Barking up the Wrong Tree

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Extraposition in English can have semantic effects


(1) a. * M. thinks that [NP the extraposition transformation which has the slightest effect on LF] hasn’t been found yet.
   b. M. thinks that [NP the extraposition transformation ___] hasn’t been found yet which has the slightest effect on LF.
Extraposition in German

Complement clauses:

(2) Peter hat eine Frau ___ gebeten, [\textsc{arg} das Buch zu lesen].

Relative clauses:

(3) Peter hat [eine Frau ___ ] getroffen, [\textsc{rc} die er nicht kannte].

Comparative clauses:

(4) Peter hat [mehr ___ Frauen] gegrüßt, [\textsc{comp} als ich].
Sharply diverging analyses, even within the same framework

<table>
<thead>
<tr>
<th>Author</th>
<th>Mechanism</th>
<th>Attachment</th>
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<tbody>
<tr>
<td>Haider (2013)</td>
<td>base generation</td>
<td>low</td>
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<td>Büring &amp; Hartmann (1997)</td>
<td>A-bar movement</td>
<td>high</td>
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<tr>
<td>Bayer (1997)</td>
<td>A-movement</td>
<td>high</td>
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<td>Inaba (2007)</td>
<td>ARG: base generation</td>
<td>low</td>
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<tr>
<td></td>
<td>RC: PF-movement</td>
<td>low</td>
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Additional mechanisms:

- Haider: mysterious head, pseudocomplements, $\theta$-marking without grammatical relation: $[_{VP} \ldots V [\ldots h^0 \ldots ] ]$
- Bühring & Hartmann: reconstruction
- Bayer: trace deletion
- Inaba: PF-movement, downward movement, movement that breaks up constituents.
Questions and goal of the talk

Questions:

- Why has it been so difficult to agree on the mechanism that licenses EX to the right of the verb in the tree? (Base generation vs. A-mvt. vs. A-bar mvt. vs. PF-mvt.)
- Why has it been so difficult to agree on the height of attachment of EX in the tree? (High vs. low)
- Why do all the approaches require “repair” mechanisms of one sort or another? (mysterious heads, trace deletion, reconstruction)
- Why does EX violate constraints on (leftward) movement?

Goal of the talk: to show that all of these mysteries and problems immediately disappear under an HPSG analysis that had already been published before the works reviewed above.
Properties of German EX that need to be captured

1. EX behaves differently from (leftward) movement.
2. EX can be optional or obligatory.
3. EX is possible not only within VP, but also within NP and PP.
4. EX is possible out of NP and PP.
5. More than one constituent can be EX’ed and their order may be flexible.
6. EX does not appear to affect scope or binding.
German EX as pure linearization

Reape (1994)
Kathol (2001)
Phrase Structure and Grammatical Relations

German EX as pure linearization

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German EX as pure linearization

Topology and Linear Form

\[
\begin{align*}
\text{VP} & \quad \text{DOM} \langle 1 [\text{ein Haus}], \text{VC} [\text{bauen will}] \rangle \\
\text{NP} & \quad \text{DOM} \langle 1 [\text{ein Haus}] \rangle \\
\text{V} & \quad \text{DOM} \langle \text{VC} [\text{bauen will}] \rangle
\end{align*}
\]

\text{ein Haus}

\text{bauen will}
German EX as pure linearization

Topology and Linear Form

\[
\begin{align*}
S &= \text{DOM} \left\langle 1 \text{ sie}, \text{vc} \left[ \text{vorgeschlagen hat}, \text{ex} \left[ \text{dass wir tanzen gehen} \right] \right] \right\rangle \\
\text{NP} &= \text{DOM} \left\langle 1 \text{ sie} \right\rangle \\
\text{VP} &= \text{DOM} \left\langle \text{vc} \left[ \text{vorgeschlagen hat}, \text{ex} \left[ \text{dass wir tanzen gehen} \right] \right] \right\rangle \\
\text{CP[EXTRA]} &= \text{DOM} \left\langle \text{ex} \left[ \text{dass wir tanzen gehen} \right] \right\rangle \\
\text{V} &= \text{DOM} \left\langle \text{vc} \left[ \text{vorgeschlagen hat} \right] \right\rangle
\end{align*}
\]

dass wir tanzen gehen

vorgeschlagen hat

Webelhuth (Frankfurt)

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1a. EX behaves differently from (leftward) movement

Leftward movement is more constrained than EX:

Leftward movement vs. EX from adjuncts (Haider):

(5) a. Er hat \([_{ADJUNCT} öfter als ich]\) gewonnen.
   
   \(he has\) \(more frequently than me\) \(won\)
   
   ‘He won more frequently than I did’

b. * [Als ich]ₖ hat er \([_{ADJUNCT} öfter \____ₖ]\) gewonnen.
   
   than me \(has he\) \(more frequently\) \(won\)

   \(FILLER\)-\(GAP\)

   c. Er hat \([_{ADJUNCT} öfter \____ₖ]\) gewonnen, [als ich]ₖ.
   
   \(he has\) \(more frequently\) \(won\) than \(I\)
2. EX can be optional or obligatory

The Verb *stimmen* ("be true") takes an optional expletive subject *es* ("it").

Without *es*: EX is optional:

(6) a. ? weil \[\text{ARG dass Ellen kommt]} \text{stimmt.}

   \text{bec. that Ellen comes is true}

b. ? weil \[\text{\_k stimmt [ARG dass Ellen kommt]}_k.}

   \text{bec. is true that Ellen comes}

   ‘because it is true that Ellen ’

\[
\text{stimmt: } \left[ \text{ARG-ST} \left[ \begin{array}{c} \text{POS} \\ \text{EXTRA} \\ \text{CP} \end{array} \right] \text{bool} \right]
\]
2. EX can be optional or obligatory

The Verb *stimmen* ("be true") takes an optional expletive subject *es* ("it").

When *es* is present, then EX is obligatory:

    bec. it that Ellen comes is true

b. weil es ___k stimmt [ARG dass Ellen kommt].
    bec. it is true that Ellen comes

‘because it is true that Ellen’

\[
stimmt: \left[ \begin{array}{l}
\text{ARG-ST} \\
\text{FORM} \quad \text{es}
\end{array} \right], \left[ \begin{array}{l}
\text{POS} \\
\text{NP}
\end{array} \right], \left[ \begin{array}{l}
\text{POS} \\
\text{CP}
\end{array} \right]
\]
3. EX is possible not only within VP, but also within NP and PP

The topological structure of NPs:
4. EX is possible out of NP and PP

(8) Ich habe [\text{n} \text{P} \text{ } \text{das Buch } \text{k}] \text{ gelesen}, [\text{R} \text{C} \text{ } \text{das } \text{ich gekauft habe}].

*I have the book read which I bought*

‘I read the book that I bought.’
4. EX is possible out of NP and PP

1b. EX behaves differently from (leftward) movement

EX is more constrained than leftward movement:

Leftward movement can leave the clause:

(9) \[ \text{Wen}_k \text{ glaubst du, } [\text{CP dass ich gerade } \underline{\_}_k \text{ getroffen habe}]. \]
\[ \text{Who believe you that I just met have} \]

EX cannot leave the clause (Right Roof Constraint):

(10) \[ [\text{CP Dass ich } \underline{\_}_k \text{ wusste } [\text{CP dass Petra kommt}]_k] \text{ ist irrelevant.} \]
\[ \text{that I knew that Petra comes is irrelevant} \]
\[ \text{‘It is irrelevant that I knew that Petra would come’} \]

(11) \* \[ [\text{CP Dass ich } \underline{\_}_k \text{ wusste}] \text{ ist irrelevant } [\text{CP dass Petra kommt}]_k. \]
\[ \text{that I knew is irrelevant that Petra comes} \]
\[ \text{‘It is irrelevant that I knew that Petra would come’} \]
The Right Roof Constraint:

Dependent clauses contribute a single domain element to their mother’s domain.

(12) \[ \text{Dass ich } \underline{\text{k}} \text{ wusste dass Petra kommt}]_k \text{ ist irrelevant].} \\
\text{that I knew that Petra comes is irrelevant} \\
\text{‘It is irrelevant that I knew that Petra would come’} \\

(13) * \[ \text{Dass ich } \underline{\text{k}} \text{ wusste] ist irrelevant dass Petra kommt}]_k].} \\
\text{that I knew is irrelevant that Petra comes} \\
\text{‘It is irrelevant that I knew that Petra would come’}
5. More than one constituent can be EX’ed and their order may be flexible

Relative and argument clauses [Wiltschko (1993-94, p. 16)]:

(14) Peter hat eine Frau gebeten, [\text{ARG} das Buch zu lesen], [\text{RC} die er nicht kannte].

(15) Peter hat eine Frau gebeten, [\text{RC} die er gar nicht kannte] [\text{ARG} das Buch zu lesen].
5. More than one constituent can be EX’ed and their order may be flexible
6. EX does not appear to affect scope or binding

Variable binding:

(16) weil wir jedem\(_k\) [\text{NP} die Daten \(t_j\)] gegeben haben, [\text{CP} die \(\text{er}_k\) braucht],

*because we everybody the data given have that he needs*

‘because we gave everybody the data that he needs’

(17) * weil [ein Mann \(t_j\)] jedes Datum\(_k\) kennt [\text{CP} [\text{der es}_k braucht]_j

*because a man every data knows who it needs*

‘because a man who needs it knows every piece of data’

B&H (1997:16)
7. EX does not appear to affect scope or binding

[Diagram of syntactic structure with German text annotations]
German EX as pure linearization

7. EX does not appear to affect scope or binding

\[
S = \left[ \text{DOM} \left[ \begin{array}{c}
\text{ein Mann}, \\
\text{jedes Datum}, \\
\text{kennt}, \\
\text{ex}[\text{der es braucht}]
\end{array} \right] \right]
\]

\[
\text{NP[NOM]} = \left[ \text{DOM} \left[ \begin{array}{c}
\text{ein}, \\
\text{Mann}, \\
\text{ex}[\text{der es braucht}]
\end{array} \right] \right]
\]

\[
\text{ein Mann} + \left[ \text{RC} \text{ der es} \text{k braucht} \right]
\]

\[
\text{VP} = \left[ \text{DOM} \left[ \begin{array}{c}
\text{jedes}, \\
\text{Datum}
\end{array} \right] \right]
\]

\[
\text{NP[Acc]}_k = \left[ \text{DOM} \left[ \begin{array}{c}
\text{kennt}
\end{array} \right] \right]
\]

\[
\text{jedes Datum}
\]

\[
\text{V} = \text{kennt}
\]
Important contrast: gap filling **does** affect binding

(18) * Wahrscheinlich möchte sie\(_k\) ___ um die Welt reisen, bevor Johanna\(_k\) 18 Jahre alt wird.  

‘Probably, she wants to travel around the world before Johanna turns 18 years old.’

(19) Bevor Johanna\(_k\) 18 Jahre alt wird, möchte sie\(_k\) ___ um die Welt reisen.  

‘Before she turns 18 years old, she wants to travel around the world.’
Evaluation
Empirical Evaluation

Properties of German EX that need to be captured:

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Conceptual Evaluation

Comparison of the mechanisms used by the different theories:

The linear theory:
- Linear categories
- lists and simple list operations
- local trees.

The phrase structure theories:
- mystery heads
- pseudocomplements
- trace deletion
- reconstruction
- downward movement
- movement that breaks up constituents.
Returning to the questions from the beginning

Questions:
- Why has it been so difficult to agree on the mechanism that licenses EX to the right of the verb in the tree? (Base generation vs. A-mvt. vs. A-bar mvt. vs. PF-mvt.)
- Why has it been so difficult to agree on the height of attachment of EX in the tree? (High vs. low)
- Why do all the approaches require “repair” mechanisms of one sort or another? (mysterious heads, trace deletion, reconstruction)
- Why does EX violate constraints on (leftward) movement?

Answer: because German EX is not a tree-building operation, but rather an operation of pure linearization à la Kathol & Pollard (1995).

Morals of story:
1. Using trees as the only data structure in syntax makes you bark up the wrong tree when trying to analyze German EX.
2. Ivan and Carl have given us a framework with more flexible data structures than just trees and Carl and Andreas Kathol have formulated a practically perfect theory of German EX within that framework!
So.

To my many Minimalist friends out there.

Here is, how not to do it:
1) Identify the right tree
2) Find another tree
(it must not be the right one)
3) Bark up the wrong tree
If you don’t follow that advice, then the following may happen to you:
“Damn, I shoulda listened to Ivan and Carl!”
Back to the book on rightward movement.
With gratitude and admiration, we would like to dedicate this book to Ivan Sag, our teacher, our role model, and friend.

Gert Webelhuth, Manfred Sailer & Heike Walker
Thank you!