French pronominal affixes as a challenge for theories of morphotactics

Berthold Crysmann and Olivier Bonami
{crysmann,bonami}@linguist.jussieu.fr

CNRS, Laboratoire de linguistique formelle (UMR 7110), Paris-Diderot

2013
Two traditions for dealing with morphotactics

Sequential templates
- Standardly used for description of non-trivial systems
- Linear order stated directly
- Deviations from a rigid template commonly stated in prose
- No agreed upon formal model

Stem-centric composition
- Most common approach in generative morphology
- Linear order derived from composition structure
- Implemented in various formal models, including (Lieber, 1980; Anderson, 1992; Stump, 2001)

We focus on purely inflectional phenomena for which no strong correlation between order and semantic scope can be expected.
Overview

- Complex morphotactic systems are typically characterised by an essentially strict order of position classes
  - This motivates the use of a sequential template
- There are however often deviations from this typical order
  - Since Stump (1993) these are taken to support a stem-centric view
- Recent debate has extended the family of variable morphotactic phenomena on the agenda (Bonami and Stump, to appear; Stump, 2012; Crysmann and Bonami, 2012)
- In this talk, we shall argue that a formally precise, slightly enriched sequential mode of analysis satisfactorily captures both the typological variation and the detailed characteristics of intricate systems.
- The focus will be on Parisian French
  - We update the description of the distribution of pronominal affixes
  - We show how it can be characterized by recombination of constraint types found in other languages
Noncanonical morphotactic phenomena
Misaligned exponence

In the canonical situation, exponents for different values of the same feature appear in the same position.

However exceptions to this are common. For instance in Nepali (Bonami and Boyé, 2008):

<table>
<thead>
<tr>
<th></th>
<th>PRESENT</th>
<th>FUTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>birsā-ṭʃʰa-aũ</td>
<td>birse-aũ-lā</td>
</tr>
<tr>
<td>2.LOW</td>
<td>birsā-ṭʃʰa-s</td>
<td>birse-lā-s</td>
</tr>
<tr>
<td>2.MID</td>
<td>birsā-ṭʃʰa</td>
<td>birse-lā</td>
</tr>
<tr>
<td>3.LOW</td>
<td>birsā-ṭʃʰa-au</td>
<td>birse-au-lā</td>
</tr>
<tr>
<td>3.MID</td>
<td>birsā-ṭʃʰa-n</td>
<td>birse-lā-n</td>
</tr>
</tbody>
</table>

Table : Masculine singular forms of the Nepali verb BIRSANU ‘forget’
Misaligned exponence

- If we assume 4 linear positions for tense and person, then each affix can be assigned to a fixed position.

\[
\begin{array}{ccccccc}
\text{stem} & \text{PAST} & 1 & 3.\text{LOW} & \text{FUT} & 2.\text{LOW} & 3.\text{MID} \\
\downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \\
1 & 2 & 3 & 4 & 5 & & \\
\end{array}
\]

<table>
<thead>
<tr>
<th>PRESENT</th>
<th>FUTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>birsā-ṭj̣ha-aũ</td>
</tr>
<tr>
<td>2.LOW</td>
<td>birsā-ṭj̣ha-s</td>
</tr>
<tr>
<td>2.MID</td>
<td>birsā-ṭj̣ha</td>
</tr>
<tr>
<td>3.LOW</td>
<td>birsā-ṭj̣ha-au</td>
</tr>
<tr>
<td>3.MID</td>
<td>birsā-ṭj̣ha-n</td>
</tr>
</tbody>
</table>

Table: Masculine singular forms of the Nepali verb BIRSANU ‘forget’
Free placement

- Chintang verb prefixes (Bickel et al., 2007)
  - can be freely permuted
  - prefixes encode subject and object agreement, as well as negation
  - Suffixes in Chintang, however, are strictly ordered in position classes

<table>
<thead>
<tr>
<th>u kha ma cop yokt e</th>
<th>‘They didn’t see us.’</th>
</tr>
</thead>
<tbody>
<tr>
<td>u ma kha cop yokt e</td>
<td>‘They didn’t see us.’</td>
</tr>
<tr>
<td>kha u ma cop yokt e</td>
<td>‘They didn’t see us.’</td>
</tr>
<tr>
<td>kha ma u cop yokt e</td>
<td>‘They didn’t see us.’</td>
</tr>
<tr>
<td>ma u kha cop yokt e</td>
<td>‘They didn’t see us.’</td>
</tr>
<tr>
<td>ma kha u cop yokt e</td>
<td>‘They didn’t see us.’</td>
</tr>
</tbody>
</table>
Accounting for the Chintang data

- We allow some morphs to underspecify their position classes:
  - Here, three series of morphs are specified as prefixal but do not select for a specific position.
### Order of possessive and case markers in Mari (Luutonen, 1997)

- Some case markers obligatorily follow the possessive marker (ACC).
- Some case markers obligatorily precede the possessive marker (LAT).
- Some cases (like DAT) permute freely with possessive marker.

<table>
<thead>
<tr>
<th></th>
<th>NOPOSS</th>
<th>1PL.POSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOM</td>
<td>pört</td>
<td>pört-na</td>
</tr>
<tr>
<td>ACC</td>
<td>pört-əm</td>
<td>pört-na-m</td>
</tr>
<tr>
<td>DAT</td>
<td>pört-lan</td>
<td>pört-na-lan</td>
</tr>
<tr>
<td>LAT</td>
<td>pört-eš</td>
<td>*</td>
</tr>
</tbody>
</table>
Accounting for the Mari situation

- We can redeploy the analytic tools used for misaligned exponence and free placement:
  - The stem goes in position 1
  - The LAT marker goes in position 2
  - The ACC marker goes in position 3
  - Possessive markers are underspecified for position
  - The dative marker is likewise underspecified

<table>
<thead>
<tr>
<th></th>
<th>NOPOSS</th>
<th>1PL.POSS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>POSS &lt; CASE</td>
<td>CASE &lt; POSS</td>
</tr>
<tr>
<td>NOM</td>
<td>pört</td>
<td>pört-na</td>
</tr>
<tr>
<td>ACC</td>
<td>pört-əm</td>
<td>pört-na-m</td>
</tr>
<tr>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>DAT</td>
<td>pört-lan</td>
<td>pört-na-lan</td>
</tr>
<tr>
<td>LAT</td>
<td>pört-eš</td>
<td>pört-eš-na</td>
</tr>
</tbody>
</table>

Diagram:

- **Stem**: 1
- **LAT**: 2
- **DAT**: 3
- **ACC**: 3
- **POSS**: 3
Swahili relative agreement markers are found in two positions, but the choice of the position is conditional (Stump, 1993):

(1)  
- **a-na-ye-soma**
  - M/WA.S-PROG-M/WA.REL-read
  - ‘(person) who is reading’
- **a-na-cho-ki-soma**
  - M/WA.S-PROG-KI/VI.REL-KI/VI.O-read
  - ‘(book) which he is reading’

(2)  
- **a-soma-ye**
  - M/WA.S-read--M/WA.REL
  - ‘(person) who is reading’
- **a-ki-soma-cho**
  - M/WA.S-read-ki/vi.o-ki/vi.REL
  - ‘(book) which he is reading’

Schematically:

```
  1  2  3  4  5  6  7
  NEG SUBJ TAM OBJ stem IMP PART

  if affirmative and untensed
   REL

  otherwise
```
Absolute and relative placement: Italian

- Italian pronominal affixes (Monachesi, 1999):
  - Occur in a fixed order of 6 positions

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>[obj,1sg]:</td>
<td>[loc]:</td>
<td>[obj, refl]:</td>
<td>[d-obj,3sg,m]:</td>
<td>[obj, imp]:</td>
<td>[part]:</td>
</tr>
<tr>
<td>mi</td>
<td>ci</td>
<td>si</td>
<td>lo</td>
<td>si</td>
<td>ne</td>
</tr>
</tbody>
</table>

- Occur on either side of the stem depending on context
- Order within the cluster is the same on either side of the stem
- Other affixes (TAM and agreement) are always suffixed to the stem

me lo da -te

d a -te me lo!

* da -te lo me!

* lo me da -te

* te- da me lo!

* me lo te- da.
We submit that this is best accounted for by distinguishing two separate position indexing schemes:

- **Absolute positioning** in named positions
- **Relative positioning** at a specific distance from the stem

The stem itself is then the element whose position varies in Italian.
The morphotactics of French pronominal affixes
Miller (1992); Auger (1995) clearly establish that French weak form pronouns are affixes rather than (post-lexical) clitics.

- Systematic application of criteria from (Zwicky and Pullum, 1983; Zwicky, 1985)
- Crucial use of extensive description of morphophonological idiosyncrasies by (Morin, 1979a,b, 1981)
- Miller and Sag (1997); Abeillé et al. (1998); Abeillé and Godard (2002) show in detail how this improves our understanding of the distribution of weak form pronouns.
French pronominal affixes

- **Subject pronominal affixes:**
  - Preverbal by default
  - Postverbal in an arbitrary collection of constructions, including:
    - Optionally, matrix interrogatives
    - Clauses starting with a handful of sentence adverbs (*jamais* ‘never’, *probablement* ‘probably’, *encore* ‘still’, etc.)
    - Obligatorily, quotative clauses

- **Complement pronominal affixes:**
  - Preverbal by default
  - Postverbal in the imperative in the absence of preverbal negative marker *ne*

<table>
<thead>
<tr>
<th>Subject Affixes</th>
<th>Complement Affixes</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Elle le prend.</em></td>
<td><em>Elle prend le.</em></td>
<td>‘She takes it.’</td>
</tr>
<tr>
<td><em>Le prends!</em></td>
<td>Prends-<em>le!</em></td>
<td>‘Take it!’</td>
</tr>
<tr>
<td><em>Ne le prends pas.</em></td>
<td><em>Ne prends-<em>le</em> pas.</em></td>
<td>‘Do not take it!’</td>
</tr>
<tr>
<td><em>Le prends pas</em></td>
<td>Prends-<em>le</em> pas.*</td>
<td></td>
</tr>
</tbody>
</table>
In prefixal position, French pronominal affixes are organized in strictly ordered position classes:

<table>
<thead>
<tr>
<th>PRESENT INDICATIVE</th>
<th>translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>il me les donne</td>
<td>*il les me donne</td>
</tr>
<tr>
<td>il m’en donne</td>
<td>*il en me donne</td>
</tr>
<tr>
<td>il m’y envoie</td>
<td>*il y m’envoie</td>
</tr>
<tr>
<td>il les leur donne</td>
<td>*il leur les donne</td>
</tr>
<tr>
<td>il les en blâme</td>
<td>*il en les blâme</td>
</tr>
<tr>
<td>il les y envoie</td>
<td>*il y les envoie</td>
</tr>
<tr>
<td>il leur en parle</td>
<td>*il en leur parle</td>
</tr>
<tr>
<td>il leur y parle</td>
<td>*il y leur parle</td>
</tr>
<tr>
<td>il y en mange</td>
<td>*il en y mange</td>
</tr>
</tbody>
</table>
Positional analysis

- This is standardly analyzed by positing 7 slots:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUBJ</strong></td>
<td>NE</td>
<td>1/2/REFL</td>
<td>3.DOBJ</td>
<td>3.IOBJ</td>
<td>LOC</td>
<td><strong>DE-X</strong></td>
</tr>
<tr>
<td>je</td>
<td>tu</td>
<td>il</td>
<td>elle</td>
<td>on</td>
<td>ce</td>
<td>ça</td>
</tr>
<tr>
<td>nous</td>
<td>vous</td>
<td>me</td>
<td>te</td>
<td>le</td>
<td>lui</td>
<td><strong>ne</strong></td>
</tr>
<tr>
<td>nous</td>
<td>vous</td>
<td>se</td>
<td>vous</td>
<td>la</td>
<td>leurs</td>
<td>y</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>en</td>
</tr>
</tbody>
</table>
French pronominal affixes: suffixal use

Pedagogical and prescriptive grammars give the following distribution for suffixal use (in the imperative):

<table>
<thead>
<tr>
<th>PRESENT INDICATIVE</th>
<th>POSITIVE IMPERATIVE</th>
<th>translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>il me les donne</td>
<td>donne-les-moi</td>
<td>‘Give them to me.’</td>
</tr>
<tr>
<td>il m’en donne</td>
<td>donne-m’en</td>
<td>‘Give me some.’</td>
</tr>
<tr>
<td>il m’y envoie</td>
<td>envoie-m’y</td>
<td>‘Send me there.’</td>
</tr>
<tr>
<td>il les leur donne</td>
<td>donne-les-leur</td>
<td>‘Give them to them.’</td>
</tr>
<tr>
<td>il les en blâme</td>
<td>blâme-les-en</td>
<td>‘Blame them for it.’</td>
</tr>
<tr>
<td>il les y envoie</td>
<td>envoie-les-y</td>
<td>‘Send them there.’</td>
</tr>
<tr>
<td>il leur en parle</td>
<td>parole-leur-en</td>
<td>‘Talk to them about it.’</td>
</tr>
<tr>
<td>il leur y parle</td>
<td>parole-leur-y</td>
<td>‘Talk to them there.’</td>
</tr>
<tr>
<td>il y en mange</td>
<td>manges-y-en</td>
<td>‘Eat some there.’</td>
</tr>
</tbody>
</table>

Notice that there is no evidence for any mirroring effect: in the only case of a reversed order, the shapes are actually not the same.
The conservative French system

if IMP, not NE-marked

otherwise

elwhere

in inversion contexts

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Stem TAM RTYPE AGR

n n + 1 n + 2 n + 3

NE 1/2/ REFL 3.DOBJ 3.IOBJ LOC de-XP 1/2.OBJ STRONG

SUBJ
Does the conservative system exist?

- In fact it is unclear that the conservative system is anything but a prescriptive artefact.
  - Sequences such as *donne-m’en*, *envoie-m’y* have been debated since the 17th century, and are seldom used outside of edited text.

> *Il faut dire, menez y moy, & non pas, menez m’y, & au singulier auffi, menes-y moy, & non pas, mene-m’y. Et cela à cause du mauvais & ridicule fon que fait, menez-m’y, & mene-m’y [...]*

(Vaugelas, 1647, 95)

- Sequences such as *donne-moi-le*, although they have an informal character, have always been an alternative to *donne-le-moi*

> *Si le monde nous le refuse, donnons-nous-le à nous-mêmes.*

  Bossuet, *Premier sermon pour le dimanche des rameaux*, 1660

> *Pas un nom dans l’assistance qui ne fût notoire à quelque titre, et quant à celui de l’auteur, acclamé et fêté par nous, rappeliez-vous-le pour l’applaudir un jour sur la dernière scène fidèle à la poésie.*

  S. Mallarmé, *La dernière mode*, 7e livraison, 12/6/1874
SUFFIXAL USE IN INFORMAL PARISIAN FRENCH

- In contemporary informal Parisian French, there is clear overabundance.
  - Reduced 1SG and 2SG forms *me, te* are seldom used.
  - For most combinations of affixes, both orders are possible.
  - In some cases there is a perceivable sociolinguistic preference.
  - Only one combination is excluded.

<table>
<thead>
<tr>
<th>PRESENT INDICATIVE</th>
<th>POSITIVE IMPERATIVE</th>
<th>translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>il me les donne</td>
<td>donne-les-moi</td>
<td>donne-moi-les</td>
</tr>
<tr>
<td>il m’en donne</td>
<td>donne-m’en/-moi-z-en</td>
<td>donnes-en-moi</td>
</tr>
<tr>
<td>il m’y envoie</td>
<td>envoie-m’y/-moi-z-y</td>
<td>envoies-y-moi</td>
</tr>
<tr>
<td>il les leur donne</td>
<td>donne-les-leur</td>
<td>*donne-leur-les</td>
</tr>
<tr>
<td>il les en blâme</td>
<td>blâme-les-en</td>
<td>blâmes-en-les</td>
</tr>
<tr>
<td>il les y envoie</td>
<td>envoie-les-y</td>
<td>envoies-y-les</td>
</tr>
<tr>
<td>il leur en parle</td>
<td>parle leur-z-en</td>
<td>parles-en-leur</td>
</tr>
<tr>
<td>il leur y parle</td>
<td>parle leur-z-y</td>
<td>parles-y-leur</td>
</tr>
<tr>
<td>il y en mange</td>
<td>??manges-y-z-en</td>
<td>??manges-en-z-y (int.)</td>
</tr>
</tbody>
</table>
The informal Parisian French system

In nonimperative or \textit{ne+} contexts:

- \textit{stem}
- TAM
- RTYPE
- AGR

\[ n \quad n+1 \quad n+2 \quad n+3 \]

- NE
- 1/2/REFL
- 3.DOBJ
- 3.IOBJ
- LOC
- \textit{de-XP}

In imperative \textit{ne–} contexts:

- \textit{stem}
- TAM
- RTYPE
- AGR

\[ n \quad n+1 \quad n+2 \quad n+3 \]

- 1/2.OBJ
- LOC
- \textit{de-XP}

elsewhere

SUBJ

in inversion contexts

3.DOBJ

3.IOBJ
The informal Parisian French system

- This intricate system can be derived by redeploying previously used strategies:
  - *le/la/les* and *lui/leur* are the only morphs with a fixed position
  - Conditioned placement of subject pronouns and stems
  - Relative placement of TAM and agreement markers
  - For most pronominal placement, conditioned choice between rigid (default) and free (imperative) placement.
The formal framework
Realizational, template-based morphology

- We pursue the detailed formalization of a template-based approach.
- Crucial addition: possible underspecification of positions.
- Formalized in HPSG:
  - Easy to formulate precise claims on the morphology-syntax interface
  - Relaxation of strict ordering by underspecification of position
  - Realization rules are organized in inheritance hierarchies, allowing for the expression of generalizations over positions, shapes, or combinations of positions and shapes.
- No extrinsic ordering of rules: the only order is the surface order of exponents.
- The approach is otherwise very similar to Paradigm Function Morphology (Stump, 2001)
  - Fully lexicalist
  - Inferential and realisational
  - No ordering of morphosyntactic features
  - Conflict between rules resolved by Pāṇini’s Principle
Realisation rules

- Realisation rules are triplets of
  - a description of a **lexeme identifier**
  - a description of a **morphosyntactic property set**, a subset of which constitutes what rule realizes (**MUD**)
  - a description of a **list of morphs**

\[
\begin{align*}
\text{LID} & \quad \text{lexeme} \\
\text{MUD} & \quad \left\{ \begin{array}{c}
dobj \\
\text{PER} & 3 \\
\text{NUM} & \text{sg} \\
\text{REFL} & - \\
\end{array} \right\} \\
\text{MORSYN} & \quad [\text{set}] \\
\text{MORPHS} & \quad \left\{ \begin{array}{c}
\text{PH} & \langle \text{lə} \rangle \\
\text{PC} & 6 \\
\end{array} \right\}
\end{align*}
\]

- A single rule may introduce more than one morph
- The **MUD/MORSYN** distinction implements an opposition between *realizing* and *being conditioned by* a feature (Carstairs, 1987)
Inheritance hierarchy of rules

- Realization rules are organized in an inheritance hierarchy
  - Captures commonalities between rules
  - Avoidance of redundancy
Conditional placement

- Multiple rules (organized in a hierarchy) account for the conditional placement of the stem.

\[
\text{realization-rule}
\]

\[
\begin{align*}
\text{MUD} & \quad \left\{ \begin{array}{c} \text{lid} \\ \text{SSHAPE} \quad 0 \end{array} \right\} \\
\text{MORPHS} & \quad \left\{ \begin{array}{c} \text{STM} \\ \text{PC} \\ \text{PH} \quad 0 \end{array} \right\}
\end{align*}
\]

\[
\begin{align*}
\text{MORSYN} & \quad \left\{ \begin{array}{c} \text{imperative} \\ \text{NE} \quad - \quad \ldots \end{array} \right\} \\
\text{MORPHS} & \quad \left\{ \begin{array}{c} \text{PC} \quad 1 \end{array} \right\}
\end{align*}
\]

\[
\begin{align*}
\text{MORSYN} & \quad \{ \ldots \} \\
\text{MORPHS} & \quad \left\{ \begin{array}{c} \text{PC} \quad 10 \end{array} \right\}
\end{align*}
\]
Relative placement

- We introduce a feature on morphs recording the position of the stem.

\[
\text{(4) } \text{word} \rightarrow \left[ \text{MORPHS} \left[ \left[ \text{STM } [s], \left[ \text{STM } [s], \ldots, \left[ \text{STM } [s] \right] \right] \right] \right] \right] \]

- Rules may then place their morphs relative to this distinguished position.
Free placement

- Free placement of morphs simply amounts to underspecified placement
  - Here: any position strictly higher than 4

```
realization-rule

[MUD {loc}]
[MORPHS ⟨[PH <i>]⟩]
```

```
MORSYN {imperative,...}
MORPHS ⟨[PC 4 + n]⟩
```

```
MORSYN {...}
MORPHS ⟨[PC 8]⟩
```
Conclusion
Conclusion

- Main empirical claim: deviations from canonical morphotactics combine in a cumulative fashion
  - Swahili: misaligned exponence
  - Chintang: free placement
  - Mari: misaligned exponence + free placement
  - Swahili: conditioned ordering
  - Italian: conditioned ordering + relative indexing
  - French: Italian + Mari

- Two theoretical constructs are crucial to our formal account:
  - Template with possible positional underspecification of morphs
  - Realization rules organized in an inheritance hierarchy

- Jointly these capture the conjunctive nature of constraint interaction in morphotactic systems.

- Side point: pedagogical grammars, or even whole descriptive traditions, should not be trusted uncritically when dealing with phenomena involving optionality such as variable morphotactics.
References


References II


Suffixal use: the evidence

- Establishing the data is quite hard:
  - Strong prescriptive urge not to accept the dispreferred order
  - Imperatives with two pronouns are seldom found in corpora: hands-on interactions between the speakers are needed.
  - The only large enough relevant corpus (New and Spinelli, 2012) exhibits a 100:1 ratio between the two orders
  - This suggests that even elicitation in an ecological setting will only provide very few relevant examples
- Given this we may conclude that:
  - The positive grammaticality judgements above are not disputable, confirmed by hundreds of examples in various corpora.
  - The negative judgements are less firmly established
    - Documented as such in (Morin, 1979b; Auger, 1995); no evidence given to the contrary anywhere in the literature.
    - Not attested in available corpora, but the amount of relevant data precludes a firm conclusion
    - Congruent with the impressionistic judgements of various speakers of the relevant variety, but not tested systematically.
Word well-formedness

- The **morphs list** of a word is the combination of the morphs introduced by the rules licensing the word, respecting the order of position indices.

- A word is well-formed only if the set of rules licensing it exhausts its morphosyntactic description.

\[
\text{word} \rightarrow \begin{bmatrix}
\text{morphs} & e_1 \circ \cdots \circ e_n \\
\text{morsyn} & 0 (m_1 \uplus \cdots \uplus m_n)
\end{bmatrix}
\]

\[
\begin{align*}
\text{rules} & \left\langle \begin{bmatrix}
\text{morph} & e_1 \\
\text{mud} & m_1 \\
\text{morsyn} & 0
\end{bmatrix}, \ldots, \begin{bmatrix}
\text{morph} & e_n \\
\text{mud} & m_n \\
\text{morsyn} & 0
\end{bmatrix} \right\rangle \\
\text{phonology of the word} & \text{ is the concatenation of the phonology of its morphs}
\end{align*}
\]

\[
\text{word} \rightarrow \begin{bmatrix}
\text{morphs} & p_1 + \cdots + p_n \\
\text{morphs} & \left\langle \begin{bmatrix}
\text{ph} & p_1 \\
\vdots & \vdots \\
\text{ph} & p_1
\end{bmatrix} \right\rangle
\end{bmatrix}
\]
Comparision with a-morphous approaches

- In the present theory:
  - Position class templates are modeled directly
  - Morphs are represented explicitly in morphological derivations
  - Realization rules are morph licensing statements: they don’t modify an input string.
  - Realization rules are not ordered: an unstructured set of rules jointly licenses a word under a condition of informational completeness.
  - Under strong lexicalist assumptions, syntactic rules have no access to morphological structure either.

- Thus arguably, although the theory uses reified morphs:
  - It presupposes less structure in morphological derivations than stem-centric approaches (no derivation tree).
  - It makes exactly the same predictions as a-morphous approaches on the inaccessibility of morphological boundaries to both inflection rules and syntax.
  - It avoids the use of empirically undermotivated theoretical devices such as rule blocks.
Impossible combinations

- A single feature cooccurrence restriction accounts for the impossibility of

(7) a. * Il me lui présente. ‘He introduces me to her.’
    b. * Il me te présente. ‘He introduces me to you.’
    c. * Présente moi lui. ‘Introduce me to her’.
    d. * Présente moi toi. ‘Introduce yourself to me’.

(8) \[ \text{MORSYN} \{[\text{dat}, \ldots]\} \rightarrow \neg \text{MORSYN} \{[\text{acc} \lor 1 \lor 2 \lor \text{refl}], \ldots\} \]

- This is exactly as stipulative as placing the relevant exponents in the same rule block

- In any case, this is only a placeholder for an analysis taking into account periphrastic alternatives

(9) a. Il lui présente Paul ‘He introduces Paul to her.’
    b. * Il présente Paul à elle
Morphs with phonologically constrained distribution

- Well-known observations:
  - Suffixal *me* and *te* are licensed only when immediately followed by *y* or *en*.
  - Pronouns *y* and *en* take different shapes depending on whether or not they are preceded by a vowel-final morph in the same word.
  - Pronoun *les* takes a special shape when followed by a vowel-initial morph in the same word.

- All these observations can easily be modeled within the assumptions of contextualized declarative phonology (Walther, 1999; Crysmann, 2002)

\[
\text{word} \rightarrow \text{PHON} \left[ \begin{array}{c}
\text{PREV} & \# \\
\text{SELF} & 1 \\
\text{NEXT} & 2 \\
\text{PREV} & 1 \\
\text{SELF} & 2 \\
\text{NEXT} & 3 \\
\text{PREV} & n-1 \\
\text{SELF} & n \\
\text{NEXT} & \# \\
\end{array} \right]
\]
Morphs with phonologically constrained distribution

- **Suffixal me vs. moi:**

  \[
  \begin{pmatrix}
  \text{STM} & S \\
  \text{PC} & S + 3 + n \\
  \text{PH} & \langle \text{SELF m} \rangle
  \end{pmatrix}
  \]

  vs.

  \[
  \begin{pmatrix}
  \text{STM} & S \\
  \text{PC} & S + 3 + n \\
  \text{PH} & \langle \text{SELF m}, \text{SELF w}, \text{SELF a} \rangle
  \end{pmatrix}
  \]

- **y vs. z-y:**

  \[
  \begin{pmatrix}
  \text{PH} & \langle \text{SELF y} \rangle
  \end{pmatrix}
  \]

  vs.

  \[
  \begin{pmatrix}
  \text{PH} & \langle \text{SELF z} \rangle
  \end{pmatrix}
  \]

- **This predicts correctly** *envoies-y-moi, envoie-m’y, envoie-moi-z-y, *envoie-m-z-y, *envoie-moi-y*
When plural markers are taken into account, surprising ordering possibilities arise.

<table>
<thead>
<tr>
<th></th>
<th>ABSOLUTE</th>
<th></th>
<th>1SG POSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOM</td>
<td>pört</td>
<td>pört-βlak</td>
<td>pört-em</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pört-βlak-em</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pört-em-βlak</td>
</tr>
<tr>
<td>ACC</td>
<td>pört-əm</td>
<td>pört-βlak-əm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pört-βlak-em-əm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pört-em-βlak-əm</td>
</tr>
<tr>
<td>DAT</td>
<td>pört-lan</td>
<td>pört-βlak-lan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pört-βlak-em-lan</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pört-em-βlak-lan</td>
</tr>
<tr>
<td>LAT</td>
<td>pört-eš</td>
<td>pört-βlak-eš</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pört-βlak-em-eš</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>pört-em-βlak-eš</td>
</tr>
</tbody>
</table>
The full Mari data: Analysis

- This situation can be modeled easily if one assumes a position for POSS to the left of the plural marker that is unavailable in the singular.
- All the right ordering possibilities then follow without further stipulation.