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## THE ACCENTUATION OF RUSSIAN WORDS

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This paper reviews the accentual patterns found in the various inflectional paradigms of Russian and develops a number of rules to characterize these patterns. It then surveys the most common accentual patterns found in different types of word formation, and discusses the manner in which the rules developed in the first part of the paper account for these patterns. A number of theoretical issues in phonology (cyclic rule application, the role of disjunctive ordering, etc.) are briefly discussed, as are certain accentual phenomena in other, mainly Slavic, languages.\*

One of the ideas that has guided me in this work was originally advanced by Jakobson 1963 and expanded in Jakobson 1965. In somewhat simplified terms, the idea is that the historical evolution of the Slavic accentual system can best be understood if we assume that originally the Slavic word had a pitch contour much like that of the word in certain dialects of modern Japanese. There the word is divided into two parts: an initial high-pitched portion and a final low-pitched (or neutral) portion. In order to specify the pitch contour of a Japanese word, therefore, only one vowel need be marked, namely the last vowel having high pitch. Once it is marked, a simple pitch distribution rule, assigning high pitch to this vowel and to all vowels preceding it, yields the correct pitch contour. The rules assigning the initial marking to the word are part of the morphological component of the language, because the place of the 'pitch break' is determined by other factors than the phonological composition of the word. Factors that characteristically enter here are the lexical category of the word (is it a noun, a verb, or an adjective?) as well as idiosyncratic features of the individual morphemes that compose the word.

It was, of course, not Jakobson's intention to argue that Japanese and Slavic had identical prosodic systems; his point was, rather, that certain properties that stand out clearly in the Japanese prosodic system also function (albeit in a somewhat more obscure fashion) in the prosodic system of Slavic. The main properties that both systems share are two. First, in both systems the prosodic contour of a word is determined by two separate sets of rules, of which one part belongs to the morphological component, the other to the phonological component. Second—and this is a much more specific similarity between the two systems—in both languages the prosodic contour of a word consists of at most two distinct parts: an initial portion in which all vowels are marked, and a final portion in which all vowels are unmarked; one of these two portions may be missing. A sequence containing  $n$  vowels may, therefore, have at most  $n+1$  distinct prosodic contours. In Halle 1971a I have tried to show that Jakobson's proposal provides a basis for a correct solution of a number of fairly complex

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prosodic phenomena in various Slavic languages. In the present study I utilize the ideas just sketched in an attempt to characterize a fair variety of accentual phenomena of modern Russian. I hope, moreover, that the results also shed some light on certain theoretical issues that are at present in contention—in particular, the nature of the rules in the word-formation (morphological) component and the question of the role which constituent structure plays in phonology.

1. In this first part of the paper, I shall assume that each word of the language is subject to a set of early rules which may or may not assign the feature [+Stress] to some vowel in the word. How these rules function is the main subject of §§2–5 below. At a fairly early point in the phonological component I postulate the S-DISTRIBUTION rule. This rule applies to every word having a vowel with the feature [+Stress], and distributes this feature to every vowel that precedes the stressed vowel. The S-Distribution rule will, therefore, change a string in the following manner (brackets indicate phonological or phonetic transcription, as opposed to transliteration):

(1) [kol,eb+á+l+a] → [kól,éb+á+l+a] ‘rocked’ (f.)

A much later rule, which I shall call the DESTRESSING rule, will then destress all but the last stressed vowel in the word.

Words which have remained thus far without stress are handled next. They are subject to the CIRCUMFLEX rule, which assigns stress to the initial syllable of such words. Here—in modern Russian quite irregularly, in Medieval Russian with complete regularity (cf. §2.2 below)—the word is taken to include the clitics that adjoin it.<sup>1</sup>

Subsequent to the Destressing and the Circumflex rules, stressless vowels undergo NEUTRALIZATION, the effects of which differ from dialect to dialect. In the literary dialect, as well as in most dialects spoken in an area south of the latitude of Moscow, neutralization consists of a merger of all non-high vowels into a single vowel. This phenomenon, known as AKAN’E, is the only type of vowel neutralization of interest here.

The procedure just sketched for assigning stress may appear excessively cumbersome and roundabout. The next task, therefore, is to show that this extra machinery does something for us. The first fact that may be brought up in this connection is that, when a potentially stressed vowel is deleted in Russian, the stress of the word is normally found on the preceding vowel. Observe that this need not be the case: the stress might migrate to any other vowel of the word, or the deletion might result in a stressless word. The facts of Russian, however, are as stated above. This interesting regularity is implicit in the rules just proposed, provided only that the deletion rules precede the Destressing rule. This

<sup>1</sup> In Halle 1971a I combined the Destressing rule and the Circumflex rules into a single Stress rule. The evidence in favor of this treatment was provided by Serbo-Croatian and Slovenian, where stressed vowels exhibit various types of pitch variations. The absence of such pitch variations in Russian makes it difficult to justify such a solution for Russian. It should, however, be noted that formally (though not substantively) the Russian rules are identical to those of the South Slavic languages.

	[kol,eb+a+l+a]	[kol,eb+a+e+t,e]
S-ASSIGN	S	S
S-DISTR	S S	S S
VOWEL TRUNC		∅
DESTRESS	-S-S	-S
CIRCUM	—	—
AKAN'E	a i	a i i
OTHER RULES		
OUTPUT	[kal,ibála] 'rocked' (f. past)	[kal,ébl,it,i] 'rock' (2pl. present)

TABLE 1

can readily be seen by comparing the derivations of the two forms in Table 1. These two forms—f.sg. past and 2pl. present—are formed by adding different suffixes to the same stem. Russian words are subject to VOWEL TRUNCATION, a rule which deletes a morpheme-final vowel in position before a vowel (see Jakobson 1948). Since the present-tense morphemes in Russian are vowels, while the past-tense morpheme is the consonant *-l-*, we expect Vowel Truncation to apply in the present tense, but not in the past. An immediate corollary is that when the stress in the past tense falls on the vowel that is truncated in the present tense, the stress in the present will be shifted by one syllable to the beginning of the word, relative to its location in the past tense.

The same leftward movement of the stress from a potentially stressed vowel that has been deleted can be seen in connection with the treatment of the so-called YERS. As shown by Lightner 1972, it is necessary to assume that two vowels (called yers) figure in underlying representations of Russian words—one back [ɤ], one front [ɛ]. These do not appear on the surface: before a syllable with another yer, they are converted to [e/o]; everywhere else they are deleted.<sup>2</sup> As a result we get the stress shifts illustrated in Table 2.

A further set of facts that finds a ready explanation if the above solution of stress assignment is adopted is a well-known dialectal phenomenon. In certain dialects spoken in the region of Rjazan' (cf., e.g., Vysotskij 1949) there are two types of *o*-sound in stressed position; one is a mid vowel [ô], as in Fr. *beau*, and the other a low vowel [o], as in Eng. *law*. It has long been known that the mid vowel [ô] in this dialect derives historically from an original [o] under 'acute or neo-acute' accent, whereas the low vowel [o] is the reflex either of original [o] NOT under acute or neo-acute accent, or of an original yer (see Kuryłowicz 1962:34-5). Vowels that in traditional descriptions have been said to be 'under the acute accent' correspond in the present description to vowels that are marked [+Stress] either in the lexicon or by a very early rule. Vowels that traditionally have been said to be 'under the neo-acute accent' correspond (cf. the discussion in Jakobson 1963:163-4) to vowels in position before acute vowels. It should be noted that the mid vowel [ô] derives only from acute or neo-acute [o] that appears under stress in the output. The reason for this is that the dialect under discussion is subject to Akan'e, which (as stated above) neutralizes all distinctions among non-high vowels that are without stress.

The facts just sketched can readily be captured within the framework de-

<sup>2</sup> I leave unresolved here the question as to the phonetic nature of the yers.

	[korol, +ɤ]	[korol, +a]	[na+jɤm+ɤ]	[na+jɤm+a]
S-ASSIGN	S	S	S	S
S-DISTR	S S	S S	S	S
YER	∅		o ∅	∅
CIRCUM				
DESTRESS	-S	-S-S	-S	
AKAN'E	a	a a	a	
OUTPUT	[karól,] 'king' (nom. sg.)	[karal,á] 'king' (gen. sg.)	[najóm] 'hire' (nom. sg.)	[nájma] 'hire' (gen. sg.)

TABLE 2

	[korol, +ɤ]	[gorox+ɤ]	[kryl+o]	[porox+ɤ]	[sɤn+ɤ]
S-ASSIGN	S	S	S	—	S
S-DISTR	S S	S	S	—	S
NEO-ACUTE	δ δ	δ δ	δ	—	—
YER	∅	∅		∅	o ∅
DESTRESS	-S	-S	-S	—	—
CIRCUM	—	—	—	S a	—
AKAN'E	a	a	—	a	—
OUTPUT	[karól,] 'king'	[garóx] 'pea'	[kryló] 'wing'	[pórax] 'powder'	[sóñ] 'dream'

TABLE 3

veloped above. All that is required is that we add to the description the NEO-ACUTE rule which turns stressed [o] into [ó]. Provided this Neo-acute rule is ordered after S-Distribution, but before the Yer rules, and (hence also) before the Akan'e rule, the dialectal peculiarities just discussed are properly accounted for as shown in Table 3.

2. The next task is to examine in some detail the accentual alternations found in the different inflectional paradigms. I shall discuss here first those found in noun declension.<sup>3</sup> This examination will allow me to detail to some extent that complex of rules that up to this point have been hidden under the label S-Assignment. I shall find it necessary to postulate a number of separate rules and to organize the individual dictionary entries in a particular way. I shall then test the proposed system by examining the accentual patterns that emerge in the inflection of the adjectives and the verbs.

2.1. As shown in Table 4,<sup>4</sup> there are at least nine distinct accentual patterns in noun declension. The first and simplest pattern, to which about 90 percent of the nouns in the Russian dictionary belong, shows stress on the same vowel of the stem in all case forms. In the case of unsuffixed nouns, I shall assume that the majority of such noun stems contain a stressed vowel in their dictionary

<sup>3</sup> I discussed the accentuation of nouns in Halle 1970, but the present discussion differs from the earlier one in a number of points. I believe that the present formulation is superior to the earlier one, but I shall not present a detailed argument against the earlier formulation here.

<sup>4</sup> The figures in parentheses indicate the approximate number of items in each category. The figures are basically those given in Zaliznjak 1967, with a few corrections from Horace Lunt (personal communication).

	MASCULINE	NEUTER	FEMININE 'SOFT' CONS.	-a
(a) Stem in all forms.	<i>goróz</i> 'pea' <i>avtomobil'</i> 'car' <i>najóm</i> 'hire' (11,400)	<i>kréslo</i> 'chair' <i>zďánie</i> 'building' <i>izďátel'stvo</i> 'publishing house' (4900)	<i>glúpost'</i> 'stupidity' <i>postél'</i> 'bed' <i>pečáti'</i> 'press' (3100)	<i>kárta</i> 'card' <i>koróva</i> 'cove' <i>brígdáa</i> 'brigade' (10,700)
(b) Desinence in all forms.	<i>stól</i> 'table' <i>čérď</i> 'turn' (1700)	<i>božestvo</i> 'deity' <i>očko</i> 'pip, dot' (130)	<i>ljubóv'</i> 'love' <i>glúš'</i> 'thicket' (6)	<i>gospoďá</i> 'lady' <i>čertá</i> 'line' <i>kočergá</i> 'poker' (340)
(ca) Initial, except desinential in loc. sg.	<i>ďď</i> 'hell' <i>ráj</i> 'paradise' <i>plén</i> 'captivity' (30)		<i>svjáz'</i> 'connection' <i>ďďl'</i> 'distance' <i>pýl'</i> 'dust' (8)	
(cb) Initial in sg., desinence elsewhere.	<i>vécer</i> 'evening' <i>béreg</i> 'shore' (250)	<i>zérkalo</i> 'mirror' <i>móre</i> 'sea' <i>vrémja</i> 'time' (20)		
(cγ) Initial in sg. and nom. pl., desinence elsewhere.	<i>vólk</i> 'wolf' <i>lěbď</i> 'swan' <i>vólos</i> 'hair' (50)	<i>oko</i> 'eye' <i>úzo</i> 'ear' (2)	<i>nóč'</i> 'night' <i>tén'</i> 'shadow' <i>plóšćad'</i> 'square' (80)	
(cđ) Initial acc. sg. and nom. pl., desinence elsewhere.				<i>borodá</i> 'beard' <i>ruká</i> 'hand' <i>gorá</i> 'mountain' (18)
(ce) Initial nom. pl., desinence elsewhere.	<i>gvozd'</i> 'nail' <i>kón'</i> 'horse' (5)	<i>plěćo</i> 'shoulder' <i>tavró</i> 'brand' (3)		<i>skovorodá</i> 'pan' <i>gubá</i> 'lip' <i>slezá</i> 'tear' (40)
(d) Pre-desinential in pl., desinence elsewhere.	<i>kazák</i> 'Cossack' <i>líst</i> (pl. <i>líst'ja</i> ) 'leaf' (14)	<i>kolesó</i> 'wheel' <i>pis'mó</i> 'letter' (70)		<i>kolbasá</i> 'sausage' <i>zvezďá</i> 'star' (185)
(e) Initial in acc. sg., pre-desinential in pl., desinence elsewhere.	<i>kólos</i> 'ear of grain' <i>pólos</i> 'runner' <i>ďbóď</i> 'rim' (5)	<i>ózero</i> 'lake' <i>snámja</i> 'banner' (2)		<i>vodá</i> 'water' <i>dušá</i> 'soul' (13)

TABLE 4. Stress in noun inflection.

entry. In historical studies of the Slavic accent, such stems have been referred to as acute. Given the rules developed to this point, such nouns will exhibit stress on the same vowel in all declensional forms, except where the inherently stressed vowel happens to be a yer. In those cases the stress will shift to pre-yer position, whenever the inherently stressed yer is deleted. Suffixed nouns will be treated in much the same fashion, except that I shall allow for the possibility that the process of suffixation may remove an inherent stress from the stem.

This last remark also provides some insight into the way in which I propose to handle the remaining accentual paradigms. I propose to argue that the stems of nouns belonging to these paradigms are entered in the lexicon without inherent stress. The stress in these nouns will then be assigned by various rules, which now need to be studied in detail.

The first class of nouns to be considered is made up of those that have traditionally been termed oxytone; i.e., nouns which in all (non-zero) case forms have the stress on the first or only vowel or on the desinence. To account for these cases, I propose the OXYTONE rule, which assigns stress to the final vowel

(or in certain case forms, e.g. the instr. pl., to the pre-final vowel) in words containing stems with no inherent stress:

- (2)  $V \rightarrow [+Stress] / X \text{ --- } (+C^*V^*)$   
 where  $X$  contains no  $[+S]$ , and  $(+C^*V^*)$  represents specially marked suffixes.

It is important to observe that, if a noun lacks inherent stress, it is subject to the Oxy rule. This is strictly true of about 6.5 percent of the noun stems in the language (cf. Table 4, b). In the remaining 3.5 percent of the nouns, the Oxy rule applies at least in one case form (the so-called second locative), and usually in several other forms as well; but in other case forms, stress is not on the desinence but on some other vowel. There are three patterns of accentual alternation: the stress alternates between the desinence and the first syllable of the word, between the desinence and the pre-desinential syllable, or between the desinence and the first syllable in some case forms and the pre-desinential syllable in others.

In rows  $\alpha$ – $\epsilon$  of Table 4, I have collected the accentual paradigms with an alternation between desinential stress in some case forms and initial stress in others. These paradigms have traditionally been referred to as circumflex. As noted above, it is among the ‘circumflex’ nouns that we find examples of stress on the preposition; but in modern Russian this is a marginal phenomenon: stress normally goes on the initial syllable of the word proper. We already possess most of the machinery required to place stress on the initial syllable, namely, the Circumflex rule, which places stress on the initial syllable unless the form has received stress by some prior rule. Given the rules proposed so far, there is a very simple means to insure that a form receives initial stress: a form that has a stem without inherent stress will receive initial stress if it is exempted from the Oxy rule. We need, therefore, to add some machinery to the grammar which will exempt particular case forms from the Oxy rule.

The machinery that I propose is the BLOCKING rule. This rule is part of the word-formation component (re-adjustment rules), and thus not part of the phonology proper. Its effect is to mark a particular case form as being an exception to the Oxy rule. Which case forms are marked  $[-Oxy]$ , if any, is an idiosyncratic property of each noun. The cases marked  $[-Oxy]$  by the Blocking rule have traditionally been called WEAK CASES, opposed to the STRONG CASES which are  $[+Oxy]$ . As indicated in rows  $(\alpha)$  to  $(\epsilon)$ , we distinguish five patterns. We note at the outset that loc. sg. forms with the desinences  $-u$  or  $-i$  (e.g. *v plenú* ‘in captivity’, *v dálí* ‘in the distance’) are never subject to the Blocking rule and hence are never  $[-Oxy]$ . In the examples in  $(\alpha)$ , all forms except the loc. sg. are marked  $[-Oxy]$ ; in those under  $(\beta)$ , all singular forms are so marked; in those under  $(\gamma)$ , it is all singular forms plus the nom. pl.; in those under  $(\delta)$ ,  $[-Oxy]$  are the acc. sg. and the nom. pl.; and in those under  $(\epsilon)$ , it is only the nom. pl. forms that are  $[-Oxy]$ .<sup>5</sup>

<sup>5</sup> It is worth noting that whether a form is marked  $[-Oxy]$  is determined neither by the stem nor by the desinential suffix alone, but rather by both jointly—i.e. by the word as a whole. Thus the stem *ruk* ‘hand’ is not  $[-Oxy]$  (cf. the gen. sg. *ruki*); nor is it true in general of the acc. sg. suffix  $-u$  that it renders words  $[-Oxy]$  (cf.  $[\text{žen}+\acute{u}]$ ). It is the acc. sg. form  $[\text{rú}k+u]$  that is  $[-Oxy]$ .

An inspection of these rows reveals that ( $\gamma$ ) is in complementary distribution with ( $\delta$ ); i.e., feminine nouns in *-a* are [-Oxy] in only one sg. form, namely the acc. Moreover, when these nouns are [-Oxy] in the acc. sg., they are also [-Oxy] in the nom. pl. Feminine nouns in *-a* thus have no counterparts to ( $\alpha$ ) and ( $\beta$ ). Characteristically, nouns belonging to other declension patterns are extremely rare in ( $\delta$ ) and ( $\epsilon$ ): there are no such nouns in ( $\delta$ ), and according to *Zaliznjak*, only 8 in ( $\epsilon$ ):

- (3) *kon'* 'horse', *gvozď* 'nail', *gruzď* 'milk agaric (a mushroom)', *červ'* 'worm', *ugol'* 'coal'; *plečo* 'shoulder', *tavro* 'brand', *kryl'co* 'porch'.

We may, therefore, conclude that accentual patterns ( $\delta$ ) and ( $\epsilon$ ) are essentially limited to feminine nouns in *-a*, whereas ( $\beta$ ) and ( $\gamma$ ) are characteristic of the other classes of nouns.

It may have been observed that the rules developed to this point allow for an alternative treatment of the cases in ( $\alpha$ ). We may postulate that the loc. sg. desinences *-u* and *-i* possess inherent stress. In that case, the stems in ( $\alpha$ ) could be entered in the lexicon with inherent stress. Our rules would produce a form with desinential stress from either of these strings:

- (4) (a) [plen+u]      (b) [plen+ú] 'captivity'.  
[+Oxy]

The decision in favor of 4a over 4b is due to the fact that, when the stems in row ( $\alpha$ ) figure in other words, they affect the stress placement there like non-acute rather than like acute stems; e.g., the verb *plenít'* 'capture', which has the same stem as the noun in 4, shows desinential rather than stem stress in all its forms. This follows automatically by our rules if the stem is entered in the lexicon without inherent stress (i.e., non-acute). *Zaliznjak* lists the following nouns as belonging to row ( $\alpha$ ):

- (5) *torg*, *ad*, *čad*, *bred*, *pod*, *raj*, *mel*, *mol*, *pyl*, *plen*, *žar*, *mir*, *jar*, *cvet*, *rant*,  
*byt*, *vol't*, *pax*, *pux*, *plac*, *xmel'*, *gaz*, *klej*, *gnoj*, *sok*, *mys*, *svet*, *tif*,  
*šljax*, *povod*, *veter*, *glub'*, *grjaz'*, *dal'*, *mel'*, *pyl'*, *tiš'*, *svjaz'*.

A noun such as *mir* 'peace' can be assumed to have inherent stress; or, like *plen* 'captivity' in 4a, it may be assumed to have no inherent stress—but unlike *plen*, it must then also be subject to the Blocking rule. As this noun has neither plural nor loc. sg. forms, the decision cannot be made on the basis of the evidence provided by the nominal declension, but must be sought in the accentuation of other words with the same stem. The accentuation of these forms strongly argues for assuming that, like *plen*, the stem *mir* has no inherent stress.

**2.2. EXCURSUS: THE ACCENTUATION OF CLITICS IN MEDIEVAL RUSSIAN.** The treatment of the 'circumflex' words proposed above receives support from a review of certain accentual facts of Medieval Russian as well as other Slavic languages, which recently have been discussed by the Russian linguist V. A. Dybo. Dybo 1972 investigates in detail the distribution of stress in a 14th century Gospel manuscript, the so-called *Čudovskij Novyj Zavet*. Of his many important observations, two are of special interest to us. First, he finds that in the 14th century the stress on the preposition of circumflex forms was quite general. It should be noted that only specific case forms of particular nouns are

'circumflex', and only such forms have prepositional stress. Thus, Dybo quotes singular-plural pairs such as these, where only the singular has stress on the preposition:

- (6) *pó gradu* 'through the town', *po gradóm* 'through the towns'.

Second, and even more important, when a circumflex form is followed by an enclitic, the enclitic gets the stress, and this happens regardless of whether or not the circumflex form is preceded by a preposition. As Dybo (1971:93) notes, in a phrase 'that includes proclitics as well as enclitics, the stress was always shifted onto the enclitic'. In 7 below I have copied a few relevant examples from Dybo 1972; the numbers in parentheses refer to the location of the example in the Čudov Gospel, a work that has not been accessible to me directly.

- (7) *vó dni* (85<sup>2</sup>) 'in the days', *vo dni tý* (4<sup>1</sup>) 'in those days'; *ná zeml'ju* (61<sup>2</sup>) 'on land', *zeml'á* (144<sup>3</sup>) 'on land', *zem tú* (161<sup>2</sup>) 'that land'; *v plot'í že* (103<sup>2</sup>) 'in the flesh, indeed', *plot'ju žé* (102<sup>4</sup>) '(with) the flesh, indeed'.

In view of the facts just reviewed, what additional machinery is required for placing stress on the enclitic? The answer to this question turns out to be 'none'; the rules developed to this point will handle all examples correctly, provided only that we make certain not implausible assumptions about the input forms and about the way the rules operate. We shall assume that the Oxy rule is generalized so as to apply also to sequences in which X contains clitic boundaries. We assume, furthermore, that the Oxy rule applies cyclically, whereas the Circumflex rule applies only once at the level of the 'big' word, i.e., to the word with all its clitics (prepositions, post-positives, enclitics). Finally we assume that the phrases containing clitics have constituent structures as shown in the top line of Table 5.

The derivation of the last three stress contours in Table 5 is of some interest, since it illustrates a general principle of rule application which in recent discussions has been termed STRICT CYCLICITY (see Kean 1971). The principle states, in effect, that if a string S falls within the domain of a cyclically ordered rule R, the string S may undergo R on a subsequent pass through the cycle only if S constitutes part of a longer string PST in which P and/or T are required by the rule R to be non-empty. The Oxy rule does not re-apply to the string *dni* in *vo dni* on the second pass through the cycle, because the Oxy rule failed to apply to the string *dni* on the first pass, and on the second pass *dni* is not part of a longer string where T is non-empty. (On the second pass, P is non-empty

	[[#zemlja#]bo#]	[[#zem#]tu#]	[#vo[#dni#]]	[#vo[[#dni#]ty#]]
BLOCKING	—	—Oxy	—Oxy	—Oxy
OXY	á	—	—	—
OXY	—	tú	—	tý
CIRCUM	—	—	vó	—
		Third cycle is vacuous		
OUTPUT	[zemljá bo] 'the earth, then'	[zem tú] 'this earth' (acc. sg.)	[vó dni] 'in days'	[vo dni tý 'in those days'

TABLE 5

[i.e. P = *vo*], but this is irrelevant since the Oxy rule does NOT require that P be non-empty.) On the other hand, T is non-empty on the second pass through the cycle in the derivation of *zem tu* and *vo dni ty*; the Oxy rule applies to these strings on the second pass through the cycle, in spite of the fact that it was blocked in applying to the substrings *zem* and *dni* on the first pass.

**2.3.** Returning now to the stress pattern in the Russian nominal declension, we note that the nouns in Table 4, row (d), have desinential stress in the singular and pre-desinential stress in the plural. The stress pattern of a noun such as *koleso* 'wheel' is thus not symmetrical to that of a noun such as *zerkalo* 'mirror' (row cβ); in the latter the alternation is not between desinential and pre-desinential stress, but rather between desinential and initial. I conclude from this (following Coats 1970) that the nouns in row (d) must be handled by a different mechanism than those in  $c\alpha-\epsilon$ . The mechanism that I propose is the METATONY rule, which applies after the S-Distribution rule and changes the last vowel from [+S] to [-S]:

$$(8) [V] \rightarrow [-S] / [X \text{ --- } (+C^*V^*)]$$

where (+C\*V\*) represents certain specially marked suffixes.

This rule is what Lakoff has called a minor rule, in that it applies only to specifically marked forms. Thus, the Metatony rule applies to plural forms of a small class of nouns (about 1 percent of the total). I shall assume that a special rule in the morphology analogous to the Blocking rule marks all plural forms of certain designated nouns as [+Metatony]: this is the RETRACTION rule.

The handful of nouns in row (e) are subject both to Blocking and Retraction. In nouns with monosyllabic stems, such as *voda* 'water' or *kosa* 'scythe', the stress on the stem is thus caused by different rules. In the acc. sg., the stem stress is caused by the Circumflex rule, in the plural forms by the Oxy rule modified by Metatony. This fact should have observable phonetic effects in the dialects where neo-acute  $\acute{o}$  is phonetically distinguished from other instances of *o*. We should expect to find the nom. pl. forms *kósy vódy* with the neo-acute  $\acute{o}$ , but acc. sg. forms *kósu vódu* with the normal Russian *o*. I have been unable to find relevant examples in the few dialectological studies that I have had the time to examine. However, Roman Jakobson has drawn my attention to Durnovo 1932, where the nom. pl. *vody* transcribed with the 'kamora,' the traditional diacritic mark for the neo-acute  $\acute{o}$ , is reported to occur (once only) in a 14th century manuscript from Pskov.

This completes our account of the stress patterns found in the nominal declension, except for the following facts. As noted in §1 above, when a yer with potential stress is deleted, the stress is shifted to the preceding syllable:<sup>6</sup>

(9) <i>otcá</i> [ótéc+á]	<i>otéc</i> [ótéc+é]	'father' (gen. sg. and pl.)
<i>kól'ca</i> [kólíc+a]	<i>koléc</i> [kólíc+ɛ]	'ring' (nom. and gen. pl.)
<i>veretěna</i> [vérétén+a]	<i>veretěn</i> [vérétén+ɛ]	'spindle' (nom. and gen. pl.)

But the nouns below, which have underlying representations parallel to those above, do not exhibit the same stress patterns. Instead, in forms with a yer

<sup>6</sup> The nouns *kol'có* 'ring', *pis'mó* 'letter', *veretenó* 'spindle', *remesló* 'trade' are subject to Metatony in the plural.

	[uzɫɪ+ɤ]	[uzɫɪ+a]
OXY	S	S
S-DISTR	S S	S S
METATONY-B	-S	
METATONY		
NEO-ACUTE		
VOWEL TRUNC		
YER <sup>7</sup>	e ø	ø
DESTRESS		-S
CIRCUM		
AKAN'E	i	
OTHER RULES	[úɫ,il] 'knot'	[uzɫá] 'knot' (gen. sg.)

TABLE 6

desinence (middle column), the stress is retracted an additional syllable toward the beginning of the word:

- (10) *uzlá* [úɫɫɪ+á]      *úzel* [úɫɫɪ+ɪ]      'knot' (gen. and nom. sg.)
- pís'ma* [písɫm+a]      *písem* [písɫm+ɤ]      'letter' (nom. and gen. pl.)
- reměsla* [rémésɫɪ+a]      *reměsel* [rémésɫɪ+ɤ]      'trade' (nom. and gen. pl.)

As shown in Table 6, it would be possible to account for the forms in the middle column of 10 if we had a rule identical with Metatony except that it destressed the penultimate, rather than the last, vowel of the word. I shall label this rule METATONY-B.

The Metatony-B rule is very similar to the Metatony rule, and can in fact be combined with it into a single rule by means of the normal notational conventions of phonology:<sup>7</sup>

- (11) a. Metatony-B:       $V \rightarrow [-S] / \left[ X \left[ \left\{ \begin{matrix} \bar{b} \\ \bar{ɤ} \end{matrix} \right\} \right] C_0 \left\{ \begin{matrix} b \\ ɤ \end{matrix} \right\} \right]$
- b. Metatony:       $V \rightarrow [-S] / [X \text{---}]$
- c. Combined rule:       $V \rightarrow [-S] / [X \left[ \left( \left\{ \begin{matrix} \bar{b} \\ \bar{ɤ} \end{matrix} \right\} \right)_a \right] C_0 \left( \left\{ \begin{matrix} b \\ ɤ \end{matrix} \right\} \right)_b]$

Condition: a if and only if b.

It will be recalled that, in the statement of the Metatony rule, I included certain specifically marked word-final suffixes. Since these suffixes never occur after two consecutive yer syllables, the final version of the combined Metatony rule can be given as follows:

- (12)  $V \rightarrow [-S] / [X \left[ \left( \left\{ \begin{matrix} \bar{b} \\ \bar{ɤ} \end{matrix} \right\} \right)_a \right] C_0 \left( \left\{ \begin{matrix} b \\ ɤ \end{matrix} \right\} \right)_b (+C^*V^*)$

Condition: a if and only if b. (+C\*V\*) represents specifically marked suffixes.

<sup>7</sup> In Halle 1971c I gave a somewhat different solution to these facts: I proposed there to deal with them by means of a rule that was quite unlike the Metatony rule. I believe that solution is inferior to the one proposed here, as it fails to allow for a simple and straightforward explanation for the introduction of the two Metatony rules into the language.

It was noted above that Metatony is a minor rule, and that therefore only words specifically marked [+Metatony] by the Retraction rule will be subject to it. By incorporating Metatony-B into the Metatony rule, we imply the following: if a word is subject to Metatony in the plural, and if any of its plural forms satisfy the conditions of Metatony-B, then these forms will undergo Metatony-B—i.e., will destress the penultimate rather than the final vowel. Note that one and the same form may be subject to only one of these two disjunctively ordered rules. This prediction is borne out by the data in the majority of cases, which behave like those in (10). The exceptions known to me are (all gen.pl.):

- (13) *kopěn* 'rick', *ovéc* 'sheep', *seměj* 'family', *sestěr* 'sister', *sviněj* 'pig',  
*zeměl'* 'land', *beréc* 'tibia', *guměn* 'threshing floor', *jačc* 'egg', *okón*  
 'window', *koléc* 'ring'.

These gen. pl. forms are treated by marking them as exceptions to Metatony. Contrast these with words such as *úzel* 'knot', *úgol* 'corner', *úgol'* 'coal', *ugór'* 'eel', which are subject to Metatony only in the nom. sg. The fact that they are subject to Metatony-B is an automatic consequence of the phonological composition of their terminations.

I have dwelt on these consequences of the introduction of Metatony-B at such length because these are far from obvious results of the theoretical apparatus of phonology—in particular, of the conventions on rule ordering. These conventions have been subjected to serious questioning in recent times. The replacement of one set of conventions by another represents progress only when the new set is capable of handling substantially all the data that were handled properly by the old set, in addition to being able to handle data that exceeded the reach of the old set. It is necessary, therefore, to make sure that examples such as the above are not overlooked when suggestions are made about replacing one set of conventions by another.

It is worth remarking, finally, that by extending Metatony to the penultimate vowel when the last two vowels of the word are yers, one significant possibility of stress shift within a declensional paradigm is eliminated. In other words, the examples in 10, unlike those in 9, have stress on the same syllable ('columnar stress') in all forms of the plural paradigm. Recent work by S. Anderson, J. Harris, P. Kiparsky, C. Kisseberth, and others has brought out the important influence that surface regularities may exercise on the nature of the rules in a grammar. The treatment of the nouns in 10 provides a further example of this sort of paradigm pressure.

3. In the discussion of the accentual patterns in nominal declension, need has been established for the following rules in the order given:

- (14) Blocking } re-adjustment rules  
 Retraction }  
 Oxy (cyclic)  
 S-Distribution  
 Metatony

(Neo-acute)  
 Vowel Truncation  
 Yer rules  
 Destressing  
 Circumflex  
 Neutralization: Akan'e

I shall next subject these rules to the test of whether or not they succeed in capturing the regularities in the accentuation of adjectives, taking into consideration both the long and the short forms. To begin with, there are exact correspondences to the acute stems in the nouns—i.e., adjectives that have stem stress on the same syllable of the stem in all long and short forms:

- (15) *vjályj* 'limp', *pégij* 'skewbald', *járyj* 'ardent', *léstnyj* 'flattering', *ályj* 'scarlet', *dívnyj* 'marvelous', *spórnij* 'questionable' (total about 17,650 adjectives.)

The next class of adjectives corresponds to the oxytone nouns. In this class all forms (long and short) have stress on the desinence. The class is rather small, containing only 8 adjectives:<sup>8</sup>

- (16) *zlój* 'malicious', *rodnój* 'native', *čudnój* 'strange', *blažnój* 'capricious', *smešnój* 'funny', *šal'nój* 'mad', *xmel'nój* 'inebriated', *bol'nój* 'ill'.

Some of these adjectives lack certain short forms. Thus the short masculine and neuter forms of *blažnój* 'capricious', *šal'nój* 'mad', *rodnój* 'native' are not attested. The short masculine form of *bol'nój*, *bólen* 'ill' in place of the expected \**bolěn*, can readily be accounted for by assuming that it is subject to Metatony-B.

The third class of adjectives shows alternations between desinential and initial stress. These correspond, therefore, to the nouns in Table 4, rows *ca-ε*. It must be noted that the counterparts to the weak cases in the nouns are the masculine, neuter, and plural forms of the short adjectives; i.e., only short forms are subject to the Blocking rule, and are thereby exempt from the Oxy rule so that they will receive initial stress by the Circumflex rule. The long forms all have desinential stress in this class. We obtain therefore this stress pattern:

- (17) *dórog* 'dear' (m.sg.), *dórogo* (n.sg.), *dórogi* (pl.); but *dorogá* (f.sg.), *dorogój* (nom. sg. m. long).

Since no long forms of adjectives are subject to the Blocking rule, there are no alternations between desinential and initial stress in the declensional paradigm of the long forms. In the class under discussion, this means that long forms always have desinential stress. Zaliznjak (170) lists the following adjectives as belonging to this class, including both monosyllabic and polysyllabic stems:

- (18) *dorogój*, *molodój*, *razvitój*, *xolostój*, *udalój*, *driannój*, *durnój*,<sup>9</sup> *rjabój*,

<sup>8</sup> A large number of adjectives (900, according to Zaliznjak) have desinential stress in their long forms, but no attested short forms. These adjectives will have to be listed in the lexicon with stems that are stressless—i.e., treated exactly like those in 16.

<sup>9</sup> The masculine short forms of *drjannój* 'rotten' and *durnój* 'bad' are subject to Metatony. The short forms of *udalój* 'bold' are *udál udalá událo udályj*; these forms are exceptions, for one would have expected initial instead of predesinential stress. *Udalój* also has an alternative form with retracted stress: *udályj*.

*krivój, nagój, tugój, mladój, sedój, xudój, gnilój, xromój, prjamój, skupój, tupój, syrój, bosój, kosój, gustój, pustój, krutój, svjalój, lixój, gluxój, ploxoój, blagoój, prostój, syrój, živój, slepoój, nemój.*

The next class differs from those in 17 and 18 in that its long forms are subject to the Retraction rule which makes these forms undergo Metatony. This class exhibits the following stress patterns:

(19) Short forms: *xoroš xorošá xorošó xoroši* 'good'

Long forms: *xorošij xorošaja xorošee* (Stress in long forms fixed on pre-desinential syllable.)

This class is much more numerous than the two classes of non-acute adjectives just reviewed; i.e., considerably more non-acute adjectives are subject to Metatony than are not subject to it. The examples below have short forms with desinential stress, except for *lěgkij* 'light', *rávnij* 'equal', *vól'nyj* 'free', *korótkij* 'short', which are subject to Metatony-B in their masculine short forms:

(20) *svéžij* 'fresh', *lěgkij* 'light', *rávnij* 'equal', *vól'nyj* 'free', *xorošij* 'good', *tjažělyj* 'heavy', *dalěkij* 'far', *glubókij* 'deep', *vysókij* 'tall', *korótkij* 'short'; and all participles in *-ěnnij*: *vljublěnnij* 'in love', *spasěnnij* 'saved' (total about 1080 adjectives).

The adjectives in 21, below, are subject to Blocking in their short forms except for the fem., and to Retraction in their long forms. This class is the second most numerous among the non-acute adjectives, containing about 250 adjectives and 75 participles in *-t*:

(21) *bělyj* 'white', *séryj* 'grey', *čistyj* 'clean', *dešěvyj* 'cheap', *golódnij* 'hungry', *vesělyj* 'merry', *xolódnij* 'cold', *zelěnyj* 'green', *solěnyj* 'salty'.<sup>10</sup>

The facts of adjective accentuation discussed in this section are summarized in Table 7, which corresponds closely to Table 4, where the accentuation of nouns was summarized. This correspondence is to be expected in the light of the preceding discussion, which has shown that the rules developed in §§1 and 2 above, to handle the accentuation of nouns, will also handle the adjectives. These data provide, therefore, important support for the system of rules proposed here.

4. The stress patterns found in the inflectional paradigms of verbs (conjugation) require no descriptive machinery (rules) in addition to that developed above, either. These facts must, therefore, be considered as further evidence in support of the solution proposed here.

Before reviewing the accentual data, it is necessary to describe briefly a few salient features of the Russian conjugation. Each verbal form consists of a stem and a number of suffixes; it may also contain one or more prefixes, but these play only a subsidiary role in the conjugation. The verb stem itself may be simple, consisting of a single morpheme, the root; or it may be complex, consisting of a root followed by a verbalizing suffix (see Halle 1963). Thus the past f.s.g. form

<sup>10</sup> Here we must also include the circumflex alternants of the following adjectives which were also listed above: *udályj* 'bold', *dalěkij* 'far', *velikij* 'great', *glubókij* 'deep', *širókij* 'wide', *vysókij* 'tall', *žestókij* 'cruel', *korótkij* 'short'. These have pre-desinential rather than initial stress in the m., n., and pl. short forms.

(a) stem in all forms.	<i>vjál</i>	<i>vjála</i>	<i>vjálo</i>	<i>vjály</i>	<i>vjályj</i>	'limp' (cf. 15)
(b) desinence in all forms.	<i>smešón</i>	<i>smešná</i>	<i>smešnó</i>	<i>smešný</i>	<i>smešnoj</i>	'funny' (cf. 16)
(c) initial in m., n., pl. short forms; desinence elsewhere.	<i>dórog</i>	<i>dorogá</i>	<i>dórogo</i>	<i>dórogi</i>	<i>dorogój</i>	'dear' (cf. 18)
(d) pre-desinential in long forms; desinence elsewhere.	<i>xoróš</i>	<i>xorošá</i>	<i>xorošó</i>	<i>xorošti</i>	<i>xoróšij</i>	'good' (cf. 20)
(e) initial in m., n., pl. short forms; pre-desinential in long forms; desinence elsewhere.	<i>vésel</i>	<i>veselá</i>	<i>véselo</i>	<i>vésely</i>	<i>vesělyj</i>	'merry' (cf. 21)

TABLE 7. Stress in adjective inflection.

[u = kaz + a + l + a] 'noted' consists of the prefix [u], the root [kaz], the verbalizing suffix [a], the past tense marker [l], and the f.sg. person-number desinence [a]. The past f.sg. form [u = nes + l + a] 'carried away', on the other hand, contains the same affixes as [u = kaz + a + l + a] except that its stem lacks a verbalizing suffix. Similarly, the present (future) form [u = nes + e + te] 'you (pl.) will carry away' consists of the prefix [u], the simple stem [nes], the present marker [e], and the 2pl. desinence [te]. Verbs that form the present tense without a verbalizing suffix exhibit stress patterns that are somewhat more varied than those of other verbs. I shall therefore first examine verbs of the former type, and only subsequently (in §4.2) extend the discussion to other verbs. Moreover, it is useful to restrict the discussion in the beginning to the present and past conjugation. In §4.3, I will survey the remaining forms of the verb.

4.1. As shown in Table 8, verbs that have a simple stem in their present forms exhibit four distinct stress patterns. The forms cited are the f.sg. past, pl. past, 1sg. present, and 2sg. present. The forms not cited have the same stress as the pl. past and the 2sg. present, respectively.

The stress pattern of *lezť* 'climb', in row (a), is characteristic of ACUTE words—i.e., of words which have a stressed vowel in their lexical representation. The 16 stems that exhibit fixed stress on the stem in all forms are:<sup>11</sup>

- (22) [br'áj], [po = č'áj], [v'áj], [kr'áj], [m'áj], [n'áj], [r'áj], [d'új], [ob = új],  
[d'ej + nu], [stáj + nu], [styj + nu], [t'ér], [pro = st'ér], [l'éz], [séd].

Verb stems ending with *-j* predominate in this class. There are, however, four stems that do not end with *-j* in this class. Moreover, as can be seen in 24 below, not all verbs with stems in *-j* have fixed stem stress.

<sup>11</sup> Capitalizing on a suggestion by Flier 1972, I analyse some of these verb stems as having the verbalizing suffix *-nu*. As I have shown in Halle 1971b, this makes it possible to account in a very simple fashion for the appearance of stem-final *v* in the derived imperfectives of these verbs: *razdevat'* 'undress', *ustavat'* 'tire', *zastyvat'* 'cool', as well as to eliminate an important flaw in the so-called consonant truncation rule of Russian. The underlying representation of the stems given here will be justified in detail in a study now in preparation. The lists of verbs in this section were prepared by H. G. Lunt for use in a public lecture, and I am grateful to him for allowing me to use them here.

## Stress on:

(a) stem in all forms.	<i>lézla</i>	<i>lézli</i>	<i>lézu</i>	<i>lézeš'</i>	'climb'
(b) desinence in all forms.	<i>vezlá</i>	<i>vezlí</i>	<i>vezú</i>	<i>vezěš'</i>	'transport'
(c) initial in past tense m., n., pl. forms; desinence else- where.	<i>žilá</i>	<i>žili</i>	<i>živú</i>	<i>živěš'</i>	'live'
(d) pre-desinential in past; des- inence elsewhere.	<i>krála</i>	<i>králi</i>	<i>kradú</i>	<i>kraděš'</i>	'steal'

TABLE 8. Stress in verb inflection, I.

Verbs with stress fixed on the desinence constitute the largest group. We assume that all present tense person endings except the 1sg. *-u* are among the specially marked suffixes that are disregarded by the Oxy and Metatony rules. Thus the stress in underlying representations of these forms will appear on the pre-final, rather than on the last, vowel; e.g., [pas+é+te] 'you graze', [sid+í+š] 'you sit'. The list of the 30 verbs belonging here is:

- (23) a. [bred], [ved], [bljud], [grend]; [gnet], [met], [plet], [ob=ret], [=čst], [raz=svet], [cvet]; [vez], [polz]; [nes], [pas], [trens], [rost]; [greb], [skreb], [jeb].  
 b. [žǝg], [bereg], [pre=ne=breg], [stereg]; [vlek], [pek], [-rek], [tek], [volok], [tolǝk].

This class is limited to stems ending with obstruents; almost all verbs with obstruent stems belong here.

The stress pattern of the verbs illustrated in Table 8, row (c), corresponds to that of the circumflex adjectives (cf. 17). We find here alternations between desinential and initial stress. These alternations are limited to the past tense and to the past passive participle forms which are most like the short forms of the adjective. The stems belonging to this class are:

- (24) [žiw], [plyw], [slyw], [gnij], [vǝj], [lǝj], [pǝj], [-mer], [-per], [-jǝm]; [bǝr+a], [dǝr+a], [vǝr+a], [žǝr+a], [zǝw+a], [rǝw+a], [žǝd+a], [lǝg+a], [tǝk+a], [sǝp+a] (verbalizing suffix *-a* in past forms only).

Finally, the stress pattern of *krasť* in Table 8, row (d), parallels that of the nouns and adjectives subject to Metatony (see Table 4, row (d), and 20 above). We found above that nouns are subject to Metatony only in the plural; similarly, adjectives are subject to Metatony only in their long forms. In verbs it is only the past forms that are subject to Metatony. The 14 verbs having this type of stress pattern are:

- (25) [bǝj], [šǝj], [poj]; [žǝn], [žǝm], [mǝn]; [klad], [krad], [pad], [prend]; [gryz]; [strig], [sek], [sǝl+a].

In addition to the verbs whose stress patterns are accounted for above, there are the seven verbs below which, like those just reviewed, lack a verbalizing suffix in the underlying representation of the present tense, but which exhibit stress patterns so far not encountered:

- (26) a. *moglá* *moglí* *mogú* *móžeš'* 'can'  
 b. *gnalá* *gnáli* *gonjú* *góniš'* 'drive'  
*sralá* *srali* *serú* *séreš'* 'shit'

c. <i>stlála</i>	<i>stláli</i>	<i>steljú</i>	<i>stéleš'</i>	'bed'
<i>poróla</i>	<i>poróli</i>	<i>porjú</i>	<i>póreš'</i>	'unstitch'
<i>molóla</i>	<i>molóli</i>	<i>meljú</i>	<i>méleš'</i>	'grind'
<i>kolóla</i>	<i>kolóli</i>	<i>koljú</i>	<i>kóleš'</i>	'stab'

The accentuation of the past forms here has already been encountered; 26a, 26b, and 26c can be treated precisely like rows (b), (c), and (d), respectively, of Table 8. The stress pattern of the present tense, on the other hand, is new; Table 8 contained no instances where the stress shifted from desinence to stem in the present. Since all stems are monosyllabic, we can account for the facts in one of two ways. We can say (a) that present forms are subject to the Blocking rule, and hence will receive initial stress by the Circumflex rule; or (b) that they are subject to the Retraction rule, and hence also to Metatony.

It is relatively easy to reject the first alternative, since unlike past forms that receive stress by the Circumflex rule, none of the present forms exhibits stress on the prefix; i.e., though we find such forms as *póžili* 'lived', *ólili* 'poured off' with prefixal stress, we do not find prefixal stress in present forms such as *\*pómožěš'*.

There is no difficulty in showing that the forms in question indeed undergo Metatony. It will be recalled that the terminal suffixes of the present forms, except the 1sg. *-u*, are among the specially marked suffixes disregarded by the Oxy and Metatony rules. The underlying representations of the present forms of the verb *\*moč'* 'can' appear, therefore, as follows:

(27) [mog+ú]	[mog+é+mɛ]
[mog+é+šɛ]	[mog+é+te]
[mog+é+tɛ]	[mog+ú+tɛ]

In order to obtain the correct output, we need only assume that the Retraction rule, which marks words as subject to Metatony, applies in all present forms except 1sg. We then obtain the correct stress contours with the derivations shown in Table 9.

This solution commends itself because of its great transparency and simplicity. It should, however, not be overlooked that the proposed solution fails to explain why the 1sg. form never undergoes Metatony. An alternative solution was, therefore, considered seriously. Briefly, the alternative solution assumed that only the 2pl. suffix *-te* was among the marked suffixes disregarded by the Oxy and Metatony rules. Second, it was assumed that, in the case of verbs, the conditions on Metatony-B were weakened so that any form ending in a yer could undergo Metatony-B. It was then assumed, as in the above solution, that in

	[mog+u]	[mog+e+te]	[mog+u+tɛ]
OXY	S	S	S
S-DISTR	S	S	S
METATONY	—	-S	-S
YER	—	—	∅
DESTRESS	-S	vacuous	vacuous
AKAN'E	a	i i	
OTHER RULES	[magú]	[móžyt,i]	[mógut]

TABLE 9

these verbs present forms other than the 1sg. were marked as subject to Metatony. Given these three assumptions, the correct outputs are readily obtained. Since the alternative solution did not obviate the need for having the Retraction rule apply only to some, but not all, present forms, I rejected it in favor of the solution sketched above.

**4.2.** Verbs that have verbalizing suffixes in the strings underlying their present forms exhibit the three stress patterns illustrated in Table 10. The forms cited are the f.sg. past, pl. past, 1sg. pres., and 2sg. pres.

Comparison of Table 10 with Table 8 reveals that the stress pattern illustrated here in row (a) corresponds to that of row (a) in Table 8, whereas row (b) here corresponds to row (d) in Table 8. Counterparts of rows (b)–(c) in Table 8 are lacking here.<sup>12</sup> We shall account for the existing stress pattern in the same fashion as above. Verbs having stress on the stem in all forms will be assumed to have such stress in their lexical representation; these are the acute stems. Verbs having pre-desinential stress in the past tense and desinential stress in the present tense, row (b), will be assumed to have stressless stems, and will be marked as subject to Metatony in the past tense. In fact, as row (c) shows, all verbs with stressless stems which have a verbalizing suffix in the strings underlying their present forms are subject to Metatony in the past tense. This accounts for the absence in Table 10 of counterparts to rows (b)–(c) of Table 8.

This leaves only the present-tense stress pattern of row (c) unaccounted for. Recall that similar shifts in the stress placement in the present tense were observed in the verbs cited in 26. They were explained there by assuming that the present forms, except for the 1sg., were subject to Metatony; the same assumption will be made here.

Since the matters dealt with in §4.3 are of a narrowly specialized character, readers primarily interested in following the main lines of the argument may wish to proceed to the more general §5.

**4.3.** I here conclude the review of verb accentuation by examining the role that accentuation plays in the remaining classes of verb forms.

**4.31. INFINITIVE.** Except for 19 of the 20 verbs listed in 23a, all Russian verbs take the suffix [tʲ] in the infinitive; the verbs in 23a, except [-čyt] 'count', take the suffix [ti]. It appears to me that the proper way of characterizing this difference is to incorporate into the phonology a minor rule which applies only to infinitives:

$$(28) [ɛ] \rightarrow [i] / [\#X \begin{bmatrix} +\text{obstruent} \\ +\text{coronal} \\ +\text{continuant} \end{bmatrix} +t \begin{bmatrix} \text{---} \\ +S \end{bmatrix} \#]$$

I assume that this rule applies after the rule that turns labial and dental obstruents into dental continuants [s z] in position before the infinitive suffix. Moreover, I assume that the verbs that are subject to Metatony in the past tense are also subject to Metatony in the infinitive. Given these assumptions, the correct

<sup>12</sup> The verb *rodit'* 'to give birth to' (perf.) is not subject to Metatony in the f. sg. past form. This verb, therefore, has stress alternations in the past tense much like the verbs in Table 8, row (c).

(a) stress on stem in all forms (cf. Table 8, row a).	<i>délala</i>	<i>délali</i>	<i>délaju</i>	<i>délaeš'</i>	'do'
	<i>rézala</i>	<i>rézali</i>	<i>réžu</i>	<i>réžeš'</i>	'cut'
	<i>prinúdila</i>	<i>prinúdili</i>	<i>prinúžu</i>	<i>prinúdiš'</i>	'force'
(b) pre-desinential stress in past; desinential stress elsewhere (cf. Table 8, row d).	<i>sidéla</i>	<i>sidéli</i>	<i>sižú</i>	<i>sidíš'</i>	'sit'
	<i>govoríla</i>	<i>govoríli</i>	<i>govorjú</i>	<i>govoríš'</i>	'speak'
	<i>stolknúla</i>	<i>stolknúli</i>	<i>stolknú</i>	<i>stolkněš'</i>	'clash'
(c) pre-desinential stress in past; mobile stress in present (cf. 26c).	<i>deržála</i>	<i>deržáli</i>	<i>deržú</i>	<i>déržiš'</i>	'hold'
	<i>ljubíla</i>	<i>ljubíli</i>	<i>ljubljú</i>	<i>ljúbíš'</i>	'love'
	<i>utonúla</i>	<i>utonúli</i>	<i>utonú</i>	<i>utóněš'</i>	'drown'

TABLE 10. Stress in verb inflection, II.

	[greb+тѣ] (cf. 23a)	[pad+тѣ] (cf. 25)
OXY	S	S
S-DISTR	S	S
METATONY	—	-S
[p t b d]→[s z]	z	z
RULE 28	i	—
YER	—	ø
DESTRESS	-S	
OTHER RULES	[gr,ist,í] 'row'	[pást,] 'fall'

TABLE 11

results are readily obtained with the help of the apparatus developed here as shown in Table 11.

**4.32. IMPERATIVE.** The imperative resembles the infinitive in that the choice of the suffix variant is given by a rule which crucially involves both stress and the morphological category of the word. The facts to be accounted for are the following. The imperative desinence is [i] except when the desinence is preceded by a single consonant and does not have stress, or when the verb stem ends with [j]; in the latter cases, the imperative desinence is [ɛ]. We shall account for this by means of a minor rule, restricted in its application to imperatives, which turns word-final [i] into [ɛ] in the cases just enumerated:

$$(29) [i] \rightarrow [ɛ] / [\#XV \left[ \begin{array}{c} -\text{sy}l \\ (+\text{cons})_a \end{array} \right] \left[ \begin{array}{c} \text{—} \\ (-S)_b \end{array} \right] \#]_i$$

Condition: if *a*, then *b*.

A number of words must be listed as exceptions to this. They include *tail'* 'to hide', *doiť* 'to milk', *kroiť* 'to cut to measure', *poiť* 'to water', and a few others.

Like 28, 29 is a fairly late rule in the grammar. It must follow not only Vowel Truncation and Metatony, but also the palatalization rule which turns labials into sequences of labial followed by [j], as shown by the fact that we get *koléblj* 'rock' instead of \**kolébl'*. It precedes, on the other hand, the Yer rule.<sup>13</sup>

<sup>13</sup> Jakobson 1971 has drawn attention to the fact that in Ukrainian the analog of rule 29 has been extended to the 1pl. and 2pl. forms, which in that language are represented by the enclitics *-mo* and *-te* respectively, added to the imperative singular form. The interesting fact pointed out by Jakobson is that when the truncation takes place in the imperative

**4.33. THE PARTICIPLES.** The simplest cases, from an accentological point of view, are the present passive and the past active participles. As shown below, their stress is completely correlated with whether or not the underlying stem has inherent stress. It will be recalled from the discussion above that the 1sg. present form reflects this property of the stem most directly: when the 1sg. has desinential stress, the stem lacks inherent stress. I have, therefore, given the 1sg. present form next to each participial form.

(30) Present passive participles:

- a. stressed stems: *učtyvaemyj, učtyvaju* 'consider'; *vidimyj, vížu* 'see'; *rekommendúemyj, rekommendúju* 'recommend'; *uvaždemyj, uvaždaju* 'honor'.  
 b. stressless stems: *unosťmyj, unošú* 'carry away'; *privozťmyj, privožu* 'bring'; *vedómyj, vedú* 'lead'; *vlekómyj, vlekú* 'draw'.

(31) Past active participles:

- a. stressed stems: *videvšij, vížu* 'see'; *lézšij, lézu* 'climb'; *razbrásvavšij, razbrásvaju* 'throw around'; *trébovavšij, trébuju* 'demand'.  
 b. stressless stems: *ljubtvšij, ljubljú* 'love'; *gorévšij, gorjú* 'burn'; *uvězšij, uvezú* 'transport away'; *uněššij, unesú* 'carry away'.

The stress of the participles with stressed stems is identical with that of the 1sg. present tense. On the other hand, the stress of participles with stressless stems does not correspond to that of the 1sg. present form. Whereas the 1sg. present form shows desinential stress, the participles show pre-desinential stress. These facts can be accounted for in two ways about equally well. The participles may be said to be subject to Metatony, which is plausible in view of the fact that the long forms of adjectives, with which participles are formally identical, are commonly

suffix *-i*, it does NOT take place in the enclitic, and vice versa. To illustrate this, he cites the following sets:

(a)	<i>rád'</i>	<i>rád'mo</i>	<i>rád'te</i>	'counsel'
	<i>kín'</i>	<i>kín'mo</i>	<i>kín'te</i>	'throw'
	<i>gráj</i>	<i>grájmo</i>	<i>grájte</i>	'play'.
(b)	<i>nesť</i>	<i>nesťm</i>	<i>nesťt</i>	'carry'
	<i>stúkně</i>	<i>stúkněm</i>	<i>stúknět</i>	'knock'
	<i>pidkrěslě</i>	<i>pidkrěslěm</i>	<i>pidkrěslět</i>	'underline'.

In order to account for this fact, it is only necessary to generalize rule 29 so that it applies to all vowels and also across clitic boundaries. Moreover, the counterpart of rule 29 (designated below as 29') and the Yer rules must be cyclic. The correct outputs are then obtained as shown below:

	[#rád+i#]	[[#rád+i#]mo#]	[#nes+i#]	[[#nes+i#]te#]	[[#stúk+n+i#]+mo#]
OXY	—	—	S	S	—
S-DISTR	—	—	S	S	—
V → ɔ (29')	ɔ	ɔ	—	—	—
YER	∅	∅	—	—	—
OXY	—	—	—	—	—
S-DISTR	—	—	—	—	—
V → ɔ (29')	—	—	—	ɔ	ɔ
YER	—	—	—	∅	∅
OTHER RULES	<i>rád'</i>	<i>rád'mo</i>	<i>nesť</i>	<i>nesťt'</i>	<i>stúkněm</i>

subject to Metatony.<sup>14</sup> But the same facts may also be accounted for by postulating constituent structure for these participles, as follows:

- (32) [[víd+i+m]+oj] 'to be seen'  
 [[u+nos+i+m]+oj] 'to be carried away'  
 [[ljub+i+vš]+oj] 'having loved'

It was noted above (see §2.2) that the Oxy rule must apply cyclically. On this assumption, the Oxy rule would assign stress on the first pass through the cycle to the [i] in *unosťmyj* 'to be carried away' and *ljubwšij* 'having loved', but would leave *vidimyj* 'to be seen' unaffected because of its inherent stress. On the second pass through the cycle, stress in all three words would remain where it was at the end of the first cycle, and the correct contour would thus be generated. The disadvantage with this second proposal is that we possess no independent motivation for postulating constituent structure in participles, and the stress facts alone can readily be handled without constituent structure.

The situation is somewhat more favorable with regard to assuming constituent structure in the case of the present active participles. As shown below, present active participles are like the two types just reviewed in that they have stress on the stem whenever it is inherently stressed. When the stem is not inherently stressed, the participle may have stress either on the participial suffix or on the syllable preceding the participial suffix.<sup>15</sup>

- (33) a. stressed stems: *vérjaščij*, *vérju* 'believe'; *pénjaščij*, *pénju* 'foam';  
*čitájuščij*, *čitáju* 'read'; *besédujuščij*, *beséduju* 'converse'.  
 b. stressless stems:  
 (α) suffixal stress in participle: *nosjáščij*, *nošú* 'carry'; *droždščij*,  
*drožú* 'shake'; *sidjáščij*, *sižú* 'sit'; *letjáščij*, *lečú* 'fly'; *kurjáščij*,  
*kurjú* 'smoke'; *učáščij*, *učú* 'teach' (where the last three verbs  
 are subject to Metatony in present forms other than 1sg.)  
 (β) pre-suffixal stress: *píšuščij*, *píšú* 'write'; *xlopóčuščij*, *xlopóču*  
*'bustle'; ljubjaščij*, *ljubljú* 'love' (all verbs in this class are  
 subject to Metatony in present forms other than 1sg.)

While the participles in 33b(α) can be treated by either of the two methods proposed above for the participles in 30–31, the same is not true for the participles in 33b(β). Given the rules as developed to this point, a string such as [ljub+i+a+šč+oj] 'loving' would receive desinential stress by the Oxy rule.<sup>16</sup>

<sup>14</sup> In fact, in contemporary literary Russian there are no long forms of the participle with desinential stress. A form such as *razvitój* 'developed', e.g., is listed by Avanesov & Ožegov 1959 as an adjective opposed to the participle *razvityj*, which has pre-desinential stress.

<sup>15</sup> It is important to make explicit what is often obscured in our standard grammars: many verbs that show stress movement in the present tense (e.g. *ljubít'* 'love') have pre-suffixal stress in the participle, but a large number of such verbs (e.g. *kurít'* 'smoke') have suffixal stress in the participle. The oft-repeated statement that stress in the present active participle falls on the same syllable as in the 3pl. form of the present tense is, thus, empirically false.

<sup>16</sup> The underlying representations here and below cannot be motivated in this study. I hope to discuss this topic in a separate study.

The Metatony rule would retract stress to the pre-desinential syllable, producing the incorrect output \**ljubjdščij*.

In order to retract the stress to the antepenult, it would be necessary to generalize the Metatony rule in a totally unmotivated fashion. This intrinsically unmotivated modification of the Metatony rule can be avoided by adopting the second alternative discussed above, i.e. by assuming that present active participles have constituent structure as shown below and that the Metatony rule is cyclic.

- (34) a. [[*vér+i+a+šč*]+*oj*] 'believing'  
 b. ( $\alpha$ ) [[*nos+i+a+šč*]+*oj*] 'carrying'  
       ( $\beta$ ) [[*ljub+i+a+šč*]+*oj*] 'loving'.

The Oxy rule will assign stress to the suffix *-á* in both  $b(\alpha)$  and  $b(\beta)$ . The difference between ( $\alpha$ ) and ( $\beta$ ) is caused by the fact that the latter is subject to Metatony (a typically idiosyncratic property of words, as seen in the discussion of the different inflectional paradigms above), whereas the former is not.

The choice between the two solutions just sketched thus reduces to a choice between, on the one hand, adding an otherwise unmotivated environment to the Metatony rule, and, on the other, postulating internal constituent structure for some participles and allowing some additional phonological rules (in particular, Metatony) to apply cyclically. I prefer the second solution because it seems to me plausible on general grounds that words may (but need not) have internal constituent structure. Moreover, the assumption of internal constituent structure in certain words in English has provided accounts for extremely subtle accentual phenomena which otherwise would remain totally unexplained (cf. Chomsky & Halle 1968, Halle & Keyser 1971). I shall further motivate the assumption of constituent structure in words by showing that it also makes possible the accounting for other, fairly complex, accentual facts in modern Russian (cf. §5 below, esp. §5.2).

The past passive participle is formed with the help of one of three suffixes: *-n*, *-en*, and *-t*. Since the past passive participle short forms of many verbs are in common use, the data on which I base my conclusion are somewhat richer than that for the other participles, where short forms are at best fairly unusual. In examples below I cite, therefore, also the f.sg. and the pl. short forms of the participle. The suffix *-n* is used with verbs that have stems ending with the sequence *-a(j)*. The past passive participles exhibit stress as shown in Table 12.

The participles in sections a–b show fixed pre-suffixal stress in both short and long forms, regardless of whether or not the stem is stressed. This can be handled quite simply by the machinery already developed. I postulate that the participles formed with the suffix *-n* have internal constituent structure and are, moreover, subject to Metatony. The stress contours are then derived as in Table 13.

The participles in section c, Table 12, are exceptional in that they are formed without constituent structure. Moreover, the base verb *daj-* is subject to the Circumflex rule in the weak forms of the past tense (all except f.sg.)—and this is carried over to the past passive participle, where not only the weak short forms, but also all long forms, are subject to Circumflex. (That it is indeed the Circumflex rule rather than Metatony that is at work here is shown by the initial stress



## a. stressed stems:

<i>otméčennyyj</i>	<i>otméčena</i>	<i>otméčenyj</i>	<i>otméču</i>	'note'
<i>obíženyyj</i>	<i>obížena</i>	<i>obíženyj</i>	<i>obížu</i>	'offend'

## b. stressless stems (none subject to Metatony in present tense):

<i>ugovorěnnyyj</i>	<i>ugovorená</i>	<i>ugovorenýj</i>	<i>ugovorjú</i>	'persuade'
<i>razdelěnnyyj</i>	<i>razdelená</i>	<i>razdelenýj</i>	<i>razdeljú</i>	'divide'
<i>sberežěnnyyj</i>	<i>sberežená</i>	<i>sbereženyj</i>	<i>sberegú</i>	'save'
<i>privežěnnyyj</i>	<i>privežená</i>	<i>priveženyj</i>	<i>privezú</i>	'bring'

## c. stressless stems (starred verbs are subject to Metatony in present tense; unstarred verbs are not subject to Metatony in present tense):

<i>kúplennyyj</i>	<i>kúpłena</i>	<i>kúplenyj</i>	* <i>kupljú</i>	'buy'
<i>očiščennyyj</i>	<i>očiščena</i>	<i>očiščenyj</i>	* <i>očiščú</i>	'clean'
<i>ukrádennyyj</i>	<i>ukrádena</i>	<i>ukrádenyj</i>	<i>ukradú</i>	'steal'
<i>zasíženyyj</i>	<i>zasížena</i>	<i>zasíženyj</i>	<i>zasižú</i>	'sit up late'
<i>skóšennyyj</i>	<i>skóšena</i>	<i>skóšenyj</i>	<i>skošú</i>	'mow'

TABLE 14

As discussed above, such forms are readily handled by postulating constituent structure as shown below, and marking the forms as subject to Metatony.

(36) [[u+krad+en]+a] 'stolen', [[kup+i+en]+a] 'bought'.

The stress contours of the words will then be derived in a manner exactly paralleling those illustrated in Table 13.

In sum, participles formed with the suffix *-en* are of two types: a majority appears to have no internal constituent structure; but a minority has internal constituent structure and is subject to Metatony.

The passive participles formed with the suffix *-t* are best considered in two groups: those formed from verbs with the verbalizing suffix *-nu*, and those formed from simple verbs ending with a sonorant consonant or glide. The participles formed from verbs with *-nu* behave precisely like the participles formed with the suffix *-n*: see Table 12, (a)–(b). As shown below, the stress in the participle is placed uniformly on the pre-suffixal syllable, regardless of whether the stem has inherent stress or not:

(37) a. stressed stems: *zaxlópnutyj*, *zaxlópnu* 'slam'; *prosúnutyj*, *prosúnnu* 'put through'; *rastórgnutyj*, *rastórgnu* 'cancel'.

b. stressless stems: *natjánutyj*, *natjanú* 'tense'; *zátknutyj*, *zatknú* 'plug'; *sómknutyj*, *somknú* 'close'; *podčěrknutyj*, *podčerknú* 'underline'.

In view of the parallelism of their stress patterns, the words in 37 will be handled exactly like those in Tables 12–13; they will be assumed to have internal constituent structure and be subject to Metatony:

(38) [[pod=čerk+nu+t]+oj] 'underlined', [[sɤ=mɤk+nu+t]+oj] 'closed'.

The stress contours of the remaining participles formed with the suffix *-t* are all determined by the accentual characteristics of the underlying verbs, as shown in Table 15. Recall that only stems ending with a sonorant consonant or glide take *-t*.

Thus, when the passive participle is formed from simple stems with the suffix *-t*, its stress contour is determined in the following fashion. In the case of the verbs of Table 15, (a)–(c), the participle is assumed to have no internal con-

a. stressed stems (cf. 22):				
<i>otkrýtyj</i>	<i>otkrýta</i>	<i>otkrýty</i>	<i>otkróju</i>	'open'
<i>odétyj</i>	<i>odéta</i>	<i>odéty</i>	<i>odénu</i>	'dress'
<i>sogrétyj</i>	<i>sogréta</i>	<i>sogréty</i>	<i>sogréju</i>	'warm'
<i>zarýtyj</i>	<i>zarýta</i>	<i>zarýty</i>	<i>zaróju</i>	'bury'
b. stressless stems subject to Metatony in the past tense (cf. 25):				
<i>otbítýj</i>	<i>otbíta</i>	<i>otbítý</i>	<i>otobjú</i>	'repel'
<i>nažátýj</i>	<i>nažáta</i>	<i>nažátý</i>	<i>nažmú</i>	'press'
<i>prišítýj</i>	<i>prišíta</i>	<i>prišítý</i>	<i>priš'jú</i>	'sew on'
<i>otpétýj</i>	<i>otpéta</i>	<i>otpétý</i>	<i>otpojú</i>	'perform funeral rites'
c. stressless stems subject to Blocking in the past tense (cf. 24):				
<i>prožítýj</i>	<i>prožitá</i>	<i>prožítý</i>	<i>proživú</i>	'live through'
<i>ótpítýj</i>	<i>ótpitá</i>	<i>ótpítý</i>	<i>ótop'jú</i>	'take a sip'
<i>zápértýj</i>	<i>zapertá</i>	<i>zápértý</i>	<i>zaprú</i>	'lock up'
d. stressless stems subject to Metatony in the present tense (cf. 26):				
<i>peremólótyj</i>	<i>peremólota</i>	<i>peremólóty</i>	<i>peremeljú</i>	'grind again'
<i>prokólótyj</i>	<i>prokólota</i>	<i>prokólóty</i>	<i>prokoljú</i>	'pierce'
<i>otpórotýj</i>	<i>otpórota</i>	<i>otpórotý</i>	<i>otporjú</i>	'rip off'

TABLE 15

stituent structure, but it is marked subject to Metatony or Blocking if the underlying verb is so marked. In the case of the verbs in section (d), all of which are marked as being subject to Metatony in the present tense, the participle must be assumed to have internal constituent structure as well as being subject to Metatony. The derivation of these verbs then proceeds in parallel fashion with the stressless verbs exemplified in Table 13.

This concludes the survey of the accentuation of the Russian participles. It may be noted, in summary, that wherever internal constituent structure was postulated, the forms were also subject to Metatony. This additional exceptionality of the forms could be eliminated by letting the internal constituent include only the verb root—i.e. [[pro = čit] + aj + n + o], instead of the [[pro = čit + aj + n] + o] given in Table 13. This, however, would solve little, since the word-formation component would have to include the machinery to do the work which now is done by Metatony.

Since solutions that show their complexities (and inadequacies) are to be preferred to those where complexities are hidden, I have selected the above solution over the one complicating the word-formation component. I will try to show below that certain other derivational processes require internal constituent structure much like that postulated here, and these facts will provide further support for the present analysis.

**4.34. GERUNDS.** The present gerund is formed with a suffix which, in the underlying representation, will appear as a front vowel followed by a nasal consonant. This representation insures that the suffix will appear on the surface as [a] with concomitant palatalization of the stem-final consonant. If the stem is stressed, the present gerund will show stress on the same syllable as other forms of the verb. If the stem is stressless, the gerund will have final stress, which is automatically provided to stressless words by the Oxy rule:

- (39) a. stressed stems: *rabótaja* 'working', *risúja* 'drawing', *vérja* 'believing',  
*mója* 'washing', *krója* 'covering', *bréja* 'shaving'.

- b. stressless stems: *terpjá* 'suffering', *ljubjá* 'loving', *smotrjá* 'looking', *polzjá* 'crawling', *živjá* 'living', *kradjá* 'stealing', *dremljá* 'dozing', *gložá* 'gnawing', *xovočá* 'laughing', *molčá* 'remaining silent', *stojá* 'standing'.<sup>18</sup>

The past gerund is formed with *-v(ši)* after stems ending with a glide or with a vowel, *-ši* after other stems. The alternation between *-v* and *-vši* is largely stylistic. Since the gerund suffix *-ši* is not stressable, the past gerund will have suffixal stress when formed from stressless stems, and stress on the same syllable of the stem as other verb forms when formed from stressed stems:

- (40) a. stressed stems: *dělav* 'having done', *sovétovavšis* 'having taken counsel', *slézši* 'having climbed down', *stávši* 'having become', *zakrýv* 'having closed', *otbrív* 'having shaved off'.  
 b. stressless stems: *napisáv* 'having written', *razljubív* 'having ceased to love', *razletévšis* 'having flown away', *nalív* 'having poured out', *prožěgši* 'having burned through', *proživ* 'having lived through'.

**5. ACCENTUAL PATTERNS IN DERIVATIONAL MORPHOLOGY.** The set of rules listed at the beginning of §3 have been shown to account adequately for the accentual patterns found in Russian inflections. In the present section, accentual patterns observable in the derivations of Russian words will be examined, and an attempt will be made to show that the same set of rules adequately accounts for these data.<sup>19</sup>

**5.1. THE ACCENTUATION OF DERIVED ADJECTIVES.** From an accentological point of view, the derivational suffixes that form adjectives can conveniently be divided into those having inherent stress vs. those lacking inherent stress. If an inherently stressed suffix is added to a stem, the fact that the stem has or does not have inherent stress cannot have any effect on the stress of the derived adjectives, since the S-Distribution rule will supply stress to all vowels preceding the suffix in the word. Moreover, an inherently stressed suffix will also insure that the adjective is not subject to the Oxy rule. An adjective formed with an inherently stressed suffix should, therefore, normally have stress on the derivational suffix. This expectation is confirmed below, where the stress of the adjective is fixed on the suffix regardless of the stress category of the stem:

- (41) stressed stem: *grivástyj* 'having a big mane', *mordástyj* 'having a big mug', *gorlástyj* 'noisy'.  
 stressless stem [+Oxy]: *jazykástyj* 'having a big tongue', *uglástyj* 'having many corners', *očkástyj* 'wearing glasses'.  
 stressless stem [-Oxy]: *borodástyj* 'bearded', *golovástyj* 'big-headed', *nosástyj* 'having a big nose'.

The suffixes *-áv*, *-ít*, and *-át* also have inherent stress:

- (42) *-áv*: *krovávyj* 'bloody', *sljunjávyyj* 'driveling', *černjávyyj* 'swarthy'.

<sup>18</sup> The words *mólča* 'silently', *stója* 'upright' are adverbs rather than gerunds.

<sup>19</sup> In writing this section I have used the excellent collections of data to be found in the numerous accentological studies of V. A. Red'kin. Although my conclusions differ from Red'kin's, I have benefitted a great deal from his pioneering work.

-*ít*: *serdítijj* 'angry', *imentítijj* 'eminent', *mozgovítijj* 'brainy'.

-*át*: *gorbátijj* 'humpbacked', *golubovátijj* 'bluish', *bogátijj* 'rich'.

The next task is to investigate the accentuation of adjectives formed with stressless suffixes. To clarify the issues somewhat, I begin by asking the following question: suppose that a word were formed with a suffix which, unlike those just reviewed, did not have inherent stress: where would the rules developed so far assign the stress? The answer to this question is quite straightforward: if the stem has inherent stress, then it will be retained. If, on the other hand, the stem does not have inherent stress, then the Oxy rule would apply and stress will be placed on the desinence. Students of Slavic accentology will immediately recognize this answer: it is partially identical with what they know as Hartmann's Law. This 'law' says that the stress of certain derived adjectives depends on the accentual category of the stem: if the stem is stressed (acute), the stress remains on the stem; if the stem is stressless (non-acute), the stress goes either on the suffix, which always precedes the desinence, or on the declensional desinence. The latter choice is again determined by the stem: if the stem is oxytone, the stress goes on the suffix; if the stem is non-oxytone (circumflex), the stress goes on the desinence:

(43) stressed stems: *berězovijj* 'birch', *goróxovijj* 'pea', *ljkovijj* 'bast'.

stressless stems [+Oxy]: *bobróvijj* 'beaver', *obrazcóvijj* 'exemplary',  
*eršóvijj* 'ruff'.

stressless stems [-Oxy]: *gorodovój* 'policeman', *beregovój* 'shore',  
*nosovój* 'nose'.

It has, however, been pointed out by various scholars—e.g. V. Kiparsky 1962, Red'kin 1964a, Coats 1970, and Gimpelevič 1971—that there are numerous counter-examples to Hartmann's Law, such as the following:

(44) a. stressless stems [+Oxy]: *polkovój* 'regimental', *jazykovój* 'linguistic',  
*stolbovój* 'column'.

stressless stems [-Oxy]: *dubovój* 'oaken', *puđovój* 'heavy', *sadovój*  
'garden'.

b. stressed stems:

( $\alpha$ ) *birževój* 'stock exchange', *tekstovój* 'textual', *formovój* 'uniform'.

( $\beta$ ) *lavróvijj* 'laurel', *počtóvijj* 'postal', *fruktóvijj* 'fruit'.

In light of the analysis presented above, these counter-examples are far from surprising. It was noted, in the discussion of the accentuation of non-derived adjectives (§3), that the long forms of adjectives with stressless stems undergo Metatony in the majority of cases; such adjectives, therefore, frequently exhibit pre-desinential, rather than the otherwise expected desinential stress. Whether or not a word with a stressless stem is subject to Metatony is, as we saw above, a purely idiosyncratic property. There is little reason—given the present analysis—to expect, as is implied by Hartmann's Law, that stems which receive stress by the Circumflex rule will form adjectives that are NOT subject to Metatony, while adjectives having pure oxytone stems will be subject to Metatony. The facts as illustrated in 43 and 44a are entirely consistent with this picture.

The examples cited in 44b, unlike those in 44a, are counter-examples not only to Hartmann's Law but also to the analysis proposed. The examples in 44b would

be expected if the stems of these words were stressless, but we know from the accentuation of the underlying nouns that the stems of these adjectives have inherent stress; and words with inherently stressed stems should have stem stress everywhere. Given the analysis proposed here, the examples in 44b would be explained if it could be plausibly assumed that the suffixes in these words caused the inherent stress on the stem to be removed. As a matter of fact, there are a number of suffixes which produce words with desinential stress regardless of whether the stem has inherent stress or not. An example is the noun-forming suffix *-áč*:

- (45) stressed stems: *cyrkáč* 'acrobat', *rifmáč* 'poetaster', *trjukáč* 'stuntman'.  
 stressless stems [+Oxy]: *izbáč* 'village librarian', *trubáč* 'trumpeter',  
*gorbáč* 'hunchback'.  
 stressless stems [-Oxy]: *golováč* 'big-headed one', *borodáč* 'bearded one',  
*nosáč* 'big-nosed one'.

Other suffixes having this property are:

- (46) *-ák*: *rybák* 'fisherman', *sibirják* 'Siberian', *ivnják* 'osier bed'.  
*-ún*: *plakún* 'crybaby', *bryzgún* 'splasher', *pačkún* 'dauber'.  
*-ěž*: *kartěž* 'card-playing', *graběž* 'robbery', *galděž* 'din'.

In order to handle the above cases, we must assume that the re-adjustment rules include one which causes stems to lose stress. The STRESS DELETION rule, like Blocking and Retraction, affects only an idiosyncratic set of words, e.g. those formed with particular affixes, or even a small subset of those formed with a given affix.

Having added the Stress Deletion rule to the morphology, we can now handle the counter-examples with stressed stems such as those in 44b(α). To extend our analysis to the examples in 44b(β), we need only indicate that these adjectives are also subject to Metatony.

Incidentally, it appears that words with foreign stems have a strong tendency to be subject to Metatony if their stems end in a consonant cluster, e.g. *tigróvy* 'tiger', *metróvyj* 'meter', *fruktóvyj* 'fruit', *produktóvyj* 'grocery', *počtóvyj* 'postal'. But there are exceptions to this, e.g. *birževój* 'stock exchange' (cf. 44b). The suffixes [ɛŋ] and [ɛsk] show behavior similar to that of *-ov*.

The next set of cases that must be considered are adjectives where the stress is on the stem if the stem is acute, on the suffix if the stem is non-acute:

- (47) a. *sáxaristyj*, *múskulistyj*, *fósforistyj*, *fasónistyj*, *figúristyj*, *brjunétistyj*,  
*bolvánistyj*, *azótistyj*, *bolótistyj*, *želézistyj*, *poródistyj*, *kóžistyj*,  
*róžistyj*, *tumánistyj*.  
 b. *lestistyj*, *voloknistyj*, *plečistyj*, *kamenistyj*, *l'distyj*, *ledjanistyj*, *plamenistyj*,  
*kremnistyj*, *derevanistyj*, *vodjanistyj*, *uzlístyj*, *cvetistyj*, *zoloťistyj*, *serebristyj*,  
*golostyj*, *kolostyj*, *snežistyj*, *xvostistyj*, *smolistyj*, *kostistyj*.

It is obvious that we cannot assume that suffixes of this type have inherent stress: if they did, the stress should appear on the suffix regardless of the stem, thus contradicting the examples in 47a. These examples require that the suffixes be stressless. But if the suffix is assumed to be stressless, then we are unable to

account for the examples in 47b, for these examples would then be subject to the Oxy rule, which would supply them with desinential stress. The problem that faces us is to find a device that will allow us to obtain the correct stress in both 47a and 47b, and at the same time require only a minimal perturbation in the system of rules outlined so far.

Given the above framework, these facts can be handled in one of two ways (cf. the discussion in §4.33 above). On the one hand, we may simply assume that these adjectives are subject to Metatony, and therefore will always exhibit pre-desinential stress, where stress on the desinence would otherwise be expected. Alternatively we may assume that these adjectives have internal constituent structure like the participles exemplified in 32 above; i.e.,

(48) [[sáxar+ist]+oj] 'saccharine', [[golos+ist]+oj] 'vocal'.

The derivation of the stress contours then proceeds in the manner outlined in the discussion of the participles in 32. As I know of no evidence that might decide between these alternatives, I leave the question open for the present. Accentual behavior quite similar to that of adjectives with *-ist* is exhibited by adjectives with the suffix *-liv*:

(49) stressed stems: *v'júžlivyj* 'stormy', *sóvestlivyj* 'conscientious', *žálostlivyj* 'pitiful'.

stressless stems: *doždlivyj* 'rainy', *smazlivyj* 'pretty', *stydlivyj* 'shameful'.

The choice between the two alternative analyses above is not available to us in the case of adjectives in *-čat*:

(50) a. Six adjectives have suffixal stress: *stolbčatyj* 'columnar', *zubčatyj* 'cogged', *trojčatyj* 'tripartite', *xlopčatyj* 'cotton', *krupčatyj* 'grainy', *brusčatyj* 'bar'.

b. The rest have pre-suffixal stress:

(α) stressed stems: *sustávčatyj* 'articulated', *kolénčatyj* 'bent', *nadrývčatyj* 'hysterical'.

(β) stressless stems: *gúbčatyj* 'spongy', *borózdčatyj* 'furrowed', *koróbčatyj* 'arched'.

As noted in the discussion of the accentuation of participles (§4.33), given the system of rules for which we have been able to find independent motivation, we cannot get stress on the second syllable before the desinence (cf. 50b) except by attributing internal constituent structure to the word and at the same time letting it undergo Metatony. I shall therefore represent all adjectives in 50 as having internal constituent structure as follows:

(51) a. [[stolb+čat]+oj] 'columnar'

b. (α) [[sustáv+čat]+oj] 'articulated'

(β) [[borozd+čat]+oj] 'furrowed'.

I shall assume that 51a differs from 51b(β) in that the latter, but not the former (and for that matter, none of the adjectives listed in 50a), is subject to Metatony.

**5.2. THE ACCENTUATION OF SUFFIXED NOUNS.** Nouns present fundamentally the same picture as adjectives. There is, first, a series of suffixes with inherent

stress, which preserve the stress in all inflectional forms, e.g.:

(52) *-án*: *lobán, golován, duván, puzán, velikán, uškán, kožán, gorkán, bratán, brjuxán, ušan* (all non-acute stems except *bratán* [but *bratók*] and *gorkán* [górlo]).

*-úxa*: *vekovúxa, golodúxa, molodúxa, plodúxa, ryzúxa, skakúxa, potaskúxa, belúxa, vos'múxa, grjaznúxa, svinúxa, volnúxa, krasnúxa, vesnúxa, serpúxa, sypúxa, strjapúxa, starúxa, svetúxa, želtúxa.*

*-jága*: *simpatjága, rabotjága, zdorovjága, skupjága, dobrjága, xitrjága.*

A list of additional suffixes with inherent stress is given by Red'kin (1964b:119). Among these are:

(53) *-ěj*: *bogatěj* 'wealthy man'; *-tjáj*: *lentjáj* 'lazy one'; *-áka*: *zevaka* 'idler'; *-júga*: *zverjúga* 'animal' (augmentative); *-ónja*: *tixónja* 'demure one'.

When suffixes without inherent stress are added to stems, the accentuation of the word is determined by the stem: if the stem is stressed, the word has stress on the same vowel; if the stem is stressless, the word has stress on the desinence.<sup>20</sup> As shown below, MASCULINE nouns formed with the diminutive suffix [ɛk] exhibit the predicted behavior:<sup>21</sup>

(54) a. stressed stems: *goróški* 'peas', *otrézki* 'snips', *oréški* 'nuts', *monáški* 'monks', *baránki* 'sheep'.

b. stressless stems: *pastuški* 'shepherds', *korobki* 'small bast boxes' (from *korobók*), *poroški* 'powder', *gorodki* 'towns', *voloski* 'hair', *čulki* 'stockings'.

Quite similar accentual behavior is encountered with non-diminutive nouns formed with the suffix *-nik/-ik*:<sup>22</sup>

(55) a. stressed stems: *otličniki* 'best students', *západniki* 'Westernizers', *rabótniki* 'workers', *udárniki* 'shock workers', *razbójniki* 'robbers'.

b. stressless stems: *provodniki* 'conductors', *balovníki* 'spoiled children', *bludniki* 'fornicators', *učeníki* 'students', *vypuskniki* 'graduates'.

Nouns that are formed with the suffix [ov+ik] have desinential stress, regardless of the stress contour of the adjective from which they are derived, e.g. *buróviki* 'well-drilling engineers' < *buravój* 'drilling'; *dubóviki* 'oak mushrooms' < *dubóvyj* 'oaken'; *kadroviki* 'cadre' < *kádroyj* 'cadre'. Nouns formed with the suffix [ov+nik], on the other hand, stress the stem when the underlying adjective has stem stress, and stress the suffix [ov+nik] when the stem of the underlying

<sup>20</sup> There are a few exceptions to this generalization. In particular, there are words that have bases with inherent stress but that exhibit desinential rather than stem stress: *račók* 'crayfish', *flažók* 'flag', *koječk* 'coffee', *sazarók* 'sugar', *lačók* 'varnish' (all diminutives). We shall assume that the irregularity here is due to the fact that, in these words, base stress is removed before the suffix [ɛk] with the help of the Stress Deletion rule postulated above in order to handle the examples cited in 45-46. The only difference between the words under discussion here and those in 45-46 is that for the latter Stress Deletion is general; but in words formed with the suffix [ɛk] Stress Deletion applies only as an exception.

<sup>21</sup> The forms cited here and below are nom. pl., as this form makes certain accentual facts more evident than does the nom. sg., the traditional citation form of nouns.

<sup>22</sup> The diminutive suffix *-ik* elicits quite different accentual behavior; see 60-61 below.

adjective is stressless, e.g. *mákovniki* 'poppyseed cakes' < *mákovyj* 'poppy'; *ternóniki* 'geese' < *ternóvyj* 'thorny'; *polkóniki* 'colonels' < *polkovój* 'regimental' (cf. Švedova 1970, §123). In the framework developed here, the nouns in [ov+ik] will be treated like the nouns in -*ač* or -*ak* (see 45–46 above); i.e., it will be assumed that the suffix causes the stem to be destressed. As a result, these nouns will have desinential stress everywhere. Nouns with the suffix [ov+nik], on the other hand, will be analysed as having internal constituent structure, e.g. [[mák+ov]+nik+y] 'poppyseed cakes', [[polk+ov]+nik+y] 'colonels'. The rules given above will then generate the correct stress contours (cf. the discussion in §4.33 above, as well as the comments at the end of this section.)

Whereas the masculine nouns just surveyed have desinential stress, the corresponding feminine nouns have pre-desinential stress. Compare the words in 56b with their counterparts in 54b, or those in 57b with their counterparts in 55b:

- (56) a. stressed stems: *jágodki* 'berries', *kúkolki* 'dolls', *kómnatki* 'rooms', *ázbučki* 'primers', *monáški* 'nuns'.  
 b. stressless stems: *pastúški* 'shepherdesses', *kazáčki* 'Cossack women', *koróbki* 'boxes', *golóvki* 'heads', *skovoródkki* 'pans'.
- (57) a. stressed stems: *otlčénicy* 'best students', *západnicy* 'Westernizers', *rabótnicy* 'workers', *udárnicy* 'shock workers', *razbójnicy* 'robbers'.  
 b. stressless stems: *provodnícy* 'conductors', *balovnícy* 'spoiled girls', *bludnícy* 'fornicators', *učénicy* 'students', *vypusknícy* 'graduates'.

In the framework developed here, the above facts can readily be accounted for by postulating the following:

- (58) Feminine nouns formed with the suffixes [ɪk] and -(n)íc are subject to Metatony.

The stress contours of the nom. pl. *pastúški* 'shepherdesses' and *balovnícy* 'spoiled girls' are then derived from strings which, after the application of the Oxy and S-Distribution rules, appear as

- (59) [pást+úx+ík+y], [bál+óv+níc+y].

The Metatony rule then destresses the final vowel, and the correct stress contour is readily generated by the Destressing rule. Note in this connection that the genitive plural of the words in 56b is without exception subject to Metatony-B, e.g. *pastúšek* 'shepherdesses', *koróbok* 'boxes', *golóvok* 'heads'. This fact is important evidence in favor of the Metatony rule in the formulation proposed above.

The difference between masculine and feminine nouns embodied in 58 illuminates in an interesting fashion the whole system of derivational morphology, when certain additional facts are considered. There are suffixes which cause stress to be placed on the syllable immediately before the suffix. Here are some examples of diminutives formed with the suffix -*ik*:

- (60) *slovárikki* 'dictionaries', *fonárikki* 'lanterns', *topórikki* 'cities', *čéčlikki* 'covers', *lókikki* 'elbows'.

Cases such as these can be treated in one of two alternative ways. On the one hand, we can make changes in the stress rules; e.g., we might somehow extend

the Metatony rule so that it retracts stress not only from word-final syllables, but from other suffixes as well; or we might add a new rule to the grammar that applies only to words formed with the suffix *-ik*. Alternatively, we can design the underlying representations of these words in such a fashion that the present rules will yield the correct output. In particular, it might be proposed that the diminutive suffix *-ik* is not added to stems directly, but rather that a nested constituent structure of the following type is formed:

(61) [[slov+ar]<sub>N</sub>+ik+y]<sub>N</sub> 'dictionaries'.

Given this structure, the phonological rules—in particular the Oxy and Metatony rules—are allowed to apply cyclically first to the innermost constituent, and subsequently in order to each larger constituent. In 61 the Oxy rule will apply then first to the string [slov+ar], and place stress on the second vowel. The remaining rules will have no effect on the stress placement, so that the word will appear in the output with the stress contour indicated in 60.

The choice between the two alternatives thus turns on the relative merits of a solution requiring the postulation of internal constituent structure of the words vs. a solution in which a new context is added to the Metatony rule. The examples below show that the new context will be fairly complicated:

(62) *dóždíčki* 'rains', *čízíčki* 'siskins', *prýščíki* 'pimples', *nóžički* 'legs' (all diminutives).

If the words are to be represented as linear strings without internal constituent structure, they will be subject to the Oxy rule; thus, subsequent to the application of the S-Distribution rule, we will encounter strings such as

(63) [dóžd,+ík+ík+y] 'rains' (dim.)

The new context to be added to the Metatony rule would therefore have to destress not only the suffix *-ik* and the desinence immediately following it, but also any suffixes intervening between *-ik* and the desinence. While the former extension of the Metatony rule might perhaps be countenanced, the latter extension clearly suggests that we are not on the right track here. The solution by means of word-internal constituent structure is a more straightforward alternative, especially if one can assume—as one apparently must—that words with internal constituent structure are a standard part of the language.

The advantages of the proposed solution become even clearer when the following facts are considered. In masculine nouns with stressless stems, when a suffix consisting of yer + consonant—e.g. [+ɤk+], [+ɤc+]—is added to a stem ending with a suffix of the form yer + consonant, the stress of the resulting word is placed on the last yer of the stem. Compare, for example, these two sets of nom. pl. forms:

- (64) a. *čulki* 'stockings', *poroški* 'powders', *voloski* 'hairs' (dim.)  
 b. *čulóčki* 'stockings' (dim.), *porošéčki* 'powders' (dim.), *volosóčki* 'hairs' (dim.)

In view of the immediately preceding discussion of the treatment of suffixes such as [+ík+], the natural suggestion for handling the examples in 64b is to

assign constituent structure to them:

- (65) [[čul+ɤk]+ɤk+y] 'stockings', [[porox+ɤk]+ɤk+y] 'powders',  
[[volos+ɤk]+ɤk+y] 'hairs'.

In other words, to the list of the constituent-forming suffixes we add suffixes of the form [+ɤC+] when these are added to stems ending with suffixes of the form [+ɤC+].

Consider now the following examples, which are like those in 64 in every respect except that the nouns are feminine:<sup>23</sup>

- (66) *golóvočki* 'heads', *vódočki* 'waters', *dýročki* 'holes', *boródočki* 'beards',  
*lúnočki* 'moons' (all diminutives).

In view of the discussion above, we should expect these words to have underlying representations like

- (67) [[golov+ɤk]+ɤk+y] 'heads', [[dyr+ɤk]+ɤk+y] 'holes'.

Unfortunately, these representations will not yield the correct output; all of them will end up with penultimate stress, i.e. \**golovóčki* \**dyróčki*. We recall now that, according to 58, feminine nouns of this type are subject to Metatony; i.e. to a rule which destresses the last vowel in a word. If Metatony were allowed to apply to the forms under discussion, the first pass through the cycle would produce the correct stress contour:

- (68) [[gol ov+ɤk]+ɤk+y]

S	OXY
S S	S-DISTR
S S -S	METATONY
not applicable	OXY
—————	S-DISTR
—————	METATONY
<i>golóvočki</i>	OTHER RULES

Consider the alternative solution without constituent structure. We would have to state in the suffix-destressing rule that a suffix of the form [ɤC] is destressed in masculine nouns if preceded by a suffix of the form [ɤC], and in feminine nouns if FOLLOWED by such a suffix. Moreover, we should have no way of connecting these facts with the obviously related fact that feminine nouns formed with certain suffixes are subject to Metatony (cf. 58). In the solution proposed here, all these facts are handled in a uniform fashion as just shown. I conclude from this that the proposed solution which assigns constituent structure to

<sup>23</sup> Neuter nouns are subject to Metatony much less regularly than feminine nouns. Thus, with the suffix [+ɤc] we get two distinct treatments: *derevcó* 'sapling', *ozercó* 'lake' (dim.), *pivcó* 'beer' (dim.), *sel'có* 'village' (dim.), *vincó* 'wine' (dim.); but also *vorótca* 'gate' (dim.), *dél'ce* 'affair' (dim.) This vacillation with regard to Metatony is also observable with compound suffixes; e.g. *okóšečko* 'window' (dim.) but *slovéčko* 'word' (dim.), *serdéčko* 'heart' (dim.), *mestéčko* 'place' (dim.) The different treatments appear connected with the difference in derivational suffixes; we have [ɤk+ɤk] in *okóšečko* but [ɤc+ɤk] in *slovéčko*. Note that *oblačko* 'cloud' (dim.) is a true circumflex as shown by pl. *oblačká*; the same is true of *derevco* 'sapling'.

certain words is to be preferred over the alternative that treats all words as linear strings of morphemes.<sup>24</sup>

**5.3. THE ACCENTUATION OF DERIVED VERBS.** The accentual patterns found in derived verbs are much like those found in other major classes of words. As before, we find that the stress contour is determined largely by the accentual characteristics of the verb stem and suffixes that compose the word; and in certain instances we find that verbs have stress contours which can be accounted for most simply by postulating constituent structure internal to the word.

The simplest case is that of suffixes with inherent stress: here the stress remains on the suffix in all forms of the word. A suffix with inherent stress is the imperfectivizing suffix *-aj*:

- (69) a. stressed stem: *prigotovljájet* (pf. *prigotóvit*) 'prepare', *zarezájet* (pf. *zaréžet*) 'slaughter', *sozrevájjet* (pf. *sozréjet*) 'mature'.  
 b. stressless stem: *razrešájjet* (pf. *razrešít*) 'solve', *objasnájet* (pf. *objasníť*) 'explain', *pomogájjet* (pf. *pomogú*, *pomóžet*) 'help'.

Most verbal suffixes are stressless, and therefore form words where the stress is fixed on the stem when the stem possesses inherent stress; when the stem is without inherent stress, the stress on the suffixed verb may be desinential, pre-desinential, or (in certain cases) on the verb stem. Since verbs formed with the suffix [+i+] have been studied in considerable detail (cf. Red'kin 1965, 1970) and since these verbs exhibit a very wide range of possibilities, we shall begin our investigation with them.

For a very large class of verbs, the stress contour is derived by this simple rule: stem stress if the stem has inherent stress, and desinential stress (pre-desinential in the past tense and infinitive, cf. §4.2 above) if the stem is without inherent stress. Thus we have:

- (70) a. stems with inherent stress: *partizánít'*, *morózít'*, *múčit'*, *pečálit'*, *mozólit'*, *gotóvit'*, *lákomit'*, *paršvit'*, *lukávit'*, *množít'*.  
 b. stems without inherent stress: *carít'*, *petušít'*, *smolít'*, *sledít'*, *golostít'*, *rodnít'*, *tolstít'*, *tesnít'*, *černít'*, *mertvit'*.

The examples in 70a have desinential stress in present tense and imperative forms, and pre-desinential stress in the past tense and the infinitive. A fair number of verbs of this type are subject to Metatony in their present forms (cf. 71 for examples). It has been proposed by Stang 1957 that the differences between the accentual patterns of the verbs in 70b and those in 71 are caused by the fact that the base nouns have different stress patterns. Stang proposes a verb-analog to 'Hartmann's Law' for adjectives (see above, §5.1); i.e., he claims that when the base noun has Oxy stress everywhere, the derived verb is subject to Metatony in the present tense, whereas when the base noun is 'circumflex' (i.e. not subject to the Oxy rule in some case forms), the derived verb exhibits pure desinential stress in the present tense. Unfortunately, this claim, like 'Hart-

<sup>24</sup> In spite of superficial resemblance, the words *návoločka* 'pillow case' (dim.) and *próvoločka* 'wire' (dim.) are not instances of words formed with the suffix sequence [ɤk+ɤk]. The underlying nouns *návoloka* and *próvoloka* clearly show that the pre-desinential vowel is part of the stem, not part of the pre-desinential suffix [ɤk].

mann's Law', cannot be maintained. I cite below in 71a counter-examples where verbs that are subject to Metatony are derived from nouns that are not pure oxytones; and in 71b, verbs with consistent desinential stress in the present tense which are derived from nouns that are pure oxytones.

- (71) a. 'Circumflex' stems subject to Metatony (3sg. forms): *goródit* 'fence', (cf. *górod* 'town'); *kósit* 'mow' (*kósu* 'scythe'); *króšit* 'crumble' (*krózu* 'crumb'); *krúžit* 'circle' (*krúgu*, *krugám* 'circle'); *oblokótsija* 'lean on one's elbow' (*lóktju*, *loktjám* 'elbow').
- b. 'Oxytone' stems not subject to Metatony (3sg. forms): *stydít* 'shame', *carít* 'rule', *petušít* 'fume', *doždít* 'rain', *xandrít* 'be depressed', *rulít* 'taxi', *xolostít* 'castrate', *rodnit* 'relate'.

While it would appear that there is a statistical tendency for verbs derived from pure 'oxytone' stems to be subject to Metatony in the present tense, there are numerous counter-examples. I am therefore forced to the conclusion that verbs with stressless stems must idiosyncratically be marked as being subject or not to Metatony.

A number of exceptions to the regular behavior noted above must be discussed. The first of these concerns verbs derived from pure 'oxytone' nouns ending with the (stress-deleting) suffixes *-ak*, *-ug*, *-av*, and *-yr* (cf. 45-46 above). All these verbs have stress on the NOUN suffix:

- (72) *rybáciit* 'fish', *utjúžit* 'iron', *burávit* 'drill', *puzýrit* 'to cause to bubble'.

To account for the accentuation of these forms, we must assume that the verbs have internal constituent structure like this:

- (73) [[rýb+ak]+i+t̄] 'fish'.

The stress on the root *ryb* is removed by the Stress Deletion rule which is triggered by the suffixes *-ak*, *-ug*, *-yr*, *-av*. Then the Oxy rule places stress on the last vowel of the innermost constituent *-ak*. Since no other rules affect the placement of the stress, the accentuation of 72 is produced.<sup>25</sup>

In addition to derivatives from nouns as shown in 72, a fair number of verbs in *-i* which are derived from unaccented stems nonetheless have stem stress. These will also have to be treated like the verbs just reviewed, i.e. by assuming internal constituent structure. Among the verbs of this type are

- (74) *górbít* 'hunch', *pólnít* 'fill', *gládnít* 'stroke', *blízít* 'bring near', *čtšíit* 'count', *ládít* 'agree', *brédít* 'rave', *právit* 'direct'.

A second class of exceptions among the verbs in *-i* is the fairly large number of verbs with desinential stress that are derived not from stressless stems, but rather from stems with inherent stress:

- (75) *bombít* 'bomb', *burít* 'drill', *osvobodít* 'free', *jazvít* 'wound', *dosadít* 'vex', *pobedít* 'conquer'.

In these verbs, the verbalizing suffix *-i* must be presumed to destress the stem, with the result that the present (and imperative) forms have desinential stress.

<sup>25</sup> We must also include here the verb *graníčit* 'border', which is derived from a stressless stem (cf. 56-57 above). If we supply it with the constituent structure [[gran+ic]+i+t̄], we obtain the correct stress contour.

	[[kol+es+ov+a]+l+a] S	[[kol+es+ov+a]+e+t] S
OXY		
S-DISTR	S S S	S S S
METATONY	—	—
<hr/>		
OXY	—	—
S-DISTR	—	—
METATONY	—	—
ov→uj	—	uj
V-TRUNC	—	∅
DESTRESS	-S -S -S	-S -S
OUTPUT	<i>kolesovála</i> 'broke on the wheel'	<i>kolesújet</i> 'breaks on the wheel'

TABLE 16

The suffix *-ej* exhibits rather simpler accentual behavior than does *-i*. Verbs formed with this suffix never have desinential stress: stress always falls either on the suffix, when the stem has no inherent stress, or on the stem if it has inherent stress. We can obtain this accentuation readily if we postulate that verbs of this class have internal constituent structure, e.g. [[o+balván+ej]+tɛ] 'become a blockhead' and [[molod+ej]+tɛ] 'grow younger':

(76) stressed stems: *ržávet'* 'rust', *obalvánet'* 'become a blockhead', *berémenet'* 'become pregnant', *obútreť'* 'dawn'.

stressless stems: *zverét'* 'be brutalized', *vdověť'* 'widow', *molodét'* 'become younger', *xorošét'* 'become prettier', *steklenét'* 'become glassy', *bagrenét'* 'shine crimson'.

In a small number of verbs, the inherent stress of the stem is eliminated, resulting in stress on the suffix instead of the stem:

(77) *bogatét'* 'become rich', *lilovét'* 'turn lilac', *rozovét'* 'turn pink'.

The suffix *-aj*, when not used as an imperfectivizing marker (on these uses, see 69a above), behaves in a manner completely parallel to *-ej*. When the stem is stressed, stress remains on the stem; when the stem is stressless, the suffix *-aj* receives the stress:

(78) stressed stems: *závtrakat'* 'breakfast', *rabótat'* 'work', *obédát'* 'dine', *úžínat'* 'sup'.

stressless stems: *mužát'* 'reach manhood', *dorožát'* 'raise in price', *kozyrját'* 'trump', *dičát'* 'run wild', *mečtát'* 'dream'.

As in verbs with the suffix *-ej*, I shall assume that verbs with the suffix *-aj* have internal constituent structure. Observe that the alternative account—i.e. that these verbs are subject to Metatony, but have no internal constituent structure—is excluded for such verbs as *dělat'* 'to do'. As shown by the accent of the related plural noun *delá*, the stem of this verb must be stressless. The Metatony rule can only retract stress by one syllable; hence, to obtain the correct stress contour, we must assume the constituent structure of 79 and mark this, additionally, as being subject to Metatony:

(79) [[del+aj]+tɛ].

The verbalizing suffix [ov+a] differs from the preceding in two respects. First, when the desinence begins with a vowel, *-ov* is replaced by *-uj*. Second, the vowel

-a which terminates the verbalizing suffix is truncated before desinences beginning with a vowel. As a result, when the stress in the underlying representation is assigned to the suffix vowel -a, the stress will appear on the preceding syllable when the vowel in question is truncated. A different syllable will, therefore, be stressed in past forms than in the present tense.

Verbs formed with the suffix [ov+a] never exhibit desinential stress. I shall account for this fact exactly in the same fashion as above, by saying that verbs of this type have internal constituent structure. As shown in Table 16, this will result in the correct stress contours.

Examples of the stress contours of these verbs are:

(80) a. stressed stems: *rádoval'* 'please', *besédoval'* 'converse', *sovétoval'* 'advise', *komándoval'* 'order', *pól'zoval'* 'use', *rátoval'* 'fight'.

b. stressless stems: *kolesováť* 'break on the wheel', *toskováť* 'be sad', *pustováť* 'be tenantless', *golosováť* 'vote', *vračováť* 'doctor', *balováť* 'spoil'.

The stress of the present forms has been accounted for in Table 16. We need, therefore, note only the exceptions to the above treatment. For a very large class of mainly foreign stems, the suffix [ov+a] causes stress deletion; these verbs then have stress contours like those cited in 80b:

(81) *arestováť* 'arrest', *protestováť* 'protest', *startováť* 'start', *osnováť* 'found'.

Moreover, verbs formed with the suffixes [+ír+ov+a] and [iz+ov+á] have fixed stress on the suffixes as shown:

(82) *fotografírovat'* 'photograph', *telegrafírovat'* 'wire', *montírovat'* 'mount', *paralizováť* 'paralyse', *realizováť* 'realize', *nejtralizováť* 'neutralize'.

Finally, there is a small number of verbs with stressless stems which nonetheless have stress on the stem. These verbs will be assumed to have internal constituent structure as follows:

(83) [[sled]+ov+a+tv] *slédovat'* 'follow'.

Most of the verbs of this class are formed from nouns with the suffix -stv:

(84) *vlaststvovat'* 'rule', *čéststvovat'* 'honor', *cárstvovat'* 'rule', *sirótstvovat'* 'be orphaned'.

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