Brazilian Portuguese Phonology:
the Metrical Feet in the Optimality Theory Model.

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ABSTRAC

The purpose of this article is to present the rythm pattern of Brazilian Portuguese language. Essentially this a trochaic rythm language (Lee 2007, Massini-Cagliari 2007, Sândalo, Abaurre 2007) due to *the European Portuguese Colonization in Brazil. The language also derives its influences from Indigenous Tribes and Africans Emmigrants revealing to be a plural rythmic language.*

The metrical feet groups together phonemes and syllables in one single domain giving rythm to the language.

Hayes (1995) classifies the rythm of languages either as a trochaic feet (* **.**) in which the first beat of the pair is more proeminent or as an iambic feet (**.** *) when the second beat is more proeminent.

Consider for example the phrase below:

" *Os meninos gostam de sorvete"*. ("The boys like icecream").

Syntax: [(*os*)Det. (*meninos*)N]NP (*gostam*)V (*de sorvete*)PP]S
Phonology: [(oS)ω (me.ni.noS)ω]Φ [(gɔS.t aN)ω (dʒɪ soʀ.vetʃɪ)Φ]IP

If we take this phrase just on the level of the metrical foot (Σ) we can see that potently the language reveals its trochaic rythm:

(*) **(** * **.** **)** (* **.**) (*) (* **.**) Σ
[(uz) (me.ni.nʊs) (gɔs.tam) (dʒɪ) (soʀ.ve.tʃɪ)

The only problem above is that on this level the rythm is not symmetrical, in other words, besides having a binary feet (* **.**) this sentence also has a unary foot (*).

But if we go higher on the prosodic hierarchy or on the level of the phonological phrase (Φ), (Nespor&Vogel, 1986), the language will rearrange the rythm by the phonological process of ressylabification. In this phonological process the weak syllables gets togheter with strong syllables

forming a symmetrical trochaic rythm:

Domain: phonological phrase:

(* . * .) (* . * . * .) Φ
(*) (* .) (* .) (*) (* .) Σ
[(uz.me. ni.nus) (gɔs.tam) (dʒɪ. soɲ. ve.tʃɪ)

This phonological process can be represented in the Optimality Theory Model (Prince&Smolensky, 1993) as below:

Constraints:

RESSYLAB: ressylabification

FTBIN: Feet are binary.

TROCHFT: Feet are trochaic.

Input: /oS me.ni.noS gɔS.taN dʒɪ soʀ.ve.tʃɪ/	RESSYLAB	FTBIN	TROCHFT
(*) (* .) (* .) (*) (* .)Σ [(uz) (me.ni.nʊs) (gɔs.tam) (dʒɪ) (soʀ.ve.tʃɪ)	*!	*!	*!
→ (* . * .) (* . * . * .)Φ [(uz.me ni.nus) (gɔs.tam) (dʒɪ. soʀ. ve.tʃɪ)			

The plurality of the ethnical rythm on the Brazilian Portuguese language is evident when phrases like "*fubá de milho*" ("maize") appears on its lexicon.

The word "*fubá*" , for example, is an indigenous loanword and has an iambic feet (. *) while "*milho*" is an European Portuguese word that has a trochaic feet (* .).

Syntax: [(*fubá*)N (*de milho*)PP]VP

Phonology: [(fu.ˈba)ω (dʒɪ ˈmi.ʎʊ)Φ]IP

(< > * . * .) Φ
(. * (*) (* .) Σ
Rythm: [fu .ba dʒɪ mi.ʎʊ]

Observe that on the level of the metrical foot (Σ) we have a paradox here: the iambic – trochaic rythm appears at the same time violating the natural rythm of the language (trocaic rythm).

To solve this problem speakers will consider the first syllabe, on the level of the phonological phrase (Φ), (Bisol 1999, Colliscohn 2007) as extrametrical (Hayes 1995, Frid 2001) and will then apply the ressylabification process by which the language will return to its natural trocaic rythm (Lee 2007, Massini-Cagliari 2007, Sândalo, Abaurre 2007).

This phonological process can also be represented in the Optimality Theory Model (Prince&Smolensky, 1993) as below:

Constraints:

EXTRAMETRICAL<LeftEdge>: weak syllables are extrametrical on the left edge.

RESSYLAB: ressylabification

FTBIN: Feet are binary.

TROCHFT: Feet are trochaic.

Input: /fu.ba dʒɪ mi.ʎʊ/	EXTRAMETRICAL <LeftEdge>	RESSYLAB	FTBIN	TROCHFT
(. *) (*) (* .) Σ [fu .ba dʒɪ mi.ʎʊ]	*!	*!	*!	*!
→ (< > * . * .) Φ [fu .ba .dʒɪ mi.ʎʊ]				

Notice that the first candidate on the level of the metrical foot (Σ) is unable to pass trough the grammar while the second candidate on the level of the phonological phrase (Φ) rearranges correctly the grammar of the language.

The grammar of the plural ethnical rythm of the Brazilian Portuguese language is then

represented as: EXTRAMETRICAL<LeftEdge> >>RESSYLAB>>FTBIN>>TROCHFT.

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