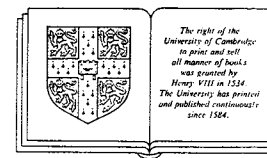# Phonologica 1988

Proceedings of the 6th International Phonology Meeting

Edited by
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The right of the
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JRR

Contents

Preface

This volume represents a selection of the papers delivered at the Sixth International Phonology Meeting held near Vienna in Krems from 1st to 4th July 1988.[1] As with the 1984 meeting, the move from Vienna to a small nearby historic town provided (a) a reduction of accommodation prices for participants, (b) a more pleasant atmosphere in less urban surroundings, and (c) co-ordination with the Third International Morphology Meeting[2] from 4th to 7th July at the same venue, which overlapped temporally and thematically with the last day of the Phonology Meeting.

The contributions at both meetings were arranged in topic-oriented sections with 30-minute and 15-minute oral presentations, several workshops,[3] and discussion sessions.[4] The four topics of the Phonology Meeting were:

(1) Phonological and phonetic features
(2) Phonological universals, typology and diachrony
(3) Empirical methods in phonology
(4) The interface of phonology, morphology and syntax

We are pleased to be able to present this collection of papers as a *tour d'horizon* of major areas of current phonological research. For making the meetings and this volume possible, we thank the Austrian Ministry of Science and Research, the Government of Lower Austria (Niederösterreichische Landesregierung) and the town of Krems for their financial

Michaels, D. and Tiedeman R. 1987. Rules and Syllable Structure in Zoque. In Ishii et al. (eds.), *UConn Working Papers in Linguistics* 1: 48-53.
Rangaswami, S. 1987. *A Syllable Structure Analysis of Aspirates in Sanskrit*. Ms. University of Connecticut, Storrs.
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Polish yers in non-linear phonology*

Marek Piotrowski

Introduction

The present paper offers a new solution to the problem of vowel~zero alternations in Polish. All previous analyses, which can be dubbed 'deletion' solutions, rejected epenthesis in favour of various means of representing the fleeting vowels (also called yers) in the lexical representations, and deleting them in appropriate contexts. Laskowski (1975), Gussmann (1980) and Rubach (1984) posited an absolutely neutralized tense/lax contrast to differentiate them from non-deleting vowels. More recent autosegmental analyses represented yers as either empty V-slots (Spencer 1986; Piotrowski in press), or floating matrices (Rubach 1986). The analysis presented in section 5 shows that the epenthesis solution is possible in a syllable-based phonology coupled with the theory of underspecification.

1   Vowel~zero alternations

In numerous Polish words stem-final CC clusters are broken by the vowel [e] when followed either by zero desinence (nom. sg. masc. and gen. pl. fem. & neutr.) or a small class of asyllabic suffixes (e.g. diminutive -k-, or adjectival -n-):

(1) ko[rek] 'cork, nom. sg.'   –   ko[rk]a 'gen. sg.'
     wio[sn]a 'spring, nom. sg.'   –   wio[sen] 'gen. pl.'
     [ps]y 'dogs, nom. pl.'   –   [p′esk′]i 'dim.'
     kar[čm]a 'tavern, nom. sg.'   –   kar[čemn]a 'adj.'[1]

Some of the instances of the 'fleeting' [e] cause the palatalization of the preceding consonant as in [p′es] 'dog, nom. sg.' – [ps]a 'gen. sg.', while others do not as in *wio*[sn]a 'spring, nom. sg.' – *wio*[sen]/**wio[śen]

'gen. pl.'. At the same time in many words [e] is entirely invariant in the same grammatical/phonetic contexts:

(2) [ćeń] 'shadow, nom. sg.'   –   [ćeń]a /*[tń]a 'gen. sg.'
     te[ren] 'area, nom. sg.'   –   te[ren]u /*te[rn]u 'gen. sg.'

The appearance of the vowel cannot be predicted on the basis of either the structure or the complexity of consonant clusters. Numerous examples can be found where identical CC clusters are broken in the same contexts in some words and left intact in others:

(3) a. ma[sk]a 'mask, nom. sg.'   –   ma[sek] 'gen. pl.'
        ba[rk]i 'barge, nom. pl.'   –   ba[rek] 'gen. pl.'
     b. tro[sk]a 'concern, nom. sg.' –   tro[sk] 'gen. pl.'
        ba[rk]i 'shoulder, nom. pl.' –   ba[rk] 'nom. sg.'

The vowel fails to intervene to split heavy onsets and codas, and quite 'tongue-twisting' sequences result:

(4) [pstr]y 'motley'   [wzdr]ęga 'rudd, nom. sg.'
     wnę[ntš] 'interior, gen. pl.'   zastę[mpstf] 'replacement' (5 C's)

Thus we come up with four different kinds of [e] in Polish: non-deleting, non-palatalizing as in *teren – terenu*; non-deleting, palatalizing as in *cień – cienia*; deleting, non-palatalizing as in *korek – korka*; and deleting, palatalizing as in *pies – psa*. The analysis that managed to get to grips with this complex sound pattern came to be known as the yer solution.

2   The yers

The data in (1-4) clearly suggested that it is impossible to predict in which stems the final CC clusters are broken. Therefore, an initial assumption was made that [e]~[∅] alternations take place only in designated stems, which under the deletion analysis meant the presence of the alternating vowels in the lexical representation. Given that some instances of deleting [e]'s also alternate with [i] and [y] in Derived Imperfectives (see Gussmann 1980), the vowel~zero alternations were linked with the [e]~[i/y] alternations by assuming that there is an absolutely neutralized tense/lax distinction /ī,ȳ/~/ĭ,y̆/ in Polish, and that a rule shifts underlying high, lax vowels to [e] in appropriate contexts, and deletes them elsewhere. The posited front lax vowel (/ĭ/) surfaced as [e] after triggering palatalization, whereas the back, lax vowel (/y̆/) surfaced as non-

palatalizing [e]. The term 'yer', borrowed from diachronic Slavic, has been identified and gradually used interchangeably with lax vowels.

The observation that stem lax vowels vocalize when followed by suffixes which themselves alternate (as in the diminutive of *cu*[k'er] 'sugar, nom. sg.' – *cu*[kr]u 'gen. sg.': *cukier*[ek] – *cukier*[k]a) suggested that these suffixes also contain lax vowels. By extension it was assumed that the zero case markers are also underlyingly lax vowels which are never vocalized. This maximally simplified the context in the SD of the rule called LOWER, formulated (after Gussmann 1980:39) as:

(5)
$$
\begin{bmatrix} +\text{syll} \\ +\text{high} \\ -\text{tense} \end{bmatrix} \rightarrow \left\{ \begin{array}{c} \begin{bmatrix} -\text{high} \\ -\text{back} \end{bmatrix} \quad / \quad \underline{\quad} \quad C_0 \begin{bmatrix} +\text{syll} \\ +\text{high} \\ -\text{tense} \end{bmatrix} \\ \emptyset \end{array} \right\}
$$

which lowers lax vowels to [e] when another lax vowel follows in the next syllable, and/or deletes them elsewhere. Consider sample derivations illustrating the operation of (5):

(6)

	cukier	cukru	cukierek
	/cukÿr+y̆/	/cukÿr+u/	/cukÿr+y̆k+y̆/
Palatal.			
LOWER	e ∅	∅	e e ∅
Surface palatal.	k'		k'
	[cuk'er]	[cukru]	[cuk'erek]

	cukierka	cukiereczek
	/cukÿr+y̆k+a/	/cukÿr+y̆k+ĭk+ÿ/
Palatal.		č
LOWER	e ∅	e e e ∅
Surface palatal.	k'	k'
	[cuk'erka]	[cuk'ereček]

3   Yers in autosegmental phonology

The extreme abstractness of the yer solution constituted an attractive challenge for a more constrained and concrete framework of non-linear phonology. Spencer's (1986) autosegmental analysis replaced yers with unassociated V-slots on the skeletal CV tier. Drawing on Archangeli's

(1984) theory of underspecification Spencer (1986:260) arrived at the following underspecified vowel matrix for Polish:

(7)

	i	y	u	e	o	a
high	+	+	+			
back		+				+
round			+		+	

in which [e] is the empty (epenthetic) vowel. Empty V-slots are filled with melodic material by a set of partly universal and partly language-specific redundancy rules (Spencer 1986:260), and surface as [e], with the exception of the last occurrences of empty V, which are marked extrametrical (∗), and which are left uninterpreted (removed from representations) at the end of derivation (after Spencer 1986:255):

(8)   cukier   cukru

```
   c V k V r V        c V k V r V
   |   |   |          |       |   |
   u   e   *          u   *   u
```

The weakness of Spencer's analysis comes from what was supposed to be its strongest point: the employment of underspecification. All instances of phonetic [e], whether deleting or non-deleting, would by necessity be empty by Spencer's rules, and there would be no way of distinguishing yers from full vowels:

(9) wsie 'village, nom. pl.'   terenu 'area, gen. sg.'

```
   v V s + V                     t V r V n + V
   |       |      → *wieś         |   |       |     → *ternu
   e       *                     e   *       u
```

While Spencer tried to encode the presence of yers on the skeletal tier and left the melody empty to be filled by redundancy rules, Rubach (1986) applied a reverse procedure: the yers have been represented on the melodic tier as floating vowels without corresponding skeletal slots, which are inserted by an autosegmental version of LOWER (Rubach 1986:265):

(10)   N
                      |
                      x
                      |
          Ⓥ → [−high] / ___ ©V

(10) is a derivationally powerful rule: it affects the melodic content of the target vowel, inserts a timing slot on the skeletal tier, links the floating

melody with the inserted slot, and on top of that erects prosodic structure. In this sense it operates on several aspects of representation at the same time. In what follows it is shown that with a modified version of underspecification for Polish vowels, and with different assumptions about the structure of Polish stems, a much simpler analysis is possible which makes appeal to universal rules and representations.

4   Polish vowels and underspecification

One of the main arguments supporting yers and the deletion analyses has been the alleged dependence of the palatal quality of consonants on the front quality of the following vowel. Gussmann (in press) shows that the relation between the palatalization of consonants and the backness of vowels cannot be upheld in Polish, and that palatalization is an autosegmental process triggered by autosegmentalized features, and not by vowel-internal ones. What is more important for our discussion, however, is that once we free vowels from the task of triggering complex and cumbersome palatalizations, the rationale for keeping the underlying [front-back] contrast for vowels disappears. Gussmann easily proves that [i] and [y] are in complementary distribution in Polish: /i/ is the lexical vowel, which has two allophones: [i] − at the beginning of the word and after high consonants, and [y] − after non-high ones. Since the [back-front] contrast is entirely non-distinctive for Polish vowels, any analysis of fleeting vowels no longer has to account for palatalizing contrasts encoded in the feature [front-back] for yers. Consequently, vowels need not be prespecified for backness, and the underspecified vowel matrix for Polish has to be modified to eliminate the [front-back] contrast. This move reduces the underlying Polish vowel system to the familiar [i,e,a,o,u] set common for many languages, which makes the underspecified vowel matrix for Polish identical to that of, for instance, Spanish as found in Archangeli (1984:59):

(11)

	i	e	a	o	u
high	+				+
low			+		
round				+	+

Redundant feature values are filled by a set of Complement Rules (CR) and Default Rules (DR) (Archangeli 1984:59):

(12) a. [ ] → [−high]   CR
      b. [ ] → [−low]   CR
      c. [ ] → [+back, −round] / [____, +low]   DR
      d. [ ] → [−round]   CR
      e. [ ] → [α back] / [____, −low, α round]   DR

Thus most of the motivations supporting yers seem at best debatable, and below we show that the last portion of the deletion analysis, the vowel~zero alternations, can be better captured in terms of syllable-based processes.

5   Extrasyllabicity and syllabification

The central claim of the present paper is that fleeting vowels are not present in the lexical representations of the alternating stems but are inserted by a rule of syllabification. For the purposes of the foregoing argument, the paper follows Archangeli's (1984) model of syllabification and underspecification. I assume that syllabification rules are essentially in no way different from other redundancy rules which assign new structure to underspecified matrices. In line with this, the 'feature' of syllable headedness (R) is treated as the lexical (marked) value of syllabicity, and the rest of syllable structure is filled in by rules. The only other prosodic 'feature' permitted in the lexical representation is extrasyllabicity marking (indicated with a prime), which is treated as negatively prespecified syllable structure.[2] I further assume that final consonants in the alternating -CC stems are extrasyllabic as opposed to non-alternating stems in which syllabification applies exhaustively:

(13)   masek 'gen. pl.'   trosk 'gen. pl.'

```
         R                          R
         |                          |
    x  x  x  x'              x  x  x  x  x
    |  |  |  |               |  |  |  |  |
    m  a  s  k               t  r  o  s  k

         σ                          σ
         |                          |
         R                          R
         |                          |
    x  x  x  x'              x  x  x  x  x
    |  |  |  |               |  |  |  |  |
    m  a  s  k               t  r  o  s  k
```

This constitutes a clue to the different status of alternating stems and the apparent unpredictability of the appearance of the vowel. Notice that the extrasyllabic consonant in /mask'-/ gets syllabified, when a syllable head follows as in *maska*, by a universal redundancy rule (Archangeli 1984:45):

(14)

```
      σ
     / |
    x' x
```

which makes an unsyllabified slot the onset (cf. also Rubach & Booij's (1988:6) CV rule for Polish which is equivalent to (14)):

(15)

```
       σ      σ                    σ      σ
      /|      |                   /|      |
     R        R                  R        R
    /|\       |        (14)      /|\      /|
   x x x x' + x         →       x x x x  x
   | | | |    |                 | | | |  |
   m a s k    a                 m a s k  a
```

Unfortunately, (14) is not always available: both in zero inflection and the suffixation of asyllabic -k- and -n- (see (1)), the SD of (14) is not met, and extrasyllabic consonants would have to be deleted at the end of derivation. This is not what happens in Polish: when (14) is not applicable, a vowel is inserted to syllabify the unsyllabified material. Since the epenthetic vowel is [e], which is underlyingly empty (see (11)), the rule responsible is purely prosodic in nature. All it has to do is to insert a syllable head, because all melodic features are provided by segmental redundancy rules in (12). The exact place of insertion (whether CC'V or CVC') is language-specific, and has to be stipulated by the rule, which can now be formulated as follows:

(16) Insert a syllable head to immediately precede an extrasyllabic consonant.

This can be mnemonically represented as:

(17)

```
              R
              |
    Ø    →    x    /  __ x'
              ⊥
```

where x stands for a melodically empty slot.
     ⊥

Consider the following derivations that illustrate the operation of the rules in question:

(18) a. cukier

```
     R        syllabi-      /R  R    syllabification      σ  σ
     |        fication     /|\  |    resyllabificat.     /|  |
  x x x x'      →       x x x x  x'   palatalization    /R  R
  | | | |     (17)      | | | ⊥ |         →           /|  |\
  c u k r                c u k   r        (12)        x x x x x
                                                      | | | | |
                                                      c u k'e r
```

b. cukru
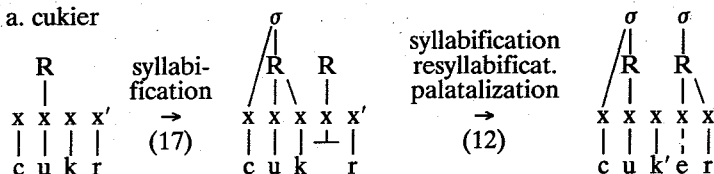
```
    R      R     syllabi-      σ    σ        resyllabi-     σ      σ
    |      |     fication     /R    R        fication      /R    /R
 x x x x'+ x      →          /|\  / |            →        /| \  / |
 | | | |   |    (14)        x x x x' x                   x x x x x
 c u k r   u                | | | | |                    | | | | |
                           c u k r u                    c u k r u
```
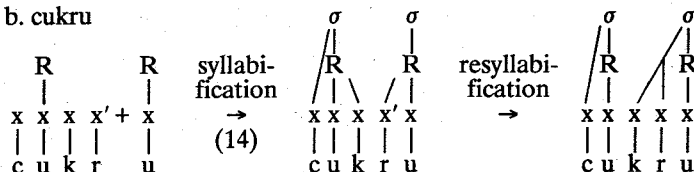
The case of diminutivization should illustrate best how syllabification works for Polish. I assume that the representation of the diminutive is:

$$x'$$
$$|$$
$$k$$

as it itself alternates: *cukier*[ek] – *cukier*[k]*a*. Consider the following:

(19) cukiereczek

```
      R            syllabi-      /R   R              resyllabi-
      |            fication     /|\   |              fication
 x x x x'+ x'+ x'     →        x x x x x' x'+ x'         →
 | | | |   |   |    (17)       | | | ⊥ |   |      (17)
 c u k r   k   k               c u k   r   k   k
```

```
  σ   σ                   σ   σ   σ                    σ   σ   σ   σ
 /R  /R   R      resyll.  /R  /R  /R   R    resyll.   /R  /R  /R  /R
 /|  /|\  |              /|   |  /|\   |    palatal.  /|  |   /|  /|
x x x x x x'x'    →    x x  x x x x x x x'    →      x x x x x x x x x
| | | ⊥ | ⊥ | |  (17) | |  | | ⊥ | ⊥ | ⊥ |  (12)    | | | | | | | | |
c u k   r  k k        c u  k   r   k   k            c u k'e r e č e k
```
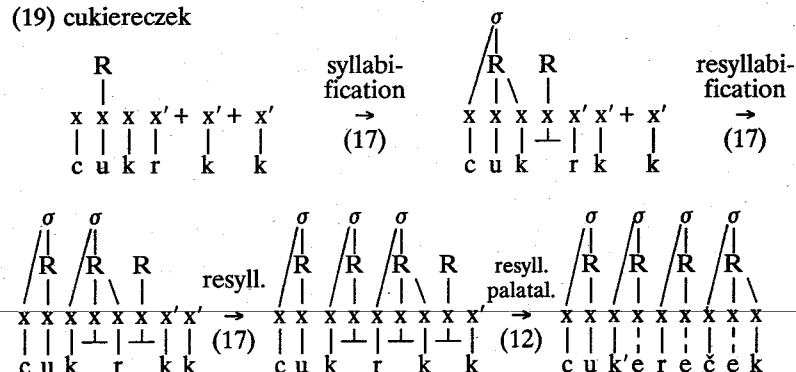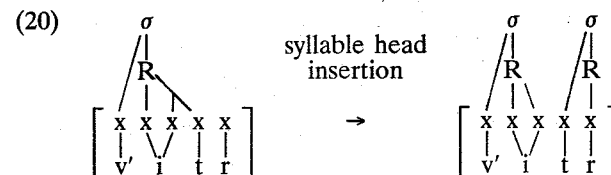
Syllabification rules apply cyclically (although the cycles have not been properly indicated in (19)) interpreting prosodically the string left-to-right. They are universal in character, the only language-specific stipulation being the provision in (16). The analysis as presented above proves that the epenthesis solution not only may be a viable option, but is actually a simple, purely synchronic statement of the prosodic organization of Polish words. In the following section it is shown that it also sheds new light on the controversial issue of Polish syllable structure.
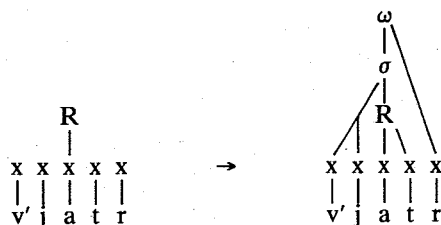
6   Polish syllable structure

At the core of the yer solution stood the claim that the epenthesis rule for Polish is unworkable because Polish syllable structure is largely unpredictable. Rubach & Booij (1988:3) note that virtually any combination of consonants is possible word-initially and word-finally in Polish. Sawicka (1985:4) observes that Slavic languages generally preserve the Sonority Hierarchy Principle with the exception of Polish, where its violations are quite common. A characteristic contrast between Czech and Polish syllabifications, for example, can be illustrated by a pair like the Czech [v'i:tr], in which the violation is removed by creating a syllable peak on [r], and the Polish *wiatr* [v'jatr], which is left intact. If we assume that [r] is syllabified in [v'jatr], then the resulting coda sequence violates sonority sequencing principles, and undermines the universality of the Sonority Hierarchy Principle. If we assume, however, that it is left unsyllabified, in which case it should be marked extrasyllabic, then the SD of (17) is met, and the word will surface as [*v'jater]. I would like to claim that Polish, like other Slavic languages, observes sonority principles, and also that the syllabification rules posited in my analysis, (17) included, are valid for all derivations.

Hermans (1985) shows that word-final [l] in Icelandic cannot be part of the rhyme in a final CC sequence, but may be part of the word. In other words, an unsyllabifiable segment is not 'strayed', but is parsed into the word by adjunction. The use of this concept for those Polish formatives which violate sonority sequencing explains the differences in the syllable structure of Polish and Czech. In Czech, the unsyllabified [r] has a sufficient sonority index for the rule of syllable head insertion to apply:

(20)

```
          σ                                      σ     σ
         /R.                syllable head        /R   /R
         / | \              insertion           /|\   /|
       [ x x x x ]              →             [ x x x x ]
         | \/ | |                               | \/ | |
         v' i  t r ]                            v' i  t r ]
```

In Polish only vowels can be syllable heads, and consequently [r] is not syllabified, but adjoined to the p-word node:

(21)

```
                                         ω
                                         |
                                         σ
                                        /|
      R                               / R
      |                              /|| \
  x  x  x  x  x        →         x  x  x  x  x
  |  |  |  |  |                  |  |  |  |  |
  v' j  a  t  r                  v' j  a  t  r
```

The same strategy seems to be employed with borrowings like *me*[tr] 'meter', *fil*[tr] 'filter', *cy*[kl] 'cycle'. However, the 'normal' case for borrowings in Polish involves epenthesis as predicted by (17), and not p-word adjunction:

(22)   syn[g'el]   'single'   –   syn[gl]a
       me[bel]   'furniture'   –   me[bl]a

Adjunction appears to apply only in the case of a limited set of sequences (like [tr, dr, kl, kr, fr, fl] and a few others):

(23)   łotr, kadr, cykl, fiakr, bicykl, gofr, trefl

In many both native and loan words, however, in which adjunction should be available, (17) applies:

(24)   ka[fel]   / *ka[fl]   'tile'   –   ka[fl]a   / *ka[fel]a
       cyr[k'el] / *cyr[kl]   'compasses' –   cyr[kl]a / *cyr[k'el]a

The data clearly suggests that we are dealing with two apparently conflicting processes: p-word adjunction, which satisfies the requirements of sonority principles, and (17), which accounts for vowel~zero alternations in Polish. It is easy to see that p-word adjunction is restricted not only to specific clusters, but in fact to specific morphemes, whereas epenthesis is a general, unconstrained process. Adjunction therefore must be seen as a highly marked device which blocks the application of regular syllabification. This is something to be expected: words violating sonority rules are marked. P-word adjunction, then, is not a productive process in Polish, as it may be in other languages, but is present in the lexical representation of certain idiosyncratic lexemes. In other words we have to assume that prosodic structure is underlyingly present in designated stems. With this assumption in mind, let us look at another aspect of vowel~zero alternations, which the traditional analyses could not account for.

Gussmann (1980) showed that LOWER does not work in a number of generalized cases. For the purposes of our argument we note only one irregularity. In some Polish words the upper expansion of (5) only optionally applies before inflectional yers, which produces doublets differing in the presence vs. absence of the surface [e]:

(25)   bi[tf]a 'battle, nom. sg.'   bi[tf] / bi[tef] 'gen. pl.'
       sa[rn]a 'roe-deer, nom. sg.'   sa[rn] / sa[ren] 'gen. pl.'

It is not possible to mark the stems in (25) as not undergoing the rule since they all have their yers vocalized obligatorily before derivational suffixes containing yers (under our analysis asyllabic suffixes), which means that the rule does apply to them:
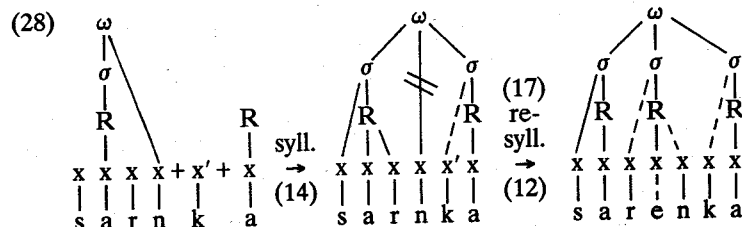
(26)   UR:
       bi[tf]a – bi[tev]ny / *bi[tf]ny   /bity̆v+ı̆n+y/ 'adj.'
       sa[rn]a – sa[ren]ka / *sa[rn]ka   /sary̆n+y̆k+a/ 'dim.'

The optional presence of the vowel in (25) could not be explained by the yer solution. This free variation can be easily expressed in our framework by means of the following differences in the lexical forms of the two variants: the stem-final C in the variant without the vowel is adjoined to the p-word node (i.e. is lexically parsed) while the final C in the other variant is extrasyllabic:

(27)   a.   sarn   b.   saren
```
            ω
            |\
            σ \
            |  \
            R   \
            |    \
        x  x  x  x          x  x  x  x'
        |  |  |  |          |  |  |  |
        s  a  r  n          s  a  r  n
```

Accordingly, (a) will emerge as [sarn], while (b) undergoes (17) and surfaces as [saren]. Notice that the vowel in [saren] must be epenthetic, since it alternates with zero, as in *sa*[rn]*a* (**sa*[ren]*a*). The question that has to be answered now is why both (27a) and (27b) emerge as *sa*[renk]*a* in the diminutive. A form like **sarnka* is impossible for (27a), since in line with the Peripherality Condition (Hayes 1982), which restricts extrametrical material to the edges of prosodic domains, p-word adjunction must be erased when the stem is followed by the diminutive suffix -*k*-:

(28)

```
     ω                      ω                         ω
     |                    / | \\                    / | \
     σ                  σ    ||   σ   (17)        σ   σ   σ
     |                 /|\  || /|   re-          /|\ /|\ /|
     R       R        / R  ||/ 'R   syll.       / R 'R  'R
     |       |  syll. /|\  || /|              /|\ /| \ /|
  x x x x+x'+ x  →   x x x x x'x    →       x x x x x x x
  | | | | | |  (14)  | | | | | |   (12)     | | | | | | |
  s a r n k a        s a r n k a            s a r e n k a
```
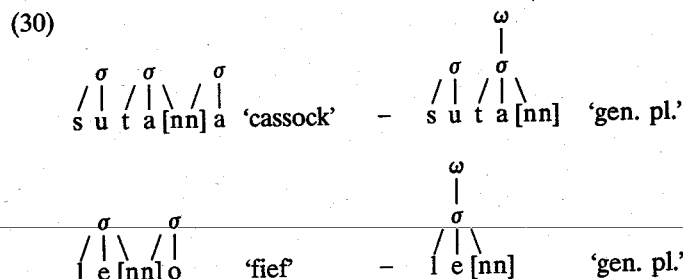
Another piece of evidence for lexical p-word adjunction and epenthesis solution comes from an analysis of geminates in Polish. Polish does not allow tautosyllabic geminates, and they only appear at syllable boundaries:

(29)

```
    σ   σ         σ   σ         σ   σ         σ    σ
   /|\ /|        /|\ /|        |\ /|         /|\  /|
  p a n n a     w a n n a     O t t o      w i l l a
```
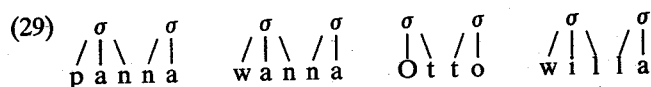
When found at the end of words, they are normally broken by a vowel, which indicates that the second members of geminate clusters must be underlyingly extrasyllabic for (17) to apply:

```
    R              R  R
    |              |  |
  p a n n'   →   p a n i e n
```
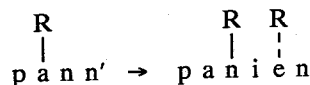
There are, however, a few formatives in which final geminates *are* found:

(30)

```
    σ   σ   σ                      ω
   /|  /|\ /|                      |
  / |  / | \ /|                  σ   σ
  s u t a[nn]a  'cassock'   -    /|  /|\
                                / |  / | \
                              s u t a[nn]  'gen. pl.'
```

```
     σ    σ                         ω
    /|\  /|                         |
   / | \ / |                        σ
  l e[nn]o   'fief'    -          /|\
                                 / | \
                               l e[nn]  'gen. pl.'
```

To explain the phenomenon, only the concept of p-word adjunction seems a viable possibility, for it explains the existence of an otherwise impermissible syllable structure.

7   Conclusion

The epenthesis analysis adduced above shows that vowel~zero alternations are not an artefact of Polish phonology, but that they naturally fall out from more general principles of the prosodic organization of the Polish sound system. It helps to explain apparent violations of universal tendencies operating in Polish, which in traditional analyses came to be considered a puzzling mystery.

Notes

* I am indebted to the anonymous reviewers of the earlier version of this paper for their inspiring criticisms and instructive comments.
1 The system of transcription follows a simplified Polish spelling-oriented version. For instance, [ń] stands for the prepalatal nasal, [ć] represents palato-alveolar voiceless affricate, [c] post-dental voiceless affricate, [ś] palato-alveolar voiceless fricative. [y] stands for the high, non-back retracted vowel (= IPA [ɨ]).
2 Negatively prespecified syllable structure means that extrasyllabic slots carry the lexical negative (−) value with regard to syllabification. The interaction of these two lexical features: [+syllable head] and [−syllabifiable] creates scope for the operation of syllabification rules.

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