

## On The Evolution Of Jer + Liquid Diphthongs In Polish And West Slavic

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I. The groups known as *tǫrt*, *tǫrt*, *tǫlt*, *tǫlt*<sup>1</sup> evolved in diametrically opposite ways at the two extremes of the Slavic territory, East Slavic and South Slavic. In East Slavic we can safely deal with a *tǫrt* proto-form containing a jer-vowel that permits the correct reflexes to be derived, since jer-reflexes are always found, though consistently strong ones.<sup>2</sup> In South Slavic and Czecho-Slovak the large number of surviving syllabic liquids permits us to assume that the *jer + liquid* groups all changed into sequences of the type *tʃrt*, which means that there is a constant weak-jer reflex, in contrast to the strong-jer type always found in East Slavic. The zone located between the above-mentioned extremes, comprising Polish, Lower Sorbian, and East Slovak, has been the hardest to explain, since there is no consistent evolution of *jer + liquid*. Many reflexes of these groups exist, although very similar across this entire territory. The zone as a whole differs greatly from East Slavic in that there are no constant strong-jer reflexes for *tǫrt* groups; it is also fundamentally different from South Slavic and Czecho-Slovak since no syllabic liquids occur (Shevelov 1965:471-475).

In their attempt to explain this situation, some scholars, such as Stieber, have emphasized the absence of true strong-jer reflexes here, linking Polish with South Slavic and Czecho-Slovak, and stating that a common South and West Slavic change of *tǫrt* > *tʃrt* must have occurred, including the Polish zone as well (Stieber 1973:17). This hypothesis implies that all the Polish reflexes are just haphazard conversions of *tǫrt* > *tʃrt*, with the use of different support vowels depending on the consonantal environment on either side of the vowel in question. The possibility of a direct change of *jer + liquid* groups to the Polish reflexes is rejected by this point of view, as reflected in Klemensiewicz's statement that "these elements developed ... in a manner totally unconnected to the so-called jers, and very variably" (1964:118). Shevelov has interpreted the Polish zone's data by giving more weight to the fact that no syllabic liquids are present there now (linking Polish with East Slavic). Thus, he derives all Polish reflexes from *tǔrt*, *tǔrt*, *tǔlt*, *tǔlt*, with no general stage of syllabic liquids for these groups in the pre-history of this zone (1965:474). He feels that this zone does not have consistent jer-reflexes

since short *i*, *ü* in certain consonantal environments stopped developing at an early stage and were "arrested" as high vowels such as *i*, *u*, and *ə* (> *a*), while in other consonantal environments these vowels regularly became jers and eventually developed into the regular Polish reflex *e* (or sometimes *o*, especially before labialized *l*). Thus, all five cardinal vowels *i*, *u*, *e*, *o*, *a*, are derivable from original short *i*, *ü* according to Shevelov's explanation of Polish *tɔrt* forms.

## II.

Before discussing the actual development of *tɔrt* in the Polish and other Slavic areas, let us set forth some basic assumptions about the phonetic nature of this sequence in Late Common Slavic, since this is crucial to its further evolution. We assume that diphthongs *ɔr* (< *ūr*), *ɔr* (< *īr*), *ɔl* (< *ūl*), and *ɔl* (< *īl*) are two morae in length, equivalent to a single long syllable, which can be transcribed as *tɔ̄rt* or *tɔ̄rt* (< *tū̄rt*). There are a number of arguments that justify the assumption of a two-mora sequence. In spite of the short nature of jer-vowels outside the *tɔrt* sequence, the *-ɔr-* combination consistently behaves like a long prosodic unit, rather than a short one, in those Slavic languages which have different reflexes for original long and short vowels. For example, *-ɔr-* yields long first syllables in Serbo-Croatian *kíma* 'animal feed', *bīzo* 'quickly', while *ɔ* under similar prosodic conditions (i.e. original pretonic or non-rising pitch) yields short vowels, e.g. *dāska* 'board', nom. sg.; *dāska*, acc. sg. As Seliščev stated, "The syllable *tɔr-*, *tɔr-*, *tɔl-*, *tɔl-* before a consonant was a long syllable" (1951:162). Furthermore, all the eventual Slavic reflexes of *tɔrt* involve a syllabic status for either the *ɔ* or *r* element, suggesting a proto-form in which both constituted vocalic morae of a diphthong. The large number of eminent Slavists who have reconstructed the sequence *ɔr-* for *tɔrt* includes Seliščev, van Wijk (Van Vejk 1957:91), Kuznecov (Borkovskij and Kuznecov 1965:57), Lehr-Splawiński (Klemensiewicz et al:117-118), and others. Jakobson refers to the liquid diphthong *ɔr* as a "two morae group" (1971:444).

The syllabic nature of both morae has been captured in Jakobson's reference to liquid diphthongs as sequences "which as one whole carried the syllabic length and intonation" (1971:444), prosodic features which can only apply to syllabic segments. Isačenko's analysis of the Slovak vowel system led him to characterize all long vowels and diphthongs of Slovak as "monosyllabic groups of two syllabic phonemes" (1968:167), a definition equally apt for the Late Common Slavic *tɔrt* groups. Interestingly, Isačenko himself objected to Kuznecov's representation of the diphthong in the *tɔlt* group as *-ɔl-* on the grounds that in Slavic "two syllabic segments cannot stand in a sequence, unless divided by a

morpheme boundary" (1970:101). However, we should point out that the transcription *-ɔr-*, *-ɔl-* in and of itself does not necessarily imply two syllables rather than one long one. In fact, Isačenko's own representation of Slovak long monosyllabic liquids is quite similar: *rr* and *ll* (1968: 186-187). This apparent contradiction can be traced to the ambiguity of the term *syllabic*. It seems that it has been used to describe both those segments which constitute separate, individual syllables as well as component vocalic morae of a single long syllable, either monophthongal or diphthongal. If a single monosyllabic long vowel is broken up into its two constituent morae (as done in Isačenko 1968), the result will be two syllabic segments comprising a monosyllabic whole. Thus, the two morae *īr* may represent either a monosyllabic long vowel or two successive short vowel syllables, the latter of which was mentioned by Isačenko as being uncharacteristic of Slavic.<sup>3</sup> In either case the use of the phonetic feature *syllabic* can be defended, so that some sort of syllabic boundary marker may be necessary in addition to the use of the feature *syllabic*. Our representation of *tɔrt* as a monosyllable with two morae is analogous to Isačenko's treatment of modern Slovak long syllables as *īr*, *rr*, *ll*, *īā*, etc.

The Common Slavic *tɔrt* sequences had diametrically opposite types of evolution in South Slavic and Czecho-slovak, as compared to East Slavic. In general terms, South Slavic and Czecho-Slovak may have the syllabic *r* reflex with loss of the original jer-vowel, while the most typical East Slavic reflex is a strong-jer reflex followed by a non-syllabic liquid. In terms of relative chronology, this set of reflexes suggests that in South Slavic and Czecho-Slovak there was a relatively early loss of weak jers before the sound change *r* > *r* ever came to pass, leading to *trt* groups which have often survived intact. The jer-vowel of *tɔrt* was weak, in conformity with the general terms of Havlík's Law, since the next syllabic segment following the jer was not another jer-vowel, but a syllabic *r*. This interpretation modifies Havlík's Law only in so far as the jer and *r* belong to the same syllable in our example, but since the only case of a jer sharing a syllable with another mora occurs before *r*, *l*, both environments are functionally the same, permitting a slight modification of Havlík's Law, where a jer's strength or weakness depends on the nature of the next syllabic segment, rather than on that of the next actual syllable. Thus, the normal loss of weak jers brought about the change *tɔrt* > *trt* in the southern zone of Slavic. The East Slavic zone, long known to have had a relatively late loss of weak jers, had time to lose the syllabic feature in liquids before the time of jer-loss. This loss of a syllabic feature in the syllabic segment following the jer brought about jer strengthening (i.e. *tɔrt* > *tɔrt*) and the concentration of syllabicity on the first element (Jakobson 1971:444 and Ivanov 1964:183). The difference between these two

extreme zones falls into Trubetzkoy's category of dialect differences that arise due to a chronological difference during the time of jer-fall (1925:317-318). As Jakobson has observed, there was a tendency to concentrate syllabicity and intonability onto one segment in *tɔrt* groups as a general principle (1971:444). Where jers were lost early, this was resolved by the change  $\bar{\alpha}\bar{r} > \bar{r}$ , in which case *r* has survived into the modern period. When jer-loss was late, however, the change  $\bar{\alpha}\bar{r} > \bar{\alpha}r > or$  accomplished the same end by eliminating syllabic liquids, as in the case of East Slavic.

The Polish zone has had a complex *tɔrt* evolution, which can be better understood by assuming that both of the above changes – loss of weak jers as well as desyllabification of syllabic liquids – must have been present at roughly the same time. The presence of conflicting tendencies can be seen in the fact that, on the one hand, there is no general strong-jer reflex in the *tɔrt* groups, while, on the other, there has been a total elimination of syllabic liquids from these groups. As we shall observe in more detail, in some consonantal environments the Polish *jer + liquid* sequences have yielded vowels which could have evolved from strong jers, while in other cases the reflexes could not very likely have come from jers. In the latter case, we can accept the traditional view that the Polish *tɔrt* groups passed through a syllabic liquid stage of the *tʃrt* type, followed by a desyllabification of the liquid. However, this same reasoning does not have to be applied to those Polish *jer + liquid* sequences that can be derived from strong jers. For these cases we can simply assume that in certain specifiable consonantal environments Polish experienced the desyllabification of liquids before jer-fall, resulting in *tɔrt* reflexes of the strong-jer type, as in East Slavic. In other environments, the loss of syllabic liquids must have followed jer-loss, leading to *tʃrt*, *tʃrt* groups which eventually lost their syllabic liquids by substituting vowels other than strong-jer reflexes.

We have described three potential chronologies which could modify the *tɔrt* groups we are assuming for Late Common Slavic. These chronologies do not derive all the correct *tɔrt* reflexes in the modern Slavic languages, due to many subsequent intervening changes, but they do provide a convenient model for interpreting the three divergent paths of evolution, as follows:

1. Slavic languages which have developed syllabic liquids from *tɔrt* groups, generally without strong-jer reflexes in these groups, e.g. Slovene, Serbo-Croatian, Czech, Slovak.
2. Slavic languages totally lacking syllabic liquids in their *tɔrt* reflexes, but possessing correct strong-jer reflexes in these sequences, e.g. East Slavic.

3. Slavic languages lacking syllabic liquids in their *tɔrt* reflexes, but with correct strong-jer reflexes in only a subset of these sequences, depending on the consonantal environment, e.g. Polish, Lower Sorbian, East Slovak.

In Table 1, the suggested chronologies of the above described developments are represented. (Relative chronologies of jer-fall and loss of syllabic liquid in three groups of Slavic languages (t = any consonant, r = either liquid, V = a high or low vowel):

#### Group 1

Jer-fall:  $tɔrt/tɔrt > tʃrt$  ( $\bar{\alpha}/b$  = weak jer,  $\bar{\alpha}/b$  = strong jer)

#### Group 2

1. Loss of syllabic liquids:  $tɔrt/tɔrt > tɔrt/tɔrt$
2. Jer-fall:  $tɔrt > tort$ ,  $tɔrt > tert$

#### Group 3

##### Consonantal Environment A

1. Jer-fall:  $tɔrt/tɔrt > tʃrt$
2. Loss of syllabic liquids:  $tʃrt > tVrt \sim trVt$

##### Consonantal Environment B

1. Loss of syllabic liquids:  $tɔrt/tɔrt > tɔrt$ ,  $tɔrt$
2. Jer-fall:  $tɔrt/tɔrt > tert$

### III.

Let us briefly survey the Polish *jer + liquid* reflexes to show the existence of two groups of consonantal environments, correlated to the preceding remarks about relative chronology. As a preliminary, let us note that the front vs. back distinction was eliminated in a large number of Polish oppositions of the type *tɔrt* vs. *tɔrt*, *tɔlt* vs. *tɔlt*. All such losses of the front vs. back distinction involved the backing, or dispalatalization, of *front-vowel + liquid* sequences. The first such dispalatalization, which took place on a wider West Slavic scale (it is also in evidence in Czech), occurred when the original Late Common Slavic *-bl'-* was preceded by any non-labial consonant, e.g. *dbl'g-* 'long' > *dɔlg-*, *čbl'n-* 'boat' > *čɔln-*. Since velars could not be found before front vowels in this period, the only consonants to effect this dispalatalization were the acute (coronal) class of dentals and palatals. In this sense, the process could be termed a tonality dissimilation, due to the higher inherent tonality of the acute consonants over the grave (Jakobson and Halle 1956:31).<sup>4</sup>

A second dispalatalization, restricted to Lekhitic, Lower Sorbian, and East Slovak, but absent in Czech, caused the backing of both *-br'-* and *-bl'-* sequences when they were followed by a hard dental consonant, regardless of the nature of the preceding consonant, e.g. *pɔbl'n-* 'full' >

*pɔln-*, *mɔr'tv-* 'dead' > *mɔrtv-*. See Tables 2 and 3 for further examples of the effect of these two dispalatalizations.

Table 2. The first *tɔl't* > *tɔlt* dispalatalization.

	Before Dispalatalization		After Dispalatalization	
	Front	Back	Front	Back
Labial	<i>pɔl't</i> vs. <i>pɔlt</i> (e.g. <i>vɔl'kɔ</i> vs. <i>mɔlva</i> )		<i>pɔl't</i> vs. <i>pɔlt</i> ( <i>vɔl'kɔ</i> vs. <i>mɔlva</i> )	
Dental	<i>tɔl't</i> vs. <i>tɔlt</i> (e.g. <i>dbl'gɔ</i> vs. <i>stɔlprɔ</i> )			<i>tɔlt</i> ( <i>dɔlgɔ</i> = <i>stɔlprɔ</i> )
Palatal	<i>ɕɔl't</i> (e.g. <i>ɕɔl'nɔ</i> )			<i>ɕɔlt</i> ( <i>ɕɔlnɔ</i> )
Velar		<i>kɔlt</i> (e.g. <i>xɔlmɔ</i> )		<i>kɔlt</i> ( <i>xɔlmɔ</i> )

Table 3. The second palatalization of *tɔr't/tɔl't* groups (T = hard dental, C = consonant other than hard dental).

	Before Dispalatalization		After Dispalatalization	
	Front	Back	Front	Back
I.				
<i>ɔr'/ɔr:</i>	<i>tɔr'T</i> vs. <i>tɔrT</i> (e.g. <i>mɔr'tv-</i> vs. <i>bɔrz-</i> )			<i>tɔrT</i> ( <i>mɔrtv-</i> = <i>bɔrz-</i> )
	<i>tɔr'C</i> vs. <i>tɔrC</i> (e.g. <i>vɔr'xɔ</i> vs. <i>tɔrgɔ-</i> )		<i>tɔr'C</i> vs. <i>tɔrC</i> ( <i>vɔr'xɔ</i> vs. <i>tɔrgɔ-</i> )	
II.				
<i>ɔl'/ɔl:</i>	<i>pɔl'T</i> vs. <i>pɔlT</i> (e.g. <i>pɔl'n<sup>5</sup></i> )			<i>pɔlT</i> ( <i>pɔln-</i> )
	<i>pɔl'C</i> vs. <i>pɔlC</i> (e.g. <i>vɔl'kɔ</i> vs. <i>pɔlkɔ-</i> )		<i>pɔl'C</i> vs. <i>pɔlC</i> ( <i>vɔl'kɔ</i> vs. <i>pɔlkɔ-</i> )	

Dental, palatal, and velar *tɔl't* groups had already backed to *tɔlt* in the first dispalatalization.

The *tɔrt/tɔlt* dispalatalizations shown in tables two and three preceded jer-fall in Polish. Therefore, consonant palatalization was not preserved in the first consonant of those *tɔrt/tɔlt* groups which backed to *tɔrt*, *tɔlt*, e.g. *martwy* 'dead', *pełny* 'full', *długi* 'long', from *mɔr'tv*, *pɔl'n-*, *dbl'g-*. The dispalatalized shape of these groups was the basis for the further changes that involved an interplay between the relative chronology of jer-fall and the North Slavic loss of syllabic liquids, as represented in table one above.

The Polish *jer + r* groups (*tɔrt*, *tɔrt*) had preserved the front vs. back opposition only before consonants other than hard dentals, having neutralized the opposition in the back variant *-ɔr-* before hard dentals. Therefore, when we refer to the evolution of Polish *tɔrt*, *tɔlt*, we also include cases of Late Common Slavic *tɔrt*, *tɔlt* in those environments, such as before a hard dental, where the specifically Polish reflexes of these sequences arose only after the dispalatalizations.

The Polish reflexes of *tɔrt* and *tɔrt* were originally *tart* and *tir't*, respectively. In the subsequent history of Polish, all *ir'* sequences were lowered to *er'* (or *er*) (Koneczna 1965:75-76). Thus, present-day Polish has the reflexes *t'er't* (or *t'ert*) and *tart* (e.g. *wierzch* 'peak', *śmierć* 'death', *martwy*, Stieber 1973:23, 83.) In the case of these original Polish *tɔrt*, *tɔrt* reflexes, *tart* and *tir't*, we can agree with the traditional view that neither case is directly derivable from strong jers, which indicates a transitional stage of syllabic liquids *tʃt* and *tʃ't* (Koneczna 1965:77). On the other hand, the North of Poland has the reflex *er* in place of the form *tart*, which is typical of southern as well as standard Polish (e.g. northern *poderty* 'torn', *per(t)*, 'pushed', *umer(t)* 'died', etc., cf. Klemensiewicz et al 1964:94-95). It is possible to view this as a true jer reflex, coming from *tɔrt*, which would imply that the South of Poland experienced jer-fall in *tɔrt* before the loss of syllabic *r*, when the group was actually of the form *tɔrt*, yielding *tʃt* (and later *tart*) as the result, while the North of Poland, with its later jer-fall, changed *r* > *r*, allowing the jer in question to strengthen, leaving *tert* as the result. It is significant that we find *tert* < *tɔrt* in the North, linked to later jer-loss, since we know from other unrelated developments that the Slavic jer-fall progressed in a South-to-North direction, with more evidence for early loss of jers and retained syllabic liquids in the South of Slavic (Jakobson 1971:64). However, the question of whether northern Polish *tert* < *tɔrt* passed through an all-Polish *tart* stage has not been completely resolved. Uncertainty has been due primarily to the presence of a few loan words, originally of the form *tart*, rather than *tɔrt*, in which northern *ar* > *er* is also experienced. Our argument, placing the *tert* forms in the context of a chronologically later jer-fall, can serve as a point in favor of *tert* < *tɔrt*, which would mean that such northern Polish loans as *taterka* < *tatarka* could be the result of an unrelated *ar* > *er* change, perhaps connected to northern Polish *ra* > *re* (Klemensiewicz et al 1964:94). Thus, southern Polish has clearly changed the *ɔr* sequence to non-jer reflexes plus *r* (i.e. *ar*, *ir'*), which are best viewed as having gone through the *tʃt* stage, after which the vowels in question arose as support vowels following the loss of the liquid's syllabicity. In contrast to the sequence of jer-fall followed by *r* > *r* in southern Polish, northern Polish gives evidence of jer-fall coming

before liquid desyllabification in the front *tɔr't* groups (yielding *trt* > *tir't*), but following this loss of liquid syllabicity in the back vowel *tɔrt* group (yielding *tert*).

An important aspect of the northern Polish *tɔrt/tɔr't* evolution is the fact that the *front-vowel + palatalized r* sequence was less likely to undergo the *r* > *r̥* change than was the back vowel group. This caused *tɔr't* groups to be subject to jer-fall at a time when *r̥* was still present, while *tɔrt* lost its *r̥* early enough for the *r̥* > *r* change to precede jer-fall. The very same principle is found in the case of *jer + l* sequences. The front vowel + palatalized *l* groups yield the reflex *il*, not derivable from a strong jer and, therefore, from an intermediate *tl̥'t* group. We should recall that the only Polish *tl̥'t* groups left after the above mentioned dispalatalizations were those beginning in a labial consonant and ending in a consonant other than a hard dental, such as *vɔl'kɔ* 'wolf', *mɔl'knɔti* 'fall silent', *vɔl'ga* 'oriole', *pɔl'stɔ*, 'felt', which yield *wilk*, *milknąc*, *wilga*, *pilść* in modern Polish. According to our hypothesis, this implies that in these sequences *l̥* remained syllabic until after jer-fall, so that forms such as *tl̥'t* arose at first, which then changed to *til't* upon the change of *l̥* > *l'*. In northern Polish, where jer-fall was later and the tendency to change *l̥* > *l* was stronger than in the South, *tbl't* was subject to the reverse chronology, first changing *l̥* > *l*, and only then losing weak jers. This produced the reflex *tel't* with correct strong-jer reflexes, e.g. *v'elga* instead of southern and standard *wilga* (Nitsch 1958:348-349). In this sense, northern Polish dialects are closer to East Slavic than to those of southern Polish with respect to *tɔrt* as well as *tblt* reflexes, although there is now a considerable amount of dialect variation in the North with regard to these reflexes.

In the case of Polish back vowel *tblt*, which came from Late Common Slavic *tblt* as well as *tblt* when *-ɔl-* was preceded by a non-labial or followed by a hard dental, only a single environment has a non-jer reflex requiring us to posit an intermediate stage of *tl̥t*. This is the case of back vowel *tblt* groups beginning in a dental consonant, which all result in the *thut* reflex (e.g. *thusty* 'fat', *stɔp* 'post' < *stɔp*, *dlugi* 'long'), whose metathesis, combined with the vowel *u*, are sure signs that a *tl̥t* stage once existed. This implies that when a dental began the *tbl̥t* sequence, the change *l̥* > *l* occurred only after weak jers were first dropped, so that *tl̥t*, and later *thut* was the result. Texts give evidence of a *tɔth* reflex in addition to *thut* (Koneczna 1965:77), further confirming the secondary, inserted nature of the vowel *u*. On the other hand, Polish back vowel *tblt* after consonants other than dentals has reflexes that can be interpreted as strong jer reflexes. When a grave consonant precedes the *-ɔl-*, i.e. a labial or a velar, we have the usual Polish strong jer reflex *e* before the *t*, as in *pełny*

'full', *wetna* 'wool', *kielbasa* 'sausage', *zgiełk* 'tumult', *Chełm* 'place-name', from former *chełm* 'hill'). However, in cases of palatals and sporadic instances of labials preceding *-ɔl-*, there is the reflex *oł* (or *ól/ul*) when the vowel reflects prosodic length), e.g. *czółno* 'boat', *żółty* 'yellow', *żolna* 'bee eater', *żółw* 'turtle', *mówić* 'talk' < *mołwić*, *pułk* 'regiment'. If this sequence had passed through the stage of *eł*, and subsequently rounded to *oł* under the labializing influence of *t*, it would be possible to speak of *oł* < *eł* as a strong jer reflex. Shevelov considers these cases of *oł* to be "the normal development of jers" (1965:474). The traditional argument against considering *oł* as derived from jers is the fact that Polish *e* from jers does not, as a rule, change to *o* before all hard dentals, as does original *e*. However, the *e* coming from strong jers is known to round to *o* when immediately followed by *t* (often phonetically [w]), as in the Wielkopolska dialect area (Stieber 1973:90-91), as well as in standard Polish, e.g. *koziół* 'goat', *osiół* 'ass', *kociół* 'cauldron'. In view of these data, we shall consider Shevelov correct in his assertion that the *oł* reflex of *tblt*, *tblt* has undergone the development *t* > *eł* > *oł*, under the influence of a labio-velarized *t*, which evolved from Late Common Slavic in the Polish area. The above interpretation of Polish *eł* and *oł* reflexes as being derived from jers implies that when Polish *-ɔl-* was preceded by a consonant other than a dental, the change *l̥* > *l* took place relatively early, so that the jer strengthened and yielded *tełt/tołt* sequences, in contrast to those cases of *-ɔl-* preceded by dental, as well as the front vowel group *-ɔl'*, in which the *l̥* > *l* change was sufficiently late as to follow jer-fall, leading to *tl̥t/tl̥'t* groups and eventual high support vowels *u* (*thut*) and *i* (*tilt*).

Thus, although the Polish reflexes of *tɔrt*, etc., ranging through all the five cardinal vowels, may give the impression of being haphazard and difficult to explain, this is not the case. As we have noted, the mid-vowel reflexes (*e*, and *o* before *t*) are best treated as reflexes of strong jers. The three remaining reflexes, all non-mid vowels (*i*, *a*, *u*), appeared as inserted vowels after the loss of syllabic liquids. The *i* was used as an epenthetic when the syllabic liquid had been palatalized *r̥*, *l̥*, e.g. Old Polish *vr̥'x-* > *vir'x-* (Klemensiewicz et al 1964:120), *vl̥k-* > *wilk*. The phonetic similarity between palatalized consonants and the vowel *i* has been so frequently indicated in the literature (e.g. Wierzchowska 1971:178, Chomsky and Halle 1968:305-306) that it requires little further demonstration. The use of the vowel *a* as a support vowel after the loss of Polish unpalatalized *r̥* can be explained by examining Isačenko's spectrographic findings for the similar *r̥* of modern Slovak. The author discovered that "certain allophones of [r̥] and [r̥:] are similar to the allophones of the central vowels [a], [ä], [a:], as far as the localization of formants one and two is

concerned" (1968:186). This acoustic similarity has most likely played a role in the historical change of Polish  $r > ar$ .

Lastly, let us consider the epenthetic  $u$  which results from the loss of the syllabicity of Polish unpalatalized  $l$  (or  $l'$ ). The similarity of Polish  $l$  to  $u$  or  $w$  has often been recognized, especially in view of the well-known change of  $l > u$  in the speech of the "overwhelming majority of Poles residing in central Poland" (Bartnicka-Dąbkowska et al 1968:26). The latter source further observes that the change of  $l > u$  involves only the loss of apico-dental closure with a simultaneous raising of the back of the tongue. In view of this situation, the  $l > tu$  change is well in accord with what we know about the behavior of non-syllabic  $l$  in the history of Polish. Thus, the three changes of syllabic liquids to sequences of non-syllabic liquid and inserted vowel all seem to be dependent on the articulatory and acoustic nature of the liquid, with  $r', l'$  conditioning  $i$ ,  $r$  conditioning  $a$ , and  $l$  conditioning  $u$ .

Although there are four possible liquids that could serve as the second component of jer diphthongs ( $r, r', l, l'$ ), we have seen that the strong jer reflexes combine with only one of these possibilities, namely unpalatalized  $l$  (or  $l'$ ). In other words, the combination of non-sharp (or velarized), together with the lateral, somehow favored the loss of the syllabic feature at a relatively early stage, i.e. before the time of jer-fall. Conversely, segments with the features of sharpness and/or non-lateral were not as likely to lose their syllabic feature, retaining it at least until after the fall of the jers.

#### IV.

As presented above, the reflexes of Polish  $t\bar{a}rt$  sequences can be divided into two major groups, on the basis of the relative chronology of liquid desyllabification and weak jer-loss. In the first case the  $r, r', l, l'$  were still syllabic when jer-loss occurred, leading to sequences of the type  $t\bar{r}t$ . The eventual loss of syllabicity by the liquids was compensated for by a high or low tense support vowel ( $i, a, u$ ), as discussed in the preceding section. In the second case, syllabic liquids became non-syllabic before weak jers had dropped, causing compensation through jer strengthening, rather than the rise of a new support vowel. These jer reflexes are mid and lax, in contrast to the support vowels mentioned above; along with regular  $e$  we find  $o$  in some cases where  $l$  immediately follows. This second case applies to northern Polish dialect  $t\bar{a}rt > tert$  and  $t\bar{a}l't > tel't$  as well as all-Polish  $t\bar{a}lt > tet't/ot't$ , where the first consonant is not a dental.

We have interpreted the difference between the two reflex types, non-mid vs. mid vowels, as being linked to a chronological difference, related, in turn, to longer retention of  $r, l$ , and earlier loss of weak jers,

which depended on how far south the given dialect was located on Polish territory. Our view is in marked contrast to those which assert that all vowels in the above Polish reflexes simply arose due to secondary vowel insertion within intermediate  $t\bar{a}rt$  groups (Koneczna 1965:77). As further evidence for our contention that there is a chronological difference between the two groups of Polish reflexes discussed above, we now turn to the comparable data of Czech, in which a striking parallelism to the Polish reflexes becomes apparent when each case is viewed within its own chronological context.

Much as the Polish reflexes can be divided into two groups, the Czech reflexes can also be divided on the basis of whether syllabic  $r, l$  have been retained or a vowel has been inserted (with no evidence for strong jer reflexes found at all). Retention of Czech  $r, l$  in  $t\bar{a}rt$  and  $t\bar{a}lt$  groups (e.g. *krm* 'animal feed', *smrt* 'death', *vlk* 'wolf') means that jer-fall took place without liquid desyllabification. In other words, these phonetic environments of Czech were resistant to the change of  $r, l > r, l$ . In the other major type of Czech  $t\bar{a}rt$  reflex, namely  $t\bar{a}lt$ , the non-syllabic liquid  $l$  is followed by the high vowel  $u$ , which goes back to both original Late Common Slavic  $t\bar{a}lt$  as well as dispalatalized  $t\bar{a}lt$  (when the initial consonant was acute). The Czech  $tlut$  (and long  $tlout$ ) reflexes arose due to the fact that weak jers dropped while  $l$  still existed, leaving  $t\bar{l}t$ , after which the  $l > l$ , with compensatory support vowel  $u$  then inserted. In these two basic types of Czech reflexes one variety presents syllabic liquids with a lesser tendency to be replaced by the non-syllabic type ( $t\bar{a}rt, t\bar{a}lt, t\bar{a}lt$ ), while the second type of environment has a greater tendency towards liquid desyllabification ( $t\bar{a}lt > tlut$ ). In like manner, we have also been able to divide the Polish reflexes into two groups on the basis of the relative chronology of the loss of syllabic liquids, where a lesser tendency to lose  $r, l$  means that this loss follows that of weak jers, leading to the  $t\bar{r}t, t\bar{l}t$  stage, with eventual insertion of  $a, i, u$ . Groups with a greater propensity towards loss of syllabic liquids in Polish lost them before jer-loss, which led to jer strengthening and mid vowel strong-jer reflexes.

The parallelism between Polish and Czech lies in the fact that of the two groups of reflexes in both languages, those with a greater tendency to retain  $r, l$  largely share the same phonetic environment, as do those reflexes with the opposite tendency. It may seem difficult at first to perceive this parallelism, since the surface manifestations of the same basic tendencies are different in Czech and Polish. This is simply due to the fact that in Czech the loss of weak jers was never preceded by the loss of liquid syllabicity. Therefore, in Czech, the two chronologies refer to loss of syllabic liquids coming either after jer-loss or never having occurred. In Polish, the loss of weak jers plays a key chronological role,

preceding the loss of syllabic liquids in one case, but following this loss in the other. Let us now review the relevant data of Czech and Polish in order to more graphically illustrate the correlation between phonetic environment and probability of losing syllabic liquids, as follows (Lamprecht et al 1977:29-30, 62-64):

1. Where Czech has retained its *ɹ̥t*, *ɹ̥l̥t*, reflexes, Polish also was more likely to have evolved syllabic liquid groups of this type historically, meaning that in Polish the non-*jer* reflexes *i*, *u*, *a* would develop as support vowels. This applies to *t̥ɹt*, *t̥ɹt* and *t̥ɹl̥t* groups of Polish and Czech. Czech has *ɹ* as its reflex of *(t)ɹr(t)* and *(t)ɹl̥(t)*, except for the relatively recent *er* only after hushings (Lamprecht et al 1977:63). Correspondingly, Polish has the non-*jer* reflex *ar* from *t̥ɹt*, and Old Polish had *ir'* from *t̥ɹt*, whose vowel has since lowered to *e* in modern Polish. E.g. Cz *trh* 'market'/P *targ*, Cz *vrch* 'peak'/P *wierzch* < OP *wirzch* (as cited in Klemensiewicz et al 1964:120). In the case of *t̥ɹl̥t*, Czech and Polish retained the front-vowel group as a distinct entity only after labial consonants, having dispalatalized it to *t̥ɹl̥t* in other environments (cf. table two). Indeed, it is only after labials that Czech has retained its syllabic *ɹ̥*, which corresponds to the Polish high-vowel reflex *il*, e.g. Cz *vlk* 'wolf'/P *wilk*, Cz *plst* 'felt'/P *pilść*. After a labial, but before a hard dental, Czech did not dispalatalize *t̥ɹl̥t* to *t̥ɹl̥t*, in contrast to Polish, which did. Therefore, syllabic *ɹ̥* in Czech *plný* 'full', coming from a *t̥ɹl̥t* group, differs from Polish *pełny*, which was first dispalatalized to a *t̥ɹl̥t* group, as shown in table three above.

2. In back vowel *t̥ɹl̥t* sequences, where Polish presents a strong-*jer* reflex of the East Slavic type, Czech eliminated its original *ɹ̥* by developing secondary *lu*, with a high tense support vowel in post-liquid position, reminiscent of similar treatments in Polish, although not corresponding to Polish *t̥ɹl̥t* reflexes on the surface. Examples of Czech *lu*, corresponding to Polish *el/ol*, are as follows: Cz *mluva* 'talk'/P *mowa* < *mołwa*, Cz *Svatopluk*/P *Świętopelk*, Cz *člun* 'boat'/P *czółno*, Cz *žlutý* 'yellow'/P *żółty*, Cz *hluk* 'tumult'/P (z)*giełk*, Cz *chlum* 'hill'/P *chełm*.

According to the pattern of these two groups of data, Polish strong-*jer* reflexes in *t̥ɹt* groups correspond to the loss of syllabic liquids in Czech, while the Polish non-*jer* reflexes correspond to Czech retention of syllabic liquids. There is but a single environment which does not fit this pattern; both Czech and Polish eliminated *ɹ̥* by changing it to *lu* when it was preceded by a dental consonant, e.g. Cz *tlustý* 'fat'/P *thusty*, Cz *dlouhý* '[long]/P *dhugi*. In Czech, this is just a regular manifestation of the general rule *t̥l̥t* > *tlut*. For Polish, the *t̥ɹl̥t* > *t̥l̥t* > *tlut* evolution with an initial dental is an exception to the general rule followed by all other *t̥ɹl̥t* groups, which develop *teht/toht* reflexes. This reflex has been explained on the

basis of a coincidence in place of articulation for the dental and *ɹ̥*, which are both apico-dental (Koneczna 1965:77). See Table 4 for a summary of Polish-Czech correspondences with regard to lesser tendency towards liquid syllabicity.

Table 4. Polish-Czech correspondences reflecting greater and lesser tendencies toward retention of liquid syllabicity (T = dental).

I. Greater tendency to liquid syllabicity.

Polish	Czech
1. <i>t̥ɹt</i> > <i>ɹ̥t</i> > <i>tart</i> E.g. <i>karm</i>	1. <i>t̥ɹt</i> > <i>ɹ̥t</i> E.g. <i>krm</i>
2. <i>t̥ɹt</i> > <i>tr't</i> > OP <i>tir't</i> > P <i>ter(z)t</i> E.g. <i>wierzch</i> < <i>wirzch</i>	2. <i>t̥ɹt</i> > <i>ɹ̥'t</i> > <i>ɹ̥t</i> E.g. <i>vrch</i>
3. <i>t̥ɹl̥t</i> > <i>t̥l̥'t</i> > <i>tl̥t</i> E.g. <i>wilk</i>	3. <i>t̥ɹl̥t</i> > <i>t̥l̥'t</i> > <i>tl̥t</i> E.g. <i>vlk</i>
4. T + <i>ɹ̥l̥t</i> > T <sub>l̥</sub> <i>t</i> > <i>tlut</i> E.g. <i>długi</i>	

II. Lesser tendency to liquid syllabicity.

Polish	Czech
Non-dental + <i>ɹ̥l̥t</i> > <i>t̥l̥t</i> > <i>teht/toht</i> E.g. <i>chełm</i> , <i>żółty</i>	<i>t̥l̥t</i> > <i>tl̥t</i> > <i>tlut</i> E.g. <i>chlum</i> , <i>žlutý</i>

In table four it can be seen that Polish and Czech correspond quite well in the case of *t̥ɹt*, *t̥ɹt*, and *t̥ɹl̥t*, as well as all environments of *t̥ɹl̥t*, except for those with initial dental consonants. In summary, there are three basic reflexes for *jer* + *liquid* groups in Polish and Czech, considered together, as follows:

1. *ɹ̥*, *ɹ̥l̥*: found only in Czech.
2. Tense non-mid vowel and non-syllabic *r*, *l*, in no fixed order, i.e. *ar*, *ir*, *il*, *lu*: found in both Polish and Czech.
3. Strong *jer* reflex followed by *l*: found only in Polish (Czech *čř-* > *čer-* is considered secondary, as noted above).

Thus, the first Czech reflex can correspond only to the second Polish one (Cz *trh* and *vlk* as against P *targ*, *wilk*), while the Czech number two reflex can correspond either to a Polish number two (Cz *dlouhý*, P *dhugi*) or three reflex (Cz *chlum*, P *chełm*). Thus, where Polish has a non-*jer* reflex, derivable from *ɹ̥t*, *ɹ̥l̥t*, Czech has either retained its syllabic liquid or, in one exceptional case coincides with the Polish *tlut* reflex; but, where Polish has a strong-*jer* reflex, Czech has not retained its syllabic liquid, having developed a secondary support vowel.

If East Slavic or northern Polish dialects are considered, there is a different relationship with the Czech reflexes, since it is then possible to

have strong jer reflexes which correspond to Czech syllabic liquids, e.g. Cz *vlha* 'oriole', P and southern P *wilga*, but northern P (Łowicz) *v'elga*, and Russ (*i*)*volga*. This relationship can be explained by observing that the farther northeast one proceeds, the less likely are there to be reflexes derivable from *tʀt* in any environment, since the establishment of the isogloss for the loss of syllabic liquids preceded that of jer-loss in northern Poland and East Slavic, making the evolution of a strong-jer reflex from *tʀt* more improbable. From one zone to the next, such as Czech to southern Polish, there is a correspondence of present-day Czech *ʀ*, *ʎ* to former Polish *ʀ*, *ʎ*, while present-day Czech *l* with secondary support vowels most often corresponds to cases where syllabic liquids of the type *tʀt* can be presumed to have never existed in Polish, and which now have strong-jer mid vowel reflexes. If one compares two more distant zones, such as Czech and either northern Polish or East Slavic, there is a different relationship, wherein current Czech *ʀ*, *ʎ* may well correspond to strong jer reflexes. This demonstrates the continuum of the northeast progression of jer-loss,<sup>6</sup> combined with an opposite, southwestern progression of the isogloss for loss of syllabic liquids. The greatest overlapping of these two isoglosses must have occurred in the Polish zone and those other Slavic areas which experienced a similarly complex evolution of *jer + liquid* groups.

#### V.

While the *low vowel + liquid* diphthongs, known as *tʀt*, were modified prior to jer-fall by metathesis, due to the falling sonority of *ʀ* (possible *ʀʀ*, Feldstein 1976:320-324), the high vowel liquid diphthongs persisted without metathesis, since neither element surpassed the other in sonority, all the more so after the rise of jer vowels, weak in sonority when followed by non-jers. At this time the *ʀ* in *tʀt* was till the second mora of a two-morae sequence termed a diphthong.

The syllabic nature of the *r* in *tʀt* prevented the jer from strengthening according to Havlík's Law. As consistently weak, it was subject to regular jer-loss as the *ʀ* took over the entire two-mora syllabic function of the long syllable, the normal consequence of jer-loss: *tʀt* > *tʀt*. Jer-loss, causing this change, was moving from the southwest towards the northeast. At this time in the northeast extreme of Slavic, and possibly in the northwest as well, (e.g. Upper Sorbian), which were the last Slavic areas to lose jers, there was a general emphasis on consonantal inventories over vocalic, manifested in many ways, such as loss of vowel pitch and quantity, rise of phonemic consonant palatalization, and new consonant clusters. A part of this trend was the change of syllabic liquids to non-syllabic, transforming them from functional vowels to consonants,

and causing *-ʀʀ-* diphthongs to have invariably strong jers, followed by non-syllabic *r*, *l*.

The Polish, East Slovak, and Lower Sorbian areas lay between the two opposing zones. As such, *tʀt* would result from regular jer-loss, unless East Slavic rule for loss of syllabic liquids came to apply before the loss of jers, which would lead to *tʀt* reflexes with strong-jer reflexes followed by non-syllabic *r*, *l*. However, in this zone the *tʀt* reflexes were invariably intermediate and temporary; *ʀ*, *ʎ* were eventually lost, with a support vowel (usually high or at least tense) then placed either before or after the liquid.

Czech had already experienced complete jer-loss in *tʀt* > *tʀt* before it lost syllabic liquids of any type. Therefore, where *ʀ*, *ʎ* were abandoned later in Czech, non-jer reflexes prevailed. The loss of syllabic liquids was only partial in Czech, and completely absent in Central Slovak and parts of South Slavic, though total in all of East Slavic, Lekhitic, East Slovak, and Sorbian.

There was a hierarchy of groups more and less susceptible to the loss of syllabic liquids. For the syllabic lateral, *ʎ*, the presence of palatalization tended to favor the retention of syllabicity, as contrasted to the tendency to lose syllabicity in the presence of velarization. Polish and Czech agree to a significant degree as to whether syllabic liquids could be tolerated in a given environment, but in interpreting the data we have seen that a retained syllabic liquid of Czech is analogous to a Polish non-jer reflex such as *ar*, *ir*, *il*; while a Czech loss of syllabic liquids reflected in a *lu* sequence must be compared to Polish instances of jer reflexes, such as *el/ol*, in terms of the hierarchy of tolerating syllabic liquids.

Our proposal departs from those of the past by stating that there is not just a single proto-Polish construct applicable to all *jer + liquid* groups, but rather, two, depending on whether jer-loss or loss of *ʀ*, *ʎ* first applied in a given environment. This dual approach finds its confirmation in a parallel duality among the Czech reflexes, largely indicating the same tendency towards retention and elimination of syllabic liquids as in Polish, but with major differences of relative chronology.

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#### Notes

<sup>1</sup>The form *tʀt* will often be used as an abbreviatory device to represent all four types. Although this paper sides with the view that *tʀt* can also be represented as *tʀʀt*, we will indicate the syllabic nature of the liquid in transcription only when special attention is being drawn to that feature. Likewise, the front vowel varieties *tʀt* and *tʀt*



will be transcribed as *tbr't* and *tbl't* only when attention is being directed to the palatalized quality of the liquids.

<sup>2</sup>We are referring to the reflexes such as *tbr't* > *tort* as the East Slavic type. Thus, we are considering the problem of so-called second pleophony (*vtoroe polnoglasie*) to be a primarily north Russian dialect problem, not directly related to our topic (Borkovskij and Kuznecov 1965:107-108).

<sup>3</sup>However, at least one scholar, Ivanov, has claimed that the *-br-* sequence is really bisyllabic (1964:183), thus contradicting Isačenko's sequential constraint.

<sup>4</sup>Such a tonality dissimilation was also present in the later Polish dispalatalizations of *e, ě, ě > o, a, q*, after the so-called soft consonants; however, the mark of high tonality here was in the consonant's palatalized or palatal quality, rather than in the acute feature.

<sup>5</sup>There are no available examples for *-bl-* after labial and before hard dental (Shevelov 1965:87).

<sup>6</sup>As to the northeast direction of jer-loss, let us recall Shevelov's chronology, according to which the Slovene jer-loss "may be attributed even to the late ninth century," while "the tenth century is the time when the loss of jers took place ... in Czech;" further, "in Polish the loss of jers occurred ... probably during the eleventh century," and "in Ukrainian in the mid-twelfth century ... and in North Russian about a century later" (1965:458-459).

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