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DIPHTHONGAL JAT' REFLEXES IN SLOVENE DIALECTS

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Many Slavists have observed the typological link between the reflexes of e^1 and the nasal vowels (Jakobson 1929: 36—7, Rigler 1963: 29, Samilov 1964: 136, etc.). A higher e (between e and e) is generally found in those areas which have either preserved nasal vowels to this day or lost them at a relatively recent date. Examples of the high e/non-nasal zone are found in East Slavic, Czecho-Slovak, Sorbian, and Serbocroatian. The second type, with lower e and recent nasality, is located primarily in the Lekhitic and Bulgaro-Macedonian zones. The reason for this phonological pattern is based on the fact that both e and the front nasal had similar e0 al articulations, of the low front yowel type. Thus, when nasal e1 lost its nasality, we can assume that the vowel e1 resulted, which threatened merger with e2 (equivalent to e3), putting pressure on the e3 to be raised. Of course, the retention of nasality by e3 would put no such pressure on e4, so that it could remain as a low vowel without any loss of phonemic distinction.

The data of Slovene have been something of a puzzle, due to the fact that it has not been clear precisely where Slovene belongs in the general Slavic typology of \check{e} and nasals. This paper will attempt to give a brief review of the major opinions expressed in the controversy over the interpretation of Slovene \check{e} and nasal vowel reflexes. Following this, we shall discuss the structural significance of the evolution of Slovene \check{e} in two basic Slovene dialect areas.

I. Slovene e-reflexes and their interpretation.

Let us first review the basic Slovene reflexes of \check{e} and the front nasal vowel, restricting ourselves to long-vowel reflexes. An isogloss line runs from the NE to the SW, dividing Slovene into NW and SE halves (Ramovš 1927: 12, Rigler 1965: 85). The NW zone mostly has some form of ie diphthong as its \check{e} reflex, together with a rather low front vowel as the reflex of the nasal, which points to recent denasalization (or nasal vowels even now present, as in Podjunje \ddot{a}). The SE zone, on the other hand, has a diphthong of the general type ei (or secondarily ai) as the \check{e} -reflex, together with evidence of early loss of nasality (such as high nasal reflexes on the order of e). The central dialect zone of Upper Carniola (Gorenjsko) has a monophthongal \check{e} -reflex of e, together with evidence of early nasal vowel loss.

¹ The symbols \check{e} (jat') and e (front nasal) are used in an etymological sense, to refer to the historical vowels without precise reference to their phonetic value, when necessary. Their value in Late Common Slavic is assumed to have been \ddot{a} and \ddot{a} , respectively. A high mid vowel is represented as e, while a low mid vowel is indicated as e. The symbol \ddot{a} refers to a low front vowel.

There has been a difference of opinion as to whether this e should be linked with ie or ei territory.2

The significance of the Slovene reflexes of è has been interpreted in a variety of ways (Rigler 1965: 79-80). The earliest interpretations tend to group Slovene with Serbocroatian as a zone with a higher type e and early loss of nasals. Early Ramovš, dating back to 1920, supported the notion of a generally high \check{e} in Slovene, but by 1927 he began to divide Slovene into two zones of e-reflexes, based on the vowel height of the first component of each diphthongal reflex. Thus, the ie diphthong was said to derive from a high \dot{e} , which had already been raised to \dot{e} , but the ei diphthong was said to be the result of the diphthongization of low front vowel e (Ramovš 1936: 185). As noted above, the Upper Carniola zone, with its high mid e monophthong, was grouped as a high e area and linked with the NW ie reflex zone due to this feature of vowel height.

Significantly, Ramovš' interpretation yields no useful typology concerning the relationship of e and nasal vowel reflexes, since it manifests pairs of reflexes which are the opposite of those expected. For example, the NW supposedly had an early raised e, together with a late retention of nasal vowels, while the SE is purported to have had a low vowel e, in spite of the early loss of nasals. Even with its disappointing lack of typological generalization, this thesis prevailed through the 1950's; in 1954 Logar even stated that the presence of an isolated low e, reflex of e in Upper Savinja "proves how correct Ramovš was" in deriving all SE zone ei diphthongs from just such a low vowel (Logar, 1954: 161). Nowadays, both Rigler and Logar feel that the e reflex is merely secondary, due to a simplification of the ei diphthong and not a precursor of the diphthong itself (Rigler 1967 B: 300).

The early 1960's are marked by the appearance of a radically new approach to the solution of the problem of relating è and nasal reflexes. In 1963, Rigler proposed that the ie and ei diphthongal reflexes of e have an origin opposite to that which had previously been believed; ie was said by Rigler to derive directly from a low vowel ĕ, while ei was said to come from a high vowel value of ĕ (Rigler 1963:28—9). This theory's chief merit is that it is fully in accord with our notions of Slavic typology, so that North and West Slovene (e.g. Carynthia, Rezija, Venetian Slovenia) are like Lekhitic and Bulgaro-Macedonian, possessing the combination of a low & (at least historically) and recent nasal vowels, while the South and East of Slovene (e.g. Carniola, Styria, Pannonia) are like Serbocroatian, East Slavic, Czecho-Slovak, and Sorbian, with a combination of high e-reflexes and early loss of nasals. Rigler's numerous studies (e.g. 1963, 1965, 1967A, 1967B, 1968) have documented the evidence for his conclusions, relying on the evidence of short reflexes of \check{e} to prove the originally low vowel status of the predecessor of the ie diphthong, along with the high vowel origin, by contrast, of the ei diphthong. Rigler's thesis seems more logical and consistent with the totality of the data than the others, not to mention its greater typological explanatory value. Its basic assumptions will be accepted here.

II. Use of the tense/lax feature in the treatment of ě evolution.

In spite of the attractiveness of Rigler's hypothesis, a series of points still remains unclear and requires further elaboration. The remainder of our paper is devoted to an attempt to improve on these aspects of Rigler's assumptions. He has himself indicated three problems of interpretation, as follows:

- 1. The question is raised (1965:83) as to how low $\check{e}(\ddot{a})$ could be raised to \bar{e} without merging with "etymological e," assuming that there was no longer a quantitative difference between the two. This recalls an almost identical question raised by Ivić for Serbocroatian (1958:5-6).
- 2. Rigler asks (1965:83) how West Slovene secondarily lengthened (old acute) \check{e} could join older long \check{e} at the same time that secondarily lengthened o (neo-acute) does not join older long o.
- 3. The third important question for us is the fundamental issue of what might have caused & to diphthongize to both ie and ei in Slovene dialects, based on the status of nasal vowels and the vowel height of the e value. On this point Rigler states that "the reasons why long e, o sometimes diphthongize in the direction of ei, ou, and at other times in the direction of ie, ou, are not clear" (1967A:135).

Rigler attempts to solve the first two problems by asserting that the original inherited value of è was the diphtong eä (1965:83). He feels that this allows the ë-reflex to skip over e when raised and also allows short e to merge with long e when lengthened in West Slovene, while lengthened o did not join older lengthened o. An immediate objection can be raised, since this diphthongal hypothesis requires the acceptance of both long and short diphthongs, which seems contradictory for Late Common Slavic and Early Slovene. It seems preferable to assume monophthongal ä as the Late Common Slavic e-reflex. Once this is done, the solution to the above mentioned difficulties lies in the use of the feature tense/lax. In this regard, there is great significance in Jakobson's observation (1963:165) that when the original short vowels e, o lengthened in certain environments, the once redundant feature of tense vs. lax, which had previously accompanied the opposition of long vs. short vowels, "henceforth acquired an autonomous phonemic role."

On this basis we can suggest that the early Slovene long vowel system was divided into tense and lax vowel subtypes. This means that at the moment when short and lax e (i.e. etymological e) lengthened under falling pitch and first joined the long yowel system, it was opposed to low front \(\bar{a}\) (the \(\beta\)-reflex) not on the basis of low vs. mid vowel (or compact vs. non-compact), but on the basis of the tense vs. lax feature. Thus, when ä was raised to a higher vowel, it was within the tense vowel series and never was in danger of merging with lax etymological e, as depicted below: Santa Charles Charles and Carlotte Charles

High	i _{18.1}			
Mid	7 . Ç	a tika wa . Ç hul	and process that the second Missis	
Low	ä	ates, the country	na na manana na maka	

² Ramovš felt that the e is a conservative relic in the area which has ie diphthongization (1927:111). Rigler (1965:85) feels that Upper Carniola e is a secondary development from the SE ei diphthong, based on the behavior of short e. We shall assume that Upper Carniola belongs to the SE zone, but this will have no bearing on our conclusions.

Our solution is supported by Heffner's recapitulation of Henry Sweet's idea "that one may produce either the series [1] [8] [8] or the series [i] [e] [8] by continuously changing the tongue elevation without producing any of the supposedly 'intervening' vowels of the other series as the tongue is raised or lowered" (1964:96—7). Similar conclusions about the autonomy of tense and lax series in vowel raising can be found in the work of Schmitt (1931:123—5) and Spore (1972:287).

Rigler's second quoted point, about the asymmetry of the \check{e} and o secondary lengthening in West Slovene, can also be solved on the basis of the tense/lax feature, since both long and shortened \check{e} might have maintained tenseness, while early lengthened o (as in $b\hat{o}g$) may have acquired a secondary tenseness which would have differentiated it from later lengthened o (as in $v\hat{o}lja$); this seems plausible since the original tense vowel system lacked a mid back rounded vowel and the tensing of early lengthened o could well have been a case of filling a hole in the system.

The third, and most important question, is the issue of why ě diphthongized to ie in nasal vowel zones, but to ei in non-nasal areas. On this point, Rigler proposes (1967A:135-6) that ei results when the short system contains narrow e, o, while ie results when no such high shorts occur. This explanation seems inadequate since it is simply a restatement of the fact that the non-nasal/high e zone develops ei, while the nasal/low e zone has ie. Let us suggest that the notion of tense/lax may provide a clue here as well. Turning to Ramovš' 1927 paper on Slovene ě (p. 13), we find a more detailed reconstruction of the phonetic nature of these diphthongs than simply ie and ei. Firstly, the e vowel of ie is higher than that of ei, based on dialects. This height difference ([e] vs. [e]), is also a difference of tense/lax. The i component is treated as syllabic in the ie diphthong, while it is recognized as non-syllabic in ei. These assumptions appear to be non-controversial, since they appear in Ramovš (1927), as well as in the work of Rigler (1963:28). As to the feature that distinguishes syllabic i from the non-syllabic variety, let us point out that Jakobson and Halle have stated that "the opposition of tense/lax in the diffuse vowels may be implemented . . . also by pairs syllabic vs. non-syllabic" (1971:552). On the basis of the above comments about both the e and i components of the diphthongs, we are now in a position to interpret the entire ie sequence as tense in opposition to the lax ei.

There is additional evidence for viewing ie and ei as particularly appropriate diphthongal representatives of tense and lax vowels, respectively. Andersen, in his extensive study of diphthongization (1972:43), has concluded that the "initial portion" of the diphthong tends to be unmarked, while the "latter portion" is marked for the pertinent feature of the diphthongal type. We are maintaining that the diphthongs ie and ei illustrate this principle with respect to the feature tense/lax. Tenseness can be assumed to be more marked in the mid front vowels than in the high front vowels, since "an extremely high front vowel... is certainly easier to make... with a tense tongue position than with a lax one" (Ladefoged 1971:75), while a language with a single front mid vowel is much more likely to have a lax [e], rather than tense [e] (Crothers 1978:136).

Diphthongization contributes a horizontal, syntagmatic contrast to an otherwise simultaneous, paradigmatic unit. The diphthongal interplay of marked and unmarked segments well illustrates the syntagmatic contrast. In the tense *ie* diph-

thong, the two segments can be represented as follows, in terms of the features diffuse and tense:

The + tense value is more marked within the non-diffuse category than within the diffuse, corresponding to the second component of the above diphthong. Similarly, the e_i diphthong presents the following situation:

In this case it is the absence of tenseness that it more marked within a + diffuse segment, again the second diphthongal component.

These diphthongs also agree with certain other general properties pointed out by Andersen (1972). Although diphthongization with respect to a specific phonological feature usually involves the use of one positive and one negative mark across two segments, Andersen has noted that "this is apparently not the case in laxness diphthongization" (1972:31). In addition, he has pointed out that upon "secondary diphthongization" (p. 32) one of the two lax components may change to tense. In the further development of Slovene ie and ei diphthongs we see a very similar process: in the tense type there is a laxing (and sometimes a total loss) of the second component (e.g. Carynthian ie > io), while the lax type presents a secondary tensing of the first component (e.g. ei > ai, in Styria and Lower Carniola). As a result of these developments, the new io and ai diphthongs uniformly obtain a pattern of tense + lax in their respective components, which continues to obey Andersen's model of unmarked + marked, in view of the generally greater markedness of the lax vowel as compared to the tense type, since "tense vowels . . . constitute the . . optimal vocalic pattern" (Jakobson and Halle 1971:552).

III. Southeast Slovene diphthongization of $\check{e} > e i$.

Now let us approach the problem of why South and East Slovene, lacking nasal vowels, favored the development of lax $e_{\underline{i}}$, while the North and West developed tense ie. Front nasal loss in the SE, with its immediate reflex \ddot{a} , would have caused merger with non-nasal $\ddot{a} < \check{e}$. Consequently, long tense \ddot{a} anticipated the loss of nasality by getting raised to the next higher tense vowel position, \bar{e} . Compared to the older system, the new long vowel system presented two complications, growing out of the loss of nasality and the lengthening of previously short lax vowels in certain environments, such as under falling pitch $(p\check{e}_{c}) = p\bar{e}_{c}$. Prior to this time, long vowels were redundantly tense and shorts were redundantly lax; mid vowels were of the short lax variety only. The raising of $\ddot{a} > e$, linked to the denasalization of $\ddot{a} > \ddot{a}$, created a new instance of a long tense mid vowel. As mentio-

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ned, at approximately this time the first long lax mid vowel arose, \bar{e} . Thus, the long vowel system had gone from having no mid vowels to a state of having both tense and lax varieties of long mid vowel. The ensuing changes strove towards the modification of this new situation. The new long lax \bar{e} was eliminated by merging it with one of the non-high tense vowels, either \bar{e} or \bar{a} (< e). The lax e merges with \bar{e} (< e) in North Styria (Pohorje, Upper Savinja), while it merges with \bar{a} in most of the remainder of ie territory (Pannonia, South Styria, Lower Carniola). The systematic problem of an overloaded system of long front tense vowels (\bar{i} , \bar{e} , \bar{a}) was then resolved by changing mid \bar{e} to the lax diphthong $e\bar{i}$. This took advantage of the removal of \bar{e} from the system, while introducing it in the form of a diphthong rather than a less natural long lax monophthong. All of $e\bar{i}$ territory shares the basic evolution of the long front vowel system, as depicted in figure 1.

	Tense	Lax		Tense	Lax	Tense Lax
High	ī			ī		ī
Mid	ē	ē	>	ē		(ei)
Low	ä	972.1.1		ä	t - 1, 54, 52,	i ki a ki

Figure 1. The long front vowels of ei territory.

In most ei dialects, the \ddot{a} was eventually raised either to the monophthong \bar{e} or a diphthong of the general tense type ie. This latter diphthongization recalls the structural pattern of \check{e} diphthongization of the NW, which shall be examined in the next section.

The main subdivision of ei territory is between North Styria and the other areas. Besides its merger of \bar{e} with \bar{e} , rather than \ddot{a} , North Styria differed from the other ei zone dialects in its late lengthening of non-final short vowels. Lower Carniola and South Styria experienced this lengthening earlier, while Pannonia escaped the effects of this change entirely (except for Gorice). This lengthening occurred due to the difficulty of opposing long vs. short vowels in non-final syllables. Areas which had the change early resolved the cases of difficulty by simply merging long and short; e.g. the shortened e of vera was merged with the long e of zvezda by lengthening the former. At the other extreme (Pannonia), some areas experienced no difficulty in opposing quantity in non-final position and never lengthened shorts in these cases. The intermediate area (North Styria) first attempted to cope with the new pure quantity of the post neo-acute period by eliminating certain non-quantitative oppositions. Thus, e and \(\bar{e}\) were merged in both long and short systems, but the difference between long and short was maintained through the use of the diphthong ei as reflex of the long mid vowels. When merged short e and e eventually lengthened in non-final position, their value differed qualitatively from that of the older long mid vowels (similar to the case of pochylenie in Polish). South Styria and Lower Carniola, by contrast, had merged long and short \bar{e}/\bar{e} and e/ě before the ei diphthongization had occurred; consequently, South Styria and Lower Carniola can now be said to have single reflexes of long \tilde{e} and long \tilde{e} , while North Styria has two different reflexes of each, going back to the Early Slovene quantity distinction of long (under falling pitch and long neo-acute) vs. short (under old acute and short neo-acute).

IV. Northwest Slovene diphthongization of $\check{e} > ie$.

For the northern and western dialects, which retained nasal vowels for a much longer time, we posit the ie diphthongization at a time when the nasal vowels still existed. At this time, the e vowel still occupied its tense low vowel position as a, and there were only two long tense vowels, \bar{i} and \bar{a} . At the time of the vowel quantity changes, ushered in by the rise of the neoacute stress, the long old acute vowels shortened, while formerly short vowels under the falling pitch were lengthened. In other words, the once neat system of redundantly tense long vs. redundantly lax short vowels became more complex, with both tense and lax vowels in both long and short vowel systems. Of all the new pure tense/lax oppositions that arose in the NW zone, that of a vs. e was very likely the most difficult to maintain without accompanying quantity, since they were the most similar vowels in an articulatory sense, as low and low mid front unrounded vowels. Furthermore, a is the least optimal vowel to carry the tense feature, since its articulation resembles that of the vocal tract in the "neutral" position (Jakobson and Halle 1971:550). Therefore, it comes as no surprise that the a vs. e opposition was modified in the NW. This was accomplished by the diphthongization of $\ddot{a} > ie$, which strongly emphasized the tenseness in the long ä vowel. The general changes of the NW long front vowel system as part of the ie diphthongization are presented in figure 2.

	Tense	Lax		Tense	Lax
High	ī			i	
Mid		ē	>	(ię)	ē
Low	ā/ ā			ä	

Figure 2. The long front vowels of ie territory.

Thus, in general terms, the entire NW zone reacted similarly to the problem of the \ddot{a} vs. \bar{e} opposition in the vowel system. However, there were major differences between the Northwest per se (e.g. Carynthia and Rezija) as opposed to the West (e.g. Venetian Slovenia, Rovte). This difference, recalling that of the SE zone, was due to a chronological difference in the implementation of the rule which called for the lengthening of all non-final shorts under stress. In the West, which was affected by this lengthening before the NW, the quantitative distinction had started to disappear in all stressed non-final vowels at a time when the reflexes of \check{e} and ewere distinct; thus, previously shortened old acute ä (e.g. věra) rejoined long neo--acute and circumflex a as a tense long vowel, while short neo-acute & (e.g. sela, nom. pl.) rejoined long falling pitch e as a lax long vowel. At this point the West had its $\ddot{a} > ie$ diphthongization, eliminating the \ddot{a} vs. \bar{e} opposition in favor of ie vs. \bar{e} . The lengthening rule reached the NW late, only after long tense ä and long lax e (the è and e reflexes) had merged in most dialects,3 generalizing the long as tense (a) and the short as lax (e) in most Carynthian dialects. It was only after these mergers, which functioned to bolster the waning quantity opposition in non-final

³ As Rigler has pointed out (1967B: 299), not all Carynthian dialects have he ,,merger of early lengthened etymological e and consistently long &", as Mahnken (1965) asserts.

syllables, that the non-final stressed shorts finally lengthened. This again brought about the long tense vs. long lax opposition (\bar{a} vs. \bar{e} , e.g. $zv\bar{e}zda$, $pe\bar{c}b$ vs. $br\bar{e}za$, sela), which was to be eliminated by the $\bar{a} > ie$ diphthongization.

V. General inferences and conclusion.

There are striking parallels between the subdivisions of both ei and ie zones, due to the fact that several isoglosses intersected with one another. The separation of the two zones of e reflexes divided the Slovene territory into NW and SE halves, while the progression of the loss of non-final quantitative distinctions occurred in the opposite direction, dividing the territory into SW and NE. This can be seen in the summary of our assumptions about the relative chronology of the major zones, in figure 3.

I. ei zones

- A. South (e.g. South Styria, Lower Carniola)
 - 1. Non-final stressed short > long.
 - 2. Merger of e and \check{e} ($\bar{e} > \ddot{a}$).
 - 3. Jat' diphthongization (e> ei).

(Pannonia has numbers 2 and 3, but lacks 1.)

- B. North Styria (e.g. South Pohorje, Upper Savinja)
 - 1. Merger of e and \check{e} ($\bar{e} > \bar{e}$).
 - 2. Jat' diphthongization ($\bar{e} > ei$).
 - 3. Non-final stressed short > long.

II. ie zones

- A. West (e.g. Venetian Slovenia, Rovte)
 - 1. Non-final stressed short > long.
 - 2. Jat' diphthongization ($\ddot{a} < ie$).
- B. Northwest (e.g. Carynthia, North Pohorje, Rezija)
 - 1. Merger of e and \check{e} ($\bar{e} > \bar{a}, \ddot{a} > e$).
 - 2. Non-final stressed short $> \log (\tilde{e} > \tilde{e})$.
 - 3. Jat' diphthongization $(\bar{a} > ie)$.

Figure 3. Assumptions of relative chronology related to & diphthongization in four basic zones.

However, in spite of the subdivisions and local specifics of each zone within the framework of the two-part division into ei and ie zones, we can sum up the main structural factors by noting that in a triple series of long tense vowels, the intermediate member (\bar{e}) is eliminated by changing it to a lax diphthong, with subsequent raising of the low tense vowel to a monophthong or diphthong; in the double long tense vowel series the low member (\bar{a}) is raised and diphthongized to ie and is opposed to the long lax \bar{e} .

Having demonstrated the phonological role of both lax e_i and tense ie diphthongs, we can pose the question of why diphtongs were used at all as the e reflex, rather than monophthongal lax e or tense e. In answer, it can be suggested that the obligatory two-mora sequence of a diphthong underlined the presence of a long vowel sequence. This was especially necessary in the class of long mid vo-

wels, since the mid vowels originally had been restricted to the short vowel system. Diphtongization, therefore, was an integral part of the establishment of the category of quantity in the mid vowels; the tense or lax nature of the evolved diphthong was dependent on the available phonological space within the system of long tense front vowels, as indicated above. The categories of ictus and vowel length were merging in Slovene, due to the predictability of the ictus stress either on the single long vowel of the word, or, automatically, on the final syllable. Therefore, the diphthongization became simultaneously restricted to both long and stressed vowels, conforming to Schmitt's thesis that "spontaneous diphthongization is based on a strengthening of ictus stress" (1931: 136).

We have interpreted the ei diphthong as part of a laxing process, while ie appears to have represented the opposite tendency—towards tenseness. This major isogloss dividing Slovene dialects recalls a similar case, reported for Russian dialects by Avanesov and Orlova (1965: 33), according to which tense mid vowels can be realized as ie, uo, while lax mid vowels can be diphthongized to ei, ou. Although this case is not an exact parallel of the Slovene situation, it does indicate that the role of the tense/lax feature may have important implications for the study of several Slavic vowel systems. As early as 1931, the general significance of the tense/lax feature for the study of all diphthongization was pointed out by Schmitt (1931: 36—44).

An attempt has been made to show that the structural facts of Slovene historical phonology can be explained much better if the notion of tense/lax is employed. On this basis, it has been possible to offer at least a tentative suggestion for the solution of a series of events which have thus far been something of an enigma in the historical dialectology of Slovene.

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