

SOME PROBLEMS CONCERNING THE ORIGIN OF THE LATVIAN BROKEN TONE

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1.1: Latvian is one of the two remaining languages in the Baltic branch of Balto-Slavic. Unlike Lithuanian, the other member of the group, Latvian differentiates stress accent from pitch accent. Latvian word stress is predictable and almost always occurs on the initial syllable (exceptions are few and can be exhaustively described¹). However, tones or pitch accents² are found (only and always) on all long syllables.³ By these I mean long vowels, diphthongs, and short vowels that are followed by a tautosyllabic resonant (vowel + resonant + consonant). The following examples with level pitch (indicated by a circumflex accent) illustrate these three environments:

\bar{V}	V_1V_2	VRC
pīle 'duck'	laīva 'boat'	tilts 'bridge'

The standard literary language and the tonal dialect⁴ on which it is based has three distinct pitch accents, while the two other major tonal dialects have only two. The phonemic difference between the three pitch accents in those areas which have them can be clearly seen in minimal triplets like the following one:

luôgs [luôks]	luôks	lûaks
'window'	'green onion'	'frog, bow'

1.2: The standard literary language is derived from the Central Latvian dialect (Latv. virslusdialekts) which is spoken in some areas of the provinces of Vidzeme and Zemgale. The three pitch accents distinguished in this dialect are the level, falling, and broken tone. The level, prolonged, or sustained accent (Germ. Ohnton, Latv. stiprināts akcents) has either a level pitch or a slightly rising pitch (only

usually in words in isolation) throughout the syllable. Examples:

b [̄] rālis	brother	av [̄] oṭs	spring	dū [̄] ndurs	gadfly
dū [̄] mi	smoke	ka [̄] uls	bone	ba [̄] lts	white
bā [̄] rt	to scold	li [̄] els	big	spā [̄] lva	feather

The falling accent (Germ. Fallton, Latv. kritošais akcents) has a very short rise and then a falling pitch throughout the syllable; it is marked with a grave accent:

bā [̀] rda	beard	dai [̀] ļš	beautiful	gū [̀] lta	bed
nē [̀] le	tongue	tē [̀] ikt	to say	bā [̀] lts	voice
dzī [̀] t	to drive	tā [̀] uta	people, nation	cī [̀] rpt	to snip

The broken, interrupted, or glottal accent (Germ. Breכותn, Latv. lauztais akcents) is characterized by an initial rising pitch, then optional glottal closure and a pitch fall--this tone is also often characterized by laryngealization. The accent is marked with a caret. Some examples are:

dzī ^ˆ ve	life	dā ^ˆ ikts	thing, tool	dzel ^ˆ ū ^ˆ ns	yellow
rū ^ˆ gt	to ferment	mī ^ˆ ers	peace	ar ^ˆ t	to plough
vē ^ˆ ls	late	jā ^ˆ uns	young	dar ^ˆ bs	work

A comparison of the three major tonal dialects indicates that Common Latvian probably had three distinctive pitch accents, rather than two as in the West Latvian and Letgalian dialects; likewise it can be demonstrated that in each of these latter dialects two different tones fell together.

1.2.1: West Latvian is spoken in the province of Kurzeme (Courland), and the western parts of Zemgale and Vidzeme. In most areas where West Latvian is used, the two pitch accents which occur are the level and broken tones. It happens that precisely those words which have falling

tone in the Central dialect have broken tone in this areas (cf. table 1). This would seem to indicate that the falling accent and the broken accent have fallen together. Furthermore, in the other areas of this dialect region an intonation is used for the falling and broken tones which is described as being halfway between falling and broken (Endzelīns 1961:47). (Perhaps by this is meant a falling tone with laryngealization, but this is only speculation on my part.)

1.2.2: High Latvian or Latgalian (Latv. latgāliešu or augšzemeņu diaklts) is spoken in the extreme southeast of Zemgale, eastern Vidzeme, and most of Latgale. In most areas of this region, the two pitch accents used are the broken and falling tones. The falling tone occurs not only in those words which have falling tone in the Central dialect but also in words that have level tone (cf. table1). This would seem to indicate that the falling and level tones have been collapsed in Latgalian. In a few areas, instead of the falling tone, level tone occurs throughout (that is, in words corresponding to both level and falling tone words of the Central dialect). The tonal system of all the dialects can be described by a rough schematic diagram, as in table 1.⁵

Central Latvian	West Latvian	Latgalian
level	level	falling [or level]
broken		broken
falling	broken [or broken- falling]	falling [or level]

Table 1: Intonational correspondences between the Latvian dialects

It seems most likely that historically both West Latvian and Latgalian had three pitch accents; only such a system will satisfactorily account for the distribution of intonations in the three dialects, including the disagreement in these distributions: one dialect has collapsed the falling and broken accents, the other--the falling and level accents. In this case, the Central Latvian dialect must reflect the historically prior situation, and the other two dialects have diverged from it.

1.3: The development of the three original pitch accents from Proto-Baltic can be established by reference to the accents of Old Prussian (another member of the Baltic branch) and Lithuanian, and also to the accents of Slavic. Old Prussian is no longer spoken, but some manuscripts do provide an indication of what the accents were: in some words, diphthongs will consistently have a macron over the first vowel, while in others the same diphthongs will have it on the second vowel. Since it has been generally accepted that the macrons mark the high point of the syllable nucleus (Stang 1966:143), the first case ($\bar{V}V$) would probably denote a falling pitch and the second ($V\bar{V}$) a rising pitch.⁶

<u>falling</u>	<u>rising</u>
āusins	pogaūt
lāiku	aīnan
ēit	geīwans

In general, syllables with falling pitch in Old Prussian correspond in cognate words to syllables with falling pitch in Latvian; those with Prussian rising pitch correspond both to level pitch and to broken pitch in Latvian:

	<u>Old Prussian</u>	<u>Latvian</u>	
<u>falling</u> {	āusins	āuss	ear ⁷
	rānkan	rūoka	hand
	ālgas	ālga	wage, pay
	piēnkts	piēci	five

	<u>Old Prussian</u>		<u>Latvian</u>			
<u>rising</u>	{		<u>level</u>	{	jūsū	your (pl.)
				{	kaūls	oath
	{		<u>broken</u>	{	būt	to be
				{	viēns	one
				{	dzīvs	alive
	ioūson					
	kaūlins					
	boūt.					
	aīnan					
	geīwan					

This same correspondence is seen between Latvian and the Slavic languages. The Slavic rising (acute) accent appears as stress on the second syllable of original V+I/r+C formations in Russian and is indicated by acute or grave marks in Slovenian and Serbo-Croatian; the falling accent (circumflex) is shown by stress on the first syllable of V+I/r+C formations in Russian and by a circumflex accent in Slovenian and Serbo-Croatian:

	<u>Ser.-Cr.</u>	<u>Russian</u>	<u>Slav.</u>		<u>Latvian</u>		
<u>falling</u> (circ.)	{			<u>falling</u>	{	bārda	beard
					{	drūg	friend
					{	rūku	hand
					{	vūk	wolf
	brādu	borodu					
	drūg		drūg				
	rūku						
	vūk	volk, vólka	vōtk				
<u>rising</u> (acute)	{			<u>level</u>	{	vātra	sworn
					{	vārns	crow
					{	māte	mother
					{	pūn	full
					{	brēza	birch
					{	līpa	linden
					{	bēžati	to flee
					{	jāriņa	land
					{	jēsti	to eat
					{	žūka	apple
	vārns	varns					
	māti	māti					
	pūn						
	brēza	borēza	brēza				
	līpa		līpa				
	bēžati	bezāt'	bēžati				
	jāriņa		jāsti				
	jēsti						
	žūka						
	žīla		žīla				

Lithuanian, on the other hand, does not correspond in precisely this same way. Unlike Latvian, but similar to Old Prussian and the Slavic languages, Lithuanian has only two distinctive pitch accents; these are the rising tone (marked by a circumflex accent) and the falling tone (marked with an acute). The falling accent of Lithuanian corresponds in Latvian cognates to the level or to the broken tone, while the rising accent corresponds to a falling pitch in Latvian:

	<u>Lithuanian</u>		<u>Latvian</u>	
<u>falling</u>	tĩltas ^{◌̂}	<u>level</u>	tĩlts	bridge
	mėnuo		mėness	noon
	bārti		bārt	to scold
	žirnis		ziņnis	pea
	kėlmas	<u>broken</u>	cgĩlms	stump
	bėgti		bėgt	to flee
	vovorė		vāvərə	squirrel
	gardūs		gārds	delicious
<u>rising</u>	prėtas	<u>falling</u>	prāts	sense, reason
	kėliās		cēļš	road
	draūgas		drāugs	friend
	liėka		līek	put(s) (3rd p.)
	puŗvas		pūrvs	swamp

It would appear from all of these data that Proto-Baltic probably had only two pitch accents, as in Old Prussian and Lithuanian; the evidence of the two Slavic accents also points to this conclusion. For the purposes of this paper it may be assumed that the Proto-Baltic accents had the character that is retained in Old Prussian and partly in Latvian (but not in Lithuanian); namely a rising accent corresponding to the Slavic acute (rising) accent and a falling one corresponding to the Slavic circumflex (falling tone). Cognates show the following distribution:

Slavic	Old Prussian	Latvian	Lithuanian	Proto-Baltic
acute (rising)	$\bar{V} \bar{V}$ rising	level $\overset{\sim}{\text{level}}$ broken $\overset{\wedge}{\text{broken}}$	falling \downarrow	$\bar{V} \bar{V}$ rising
circumflex (falling)	$\bar{V} V$ falling	falling \downarrow	rising $\overset{\sim}{\text{rising}}$	$\bar{V} V$ falling

Table 2: Balto-Slavic accentual correspondences

It would then seem that Latvian has independently developed a third accent (the broken tone) by splitting the Proto-Baltic rising accent.

It is the purpose of this paper to determine the exact manner in which this split took place. Since the Old Prussian materials are scarce and not always consistent, I will in the following use Lithuanian as the main comparison language.

2.1: Standard literary Lithuanian, unlike Latvian, has only one pitch accent per word, and the place of the pitch accent is also the place of the word stress. This difference can be clearly seen in a pair of words like the following: Latv. macītais 'minister', Lith. mokytojas 'teacher'.

On the other hand, Latvian has as many pitch accents on a word as there are long syllables. Moreover, those accents remain constant throughout the paradigm of a single word; cf. the following examples:

	'guest'		'oak'	
nom.	cīemiņš	cīemiņi	uõzuõls	uõzuõli
gen.	cīemiņa	cīemiņu	uõzuõla	uõzuõlu
dat.	cīemiņam	cīemiņiõm	uõzuõlam	uõzuõliõm
acc.	cīemiņu	cīemiņus	uõzuõlu	uõzuõlus
loc.	cīemiņā	cīemiņõs	uõzuõlī	uõzuõliõs

This same effect cannot be seen in Lithuanian, since unstressed syllables cannot have any distinctive pitch. However, when the stress

shifts in the paradigm, different pitch accents can show up on different syllables of a word. Moreover, the pitch accents which then appear are contrastive (i.e. both types of accent can appear on any syllable) and, at the same time, do remain constant for a given syllable in a given word. Note the following sample paradigms:

	'rooster, cock'		'pupil'	
nom.	gaidýs	gaidžiaĩ	mokinýs	mokiniaĩ
gen.	gaĩdžio	gaidžiũ	mókinio	mokiniũ
dat.	gaĩdžiui	gaidžiaĩms	mókiniui	mokiniáms
acc.	gaĩdį	gaidžiùs	mókinį	mókinius
ins.	gaidžiù	gaidžiaĩs	mókiniu	mokiniaĩs
loc.	gaidyjè	gaidžiausè	mokinyjè	mokiniuosè

This sort of phenomenon in Lithuanian indicates that historically there may have been differentiation between the two types of accents even in unstressed syllables; if this had not been so, one would expect either phonologically conditioned occurrences of the different tones or else a completely random distribution (instead of the consistent appearance of the same tone on a given syllable of a word--as actually occurs).

Kuryłowicz (1968:112) has claimed that Balto-Slavic has had tonal distinctions only in accented syllables. However, the evidence of the Lithuanian nominal paradigms given above goes against this claim. Moreover, present-day standard Latvian distinguishes no less than three different tones in unstressed syllables; some examples are: nēaust 'to not weave' : nēšaut 'to not shoot' : nēaust 'to not dawn'; ticība 'faith': ticīgs 'believing'; vāļēna 'sod': dzeltēns 'yellow', etc. In addition, not only Latvian, but also some nonstandard dialects in the north of Lithuania (eg. Salantai, Tverečius) have more than one tone on a word, and, thus, make tonal distinctions even in unstressed syllables.⁹

Finally, the operation of de Saussure's Law (DSL) in Lithuanian also argues for tonal distinctions in unstressed syllables. Kuryłowicz has argued that this rule did not operate in Lithuanian; however, in my opinion, Stang (1966:130-9) has shown convincingly that Kuryłowicz's alternative

proposal cannot be considered plausibly established. DSL shifts stress from a circumflex accent vowel or short vowel to the following syllable if this had an acute accent:

$$\left\{ \begin{array}{c} \overset{x}{\tilde{V}} \\ \tilde{V} \\ \check{V} \end{array} \right\} C \acute{V} > \left\{ \begin{array}{c} \tilde{V} \\ \check{V} \\ \check{V} \end{array} \right\} C \overset{x}{\acute{V}}$$

		<u>DSL</u>				<u>no DSL</u>			
		3 p.	1 sg.	3 p.	1 sg.				
Ṽ	{	gėria	geriù	drink	V̇	{	lėidžis	lėidžiù	allow
		kėlia	keliù	lift			dúoda	dúodu	give
		eina	einù	go			bėga	bėgu	run
V̄		pina	pinù	plait			auga	áugu	grow

It is unclear what the exact character of the Lithuanian accents was at the point at which this rule operated; for example, whether the distinction was between two different contour tones (falling vs. rising) or between level tones of different heights (high vs. low). Whatever their exact nature, the operation of this rule and the dialectal evidence given above would seem to indicate that at one time Lithuanian must have had more than one accent per word and that the two different kinds of accents were distinguished even in unstressed syllables.

2.2: If, as I suspect, the above situation was true for Common East Baltic in general, then this would also be congruent with the explanation generally given (Endzelīns 1923:25-6, Van Dijk 1950:39, Stang 1966:141) for the origin of the Latvian broken accent.

Those words which in Lithuanian have an acute (falling) root accent that alternates within the paradigm (accent class 3) correspond to words in Latvian which have a broken tone:

	<u>Latvian</u>	<u>Lithuanian</u>
gnat	uôds	úodas, uodaĩ (nom.pl.)
cover	vâks	vókas, vokaĩ "
clover	dâubûdis	dóobilas, dobilaĩ "
thing	daĩkts	dáiktas, daiktaĩ "
cold	saĩts	šáiltas (masc.), šaltà (fem.)
thin	tiôvs	túvas " , tevà "
heart	siŕds	širdis, širdi (acc.sg.)
sod	vŕglŕna	velôna, velôna "
intestine	zaĩna	žarna, žarna "
song	dziŕsna	giesnė, giesnė "

On the other hand, those Lithuanian words which have an immobile acute accent on the root (that is, words in which the accent remains fixed on the root syllable throughout the paradigm; accent class 1) correspond in Latvian to words with level tone:

	<u>Latvian</u>	<u>Lithuanian</u>
mother	nāte	mótė
barn	klôts	klėtis
pea	ziŕnis	žirnis
sea	jūra	jūra
man	vīrs	výras
milk	piēns	pienas
bush	krūms	krūmas
clay	māls	mólis
last year	pŕēn	pérnai
to nurse, raise	aũklēt	auklėti

2.3: On the basis of this sort of evidence the usual explanation given for the occurrence of the broken tone (this was first proposed by J. Endzelīns in 1899) is that there was a uniform retraction of stress onto the initial syllable¹⁰ and that those acute (rising toned) syllables

which received stress by this retraction became broken-toned:¹¹

$$\begin{array}{c} \bar{\text{S}} \dots \bar{\text{S}} \\ \text{LH} \end{array} > \begin{array}{c} \text{S} \dots \text{S} \\ \text{LHL} \end{array}$$

Since the broken tone did not appear in words where the initial syllable seems (from cognates) to have been short or falling-toned, this would suggest that it was not merely a case of broken tone appearing whenever an initial syllable (regardless of its tone) became stressed, but that the accents were differentiated in the initial syllable even when it was unstressed. Examples:

	<u>Latvian</u>		<u>Lithuanian</u>
<u>short</u>	dzeris	woodpecker	gerŭs
	ass	sharp	ašis
	zināt	to know	zinóti
<u>falling</u>	svēiks	healthy	svėikas
	cīest	to suffer	kūsti
	bāss	voice	bal̃sas

That this sort of stress-influenced tone change is not unusual in Baltic is apparent from the situation in the Žemaitish (Samogitian) dialect of Lithuanian. Žemaitish has a rising-falling intonation that corresponds to the standard Lithuanian rising accent, and a broken tone corresponding to the standard Lithuanian falling tone. In this dialect, the stress was retracted from a circumflex accented syllable or a short vowel to the initial syllable (but a secondary stress was left behind) and the newly-stressed syllable got a new intonation. If the previously unstressed syllable was acute, the new intonation is rising (marked by an acute accent), but if it was circumflex, then a 'middle' tone (marked by ◌) appears:

	<u>Žemaitish</u>		<u>Standard Lithuanian</u>
middle tone	gaidīs	circumflex	gaidŭs, gaidī (acc. sg.)
	duobīē	(rising)	duobė, duobė (")

	<u>Zemaitish</u>		<u>Standard Lithuanian</u>
	árklīš	acute	arklỹs, árklī (acc. sg.)
rising tone	vīzīš	(falling)	včžỹs, včžī "

3.0: As far as it goes, Endzelīns' proposal is probably correct, as it can account for a large number of forms. However, there are several problems with it.

3.1: First of all, in order for this solution to be both correct and comprehensive, it should be true not only that most movable acute Lithuanian accents correspond to Latvian broken ones, but also that the large majority of Latvian broken accents have corresponding mobile acute accents in Lithuanian. This, however, is not the case; there is a large group of words in Latvian which have broken tones where one would expect the level tone, since their Lithuanian cognates have immobile acute accent (accent class 1); cf. the following examples:

	<u>Latvian</u>	<u>Lithuanian</u>
raft	pluôsts	plúostas
tin	álva	álvas
butt	piêts	péntis
belt	juôsta	júosta
oven	krôšns	króonis
minister	mācītājs	mókytojas, mokintojas
weight	sluôgs	slúogas
stag	briêdis	briédis
elk	álnis	élnis
marten	caúne	kiáune
skin	âda	óda
wall	siêna	síena
berry	uôga	úoga

From a count I made of a fairly random sample of acute-accented words in Lithuanian, I discovered the following statistics: of 79 mobile acute nouns and adjectives (accent class 3), 66 correspond to broken accent nouns

in Latvian, while the other 13 have level tone correspondences. This, of course, is more or less what is expected, since some disagreements can always be anticipated. However, of 72 immobile acutes (accent class 1) only 39 correspond to level accents in Latvian, while 33 correspond to broken accents. Such an almost equal division means that, in this case, the exceptions cannot be lightly dismissed.

To explain this lack of regular correspondence (without abandoning Endzelins' proposal) one can assume either that for some reason a group of level-toned words became broken-toned in Latvian or else that a group of Lithuanian mobile acutes changed accent classes and became immobile (probably after the stress retraction in Latvian had taken place).

Although I cannot a priori rule out the first possibility, there does not seem to be any reason why such a tone change might have occurred in Latvian. In the first place, I can see no phonetic difference between the two groups of words; words both regularly and irregularly corresponding to the immobile class seem to have syllables that contain the same vocalic elements:

<u>regular:</u>		<u>irregular:</u>	
<u>Latvian</u>	<u>Lithuanian</u>	<u>Latvian</u>	<u>Lithuanian</u>
tīlts	tiltas	smīlge	smilga
kuŗpe	kūrpė	muļķis	mūlkis
nīts	nýtis	dzīsla	gýsla
nāte	nótė	āda	óda
nuõna	núona	pluõsts	plúostas
liõpa	líepa	sviõsts	sviéostas
sāule	sáulė	caĩne	kiáune

There also does not seem to be any difference in the heaviness of the syllable involved; both groups contain syllables which are similarly constructed (in terms of the types of consonants which end the syllable):

<u>regular:</u>		<u>irregular:</u>	
nāte	nótė	sluõta	šlúota
nēness	nėnuo	síõna	siena

tīlts	tīltas	dzīlētājs	galtānās
stīrņa	stīrna	ālnis	ālnis

Finally, there does not seem to be any semantic difference between the two groups of words; both contain fairly common everyday words of similar categories; cf. the following Latvian examples:

	<u>regular:</u>		<u>irregular:</u>
shoe	kurpe	belt	juosta
flour	milti	berry	uoga
crow	varna	quail	paipala
linden	liēpa	elm	vīksna
bone	kauls	sinc	dzīsla
log	kāja	foot,	pēda
		sole	

There is one interesting morphological distribution of these two classes of nouns: in four of the Latvian noun declension classes the correspondences to the Lithuanian immobile acutes are generally the expected level pitch words, but in the other three classes (the -ā-, -ja-, and -ā- stems) approximately half or more of the correspondences are to the broken tone. Furthermore, in the -ā- stem nouns there are almost twice as many nouns (of those corresponding to Lithuanian immobile acutes) with broken tone as with level tone. This major discrepancy in the -ā- stems might be explainable by analogy if there were, in general, more words in this class corresponding to mobile acutes than to immobile ones. If most of the forms in this class corresponded to Lithuanian mobiles, then one might be able to say that the minority (level-toned = Lith. immobiles) had changed accent by analogy to the majority of forms (broken-toned = Lith. mobiles). Exactly the opposite is the case: of 27 nouns in this class corresponding to Lithuanian acutes (not an exhaustive computation), 19 correspond to immobiles and only 8 to the mobiles. Any proposed analogy would have to be a change by the major class in the direction of the minor class; this seems unlikely.

In conclusion, it appears that there is neither phonological, semantic

nor morphological evidence for an accent change in the groups of words in question within Latvian.

The alternative possibility can be considered next; namely, whether there is any reason to suspect a change in accent class by the Lithuanian cognates of these unexpectedly broken-toned words. One possible explanation might be that these words have succumbed to a general tendency to regularize the position of the accent in Lithuanian. In an attempt to columnarize the place of the accent, a large number of Lithuanian former mobile acutes could perhaps have developed immobile root accents, thus becoming identical with accent class 1 nouns. In such a case, the switch from one accent class to another might have been variable and random, in which case no conditioning would exist.

As it turns out, there are a number of words in present-day Lithuanian which vacillate between accent classes 1 and 3; for example--irklas 'rudder', kliauda/kliaudà 'defect', kótas 'handle', lóllys/lólis 'fern-owl', siébas 'sieve', žárna/žarnà 'intestine'.¹² These words do not differ from non-vacillating words in any way; thus, the difference is, in fact, random. The mere existence of such variation between classes 1 and 3 seems to indicate that there has been some sort of general realignment whereby mobile acutes have been transferred to the immobile class. In this case the vacillating forms are a reflection of the historical change in progress.

In addition, there is a historical case of accent class shift of the type that I am proposing, that took place early in the history of Balto-Slavic, namely Hirt's Law.¹³ This law claims that a number of nouns which were cognate to Indo-European oxytones (ending stress) shifted accent and became barytones (root stress). Hirt's Law applied only to words which had a long syllable in the root. Some examples showing its operation in Baltic are given below:

	<u>Latvian</u>	<u>Lithuanian</u>	<u>Greek</u>	<u>Sanskrit</u>
bone	kaúls	káulas (1)	kaulós	
man	vîrs	výras (1)		vîrá-s
mother	māte	móté (1)		mātá
ash tree	uôsis	úosis (1)	axcróî	

smoke	dūmi	dūmai (1)	thūndōs	dhūmā-s
bread/ heel of loaf	duona	dūona (1)		dhānā-s
bridge	tīlts	tīltas (1)		tīrthā-m
jointure	jūts	jāutis (1)		yūṭī-s

Thus, this accent shift created some new immobile forms which would not otherwise be expected.

However, this law alone cannot account for all cases of immobile accent, as there are a number of forms cognate to Indo-European long stem oxytones which do not have immobile acute accent in Lithuanian:

	<u>Latvian</u>	<u>Lithuanian</u>	<u>Greek</u>	<u>Sanskrit</u>
full	piļns	pilnas (3)		pūrṇā-s
long	iļgs	ilgas (3)		dīrghā-s
fast	ātrs	ātrūs (4)		ātār
son-in -law	znuōts	žentas (3)		ṣrīṅatī-s
thin	tiēvs	tēvas (3)	tanadōs	
one	viēns	vienas (3)	oindōs	
foot	pēda	pēdā (3)	pēdōn	
god	dievs	diēvas (4)	theōs	devā
wave	viļnis	vilnis (4)		ūrmī
slow	lēns	lēnas (3)	lēdōin	
winter	ziema	žiemā (4)	kheimōn	
sweet	salds	saldūs (3)	hēdūs	svādū

Hirt's Law also appears to have a random lexical distribution; as well it shows that there is a tendency in Baltic towards immobile accent. It may be that this same tendency is exhibited in those forms which are presently in Lithuanian accent class 1 but correspond to Latvian broken tone.

3.2: The major difficulties with Endzelīns' explanation of the broken tone come from cases where it occurs in non-initial syllables. For example, the broken tone appears on all locative plural endings in Latvian, even in

syllable; that is, it is not necessary to say that only those acutes were converted to broken accents which themselves actually were stressed--the mere shift itself might have been enough. While this is possible if one prefers an explanation that has to do with speakers' perceptions of the effect of a stress shift, the phonetically more plausible explanation seems to me to be the one which Stang suggests. I can see no phonetic reason why a stress shift should cause a tone change on a syllable which was neither originally nor ultimately stressed; on the other hand, it does seem plausible that stress imposed on a previously unstressed syllable (which has a pitch accent) would cause some change in pitch, particularly since stress is normally a complex of intensity, duration, and pitch. In connection with this, there is, of course, the additional evidence that stress retraction had precisely such an effect in Žemaitish (see section 2.3 above).

The preliminary retraction that Stang proposes would have to take the form of a rule that pulls the stress back by one syllable. Although there is no other directly substantiating evidence for such an accent retraction in Latvian, its possible connection with final short vowel loss in Latvian and the fact that a similar retraction has taken place in Žemaitish suggest that Stang's explanation is not unlikely.

3.3: Another difficulty with Endzelīns' hypothesis is caused by verbs of two or more syllables which contain a vowel suffix (for example, aūdzināt 'to raise' vs. aūqt 'to grow'; brāukāt 'to drive about' vs. brūkt 'to drive, ride'; sēdēt 'to be sitting' vs. sēst 'to sit down', etc.). These are also called 'characterized' verbs. In these verbs (and in their nominal derivatives in -šana and -tājs/-tāja) the final vowel of the verb stem has a broken tone in the infinitive, future stem, supine, and in the future active and preterite active participles. Examples of characterized verb forms with broken tone on the stem vowels -ā-, -ī-, -ū-, and -u- are given below:

	<u>infin.</u>	<u>1.sg.fut.</u>	<u>supine</u>	<u>pres.act.ppl.</u>	<u>pres.act.ppl.</u>
furrow	vagāt	vagāšū	vagātu	vagādams	vagāts
do	darīt	darīšu	darītu	darīdams	darīts
sleep	gulēt	gulēšu	gulētu	gulēdams	gulēts
roll	ripuot	ripuošū	ripuotu	ripuodams	ripuots

Endzelīns (1951:43, 1923:29) suggests that the broken accent in these forms is the result of generalization from those forms which developed the broken tone by regular phonetic rule (but he does not hazard a guess as to which these regularly derived forms might be¹⁴). In the first place, for this explanation to be plausible, it would have to be the case that all verb stem vowels were originally acute; otherwise it would have to be an incredibly strong generalization to affect original circumflex accents as well. As it happens, this is actually the case; it is a general fact that in Lithuanian, if the accent falls on the verbal stem suffix, it is invariably acute (Leskien 1919:203). Some examples are:

mokéti	to know	keliáuti	to travel
sapnúoti	to dream	drebéti	to tremble
gyvénti	to live	sédéti	to sit
turéti	to have	matýti	to see
žinóti	to know	begióti	to run
dalýti	to divide	galvóti	to think

In addition, Endzelīns' suggestion assumes that those forms which had broken tone by regular development were in some way the stronger or more unmarked forms, and this would have to be substantiated by additional independent evidence to be considered a valid explanation.

Apart from this, there is an interesting phonological distribution of the broken and level tones on the verbal suffixes: the broken tone occurs only when followed by a consonant (t, d, g, or š), while in most cases the level tone is followed by j and a vowel.¹⁵ The only exceptions are the first and second persons plural (present tense) and the present passive participle of -ā- stems; eg. zinām 'we know', ziāt 'you (pl.) know', zināms 'known, knowable'; dziedām 'we are singing', dziedāt 'you (pl.) are singing', dziedāms 'singable', etc. If we temporarily ignore the exceptions in the -ā- stems, an interesting phonological distribution comes to light. The j that follows the verbal suffix can be synchronically derived as a glide which appears epenthetically between vowels of different morphemes; in any case, when this j is eliminated it can be seen that level tone

appears on a vowel preceding another vowel (therefore, before a hiatus), while broken tone appears on a vowel followed by a consonant (no hiatus):

	no hiatus:		hiatus:
infinitive	mazgā́t "to wash"	1.sg.pres.	mazgā́(j)u
1.sg.fut.	mazgā́šu	1.sg.pret.	mazgā́(j)u
fut.act.ppl.	mazgā́šuó̃t	2.pl.imper.	mazgā́(j)iuó̃t
supine	mazgā́tu	pres.act.gerund	mazgā́(j)uó̃t
pres.act.ppl.	mazgā́dams	pres.pass.ppl.	mazgā́(j)ams

This observation leads me to suspect that, in at least this particular case, stress shift was not in any way concerned with the occurrence of the broken tone. Nevertheless, it does seem likely that this phonological alteration between the tones could only have been established after broken tone appeared (for example, in words corresponding to mobile acutes in Lithuanian, as Endzelīns suggests).

The exceptions cited above, namely the first and second persons plural and the present passive participle of the -ā- stems, belong to what is called the third conjugation (Dērziga-Baltija 1946:140-4). In this conjugation, the verb roots are augmented by a vowel suffix in all tenses except the present. Some examples are:

	'guard'	'divide'	'hold'
infinitive	sargā́t	dalīt	turēt
1.sg.pret.	sargā́ju	dalīju	turēju
1.sg.fut.	sargā́šu	dalīšu	turēšu
conditional	sargā́tu	dalītu	turētu
1.sg.pres.	sargu	dalū	turu
1.pl.pres.	sargām	dalām	turam
	(-ā- stem)	(-ā- stem)	(-i- stem)

If the verbal stem vowel were the same as the thematic vowel which appears in the present stem, one would expect *dalīām, not dalām for the first person plural. Thus, it appears that the -ā- stem forms in this

conjugation have retained level accent on the \bar{a} of the first and second persons plural and present passive participle because this is the thematic vowel denoting the verb stem class (historically) and not the vowel suffix of the characterized verb. If we assume that the observation made above (level tone before a vowel, broken tone before a consonant) applies only to verb stem vowels, these forms are not exceptional.

3.4 Another problem arises with derivational suffixes. There are an approximately equal number of suffixes¹⁶ with level and broken tone:

-u \hat{o} ts	- \bar{u} \bar{c} js/- \bar{c} \bar{j} a
- \hat{a} ks	-(i)ni \bar{c} ks/-(i)ni \bar{c} cc
- \hat{i} gs	-i \bar{c} \bar{t} is/-i \bar{c} \bar{t} e
- \hat{c} ks	- \bar{t} \bar{a} js/- \bar{t} \bar{a} ja
-u \hat{o} k \bar{l} is	- \bar{c} \bar{h} as
- \bar{c} k \bar{l} is	-i \bar{o} ns
- \bar{i} k \bar{l} is/- \bar{i} k \bar{l} a	- \bar{c} \bar{t} ts
- \hat{a} k \bar{l} (i)s/- \hat{a} k \bar{l} e	- \bar{i} tis/- \bar{i} te
- \hat{a} ds	- \bar{i} ba
-a \hat{i} ns/-a \hat{i} na	- \bar{c} ns
-u \hat{o} n(i)s	- \bar{c} js
	-i \bar{c} ne
	- \bar{i} ns (dialectal)

When compared with corresponding suffixes in Lithuanian, it appears that only the suffixes with level tone in Latvian (and not all of these) correspond regularly according to Endzelīns' rule. Some examples of the regular correspondences between level pitch suffixes and Lithuanian immobile acute suffixes are given below:

<u>Latvian</u>		<u>Lithuanian</u>	
- \bar{c} js/- \bar{c} ja		- \bar{c} jas/- \bar{c} ja (1)	
au \hat{d} \bar{c} js	weaver	aud \bar{c} jas (1)	weaver
- \bar{i} ba		- \bar{y} b \bar{a} /- \bar{y} ba (1)	
dziv \bar{i} ba	life	gyv \bar{y} b \bar{a} (1)	life
gan \bar{i} bas	pasture	gan \bar{y} ba (1)	pasture

-ītis/-īte		-ýtis/-ýtė (1)	
brālītis	little brother	brolýtis (1)	little brother
saulīte	sun (dimin.)	saulýtė (1)	sun (dimin.)
-iėne		-ienė (1)	
karaliėne	queen	karalienė (1)	queen
-ėns		-ėnas (1)	
dzelťėns	yellow	geltėnas (1)	yellow

Other Lithuanian suffixes which correspond regularly¹⁷ are -ėnas (1) = Latv. -ėns; -ėjas (1) = Latv. -ėjs; and -ėtas/-ėta (1) = Latv. -ėts.

The exceptions to Endzelīns' rule fall into three categories; first, those suffixes with broken tone (instead of falling tone) which correspond to Lithuanian circumflex-accented suffixes:

<u>Latvian</u>		<u>Lithuanian</u>	
-āins/-āina		-āīnis/-āinė (2) (or (4))	
miglaīns	foggy	ašakaīnis (2)	having fish bones
-ēklis		-ēklis/-ēkle/-ēklai (2)	
biēdēklis	scarecrow	tuŗēklai (2)	banister
-ākl(i)s/-ākle		-āklis/-āklė (2)	
vazāklis	vagrant	žvejāklis (2)	fisherman
-uōklis		-uōklis/-uōklė (2)	
dzīvuōklis	apartment	rijuōklis (2)	glutton
-īklis/-īkla		-īklis/-īklas/-īkla/-īklė (2)	
ganīkla	pasture	baidīklė (2)	scarecrow

The second group consists of forms that also correspond to Lithuanian circumflex-accented suffixes but that have level accent in Latvian:

-iētis/-iēte		-iētis/-iētė (2)	
latgaliētis	person from Latgale	kauniētis (2)	person from Kaunas

-āns		-ānas (2)	
līkāns	bent-over man	valdānas (2)	ruler
-īns (dialectal)		-īnas (2)	
kuocīns	little tree	langīnas (2)	small window

According to Stang (1966:164) it is likely that Lithuanian derivational suffixes with a circumflex accent on the penultimate (long) vowel (as in both groups above) have acquired this circumflex accent by a late rule. The evidence for this claim comes partly from the accent alternations which can occur in such suffixes. For example, the suffix -ybė (1) can also have circumflex accent: -ybe (2); thus, in addition to gražybė (1) 'beauty', occasionally also gražybe (2) occurs. As well, there are a number of cases of metatony of the suffixes; that is, there are a number of derivational suffixes which have identical segmental phonological form but different pitch accents (and morphological and/or semantic functions). Some of these are -ānas (2) : -ānas (1); -ākas (2) : -ākas (1); -īnas (2) : -īnas (1); and -ūne (2) : -ūne (1).

Even if Stang's hypothesis is correct, he does not directly state what the accent could have been before the 'circumflexation' rule applied. However, we can infer from forms like -ānas (2) : -ānas (1), etc. (and assume that such a rule would change tone but not mobility), that the Lithuanian suffixes of the two exceptional groups cited above probably had immobile acute accent. In this case, the Latvian suffixes of the second group would correspond correctly, but those of the first group would still be a problem.

Stang (1966:143) suggests that suffixes of the form -āklis, -īklis,

-āklis, and -uōklis in the first group might have developed broken accent under the influence of the verbs from which the nominal forms are derived. This is not unlikely, especially since in most cases the initial vowel of the suffix in the derived word is the same as the verb stem suffix vowel:

dzīvuōt	to live	dzīvuōklis	apartment
biēdēt	to frighten	biēdēklis	scarecrow
kavēt	to delay	kavēklis	hindrance
vazāt	to drag about	vazāklis	vagabond
ganīt	to herd	ganīkla	pasture
ārdīt	to unravel, spread out	ārdīklis	two pronged hay fork

Even in those cases where the vowel of the verb stem and the initial vowel of the suffix are not the same (eg. daūzītis (reflexive) 'to romp, gad about' : daūzēklis 'vagabond'; šūpuōt 'to rock, swing' : šūpāklis 'swing'), it is still the case that the vowel of the verb stem has broken accent. This, of course, is a result of the alternation discussed in section 3.3, whereby broken tone developed on verb stem vowels before consonants. The fact that the verb stem vowel has probably influenced the vowel of the nominal suffix to take on broken tone would seem to indicate a general progressive spread of usage of the broken tone (that is, from acute mobile roots to characterized verb stem vowels to derivational suffix vowels).

Finally, the third group of exceptions contains suffixes with broken accent in Latvian that correspond to immobile acute Lithuanian forms:

<u>Latvian</u>		<u>Lithuanian</u>	
-îġs/-îġa		-îngas/-înga	(1)
laimîġs	happy	laimîngas	(1) happy
-uôts/-uôta		-úotas/-úota	(1)
raguôts	horned	ragúotas	(1) horned
-âds		-ôdas	(1)
vienâds	the same	vienôdas	(1) the same
-âks		-ôkas	(1)
labâks	better	gerôkas	(1) moderately good
-êks		-êkas	(1)
pelêks	gray	pelêkas	(1) gray

These exceptions are similar to the ones like puôds, âda, sluôta, etc. (discussed in section 3.1) in that one would expect level tone (by Endzel-Ins' rule), since these forms correspond to Lithuanian immobile acutes. At present, I have no evidence suggesting accent class shift on the part of the Lithuanian forms; however, it appears that some of the Latvian suffixes in this group (and also in the first group of exceptions) may originally have had falling tone. It is an interesting fact about Latvian derivational suffixes that there appear to be no such suffixes which unambiguously have falling tone--all have alternate forms with broken tone:

-âks	↖	-âks		-âklis	↖	-âklis
-îġs	↖	-îġs		-îklis	↖	-îklis
-êks	↖	-êks				

This suggests a tendency towards maintaining only two accents (level and broken) in the derivational suffixes, whereby the falling tone is being eliminated in favour of the broken tone. This is yet another expression of what seems to me to be an overall tendency toward a secondary generalization of broken tone. It may be that, since the broken tone is apparently the most recently derived of the pitch accents, it has acquired the role of the

productive accent (this is reminiscent of Kuryłowicz's fourth law of analogy, which states that new formations tend to take on the primary function of a word). In any event, the broken tone does seem to be unexpectedly prevalent. There are additional cases of non-initial broken tone that I have not attempted to deal with; however, these also include cases that do not follow regularly from Endzelīns' formulation. Further research is needed to determine the source of broken tone in these cases.

The foregoing investigation leads to a number of conclusions about the broken tone in Latvian. First, the hypothesis proposed by Endzelīns requires considerable revision. While his proposal appears essentially correct for a large number of cases of broken tone on root initial syllables, there is a large set of nouns and adjectives with broken tone which it does not account for. Kuryłowicz (1958:340) suggested that these exceptions were probably the result of some changes in Lithuanian rather than Latvian. This investigation has more specifically shown that an accent shift could not have taken place in Latvian, but that there is definite evidence for a tendency towards immobilization of accent in Lithuanian which would account for these exceptions.

Further, it appears that when Endzelīns' hypothesis is applied to cases of broken tone on non-initial syllables, even more discrepancies occur. His proposal is workable for cases of broken tone on the locative plural endings only if one posits an additional accent retraction rule. Furthermore, neither the verbal stem suffixes nor the derivational suffixes appear to have acquired broken tone by Endzelīns' rule but by completely unrelated phonological and morphological processes.

Finally, there appears to have been a tendency in Latvian to secondarily generalize the broken tone. Once this tone originated, it seems to have been favoured over both the level and falling tones, perhaps as a result of a tendency to give primary use to a newly developed marker.

FOOTNOTES

*I would like to thank Hans Henrich Hock and Lee Decker for the many useful comments and criticisms they have made; nevertheless, either of them may disagree with some of my statements.

¹Second syllable stress occurs (i) in superlatives: vislābākais; (ii) on numerals with pus- : pusdīvi 'one and a half', and (iii) in certain adverbial compounds: arvien 'always', nekur 'nowhere', gandrīz 'almost', nekād 'never', etc. For a fuller description see Bērziņa-Balviņa 1946:32 of Endzelīns 1923:10.

²I will use these two terms indiscriminately to refer to the same phenomenon.

³One exception to this is if there is a VRC sequence where the C is the -s or -š of the nominative singular masculine. Historically this suffix was -as or -is, and a new accent was not introduced after the loss of the vowel.

⁴The boundaries of the tonal dialects and the divisions based on segmental phonology are not the same, but they do follow the same general division into west, central, and eastern dialects. Whenever a term is used designating one of the three areas, it refers to the tonal dialect, not to the segmental dialect area.

⁵For a more detailed discussion of the dialectal differences see Endzelīns 1951:39-41 and Laua 1969:111.

⁶In Old Prussian short vowels plus tautosyllabic resonants were apparently also able to carry tone; thus VRC denotes a falling tone in this environment.

⁷Unless otherwise indicated, all of the English glosses give only the meanings of the Latvian words.

⁸A grave accent on a short vowel followed by a tautosyllabic resonant is used to indicate a falling tone in this environment.

⁹For examples see the discussion of Žemaitish tone shift in section 2.3 below.

¹⁰This may have been as a result of the influence of the surrounding and substratum Finno-Ugric peoples--the Estonians and Livonians (Ludvigs Vīks, personal communication).

¹¹LH = rising tone, LHL = broken tone. Kiparsky 1973:833 states that the broken tone "clearly originates as a falling tone". This is definitely incorrect, as the correspondences given earlier in section 1.3 clearly show. It is easy to be misled by the correlation between Latvian broken tone and Lithuanian falling tone, but it would appear that the falling character of Lithuanian acute accent is an independent development within the language.

¹²These forms are taken from Kuryłowicz 1953:339-49 and the two dictionaries by the Lietuvos T.S.R. Mokslų Akademija, (1972) and (1973).

¹³I would like to thank Lee Becker for bringing this 'law' to my notice. Its effect in Lithuanian is mentioned in Kiparsky 1973:828, fn. 21, and discussed in detail in Illič-Svityč 1963:70-86.

¹⁴This is difficult to ascertain, since all verbs in Lithuanian are immobile (except for the accent shift caused by de Saussure's Law); thus, there are no examples of final accent in any of these forms.

¹⁵Endzelīns (1930:21, 1951:43) merely describes the level tone as occurring before i which is either still present or was present historically.

¹⁶I have not included a number of suffixes because their pitch accent is uncertain; these are: -uoje, -ins, -uns, -ims, -eks, -ats, -iēs, and -aite.

¹⁷I have not included those suffixes for which the accentuation is uncertain, such as -uonis (3a) or (3b), and -ūnas (1) or (2), or for which the accentuation varies regularly, such as -inīkas/-ininke ((1) if the root is (1) or (2), but (2) if the root is (3) or (4)), or on which the accent never appears, such as -tojas/-toja.

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