A Constraint-based Approach to Impersonal Middles

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1 Introduction

■ Goals:
  • to propose a constraint-based analysis of the middles within the Two-Level Linking Theory (TLLT) developed in Ryu (1996a, 1996b, 1997)
  • to show that the proposed analysis allows a formally more rigorous description and better understanding of personal middles than some other (possible) analyses in HPSG

■ The middle constructions in English:

(1) a. This wall paints easily.
    b. Bureaucrates bribe easily.
    c. This glass breaks easily.
    d. The floor waxes easily.

(2) a. The artist paints (easily) this wall. (active)
    b. This wall is (easily) painted by the artist. (passive)
    c. This wall paints *(easily). (middle)

• Keyser and Roeper (1984, p.34): “[These] sentences, sometimes called generic sentences, state propositions that are held to be generally true. They do not describe particular events.”

• ?, p.31, ?, p.588ff. and Carrier and Randall (1992): the predication of the property of the subject, whether or not it has ever been realized or not.

■ Some known properties of the English middle:

• A patient or theme argument of an otherwise transitive verb is realized syntactically as subject. [(3)a, cf. (2)b and (2)c]
• The agent argument licenses an instrumental argument, but it cannot surface as an
agentive preposition phrase. [(3)b & (3)c]

• An otherwise optional modifier such as an adverb is obligatory. [(3)c]

• An episodic interpretation is not available, only some kind of generic reading is possible.
[(3)d]

• Not all transitive verbs appear in this construction. [(3)e]

(3)  a. This wall paints easily.
    b. This wall paints easily (*by the artist).
    c. This wall paints (*easily) with a brush.
    d. This wall paints easily. = In general, people paint this wall easily.
    e. *This wall hits easily.

2 Further Data and Issues

■ Personal and Impersonal Middles:

(4) the personal middle (German)
  a. Beamte bestechen sich leicht/schwer.
     bureaucrats bribe REFL easily/difficultly
     ‘Bureaucrats generally bribe easily/difficultly.’
  b. Dieses Buch verkauft sich gut/schlecht.
     thus book sell REFL well/badly
     ‘This book generally sells well/badly.’

(5) the impersonal middle (German)
  a. In diesem Sessel sitzt es sich bequem.
     in this sofa sits EXPL REFL comfortably
     ‘People generally sit comfortably in this sofa.’
  b. Hier schläft es sich angenehm.
     Here sleep EXPL REFL comfortably
     ‘People generally sleep comfortably in this sofa.’

■ Some additional properties of the German middle:

• Not all, but some classes of intransitive verbs form a middle construction [cf. the
  impersonal middle]

• The element sich occurs obligatorily in the personal and impersonal middle.
• In addition, the expletive pronoun \textit{es} is required in the impersonal middle.

\section*{Issues:}

• \textbf{Q1:} the element \textit{sich} in German
  – the function of the element \textit{sich} in German
  – the status of the element \textit{sich}, argument or not?
  – the agreement of the element \textit{sich}
  – the antecedent of the element \textit{sich}, if the binding is necessary

• \textbf{Q2:} genericity and the middles
  – the nature of the generic reading in the middle constructions
  – how can we describe the genericity in the middle constructions

• \textbf{Q3:} the nature of the event adverbials

• \textbf{Q4:} the status of the element \textit{es}, argument or not?

• \textbf{Q5:} the relationship between the passives and the middles: the subject argument

• \textbf{Q6:} the relationship between the ergative constructions and the middle constructions

• \textbf{Q7:} the set of verbs which can be medialized

• \textbf{Q8:} the auxiliary selection for the formation of perfect tense

• \textbf{Q9:} the level(s) of description

\section{The Two-Level Linking Theory}

\subsection*{Lexicon in HPSG}

• HPSG consists of a \textsc{signature} and a finite set of descriptions, in terms of which a finite set of principles, basic lexical entries, and linking constraints are formalized.

• \textsc{signature} forms a description language, which is regarded as a syntactic tool for the formalization of descriptions.

• \textsc{signature} includes the sort hierarchy and the appropriateness condition. These two are often called partitions of sorts and feature declarations. Principles are a component of a theory, which is defined in terms of the logical operator, $\rightarrow$.

a. Every feature structure of sort \textit{word} must satisfy a lexical entry and all linking constraints.

\[ \sim \text{word} \rightarrow (E_1 \lor \ldots \lor E_n) \land (L_1 \land \ldots \land L_n), \]

where \( E_i \) (1 \( \leq \) i \( \leq \) n) is a lexical entry in the basic lexicon and \( L_i \) a linking constraint.

- The basic lexicon: a finite set of basic lexical entries \( E_i \) (1 \( \leq \) i \( \leq \) n)
- The extended lexicon: a finite set of linking constraints \( L_i \) (1 \( \leq \) i \( \leq \) n)
- The (full) lexicon: a finite set of basic lexical entries \( E_i \) and linking constraints \( L_i \) (1 \( \leq \) i \( \leq \) n)

(7) The concept diagram of the Two-Level Linking Theory (TLLT)

<table>
<thead>
<tr>
<th>sorts of information</th>
<th>levels of representation in HPSG</th>
</tr>
</thead>
<tbody>
<tr>
<td>grammatical functions</td>
<td>[val valence]</td>
</tr>
<tr>
<td>post-linking</td>
<td>↑ post-linking</td>
</tr>
<tr>
<td>argument structure</td>
<td>[argstr argstr]</td>
</tr>
<tr>
<td>pre-linking</td>
<td>↑ pre-linking</td>
</tr>
<tr>
<td>thematic structure</td>
<td>[nucleus qfpsoa]</td>
</tr>
</tbody>
</table>

3.2 Argument Structure

(8) The feature declaration for the sort \textit{word}

\textit{word}: \quad [\text{ARGSTR argstr}]

(9) The feature declaration for the sort \textit{argstr}

\textit{argstr}: \quad \begin{bmatrix} \text{EXTARG list-of-length-1 (ref)} \\ \text{INTARG list-of-length-1 (ref)} \\ \text{ARGS list (index)} \end{bmatrix}

(10) A sample lexical entry for predicates:
the roles of argument structure in the Two-Level Linking Theory:

- the list of the whole arguments for the Binding Theory
- the status of the argument, which is classified on the basis of the lexical entailments (= sorts in the framework of HPSG) in the sense of Dowty (1991)

(11) Definition: the Obliqueness Hierarchy for the Binding Theory
a. An object of sort synsem is more oblique than another, when the former precedes the latter in the list value of ARGS.

b. Definition: the Obliqueness Hierarchy
<CAUSE, ACT, AFF, UND, NEUT, OBL>

3.3 Linking
3.3.1 Pre-linking

(12) the general pre-linking constraint
All referential argument indices of a predicate, which appear in the specification of the sort qfpsoa, and only those indices occur in the list value of the feature ARGS.

(13) Some relevant linking constraints
a. Link the referential index of the value of the feature CAUSE to the list value of the feature EXTARG in the argument structure!

b. Link the referential index of the value of the feature ACT to the list value of the feature EXTARG in the argument structure!

c. Link the referential index of the value of the feature AFF to the list value of the feature INTARG in the argument structure!
the linking linking constraints in the Speciate-Reentrant Logic [SRL, King (1989, 1992)]

a. linking of the value of CAUSE

\[ (:\text{word} \wedge :\text{SYNSEM LOC CONTENT NUCLEUS}\sim\text{cause}) \to (:\text{SYNSEM LOC CONTENT NUCLEUS CAUSE} \approx :\text{ARGSTR EXTARG FIRST}) \]

b. linking of the value of ACT

\[ (:\text{word} \wedge :\text{SYNSEM LOC CONTENT NUCLEUS}\sim\text{act}) \to (:\text{SYNSEM LOC CONTENT NUCLEUS ACT} \approx :\text{ARGSTR EXTARG FIRST}) \]

c. linking of the value of AFF

\[ (:\text{word} \wedge :\text{SYNSEM LOC CONTENT NUCLEUS}\sim\text{aff}) \to (:\text{SYNSEM LOC CONTENT NUCLEUS AFF} \approx :\text{ARGSTR INTARG FIRST}) \]

a sample lexical entry after pre-linking: arbeiten (to work)

\[ \begin{array}{c}
\text{SYNSEM} \mid \text{LOC} \\
\text{CONTENT}_{\text{local}} \\
\text{NUCLEUS}_{\text{psoa}} \\
\text{ARGSTR} \\
\text{INTARG} \\
\text{ARGS}_{\text{elist}} \\
\text{word} \\
\end{array} \]

3.3.2 External Argument and Internal Argument

The Linking Constraint for External Argument

a. In an object of sort word, the index of the least oblique argument of a predicate of sort \( \sigma \), which is subsumed by initial-rel, is token-identical with the index in the list value of the feature extrag.

b. \[ (:\text{word} \wedge :\text{SYNSEM LOC CONTENT NUCLEUS}\sim\text{initial-rel}) \to ((:\text{SYNSEM LOC CONTENT NUCLEUS CAUSE} \approx :\text{ARGSTR EXTARG FIRST}) \lor (:\text{SYNSEM LOC CONTENT NUCLEUS ACT} \approx :\text{ARGSTR EXTARG FIRST})) \]

The Linking Constraint for Internal Argument

a. In an object of sort word, the index of a predicate of sort \( \sigma \), which is subsumed by affected and/or move-with-a-definite-change-of-location, is token-identical with the index in the list value of the feature intrag.
b. \(((\sim \text{word} \\
\land \text{:SYNSEM LOC CONTENT NUCLEUS} \sim \text{affected}) \rightarrow \text{:SYNSEM LOC CONTENT NUCLEUS AFF} \approx \text{:ARGSTR INTARG FIRST}))\\n\land ((\sim \text{word} \land \text{:SYNSEM LOC CONTENT NUCLEUS} \sim \text{definite-col}) \rightarrow \text{:SYNSEM LOC CONTENT NUCLEUS ACT} \approx \text{:ARGSTR INTARG FIRST}))\)

### 3.4 Post-linking and Case Assignment

(18) Post-linking Constraint

a. Link the index of the least oblique argument in the list of the feature \text{ARGS} to the value of the feature \text{SUBJ} of a lexical element, if the form of this element is finite.

b. \(((\sim \text{word} \land \text{:SYNSEM LOC CAT HEAD VFORM} \sim \text{finite}) \rightarrow \text{:SYNSEM LOC CAT VAL SUBJ FIRST LOC CONTENT INDEX} \approx \text{:ARGSTR ARGS FIRST})\)

(19) a sample lexical entry for the finite form of the verb \text{arbeitet} (works)

```
\[
\begin{array}{c}
\text{SYNSEM|LOC}\\n\text{CAT}\\n\text{VAL}\\n\text{CONTENT}\\n\text{ARGSTR}\\n\text{ARG}
\end{array}
\begin{array}{c}
\text{HEAD finite}\\n\text{SUBJ < NP[nom]l >}\\n\text{COMPS < >}\\n\text{SPR < >}\\n\text{NUCLEUS workl}\\n\text{ARGSTR < >}\\n\text{ARG}
\end{array}
\]
```

(20) Partition of the sort \text{case} in German

```latex
\begin{array}{c}
\text{case-form} \\
\text{case-status}
\end{array}
\begin{array}{c}
\text{nom-form} \quad \text{gen-form} \quad \text{dat-form} \quad \text{acc-form} \quad \text{structural} \quad \text{lexical}
\end{array}
\begin{array}{c}
\text{nom}^s \quad \text{gen}^s \quad \text{dat}^s \quad \text{acc}^s \quad \text{nom}^l \quad \text{gen}^l \quad \text{dat}^l \quad \text{acc}^l
\end{array}
```
(21) Case filter:
No NP is admissible as a value of the feature SUBJ or COMPS, if the sort \textit{structural} is not sort-resolved.

(22) Case assignment (informal, partial)
\begin{itemize}
\item a. A nominative Case is assigned to an NP[\textit{str}] of a finite predicate, if the NP occurs in the list value of the feature SUBJ of a predicate, and the index of this NP is token-identical with the left-first index in the list value of the feature ARGS.
\item b. An accusative Case is assigned to an NP[\textit{str}] of a predicate, if the NP occurs in the list value of the feature COMPS of a predicate, and the index of this NP is token-identical with the list value of the feature INTARG.
\end{itemize}

(23) Case assignment (in SRL, partial)
\begin{itemize}
\item a. Assignment of a structural nominative Case:
\begin{align*}
& (\neg \text{word} \land :\text{SYNSEM LOC CAT HEAD VFORM}\neg\text{finite} \\
& \land :\text{ARGSTR ARGS FIRST}\neg\text{ref}) \rightarrow \\
& ((:\text{SYNSEM LOC CAT VAL SUBJ FIRST LOC CONTENT INDEX} \approx \\
& :\text{ARGSTR ARGS FIRST}) \\
& \land :\text{SYNSEM LOC CAT VAL SUBJ FIRST LOC CAT CASE}\neg\text{nom}^*)
\end{align*}
\item b. Assignment of a structural accusative Case:
\begin{align*}
& (\neg \text{word} \land :\text{SYNSEM LOC CAT HEAD}\neg\text{verb} \\
& \land :\text{ARGSTR INTARG FIRST}\neg\text{ref} \\
& \land (:\text{ARGSTR INTARG FIRST} \neq :\text{ARGSTRARGS FIRST})) \rightarrow \\
& ((:\text{SYNSEM LOC CAT VAL COMPS FIRST LOC CONTENT INDEX} \approx \\
& :\text{ARGSTR INTARG FIRST}) \\
& \land :\text{SYNSEM LOC CAT VAL COMPS FIRST LOC CAT CASE}\neg\text{acc}^*)
\end{align*}
\end{itemize}

(24) strict-transitive verbs: \textit{schlagen} (to hit), \textit{küssen} (to kiss), \textit{trennen} (to separate), \textit{lesen} (to read), \textit{zerstören} (to destroy), \ldots
\begin{itemize}
\item a. after the pre-linking
\begin{align*}
\text{ARGSTR} & \quad \text{EXTARG} < [ ] > \\
& \quad \text{INTARG} < [ ] > \\
& \quad \text{ARGS} < [ ] \oplus [ ] > \\
\text{SYNSEM} \mid \text{LOC} \mid \text{CONTENT} \mid \text{NUCLEUS} & \\
& \quad [ \text{ACT} [ ] , \text{AFF} [ ] ] \\
\text{word} & \\
& \quad \text{ARGSTR} \quad \text{EXTARG} < [ ] > \\
& \quad \text{INTARG} < [ ] > \\
& \quad \text{ARGS} < [ ] \oplus [ ] > \\
\end{align*}
\item b. after the post-linking: \textit{verb}[VFORM \textit{fin}]
\begin{align*}
\text{SYNSEM} \mid \text{LOC} \mid \text{CAT} & \\
& \quad \text{VAL} [ ] \\
& \quad \text{SUBJ} \text{[NP}\text{nom}[ ]]> \\
& \quad \text{COMPS} \text{[NP}\text{acc}[ ]]>
\end{align*}
\begin{align*}
\text{ARGSTR} & \quad \text{EXTARG} < [ ] > \\
& \quad \text{INTARG} < [ ] > \\
& \quad \text{ARGS} < [ ] \oplus [ ] > \\
\text{word} & \\
& \quad \text{ARGSTR} \quad \text{EXTARG} < [ ] > \\
& \quad \text{INTARG} < [ ] > \\
& \quad \text{ARGS} < [ ] \oplus [ ] > \\
& \text{\bf{VFORM}} \text{finite} \\
& \text{\bf{SUBJ}} \text{NP}\text{nom}[ ]> \\
& \text{\bf{COMPS}} \text{NP}\text{acc}[ ]>
\end{align*}

(26) a partial description of the infinite forms of a ditransitive verb: *geben* (to give, base), *zu geben* (to give, to infinitive), *gegeben* (given), . . .

4 The Element *sich* in the Middle Constructions

The grammatical status of the reflexive pronoun *sich* in German: argument/anaphoric or non-argument/non-anaphoric?

- The anaphoric use of *sich* may not be compatible with intransitive verbs! \(\because\) the impersonal middle
- *sich* in its anaphoric use seems to form a constituent, but *sich* in MC does not. \(\because\) Test 1 (Coordination) & Test 4 (Fronting)]
- *sich* in MC may not be argument. It does not appear in the list of argument structure.

(27) **Test 1 (Coordination):**
   a. Er wäscht sich und ihn. \((sich_a)\)
      he washes himself and him
      ‘He washes himself and him.’
   b. *Das Buch verkauft sich und X gut. \((sich_m)\)
      the book sells REFL and X good
      ‘The book sells well.’

(28) **Test 2 (Deletion):**
   a. Er wäscht (sich und ihn). \((sich_a)\)
      he washes himself and him
      ‘He washes (himself and him).’
   b. Das Buch verkauft *(sich) gut. \((sich_m)\)
      the book sells REFL and good
      ‘The book sells *(well).’

(29) **Test 3 (Question):**
   a. Wen wäscht er? Sich! \((sich_a)\)
      whom washes he himself
      ‘Whom does he wash? Himself!’
   b. *Wen/*Was/*Wie verkauft das Buch gut? Sich! \((sich_m)\)
      whom/what/how sells the book gut REFL

(30) **Test 4 (Fronting):**
   a. Sich hat Hans am meisten gewaschen. \((sich_a)\)
      Himself has Hans mostly washed
      ‘Hans has mostly washed himself’
   b. *Sich verkauft das Buch gut. \((sich_m)\)
      REFL sells the book gut

(31) **Test 5 (Emphatic Particles):**
   a. Otto wäscht sogar sich. \((sich_a)\)
      Otto washes even himself
      ‘Otto washes even himself.’
   b. *Das Buch verkauft nur sich gut. \((sich_m)\)
      the book sells only REFL gut

(32) **Test 6 (Negation):**
   a. Otto wäscht montags nicht sich, sondern seine Kunden. \((sich_a)\)
      Otto washes every Monday not himself, but his clients
      ‘every Monday, Otto does not wash himself, but his clients.’
b. *Das Buch verkauft nicht sich, sondern ... gut. (sich_m)
   the book sells not REFL, but ... good

(33) Test 7 (Emphasis):
   a. Die Kinder waschen jetzt sich selbst. (sich_a)
      the children wash now themselves EMPF
      ‘The children wash themselves now.’
   b. *Das Buch verkauft sich selbst gut. (sich_m)
      the book sells REFL EMPF good

The Reflexive Pronoun sich in German MC: Clitics:

- Clitics [Zwicky and Pullum (1983)]
  Elements with some properties of inflectional morphology and some of independent words.
- sich in TLLT
  - The reflexive pronoun sich may not appear in the argument structure, and is directly mapped to the value of the feature COMPS.
  - The agreement between subject and sich is a lexical fact.

5 The Interpretation of the Middle and the Genericity

- Basic Assumption: a quantificational analysis of generics:
  - ?, ? & ?: The implicit generic operator or overt element like adverbs of quantification, which supplant it, are unselective in the sense that they bind any free variable within their scope.
  - Genericity is a property of sentence and the elements within a sentence interpreted generically are so interpreted derivatively or indirectly.
  - The generic quantification is in the middle constructions primarily over events.

(34) a. A cat that drinks gin loses its teeth.
   b. If a cat drinks gin, it loses its teeth.
   c. A cat always lands on its feet.
   d. After dinner, John often smokes.

- tripartite logical structure: This structure consists of a generic operator, a restrictive clause restricting domain of quantification of the operator, and a nuclear scope comprising the main assertion. [in common with Condoravdi (1989)]
(35)  a.  $G [x: \text{cat (} x \text{)}, x \text{ drinks gin}] [x \text{ loses } x\text{'s teeth}]
   b.  Always $[x: \text{cat (} x \text{)}, x \text{ is in the air and falling}] [x \text{ lands on } x\text{'s feet}]
   c.  Often $[t: \text{after dinner (} t \text{)}] [\text{John smokes at } t]

(36)  a.  This bread cuts smoothly.
   b.  $[e: \text{bread (} x \text{), cut (} e \text{), Patient (} e, x \text{)}] [\text{smooth (} e \text{)}]

■ Modelling in TLLT:

(37)  a.  Man besticht Beamte (leicht).
               man bribe bureaucrats easily
   ‘Man bribes easily bureaucrats.’
   b.  Beamte werden (leicht) bestochen.
               bureaucrats are easily bribed
   ‘Bureaucrats are easily bribed.’
   c.  Beamte bestechen sich leicht.
               bureaucrats bribe REFL easily
   ‘Bureaucrats bribe easily.’

(38)  A Proposal

   a.  besticht

   b.  besticht sich
Man arbeitet (bequem) im Projektbüro.

‘Man works comfortably in the project office.’

Im Projektbüro wird (bequem) gearbeitet.

‘There is comfortably worked in the project office.’

Im Projektbüro arbeitet es sich bequem.

in the project office works EXPL REFL comfortably

(40) a. arbeitet
Two Kinds of Genericity [cf. ?]:

<table>
<thead>
<tr>
<th>D-generics</th>
<th>I-generics</th>
</tr>
</thead>
<tbody>
<tr>
<td>(reference to kinds)</td>
<td>(a kind of modal quantification)</td>
</tr>
<tr>
<td>definite singular generic NPs</td>
<td>indefinite singular generic NPs</td>
</tr>
<tr>
<td>taxonomic NPs</td>
<td>bar plural generic NPs</td>
</tr>
<tr>
<td>bare singular generic NPs</td>
<td>bare singular generic NPs</td>
</tr>
<tr>
<td>bare plural generic NPs (?)</td>
<td></td>
</tr>
</tbody>
</table>

6 Possible Analyses in HPSG

6.1 Lexical Rules

A sample for si middle verb forms in Italian:

(41) Lexical Rule for Middle Verb Forms in Italian [?, p.285]

Some Problems of the Lexical Rule Approaches:

- The formal problems of the lexical rules in general:
  Lexical rules must be seen as implicative relationships between lexical entries, but
lexical entries themselves are constraints on feature structures (not feature structure themselves), so evidently a higher-order formalism must be developed within which such relationships can be expressed. [Pollard and Sag (1994, p.395fn.)]

- no restriction
  no proper treatment of the (im)possibility of the middle formation
- no explanation
  no semantics: neither enough description nor enough explanation
- economy of the analysis
  One may need two different lexical rules, one for the personal middle and one for the impersonal middle.

6.2 tough Constructions and the Middle

Pollard & Sag (1994, p. 167) Tough constructions in HPSG

It is just a lexical fact about predicates like easy, take, and cost that they subcategorize for infinitive complements containing an accusative NP gap coindexed with the subject. Thus the heart of our analysis is captured in item (24), which is a partial representation of the SYNSEM value of the lexical entry for the tough-class adjective easy.

(42) a. Kim, would be easy to bribe —i.
    b. Kim, would be easy to prove Sandy bribed —i.

(43) partial representation of SYNSEM value for easy [Pollard and Sag (1994, p.167)]

\[
\begin{align*}
\text{LOCAL} | \text{CAT} &\text{ HEAD adjective} \\
&\text{ SUBCAT } < \text{NP[PP/]}, \\
&\text{ VP[inf, INHER | SLASH } \{\Box \text{NP[acc;ppr]} \ldots \} > \\
\text{NONLOCAL} | \text{TO-BIND} | \text{SLASH } \{\Box\}
\end{align*}
\]

(44) partial representation of SYNSEM value for easy in HPSG3

\[
\begin{align*}
\text{LOCAL} | \text{CAT} &\text{ HEAD adjective} \\
&\text{ SUBJ } < \text{NP[PP/]}, \\
&\text{ COMPS } < (\text{PP[PP/]},) \\
&\text{ VP[inf, INHER | SLASH } \{\Box \text{NP[acc;ppr]} \ldots \} > \\
\text{NONLOCAL} | \text{TO-BIND} | \text{SLASH } \{\Box\}
\end{align*}
\]

(45) a. This bread cuts easily.
    b. This bread is easy to cut.

(46) a. Das Buch* liest sich gut.
    The book reads REFL good
    ‘The book reads well.’
    b. ¬It would be good for anybody to read this book.
7 Comparison with Some Other Analyses

■ Previous Proposals:


• Roberts (1985): both in lexicon

• Fagan (1988, 1992): both in lexicon
  for middle (assign \textit{arb} (= arbitrary interpretation) to the external theta role (= theta role associated with external argument, be it an agent or benefactive). Externailize the direct theta role !

■ Middle Formation:

(47) in English: Fagan (1992: 196f.)
  a. Rule 1: Assign \textit{arb} to the external \textit{\theta}-role.
  b. Rule 2: Externalize (direct \textit{\theta}-role).
  c. Subcategorization: +[\text{AdvP}____] for personal middle
  d. Semantics: ‘be able to be X-ed’
  e. Condition: \textit{V} is not an \textit{achievement} or \textit{state}; \textit{V} ist not ditransitive.

(48) in German: Fagan (1992: 196f.)
  a. Rule 1: Assign \textit{arb} to the external \textit{\theta}-role.
  b. Rule 2: Externalize (direct \textit{\theta}-role).
  c. Rule 3: Externalize (\textit{\phi}) for impersonal middle
  d. Subcategorization: +[\text{NP}____ \text{NP}____ \text{AdvP}____ ] \ [+\text{anapher}]
  e. Semantics: ‘be able to be X-ed’
  f. Condition: \textit{V} does not assign lexical case;
     \textit{V} is not an \textit{achievement} or \textit{state}; \textit{V} ist not ditransitive.

■ Which verbs can be medialized (in English)?:

• Keyser and Roeper (1984): verbs, which have at least a First Sister Argument [Roeper and Siegel (1978)]


• Fagan (1988), Carrier and Randall (1992): verbs with a direct argument
8 Related Issues

- **Issues and Ideas:**
  - **Q1:** the element *sich* in German
    - the function of the element *sich* in German: marking of the middle
    - the status of the element *sich*, argument or not? non-argument, rather clitics
    - the agreement of the element *sich* lexical fact, agreement with subject
    - the antecedent of the element *sich*, if the binding is necessary no binding
  - **Q2:** genericity and the middles
    - the nature of the generic reading in the middle constructions quantification over events
    - how can we describe the genericity in the middle constructions just like quantification in general
  - **Q3:** the nature of the event adverbials a kind of subcategorization information
  - **Q4:** the status of the element *es*, argument or not? non-argument
  - **Q5:** the relationship between the passives and the middles: the subject argument
  - **Q6:** the relationship between the ergative constructions and the middle constructions
  - **Q7:** the set of verbs which can be medialized
  - **Q8:** the auxiliary selection for the formation of perfect tense haben (to have): \(\because\) Type 4 verbs
  - **Q9:** the level(s) of description lexicon

(49) Two kinds of Ergativity

a. The Primary Unaccusativity

\[
\begin{array}{c}
\text{EXTARG} \ \text{elist} \\
\text{INTARG} \ < \ \square > \\
\text{ARGS} \ \begin{bmatrix} \ \text{FIRST} \ \square \\
\text{REST list (index)} \end{bmatrix} \\
\text{argstr} \ \text{nelist}\end{array}
\]

b. The Secondary Unaccusativity

\[
\begin{array}{c}
\text{EXTARG} \ < \ \square > \\
\text{INTARG} \ < \ \square > \\
\text{ARGS} \ \begin{bmatrix} \ \text{FIRST} \ \square \\
\text{REST list (index)} \end{bmatrix} \\
\text{argstr} \ \text{nelist}\end{array}
\]
(50)  a. The Primary Unaccusativity $=_{\text{def}}$
$\sim \text{word}$
$\land (\text{:ARGSTR ARGS FIRST} \approx$
$\text{ARGSTR INTARG FIRST} \neq$
$\text{ARGSTR EXTARG FIRST})$

b. The Secondary Unaccusativity $=_{\text{def}}$
$\sim \text{word}$
$\land (\text{:ARGSTR ARGS FIRST} \approx$
$\text{ARGSTR INTARG FIRST} \approx$
$\text{ARGSTR EXTARG FIRST})$

8.1 The Middle and the Passivization

9 Conclusion

- Summary
- Some Residual Problems

References


King, Paul J. (1992), Unification Grammars and Descriptive Formalisms, lecture Notes for a Graduate Level Course at Seminar für Sprachwissenschaft, Seminar für Sprachwissenschaft, Universität Tübingen.


