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Word stress in Romanian

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Introduction

The issue of word stress has not been the subject of any detailed analysis in traditional works on Romanian. It is generally assumed that stress is not predictable. The generalizations that have been made concerning stress placement are, however, made on the basis of observations of surface forms. Mallinson 1987:300 says that "stress is free and variable, giving rise to doublets: *m'odele* 'the fashions', but *mod'ele* 'models' ". Puficariu 1959 writes that stress is free and can fall on one of the last six syllables (*cerceta⌷t'or* 'researcher', *fânt'âna⌷* 'fountain' *inc'aleca⌷* 'to mount (a horse)' *d'oisprezece* 'twelve', *fi'aptesprezecelea* 'seventeenth'). Rudes' 1977 study of verb stress takes into consideration morphological features such as inflexional class and tense in order to describe the system of verb stress. Steriade 1984 maintains that stress falls on one of the last three syllables and claims that it is rule-governed to some extent. The goal of the present paper is to build on this analysis by showing that one can obtain a greater understanding of Romanian stress if one adopts the view that stress is assigned lexically by rules that interact with morphological rules that attach derivational and inflexional affixes to word stems. Being a language that has been in contact with a great number of other languages, it is also to be expected that word stress has been affected by the contact language stress systems. However, the effects of this contact are amenable to a structured account in terms of a lexical phonological framework.

Romanian word stress

Rudes 1977, basing himself on Rosetti's 1964 historical work maintains that the Romanian remnant of the Proto-Romance stress rule assigns stress to the penultimate syllable if the final syllable is open and there is at least one consonant following the penultimate vowel; otherwise, the final syllable is stressed (e.g. *ba⌷ie†andru* [bəjets'andru] 'little boy', *copil* [kop'il] 'child'. This rule is presented in (1):

(1)   V → [+ stress]/__C_1(V)+]

Steriade 1984 proposes a similar rule. However, she points out that the final syllable in certain words must be lexically marked as extrametrical in order to explain cases where words have stress on the third syllable from the end, e.g. *r'epe(de)* 'rapid'. There are, however, many examples of words whose stress does not fall on one of the three last syllables, e.g. *d'oisprezece* 'eleven', *afl'aseraⷧti* 'to find out (2p.pl.perf.2)', *fi'aptesprezecelea* 'seventeenth'.

In order to obtain a more uniform picture of the Romanian stress system, one must first of all modify the rule in (1) as in (2) in order to explain the stress in words such as *teor'ie* 'theory'.

(2)   V → [+ stress]/__C_0(V)+]

Rule (2) says that in words that end in an open syllable, the penultimate syllable is stressed regardless of the number of consonants between the second last and final vowels. Moreover, it will be claimed below that stress patterns which on the surface appear to be exceptions to rule (2) arise due to the fact that the rule is morphologically conditioned and thus applies lexically at a certain point in the derivation of word forms.

Nouns in Romanian

There are two factors which are particularly interesting as regards stress in nouns in Romanian. First, nouns are characterized by heavy affixing which has as a consequence that it is difficult to observe a stress pattern if one examines only surface forms. According to Pascu 1916, there are approximately 165 derivational suffixes in Romanian. Second, as noted above, the Romanian lexicon, and consequently, the nouns, have arisen from languages with different stress patterns.

Dacian

Dacian was an Indoeuropean language. Similarities with Thracian and Illyrian have been noted. According to some researchers, Albanian belongs to the Thraco-Dacian language group that was not romanised. Thus, it is very likely the case that 'Albanian' words that occur in Romanian are not loans at all, but rather the remains of a common contact period. Armenian also contains lexical items that would indicate some common period of contact between it and what is now Romanian.

Following are some examples of words of Dacian origin:

(3)   b'uză   'mouth' | băi'at 'boy'
           păr'iu   'bet' | d'oină   'lyric song'
           cop'il   'child' | bal'aur   'dragon'
           burd'uf   'tuft' | col'ibă   'nest'
           am'urg   'dawn' | căp'ufiă   'sprout'

One could hypothesize on the basis of the data in (3) that it is the Daco-Thracian stress pattern that is characteristic of Romanian. Another feature that is found in words of Daco-Thracian origin is the characteristic Romanian suffix *-esc*, (e.g. *Ceaufiescu* and *românesc* 'Romanian').

Latin

It has been assumed that stress in Old Romanian was the same as that of Latin, whose stress rule has been formulated by Hooper 1976 as in (4):

(4) $S \rightarrow$ [+stress] / — ([S]) S #]
                                        weak

 I.e. in words with more than two syllables, stress the third syllable (S) from the end if the penultimate syllable is weak (light); otherwise, stress the penultimate syllable.

 Following in (5) are a number of Romanian words whose origin is in Vulgar (spoken) Latin:

(5)   ROMANIAN   LATIN
       'în<ger>   'angel'   <   'angelus
       s'uf<let>   'heart'   <   s'ufflitus
       l'ite<ră>   'letter'   <   l'ittera
       o'aspe<te>   'guest<   h'ospes
       l'ingu<ră>   'spoon'   <   l'ingula
       bis'eri<că>   'church'   <   bas'ilica

 In order to describe the stress pattern using rule (2), the final syllable in these words must be marked as extrametrical (shown in angled brackets in (5)).

Slavic

After its contact with Vulgar Latin, Dacian was influenced heavily by Slavic which, according to Hasdeu 1881 resulted in a vocabulary that consisted of 40% Slavic words.

 It is sometimes difficult to know how words were stressed in Slavic, as stress was not indicated in the Cyrillic alphabet. The oldest Slavic words in Romanian are assumed to have their origin in Bulgarian, i.e. the southern

group of Slavic languages. Subsequent influence has come from Serbo-Croatian, Ukrainian and Russian. Some examples of the oldest loans from Slavic languages are shown in (6):

(6)   gro'az   'horror'   │ bolov'an   'rock'
            nicov'al 'anvil'   │ zg'om<ot>   'noise'
            coj'oc   'fur'   │ ogr'ad   'yard'

Here as well we have enclosed extrametrical syllables within angled brackets. Although a great many cases of stress placement can be accounted for by means of rule (2) combined with the concept of extrametricality, there are endless cases of stress in affixed words that cannot be explained even if extrametricality is assumed, e.g. *cop'ilului* 'little child (sg.G/D)', *acufi'orului* 'little needle (sg.def.)' where one would expect stress on the penultimate syllable.

Analysis of Romanian noun stress

In order to obtain a better understanding of stress in Romanian, it is necessary to take into consideration the morphological make-up of the word. Specifically, it is important to make a distinction between derivational and inflexional morphology when formulating principles for the placement of stress in Romanian. This approach is in accordance with the theoretical framework associated with lexical phonology (e.g. Kiparsky 1982 and Mohanan 1986).

Lexical phonology

Characteristic of lexical phonology is the awareness that morphological rules interact intimately with phonological rules. Phonological and morphological rules are categorized in the grammar as applying either lexically or postlexically. Furthermore, within the lexicon, rules are assumed to apply at different lexical levels. The interaction can be schematically presented as in Figure 1.

Lexical rules can be cyclical, i.e. apply first to the word stem, then to the affix nearest the stem, and then subsequently to further affixes that are attached during the derivation. In English, for example, stress is assumed to be such a cyclical rule which is, furthermore, influenced by one class of affixes, i.e. 'Romance' affixes such as *-ity*, but not by another class, which includes such suffixes as *-ness*. The two classes of affixes are thus assumed to be attached to stems at different levels. This can be illustrated as in (7).

```
        MORPHOLOGY                    PHONOLOGY

       ┌──────────────────────┐
       │ Nonderived lexical item │
       └──────────────────────┘
                 │
                 ▼
       ┌──────────────────┐         ┌──────────────────┐
       │ Level I Morphology │──────▶│ Level I Phonology │
       └──────────────────┘         └──────────────────┘
                 │
                 ▼
       ┌───────────────────┐        ┌───────────────────┐
       │ Level II Morphology │─────▶│ Level II Phonology │
       └───────────────────┘        └───────────────────┘
                 │
                 ▼
       ┌────────────────────┐       ┌────────────────────┐
       │ Level III Morphology │────▶│ Level III Phonology │
       └────────────────────┘       └────────────────────┘
```
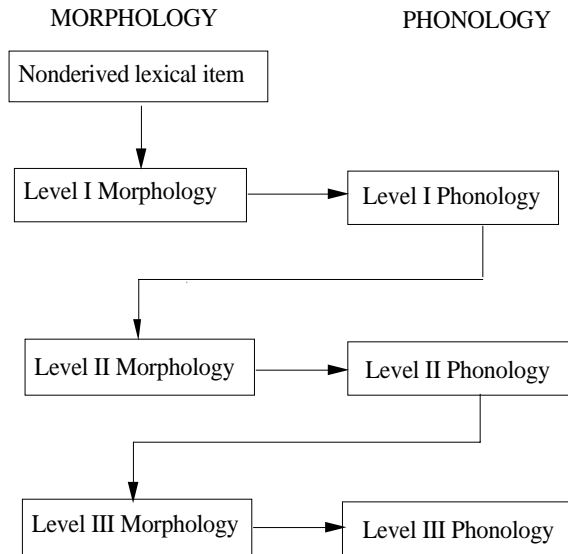
Figure 1. Interaction of morphological and phonological rules.

(7)	timid	happy	*Level I*
	t'imid	h'appy	Stress
	t'imid+ity	_____	Morphology
	tim'idity	_____	Stress
			Level 2
	_____h'appy+ness		Morphology

Those suffixes that influence stress placement are thus attached to the stem at the same level that stress applies, while suffixes that do not affect stress are attached to the stem at a later stage of derivation.

As regards stress in Romanian, it will be assumed here that it can be better explained if one assumes that derivational and inflexional rules are applied on different lexical levels. As will be shown below, it is the case in Romanian that stress is influenced by all derivational affixes except those that derive ordinal numerals. Stress is not, however, influenced by inflexional affixes. We will thus assume that derivational affixes are attached to stems at lexical level I. (Nonnumeral) word stress also applies at this level. Cardinal numeral morphology and the associated rule assigning stress in these forms will be assumed to be associated with a second level of lexical structure, level II. Inflexional affixation, as well as ordinal numeral affixation, which do not interact with stress assignment, will be assumed to occur at a third lexical level III.

Affixation
Derivational affixes

Most Romanian nouns are derived from verbs or adjectives by suffixation. The suffixes have for the most part been borrowed from languages that have been in contact with Romanian, e.g. Latin, Slavic, Greek and Turkish. Some words have been borrowed as suffixed forms. Multiple suffixation is not uncommon either; sometimes it is difficult to ascertain what a stem's etymon is or whether there in fact is one. Moreover, the suffixes are often not associated with a clear meaning. Following are some examples from the rich suffixation system present in Romanian (Pascu 1916):

Suffix	Example of derived word		Base
Latin suffixes			
-ăt'ate	singurăt'ate	'loneliness'	s'ingur
-ci'une	slăbici'une	'weakness'	slab
-e'asă	mire'asă	'bride'	mire
-at'or	spălăt'or	'launderer'	spăl'a
-e'aţă	verde'aţă	'vegetables'	v'erde
-'et	tâner'et	'youth'	tân'ăr
-'inţă	adever'inţă	'certificate'	adev'ăr
-i'une	înţelepci'une	'wisdom'	înţel'ept
-m'înt	învăţăm'înt	'teaching'	învăţ'a
-o'are	plinso'are	'weeping'	plins
-'ură	acrit'ură	'pickle liquor'	acr'it
-ăt'ură	începăt'ură	'beginning'	înc'epe
-'ar	grohot'ar	'stone mason'	gr'ohot
-ul+'uc	mândrul'ucă	'bride'	m'ândrul
-'uie	frigăr'uie	'fried pieces of meat'	fr'ige
-'ime	înmulţ'ime	'multitude'	înmulţi
-ar+'ime	broscar'ime	'group of frogs'	brosc'ar
-'el	băieţ'el	'little boy'	bă i'at
-fi'or	pefitifi'or	'little fish'	p'efite
-ufi+'or	focufi'or	'little fire'	foc
-'ic(ă)	bucăţ'ică	'little bit'	buc'ată
Balkan suffixes			
-'ie	obraznic'ie	'disobedience'	obr'aznic
-ar+'ie	copilăr'ie	'childhood'	cop'il
-ul+'ie	cărţul'ie	'booklet'	c'arte
-ifite+'ină	curvifit'ină	'easy lady'	c'urvă
-'oc	moţ'oc	'little tuft of hair'	moţ

Slavic suffixes

-e'anc	bucurefite'anc	'Bucharestian'	Bucur'efiti
-o'aic	leo'aic	'lioness'	leu
-e'al	ame†e'al	'dizziness'	ame†'i
-'eic	borfi'eic	'soup tureen'	borfi
-'enie	cur†'enie	'cleanliness'	cur'at
-'i†	che'i†	'little key'	ch'eie
-ul'i†	muscul'i†	'little fly'	m'usc

Inflexional affixes

As opposed to derivational suffixes, inflexional affixes do not influence the placement of stress. This is something that is overlooked in traditional analyses. There are two word-pairs in Romanian that are often cited as proof of the view that stress placement is free: **'acele** 'needles' / **ac'ele** 'these' (fem.) and **c'opii** 'copies' / **cop'ii** 'children'. We will use these to illustrate how the stress patterns can in fact be predicted within a lexical phonological approach. We will assume the underlying forms in (8) and (9) and furthermore that stress is applied on Level I before the inflexional affixes are attached to the stems on Level III:

(8a) **ac [ak] 'needle'**

ac	*Level I*
—	Derivational suffixation
'ac	Stress (Rule 2)
	Level III (Inflexional affixation)
'ac+e	pl.
'ac+e+le	pl.def.
'acele	

(8b) **acea [atSea] 'this (fem.)'**

acea	*Level I*
—	Derivational suffixation.
ac'ea	Stress (Rule 2)
	Level III (Inflexional suffixation)
ac'ea+le	pl.
ac'e+le	Vowel Deletion
ac'ele	

(9a) **copie [kopje] 'copy'**

/kopje/	*Level I*
—	Derivational affixation
[k'opje]	Stress (Rule 2)
	Level III (Inflexional suffixation)
copii /k'opje+i/	pl.
[k'opji]	Vowel deletion

(9b) **copil [kopil] 'child'**
    /kopil/   *Level I*
    —   Derivational affixation
    [kop'il]   Stress (Rule 2)
                       Level III (Inflexional suffixation)
    /kop'il +i/   pl.
    /kop'ii/   l-deletion
    cop'ii [kop'ij]   Diphthongization

Assuming the underlying forms in (8) and (9) and furthermore that stress is applied before inflexional affixes are attached to stems, one can explain what on the surface appears to be 'free' placement of stress.

In order to further test the hypothesis that derivational suffixes are attached at Level I before stress applies whereas inflexional affixes are attached first at Level III, one can affix the diminutive suffix to three of the above words and observe the location of stress before and after the attachment of inflexional suffixes:

(10a) **acufior [ak+uSor] 'little needle'**
    ac   *Level I*
    ac+ufior   Derivational suffix
    ac+ufi'or   Stress (Rule 2)
                       Level III
    ac+ufi'or+ul   Inflexional suffixation: sg.def.
    ac+ufi'or+ul+lui   sg. G/D
    ac+ufi'or+i   pl.
    ac+ufi'or+i+i   pl.def.
    ac+ufi'or+i+lor   pl. G/D

(10b) **copilafi [kopil+aS] 'little child'**
    copil   *Level I*
    copil+afi   Derivational suffix
    copil+'afi   Stress (Rule 2)
                       Level III
    copil+'afi+ul   Inflexional suffixation, sg.def
    copil+'afi+ul+ui   sg. G/D
    copil+'afi+i   pl.
    copil+'afi+i+i   pl.def.
    copil+'afi+i+lor   pl. G/D

As can be seen in (10a) and (10b), the position of stress is not affected by inflexional suffixation.

Exceptions?
Among the Latin and Slavic loan words presented above in (5-6), there were a number that retained their original stress pattern and thus were exceptions to

the stress rule in (2). However, if these words undergo derivational affixation, the irregularity disappears:

(11)   'îng<er>   →   înger'**afi**   'little angel'
          s'uf<let>   →   sufle†'**el**   'little heart'
          l'ingu<r🍎>   →   lingur'**i**†🍎   'little spoon'
          sc'ându<r🍎>   →   scândur'**ic**🍎 'little plank'
          cl'op<ot>   →   clopo†'**el**   'little bell'

In order to derive the correct stress placement by rule (2) in the (nonderived) words to the left of the arrow, one must assume that the final syllable in the word is extrametrical, e.g. *l'ingu<ra▢>*when stress is assigned. However, when a derivational suffix is added and the cyclical stress rule applies again to the suffixed form, stress is assigned to the final syllable. In other words, one can say that although loan words have a tendency to retain their original stress pattern, they attain a Romanian character by undergoing native derivational processes.

(12)   **înger 'angel'** *Level I*
          îng<er>   Extrametricality
          îng<er>   Stress Rule 2
          înger+**afi**   Derivational suffix (diminuitive)
          înger+'**afi**   Stress Rule 2

Analysis of verb stress

According to many researchers on Romance languages, verb stress (except in French) is fixed within each conjugational (sub)paradigm (Roca 1992:276). However, we take issue with that view and feel that verb stress in Romanian in principle is conditioned by the same factors as stress in nouns.

Rule (2) can in fact apply to verbs as well. The account of verb stress also becomes clearer if one establishes the interaction between morphological processes and stress placement. The rule for stressing verbs presented in Rudes 1977 is reproduced here as (13). We will show that the data accounted for by rule (13) can be incorporated into our account by distinguishing between morphological and phonological conditioning of stress placement.

In his rule, Rudes distinguishes between word and stem. In what follows, we will explain the different subrules in (13) and show how the data they describe can also be handled in our account.

(13)

$$
V \rightarrow [+\text{stress}] / \left\{
\begin{array}{ll}
\_X]\left[\begin{array}{l}
\text{verb stem} \\
\left\{\begin{array}{l}
\left[\begin{array}{l} \text{e} - \text{class} \\ -\text{past} \\ -\text{participle} \end{array}\right] \\
\left[\begin{array}{l} \text{se} - \text{perfect} \\ +\text{past} \\ -\text{anterior} \\ +3p \end{array}\right]
\end{array}\right\}
\end{array}\right] + & \text{a)} \\[4em]
\_ < S > C_1(V)\#]\left[\begin{array}{l} \text{verb} \\ -\text{past} \\ +\text{finite} \\ -\text{e} - \text{class} \\ -esc\,/-ez \\ < D > \end{array}\right] & \text{b)} \\[3em]
\left[\begin{array}{l} \text{verb} \\ \text{stem} \end{array}\right] + X - & \text{c)}
\end{array}\right.
$$

Rule (13a) says that the last vowel of the verb-stem (where X does not contain any syllabic segment) is assigned stress in those verbs which belong to the verb class whose infinitive ends in *-e* in the [–past, –participle] forms, i.e. infinitive, present indicative, subjunctive and imperative forms as well as verbs that mark their perfect (2) (completed aspect) with +*se*+ in [+past, –anterior, +3p.], i.e. 3p. sg. and pl. perfect (completed aspect) forms of the *se-* subclass of verbs belonging to the *e*-class. Forms illustrating this subrule are given in (14).

Note that the stress placement in these forms can also be derived by our rule (2) if one applies it to the verb stem. This fits in with the lexical account of stress assignment we are assuming.

Rule (13b). The part not included in angled brackets implies that the last vowel before the last consonant(s) in all [–past, +finite] forms is assigned stress, i.e. present indicative, subjunctive, and imperative of verbs that do not belong to the verb class that ends in *-e* as well as the verb groups that take the suffixes *-esc* and *-ez*, or groups of verbs that are marked with the diacritic [D]. This last group is stressed on the last vowel before the last consonant(s) of the word only in 1p and 2p pl. Otherwise it is the expanded version of subrule

(14) Infinitive **_a m'erge_ 'to go'**   **_a înc'epe_ 'to begin'**

		a m'erge	_a înc'epe_
Present	1s	m'erg	înc'ep
	2s	m'erg+i	înc'ep+i
	3s	m'erg+e	înc'ep+e
	1p	m'erg+em	înc'ep+em
	2p	m'erg+e†i	înc'ep+e†i
	3p	m'erg	înc'ep
Subjunc.	1s	m'erg	înc'ep
	2s	m'erg+i	înc'ep+i
	3s	me'arg+	înc'eap+
	1p	m'erg+em	înc'ep+em
	2p	m'erg+e†i	înc'ep+e†i
	3p	me'arg+	înce'ap+
Imperat.	Sg.	m'erg+i	înc'ep+e
	Pl.	m'erg+e†i	înc'ep+e†i
Perfect (2)	3s	m'ers+e	
	3p	m'ers+er	

(13b) _ S C₁ (V) # (where S = syllable) which assigns stress to the second last vowel before the last consonant(s) of the stem, i.e. the 3rd syllable from the end of the word.

    Examples of verb forms stressed by Rule (13b), i.e. without material in angled brackets are given in (15):

(15)   **_a afl'a_ 'to find out'**   **_a ofer'i_ 'to offer'**

		a afl'a	_a ofer'i_
Present	1s	'afl+u	of'er
	2s	'afl+i	of'er+i
	3s	'afl+	of'er+
	1p	afl+'m	ofer+'im
	2p	afl+'a†i	ofer+'i†i
	3p	'afl+	of'er+
Subjunc.	3s+3p	'afl+e	of'er+e
Imperative	sg.	'afl+	of'er+
	pl.	afl+'a†i	ofer+'i†i

     a vizit'a 'to visit'   **_a cit'i_ 'to read'**

		a vizit'a	_a cit'i_
Present	1s	vizit+'ez	cit+'esc
	2s	vizit+'ez+i	cit+'efit+i
	3s	vizit+e'az+	cit+'efit+e
	1p	vizit+'m	cit+'im
	2p	vizit+'a†i	cit+'i†i
	3p	vizit+e'az+	cit+'esc
Subjunc.	3s+3p	vizit+'ez+e	cit+'easc+
Imperative	sg.	vizit+'ez+	cit+'efit+e
	pl.	vizit+'a†i	cit+'i†i

Most of these forms can be derived by rule (2) if it is applied after the derivational suffixes *-esc, -ez* have been attached to the stem, i.e. on Level I. This is also in conformity with the lexical phonological analysis of nouns we have suggested. The same derivational suffixes associated with nouns are also attached to verbs:

-esc used in deriving proper nouns, adjectives as well as present verb forms (1p. sg; 3p.pl.).

-ez derives verb forms as well as adjectives and nouns, e.g. *sued+ez* (adj.+ noun. masc.) 'Swedish', *suedeză* (fem.) 'Swede (fem.)'

Returning to the forms in (15), it can be seen that 1 and 2 p.pl. as well as imp.pl receive stress by rule (13b) on what can be considered as the 'thematic vowel'. We will return to this issue below.

Rule (13b) with material in angled brackets (for 1 and 2 p. pl., rule (a) applies to forms such as those in (16)):

(16)　　　　　　　　*a cumpa r'a* **'to buy'**　　*a consider'a* **'to consider'**
　　Present　1s　c'um\<păr\>　　　　cons'id\<er\>
　　　　　　2s　c'um\<per\>+i　　　　cons'id\<er\>+i
　　　　　　3s　c'um\<păr\>+ă　　　 cons'id\<er\>+ă
　　　　　　1p　cumpăr+'ăm　　　　consider+'ăm
　　　　　　2p　cumpăr+'aţi　　　　consider+'aţi
　　　　　　3p　c'um\<păr\>+ă　　　cons'id\<er\>+ă

The last syllable in the stem must be considered as extrametrical in these verb forms with 'retracted stress', except for the 1 and 2 p.pl. It can thus be said that stress in these verbs can also be assigned by rule (2) applying to the stem if the last syllable in the stem is analysed as extrametrical, except for the 1 and 2 p.pl. which are assigned stress on what can again be regarded as the 'thematic vowel'.

Rule (13c).　For the rest of the verb system, it is the first vowel after the verb stem that receives stress, i.e. the first vowel of the verb suffix.

Rule (13c) assigns stress to the inflexional suffix, i.e. the first vowel after the verb stem is assigned stress, in other words, the first vowel of the verbal suffix. This rule affects infinitive, participle, imperfect, and perfect forms. The forms in (17) illustrate the output of rule (13c).

Rudes' rule says that stress falls on the first vowel of the affix. However, this vowel can be equally well analysed as a thematic vowel which forms a part of the stem, i.e. a derivational affix. Such an analysis is furthermore more in line with the analysis of nouns, where it was observed that derivational, but not inflectional affixes attracted stress. The participle endings behave like

(17)		*a afl'a* 'to find out'	*a cit'i* to 'read'
Stem Infinitive		afl+	cit+
Perf. part.		afl+'at	cit+'it
Pres. part.		afl+'înd	cit+'ind
Imperfect	1s	afl+'am	cite+'am
	2s	afl+'ai	cite+'ai
	3s	afl+'a	cite+'a
	1p	afl+'am	cite+'am
	2p	afl+'a†i	cite+'a†i
	3p	afl+'au	cite+'au
Perfect 1	1s	afl+'ai	cit+'ii
	2s	afl+'afii	cit+'ifii
	3s	afl+'ă	cit+'i
	1p	afl+'arăm	cit+'irăm
	2p	afl+'ară†i	cit+'iră†i
	3p	afl+'ară	cit+'iră
Perfect 2	1s	afl+'asem	cit+'isem
	2s	afl+'asefii	cit+'isefii
	3s	afl+'ase	cit+'ise
	1p	afl+'aserăm	cit+'iserăm
	2p	afl+'aseră†i	cit+'iseră†i
	3p	afl+'aseră	cit+'iseră

derivational affixes. In particular, *-ut* derives perfect participle, e.g. *început+ut* 'begun', but can also function as a noun meaning 'the beginning'.

Thematic vowels

What we are calling thematic vowels are a matter of controversy. Romanian linguists have always regarded them as belonging to the inflectional suffixes. This is no doubt due to the fact that they vary in form and do not appear in all persons. However, it is not at all clear that the vowels which follow the stem in perfect aspects as well as in the imperfect, participle and infinitive forms should be interpreted as part of the inflexional suffixes, but rather as derivational suffixes. If one assumes that these vowels which have heretofore been difficult to analyze are a part of the stem, one can derive most of the stress patterns in verbs by the same mechanisms that we are assuming in order to account for stress in nouns.

If one assumes then that the stress rule (2) applies to the stem, we can derive the stress placement in the Present, Subjunctive and Imperative forms. In the Perfect and Participle forms, rule (2) could derive all the forms if the thematic vowel is analysed as a part of the stem and is furthermore long. Although it has not generally been assumed that Romanian has contrastive long vowels, the thematic vowels are phonetically long (relatively longer than

their 'short' stressed counterparts). Thus, their existence can be motivated and one can perhaps assume that vowel length has become phonologized in order to mark aspect type. Assuming this, rule (2) can be modified as in (2´) where (.) = syllable boundary:

(2´) $V \rightarrow$ [+ stress] / _ . (C$_0$ V   ) +
                                                  [–long]

In order to further illustrate and summarize the analysis presented here, we present below derivational schemata for the perfect 2 (completed aspect) 1pl and the perfect 1 (incompleted aspect) 1s and 1pl of the verb *a afl'a* 'to find out':

(18)   *Level I*
        afl+   Stem
        afl+**a**+   Deriv. affix (Them.V – perfect 2)
        afl'**a**+   Stress (Rule 2)
                                Level III (Inflexional suffixation)
        afl'**a**+ser+m   Perf.(2)1s and 1p

                                Level I
        afl+   Stem
        afl+**a**   Deriv. affix (Them.V – Impf. aspect)
        afl'**a**   Stress (Rule 2)
                                Level III (Inflexional suffixation)
        afl+'**a**m   Impf.1p

It is seen that verbs can be assumed to follow the same principles for stress assignment as nouns. Morphological rules which attach derivational affixes (including thematic vowels) are applied at Level I as is the phonological rule of stress assignment which applies cyclically. Application of morphological rules that attach inflexional affixes apply later on lexical Level III.

Level II
At lexical level II, the morphological rules deriving cardinal numerals are assumed to apply. In addition, a stress rule specific to this word class applies to the derived words. Numerals in Romanian have primary stress on the first component word of the numeral (compare compound stress in English). Secondary stress occurs on the last component word of the numeral but not on the ordinal suffix. Derivation affixes that function to build ordinal numerals do not affect stress like other derivational affixes but rather behave like inflexional affixes. We will therefore assume that they are attached to derived ordinal forms at lexical level III. What is required, furthermore is a special word-level rule for numerals that assigns most prominence to the left-most

stress assigned by rule (2). We thus assign cardinal numeral morphology and numeral stress to Level II. Ordinal numeral morphology applies at Level III. The derivation of *d'oisprezÆece* 'twelve' and *fi'aptesprezÆecelea* 'seventeenth' would proceed as in (29), (primary stress= ('), secondary stress= (Æ).

(19)   *Level I*
    #d'oi# 'two'   Stress (2)
    #z'ece# 'ten'   Stress (2)

                                       Level II
    d'oi+spre+z'ece 'twelve'   Numeral morphology
    d'oi+spre+zÆece   Numeral Stress

                                       Level I
    #fi'apte# 'seven'   Stress (2)
    #z'ece# 'ten'   Stress (2)

                                       Level II
    #fi'apte+spre+z'ece# 'seventeen' Cardinal numeral morphology
    #fi'apte+spre+zÆece#   Numeral stress

                                       Level III
    #fi'apte+spre+zÆece+lea# 'seventeenth'   Ordinal numeral morphology

The order of morphological rule application and its relation to stress in Romanian, can thus be schematized as in Figure 2.

Conclusion

The goal of this study has been to obtain a more unified picture of the principles for stress assignment in Romanian. It has been shown that by abandoning a surface view of stress assignment and adopting a lexical phonological analysis whereby stress assignment is seen as interacting with morphological rules on various lexical levels, one can better understand the variation in the surface position of stress that has been observed in more traditional analyses. Word stress in Romanian has been shown to be influenced by derivational affixes but not by inflexional affixes. This pattern has been shown to apply to both nouns and verbs. A separate rule for deriving main stress in numerals has also been assumed for Romanian. Ordinal numeral morphology has further been shown to pattern like inflexional morphology as regards stress placement. Three levels of rule application have thus been assumed in the lexicon: Level I (derivational morphology and nonnumeral stress), Level II (cardinal numeral morphology and numeral stress), Level III (inflexional morphology and ordinal numeral morphology).
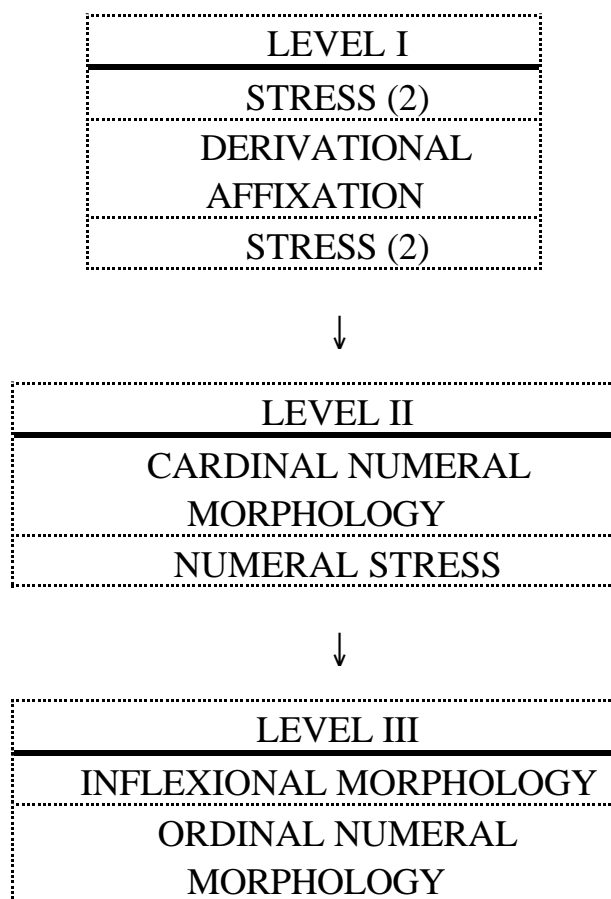
```
┌─────────────────────────┐
│        LEVEL I          │
├─────────────────────────┤
│       STRESS (2)        │
│     DERIVATIONAL        │
│       AFFIXATION        │
│       STRESS (2)        │
└─────────────────────────┘

            ↓

┌─────────────────────────┐
│        LEVEL II         │
├─────────────────────────┤
│    CARDINAL NUMERAL      │
│       MORPHOLOGY         │
│     NUMERAL STRESS       │
└─────────────────────────┘

            ↓

┌─────────────────────────┐
│       LEVEL III         │
├─────────────────────────┤
│  INFLEXIONAL MORPHOLOGY  │
│     ORDINAL NUMERAL      │
│       MORPHOLOGY         │
└─────────────────────────┘
```

Figure 2. Interaction between stress assignment and morphological rule application in Romanian.

As has been pointed out in a number of places above, there are a number of exceptions to the stress rule in words loaned into Romanian which retain their original stress pattern (in underived forms). This leads to the necessity of including the notion of extrametricality in order to account for the stress pattern they show. However, the lexical analysis adopted here has shown that there are in fact some very general principles that govern the assignment of stress in Romanian, principles that, moreover, do not seem to be a legacy from Romance. Perhaps they constitute a remnant of a much earlier linguistic system that existed in Dacia and that we know very little about.

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