Against lexical decomposition in syntax

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joint work with Reinhard Blutner

Outline of Talk
1. The puzzles of German wieder ('again')
2. Arguments against a decomposition analysis
3. Bidirectional OT
4. Towards an explanation
The puzzles of *wieder* (‘again’)

First puzzle
- Modification of a transformational predicate with *again* results in a systematic ambiguity between a **repetitive** (cf. (1b)) and a **restitutive** (cf. (1c)) reading.

(1) a. John opened the window again.
   b. John again performed the action of opening the window.
   c. John brought it about that again the window is open.

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Basic syntactic assumptions
- SOV
- Adverbs attach to VP
- unmarked intonation according to CSR
- objects may be scrambled out of VP

```
  VP
  /\  
 Adv  VP
     /\  
    NP  V
```

```
  VP
  /\  
 NP_i  VP
     /\  
    Adv  VP
         /\  
        t_i  V
```
**Second puzzle**

- Disambiguation by word order and intonation in German (Fabricius-Hansen 1983)
- Descriptive generalizations:
  1. object *in situ* ⇒ repetitive reading
  2. unmarked intonation ⇒ restitutive reading
  3. main accent on adverb ⇒ repetitive reading

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(2) a. *(weil)* John wieder das *Fenster* öffnete
   
   John again the *window* opened

b. *(weil)* John *wieder* das Fenster öffnete
   
   John *again* the window opened *(repetitive)*

c. *(weil)* John das Fenster *wieder* öffnete
   
   John the window again *opened* *(restitutive)*

d. *(weil)* John das Fenster *wieder* öffnete
   
   John the window *again* opened *(repetitive)*
Decomposition analyses: Scope ambiguity

\[
S \\
\quad \text{AGAIN} \\
\quad S \\
\quad \text{NP} \\
\quad \quad \text{John} \\
\quad \text{VP} \\
\quad \quad \text{CAUSE} \\
\quad \text{V} \\
\quad \text{S} \\
\quad \quad \text{BECOME} \\
\quad \text{V} \\
\quad \text{S} \\
\quad \quad \text{NP} \\
\quad \quad \text{the window} \\
\quad \text{V} \\
\quad \text{open}
\]

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von Stechow 1996:

- Scope is mirrored in word order

Does Decomposition do the job?

- If the ambiguity is due to different scopes of *again*, we expect scopal interaction with quantifiers.
- At a first glance, this seems to be born out:

  (3) a. John opened a window again
      b. \( \text{CAUSE}(p, \text{BECOME}(\text{again}(\exists x (\text{window}(x) \land \text{open}(x)))))) \)
      c. \( \text{again}(\exists x (\text{window}(x) \land \text{CAUSE}(p, \text{BECOME}(\text{open}(x)))))) \)
      d. \( \exists x (\text{window}(x) \land \text{CAUSE}(p, \text{BECOME}(\text{again}(\text{open}(x)))))) \)
      e. \( \exists x (\text{window}(x) \land \text{again}(\text{CAUSE}(p, \text{BECOME}(\text{open}(x)))))) \)
• Things become more involved with “control” accomplishments, i.e. accomplishments where agent and theme are necessarily identical

(4) a. Some delawares settled in New Jersey again
   b. $\exists x (\text{DELAWARE}(x) \land \text{CAUSE}(x, \text{BECOME}(\text{LIVE\_IN}(x, \text{NJ}))))$

   + AGAIN

• Critical reading of (4) only presupposes that some delawares used to live in NJ — not necessarily those that are about to settle there now.

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Assertion

$\exists x (\text{DELAWARE}(x) \land \text{CAUSE}(x, \text{BECOME}(\text{LIVE\_IN}(x, \text{NJ}))))(i))$

Presupposition

$\exists j < i \exists x (\text{DELAWARE}(x) \land \text{LIVE\_IN}(x, \text{NJ}))(j)$
\[ \exists x \text{DELAWARE}(x) \text{ occurs twice } \Rightarrow \\
\text{AGAIN} \gg \text{SUBJ} \]

- Since some delawares binds the subject argument place of CAUSE:
  \[ \text{SUBJ} \gg \text{CAUSE} \]
- Since we are dealing with a restitutive reading:
  \[ \text{CAUSE} \gg \text{AGAIN} \]

**Scope Paradox!**

1. *again* always takes scope over BECOME and CAUSE
2. the meaning of restitutive *again* contains the inverse of BECOME, call it RESULT

**Repetitive again:**
\[ (5) \ \lambda P, i. P(i) : \exists j < i(P(j)) \]

**Restitutive again:**
\[ (6) \ \lambda P, i. P(i) : \exists j < i(\text{RESULT}(P)(j)) \]
• critical reading of (4) comes out as

\[
\lambda i. \exists x (\text{DELAWARE}(x) \land \text{SETTLE.In}(i, x, \text{NJ})) :
\]

\[
\exists j < i (\text{RESULT}(\lambda i. \exists x (\text{DELAWARE}(x) \land \text{SETTLE.In}(i, x, \text{NJ}))(j))
\]

\[
= \lambda i. \exists x (\text{DELAWARE}(x) \land \text{SETTLE.In}(i, x, \text{NJ})) :
\]

\[
\exists j < i \exists x (\text{DELAWARE}(x) \land \text{LIVE.In}(j, x, \text{NJ}))
\]

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**Deblocking effects**

(8) Maria assumed the name of her husband again

• repetitive/restitutive ambiguity

• strict/sloppy ambiguity (from von Stechow 1996): presupposition refers to current or past husband

• Now object scrambling makes a difference in meaning
(9) a. (weil) Maria wieder den Namen ihres Mannes annahm
   M. AGAIN THE NAME OF HER husband ASSUMED (sloppy, rest.)

b. (weil) Maria wieder den Namen ihres Mannes annahm
   M. again THE NAME OF HER husband ASSUMED (sloppy, rep.)

c. (weil) Maria den Namen ihres Mannes wieder annahm
   M. THE NAME OF HER husband AGAIN assumed (strict, rest.)

d. (weil) Maria den Namen ihres Mannes wieder annahm
   M. THE NAME OF HER husband again assumed (strict, rep.)

Generalization:

• Scrambling is preferred unless
  ○ it makes a difference in meaning
  ○ it tears apart a presupposed constituent
Optimality Theory: The basic picture

- Set of ranked and violable constraints induces a (partial) well-founded ordering of the candidate set
- A candidate is grammatical iff it is minimal in this ordering

Blocking and Deblocking in standard OT

Blocking  Deblocking

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Application to syntax/semantics interface

- In phonology/morphology, OT takes the speaker perspective
- applied to syntax/semantics, this means:
  1. Candidate set **GEN** is given by compositional (underspecified) semantics
  2. A form/meaning pair may be blocked by a better form for the same meaning, but not the other way round

Bidirectional OT

- Blocking/deblocking on the syntactic side well-attested, cf.
  (10) a. We had chicken for dinner
     b. *We had pig for dinner
     c. We had pork for dinner

- However, (de-)blocking on the semantic side as well:
  (11) a. I am on the street ⇒ “I” = speaker
     b. I am parked around the corner ⇒ “I” = speaker’s car

*Both speaker perspective and hearer perspective are necessary*
Reconciling the perspectives

Definition 1 (Optimality)

\( \langle \pi, \lambda \rangle \) is optimal iff

1. \( \langle \pi, \lambda \rangle \in \text{GEN} \),
2. there is no optimal \( \langle \pi', \lambda \rangle < \langle \pi, \lambda \rangle \), and
3. there is no optimal \( \langle \pi, \lambda' \rangle < \langle \pi, \lambda \rangle \).

Theorem 1 If “<” is transitive and well-founded, then there is a unique optimality relation.

- This notion of bidirectional optimality provably coincides with Blutner’s 1998; 1999 notion
Algorithm

\[ OPT = \emptyset; \]
\[ BLCKD = \emptyset; \]

\[ \text{while } (OPT \cup BLCKD \neq \text{GEN}) \{ \]
\[ OPT = OPT \cup \{ x \in \text{GEN} - BLCKD | \forall y < x : y \in OPT \cup BLCKD \}; \]
\[ BLCKD = BLCKD \cup \{(\pi, \lambda) \in \text{GEN} - OPT | \]
\[ (\pi', \lambda) \in OPT \lor (\pi, \lambda') \in OPT \}; \]
\[ \} \]
\[ \text{return } (OPT); \]
Towards an explanation

- Four constraints play a role:
  1. **ACC**: Avoid Accommodation! (van der Sandt 1992)
  2. **SCR**: Definites scramble! (folk.)
  3. **DOAP**: Do not overlook anaphoric possibilities! (Williams 1997)
  4. **GIVEN**: Deaccented material must be given! (Schwarzschild 1999)

- *ACC* favors restitutive readings since their presupposition is weaker.
- With repetitive interpretation, **DOAP** favors accent on *wieder*
- With restitutive interpretation, **GIVEN** favors accent according to CSR
- With restitutive reading, **SCR** favors object scrambling
- With repetitive reading, **SCR** favors and **DOAP** disfavors scrambling ⇒ no preference
- If strict/sloppy-ambiguity obtains, no competition between object *in situ* and scrambled
Summary

- Structural/decompositional analysis of *wieder* not viable because:
  - Scope paradox
  - Deblocking effects
- Instead:
  - Lexical ambiguity (maybe underspecification)
  - OT-based account of disambiguation effects
References