Inflectional periphrasis as collocation

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Five design properties of a theory of inflectional periphrasis

Introduction

Inflectional periphrases

- are not the result of free syntactic combinations.
- Rather: they realize cells in the inflectional paradigms of lexemes:
- None of the proposals is compatible with all the desirable design properties of a theory of periphrasis as inflection.
- New proposal to solve this problem: periphrastic predicates as collocations.
Five design properties of a theory of inflectional pe
Periphrasis is independent of phrase structure

The parts of a periphrase can stand in varying phrase-structural configurations (Bonami & Weibelhuth, in press):

(1) a. dass das Buch jemand [\textsubscript{VC} gekauft hat ]
    CPZR the book nobody buy.PST.PCPL have.PRS.3SG
    ‘that nobody bought the book’

   b. Paul [\textsubscript{VP} vient de [\textsubscript{VP} lire ce livre ]].
    Paul come.PRS[3SG] of read.INF that book
    ‘Paul just read that book.’

   c. [\textsubscript{S} Maryam dâšť [\textsubscript{S} madrase mi-raft]].
    Maryam have.PST[3SG] school IPFV-go.PST[3SG]
    ‘Maryam was going to school.’

   d. [\textsubscript{S} Njama-šče [\textsubscript{CP} da mu ga napratja]].
    have.NEG-IPFV CPZR to.him it send.PRS.1SG
    ‘I shan’t send it to him.’
Auxiliaries have normal, nondefective paradigms

- Example: Persian perfect and evidential forms (Bonami & Samvelian, 2009)

<table>
<thead>
<tr>
<th></th>
<th>PERFECTIVE</th>
<th>IMPERFECTIVE</th>
<th>PERFECT</th>
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<tbody>
<tr>
<td>PRESENT</td>
<td>***</td>
<td>mi-xar-ad</td>
<td>xarid-e-ast</td>
</tr>
<tr>
<td>PAST</td>
<td>xarid</td>
<td>mi-xarid</td>
<td>xarid-e bud</td>
</tr>
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<td>DIR.</td>
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<td>IND.</td>
<td>xarid-e-ast</td>
<td>mi-xarid-e-ast</td>
<td>xarid-e bud-e-ast</td>
</tr>
<tr>
<td>SUBJUNCTIVE</td>
<td>be-xar-ad</td>
<td></td>
<td>xarid-e bâš-ad</td>
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- Costs of reducing the periphrastic forms to ‘normal’ syntax:
  - lexemes would be systematically defective for nonpresent \([\text{PRF} +]\) forms (except **budan**)
  - **budan** would be defective for all \([\text{PRF} -]\) forms
  - either **budan** would be defective for the present perfect or its use would be blocked by the existence of a synthetic form
  - **budan** would use \([\text{PRF} -]\) morphology to express \([\text{PRF} +]\)
Inflection is inferential-realizational, syntax is lexical-incremental

As argued at length by, e.g.
- Hockett 1954
- Robins 1959
- Matthews 1972
- Anderson 1992
- Zwicky 1992
- Aronoff 1994
- Stump 2001
- Blevins 2006
- ...

Inflectional systems are best described in word-and-paradigm approach.

As argued at length by, e.g.
- Harman 1963
- Bresnan 1978
- Gazdar, Klein, Pullum & Sag 1985
- Pollard & Sag 1987, 1994
- Steedman 1996
- ...

Syntactic systems are best described in phrase-structural terms, as incrementally built combinations of signs.
Arbitration between synthesis and periphrasis follows the logic of Pāṇini’s principle

**Slovak (Stanislav 1977, quoted from Corbett 2010)**

<table>
<thead>
<tr>
<th></th>
<th>SG</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>nesiem</td>
<td>nesieme</td>
</tr>
<tr>
<td>2</td>
<td>nesieš</td>
<td>nesiete</td>
</tr>
<tr>
<td>3</td>
<td>nesie</td>
<td>nesú</td>
</tr>
</tbody>
</table>

Present of the verb **NIEST** ‘to carry’

<table>
<thead>
<tr>
<th></th>
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<th>PL</th>
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<tbody>
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<td>M</td>
<td>F</td>
<td>N</td>
</tr>
<tr>
<td>1</td>
<td>niesol som</td>
<td>niesla som</td>
</tr>
<tr>
<td>2</td>
<td>niesol si</td>
<td>niesla si</td>
</tr>
<tr>
<td>3</td>
<td>niesol</td>
<td>niesla</td>
</tr>
</tbody>
</table>

Past of the verb **NIEST** ‘to carry’
Five design properties of a theory of inflectional periphrasis

Periphrasis: syntactic head-argument or head-modifier relationship

Head + argument:

(2) dass das Buch jemand \[\text{VC gekauft hat} \]  
that the book nobody buy.PST.PCPL have.PRS.3SG  
‘that nobody bought the book’

Head + modifier:

(3) \[\text{AP more important} \]
Periphrasis: extraction can distort the relationship

Head + argument:

(4) \[ \text{SubCl dass Maria das Buch gekauft hat} \]
that Maria the book buy.PST.PCPL have.PRS.3SG
‘that Maria bought the book’

Verb-second of finite verb:

(5) \[ \text{MainCl Maria hat das Buch gekauft} \]
Maria have.PRS.3SG the book buy.PST.PCPL
‘Maria bought the book’
Periphrasis: extraction can distort the relationship

First position of nonfinite verb:

(6) \[[\text{MainCl} \text{Gekauft hat} \text{Maria das Buch}]\]
    buy.PST.PCPL have.PRS.3SG Maria the book

‘Maria bought the book’

(7) \[[\text{MainCl} \text{Gekauft wird Maria das Buch haben}]\]
    buy will Maria the book have

‘Maria will have bought the book’
How do current theories fare?
Periphrasis as syntactic exponence: shortcomings of previous approaches

- **Ackerman and Webelhuth 1998**: syntax of periphrasis is too inflexible to handle extraction or modification.
- **Sadler and Spencer 2001, Ackerman and Stump 2004**: opposite problem: syntax too unconstrained or details not worked out.
- **Bonami and Samvelian 2009**: the morphological component fails to be completely realizational.
- **Bonami and Webelhuth (to appear)**: Panini’s Principle does not apply within the morphology, can’t deal with periphrases that rest on the modifier-head relation.
An alternative: periphrases as collocations
The intuition

- The main element of a periphrase requires the presence of a selector in the same local environment.
- This is reminiscent of the mutual cooccurrence requirements we find in collocations.

![Diagram of collocation and periphrase structures](image)
The intuition

- The same goes for modification structures
Implementing the intuition

- We adopt an analysis in the spirit of Soehn & Sailer 2003, but important modifications.
  - Words can carry a \textit{reverse-selection} requirement
  - This amounts to asking for a selector to be present
  - The distance between selector and selectee can be as long as the grammar allows independently for kind of selection relation
  - Inflection rules may produce REV-SEL requirements

\begin{center}
\begin{tikzpicture}
\node (VP) at (0,0) {VP};
\node (V) at (1,-1) {V};
\node (H) at (0,-2) {H};
\node (VP2) at (2,-2) {VP};
\node (left) at (2,-3) {left};
\node (selection) at (2,-1) {selection};
\draw[->] (VP) -- (H);
\draw[->] (H) -- (V);
\draw[->] (V) -- (VP2);
\draw[->] (VP2) -- (left);
\end{tikzpicture}
\end{center}
The Reverse Selection Principle

If a word carries a REV-SEL requirement, then it should be selected by a word whose morphological description unifies with that requirement.
Since we rely on the HPSG theory of selection, extraction of parts of periphrases is predicted to be possible without any further stipulations.
The analysis: the syntactic part

An alternative: periphrases as collocations
The analysis: the morphological part

- We embed a version of Paradigm Function Morphology (Stump, 2001) as a morphological component of our HPSG grammar.
- Realization rules may:
  - modify the **phonological representation** of their input
  - add **reverse selectional requirements** on the syntactic context

\[
\begin{align*}
\text{PHON} & \ X \ & & \ \text{VFORM} & \ pst-ptcp \ & & \ \text{PRF} & \ - & & \rightarrow & & \text{PHON} & \ X_{ed} \\
\text{REV-SEL} & \ \{} & & & & & & & & & & & & \\
\end{align*}
\]

- left in **has left** is not a past participle, but a present perfect whose phonology is referred to that of a past participle.
The analysis: putting it all together

Bonami & Webelhuth (Paris/Frankfurt)

MMM8, Sept. 2011 21 / 27
Stacking periphrases

An alternative: periphrases as collocations

Paul has = hæz

have-aux

Paul has = bin

be-aux

Paul has = li:vîŋ

leave
The rule for progressive should not be applicable to perfect forms, so that we can prevent *is having left

\[
\begin{align*}
\text{PHON} & \quad \chi \quad \text{REV-SEL} \quad \{\} \\
\sigma & : \quad \text{PROG} \quad + \\
\rightarrow & \\
\text{PHON} & \quad \text{refer} \left( X, \right. \\
\sigma & : \quad \text{VFORM} \quad \text{prs-ptcp} \\
\text{REV-SEL} & : \quad \text{PROG} \quad - \\
\end{align*}
\]

Compare:

\[
\begin{align*}
\text{PHON} & \quad \chi \quad \text{REV-SEL} \quad \{\} \\
\sigma & : \quad \text{PRF} \quad + \\
\rightarrow & \\
\text{PHON} & \quad \text{refer} \left( X, \right. \\
\sigma & : \quad \text{VFORM} \quad \text{pst-ptcp} \\
\text{REV-SEL} & : \quad \text{PRF} \quad - \\
\end{align*}
\]
Periphrasis by modification

\[
\begin{align*}
&\text{PHON} \quad X \\
&\text{REV-SEL} \quad \{\} \\
&\text{ICLASS} \quad A \\
\rightarrow \\
\text{PHON} \quad X \\
&\text{REV-SEL} \quad \{\} \\
\end{align*}
\]
Summary and conclusions
Inflectional periphrases

- are not the result of free syntactic combinations.
- Rather: they realize cells in the inflectional paradigms of lexemes.
- None of the previous proposals is compatible with all the desirable design properties of a theory of periphrasis as inflection.
- New proposal to solve this problem: periphrastic predicates as collocations.
Summary and Conclusion

- **Syntax:**
  - Words can carry a reverse-selection requirement.
  - This amounts to asking for a specific selector to be present in the local environment of the word.
  - The distance between selector and selectee can be as long as the grammar allows independently for the selection relation involved.

- **Morphology:**
  - The paradigm function may produce phonological effects, and in addition REV-SEL requirements.

The theory captures the major desiderata for a theory of periphrasis as inflection:

- The two or more exponents can stand in various syntactic relationships.
- The degree of locality of these relationships is independent of periphrasis.
- Gaps in the paradigms of auxiliaries follow from paradigm structure.
- The morphological component is realizational rather than incremental.
- Arbitration between synthesis and periphrasis is decided within the morphological component.