Double-linked left-edge vowels in CVCV. A case of Poznan-Cracow Voicing

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(handout)

I. Abstract

This paper advocates the idea that in CVCV phonology, left-edge vowels may be attached to a V slot and a C slot on the skeleton at the same time. It is argued that in Polish, any vowel present at the left edge of a phonological representation may be double-linked, primarily to a V slot, secondarily to the preceding C slot. It is concluded that the presence of a double-linked vowel and the presence or absence of an empty CV between two phonological chunks (words, morphemes) can explain the phenomenon of Poznan-Cracow Voicing.

II. Short description of Poznan-Cracow Voicing

Poznan-Cracow Polish has regressive voicing of obstruents in the presence of a vowel, found in casual speech across word boundaries, as shown in (1).

(1) *brat ojca* 'father's brother'; /brat/ + /ˈɔjtsa/ → [braˈdɔjtsa]

[±voice] is a distinctive feature of Polish obstruents, at least before vowels, as shown in (2).

(2) *pat* 'stalemate' /pat/ vs. *bat* 'whip' /bat/

Despite the same phonetic setting, the phenomenon shown in (1) is only attested across word boundaries, whereas it is not attested word-internally, as presented in (3).

(3) *bratowa* 'brother's wife'; /brat/ + –/ˈɔva/ → [braˈtɔva]

III. Simple Lexical Phonology analysis

For rule-based derivational theories of phonology, at any lexical level the process of regressive vowel-to-obstruent voicing is absent; hence no voicing applies to (2) or (3), whereas at the post-lexical level the process is free to apply in Poznan-Cracow Polish, yielding (1). The only necessary condition here is that post-lexically, the voicing does not affect obstruents left voiceless at earlier stages of the derivation; otherwise the [±voice] distinction, as in (2), would be lost, contrary to fact. This solution, however, is rejected in CVCV, since CVCV is not a rule-based derivational theory.

IV.   Inapplicability of LP analysis for CVCV

In CVCV all phonological processes are supposed to stem from lateral relations between the segments linked to a skeleton made from alternating C and V slots (Scheer 2004). What is more, CVCV bans serial derivation in phonology proper (Scheer 2006). Hence, a CVCV analysis of the phenomenon in question needs to find the difference between (1) and (3) in their phonological representations, without recurring to rules and level distinction.

In order to concatenate chunks correctly, CVCV has an accompanying Translator's Office in the morphosyntax–phonology interface (dubbed Direct Interface; cf. Scheer 2006). In short, with respect to the phonological skeleton, the interface cannot manipulate the melody, but it can manipulate skeletal slots by means of adding or not adding an empty CV between the chunks.

V.   Double-linked left-edge vowels in Polish as a plausible solution

As a solution, this paper explores the concept of double-linked chunk-initial vowels, with a primary node (or association line) between the phonological expression (the segment) and the first V slot in the skeleton, and a secondary node between the expression and the preceding (word-initial) C slot, as shown, for example in (5).

(5) *ojca* 'father' 1SG.GEN.

| C	V	C	V	C	V
		|	|	|	|
	ɔ	j	∅	ts	a

On an independent ground, the concept of double-linked vowels might explain why word-initially, a vowel does not have to be preceded by a glottal plosive in casual speech in Polish.

For Poznan-Cracow Voicing, the insertion of an empty CV by the Translator's Office or the lack thereof will ensure that the voicing assimilation is not attainable in (2) or (3), but may be fully automatic in (1). In short, if there is no extra CV sent from the Office, the obstruent and the vowel in question are separated only by the final empty nucleus (FEN) of the first chunk. This allows for the [+voice] feature (or a voice-related Government Phonology primitive) to spread from the initial (secondarily-linked) C slot of the second chunk to the last C slot of the first chunk. If, however, there is an empty CV in-between, the obstruent and the vowel are separated by three skeletal slots, making an automatic spreading impossible. It is then the Translator's Office's (interface's) task to differentiate levels of the structure received at PF to produce the attested result.

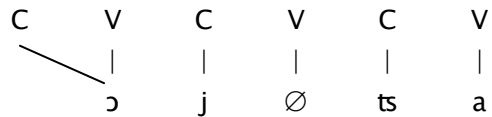The three chunks to be combined in pairs of stem+suffix and word+word are given in (7), (8), and (9).
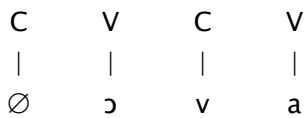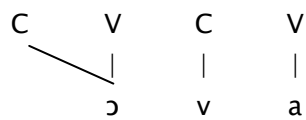
(7) *brat*

FEN

C	V	C	V	C	V
|	|	|	|	|	|
b	∅	r	a	t	∅
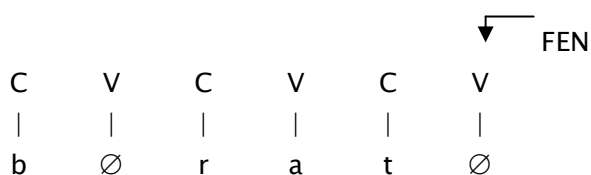
(8a) *ojca* (without double-linking)

```
C       V       C       V       C       V
|       |       |       |       |       |
∅       ɔ       j       ∅       ts      a
```

(8b) *ojca* (double-linked)

```
C       V       C       V       C       V
 \              |       |       |       |
   \            |       |       |       |
     ɔ          j       ∅       ts      a
```

(9a) *–owa* (without double-linking)

```
C       V       C       V
|       |       |       |
∅       ɔ       v       a
```

(9b) *–owa* (double-linked)

```
C       V       C       V
 \              |       |
   \            |       |
     ɔ          v       a
```
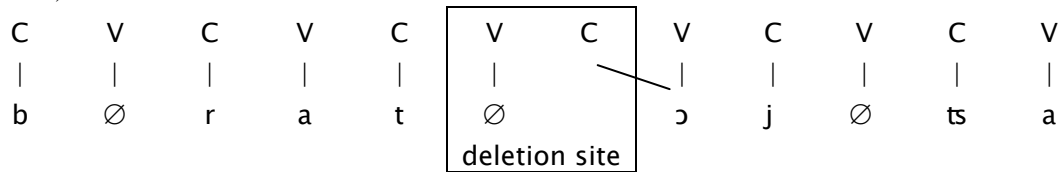
VI.   Some considerations on the applicability of double-linking

It remains to be answered whether all vowel-initial phonological chunks may be equipped with double-linked left-edge vowels, or perhaps some entities (words) should have it, while others (suffixes) should not. There are two major possibilities of how the actual concatenation should be performed, named *Variant A*, and *Variant B*, below.
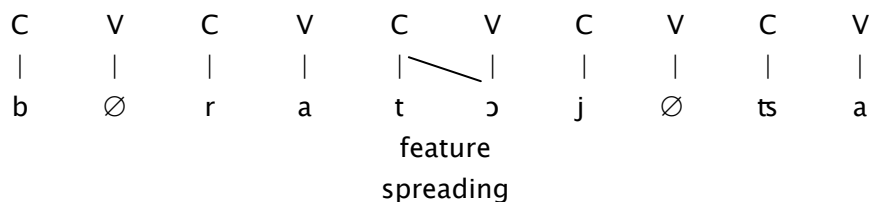

Variant A

There is no differentiation by the left edge at the interface, i.e. all vowel-initial chunks are uniform with respect to double-linking. The interface only sends or does not send an empty CV to mediate. (A10) shows a word+word concatenation, and (A11) shows a stem+suffix concatenation, step by step.
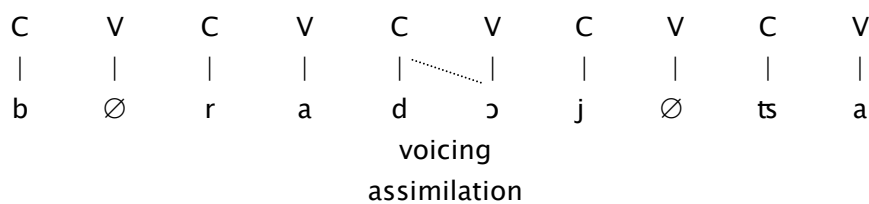
(A10a)

```
C     V     C     V     C   ┌ V       C ┐    V     C     V     C     V
|     |     |     |     |   │ |        \ │    |     |     |     |     |
b     ∅     r     a     t   │ ∅         \│    ɔ     j     ∅     ts    a
                           └ deletion site ┘
```

(A10b)

```
C     V     C     V     C     V     C     V     C     V
|     |     |     |     |\    |     |     |     |     |
b     ∅     r     a     t  \  ɔ     j     ∅     ts    a
                        feature
                        spreading
```

(A10c)

```
C     V     C     V     C     V     C     V     C     V
|     |     |     |     |····.|     |     |     |     |
b     ∅     r     a     d     ɔ     j     ∅     ts    a
                        voicing
                        assimilation
```

3

(A11a)

```
C    V    C    V    C    V   ┌ C    V ┐   C    V    C    V
|    |    |    |    |    |   │ |    | │   | ╱  |    |    |
b    ∅    r    a    t    ∅   │ ∅    ∅ │   ∅    ɔ    v    a
                            └─────────┘
                              empty CV
```

(A11b)

```
C    V    C    V    C  ┌ V    C    V    C ┐  V    C    V
|    |    |    |    |  │ |    |    |    | │╱ |    |    |
b    ∅    r    a    t  │ ∅    ∅    ∅    ∅ │  ɔ    v    a
                      └──────────────────┘
                            deletion site
```

(A11c)

```
C    V    C    V    C    V    C    V
|    |    |    |    | ╲  |    |    |
b    ∅    r    a    t    ɔ    v    a
                     ? feature
                      spreading
```

*(A11d)

```
C    V    C    V    C    V    C    V
|    |    |    |    |    |    |    |
b    ∅    r    a    d    ɔ    v    a
                   * voicing
                   assimilation
```
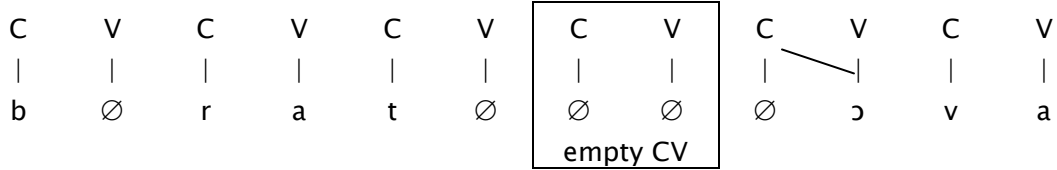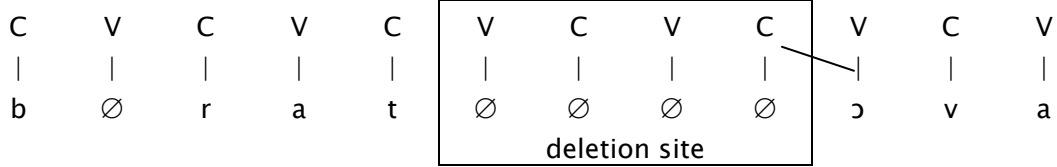
Variant A may fail. One way out is to posit that feature spreading will not occur over a double deletion site, i.e., over two consecutive CV pairs. This solution is not safe, though.

Variant B

There are no CV's sent from the interface, but the interface may differentiate words and suffixes by their left edge. However, in this version, it is only words that get double-linked left-edge vowels, while vowel-initial suffixes have their initial vowel single-linked. (B10) shows a word+word concatenation, and (B11) shows a stem+suffix concatenation, step by step.

(B10a)

```
C    V    C    V    C  ┌ V    C ┐  V    C    V    C    V
|    |    |    |    |  │ |    |╲│  |    |    |    |    |
b    ∅    r    a    t  │ ∅     │  ɔ    j    ∅    ts   a
                      └─────────┘
                      deletion site
```
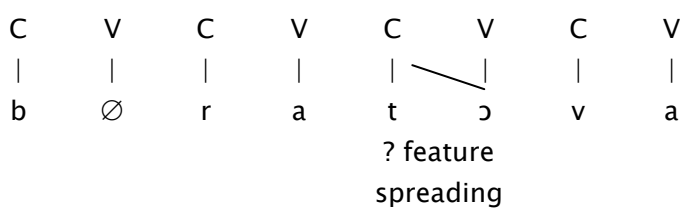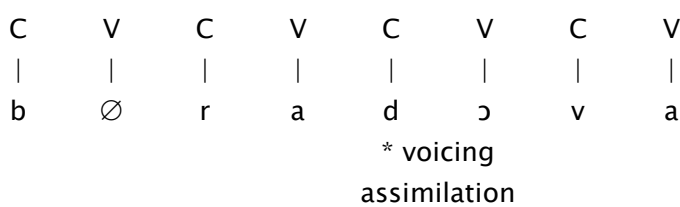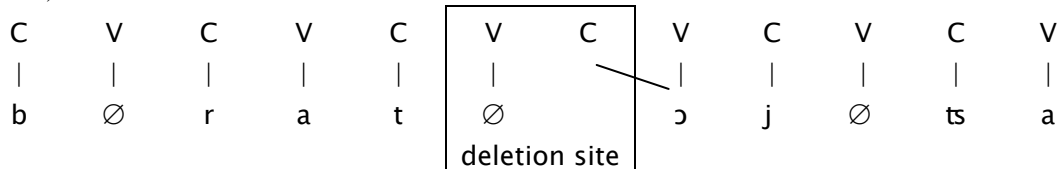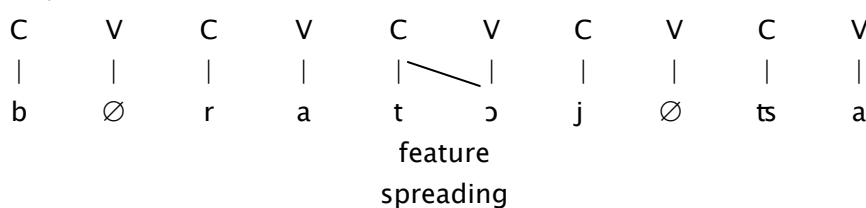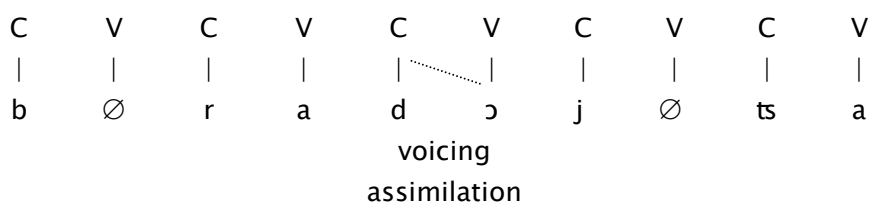
(B10b)

```
C    V    C    V    C    V    C    V    C    V
|    |    |    |    | ╲  |    |    |    |    |
b    ∅    r    a    t    ɔ    j    ∅    ts   a
                     feature
                     spreading
```

4

(B10c)

```
C     V     C     V     C     V     C     V     C     V
|     |     |     |     |·····/|     |     |     |     |
b     ∅     r     a     d     ɔ     j     ∅     ʦ     a
                        voicing
                      assimilation
```

(B11a)

```
C     V     C     V     C    ┌ V     C ┐   V     C     V
|     |     |     |     |    │ |     | │   |     |     |
b     ∅     r     a     t    │ ∅     ∅ │   ɔ     v     a
                             └─────────┘
                             deletion site
```

(B11a)

```
C     V     C     V     C     V     C     V
|     |     |     |     |     |     |     |
b     ∅     r     a     t     ɔ     v     a
```
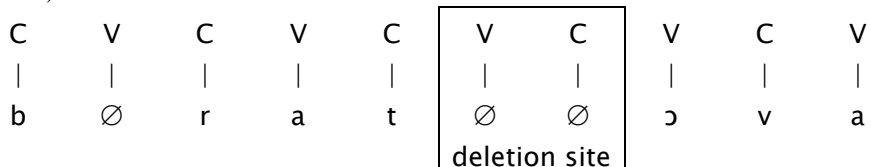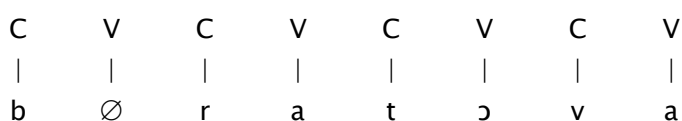
Variant B appears more plausible. Doubts still arise as to whether Polish should have left-edge double-linked vowels for words, but not for suffixes.

VII. Initial conclusion

It would seem more preferable to pursue Variant B. However, the perspective of having to learn one's Lexicon with a rule that says word-initial vowels are double-linked, whereas suffix-initial vowels are single-linked, is just not comfortable.

VIII. Better solution

It appears more scientific to posit that Polish lexicon is uniform with respect to left-edge vowel linking, and that it should be that task of the interface to distinguish between words and suffixes, so that the attested output is given by phonology. What this paper posits, then, is that Direct Interface is given a further ability to manipulate the skeleton. Apart from inserting an empty CV bit between the two phonological chunks that are to be linearised with respect to one another, Direct Interface should also be able to either: a) provide a second association line to a word-initial vowel (presuming there is no double-linking of vowels in Polish lexicon), or b) delete the secondary association line from the left edge in suffixes (presuming all chunk-initial vowels are double-linked in Polish lexicon). In either case, this does not violate the basic premise behind Direct Interface, i.e. that it cannot manipulate melody, since double-linking only affects association between tiers, but does not affect the (melodic) elements that any segment is composed of.

IX. Afterword

With respect to sections I to VIII, this handout is presented as it was during my talk at PLM 2007. However, the discussions I had after my presentation have given me some afterthoughts on this paper. I would like to thank Eugeniusz Cyran, Martin Haiden, Tobias Scheer, and Shanti Úlfsbjörninn for their comments, which have resulted in my having a new view on the representational side of double linking. The new idea, however, has not been incorporated in this very writing, as that would suggest to the reader that I presented a different way of realising double linking to the way in which I actually did so at the conference. Hence, I am going to refine the idea in another paper.

References and further reading:

Rubach, Jerzy. 1996. Nonsyllabic Analysis of Voice Assimilation in Polish. *Linguistic Inquiry* 27.1: 69-110.

Scheer, Tobias. 2004. *A Lateral Theory of Phonology. What is CVCV and why should it be?* Berlin: Mouton de Gruyter.

Scheer, Tobias. 2005. Postcard theory: how higher level modules communicate with phonology through a translator's office. Paper presented at the 36th Poznań Linguistic Meeting (PLM 2005), Poznań.

Scheer, Tobias. 2006. Direct Interface. Course of classes taught at EGG Olomouc'06, Olomouc.

Scheer, Tobias. 2007. (Direct) Interface without Big Brothers. Lecture given at SCoFL2, Poznań.