

THE SPREAD OF ATHEMATIC 1SG -M IN THE MAJOR WEST SLAVIC LANGUAGES¹

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The spread of athematic 1sg -*m* in West (and South) Slavic² represents an unusual linguistic event, in which a morpheme limited to marking a very small closed class of lexical items becomes highly productive, invading the inflection of a significant portion of the lexicon. In this analysis I will examine the phonological and morphological changes that led up to the period during which 1sg -*m* serves as source material for analogical extension in each major West Slavic language.³ This facilitates an examination both of the synchronic situation that set the stage for the spread of -*m*, and the variation observed among languages. Two models are invoked: language change via abduction and subsequent deduction (Andersen 1973); and linguistic categorization based on prototypes and radial networks (Lakoff 1987, Janda 1993). The synchronic state of a given language presents learners of the younger generation with a corpus of data from which they must abduce their grammar by making decisions about what linguistic categories are relevant and what characteristics are prototypical of those categories. While there is inevitably some mismatch between the grammars abduced by successive generations, under some conditions we may observe significant differences that enter the grammar in the course of only a few generations. The spread of athematic 1sg -*m* is a striking illustration of such a phenomenon.

At the time of proto-Slavic, verbs could be classed on the basis of their non-past conjugation into two main types:

1) the athematics, which added desinences directly onto roots, and were represented by only five verbs: *byti* 'be', *dati* 'give', *esti* 'eat', *vědět* 'know', and *iměti* 'have'; and

2) the thematics, which formed the non-past as follows: stem + theme vowel + desinence, and are represented by all other verbs in the lexicon. Truncations, monophthongizations, consonantal mutations, and other sound changes had reduced the salience of the theme vowel somewhat by the time of Old Church Slavonic, but for the most part this division between thematic and athematic verbs was retained. Each type of verb had its

own characteristic set of desinences that served to distinguish person and number.

As one might expect, there was a tendency during the prehistoric period of many of the Slavic languages to make the athematic verbs conform more to the pattern of the thematic verbs. This was achieved by analogical leveling of most of the athematic desinences that differed from their thematic correspondents. Old Czech will serve to illustrate this development (the relevant changes in Old Polish and Old Slovak are virtually identical). The following changes had taken place in the athematic paradigm before the earliest attestations of Old Czech:⁴

- the 2sg desinence had changed from -*si* to -*š*; attested only as *dáš* 'you give', *viáš* 'you know', *jiáš* 'you eat', *jmáš* 'you have'
- the final consonant had been lost in the 3sg (parallel to its loss in thematic verbs), attested only as *dá* 'gives', *viě* 'knows', *jiě* 'eats', *jmā* 'has'
- -*s* was lost in the 2pl desinence: *dāte* 'you give', *jmāte* 'you have' are attested only without the -*s*; forms both with and without the -*s* are attested for the other two verbs: *viāste*, *viēte* 'you know' and *jiēste*, *jiēte* 'you eat'

However, despite these analogical levelings in favor of the thematics, one of the distinctive athematic endings (1sg -*m*) begins to impose itself on the thematic verbs early in the historic period. Suddenly, rather than experiencing continued loss of distinctive desinences, the athematics contribute a morpheme that spreads to many other verbs, producing the following distribution in the three major West Slavic languages:

- athematic 1sg -*m* spreads to some verbs, including:
 - many verbs with stems in original -*q/V-*, among them two highly productive types of derived imperfectives
 - the three verbs *umieć* 'know', *rozumieć* 'understand', *śmieć* 'dare' in Czech
- athematic 1sg -*m* spreads to the majority of verbs, including:
 - highly productive suffixed types that produce factitives, verbs of 'becoming', and derived imperfectives, but excluding only:
 - about 200 non-suffixed stems plus the -*ova-* and -*nu-* types in Slovak
- athematic 1sg -*m* spreads to all verbs.

Speaking in general terms, the spread of 1sg -*m* can be considered as part of a larger gradual trend of modifying the role of thematic vowels in verbal paradigms.⁵ Contraction and the development of secondary length are the two most important changes in facilitating the spread of 1sg -*m*, as will be shown in detail below, and these two innovations are shared (albeit un-

evenly) by the territory of Slavic that witnessed this analogical extension. Contraction obliterated both the theme vowel and the consonantal boundary that signalled the end of the stem, necessitating a reinterpretation of paradigms subject to this change.⁵ Inherited and secondary quantity produced parallel non-past forms in the athematic and the new contracted paradigms everywhere but the 1sg and 3pl (where contraction was resisted; dual forms were quite rare in early West Slavic and were lost altogether early in the historical period, so they will be excluded from the discussion):

dělās, dělā, dělāme/dělāmy, dělāte	'do'
dāš, dā, dāme/dāmy, dāte	'give'

It was thus possible to identify these two sets of forms as members of a single paradigm, and this identification in turn motivated the analogical leveling of variant forms elsewhere in the paradigm (i. e., *dělaju* > *dělām* 'I do' to match *dām* 'I give'). Further sound changes and morphophonemic considerations specific to each language influenced the extent to which 1sg *-m* ultimately spread.

In addition to phonological changes and paradigmatic considerations, other factors facilitated broader acceptance of 1sg *-m*. In pronominal roots and verbal morphology of the time, the morphophoneme {m} participated in the following formants, all of which signaled at least first person, and one of which signaled more specifically first person singular:

- all of the oblique forms of the 1sg pronoun
- the nominative form of the 1pl pronoun: *my*
- the 1pl non-past marker: *-me/-my*
- the 1pl marker for imperatives: *-me/-my*
- the 1pl marker for both the imperfect and the aorist in *-om*

In fact, there are no examples of {m} in pronominal roots or verbal morphology that do not express first person (with the possible exception of the *-m*-formant of the present passive participle, but this part of verbal conjugation died out early in West Slavic, leaving behind only a few words that have been formally adjectives, not participles, throughout the historic period). In terms of morphophonemics it may be more accurate to suggest that *-m* signals only first person in the non-past, thus opposing:

verbal stem <i>-m</i>	<i>-Ń</i>
[first person]	[singular]
to	
verbal stem <i>-m</i>	<i>-e/ŷ</i>
[first person]	[plural]

Indeed this pattern has played an important role in the abductive process that led to the spread of *-m* throughout West Slavic.

The Spread of 1sg -m in Czech

The following is a description of the Old Czech verb system synchronous with the spread of athematic *-m*. As we shall see, contraction and other sound changes helped to motivate the abduction that the athematics were prototypical models for all but one class of verbs. This abduction, carried out in two phases, resulted in the deduction that most verbs bear *-m* as a marker of 1sg in the non-past. Subsequent to contraction (resisted by sequences containing high vowels and root vowels, but carried out regularly elsewhere) and the fall of the jers, the following relevant changes are particular to Old Czech:⁶

g > h	(circa fall of jers)
$\bar{y} > \bar{u}; \bar{o} > \bar{u}; \bar{e} > \bar{a}; \bar{e} > \bar{a}; \bar{e} > \bar{a}$	(late 10th c)
$\bar{a}, a > \bar{e}, \bar{e}/C'_{-}C'_{-}OR \#$	(12th c)
$\bar{u}, u > \bar{i}, \bar{i}/C'_{-}$	(14th c)
$\bar{e}, \bar{e} > \bar{i}\bar{e}, \bar{i}\bar{e}$	(14th c)
depalatalization of palatalized consonants	(14th c)
$\bar{u} > ou$	(14th-16th cc)
$\bar{i}\bar{e} > \bar{i}$	(15th c)

Since the bulk of sound changes which, differentially implemented according to register, eventually produced the modern situation of diglossia in Czech, date from the same period as the spread of *-m*, mention will be made of spoken Czech forms where relevant.

Here is an inventory of the classes of verbs present in Czech at this time:⁸

Class I: *-u(-i), -eš, -e, -eme, -ete, -Ń(-i)*

This class includes

- non-suffixed stems
- *nesu, neseš, nesŃ*
- *peku (> pečŃ), pečeš, pečŃ (> pečŃ)*
- *trŃ (> třŃ), třeš, třŃ (> třŃ)*
- *žnu, žneš, žnŃ*
- *beru, bereš, berŃ*
- verbs with a stem in *-Vj-*
- *kryju, kryješ, kryjŃ*
- verbs in **-no-/-ne-*
- *vadnu, vadneš, vadnŃ*
- *minu, mineš, minŃ*

- verbs in *-jo-/-je- following a C
česū, česēs, česū
- verbs in -ova- ~ -uj-
kupuju, kupujēs, kupujū

This class is comprised largely of slightly productive and unproductive types.⁹ The velar mutation expected only before the theme vowel -e- spread to the entire non-past paradigm (a development that probably overlapped with the spread of -m): *pekū* 'I bake', *pekū* 'they bake' soon yield to *pečū* 'I bake', *pečou* (< *pečū*) 'they bake' to match *pečēs* 'you bake'.¹⁰ Note that this leveling also affected the *r* stems, as indicated above.

The *u* > *i* change affected the 1sg and 3pl desinences after stems ending in a soft consonant (this change did not affect the paradigms of the velar stems, which might suggest that *pekū* > *pečū* 'I bake' subsequent to *u* > *i*), thus producing *pišū* > *piši*, *pišū* > *piši* 'I write, they write'. The literary language retains only a few of these forms in -*i*, -*ī*, and their use is marked as bookish, even in written discourse. Forms in -*ī*, -*ī* are the only accepted forms present in the literary language for class I verbs with a non-past stem ending in -*r*, but they are uniformly represented only as -*īu*, -*īou* in spoken Czech (the use of these forms is among the first features that signal a transition from literary Czech to spoken Czech).¹¹

Contraction does sporadically occur in at least some verbs with stems in -*Vr*-, although the pattern of attestations suggests that contracted forms such as *pi* 'drinks' were rarer and in free variation with uncontracted forms such as *pije* 'drinks'.¹² The norm, however, was to avoid contraction here, and diachronically the uncontracted forms prevailed.

Class II: (-*u* >) -*i*, -*ī*, -*ī*, -*īme*, -*īte*, -*īē* (> -*ī*)

This class includes verbs in -*i*-¹³

- proši, prošī, prošī, prošiē
- trpī, trpīš, trpīē
- učī, učīš, učīē

It is significant that Czech inherited this class of verbs with a lengthened theme vowel in the 2sg, 3sg, 1pl, and 2pl forms, for as we shall see, this facilitated the spread of -*m* to class II.¹⁴

Some verbs had a morphophonemic alternation that involved the palatalization (dental obstruents and *r* became palatal affricates and fricatives, the remaining consonants were palatalized) of the stem consonant in the 1sg. The 1sg desinence always appeared after a soft consonant and was therefore subject to *u* > *i*. Here *u* > *i* was carried out quite consistently with only rare attestations of -*u* after the mid-fourteenth century. However, the morphophonemic alternation was in the process of being eliminated at

the time of the spread of -*m*, and this was part of the larger trend to eliminate morphophonemic alternations in the non-past conjugation already mentioned above. Here attested forms of the verb *bdieti* 'be wakeful' illustrate the proliferation of possibilities created by the phonological and morphophonemic dynamics of the time. In the fourteenth century, all of the following forms are attested for the 1sg:

- pozbi (shows the expected consonant mutation and *u* > *i*)
- bdī (lacks mutation but shows *u* > *i*)
- bdīu (lacks both mutation and *u* > *i*).

In the fifteenth century we have an attestation of *bdim* 'I am wakeful' showing the athematic -*m*, but we also have other attestations of -*m* with verbs of this class from the fourteenth century.

The depalatalization of palatalized consonants affected verbs with stems ending in labials and in *l*, since palatalization was the only carrier of the morphophonemic alternation characteristic of this class. Of the verbs in class II,¹⁵ 33 had no original morphophonemic alternation of stem consonant because the stem consonant was an original palatal fricative or affricate (e.g. *učī* 'I teach', *učīš* 'you teach').

49 had an original morphophonemic alternation, but of these:
21 verbal stems ended in a labial or *l* (e.g. *trpī* 'I suffer', *trpīš* 'you suffer'; *bydli* 'I reside', *bydliš* 'you reside'),

which meant that the morphophonemic alternation was already compromised. The spread of -*m* removed what remained of this alternation by replacing forms such as *proši* 'I beg' with innovative forms like *prošim*.

Class III: -*ieji*, -*ieš*, -*ie*, -*īeme*, -*īete*, -*ieji*

This class includes:

- non-derived verbs
rozumieji, rozumieš, rozumieji
- derived verbs, especially with the meaning 'becoming'
lenivieji, lenivieš, lenivieji
- derived imperfectives in *-*jaje*-
klanieji sie, klanieš sie, klanieji sie

All three subtypes underwent contraction in all non-past forms other than the 1sg and 3pl, yielding -*ie*- (= *ē*), which further developed to -*i*-, causing this class to merge with class II in all forms but the 3pl). Contraction was completed in the prehistoric period, and no uncontracted forms are attested. The history of the third subtype, however, requires further commentary. This subtype represents a highly productive class of derived imperfectives and iteratives. The original form of the non-past (excluding

the 1sg and 3pl) is **kian-ia-je-*. The original cluster **nj* yielded *n̄* (similar deletions of other consonants occurred as well), and contraction gives: **kian̄-ā-*. It is the change of *ā* > *ē* (later > *iē* > *i*), that brings this significant group of verbs into class III. Note also that *u* > *i* affects the 3pl desinence for all subtypes. Unlike class I (and like class II), attestations of class III verb forms that do not reflect the *u* > *i* change are definitely in the minority in the fourteenth century and disappear thereafter.

Class IV: -aji, -ās, -ā, -āme, -āte, -āji

This class includes

- verbs in original **-aje-*
znaji, znās, znaji
- derived imperfectives in **-aje-*
pomáhaji, pomáhās, pomáhaji

Like those of Class III, all verbs of class IV were subject to contraction, and the effects of *u* > *i* quickly became the norm, leaving no trace of *-ā* in the 3pl. Verbs of this type were numerous.

Class V:

jmām, jmās, jmā, jmāme, jmāte, jmāji
dām, dās, dā, dāme, dāte, dātiē (> dadi, later > daji)
viēm, viēs, viē, viēme, viēte, viediē (> viedi)
jiēm, jiēs, jiē, jiēme, jiēte, jiediē (> jedi)
[jsem, jsi, jsv/je, jsmē, jstē, jsu] ¹⁶

I will suggest that learners faced with the verb system described in the inventory above made the following abductions about their verbal morphology. All non-past forms of all verbs, with the exception of *byti* 'be,' have the schematic shape:

stem - V_1 - (C) - (V_2)

where the stem ends in a consonant and has the minimal shape C(C), V_1 is any vowel or diphthong, and the last two segments are optional. Here are 1pl forms to illustrate:

Class I:	nes-e-m-e	peč-e-m-e	tě-e-m-e
	žn-e-m-e	ber-e-m-e	kryj-e-m-e
	vahn-e-m-e	min-e-m-e	čes-e-m-e
	kupuj-e-m-e		
Class II:	pros-i-m-e	trp-i-m-e	uč-i-m-e
Class III:	rozumn-iē-m-e	leniv-iē-m-e	klaf-iē-m-e
Class IV:	zn-ā-m-e	pomáh-ā-m-e	sie
Class V:	jm-ā-m-e	d-ā-m-e	v-iē-m-e
	jiē-m-e		

All other verbal forms can be segmented similarly, although the patterns for the 1sg and 3pl are not uniform, giving:

1sg	stem - V_1	classes I, II
	stem - V_1 - C - V_2	classes III, IV
	stem - V_1 - C	class V
3pl	stem - V_1	classes I, II
	stem - V_1 - C - V_2	classes III, IV, V

Thus all of non-past morphology has a single schematic shape. A logical consequence of the abduction that there is a single schematic morphological shape for the whole non-past, is the deduction that there are two types of verbs in Old Czech, based on the quantity and quality of V_1 :

- Class I— V_1 is: a) short in all forms but the 3pl, b) variable in quality, and c) not present in infinitive or past forms.

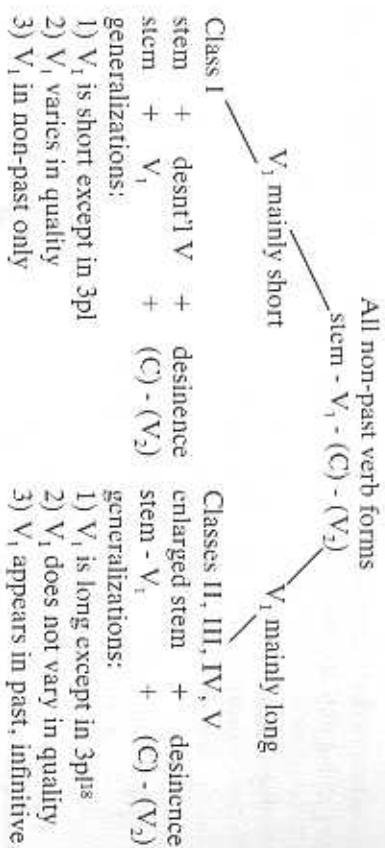
• Classes II, III, IV, V— V_1 is: a) long in all forms but the 1sg of classes II, III, and IV and the 3pl of classes III, IV, and V, b) invariant in quality in the non-past, ¹⁷ and c) found also in the past and infinitive (with alternation *i* ~ *ie* in past and infinitive for verbs like *trpjeti* 'suffer' in class II, and *a* ~ *ie* in *jmām* 'I have, *jmeti* 'have'). Given that V_1 is invariant in the non-past and also represented (albeit short and sometimes with variations in quality) in the past and infinitival forms, it seems likely that there was a significant reanalysis that affected these classes, namely the recognition of V_1 as part of the stem of the verb rather than as a marker of non-past, thus bringing a contrast of:

Class I:	stem	+	desinential vowel	+	desinence
	stem	+	V_1	+	(C) - (V_2)

Classes II, III, IV, V:

enlarged stem	+	desinence
stem - V_1	+	(C) - (V_2).

At this point we have two types of verbs, one (class I) which continues the thematic verb classes of the sort we observe in Old Church Slavonic, and an innovative type (remaining classes) with a stem ending in a vowel and desinences (beginning in a consonant or zero) attached directly to the stem. Note that the innovative type lends itself to interpretation as an athematic type, since the theme vowel has become part of the stem. Taking into account the facts concerning the schematic shape of non-past forms and the quantity and quality of V_1 , the following hierarchy is observed:



class V adheres to all generalizations (with the exception of <i>a ~ ie</i> in <i>jmiet'</i>)
classes III, IV deviation from generalizations: —short V ₁ in 1sg
class II deviations from generalizations: —short V ₁ in 1sg —long V ₁ in 3pl —some variation in quality of V ₁

Beneath the schematic description of verbs characterized by length in V₁ (the group on the right), is the radial category that instantiates this group of verbs, with class V as the central member. This hierarchy gives the athematics a substantial boost in status, for their non-past conjugation is now prototypical for the whole group of classes. This portion of the diagram highlights the 1sg as a form in need of reform for classes II–IV (i.e., not yet uniform),¹⁶ and the athematics as the logical source for the reform. Indeed, we observe an innovative 1sg form of stem + V₁ + *m* for all verbs in classes II, III, and IV. This spread of *-m* was gradual, first affecting classes III and IV which had exact parallels as far as the quality of V₁ was concerned among the athematics *věděti* 'know,' *jesti* 'eat' and *dáti* 'give,'

jmiet' 'have,' respectively. For these classes *-m* spread in the fourteenth century, and this spread overlapped with the spread of *-m* to class II, which lagged behind a bit, and was completed at the time that *iě > i*, occasioning the collapse (for all but 3pl and past stem) of classes II and III. We can thus posit a two-phase development:

Phase 1

Abductions:

- {m} is a marker of first person
- there is a category of verbs with V₁ = *a* or *iě*
- they have the non-past shape enlarged stem + desinence (these are the verbs that have undergone contraction, which crased the original stem + theme vowel boundary and removed the independent theme vowel)
- class V is prototypical of this category
- classes III, IV use the prototypical athematic 1sg in V₁ + *m*

Deduction:

Phase 2

Abductions:

- {m} is a marker of first person
- there is a category of verbs with V₁
- they have the non-past shape enlarged stem + desinence
- class V is prototypical of this category
- classes II, III, IV use the prototypical athematic 1sg in V₁ + *m*

Deduction:

To illustrate:

Phase 1 (plus subsequent sound changes) deduces the modern Czech

forms:

(rozuměm >) rozumím	'I understand'
(lenivěm >) lenivím	'I become lazy'
(klaněm sie >) klaním se	'I bow'
pomáhám	'I help'
znám	'I know'

based on the prototypical pattern of

(věm >) vim	'I know'
(jěm >) jím	'I eat'
dám	'I give'
(jmám >) mám	'I have'

Phase 2 further deduces

prosim	'I beg'
trpim	'I suffer'
učim	'I teach'

on the pattern of the same prototypical verbs, with the difference that only the quantity, not the quality of V_1 is specified by the prototypical pattern.

The partition of the verbal system into two subsystems is independently confirmed by two other phenomena dating from this time that likewise show a consistent differentiation between verbs in class I and those in classes II–V. One such phenomenon is the realization of the $u > i$ sound change in verbal desinences. Verbs in class I have resisted or reversed this change, retaining some desinences with $-i$, $-i$ only as literary variants. For the spoken language, all class I verbs have this vowel pattern following the stem: u , e , e , e , \bar{u} ($> ou$).²⁰ Verbs in classes II–V have carried this same change out consistently, leaving no trace of original $-u$, $-\bar{u}$.²¹ This difference also supports the resegmentation suggested above, for in class I, the original $-u$, $-\bar{u}$ are perceived as V_1 , whereas in classes II–IV they are V_2 . Conversely, only verbs in class I can have stem mutations with respect to the infinitival stem (specifically velar mutations, $-ova- \sim -uj-$, and other more restricted types like $br- \sim ber-$, $kn- \sim žen-$ 'drive'), whereas all stem mutations have been leveled out of verbs in classes II–V. Thus the following information can be added to the schematic descriptions in the above diagram:

Class I	Classes II, III, IV, V
low or no productivity	some productive types
$u > i$ resisted	$u > i$ carried out
some stem mutations	no stem mutations
no spread of $-m$	spread of $-m$

The Spread of 1sg -m in Slovak

In Slovak $-m$ has spread to all verbs, leaving behind relics of 1sg in $-u$ only in a few interjections: *reku* 'I say', *bist'u* 'I swear', *bojisa* (< *boju sa*) 'I fear'. The major factors that account for this difference between Czech and Slovak are:

- differences in the way quantity was inherited in verbal desinences
- the rhythmic law of Slovak and shortenings conditioned by $-j-$
- the status of \bar{e} at the time of compensatory lengthening.²²

The first difference, that of quantity in desinences, will be illustrated in some detail in the inventory of verb classes below. Briefly, in addition to the length for $V_1 = \bar{r}$ inherited by Czech in its class II verbs, Slovak also

shows inherited quantity for the $V_1 = \bar{e}$ ($> ie$) of the 2sg, 3sg, 1pl, and 2pl forms of non-suffixed stems, as well as of verbs in $*-no-/-ne-$ which have a vowel or syllabic r or l preceding the n (Stanislav 1967: 488 explains that the length in this last group of verbs is the result of a reanalysis of these verbs such that the n is interpreted as part of the "root" $*mi-ne > *min-e$; the result looks very much like an obstruent stem (even though n is not an obstruent), and receives length accordingly; thus *minie* 'passes' corresponds to *nesie* 'carries').²³ The rhythmic law, which also affected quantity in Central Slovak, is a relatively old phenomenon that has been in effect since at least the twelfth century, and may even date back as far as the tenth or eleventh centuries (Krajčovič 1988: 80–81). According to the rhythmic law, a long syllable could not be followed by another long syllable, and the second long syllable was shortened (this rule works right-to-left, so if there are three long syllables all but the first one shortened, thus $*spēvāvam > *spēvāvam > spievavam$ 'I sing (iterative)').²⁴ As we will see below, the rhythmic law had a sweeping effect on quantity in verbal forms, since it caused shortening of V_1 after syllables with long vowels. A detailed account of how this phenomenon affected the verbal system will follow the inventory. Here are the relevant phonological changes peculiar to Old Slovak:²⁵

$\bar{g} > h$	(circa fall of jers)
$\bar{e}, \bar{e} > \bar{e}, e$	(circa fall of jers)
$\bar{o} > \bar{u}; \bar{\phi} > u; \bar{e} > \bar{a}; \bar{e} > \bar{a}P_{-}$, elsewhere $> a$	(10th c)
$\bar{e} > ie$	(13th c)
$\bar{a} > ia/C_{-}$	(15th c)
depalatalization of palatalized consonants	(15th c)

Documentation of the spread of $-m$ in Slovak is not so complete and straightforward as for Czech, because the earliest texts of Slovak date from after this change began, and these texts do not represent pure Slovak; they all contain Czech elements, for Czech was the official literary language of the time. Therefore the discussion of $-m$ in Slovak is more speculative.

Here is the inventory of Old Slovak verb classes at the time $-m$ spread: Class I is divided into two major subclasses according to the length of V_1 .

Class Ia: $-u$, $-e\bar{s}$, $-e$, $-eme$, $-etc$, $-\bar{u}$

This class includes verbs

- with stems in n
Znu, žneš, žnū²⁶
- in $*-no-/-ne-$ which have C preceding the n
vādnū, vādněš, vādnit
- in $*-jo-/-je-$ following a C
češū, češeš, češit

The verb for 'want' *chcieti* leveled out its class II forms in the 1sg and 3pl and joined this class as a regular verb with no morphophonemic alternations: *chcem, chceš, chce, chceme, chcete, chcą*.

Class Ib: -u, -ieš, -ie, -ieme, -iete, -ã

This class includes

• non-suffixed stems

nesu, nesieš, nesú

peku (> pečú), pečieš, pekú (> pečú)

iru, trieš, trü

beru, berieš, berü

• verbs with stem in -Vj-

kryju, kryješ (> kryješ), kryjúž?

• verbs in *-no/-ne- with V or syllabic r or l preceding the n

minu, minieš, minü

• verbs in -ova- ~ -uj-

kupuju, kupuješ (> kupuješ), kupujú

As in Czech, the velar alternation was leveled to the palatal throughout the non-past, and this process was probably underway (though not complete) at the time of the spread of athematic -*m*. Characteristic of this class is the long theme vowel *-e-* in all forms but 1sg, 3pl.

The issue of how this group of verbs came to develop length in V_1 , especially given that there are no parallels to this in Czech, demands an explanation, but it is not addressed in historical grammars. I will offer the hypothesis that this difference between Czech and Slovak results from differences in the ways that these two languages treated the proto-Slavic phoneme * \acute{e} in their early histories. Let us assume that compensatory lengthening (using Timberlake's 1983b model of graded lengthening) produced a phonetically somewhat lengthened *-e-* in this group of verbs for both Czech and Slovak at the time of the fall of the jers,²⁸ and that the phonemic length of this vowel had to be determined. The phonemic systems of Czech and Slovak at this time differed in one small but very significant respect. Whereas in Slovak long and short \acute{e} > *e* at about the time of the fall of the jers, Old Czech retains long and short \acute{e} as distinct from \bar{e} , *e*. Furthermore, there are very few sources of \acute{e} in Old Czech of that time (especially if we compare its distribution with some other long vowels, for example, *ŕ*). Aside from \acute{e} as the result of contraction (and this, with few exceptions, only in adjectival endings), we find it almost exclusively in morphophonemically determined positions, such as in certain infinitives (*něsti* 'carry', *řéci* 'say') and preceding diminutive suffixes (*pěřko* 'feather (dim.)', *kaměnek* 'stone (dim.)'). Furthermore, Timberlake (1983a: 212;

but note that his work is based primarily on substantives) notes that *e* does not occur in environments where we would expect compensatory lengthening in Czech, thus this process "is artefactually limited to *o*." Only later (perhaps in the twelfth century or soon thereafter) \acute{e} > *e*l-; in other positions long and short \acute{e} do not merge with \bar{e} , *e* until the fourteenth century. In Czech the contraction of *-ěje-* resulted in \bar{e} ; the same process occurred in Slovak, but was soon followed by the merger of \acute{e} > \bar{e} . And Slovak, as distinct from Czech, did have compensatory lengthening of *e*. Given this information we can posit the following realizations of V_1 at a time immediately after the fall of the jers in Czech and Slovak:

<i>Old Czech</i> V_1 's	<i>Old Slovak</i> V_1 's
lengthened <i>e</i> (from Cl)	lengthened <i>e</i> (from Cl.)
long \bar{e} (from contraction)	long \bar{e} (from contraction)
long \bar{a} (from contraction)	long \bar{a} (from contraction)
long <i>i</i> (inherited)	long <i>i</i> (inherited)

Whereas in Slovak the V_1 *e* that was somewhat lengthened by compensatory lengthening has a V_1 long \bar{e} to be identified with, the somewhat lengthened *e* in Czech finds no other long \bar{e} among realizations of V_1 , and moreover long \bar{e} (except in adjectival declension) had fairly marginal status in the language at the time. These factors likely contributed to the recognition of lengthened *e* as a long vowel in Slovak, but as a short vowel in Czech. Still, one issue remains to be resolved: why did the Slovak class Ia verbs not receive length in V_1 ? All subtypes of this class have a consonant cluster originally ending in a nasal or *-j-* preceding V_1 , and I suggest that this environment somehow conditioned the lack of compensatory lengthening we observe.²⁹

Class II: -u, -iš, -i, -ime, -ite, -ã

This class includes

• verbs in -i-

prošu, prosíš, prosã (> prosia)

trp'u, trpiš, trpã (> trpia)

uču, učíš, učã (> učia)

Length in V_1 is inherited for all forms but the 1sg, which also exhibits a morphophonemic alternation in all verbs with roots ending in consonants other than labials and palatals. This alternation was probably in the process of being leveled out at the time of the spread of -*m* (parallel to the situation in Czech). Characteristic of this class are: a) 1sg in *-u* (with consonant mutation) and 3 pl in *-ã* (> *-ia*, reduced later to *-a* after *-j-* due to interpreta-

tion of first part of diphthong as an off-glide of *-j-*, cf. *stoja* 'they stand'), and b) V_1 realized as *-r-* in the remaining forms.

Class III: *-eju, -ieš, -ic, -ieme, -iere, -eju*

This class includes

- non-derived verbs
rozumelju, rozumieš, rozumelju
- derived verbs, especially with the meaning 'becoming'
leniveju, leniveš, leniveju

The second subtype is productive, and here the length of the vowel *-ě-* \rightarrow *-e-* \rightarrow *-ie-* is morphologized as part of the morpheme denoting 'become,' and thus not subject to the rhythmic law, e.g. *znádríteš* 'you become wise,' which does not show shortening of the final syllable. Characteristic of this class are: a) an alternation in quantity of *-e-* (1sg, 3pl) \sim *-ie-* (remaining forms), and b) the presence of *-j-* in the 1sg and 3pl.

Class IV: *-aju, -áš, -á, -áme, -áte, -aju*

This class includes

- verbs in original **-aje-*
znaju, znáš, znaju
- derived imperfectives in **-aje-*
pomáhaju, pomáháš (> pomáháš), pomáhaju
- derived imperfectives in **-jaje-*
klaňaju sa, klaňáš sa (> klaňáš sa), klaňaju sa

The characteristics of this class are the same as those of class III, with the amendment that V_1 in class IV is *-a-* \sim *-á-*.

Class V: (i)mām, (i)máš, (i)mā, (i)māme, (i)māte, (i)māju

dām, dáš, dā, dāme, dāte, dadā (> dadā, later > daju)
viem, vieš, vic, vieme, viete, vedā (> vedā)
jēm, jěš, jě, jēme, jěte, jedā (> jedā)
[som/scm, si, jestr/je, sme, sre, sūsāl]

V_1 of the verb *jesti* is long *-ě-* (cf. *-á-* above), but is diphthongized to *-ie-* and then the first part of the diphthong coalesces with the contiguous glide *-j-*, thus yielding *jēm, jěš, jě, jēme, jěte, jedā*.

At this point the spread of athematic *-m* in Slovak to classes II–IV could be accounted for in a manner similar to that used for Czech. However, athematic *-m* spread not only to these classes, but to class I as well, which experienced neither contraction, nor, in the case of class Ia, the develo-

ment of length. Here the rhythmic law and violations to it (environments in which the rhythmic law was not implemented,³⁰ as well as shortenings conditioned by other factors) become essential in tracking the abductions that motivated the remaining spread of *-m*. In the inventory above I have given mainly examples of verbs that have a short syllable preceding V_1 , and have made little mention of the shortenings of V_1 occasioned by the rhythmic law. Indeed, most verbs do have a short syllable preceding V_1 , but long syllables occur in significant numbers. I have made the following estimates of the frequency of length before V_1 :³¹

Class Ia	long V before V_1 30%	short V before V_1 70%
other classes	10% CVVC - V_1 -	90% CVVC - V_1 -

Verbs with length in syllables preceding V_1 constitute significant minorities in both groups of verbs. Since length in the syllable preceding V_1 precludes length for V_1 , and since length of V_1 is a major factor occasioning the second phase of the spread of *-m*, this fact is important. V_1 was shortened in some exponents of the classes to which the spread of *-m* was facilitated by abductions based on the presence of a long V_1 , and further the conditioning environment for shortening of V_1 was present in some verbs of class Ia, giving them a shape identical to that of verbs in other classes. Beyond the fact of schematic homophony between class Ia and the remaining classes, length in the stem vowel occasioned homophony between the 1sg and 3pl forms, as in: *viažu* 'I tie,' *viažu* 'they tie,' where the rhythmic law caused the 3pl desinence to shorten. Athematic *-m* in these verbs therefore also helped to reestablish distinctiveness that was jeopardized in this paradigm by producing *viažem* 'I tie.'³² Further, we must add to the shortenings occasioned by the rhythmic law the fact that class Ib verbs in *-j-* also show a shortening of V_1 .

In the early stages of the process *-m* spread to verbs where V_1 was long or was short, but underlyingly long (i.e., shortened by the rhythmic law or *-j-*). In the later stage the recognition of length in V_1 as being automatic was compromised, and the condition that *-m* spread only to verbs with underlying length for V_1 was dropped, making it possible to spread *-m* to verbs with V_1 that was short whether or not brevity was inherited or brought about by the rhythmic law. I will posit the following model for the spread of *-m* in Slovak (as is the case for Czech, these phases probably overlapped in time, but the general chronology of attestations supports the order of spread suggested here):

Phase 1

Abductions:

- {m} is a marker of first person
- there is a category of verbs with underlying $V_1 = \bar{a}$ or ie
- they have the non-past shape enlarged stem + desinence (these are the verbs that have undergone contraction, which crased the original stem + theme vowel boundary and removed the independent theme vowel)
- class V is prototypical of this category
- classes Ib, III, IV use the prototypical athematic 1sg in $V_1 + m$

Deduction:

Phase 2

Abductions:

- {m} is a marker of first person
- there is a category of verbs with underlying V_1
- they have the non-past shape enlarged stem + desinence
- class V is prototypical of this category
- classes Ib, II, III, IV use the prototypical athematic 1sg in $V_1 + m$

Deduction:

Phase 3

Abductions:

- {m} is a marker of first person
- length of V_1 is not distinctive in classifying verbs
- there is one category of verbs (rhythmic law is not automatic; there are other shortenings; underlying length cannot be determined)
- all verbs use the prototypical athematic 1sg in $V_1 + m$, where V_1 can be long or short

Deduction:

To illustrate:

Phase 1 (plus subsequent sound changes) deduces the modern Slovak forms

nesiem	'I carry'
pečiem	'I bake'
trnem	'I rub'
beriem	'I take'
(kryjiem >) kryjiem	'I cover'
miniem	'I pass'

(kupujiem >) kupujiem	'I buy'
rozumím	'I understand'
lenívím	'I become lazy'
znám	'I know'
(pomáhám >) pomáhám	'I help'
(klaňám sa >) klaňám sa	'I bow'

based on the prototypical pattern of

vím	'I know'
(jém >) jem	'I eat'
((j)mám >) mám	'I have'
dám	'I give'

Phase 2 further deduces

prosím	'I beg'
trpím	'I suffer'
učím	'I teach'

on the pattern of the same prototypical verbs, with the difference that only the underlying quantity, not the quality of V_1 , is specified by the prototypical pattern.

Phase 3 further deduces

žnem	'I reap'
vádňem	'I whither'
česem	'I comb'

on the pattern of the same prototypical verbs (i.e., the shape enlarged stem + m), but in this phase neither the quality nor the quantity of V_1 are specified.

Factors that contributed to the third phase in the spread of -m include:

- the virtual identity in form of verbs of class Ia and class Ib, especially in verbs with a long syllable or -j- preceding V_1 , where both had a short V_1 ; i.e., the shape $CVC - V_1 -$
- the homophony of 1sg and 3pl forms in class I verbs with long stem vowels
- the gradual accumulation of exceptions to the rhythmic law, eroding its status as an automatic phonetic rule
- the shortening of V_1 , i.e. > e in position after -j-, as in **kupuješ* > **kupuješ* > *kupuješ* 'you buy'; especially important was the case of

jem > *jem* 'I eat,' which yielded a short V_1 in the prototypical class of athematic verbs

- e) the fact that Slovak developed length in more classes of verbs than did Czech, leaving class Ia as a small minority readily assimilated into processes affecting the remaining classes.

The Spread of 1sg -m in Polish

In Polish the spread of athematic *-m* is much more modest than in Czech or Slovak. Two main factors account for this difference: a) contraction was much less regular in Polish than in Czech and Slovak; it failed to take place in non-past forms with the sequence *-aje-* if the first two segments of that sequence could be interpreted as part of a suffix (e.g., verbs in *-awać*, *poznać* 'meet,' *poznać* (later > *poznać*) 'I meet,' *poznać* 'you (meet),' and it failed to take place in the verbs of 'becoming' where original sequences of **-ęje-* are likewise not contracted (*leniwieć* 'become lazy,' *leniwieć* (later > *leniwieć*) 'I become lazy,' *leniwieć* 'you become lazy'); and b) there is no evidence to indicate that retention of original length or compensatory lengthening produced long V_1 in any other verbs aside from the athematics. Although the spread of *-m* may have overlapped slightly with the early period of loss of quantity in Polish (which begins in the fifteenth century), it seems that this change did not affect it; *-m* was already well established in the forms to which it was able to spread by this time. At the time that *-m* spread, the Polish verb system was also experiencing another morphological change, namely the analogical spread of consonant mutation from the 1sg to the 3pl in *-i-* verbs: **prosić* > *proszę* 'they beg' based on *proszę* (later > *proszę*) 'I beg.' This change will be discussed in further detail below, since it is motivated by the general structure of the non-past, just as is the case for the spread of *-m*.

The phonological changes relevant to this discussion are the following:⁵⁵

$\bar{e}, \bar{e} > \bar{a}, a/_-T^o$	(12th c)
$\bar{e}, e > \bar{o}, o/_-T^o$	(12th c)
$\bar{e}, e > \bar{a}, a/_-T^o$	(12th c)
affrication $r' > \acute{c}, d' > \acute{d}z$	(late 12th c)
$s' > \acute{s}, \acute{z}' > \acute{z}$	(? early 13th c)
$r' > \acute{r} < rz >$	(13th c)
$\bar{a}, \bar{e} > \bar{e}, e$	(13th c)
\bar{e}, \bar{a} merge > \bar{e} ; \acute{e}, \acute{a} merge > \acute{e}	(14th c)
phonemic merger of $y > i$	
and the hardening of $cz, sz, \acute{z}, rz, c, \acute{c}, \acute{d}z$	
(the "historically soft consonants")	(15th c) ⁵⁶

Here is the inventory of verb classes for fourteenth century Polish:

Class I: $-\bar{a}, -esz, -\acute{e}, -emy, -\acute{e}cie, -\bar{g}$

This class includes

- non-suffixed stems

niosą, niesiesz, niosę
pieką, pieczesz, piekę

trą, trzesz, trą

zną, zniesz, zną

biórą, bierzysz, biorę

- verbs with stem in $-Vj-$

kryją, kryjesz, kryję

- verbs in $*-no-/-ne-$

wiedną, wiedzisz, wiedną

miną, miniesz, minę

- verbs in $*-jo-/-je-$ following a C

czeszą, czeszysz, czeszę

- verbs with suffixes $-e(i)-$; $-awa-$; $-aj-$; $-owa-$; $-ywa-$; $-iwa-$; $-uj-$

leniwieją, leniwiejesz, leniwieję

poznają, poznajesz, poznają

kupują, kupujesz, kupują

pokazują, pokazujesz, pokazują

This is a substantial class of verbs, including some productive types (especially the verbs in $*-no-/-ne-$ and the last subtype). All verbs in this class that do not have a non-past stem in $-j-$ (whether realized as such or as a resulting dejection) also participate in secondary or even tertiary alternations opposing the 1sg and 3pl to the remaining forms of the conjugation, an issue that will be taken up in more detail below.

Class II: $-\bar{a}, -i/(y)sz, -i/(y), -i/(y)my, -i/(y)cie, -\bar{g}$

This class includes

- verbs in $-i-$

*proszą, prosisz, prosię (> *proszę*)*

cierpią, cierpisz, cierpię

uczą, uczysz, uczę

This is a productive type and the majority of its exponents underwent the change illustrated by **prosię* > *proszę* 'they ask' at the time of the spread of *-m*, as described below. Only verbs with stems ending in labials, original palatals, or l (represented by *cierpieć* 'suffer,' *uczyć* 'teach') were excluded from this development because they did not have any morphophonemic alternations in the non-past in the first place.

Class III: -eja, -ész, -é, -ěmy, -ěcie, -eja

This class includes

- non-derived verbs
rozumieja, rozumiesz, rozumieją

Class III contains only three verbs: *umieć* 'know', *rozumieć* 'understand', *śmieć* 'dare.'

Class IV: -aja, -asz, -ą, -amy, -acie, -ają

This class includes

- verbs in original *-aje-
znają, znasz, znają
- derived imperfectives in *-aje-
pomaga(a)ją, pomaga(a)sz, pomaga(a)ją
- derived imperfectives in *-aj(e)- (except *-a-aj(e)- > *-awa-je-)
kłaniaja się, kłaniaasz się, kłaniają się

This is a fairly large class, containing highly productive derived imperfectives.

Class V: mām, mās, mā, māmy, mācie, mają

- dām, dās, dā, dāmy, dācie, dadzą (> dadzą)
- wiēm, wiēs, wiē, wiēmy, wiēcie, wiedzą (> wiedzą)
- jēm, jēs, jē, jēmy, jēcie, jedzą (> jedzą)
- [ješm, ješ, jest/ješć/je, jesmy, jeste, są]³⁵

The change noted for the 3pl of three of the athematics is part of the analogical change that substitutes *Cj reflexes for palatalized consonants, to be discussed below.

We can posit a one-phase development for Polish, parallel to the first phase in Czech and Slovak:

Abductions:

- {m} is a marker of first person
- there is a category of verbs with $V_1 = \bar{a}$ or \bar{e}
- they have the non-past shape enlarged stem + desinence
- (these are the verbs that have undergone contraction, which erased the original stem + theme vowel boundary and removed the independent theme vowel)
- class V is prototypical of this category
- classes III, IV use the prototypical athematic 1sg in $V_1 + m$

Deduction:

- $V_1 + m$

To illustrate:

this process (plus the subsequent loss of distinctive length) deduces the modern Polish forms

(rozumie(m) >) rozumie(m)	'I understand'
(znám >) znam	'I know'
(pomagam >) pomagam	'I help'
(kłaniam się >) kłaniam się	'I bow'

based on the prototypical pattern of

(wiēm >) wiem	'I know'
(jēm >) jem	'I eat'
(mām >) mam	'I have'
(dām >) dam	'I give.'

Unlike the situation in Czech, the spread of -m is quite restricted and although it does reflect a division in the verbal lexicon (between contracted and uncontracted types) this division does not have the depth and polarizing effect we observed in Czech (i.e., this division is not supported by other features of verbal morphology). On the contrary, there is another, unifying factor at work in non-past conjugations at this time which interacts with the spread of -m. This is the development of morpho-phonemic alternations opposing the 1sg and 3pl to the remaining forms. There were three such alternations, each of which will be discussed in turn.

Primary—this is the alternation of nasal vs oral for the final segment of the non-past forms, an alternation which was universal in the system. All 1sg and 3pl forms ended in long or short \bar{a} . It may be argued that the athematic verbs were not exceptional in respect to this alternation, for the athematic 1sg ending in -Vm was only a more specific phonemic realization of an underlying sequence of VN, equivalent at that level to Y. Thus this alternation did not impede the spread of -m, since -Vm bore a relation of (near) identity with the nasal vowel.³⁶

Secondary—this is the alternation of hard vs soft (palatal, palatalized, or historically soft) consonants preceding V_1 . This alternation involved most verbs in the lexicon, the only exceptions being:

- the subtype of class I with C + *-jo-/-je-, represented by *czeszą, czeszesz, czeszą*
- the subtypes of class II with stem consonants that are original palatals, labials or l, represented by *cierpią, cierpisz, cierpią*
uczą, uczysz, uczą

- the subtypes of class I with stem ending in $-V_1$, represented by

kryja, kryjesz, kryjã
 leniwieja, leniwiejesz, leniwiejã
 poznaja, poznajesz, poznajã
 kupuja, kupujesz, kupujã
 pokazuja, pokazujesz, pokazujã

The alternations themselves are represented by all the other types listed in the inventory. In some cases this alternation involves whole consonant clusters: *gasnã* 'they go out'; *gasniesz* 'you go out'; *wezmã* 'they take'; *wezmiesz* 'you take'. Note, however, that the opposition is non-prototypical in class II verbs, which have an alternation between palatals and palatalized consonants (rather than just hard vs soft) contrasting 1sg vs all other forms (rather than 1sg, 3pl vs all other forms).

Tertiary—a subset of the class I verbs with hard vs soft alternations further show a vowel alternation created by the three vowel changes that took place before hard dentals. This alternation involved non-suffixed stems. The $e > o$ change was by far the most significant; the alternation is occasionally represented by the verbs 'carry': *niosã*, *niesiesz*, *nioszã* and 'take': *biorã*, *bierzesz*, *biorzã*. The only dental obstruent stem with $*e > ai$ 'ride': *jadzã*, *jedziesz*, *jadzã*. The $*e > a$ change affected only two verbs, 'sit' and 'shake', which must have had the respective shapes $*siqdã$, $*siedziesz$, $*siqdã$, and $*trzãsqã$, $*trzãsziesz$, $*trzãsqã$, but the subsequent merger of nasal vowels effaced this alternation.

In Polish the system of morphophonemic alternations opposing the 1sg, 3pl to all other forms was the dominant characteristic of fourteenth century verbal morphology; the spread of $-m$ figured as only a minor modification compatible with this dynamic trend. All verbs had the primary alternation and virtually all verbs with a stem consonant capable of alternating also had a secondary alternation, with the only exception being the 3pl form of some class II verbs. Just as we have seen in the case of the three-phase spread of $-m$ in Slovak, over time the conditions on this rule were simplified, bringing the remaining class II verbs into line with other verbs having a secondary alternation, and on the influence of these class II verbs the 3pl of three of the athematics was likewise adjusted, as noted above.

To sum up,

In Czech the spread of 1sg $-m$ was carried out for all and only verbs that had acquired long V_1 , either via contraction (classes III and IV) or via inherited quantity (class II). Class III had more members in Czech than in the other two languages because it contained the 'becoming' verbs (which Polish did not contract, leaving them in class I) and the derived imperatives in $*-jajz-$ (which both Slovak and Polish kept in class IV). Shortly

after the spread of $-m$, however, the non-past of class III merged with that of class II due to $ie > i$.

In Slovak a long V_1 developed in all verbs with the exception of a few subtypes in class I. As in Czech, 1sg $-m$ spread to all verbs with long V_1 . The rhythmic law, exceptions to it, and shortenings conditioned by $-j-$ gradually eroded the role of length in this process and 1sg $-m$ spread to the remaining verbs.

In Polish length did not develop in class I or class II and there are several types of verbs in original $*-ajz-$ and $*-ejz-$ that did not contract, which meant that class I was larger (containing the 'becoming' verbs and certain types of derived imperatives), but classes III and IV were smaller than in the other two languages. 1sg $-m$ spread only to classes III and IV (i.e., those verbs with long V_1).

This article is part of an ongoing project examining the unexpected productivity of marginalized morphemes, an under-studied phenomenon termed "exaptation" by Lass (1990) which appears to have a variety of explanations. A grammatical morpheme can become marginal in one of several ways: a) when the paradigm that uses the morpheme becomes limited to only a few lexical items (as in the case of the athematic 1sg $-m$), b) when the paradigm is lost (as in the case of the former \bar{a} -stems), and c) when the grammatical category that the morpheme represents is lost (as in the case of the old dual endings). The categorial status of marginal morphemes is compromised and they are available for recategorization. Furthermore, the pattern of recategorization is quite logical. Morphemes in situation a), where the paradigm is limited, still represent active linguistic categories in live paradigms, and they will remain stable or decline unless phonological (and morphological) events "conspire" to change their status within their category. This is the case of the spread of athematic $-m$. In situation b), where the paradigm has been lost, however, the morpheme is no longer an exponent of an active paradigm, and is literally an "extra" piece of morphology. In this case it behaves like a semantic "wild card," and can be used to make innovative semantic distinctions (here witness the use of old \bar{a} -stem endings to make animacy distinctions, cf. Vařný 1970: 166). Morphemes in situation c) behave similarly to those in b), for they are unattached to a linguistic category and available to be innovatively attached to a new category (witness here the spread of old dual endings to mark the new category of virility in Polish: *pięciu panów* 'five men').

NOTES

1 This research was aided by a grant from the Joint Committee on Eastern Europe of the American Council of Learned Societies and the Social Science Research Council. I wish

to thank Henning Andersen, Christina Y. Berlin, Lawrence Feinberg, Victor Friedman, and Craig Melcher for the valuable comments and corrections they made to earlier versions of this article. In addition I am grateful to three anonymous colleagues who reviewed this article for *SEJ* and provided constructive criticism and suggestions. Any errors in this text can be attributed to the author alone.

2 Considerations of length have prompted limiting this discussion to the major languages of West Slavic. The spread of *-m* in South Slavic has also been analyzed by the author and will be presented in Janda forthcoming, along with a discussion of why we do not observe this phenomenon in East Slavic.

3 Throughout the text I will use modified versions of the standard modern orthographies to represent the fourteenth century forms cited. Orthographies are modified only in the way in which quantity is marked in vowels following the stem. After the stem, vowel length will be marked by $\bar{\cdot}$, and brevis will have no mark. Otherwise length in Czech and Slovak is marked as per the standard convention with an acute accent. For readers not familiar with the orthographies of the modern languages, the following notes are essential.

Czech

<ɪ> always represents a vowel

<ɪ, d, n> are palatals before <ɪ, ê>

<p, b, v> + <ê> = /p, b, v/ + /e/; <m> + <ê> = /m/ + /e/ + /e/

Slovak

<ɪ> always represents a vowel

<ɪ, d, n, l> are palatals before <ɪ, e>

Polish

<ɪ> can represent a vowel (when followed by another vowel)

all consonants are palatalized before <ɪ>

Conventional symbols used in this article:

C = consonant

C $\bar{\cdot}$ = soft consonant

C $\bar{\cdot}$ = hard consonant

= word boundary

Y = nasal vowel

N = nasal

Y $\bar{\cdot}$ = hard dental

P = labial

CL = compensatory lengthening

1 = first person

sg = singular

2 = second person

pl = plural

3 = third person

*x > y / _ " is to be read as "x becomes y in the environment of," where the symbol

— indicates the location of x in the given environment.

4 Cf. Dostál 1967: 43; forms of the verb **byti* 'be' are not considered here because it is more irregular than the other alternants and its treatment in each language is idiosyncratic. This development is parallel in some respects to the change that took place earlier in declension, cf. Feinberg 1978.

5 It is hard to determine the exact chronology of contraction. Komárek (1958: 38, citing Trubetzkoy) states that contraction must have taken place prior to the fall of the jers, citing as evidence the fact that a form such as **oginije* yielded *ohie* 'bread', but never **ohed*. Trávníček (1935: 68) argues correctly that this relative chronology is based on faulty logic; it is impossible to date contraction relative to the fall of the jers because all of the jers that were in a position to participate in contraction were also contiguous to *f* and therefore subject to tensing (which ultimately meant full vocalization) prior to the fall of the jers (i.e., there were no jers there anymore by the time the jers fell). Although this particular relative chronology cannot be established, there is no doubt that contraction belongs to the period of the disintegration of Slavic, roughly between 1000 and 1100. For Czech, at least, we can be certain that contraction precedes the twelfth century change of

$a > \bar{e} / C_C_C_or\ \#\$, for the reflex in Old Czech of **stojati* is *stati* 'stand', not **stojěti* or **stěti* (cf. Komárek 1958: 38, citing Gebauer).

7 The following sources were consulted in preparing this chronology: Trávníček 1935, Komárek 1958, Gebauer 1963.

8 The system of verb classes used here has been devised to display the non-past conjugation patterns relevant in West Slavic subsequent to contraction and language-specific sound changes, but just prior to the spread of 1sg.-m. This is a uniform system of classes; class numbers index the same conjugational types in every language. The verbal systems presented in the following works have all provided information and patterns that have been modified to meet the special purposes of this analysis: Dostál 1967, Leskien 1919, Townsend 1975, and Townsend 1981. Here I will present a general description of the verbal classes. Because the fates of individual verb types varied from language to language, the distribution of types among the classes varies somewhat according to language. The proto-Slavic infinitive forms of the verbs that appear in the three inventories are given here with glosses.

Class I contains all verbs with the original ablauting vowel **-e-/o-* in their non-past conjugation that have not undergone contraction. Within this class we can distinguish the following stem types:

non-suffixed stems

*nesti

'carry'

*mekti

'bake'

*terti

'rub'

*žeti

'reap'

*brati

'take'

verbs with a stem in *-Vj-*

*kryti

'cover'

verbs suffixed in **-no-/ne-*

*vychęti

'whither'

*męti

'pass'

verbs in **-jo-/je-* following a C

*zesati

'comb'

verbs in *-ova- ~ -uj-*

*kupovati

'buy'

In Polish the following derived imperfective types do not undergo contraction and also appear in this class, in Czech and Slovak the first type contracted and is not treated separately, but subsumed under class IV, whereas the second type does not occur in those languages:

verbs in *-awa- ~ -uj-*; **ywa-/iwe- ~ -uj-*

*poznawati

'meet'

*pokazywati

'show'

Class II contains all verbs with an *-i-* in their non-past conjugation:

*prostiti

'beg'

*tępięti

'suffer'

*učiti

'teach'

Classes III and IV are new conjugation types that result from contraction.

Class III contains verbs with an original sequence of **-ęje-* in the 2sg-2pl which, when contracted, yielded *-ě-*:

non-derived verbs

*rozumęti

'understand'

derived verbs, especially with the meaning 'becoming'

*lęniwęti

'become lazy'

(of course **rozuznati* is derived via prefixation; the term "non-derived" is used here to distinguish the rather small group of verbs with *-*že*- that this verb represents from the productive class of verbs with 'becoming,' most of which are deadjectival))

Class IV contains verbs with an original sequence of *-*že*- in the 2sg-2pl forms of the non-past which, when contracted, yielded -*ž*-. This class could potentially include:

- verbs with the sequence *-*že*-
 *znati 'know'
 derived imperatives in *-*že*-
 *pomagati 'help'
 derived imperatives in *-*že*-
 *klanjati sg 'bow'

Class V contains the five athematic verbs

- | | |
|---------|--------|
| *imeti | 'have' |
| *dati | 'give' |
| *věděti | 'know' |
| *ěsti | 'eat' |
| *byti | 'be' |

9 Dostál (1967: 119 and elsewhere) notes that the non-suffixed verbs and the verbs with a stem in -*ŷ*- were not only limited and unproductive, but also subject to significant attrition; the subtype in *-*ŷo-ŷe*- following a C was mildly productive, forming imperative verbs referring to physical actions; the -*ova*- > -*uj*- subtype was only slightly productive at this time.

10 The forms *peká* 'I bake,' *pekou* (< *peka*) 'they bake' are still retained as variants of *peka* 'I bake,' *pekovú* 'they bake' in literary Czech.

11 cf. Heim 1982 which contains reference to this feature of spoken Czech, but otherwise steadfastly holds to the literary norm. Note that Townsend (1990: 78-79) considers the modern spoken norm to be -*ni*-, -*ou* for all verbs in this class.

12 Two verbs of this type also have attested 1sg forms with -*m* : *pijím* 'I drink,' *beru* 'I bear.' In the case of *pijím*, at least, this is almost certainly a contamination from the athematic verb that frequently accompanied it: *jižím* > *ji* 'I eat.'

13 This class also had one irregular verb: *chtít* 'want.' Czech preserved this verb and its conjugation just as we observe it in Old Church Slavonic, with class II endings in the 1sg and 3pl: *chci*, *chce*; (later *chciš*); see class III); and with class I endings in the remaining forms: *chceš*, *chce*, *chceme*, *chcete*. This verb remains anomalous, resisting the spread of athematic -*m* and likewise resisting the reversal of *u* > *i* in the 1sg.

14 Length can be attributed to retention of protoSlavic length under the old acute accent. Although not all verbs in this class had the requisite intonation pattern, it appears that length was generalized in this paradigm in the prehistoric period. A discussion of why Czech shows length in class II but not in class I is presented in the analysis of Slovák, which does show length in most class I verbs.

15 These data were compiled from the inventory found in Dostál 1967: 139-148, which includes a representative sample of verbs in this class.

16 The non-past forms for the verb meaning 'be' are given in brackets because this verb is exceptional even within the class of athematics. It resisted much of the leveling of desinence shapes that the rest of the athematics were subject to (this is perhaps not surprising, given that the forms of this verb also serve as the auxiliary in the past tense, cf. Gajdoš 1992: 68).

17 There is an alternation of *r* ~ *ř* involving the 3pl of class II, but it is removed by sound changes in the fifteenth century.

18 Given that the length of *V*₁ varies in both the 1sg and the 3pl, it seems that this is an arbitrary generalization, for others (*V*₁ is long in all but 1sg and 3pl; *V*₁ is long in all but

1sg) could also be made. As I will argue below, however, there was a division in the Old Czech verbal system taking place on many fronts at this time, and the generalization that most polarized the opposition between class I and the remaining classes was the most likely one to be made.

19 The 3pl is also not yet uniform at this point. It has the shape of stem + *V*₁ + C + *V*₂ in all classes in this group except class II, where it has the shape stem + *V*₁. The literary language preserves this distribution of endings, but the spoken language generalizes usually the first shape, giving *prosej(i)* 'they beg,' *trpějí(e)* 'they endure,' or sometimes the second one, giving *zní* 'they know.' The point is that spoken Czech has merged the paradigms of classes II and III, and both "now have the same present tense" (Townsend 1990: 77).

20 The reversal or resistance of *u* > *i* in class I verbs is also motivated by the fact of the continued existence of -*u* in the 1sg verbs that did not have the environment for *u* > *i*, whereas in classes II-V -*u* is entirely absent.

21 Note that the 3pl of class II verbs had original *-*ě* > -*ě* > -*ě* > -*i*, whereas in classes II-V -*u* is entirely absent.

22 The remarks here about quantity pertain only to Central Slovak (the dialect upon which literary Slovak is based). In dialects of Slovak east of Prešov and Košice, where length was lost, the spread of -*m* is not universal, as in literary Slovak. Some verbs have 1sg in -*u* in the dialects of North Šaris, Abov, and Zemplín, and in the easternmost dialects of Už and Sotácko, the frequency of the morpheme -*a* predominates over that of -*m* (cf. Krajičovič 1988: 277-298; 317).

23 In obstruent stems the source of this length is the neo-acute accent and resulting compensatory lengthening, as described by Timberlake (1983a & 1983b). Krajičovič (1988: 20-21) identifies length in this morphophonemic environment as a characteristic of Slovak unique in West Slavic. The paradigms given by Dybo (1981: 205-212) suggest that at least some verbs having a vowel preceding the *-*no-/-ne*- belonged to the pattern that produced the neo-acute length, whereas those with a preceding consonant did not.

24 The operation of the rhythmic law requires long vowels (or diphthongs) in successive syllables. For a detailed discussion of the conditions that affect the rhythmic law, see Kenstowicz & Rubach 1987.

25 The following works were consulted in preparing this chronology: Krajičovič 1964, 1974, 1981, 1988.

26 These verbs have likely been re-categorized as *-*no-/-ne*- verbs. Note that there are verbs in original *-*no-/-ne*- that have the same non-past shape as these, such as *hnít* 'move,' *schít* 'dry.' Note also that verbs in this subclass tend to reform their conjugations according to original *-*no-/-ne*- verbs: the past tense of *hnít* 'is, *hnul*, and both the infinitive and past tense have been reformed in the case of the verb 'climb': *pnít* sg, *pnul* sn.

27 Stanislav (1967) and Krajičovič (1988) do not posit inherited length in the theme vowel for the subtypes in -*i*-, although they do posit length for the remaining subtypes. I believe, however, that there are compelling reasons to include these two types here. One reason is structural: all other verbs with an original theme vowel -*e*- not preceded by an original consonant cluster belong to this class, (thus we see *pekaš* 'you bake,' but not *pláčeš* 'you cry' in this group). The other reason is phonological: we know that the initial portion of the diphthong -*ie*- would have been absorbed by the preceding -*j*- before any attentions are available, so it is impossible to prove that these two subtypes did not have a long *V*₁. This lengthening was possible in the 2sg, 3sg, and 1pl forms, all of which had original final forms that were dropped (-*e*-*ši*-, -*e*-*tu*-, -*e*-*ntu*) and may have spread analogically to the one form in this group that did not have a final jer: 2pl (-*e*-*te*-).

29 Admittedly this seems like a rather exotic phonological rule, especially given that *r* does not participate (note that we do observe length in *trías* 'you rub'). I can only conjecture that the sonorant part of the preceding cluster may have inhibited or absorbed the length

of the following vowel. The only other plausible explanation is the one based on original accentual paradigms, as suggested above.

- 30 The recognition of certain short vocalic segments as underlyingly long was compromised by the appearance of various morphologized exceptions to the rhythmic law, such as: denominal (possessive) adjectives like *koňatí* 'trooster's', neuter collective nouns like *práhe* 'twigs', class II 3pl verb forms like *pránie* 'wish', verbs of 'becoming' like *páčia* 'they please', idiosyncratic lexemes like *zrnádríe* 'become wise', *úplet'* 'lament'.

Note that the last three items created violations of the rhythmic law in non-past verb forms.

- 31 These estimates represent a tally of the Old Slovak verbs listed in Stanislav 1967: 454-551. All examples of long V before V₁ listed under "other classes" come from classes II and IV. Classes II and III do not have any verbs of this shape except the class II verb *míeť* 'be able' and the class III verbs of 'becoming' which are not subject to the rhythmic law.
- 32 I would like to thank Lawrence Feinberg for pointing this out to me.
- 33 The following sources were consulted in preparing this chronology: Rospond 1971, Šteber 1973, Klemensiewicz 1976, and Klemensiewicz et al. 1981.
- 34 In order to avoid having to use a special orthography for Old Polish, I will cite forms after this last set of changes, even though they reflect a stage after the spread of -n, for these changes are not relevant to any of the morphophonemic changes discussed in this article.
- 35 The famous reformation of the non-past of *byc* 'be' (into *jestem, jesteś, jest, jesteście, jesteśmy, jesteście, są*) begins in the mid-fifteenth century, after the period of the spread of athematic -m.
- 36 According to Šteber (1973: 53, 81), the nasal vowel is rendered in some fourteenth century texts <an>, <am> "according to the following consonant," however this does not indicate "a phonemic decomposition of the medieval nasal vowels into a sequence V + N but, if anything, only the purely phonetic tendency toward an asynchronic pronunciation of "nasal vowels. In Polish we must argue that Y is phonemically distinct from VN on the basis of examples such as: *ip* 'that (feminine instrumental sg)' vs *ton* 'tone' vs *ton* 'tone,' however this fact does not prevent Y from being identified with VN at an underlying level, at least in some environments.

WORKS CITED

- Andersen, Henning. "Abductive and deductive change." *Language* 49(1973): 765-793.
- Dostal, Antonín. *Historická mluvnice česká. II. Tvarosloví. 2. část. Casování*. Prague: Státní pedagogické nakladatelství, 1967.
- Dybo, Vladimir Antonovič. *Slavjanskaja akcentologija*. Moscow: Nauka, 1981.
- Feinberg, Lawrence E. "Thematic vowel alternation in common Slavic declension." *Folia Slavica*, Vol. 2, Nos. 1-3, *Studies in Honor of Horace G. Lunt* (1978), 107-122.
- Gebauer, Jan. *Historická mluvnice jazyka českého. 1. Hlasosloví*. Prague: Československá Akademie Věd, 1963.
- Golob, Zligniew. *The origins of the Slavs: a linguist's view*. Columbus: Slavica, 1992.
- Helm, Michael. *Contemporary Czech*. Columbus: Slavica, 1982.
- Janda, Laura A. *A geography of case semantics: the Czech dative and the Russian instrumental*. Berlin: Mouton de Gruyter, 1993.
- Janda, Laura A. *Back from the brink: A study of how relic forms in languages serve as source material for analogical extension*. Forthcoming.
- Kensutowicz, Michael & Jerzy Rubach. "The phonology of syllabic nuclei in Slovak." *Linguage* 63 (1987), 463-497.
- Klemensiewicz, Zenon. *Historia języka polskiego*. Warsaw: Państwowe Wydawnictwo Naukowe, 1976.
- Klemensiewicz, Z. T. Lech-Splawinski, S. Urbaczek. *Gramatyka historyczna języka polskiego*. Warsaw: Państwowe wydawnictwo naukowe, 1981.
- Komárek, M. *Historická mluvnice česká. I. Hlasosloví*. Prague: Státní pedagogické nakladatelství, 1958.
- Krajčovič, Rudolf. *Náčet dejin slovenského jazyka*. Bratislava: Slovenské pedagogické nakladateľstvo, 1964.
- Krajčovič, Rudolf. *Slovenčina a slovenské jazyky*. Bratislava: Slovenské pedagogické nakladateľstvo, 1974.
- Krajčovič, Rudolf. *Pôvod a vývin slovenského jazyka*. Bratislava: Slovenské pedagogické nakladateľstvo, 1981.
- Krajčovič, Rudolf. *Vývin slovenského jazyka a dialektológia*. Bratislava: Slovenské pedagogické nakladateľstvo, 1988.
- Lakoff, George. *Women, Fire, and Dangerous Things*. Chicago: U. of Chicago Press, 1987.
- Lass, Roger. "How to do things with junk: explanation in language evolution." *Linguistics* 26(1990), 79-102.
- Leskien, A. *Grammatik der albulgarischen (altkirchenslawischen) Sprache*. Heidelberg: Winter, 1919.
- Rospond, Stanisław. *Gramatyka historyczna języka polskiego*. Warsaw: Państwowe wydawnictwo naukowe, 1971.
- Stanislav, Jan. *Dejiny slovenského jazyka. II. Tvaroslovie*. Bratislava: Slovenská Akadémia Vied, 1967.
- Šteber, Zdzisław. *A historical phonology of the Polish language*. Heidelberg: Carl Winter, 1973.
- Timberlake, Alan. "Compensatory Lengthening in Slavic 1: Conditions and Dialect Geography," in Vladimir Markov and Dean S. Worth, eds., *From Los Angeles to Kiev*. Columbus: Slavica, 1983, 207-236.
- Timberlake, Alan. "Compensatory Lengthening in Slavic 2: Phonetic Reconstruction," in Michael S. Flier, ed., *American contributions to the ninth international congress of Slavists, v. I. Linguistics*. Columbus: Slavica, 1983, 293-320.
- Townsend, Charles E. *Russian Word-Formation*. Columbus: Slavica, 1975.
- Townsend, Charles E. *Czech through Russian*. Columbus: Slavica, 1981.
- Townsend, Charles E. *A description of spoken Prague Czech*. Columbus: Slavica, 1990.
- Travníček, František. *Historická mluvnice československá*. Prague: Melantrich, 1935.
- Vázný, Václav. *Historická mluvnice česká II. Tvarosloví. 1. část Skloňování*. Prague: Státní pedagogické nakladatelství, 1970.