In Defense of a Morphous Morphology

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1. Preliminaries

(1) “If we accept the evidence that the range of morphological possibilities in natural languages includes some processes that cannot properly be represented as the addition of an affix, we must conclude that a general morphological theory should admit both affixational and non-affixational rules. Since a process-based approach naturally accommodates affixation, but not vice versa, the alternative we should prefer is to explore a theory of morphological processes.”

Anderson (1992: 68)

In (1) Anderson is contrasting process-based approaches to an “affixation-only” program. An “affixation-only” approach would obviously be wrong if it only predicted the associations in (2) for a given word.

(2) \[ S_1 \quad S_2 \quad S_3 \] (semantic information)
\[ M_1 \quad M_2 \quad M_3 \] (morphosyntactic information)
\[ Ph_1 \quad Ph_2 \quad Ph_3 \] (phonological information)

In a morphous approach different types of association are allowed, and some of the information can be missing ([Ph], [M], [S]); [Ph] need not be a segment or a sequence of segments (it can be a phonological feature).

Exponence of inflection in amorphous approaches operates on stems and creates stems.

(3) a. Word Formation Rule for Georgian (Anderson 1992: 141 (4e))
\[
\begin{array}{c}
\text{[+N]} \\
\text{[+Instr]} \\
\end{array}
\]
\[ /X/ \rightarrow /Xit/ \]
(Cf. teoriit ‘theory-INSTR’)

b. Realization pair for Spanish (Aronoff 1994: 68, table 3.3)
\[ <[N, \text{class 2}], (X \rightarrow Xa)> \]
(Cf. belga ‘Belgian’)

2. Word Formation Rules and Catalan gender/class allomorphy

(4) Number and Case assignment in Georgian
a. (Anderson 1992, 139 (2))
\[
\begin{array}{c}
\text{[+N]} \\
\text{[+Pl]} \\
\end{array}
\]
\[ /X(a)/ \rightarrow /Xeb/ \]
axal \rightarrow axaleb
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b. (Anderson 1992, 140 (4a))
\[
\begin{array}{l}
[ +N ] \\
[ +Nom ] \\
/X/ = /Y[–Syllabic]/ \rightarrow /Xi/ \\
\text{axaleb} \rightarrow \text{axalebi}
\end{array}
\]

c. (Anderson 1992, 139 (1g))
\[
es \text{ axalebi}
\]
\[
\text{this new-PL-NOM}
\]
\[
\text{“these new ones (nom. pl.)”}
\]

In Catalan, most masculine nominals do not end in an unstressed vowel (they have a \( \emptyset \) morph); let us call them class 1. Other masculine nominals end in \( o/u/ \); let us call them class 2. Plurals are formed by adding \( s \).

(5) a. Catalan class 1 nominals

\begin{tabular}{ll}
\textit{singular} & \textit{plural} \\
llit & llits \ ‘bed(s)’ \\
cor & cors \ ‘heart(s)’ \\
mussol & mussels \ ‘owl(s)’ \\
amic & amics \ ‘friend(s)’ \\
\end{tabular}

b. Catalan class 2 nominals

\begin{tabular}{ll}
\textit{singular} & \textit{plural} \\
mico & micos \ ‘monkey(s)’ \\
toro & toros \ ‘bull(s)’ \\
lavabo & lavabos \ ‘bathroom’ \\
\end{tabular}

(6) Possible Word Formation Rules for classes (based on Aronoff 1994)

a. \[
[ +N ] \\
[ \text{class 1} ] \\
/X/ \rightarrow /X/
\]

b. \[
[ +N ] \\
[ \text{class 2} ] \\
/X/ \rightarrow /Xu/
\]

(7) Word Formation Rule for Number
\[
[ +N ] \\
[ +Pl ] \\
/X/ \rightarrow /Xs/
\]

(8) a. \textit{cor} \rightarrow \textit{cors}
\[
(6a) \hspace{1cm} (7)
/kɔɾ/ \textit{------> /kɔɾ/ -------> /kɔɾs/}
\]

b. \textit{mico} \rightarrow \textit{micos}
\[
(6b) \hspace{1cm} (7)
/mik/ \textit{------> /miku/ -------> /mikus/}
\]
However, there is a set of words which have class 1 in the singular but class 2 in the plural. The choice of class 1 for the plural would create a sequence of sibilants (an OCP problem).

<table>
<thead>
<tr>
<th>(9)</th>
<th>Class 1</th>
<th>Class 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>singular</td>
<td>plural</td>
<td></td>
</tr>
<tr>
<td>gos</td>
<td>gossos (*[góss])</td>
<td>‘dog(s)’</td>
</tr>
<tr>
<td>peix</td>
<td>peixos (*[péfs])</td>
<td>‘fish(es)’</td>
</tr>
<tr>
<td>matalàs</td>
<td>matalassos (*[mataláss])</td>
<td>‘matress(es)’</td>
</tr>
</tbody>
</table>

(10) $gos \rightarrow gossos$

(6a) (7)

\[
/gos/ \longrightarrow /gos/ \longrightarrow /goss/ \longrightarrow ?? \quad \text{(the epenthetic vowel is [ɔ])}
\]

What follows is a very sketchy morphous OT account of the phenomenon; for a detailed version see Bonet, Lloret & Mascaró (2007).

(11) Vocabulary Item (à la Distributed Morphology, Halle & Marantz 1993)

masculine $\Leftrightarrow \{\emptyset > u\}$

(12) PRIORITY: Respect lexical priority (ordering) of allomorphs

(for further justification of this constraint see also Mascaró 2007)

(13) $gos$ ‘dog’

\[
\begin{array}{|c|c|c|}
\hline
/gos + \{\emptyset > u\}/ & OCP & DEP & PRIORITY \\
\hline
a. $\emptyset$ gós & & & *! \\
b. gósu & & & *! \\
c. gósɔ & & & *! \\
\hline
\end{array}
\]

(14) $gossos$ ‘dogs’

\[
\begin{array}{|c|c|c|}
\hline
/gos + \{\emptyset > u\} + s/ & OCP & DEP & PRIORITY \\
\hline
a. góss & *! & & \\
b. $\emptyset$ gósus & & & * \\
c. gósus & & & *! \\
\hline
\end{array}
\]

3. The realization of the plural morph in North-Eastern Central (NEC) Catalan

(from Bonet, Lloret & Mascaró, in preparation)

3.1. The facts

As in other Romance languages, in most dialects of Catalan elements within the DP agree in Gender and Number (concord).

(15) totes les meves antigues companyes italianes casades

all-FPl the-FPl my-FPl old-FPl fellow-FPl Italian-FPl married-FPl

‘all my old married Italian female fellows’
In NEC Catalan, \( s \) is not realized when all the following conditions are met:

(16) **Conditions for **\( s \)-“deletion” **in **NEC Catalan

a. \( s \) is preceded and followed by a consonant  
   **PHONOLOGICAL CONDITIONING**  
   AND

b. \( s \) occurs in prenominal position within the DP  
   **SYNTACTIC CONDITIONING**  
   AND

c. \( s \) is the plural morph  
   **MORPHOLOGICAL CONDITIONING**

(17) a. aquell_ bon_ vins blancs dolços  
   that good wine-Pl white-Pl sweet-Pl  
   ‘those good white sweet wines’

b. no gaire-s bon-s amics  
   not much-Pl good-Pl friend-Pl  
   ‘not many good friends’

c. un fals conseller  
   ‘a false counselor’

We want to avoid rules that just restate the facts:

(18) \( s \rightarrow \emptyset \)  
\[ [ \ X \ C \ [ \ Y \ ] \ Z \ ]_{\text{DP}} \]

\([+\text{plural}]\)

3.2. **The proposal by Bonet, Lloret & Mascaró (in preparation)**

(19) a. Basic DP organization (taken from Cinque 2005):
\[ [ \ldots [\text{WP Dem} \ldots [\text{XP Num} \ldots [\text{YP A} [\text{NP N}]]]]] \]

b. Derived DP:
\[ [ \ldots [\text{WP Dem} \ldots [\text{XP Num} \ldots [\text{YP N} A e ]]]) \]

(20) Claims wrt concord:

a. In the syntax concord takes place only between the N and the DP-elements it c-commands.

b. OT-PF determines the final scope of concord within the DP.

(21) Uns avis vells  
some-Pl grandparent-Pl old-Pl  
‘some old grandparents’

(22) a. Input to constraint evaluation for the N *avis* and the postnominal modifier *vells*:
\[ [\text{STEM avi}]+[\text{Flec SP}_{\text{PL}}] \quad [\text{STEM vell}]+[\text{Flec SP}_{\text{PL}}] \]

b. Input to constraint evaluation for the prenominal modifier *un, uns*:
\[ [\text{STEM un}] \quad [\text{Flec } o_{\text{SG}} S_{\text{PL}}] \]

(Gender is ignored for simplification.)
In Distributed Morphology (DM) terms, it can be assumed that all known information is assigned through Vocabulary Items (specific phonological information is assigned). That includes all stems plus assigned inflection (this is indicated by a ‘+’ between the stem and the inflection). In the case of prenominal elements, all potential Vocabulary Items related to inflection are picked up (this is indicated by a comma ‘,’ between the stem and the not yet incorporated inflection).

(23) b’. Input to constraint evaluation for the prenominal modifier un, uns:

\[
\begin{align*}
\text{STEM}_{\text{un}}, [ & \quad \text{[–Pl] } \Leftrightarrow \text{Ø }] \\
\text{FLEC}_{\text{+Pl}} & \Leftrightarrow \text{s} \\
\text{Shorthand: un, } [\text{Ø} \text{S}_\text{G}, \text{sP}_\text{L}] 
\end{align*}
\]

(24) Relevant constraints

a. CONC(ORD): If an N has an inflectional feature F, all other modifiers within the DP must have the inflectional feature F.

b. MATCH: No contradictory values of an inflectional feature F within a DP.

c. *FEAT(URES): “No morphological expression of agreement features.” (Samek-Lodovici 2002: 8, NOFEATS)

d. MAX(MPH): Every morpheme of the input has a correspondent in the output. (No morphological deletion.)

e. MAX(SEGMENT): “Every segment of the input has a correspondent in the output. (No phonological deletion.)” (McCarthy&Prince 1995: 264)

f. *CsC: shorthand for the set of constraints that ban this phonological configuration.

(25) Postnominal input: vell+[ sP ]

<table>
<thead>
<tr>
<th>Outputs</th>
<th>MAX(SEG)</th>
<th>MAX(MPH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>vell+[ sP ]</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>vell+[ _P ]</td>
<td>*</td>
<td>√</td>
</tr>
<tr>
<td>vell</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

| Prenominal input: un, [ØS₀, sP₀] |
|-----------------|---------|---------|
| Outputs         |         |         |
| un+[ sP ]       | √       | √       |
| un+[ _P ]       | *       | √       |
| un              | √       | *       |

(26) Ranking: MAX(SEG), MATCH >> *CsC >> CONCORD, MAX(MPH) >> *FEAT

The constraint ranking in (26) ensures that the N and postnominal DP-elements surface with the plural morph.
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(27) taps vells ‘old corks’

<table>
<thead>
<tr>
<th></th>
<th>vell+[ $p_s]</th>
<th>tap+[ $p_i]</th>
<th>Max (SEG)</th>
<th>Match</th>
<th>*CsC</th>
<th>CONC</th>
<th>Max (MPH)</th>
<th>*FEAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>vell+</td>
<td>tap+</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td>tap+</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td>tap</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In prenominal position, plural $s$ is realized only when *CsC is not violated, (28). When *CsC is violated only the stem (an uninflected form) surfaces, (29).

(28) uns avis ‘some grandparents’

<table>
<thead>
<tr>
<th></th>
<th>avί+[ $p_s]</th>
<th>un+[ $p_i]</th>
<th>Max (SEG)</th>
<th>Match</th>
<th>*CsC</th>
<th>CONC</th>
<th>Max (MPH)</th>
<th>*FEAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>avί+</td>
<td>un+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>b.</td>
<td>avί+</td>
<td>un+[ Ø $s_i]</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>c.</td>
<td>avί+</td>
<td>un</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>avί+</td>
<td>un+[ _$p_i]</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
</tbody>
</table>

(29) un_ taps ‘some corks’

<table>
<thead>
<tr>
<th></th>
<th>tap+[ $p_i]</th>
<th>un+[ $p_i]</th>
<th>Max (SEG)</th>
<th>Match</th>
<th>*CsC</th>
<th>CONC</th>
<th>Max (MPH)</th>
<th>*FEAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>tap+</td>
<td>un+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>b.</td>
<td>tap+</td>
<td>un+[ Ø $s_i]</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>c.</td>
<td>tap+</td>
<td>un</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>tap+</td>
<td>un+[ _$p_i]</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
</tbody>
</table>

Even in prenominal position and in a CsC context, $s$ surfaces if it belongs to the stem. A deletion of this consonant contributes a fatal violation of Max(SEG).

(30) fals company ‘false colleague’

<table>
<thead>
<tr>
<th></th>
<th>company+[Ø $s_i]</th>
<th>fals+[Ø $s_i]</th>
<th>Max (SEG)</th>
<th>Match</th>
<th>*CsC</th>
<th>CONC</th>
<th>Max (MPH)</th>
<th>*FEAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>company+</td>
<td>fals+</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>b.</td>
<td>company+</td>
<td>fals</td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>company+</td>
<td>fal</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>d.</td>
<td>company+</td>
<td>fals+</td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>e.</td>
<td>company+</td>
<td>fals+os</td>
<td></td>
<td>*</td>
<td>*</td>
<td>*</td>
<td></td>
<td>**</td>
</tr>
</tbody>
</table>

Facts related to the so-called final $n$-deletion process support the idea that in prenominal contexts it is a stem that surfaces, not a singular form.

(31) a. vi  ‘wine-M’
      vin-s ‘wines-M’
      vin-et ‘wine-DIM-M’
      vin-ateria ‘wine shop-F’

b. son ‘sleepiness’
      nen ‘kid’
      tobogan ‘slide’
(32) Assumed allomorphy: \{ple / Sg, plen elsewhere\} ‘full’
Shorthand: ple(n)

(33) \textit{No CsC context} \hspace{1cm} \textit{CsC context}

\begin{itemize}
  \item a. ple poder ‘full power’
  \item b. plena vida ‘full life’
  \item c. plens acords ‘full agreements’
  \item d. \textit{plen_ poders} ‘full powers’
\end{itemize}

*ple poders

(34) \text{\textit{plen_ poders} ‘full powers (MPI)’}

\begin{tabular}{|c|c|c|c|c|}
\hline
ple(n),O_{Sg}, s_{pl}, poder+s_{pl} & MAX (SEG) & MATCH & CsC & MAX (MPH) & FEAT \\
\hline
a. plen+s_{pl} poder+s_{pl} & & \*! & & ** \\
b. ple+O_{Sg} poder+s_{pl} & *! & & * & ** \\
c. \textcolor{red}{\checkmark} plen poder+s_{pl} & * & * & * & \\
\hline
\end{tabular}

(35) \textit{ple poder ‘full power (MSg)’}

\begin{tabular}{|c|c|c|c|c|}
\hline
ple(n),O_{Sg}, s_{pl}, poder+O_{Sg} & MAX (SEG) & MATCH & CsC & MAX (MPH) & FEAT \\
\hline
a. \textcolor{red}{\checkmark} ple+O_{Sg} poder+O_{Sg} & & & & ** \\
b. plen poder+O_{Sg} & & \*! & \*! & * \\
\hline
\end{tabular}

3.3. \textit{An account within an a-morphous morphology?}

(36) \text{Word Formation Rule (WFR) for plural}

\[
\begin{array}{c}
\left[ \begin{array}{c}
\text{+N} \\
\text{+Pl}
\end{array} \right] \\
/X/ \rightarrow /Xs/
\end{array}
\]

The prenominal-postnominal asymmetry could be obtained by assuming the claims in (19) and (20) wrt to concord: the syntax would assign [+Pl] to postnominal elements and, therefore, the WFR in (36) would apply to the Noun and postnominal elements without any problem.

What about prenominal elements?

How do we obtain an output with a bare stem, needed for cases like (33d), \textit{plen_ poders}?
Appendix: why have a faithfulness constraint (MAX (MPH)) instead of a markedness constraint (HAVEINFLECTION)?

In Spanish only a closed set of DP-elements show an o ~ Ø alternation.

(37) a. tercero piso
third floor-MSg
piso tercero (*tercero piso)

b. noveno piso
ninth floor-MSg
piso noveno (*noveno piso)

b. algún compañero
some fellow-MSg
(*alguno compañero)

todo compañero
all fellow(s)-MSg
(*tod compañero)

(38) Regular cases (noveno-novena-novenos-novenas)

a. Lexical entry: novo

b. Input to PF (prenominal): noven,[FLEC o_M, a_F, Ø_S, s_P],

Shorthand: novo,FLEC

(39) Exceptional cases (primer-primero-primera-primeros-primeras)

a. Lexical entry: primer, primer~

b. Input to PF (prenominal): { primer~

{ primo,[FLEC o_M, a_F, Ø_S, s_P] }

{ primer,FLEC~

Shorthand: primer~

primer,FLEC

(40) algún piso primero ‘some first floor’

<table>
<thead>
<tr>
<th>algún~</th>
<th>pisoMSG</th>
<th>primerMSG</th>
<th>MAX</th>
<th>CONC</th>
<th>*FEAT</th>
<th>CONC</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>algún,FLEC</td>
<td>pisoMSG</td>
<td>primerMSG</td>
<td>MHz</td>
<td>(F,PL)</td>
<td>FLEX</td>
<td>FLEX</td>
<td>SEG</td>
</tr>
<tr>
<td>a. algún+oMSG</td>
<td>piso+oMSG</td>
<td>primer+oMSG</td>
<td>6*!</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. algún</td>
<td>piso+oMSG</td>
<td>primer</td>
<td>4*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. algún</td>
<td>piso+oMSG</td>
<td>primer+oMSG</td>
<td>4*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(41) noveno piso ‘ninth floor’

<table>
<thead>
<tr>
<th>noven,FLEC</th>
<th>piso+oMSG</th>
<th>MAX</th>
<th>CONC</th>
<th>*FEAT</th>
<th>CONC</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>noven,FLEC</td>
<td>piso+oMSG</td>
<td>MHz</td>
<td>(F,PL)</td>
<td>FLEX</td>
<td>FLEX</td>
<td>SEG</td>
</tr>
<tr>
<td>a. noven+oMSG</td>
<td>piso+oMSG</td>
<td>4*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. novén</td>
<td>piso+oMSG</td>
<td>4*</td>
<td></td>
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<td></td>
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</tbody>
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References


