1 The Left Branch Constraint holds at PF, not at LF

The ECP story again: (Corver 1990)

(64)   *Abby wrote a more interesting novel than [Op$_i$ Ben wrote a e$_i$ play]
(65)   *How interesting$_i$ did Ben write a e$_i$ play?

But remember that ellipsis saves:

(66)   Abby wrote a more interesting novel than Ben {expected, wrote, did, ø}.

LF (of the VP-ellipsis case):

(67)   Abby wrote a more interesting novel than [Op$_i$ Ben did **write a e$_i$ novel**]

⊗ But (67) = (64) and (65), wrt the ECP.

/∴ Since the LF isn't the problem, it must be the PF.

PF-FILTER APPROACH
(à la Chomsky and Lasnik's (1977) analysis of *that-trace* effects).

(68)   *$[_{NP} [_{DegP} e] [_{NP} \lambda]]$ where λ is a variable over overt lexical items

Bad because
*   *ad hoc*
*   incorrectly rules out the pseudogapping cases

(69)   a.   Pico wrote a more interesting novel than he did a play.
        b.   Pico wrote a more interesting novel than $[Op_i$ he did $[_{DP}$ a $[_{NP} [_{DegP} e]_i [_{NP}$ play]]]

PF-CRASH APPROACH

Full Interpretation [FI] (Chomsky 1981, 1986, 1995, etc.) requires that every element in a particular interface representation have a representation at that interface.

*   For LF, every expression must have a semantic interpretation
*   For PF, every expression must have a 'phonological value'

"Late-insertion" (Halle and Marantz 1993):
"having a phonological value" = the presence in the lexicon of lexical items instantiating the featural combinations on syntactic objects ((sets of) feature bundles).

Syntax: $\{f_1, ... f_n\} \rightarrow$ Lexicon: LI (lexical item) = $\{f_1, ... f_n\} \rightarrow$ PF: /LI/
*step 1*   *step 2*   *step 3*

'PF-crash' is when step 2 can't be done: The lexicon lacks a LI with $\{f_1, ... f_n\}$

        FI violation at PF: "The PF-interface can't fully interpret $\{f_1, ... f_n\}$."

LEFT BRANCH CONSTRAINT effects arise when a lexicon lacks an LI with a [+wh] feature (passed to LI from the [+wh] DegP).

        $\Rightarrow$ The LBC is in a matter of the lexicon

*   Extraction from an XP proceeds via the highest specifier of XP (Corver 1990, Giorgi and Longobardi 1991, Aissen 1996, multi alii)
    /$\therefore$ Extraction of [+wh] DegP from the attributive position goes through SpecDP (see Hendrick 1990)
*   Spec-head agreement (cf. pied-piping from specifiers; Webelhuth 1992)

(70)
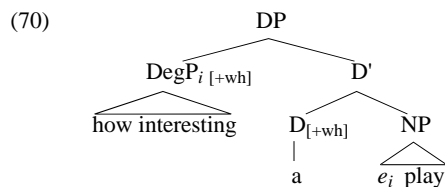
LBC in English: English lacks a [+wh] D⁰.

One way to get rid of the [+wh] feature is to pied-pipe and check it in SpecCP:

(71) $[How interesting_i$ a e_i play$]_j$ did Ben write e_j ?

Consequence:
*   Cross-linguistic variability wrt the LBC (sec.2, see also Ross 1967, Grosu 1974) is located in the lexicons of the particular languages involved.
    -    English, Bulgarian, Greek lack a [+wh] F⁰
    -    Polish and Czech have a [+wh] F⁰

Same story for attributive comparatives

(72)   *Pico wrote a more interesting novel than $[_{CP} Op_i$ Brio wrote $[_{DP} e'_i$ a$_{[+wh]} [_{NP} e_i$ play]]]

Why not pied-pipe?
(73)   *Pico wrote a more interesting novel than [[a play] Brio wrote]
(74)   *The Twins start a more talented infield than [[an outfield] the Sox start]

Answer: Null operators do not pied-pipe lexical material (see Browning 1987, Grosu 1994).

(75)   a.   the editor [to whom Pico gave his novel]
        b.   *the editor [to (that) Pico gave his novel]
(76)   a.   the editor [whose books Pico admires]
        b.   *the editor ['s books (that) Pico admires]

The other way to get rid of the [+wh]...

3.2 Ellipsis is deletion

Resuscitating the pre-80s wisdom (restarted by Tancredi 1992, followed by many others...)
"Deletion" =   1. the complete elimination of a constituent from the representation, or
               2. as an instruction to the PF/morphology interface to forgo lexical insertion (as proposed in Wilder 1995; cf. Wasow 1972, Williams 1977, Fiengo and May 1994).
Ellipsis is the other strategy for avoiding the PF violation underlying LBC effects.

(77)   a.   Pico wrote a more interesting novel than Brio did.
        b.   Pico wrote a more interesting novel than Op_i Brio did write $[e'_i$ a$_{[+wh]}$ e_i novel]

The [+wh]F⁰ doesn't have to be interpreted at PF, because ellipsis has pre-empted lexical insertion:

(78)   Pico wrote a more interesting novel than Op_i Brio did ~~write $[e'_i$ a$_{[+wh]}$ e_i novel]~~

Same in Greek and Bulgarian with comparative "stripping":

(79)   O   Petros agorase ena megalitero aftokinito apoti   o Giannis.   *Greek*
        the Petros bought a   bigger   car   than+what the Giannis-NOM
        'Petros bought a bigger car than Giannis.'

(80)   Ivan napisa po-dobar roman otkolkoto   Sasˇa.   *Bulgarian*
        Ivan wrote better   novel than+how-much Sasha
        'Ivan wrote a more successful novel than Sasha.'

These two elements of the analysis
• The LBC is the result of a FI violation at PF
• Ellipsis lets the lexicon off the hook
account for the first disjunct, from (16):

(81)   *When everything goes, anything goes*
        Comparative deletion in attributive comparatives is possible only if a constituent that
        (properly) contains the targeted AP is also eliminated from the surface representation.

Still no argument for ellipsis = deletion, though.

Other view: Ellipsis is an empty proform in the pre-LF syntax, 'reconstructed' (copied in for) at
LF

(82)   [$_{VP}$ e] etc.   (Chao 1988, Lobeck 1995, Hardt 1993, etc.)

The proform view, plus our account of the LBC, gets (81) as well.
(Kennedy and Merchant 1997, to appear)

Origin site problem (Haïk 1987): The empty ellipsis category is the origin site of moved
elements, *but more than one element can originate inside a null VP*:

(83)   We know what Alex will say to Beth, but we don't know what$_i$ Beth$_j$ will [$_{VP}$ e_j say e_i
        e_k] to Alex$_k$!

4   Pseudogapping and Attributive Modification

4.1 *The puzzle of pseudogapping in attributive CD*

Pseudogapping (Levin 1986)

(84)   a.   I eat pizza, but I don't seafood.
        b.   Abby won't listen to her teachers, but she will to her parents.
        c.   His idea might not seem crazy to you, but it does to me.
        d.   I want to live with a man more than I do with a woman.   [Levin 1986:65]
        e.   Lucy had talked about Hungarian music before Martin did about Bakunin.
        f.   I respect him an awful lot, and I know he does me.   [Levin 1986:84]

A subspecies of VP-ellipsis (Kuno 1981, Jayaseelan 1990, Lasnik 1995, Johnson 1997; cf.
Sag 1976, Levin 1986, Miller 1992 for qualifications)

(85)   I eat pizza, but ...
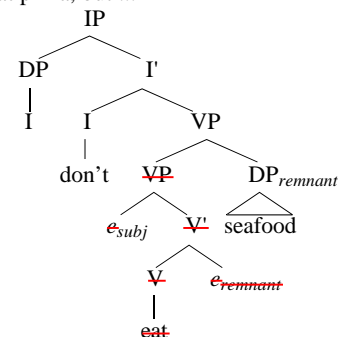
• But then how does *pseudogapping save the day*? (sec. 1.3)

(86)   Abby wrote a more interesting novel than she did a play.
(87)   Erik drives a more expensive car than he does a motorcycle.
(88)   Jones produced as successful a film as she did a play.
(89)   The Sox start a more talented infield than they do an outfield.

Apparent structure:

(90)
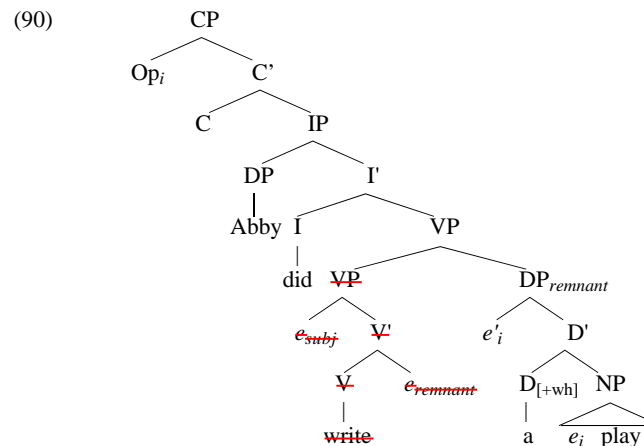
⊗   The [+wh]D^0 has survived! Should be as bad as:

(91)   *Abby wrote a more interesting novel than she wrote a play.

Our account would go through if
    ①   the uninterpretable [+wh] feature introduced by the comparative operator were
          not on D^0, but rather on some other functional head *above* DP, and
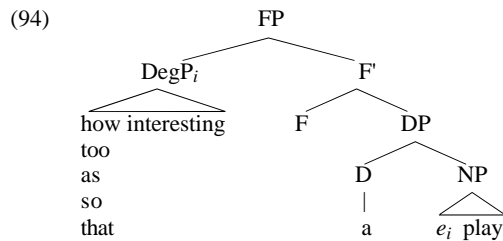   ②   this head *but not DP* were included in the ellipsis site in pseudogapping

4.2 The syntax of attributive modification (final version)

"INVERTED" DEGPS

(Bolinger 1972, Bresnan 1973, Woisetschlaeger 1981, Baker 1989, Corver 1990:318-320, Hendrick 1990)

(92) a. [How interesting a play] did Brio write?
  b. [How tall a forward] did the Lakers hire?
  c. [How old a dresser] did Sheila find at the market?

(93) a. I ate [too big a piece].
  b. If I ever see [that disgusting a movie] again, I'll ask for my money back.
  c. Bob didn't write [as detailed a proposal] as Sheila did.
  d. He took [so big a piece] that he couldn't finish it.

Hypothesis: The landing site of the "inverted" DegP is not SpecDP (see Corver 1990 for arguments against this), but rather something higher: 'FP' (cf. Bennis *et al.* 1998).

(94)

```
              FP
           /      \
       DegPᵢ        F'
      /    \       /   \
how interesting  F     DP
too                   /   \
as                   D     NP
so                   |    /  \
that                 a   eᵢ  play
```

4.3 Three pieces of independent evidence for FP

1 FUNCTIONAL *OF*

F⁰ can sometimes be lexicalized: funtional *of* (cf. *a bear of a guy*)

(95) a. [How long of a novel] did Brio write?
  b. [How tall of a forward] did the Lakers hire?
  c. [How dumb of a guy] is he?

(96) a. I ate [too big of a piece].
  b. If I ever see [that disgusting of a movie] again, I'll ask for my money back.
  c. Bob didn't write [as detailed of a proposal] as Sheila did.
  d. He took [so big of a piece] that he couldn't finish it.

Same restrictions (see Bresnan 1973) on complement of *of* as in regular DegP inversions: **too big (of) those pieces*, **as detailed (of) Bob's proposal*, etc.

An alternative?: Abney 1987:324-325

(97)

```
         DegP
        /    \
      Deg     AP
       |     /   \
      too  big  PP/DP
               /    \
            (of) a house
```
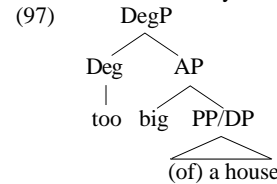
2 PARASITIC ELLIPTICAL ATTRIBUTIVES

An attributive modifier can be caught up in the pseudogapped ellipsis site
The (a) exx = (b) OR (c)

(98) a. I have written a successful play, but you have __ a novel.
  b. I have written a successful play, but you have written a novel.
  c. I have written a successful play, but you have written a successful novel.

(99) a. The Cubs need left-handed pitchers more than they do __ hitters.
  b. The Cubs need left-handed pitchers more than they need hitters.
  c. The Cubs need left-handed pitchers more than they need left-handed hitters.

(100) a. I buy expensive shoes because I don't __ suits.
  b. I buy expensive shoes because I don't buy suits.
  c. I buy expensive shoes because I don't buy expensive suits.

(c) readings of (a) from "attributive DegP ellipsis"?

(101) I have written a successful play,
  but you have [VP written eᵢ] [DP a [NP [DegP successful] [NP novel]]]ᵢ

No, because then the (b) exx should have this too ('wild overgeneration'). "Attributive DegP ellipsis" depends on the VP-ellipsis.

(102) I have written a successful play,
  but you have [VP written [FP [DegP successful]ᵢ F⁰ eⱼ]] [DP a eᵢ novel]ⱼ

3 EVALUATIVE *MAKE*

Evaluative *make* requires an attributive: (*make* requires an FP complement)

(103) a. Peaches make delicious tarts.
  b. #Peaches make tarts.

Except in pseudogapping:

(104) a. Peaches make delicious pies more often than they do __ tarts.
  b. #Peaches make delicious pies more often than they make tarts.
  c. Peaches make delicious pies more often than they make delicious tarts.

(105) Peaches make delicious pies more often than
  they do [VP make [FP [DegP delicious]ᵢ F⁰ eⱼ]] [DP eᵢ tarts]ⱼ

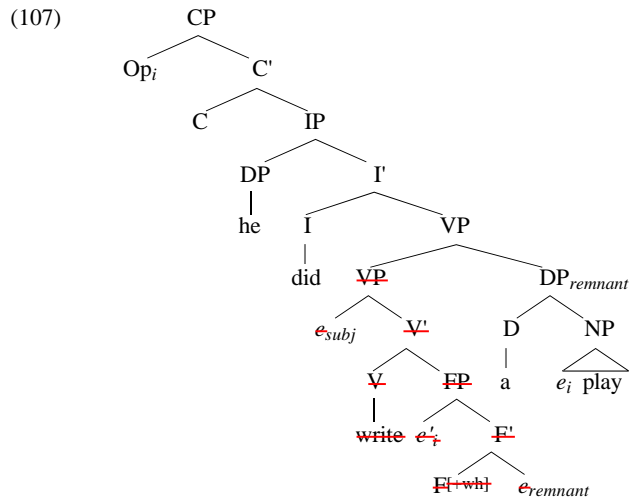### 4.4 The puzzle solved

Claim:
        The locus of Left Branch effects is the PF uninterpretable [+wh] feature on F^0
        (not D^0 [English has *which*, after all])

(106)   Ben wrote a more interesting novel than he did a play.

3 steps to safety:
        1. [+wh] DegP moves to SpecFP, passing its [+wh] to F^0
        2. DP 'scrambles' out of VP (DP is the pseudogapping remnant)
        3. VP-deletion applies

(107)

*   The offending [+wh] F^0 dies a silent death inside the VP

4.4.1 Gapping in attributive CD constructions in Greek and Bulgarian

Same story for other ellipsis operations:

Greek

(108)   *O Petros agorase ena megalitero aftokinito apoti   o   Giannis agorase ena dzip.
        the Petros bought a   bigger   car   than+what the Giannis bought   a jeep
        '*Petros bought a bigger car than Giannis bought a jeep.'
(109)   O Petros agorase ena megalitero aftokinito apoti   o   Giannis __ ena dzip.
        the Petros bought a   bigger   car   than+what the   Giannis   a   jeep
        'Petros bought a bigger car than Giannis did a jeep.'

Bulgarian

(110)   *Ivan napisa po-dobar roman otkolkoto   Sasˇa napisa drama.
        Ivan   wrote better   novel than+how-much Sasha wrote play
        '*Ivan wrote a more successful novel than Sasha wrote a play.'
(111)   Ivan napisa po-dobar roman otkolkoto   Sasˇa __ drama.
        Ivan wrote better   novel than+how-much Sasha   play
        'Ivan wrote a more successful novel than Sasha (did) a play.'

4.4.2 Two final pieces of support

1 ATTRIBUTIVES ON PREDICATE NOMINALS

Bresnan 1975 (contra the movement analysis): No ellipsis?

(112)   George is as phony a hatcheck girl as Mildred is a bouncer.
(113)   Damon is a better lobsterman than he is a cook.

Q: Why no Left Branch effects here?
A: These are pseudogapping in disguise

*   Auxiliary reduction as a test for ellipsis

VP-deletion blocks auxiliary reduction (contraction) to its immediate left (King 1970, Baker 1971, Hankamer and Sag 1976):

(114)   a.   Martin won't drive, but I {*'ll / will}.
        b.   Billy's leaving today, and Mildred {*'s / is} tomorrow.

Such reduction *is* perfectly possible before predicate nominals:
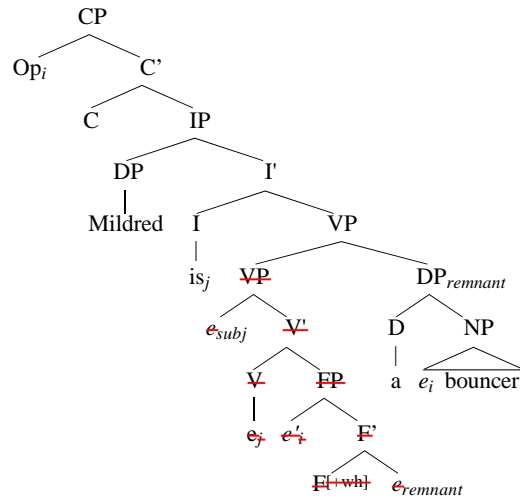
(115)   George is a dog-catcher, and Mildred's a bouncer.

By this reasoning, (112) and (113) must have ellipsis:

(116)   *George is as phony a hatcheck girl as Mildred's a bouncer.
(117)   *Damon is a better lobsterman than he's a cook.

V-to-I in English → "string vacuous pseudogapping".
(Cf. McCloskey 1991 for Irish, Doron 1990 for Hebrew, Potsdam 1996)

(118)

If V-to-I is blocked, then VP-ellipsis didn't happen, so we should see the LBC again:

(119)　*George is as phony a hatcheck girl as Mildred seems to be a bouncer.

(120)　*Damon wants to be a better lobsterman than he wants to be a cook.

2 'PREDICATIVE' RESTRICTION IN ELLIPTICAL ATTRIBUTIVES AND EVALUATIVE *MAKE*

DP in comparative heads and comparative remnant pseudogapping must be 'predicative' (indefinite singular, bare plural) (Bresnan 1973):

(121)　a.　Abby wrote {a/*every/*most} better novel(s) than Ben did.
　　　　b.　Abby wrote a better novel than Ben did {a/*five/*the/*that/*every} play(s).

Same restriction shows up in the other cases we've posited FP for:

(122)　a.　I have written a successful play, but you have ___ 10 novels.
　　　　b.　The Cubs need a left-handed pitcher more than they do ___ the hitter being offered by St. Louis.
　　　　c.　[staring at a very expensive Italian suit in a shop window] I bought expensive shoes because I didn't ___ that suit.
　　　　[Ie., these examples lack the elliptical attributive reading found above]

(123)　That bouquet will make {a/*the/*that} pretty centerpiece.

4.4 Summary

REVISED GENERALIZATION:

(124)　WHEN SOMETHING GOES, ANYTHING GOES

Comparative deletion in attributive comparatives is possible only if
1.　a constituent that (properly) contains the targeted AP is also eliminated from the surface representation, or
2.　pseudogapping has also applied.

- Disjunct 1 follows from
  - LBC as FI violation at PF
  - Ellipsis as PF-deletion
- Disjunct 2 reduces to disjunct 1 because
  - DegP operator extraction goes via SpecFP
  - FP stays behind (in the deleted VP) in pseudogapping

(124) is explained in terms of the interaction of three independent components of the grammar: Full Interpretation, principles of ellipsis, and the syntax of attributive modification.

5　Conclusions

On the empirical/analytical side:

1. There is a correlation between left-branch extractions in interrogatives and the acceptability of attributive comparative deletion constructions.

2. Languages in which left-branch extractions are impossible can "bypass" this constraint by eliding a constituent that includes the extraction site.

3. There's more to attributive modification than meets the eye: there must be a layer of structure above the DP to host attributive DegPs in certain circumstances.

On the theoretical side:

1. LBC is a PF-effect:　Certain languages lack lexical items able to realize [+wh]F (Cross-linguistic variation is located in the [functional] lexicon)

2a. Ellipsis is deletion at PF (there's syntax in the silence)

2b. Ellipsis *cannot* involve just the recovery of a VP meaning (as in e.g. Dalrymple et al. 1991, Hardt 1993, Jacobson 1992).

References

Abney, Steven. 1987.*The English Noun Phrase in its Sentential Aspect*. Doctoral dissertation, MIT.
Aissen, Judith. 1996. Pied-piping, abstract agreement, and functional projections in Tzotzil. *NLLT* 14: 447-491.
Baker, C. Lee. 1971. Stress level and auxiliary behavior in English. *Linguistic Inquiry* 2.2:167-182.
Baker, C. Lee. 1989. *English Syntax*. Cambridge: MIT Press.

Bennis, Hans, Norbert Corver, and Marcel den Dikken. 1998. Predication in nominal phrases. *The Journal of Comparative Germanic Linguistics* 1.2:85-117.

den Besten, Hans. 1978. On the presence and absence of *wh*-elements in Dutch comparatives. *Linguistic Inquiry* 9.4:641-672.

Bierwisch, Manfred. 1989. The semantics of gradation. In M. Bierwisch and E. Lang (eds.), *Dimensional adjectives: Grammatical structure and conceptual interpretation.* Berlin: Springer.

Bolinger, Dwight. 1972. *Degree Words.* The Hague: Mouton.

Bresnan, Joan. 1972. Theory of complementation in English syntax. PhD dissertation, MIT.

Bresnan, Joan. 1973. Syntax of the comparative clause construction in English. *Linguistic Inquiry* 4:275-343.

Bresnan, Joan. 1975. Comparative deletion and constraints on transformations. *Linguistic Analysis* 1.1:25-74.

Browning, Marguerite. 1987. *Null operator constructions.* Doctoral dissertation, MIT.

Chao, Wynn. 1987. *On ellipsis.* Doctoral dissertation, UMass Amherst.

Chomsky, Noam. 1965. *Aspects of the Theory of Syntax.* Cambridge: MIT Press.

Chomsky, Noam. 1977. On *wh*-movement. In P. Culicover et al. (eds.), *Formal Syntax.* Academic Press: New York.

Chomsky, Noam. 1981. *Lectures on government and binding.* Foris: Dordrecht.

Chomsky, Noam. 1986. *Knowledge of language.* Praeger: New York.

Chomsky, Noam. 1995. *The Minimalist Program.* Cambridge: MIT Press.

Chomsky, Noam and Howard Lasnik. 1977. Filters and control. *Linguistic Inquiry* 8.3.

Cinque, Guglielmo. 1993. Paper on attributive adjectives. Ms.

Corver, Norbert. 1990. *The Syntax of Left Branch Constructions.* Doctoral dissertation, Tilburg University.

Corver, Norbert. 1997. *Much*-support as a last resort. *Linguistic Inquiry* 28:119-164.

Dalrymple, Mary, Stuart Shieber, and Fernando Pereira. 1991. Ellipsis and Higher Order Unification. *Linguistics and Philosophy* 14:399-452.

Doron, Edit. 1990. V-movement and VP-ellipsis. Ms., The Hebrew Univ. of Jerusalem.

Fiengo, Robert, and Robert May. 1994. *Indices and Identity.* Cambridge: MIT Press.

Gawron, J-M. 1995. Comparatives, superlatives, and resolution. *Linguistics & Philosophy* 18:333-380.

Giorgi, Alessandra and Giuseppe Longobardi. 1991. *The syntax of noun phrases.* Cambridge: CUP.

Grimshaw, Jane. 1991. Extended projection. Ms., Brandeis University.

Grosu, Alexander. 1974. On the nature of the left branch condition. *Linguistic Inquiry* 5.2:308-319.

Grosu, Alexander. 1994. *Three Studies in Locality and Case.* London: Routledge.

Haïk, Isabelle. 1987. Bound VPs that need to be. *Linguistics and Philosophy* 10:503-530.

Halle, Morris and Alec Marantz. 1993. Distributed morphology. In S. Keyser (ed.) *The view from Building 20.* Cambridge, Ma.: MIT Press.

Hankamer, Jorge. 1971. Constraints on deletion in syntax. Doctoral dissertation, Yale University.

Hankamer, Jorge and Ivan Sag. 1976. Deep and surface anaphora. *Linguistic Inquiry* 7:391-426.

Hardt, Daniel. 1993. *Verb Phrase Ellipsis: Form, Meaning, and Processing.* PhD thesis, UPenn.

Hazout, Ilan. 1995. Comparative ellipsis and Logical Form. *NLLT* 13:1-37.

Heim, Irene. 1985. Notes on comparatives and related matters. Ms., University of Texas, Austin.

Hendrick, Randall. 1990. Operator movement in NP. In *WCCFL 9.* Stanford: CSLI Publications.

Hendriks, Petra. 1995. *Comparatives in categorial grammar.* PhD dissertation, Univ. Groningen.

Hendriks, Petra and Helen de Hoop. 1998. On the interpretation of semantic relations in the absence of syntactic structure. University of Groningen Cog. Science and Engineering Prepublications 1998-3.

Izvorski, Roumyana. 1995. A solution to the subcomparative paradox. In *The Proceedings of WCCFL XIV.* Stanford: CSLI Publications.

Jacobson, Pauline. 1992. ACD in a variable free semantics. In *Proceedings of SALT II.* 193-213. Ohio State University, Columbus, OH.

Jayaseelan, K.A. 1990. Incomplete VP deletion and gapping. *Linguistic Analysis* 20:64-81.

Johnson, Kyle. 1997. When verb phrases go missing. Ms., UMassachusetts, Amherst.

Kennedy, Christopher. 1997. *Projecting the adjective: The syntax and semantics of gradability and comparison.* Doctoral dissertation, University of California, Santa Cruz.

Kennedy, Christopher. To appear. Local dependencies in comparative deletion. In *The Proceedings of WCCFL 17.* Stanford: CSLI Publications.

Kennedy, Christopher and Jason Merchant. 1997. Attributive comparatives and bound ellipsis. Linguistics Research Center report LRC-97-03, University of California, Santa Cruz.

Kennedy, Christopher and Jason Merchant. To appear. Attributive comparatives and the syntax of ellipsis. In F. Corblin, C. Dobrovie-Sorin, and J-M. Marandin (eds.) *Proceedings of Colloque de Syntaxe et Sémantique de Paris 2.* Paris: Peter Lang.

Kester, Ellen-Petra. 1996. *The nature of adjectival inflection.* Doctoral dissertation, UUtrecht.

King, Harold. 1970. On blocking the rules for contraction in English. *LI* 1:134-136.

Klein, Ewan. 1980. A semantics for positive and comparative adjectives. *Linguistics and Philosophy* 4:1-45.Klein, Ewan. 1991. Comparatives. In von Stechow, A. & D. Wünderlich (eds.) *Semantik: Ein internationales Handbuch der zeitgenössischen Forschung.* Berlin: Walter de Gruyter.

Kuno, Susumo. 1981. The syntax of comparative clauses. *Proceedings of the CLS 17.*

Larson, Richard. 1988. Scope and comparatives. *Linguistics and Philosophy* 11:1-26.

Lasnik, Howard. 1995. A note on pseudogapping. *MIT Working Papers in Linguistics 27*:143-163.

Lees, Robert. 1961. Grammatical analysis of the English comparative construction. *Word* 17.2:171-185.

Lerner, Jean-Yves & Manfred Pinkal. 1995. Comparative ellipsis and variable binding. In *The Proceedings of SALT 5.* Ithaca: Cornell Linguistics Club Publications.

Levin, Nancy. 1986. *Main-verb ellipsis in spoken English.* New York: Garland. (Doctoral dissertation, Ohio State University, 1979.)

Lobeck, Anne. 1995. *Ellipsis: Functional Heads, Licensing, and Identification.* Oxford: OUP.

McCawley, James. 1988. *The syntactic phenomena of English.* Chicago: Univ. of Chicago Press.

McCloskey, James. 1991. Clause structure, ellipsis, and proper government. *Lingua* 85:259-302.

Miller, Philip. 1992. *Clitics and Constituent in Phrase Structure Grammar.* New York: Garland. (UUtrecht dissertation, 1991.)

Moltmann, Friederike. 1992. *Coordination and Comparatives.* Doctoral dissertation, MIT.

Pilch, Herbert. 1965. Comparative constructions in English. *Language* 41:37-58.

Pinkham, Jesse. 1982. *The Formation of Comparative Clauses in French and English.* Doctoral dissertation, Indiana University.

Potsdam, Eric. 1996. *Syntactic issues in the English imperative.* PhD thesis, Univ. California, Santa Cruz.

Ross, John R. 1967. *Constraints on variables in syntax.* Doctoral dissertation, MIT.

Rudin, Catherine. 1984. Comparing comparatives. In Drogo, Joseph, Veena Mishra, and David Tester (eds.), *CLS 20:* 334-343.

Rullmann, Hotze. 1995. *Maximality in the semantics of WH-constructions.* Doctoral dissertation, University of Massachusetts at Amherst.

Sag, Ivan. 1976. *Deletion and logical form.* Doctoral dissertation, MIT.

Svenonius, Peter. 1992. The structural location of the attributive adjective. In Erin Duncan, Donka Farkas, and Philip Spaelti (eds.), *Proceedings of WCCFL 11*: Stanford: CSLI.

von Stechow, Arnim. 1984. Comparing semantic theories of comparison. *JSemantics* 3:1-77.

Tancredi, Chris. 1992. *Deletion, deaccenting, and presupposition.* Doctoral dissertation, MIT.

Wasow, Thomas. 1972. *Anaphoric Relations in English.* Doctoral dissertation, MIT.

Webelhuth, Gert. 1992. *Principles and parameters of syntactic saturation.* OUP: Oxford.

Wilder, Chris. 1995. On some properties of ellipsis in coordination. *Geneva Generative Papers* 2.2:23-61.

Williams, Edwin. 1977. Discourse and logical form. *Linguistic Inquiry* 8:101-139.

Woisetschlaeger, Erich. 1981. A note on the autonomy of syntax. *Journal of Linguistic Research* 1:55-70.