

86

TOWARDS A RECONSTRUCTION OF THE INDO-EUROPEAN ACCENT*

Paul Kiparsky

Morris Halle

MIT

Our thesis is that the accentual systems of Slavic, Lithuanian, Vedic and Classical Greek share the following general abstract characteristics, which are to be reconstructed also for Proto-I. E.:

(A) They are pitch accent systems as opposed to tone systems. Specifically there is only one kind of primary accent, and phonetically every word normally has one and only one such accent.

(B) In underlying representations, however, words may have more than one accented vowel, or no accented vowel.

(C) The underlying representations of words are realized phonetically by the

Basic Accentuation Principle:

(1) If a word has more than one accented vowel, the first of these gets the word accent. If a word has no accented vowel, the first vowel gets the word accent.

(D) There are three basic classes of morphemes:

unaccented morphemes

accented morphemes, which have an accent on one vowel in their underlying representation

preaccenting morphemes, which induce an accent on the immediately preceding vowel. We assume that such morphemes trigger the rule of Metatony (2)

(2) $v \rightarrow \begin{bmatrix} h \\ v \end{bmatrix} / _C_O + C_O V$ where $\begin{bmatrix} h \\ v \end{bmatrix}$ represents an accented vowel.

on.
yman,
lish
ster

Because of the Basic Accentuation Principle any inherent accent on a preaccenting morpheme will be eclipsed by the accent that it causes to be assigned on its left.

(E) Membership in one of the above three classes is an inherent property of each morpheme; there are, however, certain morphological processes which change class membership for a given morpheme in a given context. In particular, a given morpheme may trigger the rule of Deaccentuation (3) which deaccents the entire preceding string. Whether or not a morpheme triggers Deaccentuation is in part specified in its lexical entry, and in part predictable morphologically.

(3) Deacc. $V \rightarrow [-h] / _X + C_O V$

Below we illustrate briefly how systems with these general properties account for the accent pattern of several branches of Indo-European that most directly continue the original. In the concluding part of the paper we sketch the main outlines of the historical evolution of this system and comment on parallels between the system we have found and a number of accentual systems discovered by other scholars in non-Indo-European languages.

Sanskrit

Our exposition begins with Sanskrit as this language according to our reconstruction reflects most faithfully the original Indo-European accentual system.

In Sanskrit, nouns of the athematic declension fall into the two main accentual types illustrated in (4):

(4)	<u>A</u>	<u>B</u>	<u>C</u>
	Dat. Sg. (and other weak endings)	Acc. Sg. (and other strong endings)	Voc. Sg. (Deaccenting)
(i) movable:	duhitr + é "daughter" pad + é "foot"	duhitar + am pād + am	duhitar pād
(ii) fixed:	bhrātr + e "brother" marūt + e "wind" gāv + e "cow"	bhrātr + am marūt + am gāv + am	bhrātar marut gāus

Stems of the movable class (see (4i)) have no accent in their underlying representation, while stems of the fixed class (see (4ii)) have an inherent accent on the appropriate syllable. The behavior of the three classes of case forms can then be characterized as follows. The suffixes of the dative and the other so-called weak cases (column A in (4)) are themselves inherently accented. When added to unaccented stems, the suffixes contain the only underlying accent of the word and therefore get the word accent by BAP. When these endings are added to accented stems, the stem accent, being now the leftmost accent of the word, prevails over the suffix accent, again by the

BAP. The suffixes of the strong cases, column B, are inherently unaccented. This is a natural assumption since the strong case endings are in fact never accented on the surface. It furthermore makes possible a simple formulation of the Metatony rule (2), the rule that assigns presuffixal accent in strong cases. For this rule can then be conditioned completely generally by any unaccented inflectional case suffix. It correctly derives the string of duhitaram and similar forms in the movable class.

Column C in (4) comprises only the Vocative. If we suppose that this case is subject to the Deaccentuation rule (3), then the BAP accents the initial syllable as required.

Further support for our analysis is offered by the small class of inherently unaccented stems in which the accent alternates between the desinence in the weak cases and the initial syllable in the strong cases, e.g. the noun pumāms (5). The proposed treatment of strong case suffixes as unaccented makes it possible to integrate these stems into the system in a natural way: we need only suppose that they do not undergo Metatony. They will then emerge unaccented at the point at which the BAP applies, and therefore get the word accent on their first syllable.

(5)	<u>A</u>	<u>B</u>	<u>C</u>	
	Weak	Strong	Deaccenting	
	pums-é	púmāms-am	púman	"man"

The nouns in (6) exemplify nouns that take the theme vowel +a+ before the case endings, in contrast to pad and marut, which are athematic. If we further assume that theme vowels are normally accented and that, moreover, ásva is inherently accented whereas déva is not inherently accented, the surface forms are obtained without complication by the application of the Basic Accentuation Principle.

(6) Accentual class in the declension

	h	h	h	h
N., A. Dual	pād+au "foot"	marut+au "wind"	dev+au "god"	ásv+au "horse"
	h	h	h h h	h h h h
Loc. Sg.	pad+i	marut+i	dev+e+ dev+a+i	ásv+e+ ásv+a+i
	h	h	h	h
Voc. Sg.	pād	marut	dev+a	ásv+a

This analysis sheds new light on the accentuation of nominal compounds in Indo-European. For bahuvrīhi compounds and a large, morphologically well-defined subclass of tatpuruṣa compounds, the oldest accent pattern, amply attested in Vedic and confirmed by Greek (Kurylowicz 1968, 55ff.), is illustrated in (7):

- (7) a) $\overset{\cdot}{s}ur\overset{\cdot}{a}+\overset{\cdot}{c}\acute{a}k\ddot{s}as- \rightarrow \overset{\cdot}{s}\acute{u}r\overset{\cdot}{a}c\overset{\cdot}{a}k\ddot{s}as-$ "sun-seeing"
 b) $\overset{\cdot}{v}\acute{i}sv\overset{\cdot}{a}+\overset{\cdot}{c}\acute{a}k\ddot{s}as- \rightarrow \overset{\cdot}{v}\acute{i}sv\overset{\cdot}{a}c\overset{\cdot}{a}k\ddot{s}as-$ "all-seeing"
 c) $\overset{\cdot}{u}r+\overset{\cdot}{c}\acute{a}k\ddot{s}as- \rightarrow \overset{\cdot}{u}r\overset{\cdot}{c}\acute{a}k\ddot{s}as-$ "man-seeing"

When the first member of the compound is inherently accented on some syllable--the first, as in (7a), the second, as in (7b), and so forth--the whole compound is accented on that syllable. When the first member of the compound is inherently unaccented, the whole compound is accented on the inherently accented syllable of the second member. But this basic accent pattern of compounds follows straight from the BAP.¹

Verb inflection works like noun inflection, with this difference: that here Metatony is not predictable for all unaccented suffixes, but only for some, which must therefore be designated in the lexicon as triggering this rule.

It is true of all the Indo-European languages we have studied that the derivational system presents a more elaborate set of accentual categories than the inflectional systems. This tendency is manifested in Sanskrit in the following two characteristic ways. First, while inflectional suffixes normally do not trigger Deaccentuation of the stem by rule (3), (the Vocative, as we mentioned, is a lone exception in the inflectional system here), derivational suffixes quite commonly do. Secondly, while Metatony is partly predictable for inflectional suffixes (unaccented case endings always trigger it), this property is entirely unpredictable for unaccented derivational suffixes. Therefore, derivational suffixes may be accented, unaccented metatonizing, and unaccented non-metatonizing, and, independently of this, they may or may not trigger Deaccentuation of the stem to which they are added. Of the six combinations that are thus logically possible, as least four are actually instantiated in the language, as shown in (8).

- (8) All forms given in g. pl.; accented stems in left column, unaccented stems in right column.

Class II - Suffixes that trigger Deaccentuation of the base.

1a) Metatonizing: abstract noun -ta:

h	h	h	h
bandh+u+tā+nām	→ bandhūtānām	agn+i+tā+nām	→ agnītānām
	"relationship"		"firehood"

1b) Accented: adjective forming -in:

h	h	h	h	h	h
aśv+in+i+nām	→ aśvīnīnām	pakṣ+in+i+nām	→ pakṣīnīnām		
	"having horses"		"having wings"		

Class I - Suffixes that do not trigger Deaccentuation of the base.

1a. Metatonizing (this type attested only in inflectional suffixes).

1b. Accented: noun declension theme -a:

h h h	h h
aśv+a+nām → áśvānām "horse"	dev+a+nām → devānām "god"

1c. Unaccented: possessive adjective -vant; fem. -i:

h h h	h h
aśv+a+vant+i+nām → áśvavatinām "having horses"	pad+vant+i+nām → padvatinām "having feet"

We propose that Proto-Indo-European had in essence the same system, and that similar systems, though modified in various important respects, are retained in the other Indo-European languages that preserve the inherited accentual mobility. We will briefly trace the development in two Indo-European branches, Baltic and Slavic.

Lithuanian

As a starting point, let us return to the athematic paradigms set out in (4). Metatony, the rule that accents the stem-final syllable before unaccented suffixes, is in practice disjunctive in relation to the initial accent assigned by the BAP--that is, BAP catches everything which has for any reason failed to undergo Metatony, as for example the pumams type (5). Suppose now that Metatony ceased to apply before case endings. What would happen? The result would be that a particular subset of stems in a particular subset of cases, namely inherently unaccented stems in strong cases, would acquire initial accent. But this was in fact the key innovation that led to the distinctive Balto-Slavic accent pattern, illustrated by the Lithuanian forms in (9):²

(9)	<u>A</u>	<u>B</u>
	Acc. Sg.	Gen. Sg.
	(strong case)	(weak case)
(I) movable	dũkterĩ "daughter"	dukter̃s (è)s
(II) fixed	móterĩ "mother" (archaic)	móter(e)s

The same initial-desinential accent mobility was extended not only to inherently unaccented athematic nouns but to inherently unaccented nouns of all declensions, as shown in (10):

(10)	<u>strong</u>	<u>weak</u>
movable (class 3)	Lith. gálv + a "head" R. gólov + u	galv + õs golov + amĩ
fixed (class 1)	Lith. várn + a "crow" R. vorón + a	várñ + os vorón + amĩ

At this point the two branches diverge onto very different paths. Baltic (as whose representative we take the archaic system of Lithuanian) underwent two major innovations. First, it developed a contrast between a falling ("acute") and rising ("circumflex") accent on long vowels and diphthongs (including tautosyllabic vowel + nasal and vowel + liquid sequences). The intonation difference reflects an older length difference. We shall return in the concluding section to a discussion of the history of these changes.

In Lithuanian, unlike Sanskrit and Slavic, the accent may strike not only vowels but also post-vocalic sonorants, provided that they belong to the same syllable as the immediately preceding vowels. Any such sonorant segment that may receive the accent will be referred to here as a mora. It is true of both underlying and surface forms that only moras may bear the accent. We assume here that the traditional rising ("circumflex") pitch corresponds to the case where the accent strikes the last sonorant in a tautosyllabic sequence beginning with a vowel, and we assume that the traditional falling ("acute") pitch corresponds to the case where the accent strikes any other sonorant in the sequence. We illustrate this in (11).

(11)	text book designation	standard spelling	abstract representation	historical source
	falling ("acute")	\acute{V} \acute{VR}	$\overset{h}{V} \overset{h}{VR}$	* \bar{V} * \bar{VR}
	rising ("circumflex")	\tilde{V} \tilde{VR}	$\overset{h}{V} \overset{h}{VR}$	* \bar{V} * \bar{VR}

Since syllable structure may change in the course of a derivation, such changes may be accompanied by purely mechanical changes in the word accent.

(12)	Inf.	3. p. past
$\overset{h}{/vir/}$	$\overset{h}{/vir + ti/}$ <u>$\overset{h}{v}irt\overset{h}{i}$</u>	$\overset{h}{/vir + \bar{e}/}$ <u>$\overset{h}{v}ir\overset{h}{e}$</u> "cook"
$\overset{h}{/mir/}$	$\overset{h}{/mir + ti/}$ <u>$\overset{h}{m}ir\overset{h}{t\tilde{i}}$</u>	$\overset{h}{/mir + \bar{e}/}$ <u>$\overset{h}{m}ir\overset{h}{e}$</u> "die"

When $\overset{h}{/mir/}$ is followed by a vocalic ending, the r is no longer a mora, and can therefore no longer be accent-bearing. The accent moves to the vowel on the left.

These changes in syllabic structure interact with a rule of Lithuanian which lengthens (geminate) accented e and a:

$\overset{h}{/ar/}$	$\overset{hh}{[aar + ti]}$	$\overset{h}{\acute{a}r + ti}$	$\overset{hh}{[aar + \bar{e}]}$	$\overset{h}{\tilde{a}r\overset{h}{e}}$	"plow"
$\overset{h}{/tar/}$	$\overset{h}{[tar + ti]}$	$\overset{h}{\acute{t}ar\tilde{t\tilde{i}}$	$\overset{h}{[taar + \bar{e}]}$	$\overset{h}{\tilde{t}ar\overset{h}{e}}$	"speak"

These examples illustrate how misleading the orthographic representation of Lithuanian accent can be: the orthographic change of acute to circumflex in árti ~ āria corresponds to no change in the position of the accent but simply to the resyllabification of the r with the vocalic suffix in aria, which turns the accented a into the final mora of its syllable. On the other hand, the circumflex in tārti designates the original accent on the r; while in fāria the accent is shifted onto the vowel since the resyllabified r is no longer syllable final.

The second major innovation in Baltic was the deletion of an accent from the last mora of a stem if the first mora of the suffix was accented--resulting in the forward shift known as deSaussure's Law (DSL). The salient features of the accentual pattern of the Lithuanian declension are illustrated in (13).

(13) Accentual classes in the declension

	I	II	III	IV
n. sg.	varn + a h	rank + a h	galv + a h	barzd + a h
g. sg.	varn + oos h	rank + oos h	galv + oos h	barzd + oos h
d. sg.	varn + ai h	rank + ai h	galv + ai h	barzd + ai h
i. sg.	varn + a	rank + a	galv + a	barzd + a

The four columns represent the four accentual stem classes, and the four horizontal rows represent the four types of accentual suffix classes.

Paradigms I and II represent original inherently accented stems; paradigms III and IV represent original unaccented stems that get initial accent in strong cases. Within each, DSL splits off a subclass, II and IV, representing stems which were historically short, and are synchronically accented on the last mora.

It is clear that as a result of these changes some reanalysis has taken place in Baltic. After much experimentation we have tentatively concluded that the following system is most adequate: Morphemes are marked with a feature +high (h) on some mora, and a +high may further be either dominant ^{*h}(v) or recessive ^h(v). The location of the +h corresponds to the original length, and the dominant *h's correspond to the old inherently accented syllables. The BAP is then revised (for Lithuanian) as follows:

- (14) The first dominant +h vowel in a word is accented; if there is none, the first +h is accented.

Accordingly, in the stems of classes I and II the accented vowels are dominant, whereas they are recessive in the stems of nouns of classes III and IV. (In this analysis every morpheme has one +h mora.) Case suffixes can also be dominant, e.g. $\underline{-a}$ (n. sg.) and $\underline{-oos}$ (g. sg.), or recessive, e.g. $\underline{-a}$ (i. sg.) and $\underline{-ai}$ (dat. sg.). The crucial difference between the members of each pair of paradigms is whether or not the accent falls on the first mora: this fact determines the application of DSL. The underlying representations of the noun case forms illustrated in (13) are as shown in (15), with * indicating dominant h's.

(15)	*h	*h	*h	*h	h	*h	h	*h
n. sg.	varn + a		rank + a		galv + a		barzd + a	
	*h	*h	*h	*h	h	*h	h	*h
g. sg.	varn + oos		rank + oos		galv + oos		barzd + oos	
	*h	h	*h	h	h	h	h	h
d. sg.	varn + ai		rank + ai		galv + ai		barzd + ai	
	*h	h	*h	h	h	h	h	h
i. sg.	varn + a		rank + a		galv + a		barzd + a	

It is obvious from an inspection of forms in (15) that the modified Basic Accentuation Principle by itself determines the surface word accent in all forms except the n. sg. and i. sg. of classes II and IV. These are just the case forms where +h resonants appear on two consecutive syllables. In such cases deSaussure's Law applies and deaccents the first of the two vowels:³

(16) deSaussure's Law $V \rightarrow [-h] / \text{---} C_O [+h]$

The accentual patterns in derived nouns are somewhat more varied than those just encountered in the declension because some derivational suffixes, but no case endings, trigger the Deaccentuation rule (3). Incidentally in Lithuanian it must be assumed that the Deaccentuation rule eliminates the diacritic feature * which marks the high pitch on the morpheme in question as dominant.

In (17) we have illustrated a suffix with inherent dominant accent which triggers Deaccentuation; such a suffix will form nouns of accentual class I, if its accent is on a prefinal mora: $\overset{*h}{e}l\overset{*h}{n} + \overset{*h}{i}e\overset{*h}{n} + a \xrightarrow{\text{Deace}} \overset{h}{e}l\overset{*h}{n} + \overset{*h}{i}e\overset{*h}{n} + a \xrightarrow{\text{BAP}} \overset{h}{e}l\overset{h}{n} + \overset{h}{i}e\overset{h}{n} + a$

(17) Dominant accent; deaccenting

e ^h ln + i ^h en + a	I	"venison"	cf. éln + ias	I	"stag"
kišk + i ^h en + a	I	"rabbit meat"	cf. kišk + is	II	"rabbit"
oož + i ^h en + a	I	"goat meat"	cf. oož + yys	III	"goat"
vilk + i ^h en + a	I	"wolf meat"	cf. vilk + as	IV	"wolf"

The suffix -ena illustrated in (18) forms nouns belonging to the accent class III regardless of base accent:

(18) No dominant accent; deaccenting

	h		h		h
kiaun + en + a	"marten pelt"	(cf. kiaun + e	I "marten")	kiaun + en + ai	
	h		h		h
vers̃ + en + a	"calf skin"	(cf. vers̃ + is	II "calf")	vers̃ + en + ai	
	h		h		h
oož + en + a	"goat skin"	(cf. oož + yys	III "goat")	oož + en + ai	
	h		h		h
vilk + en + a	"wolf skin"	(cf. vilk + as	IV "wolf")	vilk + en + ai	

Nouns of this type exhibit desinential accent before dominant desinences, (as in the left column of (18) where nom. sg. forms are quoted) but preserve their original accent of the base form before recessive desinences (as in the right column of (18) where dat. sg. are quoted). The modified Deaccentuation rule derives all examples correctly as long as we assume that the suffix -en- is itself unaccented. This is shown in (19).

(19)

	*h	*h	*h	h	h	*h	h	h
	kiaun + en + a	kiaun + en + ai		vilk + en + a	vilk + en + ai			
Deacc.	h	*h	h	h	h			
	kiaun + en + a	kiaun + en + ai		—	—			
BAP	kiaun + en + à	kiaun + en + ai		vilk + en + à	vilk + en + ai			

In most of the languages we are concerned with, derivational suffixes are typically deaccenting; as a result, the accentuation of the words that these suffixes form is independent of the base accent. Non-deaccenting derivational suffixes are relatively uncommon, though they tend to include some very productive ones. Non-deaccenting derivational suffixes are in a sense the analog to "stress-neutral" derivational suffixes in English-like stress systems, e.g. English -er, -ish. This situation is well illustrated by Lithuanian. There appears to be only one clear case, to our knowledge, of a non-deaccenting suffix, that is also dominant and accented; this is the very productive suffix -ininkas, corresponding to English -er. It forms class I nouns from nouns of class I and II, and class II nouns from nouns of classes III and IV. We illustrate this in (20):

(20) Dominant accent; non-deaccenting

h		h
auks + inink + as	I "goldsmith"	(cf. auks + as I "gold")

vargoon ^h + inink + as I "organist"	(cf. vargoon ^h + ai II "organ")
darb ^h + inink + as II "workman"	(cf. darb ^h + as III "work")
dain ^h + inink + as II "singer"	(cf. dain ^h + a IV "song")

This pattern follows directly from the assumption a) that stems of classes III and IV have recessive accented vowels, and b) that the suffix ^h-inink + as has a dominant accent on the last mora--i.e., on the n.

The fourth possible combination whose existence our system allows is a suffix which has no dominant accent and does not trigger deaccentuation. Such a suffix would produce words with base accent in all case forms when added to dominant bases. When added to non-dominant bases such suffixes would form words with desinential accent if the desinence has dominant accent (weak cases), and with base stress if the desinence does not have dominant accent (strong cases). In other words, if the base does not have dominant accent, the derived noun would belong to class III; if the base has dominant accent, the derived noun would belong to class I. Modern Lithuanian appears to lack suffixes of this fourth type. But at least one suffix had exactly this predicted fourth pattern in the XVIIth century dialect of Dauksa, whose accentology was studied by Skardzius (1935). At expected, this is a very frequent and productive suffix, the adjective-forming -isk-. Skardzius (pp. 157-9) cites the following class I derivatives from bases with inherent dominant accent (class I or II):

dvāniskas	"spiritual"	(dvasià II "spirit")
gėdiškas	"shameful"	(gėda I "shame")
kūniškas	"corporal"	(kūnas I "flesh")
móteriškas	"feminine"	(móteris I "woman")
pāgoniškas	"pagan"(adj.)	(pagónis, pāgonis I "pagan")
výriškas	"masculine"	(výras I "man")
žemiškas	"earthly"	(žėme II "earth")
bróliškas	"brotherly"	(brólis I "brother")
žýdiškas	"Jewish"	(žýdas II "Jew")

These contrast with the following class III derivatives from bases with no inherent dominant accent (classes III and IV) which also are cited by Skardzius:

kūnig + išk + as	"priestly:"	(kūnigas III "priest")
diėv + išk + as	"divine"	(diėvas IV "god")

ángelišk̄as	"angelic"	(ángelas III "angel")
meṛgišk̄as	"girlish"	(mergà IV "girl")
sūnišk̄as	"filial"	(sūnus III "son")
vaikišk̄as	"childish"	(vaikas IV "child")
vėlinišk̄as	"ghostly"	(vėlinas III "ghost", mod. vėlnias)
žmogišk̄as	"human"	(žmogùs IV "human")
krišk̄ionišk̄as	"Christian"	(krišk̄ionis, -iēs IV ("Christian"))

In some cases, the accent class of the base word has changed in modern Lithuanian; for example, krišk̄ionis, IV in Daukša's dialect, is now krišk̄ionis, belonging to class I.

The suffix -išk̄as has in modern Lithuanian assumed a different accentual behavior.

Russian

We discover most of these features also in the accentual system of Russian. We begin by examining the accentual patterns in the declensional paradigms. Just like Sanskrit and Lithuanian, Russian has accented as well as unaccented morphemes and is subject to the BAP (1). Like Sanskrit nouns, Russian nouns may be subject to Metatony; however, unlike Sanskrit, Russian requires that the suffix triggering Metatony be itself accented and, moreover, whether Metatony will or will not take place before an accented suffix is a purely idiosyncratic property of a given stem. (We shall comment below on the fact that Metatony in the declension is apparently a relatively recent development in Russian.) Like the other languages reviewed, Russian has "strong" and "weak" case endings. When affixed to accentless stems "weak" case endings appear always accented, e.g., the fem. gen. sg. -y/-i: skovorodý "frying pan" and golový "head"; while "strong" case endings may appear accented with some stems, and unaccented with other stems, e.g., the fem. acc. sg. -u: skovorodú "frying pan" but golovu "head." We shall assume that the "strong" case endings are underlyingly accentless and the "weak" case endings are underlyingly accented.

The "strong" (unaccented) endings are:

(21) In the singular, ŋ the acc. fem. -u - suffix

all case suffixes of the non-fem. declension,
except the -u suffix

all the case suffixes of fem. consonantal declension,
except the loc. -i suffix

In the plural, ŋ the nom. -i/y suffix

All other case endings are "weak", i.e. inherently accented. To account for the instances where "strong" case endings appear accented we postulate the Post-stem Accentuation Rule (PAR).

(22) PAR
 $V \rightarrow [+h] / Q]_{\text{stem}} +C_0 -$

In the majority of nouns PAR applies to all case forms. The effects of this rule, however, are detectable only in forms with "strong" (inherently accentless) endings; since "weak" endings are inherently accented, PAR applies to them vacuously. As we shall see below, there is a substantial number of (mainly feminine) nouns in Russian where the PAR does not apply across the board, but only to case forms in one of the two numbers. Thus, whether or not PAR applies is an idiosyncratic property of each "strong" case form.

We digress briefly to comment on the fact that with the introduction of PAR into the grammar we have two distinct ways of accenting a suffix; either by supplying the accent in the underlying representation of the suffix, or by letting PAR apply to the suffix. It might be objected that this is a useless redundancy which should be eliminated. The obvious move would be to postulate that all suffixes are unaccented in their underlying representation, and that whenever a suffix appears accented in the output this is the result of the application of PAR. If we adopt this solution we would have three classes of instances to consider:

- a) suffixes that are always accented; i.e., where PAR applies in all contexts. These are the so-called "weak" case endings. (cf. (21)).
- b) suffixes that are never accented; i.e. that are everywhere marked as being exceptions to PAR. (Modern Russian accidentally does not provide an example of this type of suffix among its case endings. There are such suffixes among the derivational suffixes, e.g., $\check{y}\check{s}$ in $\text{mal}+\check{y}\check{s}+i$ "little fellows" - that the gap in the declension is accidental is shown further by the fact that such unaccented case endings existed in Old Russian and still exist in other Modern Slavic languages, such as Czech and Serbo-Croatian, i.e., the vocative sg. $-\check{e}$.)
- c) suffixes that are accented after some stems and accentless after other stems; i.e., that are marked as exceptions to PAR in certain context only. These are the "strong" case endings. (cf. (21)).

The problem is clearly with regard to the first class of suffixes. Since they are always accented on the surface, they would be underlyingly represented as unaccented only to be accented by PAR. If we allowed this solution then we would have no way to rule out such obviously absurd moves as the following. Since English has a rule which voices final obstruents in certain morphological environments (cf., device-devise; bath-bathe) we could then represent all word final obstruents as voiceless, and capture the distinction between voiced and voiceless obstruents by letting the

former always undergo the voicing rule. Straightforward considerations of descriptive economy will eliminate a solution such as the one just sketched, and they will also exclude the proposal to represent all suffixes as unaccented. It hardly needs saying that the same considerations will also rule out the proposal to represent all suffixes as underlyingly accented and to subject some of them to a deaccentuation rule, which, incidentally, would have to be distinct from the rule deaccenting stems before certain suffixes that functions in Russian much as in other Indo-European languages.

The Deaccentuation Rule (3) applies in Russian both in the inflection (see (24) below) as well as in the derivation (see (35) below). It is thus an essential component of the machinery determining the accentuation of Russian words.

In addition to the Deaccentuation Rule (3), Russian also makes use of a Metatony Rule, which retracts the accent one syllable (in a few special cases, two syllables) towards the beginning of the word. We give here the Metatony rule in its barest essentials only:

(23) Metatony

$$V \rightarrow [+h] / \text{--- } C_0 + C_0 V [+h].$$

It should be noted that Metatony accents a vowel only if it precedes an accented suffix. Metatony must be ordered after PAR since, as we shall see below, suffixes accented by PAR trigger Metatony.

The various components just reviewed which play a role in determining the accentuation of the declension pattern interact in various ways to produce in a large number of nouns a striking surface contrast in the accentuation of the singular vs. plural. As we shall show below in a great many nouns - though by no means in all nouns - if the singular forms have suffixal stress, the plural forms have stem stress; and vice versa. It is of considerable interest, moreover, that during the last two hundred years this surface accentual contrast has noticeably increased.⁴

We begin our review of the different accentual patterns found in the declension by examining the patterns exhibited by inherently accented stems. As will be recalled in nouns with accented stems the accentuation of the suffix will normally not affect the surface accent placement, for BAP insures that the accent will remain on the same syllable of the stem regardless of the nature of the case suffix, as illustrated below.

	singular	plural
weak	malʲn + y (gen.)	malʲn + am (dat.) "raspberry"
strong	malʲn + u (acc.)	malʲn + y (nom.)

There is, however, one striking exception to the preceding. In a large and growing class of masculine nouns, many of them clearly of foreign origin, the plural forms are subject to Deaccentuation (3). Since in these nouns all singular case endings are unaccented ("strong"), whereas all plural case endings are accented ("weak") (these nouns take the pl. nom. suffix *-a*) the result of Deaccentuation applying in the plural is a declensional pattern such as that illustrated in (24) where the singular with fixed stress on the stem contrasts with the plural with stress fixed on the case ending.

(24)		Singular	Plural
	weak	proféssor + a	not attested
	strong	not attested	professor +ám

This is the first of several examples that will be discussed of the tendency of the language to extend its favorite accentual pattern to new classes of nouns.

Turning now to nouns with accentless stems we recall that surface stress placement will be largely governed by the accentual characteristics of the suffixes detailed in (21) above. It is immediately obvious from (21) that in the non-feminine declension there will be a stress contrast between the singular and the plural: in the singular, case endings are largely unaccented, in the plural the case endings are almost exclusively accented. (The same is true of the feminine consonantal declension, but this paradigm will be disregarded in our discussion below).

In the feminine *-a* declension the situation is quite different: here the majority of case suffixes are accented ("weak"). Thus, in the feminine *-a* declension there was originally no accentual contrast between the singular and the plural. But as we shall see this contrast between the accentuation of the singular and that of the plural was extended to nouns of this class too.

The original situation (and the one continuing the Indo-European "mobile" paradigm) is found in nouns like those illustrated in (25):

(25)		sg.	pl.	
	weak	f. golov + ý (gen.)	golov + ám (dat.)	"head"
		m. (na) zub + u (loc.)	zub + ám (dat.)	"tooth"
		n. not attested	uš + ám (dat.)	"ear"
	strong	f. gólov + u (acc.)	gólov + y (nom.)	
		m. zúb + u (dat.)	zúb + y (nom.)	
		n. úx + u (dat.)	úš + i (nom.)	

Here in the "weak" cases the endings are accented whereas in the "strong" cases the BAP assigns the accent to the first syllable of the word.

It should be noted that many masculine nouns and the overwhelming majority of neuter nouns have in the nom. pl. in place of the "strong" (unaccented) *i/y* suffix, the "weak" (accented) *-a* suffix. Such words provide no examples of "strong" case endings in the plural. This fact will be of significance in our discussion below.

Alongside the "mobile" paradigm, feminine nouns provide examples also that mirror the old "oxytone" accentual pattern:

(26)	weak	sg.		pl.	
		f.	kočerg + í (gen.)	kočerg + ám (dat.)	"stove poker"
		m.	(na) post + ú (loc.)	post + ám (dat.)	"guard"
	n.	not attested	božestv + ám (dat.)	"divinity"	
	strong	f.	kočerg + ú (acc.)	kočerg + í (nom.)	
		m.	post + ú (dat.)	post + ý (dat.)	
n.		božestv + ú (dat.)	not attested		

Here the accent falls on all case endings, "strong" as well as "weak". In order to account for such "oxytone" paradigms we shall assume that nouns in this class are subject to PAR (22). In the majority of nouns, PAR applies to all case forms. The effects of this rule, however, are detectable only in forms with "strong" (inherently accentless) suffixes; since "weak" endings are inherently accented, PAR applies to them vacuously.

There is a substantial number of (mainly feminine) nouns in Russian where the PAR does not apply across the board, but only to case forms in one of the two numbers. In (27) below we illustrate nouns where the PAR applies only in the singular.

(27)	weak	sg.		pl.	
		f.	skovorod + ý (gen.)	skovorod + ám (dat.)	"pan"
		m.	not attested	kon + jám (dat.)	"steed"
	n.	not attested	pleč + ám (dat.)	"shoulder"	
	strong	f.	skovorod + ú (acc.)	skóvorod + y (nom.)	
		m.	kon + jú (dat.)	kón + i (nom.)	
n.		pleč + ú (dat.)	pléc + i (nom.)		

[accent supplied by PAR]

In (28) we illustrate nouns where PAR applies in the (nom.) plural only. There are no feminine nouns in this category, and, according to Zaliznjak (1967), only three

neuter nouns: očki "glasses", mazly "daubers", treply "jabberers". On the other hand, there are about 80 masculine nouns in this class.

(28)

		sg.	pl.
weak	m.	sad + <u>ú</u> (loc.)	sad + <u>am</u> (dat.) "garden"
strong	m.	sád + u (dat.)	sad + <u>y</u> (nom.)

[accent supplied by PAR]

The splitting of PAR into two subcases, one applying in the singular only and the other restricted to the plural, is yet another development of Russian that manifests the tendency of language to differentiate the accentuation of singular forms from that of the plural forms. The most striking manifestation of this tendency is in the increasingly important role that the Metatony rule (23) has been playing during the last 150 years in determining the accentuation of nouns. In the declension (with a handful of totally ad hoc exceptions) Metatony is restricted to plural forms. The effect of the Metatony rule is to accent the vowel preceding an accented suffix; in terms of its surface effects, Metatony results in a retraction of the accent by one syllable towards the beginning of the word. By restricting Metatony to the plural the language assures that there will be an accentual contrast between singular and plural forms in nouns that either are subject to PAR or that like the feminine -a declension nouns have inherently accented endings in the singular. We illustrate these contrasts in (29).

(29)

		sg.	pl.
weak	f.	kolbas + <u>y</u> (gen.)	kolbás + am (dat.) "sausage"
		žen + <u>y</u> (dat.)	žen + am (dat.) "wife"
	m.	not attested	kazák + am (dat.) "cossack"
	n.	not attested	kolés + am (dat.) "wheel"
strong	f.	kolbas + <u>ú</u> (acc.)	kolbás + y (nom.)
		žen + <u>ú</u> (acc.)	žen + y (nom.)
	m.	kazak + <u>ú</u> (dat.)	kazák + i (nom.)
	n.	koles + <u>ú</u> (dat.)	kolés + a (nom.)

[accent supplied by PAR] [accent supplied by PAR and Metatony]

The contrast in accentuation between the singulars and the plurals is almost as striking when the Metatony rule applies to nouns that either do not undergo PAR at all, or undergo it only in the singular or in the plural alone. As the manifestation of the contrast also differs in the masculines and neuters as against the feminines, we shall discuss these two groups separately.

As was pointed out above, in the nonfeminines all singular case endings are "strong" (unaccented), with the exception of the loc. -u ending, which, however, is quite restricted

in its distribution. As a consequence, if PAR does not apply in the singular, we obtain words with uniform initial accent in the singular. In the plural, on the other hand, regardless of gender, all suffixes, except for the nom. $-i/\bar{y}$, are "weak" (accented). Hence we get a contrast between singular forms that have initial accent, and plural forms that have suffixal accent (cf. (25), (27), (28)). If we now let plural forms undergo Metatony, the contrast is changed: we get initial accent in the singular contrasting with presuffixal accent in the plural. This contrast, however, is effectively neutralized in nouns with monosyllabic stems; the accentual patterns of such nouns are indistinguishable from nouns with inherently accented stems. Since the number of polysyllabic unaccented stems is relatively small, it is hardly surprising that there is only a handful of nouns that exhibit this accentual pattern, cf.

(30)		sg.	pl.
	weak	m. not attested	obód + jam (dat.) "rim"
		n. not attested	ozér + am (dat.) "lake"
	strong	m. obod + u	not attested
		n. ózer + u	not attested

Incidentally all of the nonfeminine nouns in this small class take the "weak" $-a$ suffix in the nom. pl. Thus, the question of whether or not these nouns are subject to PAR in the plural does not arise.

The situation is different in the feminine a -declension. Here there are only two "strong" case endings: the $-u$ - ending of the accusative singular, and the $-i/\bar{y}$ ending of the nominative plural/ and these nouns do not take the "weak" $-a$ ending in the nom. pl. Moreover, as was noted above, there is a restriction on the application of PAR in this class of nouns: nouns subject to PAR only in the plural do not exist. Thus, corresponding to the four different treatments with regard to PAR encountered in the non-feminines, the feminines have only three: a) PAR applies in both singular and plural, b) PAR applies in the singular alone, c) PAR applies neither in the singular or plural. We have already discussed the result of applying Metatony to the nouns in category a) (cf. (28)). It remains for us to investigate the consequences of applying Metatony to nouns in categories b) and c).

When Metatony is applied to nouns subject to PAR in the singular only we get a uniformly accented singular paradigm where the accent always falls on the case ending contrasting with a plural paradigm in which accent falls on the initial syllable in the nominative and on the presuffixal syllable elsewhere:

(31)		sg.	pl.
	weak	sirot + \bar{y} (gen.)	siró + am (dat.) "orphan"
	strong	sirot + u (acc.)	sirot + y (nom.)

This pattern is only minimally distinct from that of nouns which undergo PAR in the plural as well as in the singular (cf. (29)). Indeed, for monosyllabic stems the two patterns are indistinguishable. For in monosyllabic stems, initial and pre-suffixal stress coincide. We could have derived all the right forms of žená in (29) by assuming that it was a noun of the type sírotá (31), with no PAR in the plural, with initial stress (cf. síroty) assigned in the nominative plural by BAP and pre-suffixal stress (cf. sírotam) elsewhere in the plural by Metatony. Our reason for considering monosyllabic stems like žená as being representatives of paradigm (29) rather than (31) is the extremely marginal status of the latter in present-day Russian. The noun sírotá is actually the only clear example of it, and it is a variant pattern at that. Although recorded in all major modern sources, the nom. pl. síroty is regarded by Russian orthoepists as inferior to síróty (see Kiparsky (1962), p. 223). (Another possible example is the plurale tantum xlópoty "troubles".) There is a strong tendency for plural retraction to be implemented by a single rule, either BAP or Metatony, but not both. Formally, this amounts to a redundancy rule

(32) [+ Metatony] \supset [+ PAR pl.]

to which only sírotá (and perhaps xlópoty) are fragile exceptions.

When Metatony is applied to feminine nouns that are not subject to PAR in the singular, we get accent movement in the singular as well as in the plural. In the singular there will be initial accent in the accusative and suffixal accent elsewhere; the plural will have initial accent in the nominative as it is not subject to PAR, and pre-suffixal accent in all other cases. In monosyllabic stems, we will again get the same result whether the nominative plural is subject to PAR or not, since initial and pre-suffixal accent coincide. As it happens, the pattern is attested only with a handful of monosyllabic stems:

(33)		sg.	pl.
	weak	vod + y (gen.)	vód + am (dat.) "water"
	strong	vód + u (acc.)	vód + y (nom.)

Given the demonstrably productive redundancy rule (32), we will assume that the nouns in this class are all marked as undergoing PAR in the plural. On this analysis, nom. pl. vód + y is assigned by Metatony, like dat. pl. vód + am and not by BAP, like acc. sg. vód + u.⁵

As we have just seen, in nouns with unaccented stems the surface accentuation is governed by three idiosyncratic features which determine whether or not a given form is subject to PAR in the singular, subject to PAR in the plural, subject to Metatony (in the plural only). These three binary features define eight accentual patterns, of which two are excluded by the redundancy rule (32). As there are few exceptions to

the redundancy rule (32), pattern (34 ζ), as discussed above, is attested by one or two nouns in the speech of many speakers.

(34)		PAR sg.	PAR pl.	Metatony
(α)	golová, zúb, úxo (25)	-	-	-
(β)	_____	-	-	+
(γ)	_____, sád, mazló (28)	-	+	-
(δ)	vodá (33), óbod, ózero (30)	-	+	+
(ϵ)	skovorodá, kón, plečó (27)	+	-	-
(ζ)	(sirotá (31)),	+	-	+
(η)	kočergá, post, božestvo (26)	+	+	-
(θ)	kolbasá, kazák, kolesó (29)	+	+	+

Comments on the Evolution of the Accentual Patterns in Modern Russian Nouns

Historically the modern accentuation derives from three patterns: the so-called "barytone" pattern with accent fixed on the stem preserved in modern Russian in the accentuation of nouns with accented stems; the so-called "mobile" pattern preserved in modern Russian in the accentuation of nouns such as golová, zúb, úxo (cf. (25), (34 α)) and the so-called "oxytone" pattern preserved in the accentuation of nouns such as kočergá, póst, božestvo ((26), (34 η)). Since we are interested only in nouns with unaccented stems we shall disregard here the "barytone" class. It is self-evident that the distinction between "mobile" and "oxytone" paradigms is reflected by whether or not PAR applies to a noun. Moreover, originally PAR applied across the board to all forms, and the distinction between nouns that are subject to PAR in only one of the two numbers is historically a more recent phenomenon. The same is true of Metatony: originally it played almost no role in the inflectional morphology of the language and its present important rule is of fairly recent date. The sense of evolution of the last two or three centuries, which is carefully documented in Kiparsky (1962), is towards the elimination of accentual "mobility" within a given number and towards the establishment of a contrast of the accent placement in the singular and in the plural.

The development can be seen most clearly in the feminines. Kiparsky (1962) describes it as follows:

"Von den oben aufgezählten 109 Wörtern, die heute dem Typ A (our (34 θ) and (34 ζ)) folgen, scheint kein einziges diesen Typ vor Anfang des 19. Jhs. erhalten zu haben... Die grössten Verluste erlitt dabei der II. Typ (our 34 η)), der an den Typ A (our (34 θ) or (34 ζ)), meist durch Vermittlung des Typs B (our (34 ϵ)), fast 50 Wörter abgegeben hat...

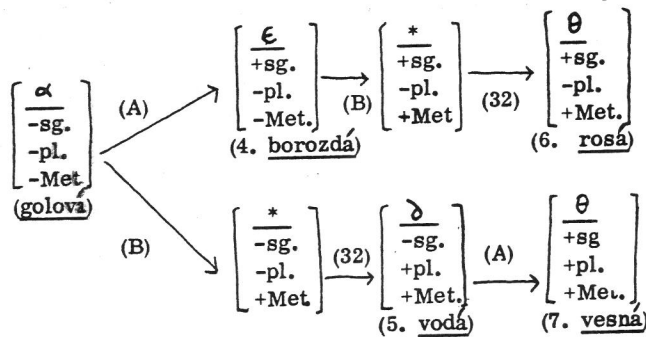
Starke Einbussen hat auch Typ III (our (34 α)) auf Kosten des A (our (34 ζ) or (34 θ), here former rather than latter) erfahren, wobei die Entwicklung entweder III \rightarrow B \rightarrow A (our (34 α) \rightarrow (34 ϵ) \rightarrow (34 ζ))... oder III \rightarrow W \rightarrow A (our (34 α) \rightarrow (34 δ) \rightarrow (34 ζ))... ging." (p. 229).

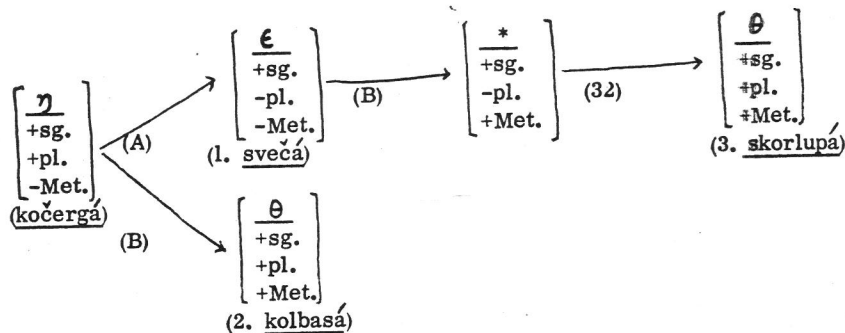
The following seven trajectories in the accentual paradigms of inherently unaccented feminine stems are documented by Kiparsky (p. 229),

1. $\eta > \epsilon$ (e.g. svečá "candle")
2. $\eta > \theta$ (e.g. kolbasá "sausage")
3. $\eta > \epsilon > \theta$ (e.g. skorlupá "rind")
4. $\alpha > \epsilon$ (e.g. borozdá "furrow")
5. $\alpha > \delta$ (e.g. vodá "water")
6. $\alpha > \epsilon > \theta$ (e.g. rosá "dew")
7. $\alpha > \delta > \theta$ (e.g. vesná "spring")

Note that types ϵ and θ both have two historical sources, η and α , and that θ furthermore develops from either source by two different paths. On the other hand, type δ is always derived directly from α . How are these observations to be interpreted?

Taking as a starting point the two original unaccented stem patterns α (golová) and η (kočergá), suppose that the nouns in these two accent classes could undergo one or both of two accentual changes: (A) the change to the "favored" marking for PAR ([+ PAR sg.] and [- PAR pl.]) and (B) becoming subject to Metatony. Moreover, assume that (32) is implemented wherever it becomes applicable. The possible developments can then be represented by means of the tree diagrams below, where " α sg." and " β pl." stand for " α PAR sg." and " β PAR pl." respectively.





It will be seen that all possible trajectories within this schema are attested for some class of nouns in Kiparsky's observations. Note in particular that η , having turned into θ by (B) cannot further undergo (A), since this would be incompatible with (32).

Also, all trajectories observed by Kiparsky fit into the proposed schema. Thus the schema discloses a surprising systematicity in the apparently chaotic accentual history of the Russian declension. The proliferation of new accentual classes is thus an orderly development of the potentialities inherent in the Slavic pattern of accentual mobility.

We noted that there are no nouns with the feature combination [-PAR sg., +PAR pl., -Metatony]. From the viewpoint of the present analysis, this gap is synchronically arbitrary. Any synchronically arbitrary gap requires a historical explanation. Note then that the derivation of the modern accent patterns in the feminines just given provides such an explanation. Given the original paradigms and the direction of change, there is no way in which paradigms with the missing feature combination could have arisen.

We turn now to the neuters, where the situation is somewhat different. Since in the neuters there are normally no "strong" case endings in the plural and no "weak" case endings in the singular, the nouns belonging to the original "mobile" paradigm, i. e. to our class (34 α) will exhibit a contrast in the accent place for singulars and for plurals: in the singular we shall have stem (or initial) accent; in the plurals we shall have suffixal accent. If such nouns were subject to Metatony the contrast could only be preserved in polysyllabic stems. Since polysyllabic stems are rather few it should occasion little surprise that this development has affected only a small number of nouns and that among the neuters the original "mobile" class has been preserved in fact to a very large extent.

In the modern language there are only a few neuter nouns that belong to the "oxytone" accentual paradigm (34 7), and several of these have alternants that are subject to Metatony. The majority of neuter nouns that now are regularly subject to Metatony can be shown to have had the "oxytone" pattern at an earlier time. Kiparsky (1962) states that in 21 out of 52 nouns now subject to Metatony he was able to establish their earlier "oxytone" accentuation (p. 252).

In sum, in view of the fact that the language tends towards accentual paradigms where suffixal stress in one number contrasts with stem stress in the other number we should expect that nouns belonging to the original "mobile" paradigm (34 α) will remain unaffected by any changes whereas nouns belonging to the original "oxytone" paradigm (34 7) will undergo change and become subject to Metatony ((34 7) > (34 θ)). And this is in fact what Kiparsky found. He notes that most of the 20 nouns that follow the "mobile" paradigm (34 α) in the modern language had the same accentuation in the distant past.⁶

As regards the development of pattern (34 θ) Kiparsky (1962) observes:

Von den oben untersuchten 52 Fällen, in denen die heutige Schriftsprache ganz oder fast ausschliesslich den IV. Typ (our (34 θ)) gebraucht, haben wir in 28 Fällen einen relativ späten Übergang zu diesem Typ feststellen können." (p. 252).

This brings us to the last class of nouns, the masculines. The case suffixes of masculine nouns are almost all "strong" in the singular, like those of the neuters, whereas like those of the feminines the plural cases endings of the masculines consist of one "strong" ending (the nom. pl.) and four "weak" endings. Because of the predominance of monosyllabic stems it is to be expected that masculine nouns with unaccented stems will in general tend not to undergo Metatony as this would obliterate the contrast in accent placement between the singular and the plural. The only class where this would not be true is the "oxytones", but unlike the neuter nouns, masculine nouns have in this instance resisted the development of contrasting accentuations in the two numbers of the paradigm.

The situation was different with respect to the nouns that originally belonged to the "mobile" paradigm. Here the accentual contrast was, of course, almost in place to begin with since almost all singular masculine suffixes are inherently "strong" (unaccented) and plural suffixes are inherently "weak" (accented). The major exception is constituted by the nom. pl. -i/-y suffix which unlike other plural suffixes is "strong" (unaccented). This minor deviation was "liquidated" in quite a number of nouns by letting these nouns undergo PAR in the plural (i. e. (34 α) > (34 7)). Kiparsky (1962) documents this development in the case of several dozen nouns.

Among the nouns that at present follow this pattern there is a considerable number of fairly recent loan words which originally had inherent stem accentuation. This shows once again the strength of the tendency towards contrasting accentuations in the two numbers.

We now turn to the accentual patterns found in the derivational morphology of Russian nouns. As summarized by Red'kin (1971):

"The accentuation of derived nouns of class I depends on the accentuation of the base. If the base word has nonfinal accent in all of its case forms then in the derived noun, the accent will fall on the same syllable of the base. If, however, in even one case form of the base word we find desinential accentuation, then in the derived word the accent will fall either on the base final vowel (i. e. the syllable preceding the derivational suffix) (subclass 1), or on the suffix itself (subclass 2), or on the desinence (of the derived word - MH/PK) (subclass 3)... (p. 48).

"The accentuation of derived nouns of class II does not depend on the accentuation of the base. Among the nouns of class II there are three subclasses. In the case of derived nouns of subclass 1, the accent falls... on the syllable preceding the derivational suffix, in subclass 2 on the suffix itself, and in subclass 3, on the desinence." (p. 52).

In terms of the preceding discussion the difference between classes I and II is that the derivational suffixes in I are not deaccenting, so that stems always preserve the inherent accent before them. As a result accented stems exhibit different accentual behavior in the derivation than stems without inherent accent. In class II, on the other hand, the derivational suffixes are deaccenting so that accented and unaccented stems are treated alike. Consider now classes I, 1; I, 2; I, 3; with unaccented base stems (in the second column of (35)). Their accentuation follows at once if we assume that their respective derivational suffixes are preaccenting in I, 1, accented in I, 2, and unaccented in I, 3. The derivation of these forms is shown in the bottom part of (35).

(35)	Class I		Class II	
	accented base	unaccented base	accented base	unaccented base
1.	koróv+ij (koróv+u "cow")	tabáč+ij (tabak +ú "tobacco")	soldát+ik+u (soldát+u "soldier")	slov+ár+ik+u (slov+ar+jú "diction")
2.	čelovéč+išč+u (čelovék+u "human")	tabáč+išč+u (tabak+ú "tobacco")	Payl+úš+u (Pávl+u "Paul")	Petr+úš+u (Petr+ú "Peter")

3. pogán+yš+u mal+yš+ú sibir+jak+ú prost+jak+ú
 (pogán+c+u (mal+á "small") (sibir+i (prost+ój "simple")
 "rascal") "Siberia")

- I.
1. Pre-accenting $\text{tabač+ij} \xrightarrow{\text{Met}} \text{tabač}^{\text{h}}+\text{ij} \xrightarrow{\text{BAP}} \text{tabáč+ij}$
2. Accented $\text{tabač}^{\text{h}}+\text{išč+u} \xrightarrow{\text{BAP}} \text{tabač}^{\text{h}}+\text{išč}^{\text{h}}+\text{u}$
3. Unaccented $\text{mal+yš+u} \xrightarrow{\text{PAR}} \text{mal+yš}^{\text{h}}+\text{u} \xrightarrow{\text{BAP}} \text{mal+yš+ú}$
- II.
1. Pre-accenting $\text{soldát}^{\text{h}}+\text{ik}^{\text{h}}+\text{u} \xrightarrow{\text{Deacc}} \text{soldat}^{\text{h}}+\text{ik}+\text{u} \xrightarrow{\text{Met}} \text{soldát}^{\text{h}}+\text{ik}^{\text{h}}+\text{u}$
 $\xrightarrow{\text{BAP}} \text{soldát}^{\text{h}}+\text{ik}^{\text{h}}+\text{u}$

In class II the suffixes have the corresponding properties except that they are in addition deaccenting. Hence the derivations from accented bases proceed in exactly the same fashion as those from unaccented bases except, of course, that the deaccentuation rule applies vacuously to unaccented stems.

Our new treatment improves in two important respects on that of Halle (1973). First, the morphologically arbitrary constituent structure differences postulated there are now eliminated in favor of the phonological feature [+ accented] on suffixes. Secondly, a simple system underlying the derivational accent classes is now revealed. Setting aside the feature [+ Metatony], the classification of derivational suffixes in the two analyses compares as follows:

	Halle 1973			Present analysis	
	Inherently accented	Constituent structure forming	Deac-centing	Inherently Accented	Deac-centing
1. <u>-ast</u> , <u>-av</u> , <u>-it</u> , <u>-at</u>	+	(indeterminate)	(indeterminate)	+	+
2. <u>-ist</u>	-	+	-	+	-
3. <u>-ač</u> , <u>-ak</u>	-	-	+	-	+
4. <u>-ov</u> , <u>-ik</u>	-	-	-	-	-

Concluding Remarks

We have already remarked on the essential stability of the main features of the Indo-European accentual system in all the languages surveyed. We have found a common core consisting of the three rules

- (36) a) Deaccentuation rule
 b) Metatony rule
 c) Basic Accentuation Principle

Moreover, the languages all had both accented and accentless stems as well as suffixes. What differentiated the languages was the role that Metatony played in the declensional paradigm. Whereas in Sanskrit Metatony applied before accentless case endings, in Lithuanian and Slavic Metatony ceased to apply in the declension altogether.

This development would be motivated if it were the case that the theme vowels at some point in the history of Baltic and Slavic ceased to be independent morphemes, and became reanalyzed as part of the case ending. That assumption seems in any case on purely morphological grounds inescapable for the modern Slavic languages, and at least plausible for the modern Baltic languages.

This line of reasoning has a corollary of great interest. We see that the two principal innovations of Baltic and Slavic, the development of marginal mobility and its extension to thematic declensions, involve no addition to the accent system; they are as it were contained in embryo in the inherited Indo-European system. In particular, the second innovation, i. e. the extension of marginal mobility to the thematic declension, would seem to follow from the morphological coalescence of theme vowels and case suffixes. This means that the dating of these innovations to a common Balto-Slavic period is no longer as inevitable as it has appeared. Moreover, since Germanic quite clearly underwent the same morphological reanalysis, it is no longer such a mystery that Verner's Law doublets in Germanic attest to precisely the same initial/final accent mobility in thematic declensions at some prehistoric state of that branch as well. The attempts to project this type of mobility in thematic nouns back into the protolanguage are therefore quite ill-founded.

In any case, we can assume that Baltic and Slavic originally had just two types of paradigm, corresponding to the Indo-European fixed and movable type. In addition to losing Metatony as a rule affecting the accentuation of the declensional paradigm, there have been wholesale changes in the inherent accentuation of whole classes of stems. This topic has been carefully studied by V. I. Illič-Svityč (1963), who has found that Baltic nouns with short stem vowels basically preserve their Indo-European accentual class--i. e., those that belong to the Lithuanian class II can be shown to be cognate with inherently accented stems in other Indo-European languages, whereas

those that belong to the Lithuanian class IV have cognates with inherently unaccented stems in the related languages. The situation is rather different with regard to Baltic nouns with long stem vowels. Here there appears to have been a wholesale shift from the unaccented to the accented class. Illič-Svityč suggests that Hirt was basically correct when he speculated that the shift affected words with a nonapophonic long vowel; i. e., with a vowel "whose length arose as a result of the dropping of laryngeals after syllabics... In those instances where the root contained an original short vowel... or a long apophonic element... i. e., where no new length developed, a lack of correspondence in accentuation did not exist." (p. 81). In addition, Illič-Svityč notes that there were also shifts in the opposite direction: some inherently accented stems became unaccented; these shifts, however, were not systematic.

The situation in Slavic is different. Illič-Svityč established that all original short-vowel stems acquired columnar stress on the ending, i. e. shifted to the type kočergū - kočergām of (26). In terms of our analysis, all stems with short vowels lost their inherent accent and became subject to a rule which places an accent on all case endings, formulated as the Post-stem Accentuation rule in (25). At a more recent period, Russian reintroduced Metatony in the declension of certain classes of nouns, but this time morphologically conditioned, by any accented plural suffix. This results in the types of accentual pattern discussed above (see (25) - (31)).

If we now compare the Lithuanian and modern Russian accent systems, we see essential similarity in the derivational systems but quite fundamental differences in inflection. Historically, the four accent classes of Lithuanian are completely stable: accent changes in this language have been, as already noted, a matter of shifts in the underlying accentuation of certain stems and endings, leaving the four classes of stems and the four classes of endings unchanged. Russian, on the other hand, has experienced a proliferation of minor subtypes among inherently unaccented, movable stems.

How is the different trend of Russian and Lithuanian to be explained? The reason would appear to be the fact that the Lithuanian system remained entirely phonological -- the accentuation of any inflectional form is determined in mechanical fashion by rules (3, 14, 16) from its underlying representation; whereas the Russian system has been morphologized, in particular being tied to number in the noun declension. The entire range of subtypes which have been spawned by analogy can in fact be understood as the result of the tendency to recruit the accent alternations to signal the singular/plural distinction.

The common core of the Indo-European accentual system consisting of the three rules, a) Deaccentuation, b) Metatony, c) BAP and associated lexical markings is fairly powerful, but it is important to note that not just any imaginable accent paradigm could be accommodated in it. Of particular interest is the fact that

there are imaginable kinds of accent paradigms which would be extraordinarily complex and unnatural in our framework no matter how many new rules we added, while they might be quite simple to describe in some other approaches to morphological stress systems. An example of such an alternative approach, no less plausible on a priori grounds than ours, perhaps, is that proposed by Garde (1968). Garde's idea is that morphemes are ordered into levels of accent "strength", such that the actual stress of a word is determined by its strongest morpheme. For example (denoting increasing strength by increasing subscripted integers) let A_3 by the strength of inherently accented stems, such as Skt. bhrátar-, ásva. Garde's theory would allow, and indeed predict, the existence of derivational suffixes B_5 and C_4 , such that derivatives formed by them are accented as in (37):

$$(37) \quad (a) \quad A_3 + \overset{\acute{}}{C}_4$$

$$(b) \quad A_3 + \overset{\acute{}}{B}_5 + C_4$$

On our theory this would be an anomaly, since (a) indicates that C triggers deaccentuation, while (b) indicates that it does not. If such cases are in fact nonexistent or rare, as they appear to be, that would be evidence favoring our treatment over Garde's.

By way of further support we may add that accentual systems with exactly the properties we postulate for IE are by no means unprecedented; one such system has been described by Jane and Kenneth Hill in IJAL 1968. We quote from their study:

"A root may have inherent stress. Stress in such roots is invariant [fixed stress] except as discussed [below]. Stress may be determined by its presence in certain affixes, if the root(s) to which they are attached have no inherent stress... [movable stress]. If neither the root nor the affixes in a word have inherent stress, stress is placed on the first vowel of the word... [BAP]. Root stress overrides affix stress, and only the first of a series of root stresses within a word is retained phonetically... [cf. the compounds]. Some suffixes place the stress on the last vowel of the root." [Metatony].

The Hills, of course, were describing not Indo-European, but the Uto-Aztecan languages, Cupeño, Cahuilla, and Luiseño. Their stress system differs from that of Indo-European mainly in having no deaccentuation rule. However, the remarkable similarities between the Hills' system and the one presented here clearly show that we are not dealing with an isolated and unprecedented system. In fact, in our reading we seem lately to come across one instance after another of this system in widely separated language groups. To mention but one, we found a system quite

similar to that of Indo-European, including even the deaccentuation rule, in Asurini as described by Carl Harrison in the recent SIL volume on the Tupi languages of South America. While such parallels, of course, do not establish the correctness of the proposed analysis, they do provide what Calvinists would call "comfortable assurance" that the enterprise may not be totally misconceived, and at this point in our work that is about all that we would claim for what we have presented here.

NOTES

*This work was supported in part by a grant from the National Institutes of Mental Health, 5 PO1 MH13390-09.

¹We do not mean that this is all there is to say about the accentuation of compounds. There are, of course, many subsidiary regularities requiring their own rules, as well as the sprinkling of exceptions to be expected in any such lexical domain. One quite general rule is that a compound in which both members are inherently unaccented gets accented on its last syllable. Hence, there are no accentually mobile compounds. In classical Sanskrit, as described by Pāṇini, compounds are accented on quite different principles.

²We take the Sanskrit rather than the Balto-Slavic pattern to be the original one for the reasons given in Kiparsky (1973).

³There is a problem with the dative dual and dative plural forms:

várnoms galvóms ránkoms barzdóms

given the facts of galvóms we should represent it as

$\overset{h}{\text{galv}} + \overset{*h}{\text{ooms}}$

and the correct output would be obtained. However this at once leads to problems with ránkoms. If underlyingly it is represented as

$\overset{*h}{\text{rank}} + \overset{*h}{\text{ooms}}$

Saussure's law should then apply, giving the incorrect

$\text{rank} + \overset{*h}{\text{ooms}}$.

To get the correct output here we would need

$\overset{*h}{\text{rank}} + \overset{*h}{\text{ooms}}$.

However then we would get (as in the gen. sg.) a rising tone in the case suffix, i.e.

* galv + $\overset{\sim}{\text{o}}\text{ms}$.

The solution is reasonably simple. In designating the tones in (11) above we have considered only cases of two mora sequences. And we have therefore said that if the accent goes on the first mora in the sequence we get falling tone; if it goes on the last mora we get rising tone. As we have seen, this leads to incorrect result when we extend our formulation to three mora sequences. To correct this we need, however, only say that we get falling tone, when accent goes on the nonfinal mora; and as before we get rising tone when accent falls on the final mora.

Additional support for this analysis comes from certain dialectal facts. In the Žemaitė dialect (as in Latvian) there is syncope in the nom. sg. masc. suffix: as → s. This syncope is accompanied by a change in tone:

St. Lith.	d̃ṽaras	underlyingly	dvaār + as ^{*h}
Žemaitė	dṽars	underlyingly	dvaār + s ^{*h}

⁴This accentual differentiation of singular vs. plural forms has been previously noted; see, especially, R. Jakobson (1957) and E. Stankiewicz (1968).

⁵N. Durnovo (1932) reported that in a XIV century Pskov manuscript the nom. pl. vody "waters" is transcribed with a "kamora" over the o. Since this is the traditional way of representing the "neo-acute" vowel, the transcription indicates that this noun was subject to Metatony already in the XIV century, much earlier than the overwhelming number of examples adduced in Kiparsky (1962).

⁶Recall that because of the fact that neuter case endings are normally "strong" (unaccented) in the singular and "weak" (accented) in the plural, the "mobile" paradigm shows stem accent in the singular and suffixal accent in the plural. The example uxo cited in (23) is exceptional in that it takes the "strong" i-suffix in the nom. pl.

REFERENCES

- Durnovo, N. (1932) "Manuscripts russes distinguant l'ancien o 'acute' et l'o d'un autre origine," *Annales Academiae Scientiarum Fennicae*, ser. B 27.7-13.
- Garde, P. (1968) *L'accent* (Paris, Presses universitaires de France).
- Halle, M. (1973) "The Accentuation of Russian Words," *Language* 49, 312-348.
- Harrison, C. H. (1971) "The Morphophonology of Asurini Words," in B. Bendor-Samuel, et al., *Tupi Studies I*.
- Hill, K. and J. (1968) "Stress in the Cupan (Uto-Aztecan) Languages," *LJAL* 34, 233-41.
- Ilić-Svityč, V. I. (1963) *Imennaja akcentuacija v baltijskom i slavjanskom*. (Moscow, Izdatel'stvo Akademii Nauk SSSR).

- Jakobson, R. (1957) "The Relationship between Genitive and Plural in the Declension of Russian Nouns," Scando-Slavica 3, 181-6.
- Kiparsky, P. (1973) "The Inflectional Accent in Indo-European," Language 49, 794-849.
- Kiparsky, V. (1962) Der Wortakzent in der russischen Schriftsprache (Heidelberg, Carl Winter).
- Kurylowicz, J. (1968) Indogermanische Grammatik II (Heidelberg, Carl Winter).
- Red'kin, V. A. (1971) Akcentologija sovremennogo russkogo literaturnogo jazyka (Moscow, Provesčenie).
- Skardžius, P. (1935) Daukšos Akcentologija, (Kaunas).
- Stankiewicz, E. (1968) Declension and Gradation of Russian Substantives (The Hague, Mouton).
- Zaliznjak, A. A. (1967) Russkoe imennoe slovoizmenenie (Moscow, Nauka).