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# Mobile Lexical Parentheses in Metrical Grids

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# Introduction

We propose that metrical structure needs to distinguish parentheses associated with lexical markings from other types of parentheses, and must include parentheses that move.

We will show how the theory of simplified bracketed grids can be augmented to allow it to give a better account of metrical systems.

# Outline of the Talk

This talk is organized as follows:

- We will first present a brief introduction to the basic ingredients of the grammar of stress that we assume, showing how metrical representations are built.
- We will then show why parentheses associated with designated lexical elements must be distinguished from other types of parentheses.

# Outline of the Talk

This talk is organized as follows:

- Following that, we will show that there are more uses for labeled lexical parentheses in accounting for the stress-shifting nominal paradigms of East Slavic.
- Then we will show how the same device can account for lexical edge markings in the stress system of Spanish.

# The Grammar of Stress

# The Grammar of Stress

We assume that the grammar of stress builds metrical representations consistent with the Simplified Bracketed Grid (SBG) theory of Idsardi (1992), Halle & Idsardi (1995), Halle (1999), etc. (with some modifications).

Metrical structures result from the interaction of a number of **parameters** that govern how brackets, i.e. parentheses, and heads are assigned to the grid.

# The Grammar of Stress

Unlike earlier versions of metrical theory, SBG builds up metrical structure by assigning **single** parentheses, rather than pairs of parentheses.

Parentheses are assigned in a variety of circumstances:

- to edges
- to designated elements in the segmental string, such as accented syllables in a language with lexical accent, or to heavy syllables in a quantity-sensitive stress system
- in bounded stress systems, after every two (or three) grid marks with no intervening parentheses

# The Grammar of Stress

In what we will call classical SBG (the form of the theory developed by Idsardi and Halle), parentheses all have the same formal status, however they are assigned.

We will argue on grounds of descriptive adequacy that the theory has to recognize different types of parentheses, because they do not all behave in the same way.

We will begin our survey of these parentheses with edges, then move on to designated elements and iterative constituent parentheses.



# Edge Markings

SBG allows for a variety of edge markings on line 0:

Insert a **{left/right}** bracket to the **{left/right}** of the **{left/right}-most** element on line 0.

The examples below show the four options at the right edge (the left edge options are parallel).

Option A results from inserting a **right** bracket to the **right** of the **rightmost** element on line 0.

We assume that this is the unmarked option of the four.

A.  
...x x ) #

B.  
...x ) x #

C.  
...x x ( #

D.  
...x ( x #

Line 0

# Edge Markings

SBG allows for a variety of edge markings on line 0:

Insert a **{left/right}** bracket to the **{left/right}** of the **{left/right}**-most element on line 0.

Option C results from inserting a **left** bracket to the **right** of the **rightmost** element.

This gives post-accenting: a foot will begin at the next grid mark.

We will not discuss the other options here.

A.  
...x x ) #

B.  
...x ) x #

C.  
...x x ( #

D.  
...x ( x #

Line 0

# Designated Elements: Lexical Accent

In some languages, some syllables have a lexical property called **accent**.

In SBG, lexical accent is represented by a left or right line 0 parenthesis associated with the accented element.

For example, the stem of the Russian word *koróv*- ‘cow’ has the lexical representation shown below; the second syllable has a lexical accent.

Compare *golov*- ‘head’, which is unaccented.

x (x	x x	Line 0
ko rov-	go lov-	Syllables
‘cow’	‘head’	

# Designated Elements: Lexical Accent

In Russian, inflectional suffixes can also be accented.

The nominative singular suffix of 'head' is *-a*, which has a lexical accent indicated by the left parenthesis.

The accusative singular suffix is *-u*, which is unaccented.

x	x	(x	x	x	x	Line 0
go	lo	v-a	go	lo	v-u	Syllables
'head	NOM	SG'	'head	ACC	SG'	

# Designated Elements: Lexical Accent

In Russian, the heads of line 0 constituents are on the **left**; heads are projected to line 1.

In the NOM SG of 'head', there is only one constituent (foot) due to the parenthesis associated with the suffix *-a*.

<p>x x (x go lo v-a 'head NOM SG'</p>	<p>x x x go lo v-u 'head ACC SG'</p>	<p>Line 1 Line 0 Syllables</p>
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# Designated Elements: Lexical Accent

In Russian, the heads of line 0 constituents are on the **left**; heads are projected to line 1.

In the NOM SG of ‘head’, there is only one constituent (foot) due to the parenthesis associated with the suffix *-a*.

The head of this foot is projected to line 1, resulting in stress on the suffix: *golová*.

In the ACC SG of ‘head’ there are no lexical accents; how does stress get assigned here?

<p style="text-align: right;">x</p> <p>x x (x</p> <p>go lo v-a</p> <p>‘head NOM SG’</p>		<p>x x x</p> <p>go lo v-u</p> <p>‘head ACC SG’</p>	<p>Line 1</p> <p>Line 0</p> <p>Syllables</p>
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# Designated Elements: Lexical Accent

Russian has the edge-marking rule: Insert a **right** bracket to the **right** of the **rightmost** element on line 0.

This edge bracket creates a line 0 foot in the ACC SG that extends to the beginning of the word.

x x x go lo v-a 'head NOM SG'	x x x) go lo v-u 'head ACC SG'	Line 1 Line 0 Syllables
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# Designated Elements: Lexical Accent

Russian has the edge-marking rule: Insert a **right** bracket to the **right** of the **rightmost** element on line 0.

This edge bracket creates a line 0 foot in the ACC SG that extends to the beginning of the word.

The **leftmost**, i.e. the initial, line 0 mark of this foot is projected to line 1, resulting in initial stress : *gólovu*.

		Line 1
		Line 0
		Syllables
x	x	(x)
go	lo	v-a
'head	NOM	SG'
x	x	x)
go	lo	v-u
'head	ACC	SG'



# Designated Elements: Lexical Accent

Russian has the edge-marking rule: Insert a **right** bracket to the **right** of the **rightmost** element on line 0.

This edge bracket creates a line 0 foot in the ACC SG that extends to the beginning of the word.

The **leftmost**, i.e. the initial, line 0 mark of this foot is projected to line 1, resulting in initial stress : *gólovu*.

In the NOM SG the edge mark has no effect, and stress remains on the suffix.

	x					Line 1		
	x	x	(x)		x	x	x)	Line 0
	go	lo	v-a		go	lo	v-u	Syllables
	'head NOM SG'				'head ACC SG'			

# Designated Elements: Lexical Accent

In the ACC SG of 'cow', the lexical accent on the second syllable and the right edge mark create a foot whose leftmost mark is projected to line 1, resulting in *koróvu*.

	x	
	x (x x)	Line 1
	ko ro v-u	Line 0
	'COW ACC SG'	Syllables

# Designated Elements: Lexical Accent

In the ACC SG of ‘cow’, the lexical accent on the second syllable and the right edge mark create a foot whose leftmost mark is projected to line 1, resulting in *koróvu*.

In the NOM SG there are two feet, due to the fact that both the stem and the suffix have a lexical accent.

Therefore both heads are projected to line 1: which one wins?

	x    x		x	Line 1
	x (x    (x)		x (x    x)	Line 0
	ko ro v-a		ko ro v-u	Syllables
	‘COW NOM SG’		‘COW ACC SG’	

# Designated Elements: Lexical Accent

In Russian the **leftmost** mark on line 1 is projected to line 2 and becomes the main stress of the word.

Other line 1 marks are not realized phonetically as stress; therefore, the NOM SG of 'cow' is stressed *koróva*.

	<b>x</b>		x	Line 2
	( <b>x</b> x		( x	Line 1
	x ( <b>x</b> (x)		x ( x    x)	Line 0
	ko <b>ro</b> v-a		ko ro v-u	Syllables
	'COW NOM SG'		'COW ACC SG'	

# Heads and Line 0 Brackets

Notice that the head of a foot created by a lexical accent bracket is adjacent to that bracket.

For example, in *koróvu* the left lexical bracket is associated with a left-headed foot.

	x	
	x (x x)	Line 1
	ko ro v-u	Line 0
	‘COW ACC SG’	Syllables

# Heads and Line 0 Brackets

Notice that the head of a foot created by a lexical accent bracket is adjacent to that bracket.

For example, in *koróvu* the left lexical bracket is associated with a left-headed foot.

Similarly, in *jágodu* ‘berry ACC SG’ the left bracket begins a foot headed on the left.

<p style="text-align: center;">x</p> <p style="text-align: center;">( x   x   x )</p> <p>ja go d-u</p> <p>‘berry ACC SG’</p>	<p style="text-align: center;">x</p> <p style="text-align: center;">x ( x   x )</p> <p>ko ro v-u</p> <p>‘cow ACC SG’</p>	<p>Line 1</p> <p>Line 0</p> <p>Syllables</p>
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# Heads and Line 0 Brackets

This correlation between the orientation of the lexical accent bracket and of foot headedness is not a coincidence.

x		x	Line 1
(x x x)		x (x x)	Line 0
ja go d-u		ko ro v-u	Syllables
'berry ACC SG'		'cow ACC SG'	

# Heads and Line 0 Brackets

This correlation between the orientation of the lexical accent bracket and of foot headedness is not a coincidence.

Thus, it would be absurd to represent lexical accents by a left bracket if we were to posit **right**-headed feet on line 0.

This would give incorrect *\*jagodú* and *\*korovú*, respectively; we would lose the fact that the vowels of *ja* and *ro* have underlying accents.

	<b>x</b>		<b>x</b>	Line 1
(	<b>x</b>	x	<b>x</b> )	x
	<b>x</b>	(	<b>x</b>	<b>x</b> )
<b>ja</b>	go	d-u	ko	<b>ro</b> v-u
'berry ACC SG'			'cow ACC SG'	Syllables



# Heads and Line 0 Brackets

If we were to represent the lexical accents of these vowels with **right** brackets, we would need to posit **right**-headed feet on line 0.

<b>x</b>		<b>x</b>			<b>x</b>		<b>x</b>	Line 1
<b>x</b> )		<b>x</b> )		<b>x</b> )		<b>x</b> )		Line 0
<b>ja</b>	go	d-u		ko	<b>ro</b>	v-u		Syllables
'berry	ACC	SG'		'cow	ACC	SG'		

# Heads and Line 0 Brackets

Another way to put this is that the choice of a lexical left or right bracket and the choice of left- or right-headed feet are not independent choices.

A syllable with a lexical accent, represented by A below, by definition must be associated with a line 1 mark.

Therefore, the only choices for lexical brackets and headedness are the two shown below: both **left** or both **right**.

Left bracket			Right bracket			
Left headed			Right headed			
	<b>x</b>			<b>x</b>		Line 1
<b>x</b>	<b>( x</b>	<b>x</b>	<b>x</b>	<b>x )</b>	<b>x</b>	Line 0
U	A	U	U	A	U	Syllables

# Heads and Line 0 Brackets

In classical SBG theory, however, no connection is made between bracket orientation and headedness, thereby over-generating the two impossible configurations below.

The reason for not drawing this connection is that not all brackets require this kind of adjacency.

Left bracket		Right bracket		
Right headed		Left headed		Line 1
	x	x		Line 0
x ( x x		x x ) x		Syllables
U A U		U A U		

# Heads and Line 0 Brackets

For example, the **right** edge brackets in Russian have their heads on the **left**.

They do not require their heads to be adjacent.

Other types of brackets also do not require adjacency.

	<b>x</b>		<b>x</b>		Line 1
<b>x</b>	(	<b>x</b>		<b>x</b> )	Line 0
ko	ro	v-u	go	lo	v-u
'cow	ACC	SG'	'head	ACC	SG'

# Binary Feet: ICC Brackets

Many languages impose an upper bound (usually two) on the size of metrical feet.

For example, Maranungku (Tryon 1970) has primary stress on the first syllable, and alternating secondary stresses.

This pattern corresponds to grouping syllables into trochees from the left, to form binary left-headed feet.

láng ka rà te tì  
'prawn'

wé le pè ne màn ta  
'kind of duck'

# Binary Feet: ICC Brackets

In SBG theory, binary feet are formed by **Iterative Constituent Construction (ICC)** (Halle & Idsardi 1995):

Insert a **{left/right}** boundary for each pair of elements.

In Maranungku, a **right** bracket is inserted, scanning from the **left**. These feet are headed on the **left**.

x		x								Line 1	
x		x)	x		x)	x		x		Line 0	
láng	ka	rà	te	tì	wé	le	pè	ne	màn	ta	Syllables
'prawn'					'kind of duck'						

# Binary Feet: ICC Brackets

In addition, Maranungku has the same edge-marking rule as Russian.

x		x		x						Line 1	
x	x)	x	x)	x)						Line 0	
láng	ka	rà	te	tì	wé	le	pè	ne	màn	ta	Syllables
‘prawn’					‘kind of duck’						

# Binary Feet: ICC Brackets

Line 1 marks are grouped into a **left**-headed constituent.

<b>x</b>										Line 2	
(	x		x		x					Line 1	
	x	)	x	)	x	)	x	)	x	Line 0	
láng	ka	rà	te	tì	wé	le	pè	ne	màn	ta	Syllables
'prawn'					'kind of duck'						



# Binary Feet: ICC Brackets

Line 1 marks are grouped into a **left**-headed constituent.

The relevant point, here, however, is that the heads of feet created by ICC are not adjacent to the ICC brackets.

x	x	x	x	x	x	x		Line 1			
x	x)	x	x)	x)	x	x)	x	Line 0			
láng	ka	rà	te	tì	wé	le	pè	ne	màn	ta	Syllables
'prawn'					'kind of duck'						

# Distinguishing Types of Brackets

# Distinguishing Types of Brackets

To sum up, we have found that a lexical accent is associated with a parenthesis that requires an adjacent head.

Other parentheses, created by ICC or by edge marking, do not require adjacency of their heads.

Treating all these parentheses in the same way does not account for this distinction.

Lexical accent	ICC and edge brackets	
<b>x</b>	<b>x</b> <b>x</b> <b>x</b>	Line 1
x ( <b>x</b>	x x) x x) x x)	Line 0
ko rov-	wé le pè ne màn ta	Syllables
'cow'	'kind of duck'	

# Distinguishing Types of Brackets

Therefore, we propose to distinguish brackets associated with lexical accents from other brackets; we will designate them with the diacritic <sup>L</sup>.

A (<sup>L</sup> or <sup>L</sup>) parenthesis must be adjacent to its head.

Lexical parentheses are required in other situations, not just for lexical accent.

Lexical accent	ICC and edge brackets	
x	x x x	Line 1
x ( <sup>L</sup> x	x x) x x) x x)	Line 0
ko rov-	wé le pè ne màn ta	Syllables
'cow'	'kind of duck'	

# Designated Elements: Heavy Syllables

In a quantity-sensitive (QS) language, heavy syllables (H) are distinguished from light syllables (L).

In QS languages, heavy syllables have inherent prominence that requires them to be heads of feet.

In SBG, heavy syllables, like lexical accents, project a lexical bracket.

And like lexical accents, heavy syllables project a lexical bracket (<sup>L</sup> or <sup>L</sup>) which must be adjacent to its head.

# Designated Elements: Heavy Syllables

For example, Halle & Idsardi (1995) describe Selkup stress (Kuznecova, Xelimskij, & Gruskina 1980; Halle and Clements 1983) as follows:

Stress goes on the right-most long vowel, otherwise on the initial vowel.

Some examples are given below.

L L **Á** L

i li **só:** mɪt

‘we lived’

H L **Á** L

u: cɪk **kó:** qɪ

‘they two are working’

**Í** L L L

**qól** cɪm pa ti

‘found’

# Designated Elements: Heavy Syllables

In Halle & Idsardi's (1995) analysis, heavy syllables in Selkup project a **left** bracket on line 0; the heads of line 0 feet are on the **left**.

As with lexical accents, it is not a coincidence that heads are adjacent to these lexical brackets.

		x							Line 1
x	x	(x	x		(x	x	(x	x	Line 0
i	lɨ	sóʔ	mɨt		uʔ	cɨk	kóʔ	qɪ	Syllables
L	L	H	L		H	L	H	L	
'we lived'				'they two are working'					

# Designated Elements: Heavy Syllables

It would be absurd, for example, for heavy syllables to project a **left** bracket on line 0 if the heads of line 0 feet are on the **right**, as is evident in the example below.

			x							Line 1
x	x	(x	x	(x	x	(x	x			Line 0
i	li	so	mit	u	cik	ko	qɪ			Syllables
L	L	H	L	H	L	H	L			
'we lived'				'they two are working'						





# Designated Elements: Heavy Syllables

Therefore, brackets projected by heavy syllables are also lexical brackets, labeled (<sup>L</sup>x or <sup>L</sup>), and they must be adjacent to their heads.

		<b>x</b>							Line 1
<b>x</b>	<b>x</b>	( <sup>L</sup> <b>x</b>	<b>x</b>		( <sup>L</sup> <b>x</b>	<b>x</b>	( <sup>L</sup> <b>x</b>	<b>x</b>	Line 0
i	lɪ	<b>sóː</b>	mɪt		<b>uː</b>	cɪk	<b>kóː</b>	qɪ	Syllables
L	L	<b>H</b>	L		<b>H</b>	L	<b>H</b>	L	
'we lived'				'they two are working'					

# Brackets that Move: East Slavic

# Russian: Accented Stems

We have seen that Russian has accented stems, like *koróv-* ‘cow’, which are always stressed on the stem.

Accented stems are represented with a left lexical bracket, (<sup>L</sup>, to the left of the **accented** syllable.

	x		x	Line 2		
	(x	x	(x	Line 1		
x	( <sup>L</sup> x	(x)	x	( <sup>L</sup> x	x)	Line 0
ko	ro	v-a	ko	ro	v-u	Syllables
‘COW NOM SG’			‘COW ACC SG’			

# Russian: Unaccented Stems

We have also seen that Russian has unaccented stems, like *golov-* ‘head’, where stress depends on the suffix.

When the suffix is accented, as in the NOM SG, stress goes on the suffix; otherwise, as in the ACC SG, stress goes on the initial syllable of the stem.

	x		x	Line 2		
	(x		(x	Line 1		
x	x	(x)	x	x	x)	Line 0
go	lo	v-a	go	lov-u	Syllables	
‘head	NOM	SG’	‘head	ACC	SG’	

# Russian: Post-accenting Stems

Russian also has post-accenting stems, like *gospož-* ‘lady’.

Post-accenting stems are represented with a **left** edge bracket to the **right** of the **rightmost** element of the stem.

x    x (  
gos pož-  
‘lady’

Line 0  
Syllables

# Russian: Post-accenting Stems

Russian also has post-accenting stems, like *gospož-* ‘lady’.

Post-accenting stems are represented with a **left** edge bracket to the **right** of the **rightmost** element of the stem.

Post-accenting stems always cause the stress to appear on the suffix, regardless of whether the suffix has an accent.

	x		x	Line 2
	(x		(x	Line 1
x	<b>x</b> ( (x)	x	<b>x</b> ( (x)	Line 0
gos	pož-a	gos	po ž-u	Syllables
‘lady	NOM SG’	‘lady	ACC SG’	

# East Slavic Stem Types

These three stem types, which also occur in Ukrainian and Belarusian, are well accounted for by SBG theory, as demonstrated by Idsardi (1992).

However, there are also other stem types in these languages which require a different mechanism.

Accented	Unaccented	Post-accenting	
x ( <sup>L</sup> x	x x	x x (	Line 0
ko rov-	go lov-	gos pož-	Syllables
'cow'	'head'	'lady'	



# East Slavic Stem Types

Some noun paradigms, like Ukrainian *bab-* ‘woman’, put stress on the **stem** in the singular and on the **suffix** in the plural.

Others, like Ukrainian *novyn-* ‘news’, have stress on the **suffix** in the singular and on the **stem** in plural.

These noun types, which we call **shifting**, are found in all three East Slavic languages, but are most common in Ukrainian.

‘woman’		‘news’	
<b>báb</b> -a	bab- <b>ý</b>	novyn- <b>ý</b>	<b>novýn</b> -y
‘NOM SG’	‘NOM PL’	‘GEN SG’	‘NOM PL’

# East Slavic Stem Types

Osadcha (2019) argues that classical SBG theory does not account for these patterns.

Thus, if we suppose that *bab-* ‘woman’ has a lexical accent, then we can derive the singular forms, but fail in the plural, where the suffix must be stressed: *bab-ý*.

x	x	Line 2
(x x	(x	Line 1
(x (x)	(x x)	Line 0
ba b-a	*ba b-y	Syllables
‘NOM SG’	‘NOM PL’	

# East Slavic Stem Types

Conversely, if we suppose that *bab-* is unaccented, then we fail to derive the nominative singular, *báb-a*, because the suffix is accented and would attract the stress.

We also fail to derive the nominative plural *bab-ý*, since the suffix is unaccented, and we have seen that when there are no accents in a word, stress defaults to the left.

x	x	x	x	x	Line 2			
(x	x	(x	(x	(x	Line 1			
(x	(x)	(x	x)	x	x)	Line 0		
ba	b-a	*ba	b-y	*ba	b-a	*ba	b-y	Syllables
'NOM SG'	'NOM PL'	'NOM SG'		'NOM PL'				

# Shifting Stems: East Slavic

Osadcha (2019) proposes that **shifting stems** are a distinct type that must be marked with a special type of lexical parenthesis,  $(^S$ , where S stands for ‘shifting’.

Shifting stems are subject to the **Shifting Rule**:

In the plural, move a  $(^S$  parenthesis minimally to an adjacent morpheme:

$$(^Sx x \rightarrow x x(^S \quad \text{or} \quad x x(^S \rightarrow x (^Sx$$

## Shifting Stems

$(^Sx$	x	x	$x(^S$	$(^Sx$	Line 0
ma	tir-	no	vyn-	bab-	Syllables
‘mother’		‘news’		‘woman’	

# Applying the Shifting Rule

In the SG of *báb-y*, stress remains on the stem.

In PL the Shifting Rule applies on Line 0: in order to move stress to the suffix, it moves the left parenthesis one grid mark to the right, resulting in *bab-ý*.

We are treating suffixes as unaccented; however, it doesn't matter whether they have an accent or not, since stress is controlled by the (<sup>S</sup> parenthesis of the stem.

( x	( x	Line 1
( <sup>S</sup> x x)	( <sup>S</sup> x x) → x ( <sup>S</sup> x)	Line 0
ba b-y	ba b-y      ba b-ý	Syllables
'woman GEN SG'	'woman NOM PL'	

# Applying the Shifting Rule

In the SG of *novyn-ý*, stress is on the suffix.

In the PL the Shifting Rule applies on Line 0: in order to move stress off the suffix, it moves the (<sup>s</sup> parenthesis one grid mark to the left to give *novýn-y*.

	(x				(x	Line 1
x	x	( <sup>s</sup> x)	x	x	( <sup>s</sup> x)	→ x ( <sup>s</sup> x x) Line 0
no	vy	n-ý	no	vy	n-y	no v <sup>y</sup> n-y Syllables
'news GEN SG'			'news NOM PL'			

# Shifting and the Ukrainian Vocative Case

Another puzzle resolved by allowing shifting brackets is the stress pattern of the Ukrainian vocative singular.

In some paradigms the VOC SG causes the stress to shift one or more syllables to the left.

Butska (2002: 13–4) claims that the VOC SG = NOM SG or patterns with the PL; however, this is not always the case.

Steriade & Yanovich (2013) set the VOC SG aside as a peculiar exception.

# The Vocative Shifting Rule

Osadcha (2019) proposes that the VOC SG suffixes (-u, -o, -e) convert an adjacent left parenthesis into a special parenthesis marked (ᵛ, which is subject to a special version of the Shifting Rule:

Move a (ᵛ parenthesis one grid mark to the left.

This rule elegantly accounts for the behaviour of the VOC SG in nominal paradigms, as follows:



# The Vocative Shifting Rule

When the stem is accented, nothing happens; the left parenthesis is not adjacent to the VOC SG, and we obtain

NOM SG *koróv-a* ~ VOC SG *koróv-o*.

x	x	Line 2
(x x	(x	Line 1
x ( <sup>L</sup> x (x)	x ( <sup>L</sup> x x)	Line 0
ko ro v-a	ko ro v-o	Syllables
‘COW NOM SG’	‘COW VOC SG’	

# The Vocative Shifting Rule

In an unaccented stem stress shifts all the way to the left; this is simply the default stress when there are no accents:

NOM SG *holov-á* 'head' ~ VOC SG *hólov-o* (cf. ACC SG *hólov-u*).

x	x	Line 2
x	(x	Line 1
x x (x)	x x x)	Line 0
ho lo v-a	ho lo v- <span style="color: purple;">o</span>	Syllables
'head NOM SG'	'cow VOC SG'	

# The Vocative Shifting Rule

In a shifting stem that behaves as post-accenting in SG, the VOC SG suffix relabels the (<sup>S</sup> parenthesis to (<sup>V</sup> which causes stress to shift one syllable to the left:

NOM SG *novyn-á* ‘news’ ~ VOC SG *novýn-o*

	(x		(x	Line 1
x x	( <sup>S</sup> x)	x x	( <sup>V</sup> x → x ( <sup>V</sup> x x)	Line 0
no vy n-a		no vy n-o	no vy n-o	Syllables
‘news NOM SG’		‘news VOC PL’		

# The Vocative Shifting Rule

Interestingly, post-accenting stems have the same pattern, even if they consistently have stress on the suffix in the rest of the cases (cf. GEN SG *korol'-á*).

NOM SG *koról'-∅* 'king' - GEN SG *korol'-á* ~ VOC SG *koról'-u*

(x	(x	Line 1
x x ( <sup>L</sup> x)	x x ( <sup>V</sup> x) → x ( <sup>V</sup> x	x) Line 0
ko ro l'-a	ko ro l'-u	ko ro l'-u Syllables
'king GEN SG'	'news VOC PL'	

# Edge Brackets that Move: Spanish

# Lexical Edge Brackets in Spanish

There are also edge parentheses that move.

Roca (2005) and Doner (2017) show that Spanish stems have a variety of edge marks that are marked in the lexicon.

For example, *almíbar* ‘syrup’, plural *almíbar-es*, is assigned a **right** bracket to the **right** of the **rightmost** stem element; the edge of the stem is indicated below with a **]**.

x    x    x    )	x    x    x    )    x	Line 0
al mi bar ]	al mi ba r ] -es	Syllables
‘syrup’	‘syrup                    PL’	

# Lexical Edge Brackets in Spanish

Spanish has binary feet created by ICC: Starting at the right edge, insert a left bracket after every two adjacent x marks where no bracket intervenes.

x (x x ) al mi bar ] 'syrup'	x (x x ) x al mi ba r ]-es 'syrup PL'	Line 0 Syllables
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# Lexical Edge Brackets in Spanish

Spanish has binary feet created by ICC: Starting at the right edge, insert a left bracket after every two adjacent x marks where no bracket intervenes.

Line 0 constituents are **left**-headed.

The result is stress on the penult in the singular and on the antepenult in the plural: *almíbar* ~ *almíbar-es*.

x		x		x		x		Line 1			
x	(	x	x	)	x	(	x	x	)	x	Line 0
al	mi	bar]	al	mi	ba	r]	-es				Syllables
'syrup'			'syrup				PL'				



# Lexical Edge Brackets in Spanish

Consider now *carácter* ~ *caractéres* ‘character’.

In the singular, this word is just like *almíbar*: It has a **right** bracket to the **right** of the **rightmost** line 0 element of the stem, and an ICC **left** bracket that creates a **left**-headed binary foot. The result is *carácter*.

In the plural, however, we obtain \**carácteres*, like *almíbares*, but this is not correct. We need *caractéres*.

<p><b>x</b></p> <p>x (<b>x</b> x )</p> <p>ca <b>rac</b> ter]</p> <p>‘character’</p>	<p>* <b>x</b></p> <p>x (<b>x</b> x ) x</p> <p>ca <b>rac</b> te r]-es</p> <p>‘character PL’</p>	<p>Line 0</p> <p>Syllables</p>
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# Lexical Edge Brackets in Spanish

Roca (2005) proposes that the difference is that in *almíbar*, the right edge bracket remains at the right edge of the **stem**; but in *carácter*, it goes at the right edge of the **word**.

Therefore, when the plural suffix *-es* is added to *character-*, the bracket will go to its right.

But how do we assign in the lexical entry of a **stem** a parenthesis that has to go at the end of a **word** that has not yet been formed?

x    x    x    )	x    x    x    )	Line 0
al mi bar- ] #	ca rac ter- ] #	Syllables
'syrup'	'character'	

# Lexical Edge Brackets in Spanish

We propose to use the same mechanism we use to account for shifting stems in East Slavic.

Whereas *almibar-* has a regular edge bracket, *character-* receives a special bracket labelled <sup>w</sup>), which is subject to the shifting rule:

Move a <sup>w</sup>) parenthesis to the end of the word.

x	x	x	)
al	mi	bar-	]
'syrup'			

x	x	x	<sup>w</sup> )	Line 0
ca	rac	ter-	]	Syllables
'character'				

# Lexical Edge Brackets in Spanish

In the singular there is no suffix, so the movement of the edge parenthesis to the word boundary has no effect.

x	x	x <sup>w</sup> )	→	x	(x	x	<sup>w</sup> )	Line 0
ca	rac	ter]-∅#		ca	rac	ter]-∅#		Syllables
'character		SG'		'character		SG'		

# Lexical Edge Brackets in Spanish

In the singular there is no suffix, so the movement of the edge parenthesis to the word boundary has no effect

ICC builds a left-headed foot, and the result is *caráct<sup>er</sup>*.

					Line 1
		x			
	x	(x	x	w)	Line 0
ca	rac	ter	]-∅#		Syllables
'character			SG'		

# Lexical Edge Brackets in Spanish

In the plural, the edge parenthesis moves across the grid mark of the plural suffix.

x	x	x <sup>w</sup> )	x	→	x	x	x	x <sup>w</sup> )	Line 0
ca	rac	ter]	-es#		ca	rac	te r]	-es#	Syllables
'character			PL'		'character			PL'	

# Lexical Edge Brackets in Spanish

In the plural, the edge parenthesis moves across the grid mark of the plural suffix.

As a result, ICC starts from the end of the word and builds a left-headed foot that puts stress on the penult.

The result is *caractér-es*.

			x				
	x	x	(x	x <sup>w</sup> )			Line 0
ca	rac	te	r]	-es#			Syllables
'character				PL'			

# Conclusion



# Conclusion

We have tried to show that Simplified Bracketed Grid (SBG) theory with distinguished lexical and mobile parentheses is a unified theory that can account for the complex stress patterns of East Slavic and Romance.

In particular, brackets that can move are the metrical analogs of floating tones in autosegmental theory.

They are both ways of allowing a piece of phonological structure to become detached from their lexical sponsor.

THANK YOU!

MERCI!

Дякую!

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