

## Mobile Lexical Parentheses in Metrical Grids

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### Introduction

We propose that the Simplified Bracketed Grid (SBG) theory of metrical structure (Idsardi 1992; Halle & Idsardi 1995; Halle 1997) needs to distinguish parentheses associated with lexical markings from other types of parentheses, and must include parentheses that move.

### The need to distinguish lexical parentheses (<sup>L</sup> or <sup>L</sup>)

In (1), we give sample words in three types of languages; all have the convention Edge Right that assigns a right parenthesis at the right edge of Line 0.

(1)	a. Lexical accent	b. Quantity Sensitive	c. QI and ICC
Line 2	x	x	x
Line 1	(x	(x x	(x x x
Line 0	x ( <sup>L</sup> x x)	x ( <sup>L</sup> x x x ( <sup>L</sup> x x)	x x) x x) x)
	U A + U	L H L L H L	S S S S S

(1a) is a language with lexical accent, like Russian or Ukrainian. The first syllable of the stem (e.g. *koróv*- ‘cow’) is underlyingly unaccented (mnemonic U), as is the suffix (e.g. *-u* ‘Acc SG’); the second syllable (A) has a lexical accent.

- Accented syllables project a left parenthesis (<sup>L</sup> on Line 0.
- Heads of Line 0 constituents are on the left; they are projected to Line 1.
- The main word stress is projected to Line 2.

(1b) is a quantity-sensitive (QS) language like Khalkha:

- Heavy syllables (H) project a left parenthesis (<sup>L</sup>).
- Heads are again on the left, adjacent to the parenthesis.

Classical SBG does not require this kind of adjacency; heads in (1a, b) are not adjacent to the edge parentheses on the right.

(1c) is a quantity-insensitive (QI) language like Maranungku:

- Iterative Constituent Construction (ICC) from the left puts a right parenthesis after every two grid marks (binary feet).
- Line 0 heads are on the left, not adjacent to ICC parentheses.

Dresher (1994, 2016) argues that heads must be adjacent to (<sup>L</sup> or <sup>L</sup>), as in (1a, b). Allowing heads of (<sup>L</sup> to be on the opposite side would fail to account for the inherent prominence of accented and heavy syllables, and would result in an unattested kind of ‘anti-QS’ where stress tries to avoid H syllables. This restriction does not hold of edge or ICC parentheses.

**Selected references:** Doner, Julianne. 2017. Spanish stress and lexical accent across syntactic categories. *Probus* 29(2): 233–85. Dresher, B. Elan. 1994. Acquiring stress systems. In Eric Sven Ristad (ed.), *Language computations (DIMACS Series in Discrete Mathematics and Theoretical Computer Science, v. 17)*, 71–92. Providence, RI: AMS. Dresher, B. Elan. 2016. Covert representations, contrast, and the acquisition of lexical accent. In Jeffrey Heinz, Rob Goedemans, & Harry van der Hulst (eds.), *Dimensions of phonological stress*, 231–62. Cambridge: Cambridge University Press. Halle, Morris. 1997. On stress and accent in Indo-European. *Language* 73(2): 275–313. Halle, Morris & William J. Idsardi. 1995. General properties of stress and metrical structure. In John A. Goldsmith (ed.), *The handbook of phonological theory*, 403–43. Cambridge, MA & Oxford: Blackwell. Idsardi, William. 1992. The computation of prosody. Doctoral dissertation, MIT, Cambridge, MA. Osadcha, Iryna. 2019. Lexical stress in East Slavic: Variation in space and time. Doctoral dissertation, University of Toronto. Roca, Iggy. 2005. Saturation of parameter settings in Spanish stress. *Phonology* 22(3): 345–94.

### Parentheses must be allowed to move: East Slavic

Lexical parentheses must also be allowed to move. There are East Slavic noun paradigms that put stress on the stem in the singular and on the suffixes in the plural, or on the suffixes in singular and on the stem in plural.

- Osadcha (2019) shows that ‘shifting stems’, which are very common in Ukrainian and Belarusian and also occur in Russian, cannot be accounted for by the mechanisms of classical SBG.
- Rather, such stems must be marked with a lexical parenthesis labelled (<sup>S</sup> which is subject to the rule in (2):

(2) Shifting Rule: In the plural, move a (<sup>S</sup> parenthesis minimally to an adjacent morpheme.

- The metrical lexical, or underlying, representation (UR) of a stem like Russian *gorod*- ‘city’ is (<sup>S</sup>x x-: it is accented in SG, and post-accenting in PL (3a).
- The stem *kolbas*- ‘sausage’ has the metrical UR x x(<sup>S</sup>-: it is post-accenting in SG and accented on the stem in PL (3b).

(3a)	NOM SG	NOM PL	(3b)	NOM SG	NOM PL
Line 0	( <sup>S</sup> x x)	x x ( <sup>S</sup> x)	Line 0	x x ( <sup>S</sup> x)	x ( <sup>S</sup> x x)
	gó rod	go ro d + á		kol ba s + á	kol bá s + y

### Edge parentheses that move: Spanish

There are also edge parentheses that move.

Roca (2005) and Doner (2017) show that Spanish stems have a variety of edge marks.

- *almíbar* ~ *almibares* ‘syrup’ and *carácter* ~ *caractéres* ‘character’ both have stems marked to take Edge Right.
- In (4a), ICC from the right and Head Left apply as expected; in (4b), edge marking must apply at the word level to yield the PL.
- We propose that (4a) has the UR xxx)-, whereas (4b) has the UR xxx<sup>w</sup>)-, where <sup>w</sup>) must move to the end of the word.

(4a)	SINGULAR	PLURAL	(4b)	SINGULAR	PLURAL
Line 1	x	x	Line 1	x	x
Line 0	x (x x)	x (x x) x	Line 0	x (x x <sup>w</sup> )	x x (x x <sup>w</sup> )
	al mí bar	al mí ba r + es		ca rác ter	ca rac té r + es

### Conclusions

SBG with distinguished lexical and mobile parentheses is a unified theory that can account for the complex stress patterns of East Slavic and Romance.