

ANOTHER LOOK AT SLAVIC LIQUID DIPHTHONGS

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This paper represents an attempt to simplify the treatment of the evolution of Slavic liquid diphthongs, both low (*ǫr*) and high (*ur*). This is done by positing two isoglosses, which specify metathesis and liquid desyllabification. The relative order of these isoglosses varies from area to area within Slavic and is a crucial factor in deriving the correct forms. The desyllabification of liquids is linked with an epenthetic mora caused by regressive compensation. This epenthesis can be structurally linked with the prosodic phenomenon of leftward accent spread.

1.

It has become almost traditional to begin studies on Slavic liquid diphthongs with the statement that the problems inherent in the subject are great and that although many attempts have been made to illuminate this chapter of Slavic historical phonology, none can be considered flawless. Thus, Lehr-Spławiński's 1931 study contains the statement that the subject "undoubtedly belongs to the most difficult of resolution" and that it "has not been fittingly illuminated as yet". In a somewhat pessimistic vein, Bernštejn (1961: 218) notes that "such a quantity of mutually exclusive developmental schemes has been proposed that many modern Slavists completely reject all attempts to represent this process".

The contradictory nature of the literature on this subject, combined with the fact that authors approach the problem in completely differing ways, has created the need for a reevaluation of the topics connected to liquid diphthongs as treated in the major studies extant, as well as a critical review of how certain specific views fit into the scheme of things. In the words of Stankiewicz (1973: 184), "the complex development of the *tert*, *tort* groups needs to be revised for all Slavic languages". This paper is an attempt to reconsider the evolution of the Slavic liquid diphthongs

and to propose certain lines of phonological development that have not as yet been suggested. An important consideration in our discussion of liquid diphthongs will be the role of prosodic distinctions in their development, in recognition of Ekblom's observation (1956: 2): "bei der Behandlung ... der Liquidadiphthonge die Intonationen (Akzentarten) so wenig beachtet worden sind". The bare outlines of this prosodic role have been stated by Stankiewicz (1973: 184).

The justification for proposing yet another diachronic explanation of the evolution of liquid diphthongs, in spite of the copious literature, is the desire to derive all of the modern reflexes from the generally accepted Common Slavic constructs in a simple and uniform way for all the Slavic branches, which has not been the case in many previous studies of the question. For example, in Shevelov's formulation (1965: 412) two thirds of the rules for the East Slavic development of anlaut liquid diphthongs are inapplicable to the South and the West Slavic areas. Our proposals will attempt to do away with such heterogeneous explanations for each separate branch of Slavic languages. We shall first and primarily be concerned with the low-vowel liquid diphthongs, i.e. the *art* and *tart* groups, although many of our remarks will be shown to be applicable to the high-vowel *turt* groups as well.

After examining some of the literature on the subject of the relative chronology of evolution for the anlaut (*art*) and inlaut (*tart*) liquid diphthongs, a chronological proposal shall be presented, based on the relative date of the isogloss for levelling diphthongal quantity in Common Slavic. Following that, the evolution of all types of liquid diphthongs will be presented as the result of two isoglosses of Common Slavic, metathesis and liquid de-syllabification, whose relative ordering is sufficient to explain most of the variation in the modern reflexes of liquid diphthongs in Slavic. Where relevant, aspects of our simplified approach will be compared to others, with the goal of evaluating the relative merits of the differing explanations. After concentrating on the low-vowel diphthongs (*art* and *tart*) an attempt will be made to test the hypotheses found herein by subjecting the high-vowel liquid diphthongs (*turt*) to the very same rules and ordering conditions established for low-vowel diphthongs. Next, the important prosodic implications of the evolution of liquid diphthongs will be reviewed, to be followed by an examination of how the phenomenon of leftward 'accent spread' (Halle 1971: 3 and Kiparsky 1973: 834) can be extended to apply to a wider variety of prosodic phenomena, specifically with reference to our treatment of the evolution

of liquid diphthongs. The basic reflexes of liquid diphthongs will not be presented as such, since they can be found in all of the handbooks, e.g. Nahtigal (1963: 45–47) and Vaillant (1950: 155–161). The common thread in our discussion of the evolution of liquid diphthongs is to be their transformation into non-diphthongal configurations of one sort or another.

Our notation for liquid diphthong groups generally follows Jakobson (1962). The low-vowel first element (both front and back) is to be represented by the back vowel \bar{a} , which can occur both long (\bar{a}) and short (\bar{a}), as well as acute (\acute{a}) and circumflex (\tilde{a}). High-vowel liquid diphthongs are represented as *turt* in reference to the earliest stages of Common Slavic, and as *t̄rt* for the period after the development of the jer vowels. Liquid elements are to be symbolized as *r*. The syllabicity of both diphthongal elements in sequence is indicated as $\acute{a}r$, and will be specified only when special attention is directed to the feature of syllabicity. The initial and final consonants that precede and follow the inlaut liquid diphthong are to be represented as *t*, as in *t̄art*. We have chosen *t̄br̄at*, rather than *t̄ar̄at*, to represent the early Sorbian and Lekhitic reflexes of *t̄art*, in order to emphasize the identification of the first root vowel with the jer vowels.

2.

Much discussion centers on which liquid diphthongs evolved first, the anlaut $\acute{a}rt$ groups or the inlaut *t̄art*. Certain authors present the anlaut as first, while others indicate the inlaut as the first to undergo Common Slavic evolution. Stieber (1969: 38–39) states the generally held view that the evolution (i.e. metathesis) of anlaut groups occurred before that of the inlaut type. The reasons cited for this are the less differentiated development of $\acute{a}rt$ within Slavic as well as the dependence of anlaut metathesis on the two original intonations, acute and circumflex. In addition, Stieber states that neither “historical materials nor borrowings” shed any light on the question of the relative chronology of anlaut vs. inlaut evolution. Milewski’s view is similar (1969: 330), stating that the “more uniform” development of anlaut groups in the entire Slavic area “proves” that the anlaut experienced metathesis before the inlaut. However, we encounter a diametrically opposed treatment in Bernštejn (1961: 220), who states that “during the period of *tort* metathesis ... the diphthongal groups in syllabic-initial position did not change as yet”.

In direct contradiction with Stieber's position, Bernštejn goes on to cite "historical data" as "convincing evidence" for his proposed chronology of inlaut evolution as preceding that of the anlaut. In contrast to the above cited scholars who appear to believe that a statement of relative chronology of anlaut and inlaut evolution can be made for all of Slavic, it is here suggested that different conclusions on the relative chronology of evolution in these diphthongal groups must be reached for South Slavic (including Central Slovak),¹ as compared to all of the other Slavic areas.

In the North and Central Slavic anlaut evolution we find that acute intonation is reflected with long quantity, while circumflex vowels have come down with short reflexes; e.g. Old Russian *rālo* 'plow', *rōstъ* 'growth'. In the North and Central inlaut evolution, however, as well as in the South Slavic evolution of both inlaut and anlaut, the quantity has been levelled. E.g. Old Russian *porógъ* 'threshold', *pōroxъ* 'powder'; Early South Slavic *rālo*, *rāstъ*, *prāgъ*, *prāxъ*. The North and Central preservation of an original opposition of quantity within diphthongs represents a "very archaic stage" (Milewski 1969: 334) since there was a subsequent Common Slavic rule which eliminated the quantitative opposition within all diphthongs by shortening their first elements, where long (Stieber 1969: 17). Consequently, we may interpret the North and Central anlaut results as due to the fact that they lost their diphthongal status, via metathesis, before the rule that levelled diphthongal quantity. After the effect of the rule that shortened the first element of diphthongal groups, the new single quantity counted as a single mora and appeared in combination with the second, less sonorous diphthongal element, which could never oppose quantity and always counted as a single mora in its syllabic function within diphthongs. Thus, diphthongs were uniformly reduced to a two morae, or long-vowel status, quantitatively speaking. Schematically, this series of developments can be represented as follows (within North and Central Slavic):

1. Metathesis of anlaut liquid diphthongs (*ārt* > *rāt*, *ārt* > *rāt*).
2. Common Slavic shortening of first diphthongal element, according

¹ Henceforth South Slavic and Central Slovak will be referred to together simply as 'South Slavic'. In contrast to this area, we shall refer to East Slavic and the non-Czechoslovak portion of West Slavic (mainly Sorbian and Lachitic) as 'North Slavic'. Czechoslovak, minus Central Slovak shall be termed 'Central Slavic' for our purposes.

to rule (1) as stated below

$$(1) V \rightarrow [-\text{long}] / \text{---} \begin{bmatrix} +\text{sonorous} \\ +\text{syllabic} \end{bmatrix}$$

Rule for the shortening of first diphthongal elements of Common Slavic.

The effect of rule (1) is to merge $\bar{a}r$ and $\acute{a}r$ as $\grave{a}r$.

Since all of the Slavic liquid diphthong reflexes other than the North and Central Slavic anlaut lack the quantitative opposition, they are subject to the rule that levels the quantity of diphthongs. Thus, with regard to the relative chronology of $\acute{a}rt$ and $\bar{a}rt$ evolution, North and Central Slavic, which continued to oppose quantity in anlaut groups, first experienced the evolution of anlaut diphthongal liquid groups, while South Slavic, which had “a complete identity in the change of ORC and CORC groups” (Shevelov 1965: 408), obviously metathesized both anlaut and inlaut sequences after the development that levelled diphthongal quantity.

The role of the pitch opposition is very instructive in illuminating the implications of the developments that have just been proposed. According to Milewski, “short $\acute{a}rt$ was circumflex and long $\bar{a}rt$ was acute” (1969: 334). This indicates that the quantity and pitch implied each other’s occurrence in diphthongs, but after quantity was levelled in all diphthongs the pitch took on an independent role of opposition in these cases. Thus, North and Central Slavic avoided a pure pitch opposition in their $\acute{a}rt$ groups by having the metathesis of these inlaut diphthongs precede the loss of the quantitative opposition. The South Slavic area, by contrast, developed a pure pitch opposition in liquid diphthongs which can be traced to the loss of the quantitative opposition in diphthongs before their metathesis, as follows:

1. Levelling of quantity in both anlaut and inlaut diphthongs, liquid as well as other types; $(t)\bar{a}rt > (t)\acute{a}rt$, and $(t)\bar{a}rt$ remains as such.
2. Metathesis at a later time, preserving the pitch opposition with a constant quantity, hence, a pure pitch opposition.

3.

As presented above, an extremely important isogloss determining the difference between $\acute{a}rt$ in the North and Center versus the South was the

Table 1
Slavic liquid diphthongs after the loss of diphthongal quantity.

	ǎrt	tárt
North	rǎrt versus rǎrt̃	tárt versus tárt̃
Center	rǎrt versus rǎrt̃	tárt versus tárt̃
South	ǎrt versus ǎrt̃	tárt versus tárt̃

loss of the quantity distinction in the first diphthongal element. After this isogloss finally occurred in all Slavic areas (after *ǎrt* metathesis in the South), the results were as found in table 1.

In the forms of table 1 we may note certain traits that survive as reflexes even today; *ǎrt* groups differentiated quantity and pitch in North and Central Slavic, while South Slavic *ǎrt*, as well as *tárt* in all Slavic areas, lacked the quantitative opposition (except as the result of later developments that occurred well after the evolution of liquid diphthongs on which we are concentrating, such as the West Slavic recording of pitch into quantity).

It is a significant fact that the quantitative opposition is absent in all those diphthongal groups which failed to metathesize by the time of the effect of the isogloss that specified loss of diphthongal quantity. In the subsequent evolution of these remaining diphthongal groups a most crucial development was the loss of syllabicity within the liquid element of diphthongs, which led to the compensatory addition of a mora to the left of the desyllabified liquid; i.e. the compensation was regressive. In South Slavic this loss of liquid syllabicity and compensatory addition of a mora cause *ǎrt*, *tárt* to add a mora and lose the syllabicity feature in the liquid: *ǎart*, *táart*, prosodically equivalent to *ǎrt̃*, *tárt̃*.

In Central Slavic, the anlaut diphthong had already been eliminated by metathesis and a rule desyllabified liquids without compensatory insertion of a mora when the syllabic liquid was bounded on the left by the word boundary; i.e. the environment $\#r$ desyllabified without compensation (cf. Jakobson 1929: 24). Thus, only anlaut diphthongs of Central Slavic were subject to the compensatory lengthening isogloss, as it moved northwards from the South, yielding *tárt* < *tárt̃*.

It will be recalled that the North Slavic group, like Central Slavic, had avoided a pure pitch opposition in anlaut groups by anticipating the

levelling of diphthongal quantity with a metathesis of anlaut liquid diphthongs. However, the inlaut liquid diphthongs, as a result of the elimination of the quantitative opposition, became the carriers of a pure pitch opposition of the type *tǎrt* versus *tǎrt̃*. Let us also recall that the isogloss for the loss of liquid syllabicity and concomitant insertion of a mora, was moving northwards. The North Slavic area reacted by metathesizing inlaut liquid diphthongs before the loss of liquid syllabicity occurred: *tǎrt* > *trǎt*. Following this, the very same loss of liquid syllabicity and leftward insertion of a mora takes place, with a dialectal differentiation as to the quality of the compensatory mora. Lekhitic presents a reflex identical to the short high jer vowels, while East Slavic has a short low vowel as compensatory: Lekhitic *tǎrt* > *trǎt* > *t̃rǎt*; East Slavic *tǎrt* > *trǎt* > *t̃rǎt*. As already indicated in the case of Central Slavic, the North Slavic anlaut groups had lost their liquid syllabicity without the compensatory addition of a mora since initial syllabic liquids were not subject to this rule.²

Thus, our interpretation of the inlaut *tǎrt* diphthongs proposes two major Common Slavic isoglosses which can account for all Slavic reflexes³ of liquid diphthongs by considering that the order of the two isoglosses is reversed in North Slavic as opposed to Central and South

² Since South Slavic had lost anlaut liquid syllabicity before metathesis, the compensatory lengthening was able to develop and to eventually generalize the *rat* reflex. However, the North metathesized the anlaut groups before being subject to loss of liquid syllabicity; the latter would have brought about a compensatory epenthetic mora in other than anlaut position. The general tendency to avoid initial vowels could help explain the non-development of a pre-liquid compensatory mora in anlaut position.

³ Portions of the peripheral Northwest and Southeast Slavic areas are exceptional in that they lacked the isogloss for metathesis (cf. Lehr-Spławiński 1957: 238). However, in all non-metathesized cases one finds the length reflex in the vowel, demonstrating that these areas did undergo loss of the liquid's syllabic property along with regressive addition of a mora, e.g. Slovencian *svǎrb* 'itch', Middle Bulgarian *svarbъ* (Milewski 1969: 332). These exceptions to the metathesis rule might indicate that metathesis proceeded in a Northeast-Southwest direction, since East Slavic and Serbo-Slovene do not have the sort of nonmetathesized examples that have been cited in North Lekhitic and Bulgarian-Macedonian. An interesting fact concerning these peripheral areas is that non-metathesized anlaut *ǎrt* is restricted to the Southeast (Milewski 1969: 331), while non-metathesized inlaut *tǎrt* is known to both Northwest and Southeast (Milewski 1969: 332). This supports the view that North Slavic *ǎrt* and *tǎrt* evolutions were chronologically separate, since the Northwest was subject to metathesis in its anlaut groups, but was exempt from this rule for at least part of the period of the inlaut change, which led to instances of both metathesized and non-metathesized variants in the Northwest *tǎrt* reflexes (Milewski 1933). The Southeast, on the other hand, with its cases of non-metathesis in both anlaut and inlaut groups, lends credence to the view that South Slavic experienced anlaut and inlaut liquid diphthong evolution simultaneously.

Slavic. The two relevant isoglosses specify the following two processes:

1. Loss of liquid syllabicity and compensatory leftward insertion of a mora.

2. Metathesis of the vowel and liquid elements of the diphthong.

The South and Center experience the above isoglosses in the indicated order (1, 2), but in the North their order is the reverse (i.e. 2, 1).

4.

Let us schematically represent all of the developments thus far proposed before discussing how they are treated in a variety of existing proposals and examining certain potentially controversial aspects of our proposal.

In the first stage, we suggest that there was a northern-based isogloss for the metathesis of anlaut liquid diphthongs and subsequent liquid desyllabification, and a southern-based isogloss for the general levelling of diphthongal quantity, as represented in table 2.

The next series of developments is characterized by liquid diphthong metathesis, which again emanates from the North, but now is not restricted to the anlaut position, as previously. From the South there proceeds an isogloss calling for the loss of liquid syllabicity along with the concomitant regressive insertion of a mora. In the stage preceding the loss of diphthongal quantity (table 1), the northern isogloss for anlaut metathesis reached Central Slavic before the southern isogloss for the loss of diphthongal quantity; however, in the next period the southern

Table 2.

Development of liquid diphthongs up to and including the levelling of diphthongal quantity.

North and Central Slavic	South Slavic
1. Anlaut metathesis: $\tilde{a}rt, \underset{\cdot}{a}rt > \underset{\cdot}{r}at, \underset{\cdot}{r}at$	1. Levelling of diphthongal quantity: $\tilde{a}rt, \underset{\cdot}{a}rt; \underset{\cdot}{t}art, \underset{\cdot}{t}art > \underset{\cdot}{a}rt, \underset{\cdot}{a}rt; \underset{\cdot}{t}art, \underset{\cdot}{t}art$
2. Anlaut liquid desyllabification (no compensation): $\tilde{r}at, \underset{\cdot}{r}at > \underset{\cdot}{r}at, \underset{\cdot}{r}at$	
3. Levelling of diphthongal quantity: $\underset{\cdot}{t}art, \underset{\cdot}{t}art > \underset{\cdot}{t}art, \underset{\cdot}{t}art$	

Table 3

Further development and eventual elimination of liquid diphthongs following the loss of diphthongal quantity, as indicated in table 2.

North Slavic	South and Central Slavic
1. Metathesis of (remaining) liquid diphthongs: $\tilde{t}\acute{a}rt, t\acute{a}rt > t\tilde{r}\acute{a}t, t\tilde{r}\acute{a}t$	1. Liquid desyllabification and regressive compensation of a mora: $\tilde{a}rt, \acute{a}rt; \tilde{t}\acute{a}rt, t\acute{a}rt > \tilde{a}rt, \acute{a}rt; t\tilde{a}rt, t\acute{a}rt$
2. Liquid desyllabification and regressive compensation of a mora: $t\tilde{r}\acute{a}t, t\tilde{r}\acute{a}t > t\tilde{a}r\acute{a}t, t\tilde{a}r\acute{a}t$ (East Slavic)	2. Metathesis of liquid diphthongs: $\tilde{a}rt, \acute{a}rt; t\tilde{a}rt, t\acute{a}rt > r\tilde{a}t, r\acute{a}t; t\tilde{r}\acute{a}t, t\tilde{r}\acute{a}t$
$t\tilde{r}\acute{a}t, t\tilde{r}\acute{a}t > t\tilde{z}r\acute{a}t, t\tilde{z}r\acute{a}t$ (Sorbian and Lekhitic)	

isogloss for the loss of liquid syllabicity applies to the Center before the northern isogloss that calls for a metathesis of all (remaining) liquid diphthongs. This latter period is represented in table 3.

The above explanation, summarized in tables 2 and 3, is proposed as the simplest explanation of the complex series of events which abolished both anlaut and inlaut liquid diphthongs. Noting that the Central area is transitional, agreeing with the North in its anlaut evolution, but agreeing with the South as to the inlaut liquid diphthongs, we have suggested that there was a two-stage series of common isoglosses that explain the well-known differentiation of modern reflexes by means of an ordered progression of geographical isoglosses.

Let us now review a number of hypotheses, comparing them to those voiced herein. We have explained the archaic quantitative distinction in North and Central Slavic *art* as the result of an early metathesis which allowed these anlaut diphthongs to escape a pure pitch opposition threatened by the approach of the isogloss calling for the abolition of diphthongal quantity. Shevelov does not distinguish between the original quantitative distinction preserved by the North and Center, and the general lengthening of vowels in liquid diphthongs found in the South (1965: 397). Instead, he speaks simply of a 'lengthening' that applies to all *art* groups in the South, but only those with acute stress in the North and Center. This idea of 'lengthening' is not well motivated, proposing a lengthening of circumflex in the South but not in the North, and ignoring

the archaic distinction of quantity in North Slavic *ǎrt*, alluded to by Jakobson (1962: 443), Milewski (1969: 334) and Stieber (1969: 38). In this paper's view, all lengthening is either inherited or expressly motivated by the loss of liquid syllabicity and its concomitant regressive compensation.

In order to explain why there is a quantitative opposition in North and Central Slavic *ǎrt*, but neither in the South Slavic anlaut nor in any Slavic inlaut groups, we have suggested that the common Slavic loss of diphthongal quantity intervenes chronologically as indicated above. In contrast to this approach, Jakobson (1962: 444) speaks of the 'generalization' of quantity in southern *ǎrt* and all Slavic *tǎrt* groups, but he does not connect it to any Common Slavic process, as we have attempted to link it to the rule that specifies levelling of diphthongal quantity. Furthermore, in view of the Common Slavic rule that first diphthongal elements were shortened (Stieber 1969: 17), any suggestion that there were some instances of length generalization and others where shortness is generalized must be linked to more general rules of Common Slavic where possible. Our solution has been to posit the recognized shortening of first diphthongal elements, followed by the South and Central Slavic generalization of *trāt*, with two morae concentrated into one vowel, and the North Slavic generalization of *tǎrāt* (or *tbrāt*), where two morae are separated by a liquid consonant. In all Slavic groups the added mora results from compensation for the loss of liquid syllabicity, which occurs before metathesis in South and Central Slavic, but after it in the North. Thus, according to our explanation, the general shortening of all first diphthongal elements, as well as the special cases involving liquid diphthongs, all find their logical place. Instead of speaking of lengthenings and shortenings as such in various Slavic areas, we have tried to unify the known instances of long and short vowel generalization by deriving them through compensation for a liquid that always desyllabifies in Slavic *ǎrt* and *tǎrt* groups.

Lehr-Spławiński (1957) claims to "integrally approach and explain all the fundamental processes" connected with liquid diphthongs. In his scheme, which applies only to the low-vowel *ǎrt* and *tǎrt* groups, a Common Slavic insertion of *ǎ* after the liquid is proposed, followed by a dialectal 'quantitative metathesis', leaving East Slavic *tǎrǎt*, but creating *tǎrāt* in West and South Slavic. This idea sets up plephonic (i.e. disyllabic) forms in South and Central Slavic which disappear, in Lehr-Spławiński's own words, without "any traces" (1957: 241). Lehr-Spławiński derives

the well-known modern reflexes on the basis of three kinds of dialectal development of the posited ə vowel. The ə is either lost (South and Central Slavic *trat*, and Sorbian and Lekhitic *trot*) or retained as a full vowel (East Slavic *torot*). This proposal fails to account for the fact that disyllabic groups are attested only in North Slavic, although Lehr-Spławiński posits them for all Slavic areas. In addition, it does not explain the link between attested pleophony and generalization of *o*, rather than *a*, in liquid diphthong reflexes. By contrast, this paper asserts that short *o* vocalism (modern *trot* and *torot*) implies present-day or one-time pleophony, while long *a* vocalism (modern *trat*) implies that a pleophonic situation never existed.

Many existing studies of liquid diphthongs (e.g. Shevelov 1965; Milewski 1969) treat South Slavic metathesis and East Slavic pleophony as unconnected processes. Our treatment views both metathetic (*trāt*) and pleophonic (*tārāt*) groups as being derived from the identical two processes, differing merely by two opposite orderings of the processes in question. This appears to greatly simplify the representation of developments generally conceded to be quite complex. In addition, the present proposal is partly based on the assumption of a metathesis of liquid diphthongs in East Slavic, a position that contradicts all of the above cited scholars. Let us review some of the main arguments concerning the presence or absence of metathesis of liquid diphthongs in East Slavic.

Shevelov (1965: 410) considers East Slavic metathesis to have been impossible on the grounds that “if East Slavic ever had to insert a vowel between the initial consonant and the sonant it would have not only *borodā* ... from the alleged *+broda* but also *+barat* from **brātu*”. However, according to our position, even after metathesis the sonant retained its syllabicity, i.e. *tārt* > *trāt*. Subsequently, *trāt* developed its epenthetic compensatory vowel when the liquid desyllabified, but in the case of Shevelov’s example **brātu* there was never a syllabic feature in the liquid segment and, consequently, no compensatory vowel. As to the plausibility of the retention of liquid syllabicity after the metathesis, we refer the reader to Jakobson (1962: 445) where a nearly identical scheme to ours is used to explain the Lekhitic evolution: **tārt* > *trāt* > *turāt*. Thus, if Shevelov’s objection to East Slavic metathesis is correct, Jakobson is just as wrong in his Lekhitic chronology as we are in ours for the entire North. It may be added that Shevelov’s contention about the impossibility of the development of pleophony following metathesis leads him to reject the evidence for pleophony in Lekhitic, since Lekhitic obviously experienced metathesis.

Another frequently voiced objection to East Slavic metathesis is the view that in final closed syllables Ukrainian $o, e > i$, but that in original *tart* groups the o, e do not change to i , exemplified by Ukrainian *hórod* 'city', but *rid* (<*rodʒ*) 'gender'. This objection contends (cf. Vaillant 1950: 166–7 and Lehr-Spławiński 1957: 235) that the second vowel of the pleophonic group was a reduced \bar{z} , rather than \acute{a} from a metathesized *tart* > *tr̄a*, and that, therefore, there was no change to i in these instances. Shevelov, in rejecting the reconstruction of a reduced \bar{z} as the second pleophonic vowel, notes (1965: 411) that the raising of $o, e > i$ could have preceded the development of o in the second syllable of words such as Ukrainian *horod*. This paper suggests, therefore, that this raising preceded liquid metathesis in East Slavic. Since we have already answered Shevelov's objection to a proposed East Slavic metathesis, we can maintain that the second o in *horod* (rather than i) is not necessarily evidence against an original o (< \acute{a}), which remained as non-high due to the fact that it was not found before the d (of *horod*) at the time of the vowel raising. As further evidence in favor of our suggestion that the second pleophonic vowel was not equivalent to a jer vowel let us note that this vowel is never deleted in weak-jer position in East Slavic, as Ukrainian *horod*, Russian *gorod* and all other such pleophonic examples demonstrate. Also, it should be mentioned that Ukrainian dialects often present a raised i rather than o in pleophonic cases (e.g. *porih* 'threshold'), said by some to be connected to the original intonation (Ekblom 1956), but, in any case definitely implying the existence of metathesis in East Slavic liquid diphthongs in inlaut as well as anlaut position.

5.

Our discussion has thus far concerned only the fate of low-vowel liquid diphthongs. However, as a number of scholars have indicated, the high-vowel liquid diphthongs (*turt*)⁴ must have been subject to a line of development parallel to that of the *tart* type. Peciar (1941: 52) speaks of his "a priori assumption of parallelism with the development" of the

⁴ We are concentrating on the inlaut since examples of anlaut *ʒrt* are too few and sporadic.

tärt groups. Markov (1961: 118) states that “combinations of jers with liquids inevitably had to develop in the same directions as combinations of full-vowels with liquids”. In Kolesov (1963: 153) we find the very same view expressed.

This widespread opinion on the necessity to similarly derived *tärt* and *turt* evolutions has direct relevance to our above stated proposals. If the above sketched development is to remain tenable, it must explain and derive the varied Slavic reflexes of *turt* groups by means of the same isoglosses and chronologies proposed for *tärt*. Let us subject the *turt* groups to these rules for the South and Central, as well as the North Slavic areas.

It will be recalled that our treatment of inlaut liquid diphthongs specified the ordered developments of liquid desyllabification and compensatory addition of a mora to the left, and metathesis of liquid and vowel in South and Central Slavic, with the reverse order of these developments applying in the North. Consequently, in South and Central Slavic, *turt* is first subject to a loss of liquid syllabicity according to our rules for *tärt*. However, a concomitant part of the loss of liquid syllabicity was the leftward compensatory insertion of a mora, equivalent to a vowel lengthening where a vowel already preceded the liquid. As Peciar (1941: 51) points out in discussing the possible lengthening of the vowel *ɔ* in *tɔrt* groups (which represents the stage of *turt* after the development of jers), “the jers should have lengthened then ... But the jers, as we know, had lost ... the quantitative and qualitative correlation to the vowels \bar{i} , \bar{j} ”. This fact left the *tɔrt* (< *turt*) groups unaffected by the liquid desyllabification rule, since no compensation could take place within the *ɔ* vowel, in contrast to what could occur in the *á* vowel of *tärt* groups. Thus, although this first rule changed *tärt* > $\bar{t}\bar{a}rt$, the group *tɔrt* retains its diphthong as a syllabic whole, unaltered by the first rule of liquid desyllabification, to which it is exempt. Metathesis next applies to the *tɔrt* groups of the South and Center, changing them to *tɔt*, with the liquid and jer vowel still representing a single mora each. Eventually, the loss of the jer in weak position brought about the characteristic regressive compensatory addition of a mora to the preceding syllabic segment, causing the liquid to lengthen, along with the loss of the jer vowel: *tɔt* > $\bar{t}\bar{r}t$. Indeed, in the South and Central zones of Slavic we find evidence of length in the syllabic liquids of original *turt* (> *tɔrt*) groups, as cited by Seliščev (1951: 163): “Serbo-Croatian *vřba* [‘pussy willow’], *dřzati* [‘to hold’], Old Czech *pridřzati* [‘to hold’], *křmiti* [‘to feed’], Slovak *vřba*, *křmit*”.

The South Slavic development can be shown step-by-step as follows (cf

the above derivation of *t̃art* in table 3):

1. Liquid desyllabification and regular compensation: inapplicable, *t̃art* remains unchanged.
2. Metathesis: *t̃art* > *tr̃at*.
3. Regular loss of weak jers and compensatory length in preceding liquid (addition of a mora): *tr̃at* > *t̃r̃at*.

Next, let us apply these rules to the North Slavic area, first that of East Slavic, then Lekhitic. In East Slavic we first have metathesis, which is followed by liquid desyllabification and compensatory action. The metathesis causes the change *t̃art* > *tr̃at*. Next, the liquid desyllabification rule is applicable, since a single mora can be added to the left of the liquid (the quality of compensatory vowels in East Slavic always assimilates the quality of the post-liquid vowel), yielding *t̃br̃at*. The *t̃br̃at* configuration is known by the traditional misnomer of 'second pleophony'⁵ although it is but a simultaneous variation of original pleophony. The group *t̃br̃at* is well attested in East Slavic and its further evolution into the modern Russian reflexes (i.e. *tort*, etc.) involves the 'always strong' (Stieber 1969: 34) treatment of the preliquid jer, thus generalizing that position in which there was a full-vowel desinence: *t̃br̃at-(a)* > *t̃br̃at-(a)* > *tort-(a)*. Of course, the plephonic character of the group explains the apparently anomalous behavior of the first jer as invariably strong, as noted by Kolesov (1963: 153). Schematically, the East Slavic development can be represented as follows:

1. Metathesis: *t̃art* > *tr̃at*.
2. Liquid desyllabification and compensation: *tr̃at* > *t̃br̃at*.
3. Regular loss of weak jers ensues, with the eventual East Slavic reflex based on a full-vowel desinence: *t̃br̃at-(a)* > *t̃br̃at-(a)* > *tort-(a)*.

In discussing low-vowel liquid diphthongs above, we indicated that the order of metathesis, followed by liquid desyllabification, applies to both East Slavic as well as Sorbian and Lekhitic, to which we have referred as North Slavic for this purpose. Now, in the case of the high-vowel *turt* groups, we can also apply this northern ordering to derive the Early Sorbian and Early Lekhitic reflexes. Firstly, metathesis converts *t̃urt* > *tr̃ut*, just as in East Slavic. Both liquid and jer-vowel are as yet syllabic after this step, each counting as a single mora in length. Next, the liquid desyllabifies, according to the order of our evolutionary scheme of

⁵ Peciar (1941) states. "This term is inaccurate in our interpretation since these forms arose simultaneously to Russian *tolot, torot, teret*".

liquid diphthong changes. However, in Lekhitic and Sorbian there were both a longer retention of liquid syllabicity and an earlier loss of weak jers, compared to East Slavic, so that the regular loss of weak jers, represented in the preceding paragraph as the third process in East Slavic, intervenes between the metathesis and liquid desyllabification rules in Sorbian and Lekhitic. The well-known lateness of jer-loss in East Slavic is helpful in confirming this hypothesis. Significantly, in the case of the low-vowel *tärt* groups, the relative date of jer-loss does not affect the final results in the same way since no North Slavic area had developed jers in *tärt* groups until the time of compensation for liquid desyllabification. The *turt* group, by contrast, had evolved into *tʰrt* (with a jer vowel) before the time of its being subject to liquid desyllabification.

As a result of the loss of weak jers in Sorbian and Lekhitic, the metathesized *trʰt* is converted to *tʰt*, with the loss of the jer vowel and its normal compensatory effect of adding a mora to the preceding segment, in this case a syllabic liquid which was lengthened. Following this intervening jer loss, there follows the expected North Slavic liquid desyllabification and regressive compensation, which yields: *tVrt*, where *V* represents a vowel of indeterminate quality which varies depending on the value of the consonant designated as *t*. The East Slavic result of compensation following the loss of the liquid's syllabicity was equivalent to a jer vowel, since East Slavic had not yet lost its weak jers at that point and further, due to the assimilatory effect of the jer in the next syllable. (Such assimilation, therefore, is characteristic of both *tärt* and *turt* evolution in East Slavic.) The eventual Sorbian and Lekhitic reflex of our posited *tVrt* group is based on the assimilating effect of neighboring consonants and is part of the history of these individual language areas (cf. Seliščev 1941: 231–232, 311–314). To further clarify the difference between the two major North Slavic evolutions of *turt*, we cite representative examples from East Slavic, where the vowels are the regular strong jer reflexes (except for the fact that *tʰlt* and *tblt* merge as *tʰlt*); and from Sorbian and Lekhitic, where the vowels are not strong jer reflexes, but are the result of assimilation to the consonantal environment: East Slavic (Russian) *gorn* 'furnace', *tvěrd(yj)* 'hard', *volk* 'wolf'; Sorbian (Lower) and Lekhitic (Polish) *gjarn(c)*, *garn(ek)* 'pot', *tward(y)*, *tward(y)* 'hard', *wjelk*, *wilk* 'wolf'.

In comparing East Slavic with Sorbian and Lekhitic, one can observe the shared trait of non-syllabic liquids in *turt* and other configurations, in contrast to the presence of such syllabic liquids in Central and South

Table 4

Evolution of *turt* groups in Slavic, shown after the development of jers (i.e. after *turt* > *ṭrt*).

South and Central Slavic

1. Liquid desyllabification: inapplicable to *ṭrt*, due to the jer vowel (preceding the liquid), which cannot lengthen since it is not qualitatively correlated to any long vowel.
2. Metathesis: *ṭrt* > *tṛt*
3. Jer-loss and compensatory lengthening of the mora preceding the weak jer: *tṛt* > *t̄rt*

East Slavic

1. Metathesis: *ṭrt* > *tṛt*
2. Liquid desyllabification and regressive compensation: *tṛt* > *tṛrt*
3. Jer-loss and regular compensatory strengthening of jer in preceding syllable: *tṛrt* > *tor̄t*

Sorbian and Lekhitic

1. Metathesis: *ṭrt* > *tṛt*
 2. Jer-loss and compensatory lengthening of the mora preceding the weak jer: *tṛt* > *t̄rt*
 3. Liquid desyllabification and regressive compensation: *t̄rt* > *t̄Vrt*
-

Slavic. According to our explanation of *turt* evolution, this difference is due to the fact that North Slavic was able to apply the rule for liquid desyllabification while Central and South Slavic were not since at the time of this rule's existence the liquid sequentially followed a consonant in North Slavic while it followed a jer vowel which could not compensate for desyllabification in both Central and South Slavic. In table 4 we summarize our discussion of the evolution of *turt* (> *ṭrt*) groups, noting that we are proposing the very same isoglosses as were suggested in the derivation of *t̄art* reflexes (cf. table 3). In addition, however, the isogloss for weak jer loss plays a significant role in the evolution of *turt* groups, not found in that of the low-vowel diphthongs *art* and *tart*.

Thus, it is hoped that our survey of *turt* evolution has strengthened the case for our explanation of *art* and *tart* development in Slavic, since the same set of ordered rules can apply in deriving both sets of modern reflexes within each separate Slavic area, with due allowance for subsequent changes that have occurred, resulting in the actual forms found in each individual Slavic language of today, such as the Polish *turt* reflexes, in which vowel quality depended on recent assimilation to the consonantal environment.

6.

Let us now turn to some of the prosodic aspects of the Slavic evolution of liquid diphthongs. The most striking difference between the evolution of *art* and *tart* in North Slavic, compared to that of the South, is that all of the South Slavic reflexes allow prosodic oppositions based strictly on pitch, while in the North we find that the anlaut *art* reflex observes a quantitative distinction along with pitch, and that inlaut *tart* presents a distinction of stress placement besides that of pitch.

Consequently, in South Slavic, such cases as *rālo* 'plow' versus *rāstŋ* 'growth' both have long root vowels and differ only in pitch, while North Slavic *rālo* versus *rāstŋ* involves the opposition of long vs. short vowel as well as acute versus circumflex. In inlaut cases South Slavic *prāgŋ* 'threshold' versus *praxŋ* 'powder' is purely tonal, while North Slavic *pārāgŋ* (or *pbrāgŋ*) versus *pāraxŋ* (or *pbraxŋ*) involves the two prosodic features of stress placement and pitch.

It has been suggested that the disyllabic reflexes of North Slavic demonstrate that this area "eliminated the prosodic opposition carried by the diphthong" (Stankiewicz 1973: 184), i.e. the pitch opposition. However, the special reflexes developed by Upper Sorbian (*ó*, cf. Dybo 1963) and Russian (*ô*, cf. Filin 1972: 149–159) for *o* under acute stress (e.g. Russian dialectal *korôva* 'cow' in Avanesov 1965: 31, Upper Sorbian *kruwa* (<*krôwa*) 'cow' in Dybo 1963: 66), in contrast to unchanged circumflex *o*, indicate that the pitch opposition survived at least into the period of disyllabic reflexes for liquid diphthongs.⁶ The fact that Upper Sorbian and Russian dialects modify the newly arisen acute *ó*, while Polish does not (cf. Polish *krowa* 'cow') can be linked to the Polish merger of acute and circumflex stress as short quantity, in contrast to the Sorbian merger of acute and neo-acute as long (Jakobson 1963: 167) and the Russian merger of acute and neo-acute as non-recessive in stress placement. This indicates that North Slavic did maintain a pitch opposition after the development of disyllabicity in *tart*, but that in every instance it was supported by a concomitant quantitative (Upper Sorbian *ó*) or qualitative (Russian *ô*) opposition other than pitch; the non-pitch property then assumes a more independent phonemic role with the even-

⁶ According to Filin (1972: 155) the rise of the Russian *ô* versus *o* opposition can be dated between the 11th and 13th centuries, implying that the pitch opposition that led to it lasted at least that long, i.e. until the 11th century.

tual loss of pitch itself. Polish, however, retains *o* under the original acute, having obliterated the distinction of acute vs. circumflex in response to a threatened merger of the acute with the neo-acute (cf. Feldstein 1975). This explains why there is no special reflex for Polish *ó*, in contrast to the Sorbian and Russian situations.

Prosodically, the North Slavic disyllabic reflexes of *tǎrt* represent a structural modification in Slavic typology since short root vowels could now appear under the acute stress. However, it must also be remembered that these reflexes imply an influx of disyllabic roots, formerly monosyllabic. Thus, the well-known original restriction of root acute stress to long vowels (Jakobson 1963: 159) was based on a monosyllabic root structure since the essence of the old acute was stress on the second mora of the root (in non-derived words). Now, thanks to the newly arisen pleophonic roots, it became possible to simultaneously have short root vocalism as well as two morae within the root. The structural requirement of two morae for acute stress on the root helps to positively confirm the sometimes debated question (Shevelov 1965: 412–414) of whether Sorbian and Lekhitic *tǎrt* reflexes were ever disyllabic since the originally short (reflected as *o*, rather than *a*) second pleophonic vowel could only bear the old acute stress if supported by another root mora in the preceding syllable in order to guarantee an intrasyllabic comparison of morae where the stressed syllable contained only one; e.g. *kǎróva*. In East Slavic, both the old acute and neo-acute followed this pattern, implying stress on the second pleophonic vowel in cases such as *koróva* (old acute) as well as *koról* 'king' (neo-acute).

Sorbian merged the prosodic features of long acute and neo-acute (and pretonic) vowels as long in quantity, equivalent to two morae; circumflex was reflected as short, equivalent to a single mora. Polish similarly converted the original stress types to quantitative features, as noted above, but only neo-acute (and pretonic) vowels retained length (two morae), while acute and circumflex merged as short (one mora) vowels. The two-morae *tǎrt* roots of Sorbian and Lekhitic, which were threatened with a quantitative reduction to a single mora as a result of jer-loss (i.e. *tǎrt* > *tǎrot* > *trot*), reacted by treating the short second syllable root vowels (*e*, *o*) as they did other vowels of two-morae roots: in Sorbian the *o* of *trot* is treated as short under circumflex (e.g. Upper Sorbian *zloto* 'gold', *hlós(a)* 'voice'), but is lengthened to a two-morae vowel under acute and neo-acute (and pretonic) stress (e.g. Upper Sorbian *krówa* (> *kruwa*); *wróbel* 'sparrow', *brózda* 'furrow'). Polish also treated this *o* according

Table 5

Upper Sorbian and Polish examples of non-lengthening in prefix + root combinations, which contrast to the cases of lengthening of *o* and *e* that occur when the same phonetic sequences as above comprise a non-prefixed root, such as *b̃rozda* > *br̃ozda* 'furrow'.

A. C̃roC Groups (prefix + root)	Reflexes	
	Upper Sorbian	Polish
1. s̃h-rod-í-ti 'generate'	zrodźić	zrodzić
2. s̃h-ron-í-ti 'drop'	zronić	zronić (Old Polish)
3. s̃h-ros-i-ti 'irrigate'		zrosić
4. s̃h-rob-í-ti 'do'		zrobić
5. s̃h-lož-i-ti 'fold'	zložić	złożyć
B. C̃CoC Groups (prefix + root)		
1. s̃h-bod-ú 'I will butt'	zbodu	zboǫ (Old Polish)
2. s̃h-rost-ú 'I will grow'	zrosti	
3. s̃h-met-ú 'I will sweep'	zmjeta	zmiotę

to its pattern of quantitative reflexation that applies to long vowels (i.e. those two morae in length): shortness is found under circumflex and acute (e.g. Polish *złoto*, *głos*; *krowa*) and length in the case of neo-acute (and pretonic) vowels (e.g. Polish *wróbel*, *brózda*). Further data on reflexes of this type is listed in Dybo (1963).

The Sorbian and Lekhitic lengthening of *o*, *e* in *t̃rot/t̃ret* groups, stemming from the loss of the jer, might appear as the result of a phonetically conditioned, compensatory lengthening, progressive (rightward) in direction. However, the evidence points to the root as a special morphological factor in the conditioning environment of this process, since similar phonetic configurations (i.e. *C̃roC* and *C̃CoC*, where *C* represents any consonant) in which the first vowel (jer) belongs to a prefix, such as *s̃h-*, rather than the root, do not experience lengthening of root *o* and *e* under the same prosodic conditions in either Sorbian or Lekhitic. In table 4, we cite a number of such instances, all of which contain root *o* or *e* in pretonic position, which would have lengthened to *ó* in both Sorbian and Polish if the phonetic groups represented consisted of a non-

prefixed root (such as *b̄brozdá* > *br̄ōzda*, Upper Sorbian and Polish *brózda*), rather than prēfix + root.

Thus, the Sorbian and Lekhitic lengthening of *o* and *e* in *tárt* groups is a morphologically conditioned readjustment of root prosody, chronologically well after the period of the Common Slavic evolution of liquid diphthongs, as seen in the lengthening of *o* > *ō*, rather than *á* > *ā*, and in the fact that this development appears at the time of jer-loss. This Sorbian and Lekhitic lengthening is not taken into account by Jakobson (1962: 445), who states, concerning Sorbian, Lekhitic, and East Slavic: "Finally, the intermediate zone and the whole East preserved the vowel of *tárt* without either lengthening or reduction, but developed a svarabhakti vowel". Lehr-Splawinski (1957: 241) does recognize the lengthening, but explains it by the change of a posited *ǣ* > *ǣ̄* in the first syllable of Sorbian and Lekhitic *tárt* groups, a hypothesis created simply to explain the lengthening under discussion and lacking all independent evidence to make it acceptable. As we have seen, prosodic matters are intimately connected with the development of liquid diphthongs in all areas of Slavic, and offer a measure of hope in the resolution of some of the more complex problems, such as the Sorbian and Lekhitic lengthening of *o* and *e*.

7.

Halle (1971: 3) and Kiparsky (1973: 334) have referred to the phenomenon of leftward 'accent spread' in Slavic accentuation, which specifies that upon the deletion of a stressed vowel, the stress automatically passes leftwards to the preceding vowel. For example, when the final jer of *stol̄b̄* 'table' could no longer bear the stress, the resulting stress was *stól̄b̄*, as part of the phenomenon known as the neo-acute stress. Here the case is not as clear as it might theoretically be since the stressed vowel of *stol̄b̄* happened to be the final one as well, precluding rightwards shift of stress.

The rules that have been presented above for deriving the reflexes of Slavic liquid diphthongs suggest a prosodic extension of the rule of leftward accent spread as it applies to the Slavic languages. Specifically, in our interpretation the loss of the feature of syllabicity (mainly in liquid segments) has always caused the compensatory addition of the syllabic feature to the left of the segment that experiences the loss of the syllabicity.

Instances of compensatory lengthening are well known in Slavic. All of them share the leftward directional movement of the compensation. In the case of compensation due to jer-loss, the rightmost jer is deleted and compensatory strengthening occurs in a jer found in the preceding syllable, i.e. to the left of the deleted jer: e.g. *sъnъ* 'dream' > *sъnъ̄* > Russian *son*, Polish *sen*, Serbo-Croatian *san*, etc. The case of the liquid diphthongs, as this paper hopes to establish, presents numerous instances of compensation due to loss of syllabicity in liquid segments and an attempt has been made to interpret all such cases as the leftward addition of a single syllabic unit (a mora). The implications of our study, therefore, are twofold: firstly, to simplify the description of a complex chapter of Slavic historical phonology in terms of natural processes at work in a real geographical context of isoglosses and, secondly, to extend the notion of leftward accent spread to wider prosodic contexts than has been done in previous work that has operated with the concept.

8.

In conclusion, we have operated strictly in terms of phonological processes recognized to be both natural and well-known to the Slavic languages in order to explain the evolution of liquid diphthongs. The two basic isoglosses, specifying the metathesis of liquid diphthongs, and the loss of liquid syllabicity along with the leftward (regressive) movement of the feature of syllabicity, appear sufficient for deriving almost all the salient aspects of the products of liquid diphthongs in Slavic, of both high and low vowel varieties, if two different orders of application of these two isoglosses are taken into account, one for the North, and one for the South. It is hoped that light has been shed on one of the cardinal problems of Slavic phonology and that the important concept of leftward accent spread has been successfully extended to a new prosodic context.

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