

9 Rhythmical Variation in Hungarian revisited

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1 Introduction

In this article I revise my earlier views on Rhythmical Variation (RV) in Hungarian (Varga 1998; 2002: 149–177). Hungarian RV is a short name for the rhythmically motivated variability in the stressing of double-accented Hungarian compounds, in connected speech.

By accent I mean the presence of a pitch accent on a stressed syllable. The prominence of an accented syllable is caused not only by extra intensity but also by the melodic (= intonational) conspicuousness of that syllable, stemming from the presence of a pitch accent on it.¹

Following this Introduction, in Section 2 the facts of Hungarian RV are presented and illustrated with plenty of new examples. Section 3 offers a revised analysis of Hungarian RV, and refutes the alleged role of precompiled lexical rules (see Hayes 1990) in Hungarian RV, on which my earlier analysis has been based. Finally, Section 4 is a short conclusion.

2 The facts of rhythmical variation in Hungarian

2.1 Possibility of initial and final accent loss

In contrast to the overwhelming majority of Hungarian words, which have one single accent on the first syllable of the word, double-accented compound words have two accents in their isolated pronunciation. Such words are e.g. *ütött-kopott* ‘battered’ or *tizenegy* ‘11’, see (1a). The isolated accentual patterns of these words are similar to those of double-accented phrases, e.g. *magas hegy* ‘high hill’, see (1b). The star over certain syllables in the examples indicates accent on those syllables.

¹Because of the ambiguity of the term *pitch accent* Ladd (2008: 49) suggests that a distinction be made between *lexical pitch accent* and *intonational pitch accent*. In the present article the term *pitch accent* is used in the latter sense. In Hungarian linguistic literature accented syllables can also be called *primary stressed syllables* or *main stressed syllables* (Kálmán and Nádasy 1994; Varga 1998; 1998–99).

- (1) a. **Double-accented compounds:**
 * *
ütött-kopott ‘battered’ (*lit.* ‘beaten-worn’),
 * *
tizenegy ‘11’ (*lit.* ‘one on ten’)
- b. **Double-accented phrases:**
 * *
magas hegy ‘high hill’

In isolated double-accented Hungarian compounds and phrases the first accent is typically stronger than the second (the Hungarian Nuclear Stress Rule is the reverse of its English counterpart), and so their accent-patterns are typically trochaic, i.e. stronger-weaker (É. Kiss 1987–88; 1992). However, this phonetic difference between the strengths of the accents does not always exist (Fónagy 1998: 340), and in any case it is irrelevant from the point of view of Hungarian RV. Therefore I will ignore it and consider the two accents of a double-accented compound or phrase as being phonologically equal. In this respect I follow Gussenhoven (1991) and Kálmán and Nádasy (1994: 410).

When put *in suitable contexts*, many (though not all) double-accented Hungarian compound words display the phenomenon of RV, consider the examples in (2). In the examples the bracketed letters A and B represent the two, potentially accented syllables of the double-accented compound, while Y represents the accented syllable, external to the double-accented compound. (2a) shows the isolated pronunciation of the word *tizenegy* ‘11’, with two accents. In (2b) the word *tizenegy* occurs in a phrase in which there is an accent *before* it, on the first syllable of the word *negyed* ‘quarter’, and so the word *tizenegy* loses its initial accent. This can be called *Initial Weakening (IW)*.² By contrast, in (2c) there is an accented syllable *after* the word *tizenegy*, on the first syllable of the word *játekos* ‘player’. So here it is the final accent of the word *tizenegy* which is lost. This is the phenomenon of *Final Weakening (FW)*.³

- (2) a. **Isolated pronunciation** (of the word *tizenegy*):
 * *
tizenegy ‘11’
 [A B]

²In Varga (1998) I used the term “Trochaic Reversal” for what I now call “Initial Weakening”. The new term is better because it does not refer to an irrelevant (and often non-existent) phonetic difference between the strengths of the two accents.

³As we shall see below, Final Weakening can occur also when there is no accent after the double-accented word.

- b. **Initial Weakening** (on the word *tizenegy*):

*	*	*		*	*	
negyed	tizenegy		→	negyed	tizenegy	‘quarter past 10’
[Y	[A B]]			[Y	[A B]]	(lit. ‘quarter 11’)
opt.						

- c. **Final Weakening** (on the word *tizenegy*):

*	*	*		*	*	
tizenegy	játékos		→	tizenegy	játékos ⁴	‘11 players’
[[A B]	Y]			[[A B]	Y]	
opt.						

Initial and Final Weakening are *the two kinds of Hungarian RV* because, by cancelling one of the accents that are too close to each other, they increase the eurhythmy of the phrase in which the double-accented compound occurs. The RV processes are optional, but are very likely under certain conditions, which we shall discuss below.

Of the two processes, Initial Weakening is the more radical and noticeable change, because the compounds undergoing it will be in contrast with the overwhelming majority of Hungarian words, which have their accent on their first syllable. Final Weakening is a less radical and noticeable change, because it brings the originally double-accented compounds into line with the general Hungarian tendency of words having a single accent on their first syllable.

It is to be noted here that Rhythmical Variation exists in other languages, too. In English, for instance, it exists to a much greater extent than it does in Hungarian, because it is not restricted to certain groups of words. *English RV* systematically affects all double-accented words (disregarding a few lexical exceptions) and phrases. Thus the processes of English RV affect the word *sardine* just as they affect the phrase *Monday morning*, see (3a, b, c):

- (3) a. **Isolated pronunciation** (of *sardine* and *Monday morning*, respectively):

*	*		*		*
<i>sardine,</i>		<i>Monday</i>		<i>morning</i>	

- b. **Final Weakening** (on *sardine* and *Monday morning*, respectively):

*	*		*		*
<i>sardine</i>	<i>sandwiches,</i>		<i>Monday</i>		<i>morning blues</i>

- c. **Initial Weakening** (on *sardine* and *Monday morning*, respectively):

*	*		*		*
<i>we love</i>	<i>sardines</i>		<i>early</i>		<i>Monday morning</i>

⁴Acute accents on certain vowel letters in Hungarian orthography (e.g. "é" and "á" in "játékos") indicate phonological vowel length and have nothing to do with pitch accent or stress.

As the accentual pattern of English double-accented words and phrases is typically iambic (rather than trochaic, as in Hungarian), it is Final Weakening, better known as “Iambic Reversal”, which is the more radical change in English. By accepting an iambic underlying accentual pattern, the majority of English descriptions assume that the accents are of different strengths, which necessitates the application of metrical trees and grids in the analysis of English RV (Lieberman and Prince 1977; Kiparsky 1979; Prince 1983; Selkirk 1984; Hayes 1984; Giegerich 1985; Halle and Vergnaud 1987; Halle 1998; etc.). However, Gussenhoven (1991) argues convincingly that, at least from the point of view of rhythmical variation, the phonetic differences in strength between the accents is irrelevant and should be ignored. Thus Gussenhoven (1991) accounts for the processes of English RV not by means of metrical trees and grids but by positing an elegant accent-deleting rule, the English Rhythm Rule, which is able to produce both Initial and Final Weakening, and which, according to Gussenhoven, works in the postlexical stratum of phonology.⁵

2.2 Rhythmically variable compounds

Let us now return to the discussion of Hungarian RV. I shall call those double-accented compounds that are capable of both kinds of Rhythmical Variation (i.e. capable of both Initial and Final Weakening) *rhythmically variable compounds*, or *RV compounds*, for short. The subgroups of RV compounds can be seen in (4):

(4) Subgroups of rhythmically variable compounds:

(i) A subset of inherently double-accented numeric compounds:

e.g.

* * ötvenhárom ‘53’, 50 -3	* * ötvenháromezer ‘53000’, 50 -3000	* * ötszázhárom ‘503’, 500 -3
* * öszázharminc ‘530’, 500 -30	* * ezeröt ‘1005’, 1000-5	* * ezerötven ‘1050’, 1000-50
* * ezerötyszáz ‘1500’, ⁶ 1000-500	* * negyvennegyedik ‘44 th ’, 40 -4 th	

⁵For a detailed study of the various models that have been suggested for the analysis of English RV, see Varga (2005).

⁶The Hungarian numerals *száz* ‘100’, *ezer* ‘1000’, *millió* ‘1000000’ are not accented when they are preceded by an accented numeral, functioning as a multiplier, as in e.g. *ÖTszáz* ‘500’, *HATezer* ‘6000’, *HÁrommillió* ‘3000000’. Two-digit numerals ending in zero (i.e. multiples of 10) are accented

- (ii) Ugyan-compounds (these are composed of the bound stem *ugyan-* ‘the same’ and a demonstrative stem):

e.g.

* *
ugyanannyi ‘the same amount’ (*annyi* = ‘that much’),

* *
ugyanaz ‘the same’ (*az* = ‘that’),

* *
ugyanott ‘the same place’ (*ott* = ‘there’),

* *
ugyanolyan ‘exactly like that’,

* *
ugyanakkor ‘ at the same time’ (*akkor* = ‘then’), etc.

- (iii) Dual first names:

e.g.

* * * *
Ferenc József ‘Francis Joseph’, *János Pál* ‘John Paul’, etc.

2.3 Initial Weakening

Let us first consider examples of Initial Weakening. The largest subgroup of RV-compounds comprises double-accented cardinal and ordinal numeral compounds. Which numerals exactly belong to this subgroup is still an unsettled question, requiring further research. All I want to do here is to show with a few convincing examples that there exist such numerals. In (5) we can see *inherently double-accented numerals*. In the italicised parts of the right-hand versions of the examples the initial accent of the numerals is deleted.

(5) Initial Weakening in inherently double-accented numerals:

- a. * * * * *
B-tizenkettő → *B-tizenkettő* ‘B-12’
 B-10-on-2
- b. * * * * *
negyed tizenkettő → *negyed tizenkettő* ‘a quarter past 11’,
 quarter 10-on-2 *lit.* ‘quarter 12’
- c. * * * * *
 a piszkos tizenkettő → *a piszkos tizenkettő* ‘the dirty 12’
 the dirty 10-on-2

on their initial numeral, functioning as a multiplier, see e.g. *Ötven* ‘50’. All digits that are added, rather than multiplied, are accented, see e.g. *HATSzázÖtvenHÁrom* ‘653’.

- d. * * * → * *
 déli *tizenkettő* → déli *tizenkettő* '12 noon'
 noon 10-on-2
- e. * * * → * *
 plusz *harminchárom* → plusz *harminchárom* 'plus 33'
 plus 30 -3
- f. * * * → * *
 péntek *tizenhárom* → péntek *tizenhárom* 'Friday the 13th',
 Friday 10-on-3 *lit.* Friday 13
- g. * * * → * *
 Club *kilencvenkilenc* → Club *kilencvenkilenc* 'Club 99'
 club 90 -9
- h. * * * → * *
 több, mint *nyolcvanhat* → több, mint *nyolcvanhat* 'more than 86'
 more than 80 -6
- i. * * * → * *
 október *huszonharmadika* → október *huszonharmadika* 'October 23rd'
 October 20-on-3rd
- j. * * * → * *
 Híradó *huszonegy* → Híradó *huszonegy* 'News 21'
 newsreel 20-on-1
- k. * * * → * *
 hat egész *harminckettő* → hat egész *harminckettő* '6.32',
 6 wholes 30 -2 *lit.* '6 wholes 32'
- l. * * * → * *
 négy óra *huszonöt* → négy óra *huszonöt* '25 minutes past 4',
 4 hour 20-on-5 *lit.* 4 hours 25
- m. * * * → * *
 IL- *tizennyolcas* → IL- *tizennyolcas* 'IL-18',
 IL 10-on-8
- n. * * * → * *
 B- *ötvenkettes* → B- *ötvenkettes* 'B-52'
 B 50 -2
- o. * * * → * *
 Tu- *száznégyes* → Tu- *száznégyes* 'Tu-104'
 Tu 100-4

- p. $\begin{array}{l} * \quad * \quad * \\ \text{Vas utca } \textit{harminchat} \end{array} \rightarrow \begin{array}{l} * \quad * \\ \text{Vas utca } \textit{harminchat} \end{array}$ ‘36 Vas Street’,
 Vas street 30 -6 *lit.* ‘Vas Street 36’
- q. $\begin{array}{l} * \quad * \quad * \\ \text{mind a } \textit{tizenötezer} \end{array} \rightarrow \begin{array}{l} * \quad * \\ \text{mind a } \textit{tizenötezer} \end{array}$ ‘all the 15 thousand’
 all the 10-on-5000
- r. $\begin{array}{l} * \quad * \quad * \\ \text{D } \textit{kétszázkilences} \end{array} \rightarrow \begin{array}{l} * \quad * \\ \text{D } \textit{kétszázkilences} \end{array}$ ‘D-209’
 D 200 -9
- s. $\begin{array}{l} * \quad * \quad * \\ \text{pont } \textit{száztíz} \end{array} \rightarrow \begin{array}{l} * \quad * \\ \text{pont } \textit{száztíz} \end{array}$ ‘exactly 110’
 exactly 100-10
- t. $\begin{array}{l} * \quad * \quad * \\ \text{pont } \textit{hatszáznyolc} \end{array} \rightarrow \begin{array}{l} * \quad * \\ \text{pont } \textit{hatszáznyolc} \end{array}$ ‘exactly 608’
 exactly 600 -8
- u. $\begin{array}{l} * \quad * \quad * \\ \text{E- } \textit{háromszázharminc} \end{array} \rightarrow \begin{array}{l} * \quad * \\ \text{E- } \textit{háromszázharminc} \end{array}$ ‘E-330’
 E 300 -30

It also often happens that numerals with three accents turn into *derivatively double-accented numerals* when they lose their medial accent, i.e. when, under the influence of the accented first digit, the double-accented two-digit sub-unit in them (containing the second and third digits) undergoes Initial Weakening. These are exemplified by the italicised parts of the right-hand examples in (6). In (6f) a derivatively double-accented numeral (*SZÁZtizenNÉgyes* = ‘114’) undergoes further rhythmical variation and loses its initial accent, too.

(6) **Initial Weakening on the last, double-accented sub-unit of numerals with three accents (i.e. producing derivatively double-accented numerals):**

- a. $\begin{array}{l} * \quad * \quad * \\ \text{száz} \textit{harmincnégy} \end{array} \rightarrow \begin{array}{l} * \quad * \\ \text{száz} \textit{harmincnégy} \end{array}$ ‘134’
 100-30 -4

- b. $\begin{array}{ccc} * & * & * \\ \text{négy} & \text{százötven} & \text{három} \\ 400 & -50 & -3 \end{array} \rightarrow \begin{array}{ccc} * & & * \\ \text{négy} & \text{százötven} & \text{három} \\ & & \text{'453'} \end{array}$
- c. $\begin{array}{ccc} * & * & * \\ \text{kilenc} & \text{százhetven} & \text{hatban} \\ 900 & -70 & -60\text{-in} \end{array} \rightarrow \begin{array}{ccc} * & & * \\ \text{kilenc} & \text{százhetven} & \text{hatban} \\ & & \text{'in 976'} \end{array}$
- d. $\begin{array}{ccc} * & * & * \\ \text{hétszáz} & \text{harminc} & \text{ötezer} \\ 700 & -30 & -5000 \end{array} \rightarrow \begin{array}{ccc} * & & * \\ \text{hétszáz} & \text{harminc} & \text{ötezer} \\ & & \text{'735 thousand'} \end{array}$
- e. $\begin{array}{ccc} * & * & * \\ \text{kéte} & \text{szertizen} & \text{három} \\ 2000 & -10\text{-on} & -3 \end{array} \rightarrow \begin{array}{ccc} * & & * \\ \text{kéte} & \text{szertizen} & \text{három} \\ & & \text{'2013'} \end{array}$
- f. $\begin{array}{ccc} * & * & * \\ \text{száztizen} & \text{négyes} & \\ 100 & -10\text{-on} & -4 \end{array} \rightarrow \begin{array}{ccc} * & * & * \\ \text{száztizen} & \text{négyes} & = \text{száztizen} & \text{négyes} \\ & & & \text{'114'} \end{array}$
- $\begin{array}{ccc} * & * & \\ \text{száztizen} & \text{négyes} & \\ & & \text{Tu-száztizen} & \text{négyes} \\ & & & \text{'114'} \end{array}$

Subgroup (ii) of RV-compounds contains *ugyan*-compounds. These are combinations of the stem *ugyan*- 'the same' and some demonstrative pronoun. Their Initial Weakening is illustrated by the italicised parts of the right-hand examples in (7):

(7) **Initial Weakening in *ugyan*-compounds:**

- a. $\begin{array}{ccc} * & * & * \\ \text{pont} & \text{ugyan} & \text{ott} \\ & \text{ott} & \end{array} \rightarrow \begin{array}{ccc} * & & * \\ \text{pont} & \text{ugyan} & \text{ott} \\ & \text{ott} & \end{array} \text{ 'exactly in the same place'}$
- b. $\begin{array}{ccc} * & * & * \\ \text{mindig} & \text{ugyan} & \text{az} \\ & \text{az} & \end{array} \rightarrow \begin{array}{ccc} * & & * \\ \text{mindig} & \text{ugyan} & \text{az} \\ & \text{az} & \end{array} \text{ 'always the same'}$

Finally, subgroup (iii) of RV compounds consists of double first names. These are two-member first names acting as wholes. They are collocations that, for certain speakers, have become fixed and behave like single syntactic words consisting of two smaller words, i.e. as syntactic compounds. These double first names can undergo Initial Weakening, see the italicised parts of the right-hand examples in (8).

(8) **Initial Weakening in double first names :**

- a. $\begin{array}{cccc} * & * & * & * \\ \text{Első} & \text{Ferenc} & \text{József} & \\ & \text{József} & & \end{array} \rightarrow \begin{array}{cccc} * & & * & * \\ \text{Első} & \text{Ferenc} & \text{József} & \\ & \text{József} & & \end{array} \text{ 'Francis Joseph I,'}$
lit. 'First Francis Joseph'

- b. * * * * *
 Második János Pál → Második János Pál ‘John Paul II,’
lit. ‘Second John Paul’
- c. * * * * *
 Lázár Armand Péter → Lázár Armand Péter ‘Armand Peter Lázár,’
lit. ‘Lázár Armand Péter’⁷
- d. * * * * *
 N. Viktor Gábor → N. Viktor Gábor ‘Victor Gabriel N.,’
lit. ‘N. Victor Gabriel’⁸

The notion of *word* is used here not in a lexical but in a syntactic sense: “a formation [...] whose internal structure cannot be referred to by any syntactic rule is a syntactic word” (É. Kiss et al. 2003: 191; cf. Kiefer 2000: 78, 519). Accordingly, the italicised parts of the examples enumerated in (5)–(8) are all syntactic words, though not lexical words (not lexemes).

Initial Weakening is never strictly obligatory, but sometimes it is very likely. It is favoured if the number of syllables between the surviving accents in the phrase is low, and if the tempo of speech is fast (which can be a feature of informal style). This connection between the number of interaccentual syllables and tempo of speech is expressed in (9):

- (9) **Five-or Six-Syllable Constraint:** The distance between two consecutive accented syllables which is created by deleting the accent between them by Initial Weakening, can be no more than five syllables at a normal tempo, and six syllables at a fast tempo (including the first accented syllable).⁹

This is why (10a) below sounds all right even at a slow tempo, while (10b) is acceptable only if the tempo is faster, and (10c) is unacceptable even at a fast tempo, because the 9-syllable interaccentual distance is too great. (The numerals below the examples indicate the interaccentual syllables. The ! before a sentence shows total unacceptability, while ? before a sentence shows unacceptability at a normal tempo but acceptability at a faster tempo.)

⁷Hungarian surnames precede “first” names. The word *Lázár* in (8c) is a surname, followed by a double first name (*Armand Péter*).

⁸*N.* in (8d) is the initial letter of a surname.

⁹Earlier I ignored the role of tempo and spoke only of a Five-Syllable Constraint. Moreover, I thought this constraint worked for Initial and Final Weakening alike, see Varga (1998: 237). Since then I have become convinced that the Five- or Six-Syllable Constraint is relevant only for Initial Weakening but not for Final Weakening.

- (10) a. Acceptable even at a normal tempo:
 * *
 Vas utca *tizenkettő* ‘12 Vas Street’, *lit.* ‘Vas Street 12’
 1 2 3 4 5
- b. Acceptable at a fast tempo:
 * *
 ?Lajos utca *tizenkettő* ‘12 Lajos Street’, *lit.* ‘Lajos Street 12’
 1 2 3 4 5 6
- c. Unacceptable even at a fast tempo:
 * *
 !Pacsirtamező utca *tizenkettő* ‘12 Pacsirtamező Street’,
 1 2 3 4 5 6 7 8 9 *lit.* ‘Pacsirtamező Street 12’

2.4 Final Weakening

In (11) below we shall now examine examples of the less radical change, Final Weakening. This change can be observed on the italicised parts of the right-hand versions of the examples.

- (11) **Final Weakening**
In double-accented numerals:
- a. * * * * *
száztíz jelentkező → *száztíz* jelentkező ‘110 applicants’
 100-10 applicant
- b. * * * * *
tizenkét pont → *tizenkét* pont ‘12 points’
 10-on-2 point
- c. * * * * *
huszonöt ötvenért → *huszonöt* ötvenért ‘for twenty-five, fifty’
 20-on-5 50-for
- d. * * * * *
ezeröttszáz vagonnal → *ezeröttszáz* vagonnal ‘with 1500
 1000-500 wagon-with wagons’

2.5 Year numbers and hour-minute time indications, with four inherent accents

When *year numbers* or *hour-minute time indications* are realised by numerals with four inherent accents, i.e. by numerals composed of four digits, none of which is 0, as in *ezerkilencszázötvenhat* ‘1956’, or *tizenhárom-negyvenöt* ‘13:45’, the numerals have to be restructured as the concatenations of two RV-compounds: [[A1B1] [A2B2]].¹¹ In contrast to my earlier opinion (Varga 1998; 1998–99), I now think that in these numerals the Final Weakening of [A1B1] can happen first, which can be followed by the Initial Weakening of [A2B2], as in (15). In such numerals both internal accents may disappear, and the number of syllables between the surviving accents is not constrained, i.e. the number of syllables between the surviving accents can be more than five even at a normal tempo.

(15) Concatenations composed of two RV-compounds, with Final Weakening on [A1B1], followed by Initial Weakening on [A2B2]:

- | | | | | | | | | | | | |
|----|------------------------|---|-----|------------------------|--|------------------------|---|---|--|---|---------|
| | * | * | * | * | | * | * | * | | * | * |
| | [A1 B1] | | | | | [A2 B2] | | | | | |
| | → | | | | | → | | | | | |
| | [[A1 B1] [A2 B2]] | | | | | [[A1 B1] [A2 B2]] | | | | | |
| | → | | | | | → | | | | | |
| | [[A1 B1] [A2 B2]] | | | | | [[A1 B1] [A2 B2]] | | | | | |
| a. | * | * | * | * | | * | * | * | | * | * |
| | ezerkilencszázötvenhat | | | | | ezerkilencszázötvenhat | | | | | |
| | 1000-900 | | -50 | -6 | | | | | | | IW |
| | | | | FW | | | | | | | |
| | | | * | | | * | | | | | |
| | | | → | ezerkilencszázötvenhat | | | | | | | ‘1956’ |
| | | | IW | | | | | | | | |
| b. | * | * | * | * | | * | * | * | | * | * |
| | tizenhárom-negyvenöt | | | | | tizenhárom-negyvenöt | | | | | |
| | 10-on-3 | | -40 | -5 | | | | | | | IW |
| | | | | FW | | | | | | | |
| | | | * | | | * | | | | | |
| | | | → | tizenhárom-negyvenöt | | | | | | | ‘13:45’ |
| | | | IW | | | | | | | | |

In (16) below, the year number, which originally has four accents, first undergoes Final Weakening on [A1B1], as a result of which it loses the final accent of *ezerkilencszáz*, and then it undergoes Initial Weakening on [A2B2], losing the initial accent of *hatvannégy*, after which the whole word *ezerkilencszázhatvannégy*

¹¹The syntactically proper analysis of four-digit numerals with four accents is right-branching: *ezerkilencszázötvenhat*

[Z [Y [A B]]].

But in the case of year numbers and hour-minute time indications this analysis is not satisfactory because it cannot provide the versions *EzerkilencszázÖTvenHAT* or *EzerkilencszázötvenHAT*. Therefore I assume that at the interface of syntax and prosody these numerals in the function of year numbers or hour-minute indications are restructured as: [[A1 B1] [A2 B2]].

undergoes Final Weakening, leading to a loss of the second accent on *hatvannégy*. (The latter operation happens with the help of a Reanalysing Rule, given below as (20).) Thus the distance between the syllables surviving in the last stage (including the first accented syllable as well) is ten syllables and it still sounds all right.

- (16)
- | | | | | | | |
|---|---------------------------------|-----|----|-----------------|---------------------------|--|
| * | * | * | * | * | | |
| | <i>ezerkilencszázhatvannégy</i> | | | <i>nyarától</i> | → | |
| | 1000-900 | -60 | -4 | summer-from | FW | |
| | * | | * | * | | |
| | <i>ezerkilencszázhatvannégy</i> | | | <i>nyarától</i> | → | |
| | | | | | IW | |
| | * | | * | * | | |
| | <i>ezerkilencszázhatvannégy</i> | | | <i>nyarától</i> | → | |
| | | | | | FW | |
| | * | | | * | | |
| | <i>ezerkilencszázhatvannégy</i> | | | <i>nyarától</i> | ‘from the summer of 1964’ | |

Although the stressing of numerals still requires research, it would be beyond the scope of the present paper to pursue this issue further here.¹²

3 Analysis of Hungarian rhythmical variation

3.1 The old Split Analysis

As we have seen, the two kinds of Hungarian RV work asymmetrically. Whereas Final Weakening may affect any double-accented compounds, Initial Weakening is “choosy” and may affect only the RV-compounds described in (4) above. Therefore an account of both kinds of Hungarian RV requires a Split Analysis, consisting of two separate rules, one dealing with Initial, the other with Final Weakening.

In Varga (1998; 1998–99) I proposed that we should regard Hungarian Initial Weakening as a precompiled rule belonging to lexical phonology, and Hungarian Final Weakening as a P1 rule belonging to postlexical phonology. Kaisse (1985; 1990) had divided postlexical phonology into a P1 and a P2 stratum, and claimed that English RV belonged to the P1 stratum. P1 rules are postlexical but are closer to lexical rules than P2 rules, because they share more characteristics with lexical rules (Kaisse 1990, 128). For instance, P1 rules are sensitive to nested compound and syntactic bracketing, which is also true of the rules of Rhythmical Variation

¹²For an analysis of the stressing of German numerals see Sarah Creer (2002).

(Kaisse 1990: 135–137). On the other hand, P2 rules are the classical postlexical rules, which have no direct connection with syntactic or lexical information.¹³

Hayes (1990), however, did not recognise the separate existence of a P1 stratum and thought that what Kaisse called postlexical P1 rules were in reality “precompiled rules”, forming a subset within lexical phonology. These precompiled rules work pre-syntactically within the lexicon in such a way that they produce the diacritically-marked allo-versions of lexical items in advance, and then, at the interface of syntax and phrasal phonology, they insert the appropriate allo-versions into the relevant syntactic environments (Hayes 1990: 87). According to Hayes’ logic, English RV, which Kaisse regards as a P1 phenomenon, is in reality a precompiled lexical phenomenon. For instance, precompiled rules produce the initially-accented and finally-accented allo-versions of the word *sardine* in the lexicon, with the attached information that the initially-accented variant suits a phrase in which there is an accent *after* it, and the finally-accented variant suits a phrase in which there is an accent *before* it. By contrast, Kaisse (1990) believed that P1 rules and precompiled rules were both necessary, because they were different. She thought that “[p]recompiled rules might be partly diagnosable by their having lost even more phonetic motivation than P1 rules” (Kaisse 1990: 130).

This is why in my old analysis (Varga 1998) I thought that Hungarian Final Weakening was a P1 rule, and Initial Weakening was a precompiled rule, because the latter was phonetically less motivated (less natural) than the former. (Initial Weakening is less in conformity with structure preservation than Final Weakening, because it produces accentual patterns that are, in a sense, “abnormal” in Hungarian, see the examples in (5)–(8) above.) At the same time, my earlier analysis expressed the close connection between Initial and Final Weakening: P1 rules are those rules of postlexical phonology that are closest to the precompiled subset of lexical phonological rules.

This earlier analysis, however, needs revision. Its component which relies on precompilation theory (i.e. which is relevant to Initial Weakening) is tied to a condition which is not satisfied in the case of RV-compounds. As we have seen, according to precompilation theory the allo-versions that display the effects of Rhythmical Variation are produced in advance and stored in the lexicon. The problem is that we can only talk about allo-versions stored in the lexicon if they are the versions of listed *lexical words*, i.e. *lexemes*, but most of the Hungarian RV-compounds are not lexemes. With the possible exception of *ugyan*-compounds, Hungarian RV-compounds and their allo-versions are not stored in the lexicon. The accentual variants of dual first names and of double- or multiple-accented

¹³For instance, the final devoicing of Turkish continuants, which takes place blindly before every pause, is a P2 rule.

numeric compounds cannot be stored in the lexicon because they are words only in a syntactic sense but not in a lexical sense.

Simple first names and lexicalised instances of double first names (such as e.g. *Marianna* ‘Marianne’) can be stored in the lexicon, but their *ad hoc* combinations in double first names (e.g. *Nóra Katalin* ‘Nora Catherine’) cannot. Although the latter, too, are rightfully considered as wholes in a sense and thus, as compounds, i.e. as syntactic words, nevertheless they cannot be considered as lexemes. Similarly, from the infinitely long list of numerals we store only a few items in the lexicon. We do store the words naming the one-digit numerals (1, 2, 3, 4, 5, 6, 7, 8, 9), and the two-digit numerals *tíz* ‘10’, *húsz* ‘20’, *harminc* ‘30’, and from the greater numerals the words *száz* ‘100’, *ezer* ‘1000’, *millió* ‘1000000’, *milliárd* ‘1000000000’. (Mathematicians may know and store even more numerals in their idiolectal lexicons.) However, as for the rest of the possible numerals, they are *not stored* in the lexicon but *are produced freely as the need arises*, each with a predictable meaning. As Initial Weakening can be applied recursively, (see (6f) above), our intuition, too, favours the explanation that — like Final Weakening — Initial Weakening, too, takes place in the P1 layer of postlexical phonology.

To sum up this section: precompilation theory is unsuitable for explaining Hungarian Initial Weakening. This is why the Split Analysis proposed in Varga (1998), relying on precompilation theory, cannot be maintained and needs revision.

3.2 The revised Split Analysis

My new proposal is this. The RV-compounds produced (but not stored) in the lexicon come from the lexicon with two (or more) accents and arrive at the P1 layer of postlexical phonology, where, depending on the context, they are submitted to optional Initial or Final Weakening. Thus *both Initial and Final Weakening are rules belonging to the P1 layer of postlexical phonology*. This is the essence of the *Revised Split Analysis*. Reformulation of the two rules is given in (17) and (18) below. The tall brackets indicate syntactic structure. The small round brackets include optional elements.

(17) says that the initial accent of an RV-compound can be optionally deleted under the influence of an accent Y before the compound:

(17) **Initial Weakening = IW** (postlexical rule)

$$* \rightarrow 0 / \left[\begin{array}{c} * \\ \text{opt.} \end{array} \left[\begin{array}{c} * \\ \text{XP/RV} \end{array} \text{Y} (\dots) \left[\begin{array}{c} \text{---} * \\ \text{RV} \end{array} \text{A} (\dots) \text{B} (\dots) \right] \right] \right]$$

where Y = the syllable that carries the last accent preceding the embedded RV-compound,

... = syllable(s) not containing an accent,

XP = phrase,

RV = RV-compound

Constraint: Initial Weakening is to be avoided if the distance between the accents remaining after Initial Weakening is greater than 5-6 syllables (including the first accented syllable).

On the other hand, (18) says that optional deletion can affect the final accent of a double-accented compound (which can be an RV-compound as well), and this deletion is either triggered by an accent Y standing after the compound, or it happens spontaneously, without a trigger. Final Weakening applies to all kinds of double-accented compounds and the only restriction on its context is that there cannot be an accented syllable before the compound.

(18) **Final Weakening = FW** (postlexical rule)

$$* \rightarrow 0 / \left[\begin{array}{c} * \\ \text{opt.} \end{array} \left[\begin{array}{c} * \text{---} \\ \text{XP} (\dots) \left[\begin{array}{c} * \text{---} \\ \text{DA} \end{array} \text{A} (\dots) \text{B} (\dots) \right] \end{array} \right] (\dots) (\text{Y}) (\dots) \right]$$

where Y = the syllable that carries the first accent following the embedded double-accented compound,

... = syllable(s) not containing an accent,

XP = phrase,

DA = double-accented compound, which may be an RV-compound as well

In the course of the derivations it can happen that a numeral which has three inherent accents becomes derivatively double-accented, and becomes the starting point of another instance of Rhythmical Variation, see (6f) and (11e), reproduced here for the reader's convenience as (19a, b):

(19) a. = (6f)

* * * * *
száztizennégyes → száztizennégyes → Tu-száztizennégyes

b. = (11e)

* * * * *
kéteztizenhárom → kéteztizenhárom → kéteztizenhárom végén

- g. FW: * * *
 mind a száztizenhárom utas
 [_{XP} Y [_{XP}[_{DA}A B] Y]]
- h. IW: not applicable.
 i. RR: not applicable.
 j. FW: not applicable.

(21d), (21f) and (21g) are all possible outcomes of the derivation.

4 Conclusion

In this study I have re-examined the two kinds of Rhythmical Variation observable in some double-accented Hungarian compounds (e.g. *TizenHárom* ‘13’). These are: Initial Weakening (e.g. *PÉNtek tizenHárom* ‘Friday the 13th’, where the initial accent of *tizenhárom* is deleted) and Final Weakening (e.g. *Tizenhárom SZÉK* ‘13 chairs’, where the final accent of *tizenhárom* is deleted). I have revised my earlier view (Varga 1998; 1998–99; 2005), according to which Initial Weakening belonged to the precompiled layer of lexical rules, a layer distinguished by Hayes (1990), and Final Weakening belonged to the P1 layer of postlexical rules, a layer distinguished by Kaisse (1990).

This revision has been necessary because it has become clear that the explanation of Initial Weakening based on precompilation theory was tied to a condition which most RV-compounds did not satisfy. According to precompilation theory the alloversions showing Rhythmical Variation are made and stored pre-syntactically in the lexicon. But this cannot be true of double-accented numerals and double first names in Hungarian, because these are words only in a syntactic rather than in a lexical sense, and consequently should not be looked upon as being stored pre-syntactically in the lexicon. Therefore in my new proposal, the Revised Split Analysis, I claim that *both Initial and Final Weakening belong to the P1 subset of postlexical phonological rules*. Out of the two, Initial Weakening is more specific. Initial Weakening can affect only a subset of double-accented compounds, viz. RV-compounds, if their context contains a preceding accent in the same phrase. By contrast, Final Weakening can affect all double-accented compounds, if their context does not contain a preceding accent in the same phrase. So with every RV-compound we first have to see whether its context allows Initial Weakening or not. Final Weakening is only possible if Initial Weakening is impossible in that context.

The question might arise whether we could perhaps regard Final Weakening as belonging to P2 rules, rather than to P1 rules. If we chose this solution, both rules would move “one step further up” in comparison with the old analysis: Initial Weakening would move from the precompiled layer of lexical phonology to the P1

layer of postlexical phonology, and Final Weakening from the P1 layer of postlexical phonology to the P2 layer of postlexical phonology. This solution would be in conformity with the asymmetry between the two rules. We still cannot choose this solution because Final Weakening has features which characterise P1 phenomena. For instance, (a) Final Weakening is also sensitive to nested compound and syntactic bracketing (even if only indirectly, i.e. through the necessity to filter out contexts favourable for Initial Weakening), (b) Final Weakening can be lexicalised (*limlom* ‘lumber’, *eszem-iszom* ‘feasting’, etc.), (c) Final Weakening is structure-preserving in the sense that it leaves one single accent on the first syllable of the compound, whereby the originally double-accented compound acquires the *normal* accentual pattern of the majority of Hungarian words.¹⁴

Although the Revised Split Analysis is about Rhythmical Variation in Hungarian, it sheds light on the fact that the precompilation-based account cannot be fully upheld for Rhythmical Variation in English, either. Precompilation as an explanation is *feasible in the case of many double-accented lexemes in English*, such as e.g. *sardine*. These may be stored in the lexicon in different accentual allo-versions suiting different syntactic contexts. But the precompilation account *breaks down in the case of double-accented phrases*, such as e.g. *Monday morning*, and *of double-accented numerals from twenty-one upwards*. These are produced postsyntactically and so their accentual allo-versions cannot be produced and stored in the lexicon presyntactically, from which it follows that they cannot be accounted for by precompilation theory. Consequently, it is more economical to consider all cases of English RV, too, as belonging to the P1 layer of postlexical phonology.

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¹⁴For these and other features characterising the P1 layer see Kaisse (1990).

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