

# A'ingae Syllabic Weight

and its two dimensions in lexical stress assignment

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Brown University

advised by Scott AnderBois





- stress  $\stackrel{def}{=}$  relative emphasis given to a syllable

- stress  $\stackrel{def}{=}$  relative emphasis given to a syllable

produce

produce

- stress  $\stackrel{def}{=}$  relative emphasis given to a syllable

(       ×     )  
produce

(   ×       )  
produce

## PRELIMINARIES I

- stress <sup>def</sup> = relative emphasis given to a syllable
  - if unpredictable, must be learned

(     ×     )  
produce

(   ×     )  
produce

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sçerarçizovani  
hierarchical<sub>POLISH</sub>



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(× .)  
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(     ×     )  
produce

(   ×     )  
produce

( × . )( × . )  
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(     ×     )  
produce

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(   ×   . )( ×   . )( ×   . )  
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(        ×        )  
produce

( × )  
produce

(  
(  
s $\check{c}$ erar $\check{c}$ izovani  
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- stress  $\stackrel{def}{=}$  relative emphasis given to a syllable
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- foot  $\stackrel{def}{=}$  a group of two forming a rhythmic unit

(     ×     )  
produce

(     ×     )  
produce

(                     ×     )  
(     ×     .     )(     ×     .     )(     ×     .     )  
sçerarçizovani  
hierarchical<sub>POLISH</sub>

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- foot  $\stackrel{def}{=}$  a group of two forming a rhythmic unit
- trochee  $\stackrel{def}{=}$  a foot whose left beat is strong

(     ×     )  
produce

(     ×     )  
produce

(                     ×     )  
(     ×     .     )(     ×     .     )(     ×     .     )  
sçerarçizovani  
hierarchical<sub>POLISH</sub>

## PRELIMINARIES I

- stress <sup>def</sup> relative emphasis given to a syllable
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  - complicated by syllabic weight and extrametricality
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(        ×        )  
produce

( × )  
produce

(  
(  
s $\check{c}$ erar $\check{c}$ izovani  
hierarchical<sub>POLISH</sub>

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- my theoretical commitment  $\in$  Hayes (1995)

(     ×     )  
produce

(     ×     )  
produce

(                     ×     )  
(     ×     .     )(     ×     .     )(     ×     .     )  
**s**çer**a**rç**i**zov**a**n**i**  
hierarchical<sub>POLISH</sub>



- weight  $\stackrel{def}{=}$  how “heavy” a syllable is

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  - heavy nuclei:

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## PRELIMINARIES II

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( × )  
gentle

( × )  
gentle

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( × )  
gentle

( × )  
genteel

- mora  $\stackrel{def}{=}$  a subsyllabic unit that determines syllable weight

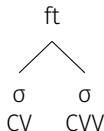
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( × )  
gentle

( × )  
genteel

- mora  $\stackrel{def}{=}$  a subsyllabic unit that determines syllable weight
  - weight-insensitive





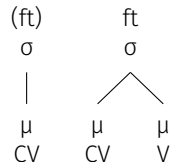
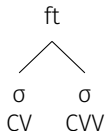
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( × )  
gentle

( × )  
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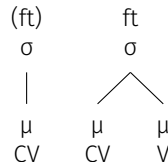
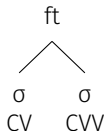
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( × )  
gentle

( × )  
genteel

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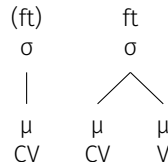
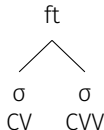
- long vowels
- **diphthongs** (two vowels in one syllable)

- codas (syllable-final consonants): **glottal stops**

( × )  
gentle

( × )  
genteel

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- extrametricality  $\stackrel{def}{=}$  invisibility to stress rules

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universitet

university<sub>POLISH</sub>

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universii<tet>

university<sub>POLISH</sub>

- extrametricality  $\stackrel{def}{=}$  invisibility to stress rules

(x .)  
universii<tet>  
university<sub>POLISH</sub>

- extrametricality  $\stackrel{def}{=}$  invisibility to stress rules

(× .)(× .)  
university<sub>POLISH</sub>⟨tet⟩



- extrametricality  $\stackrel{def}{=}$  invisibility to stress rules

(        ×        )  
 (× .)(× .)  
university<sub>POLISH</sub>

- extrametricality  $\stackrel{def}{=}$  invisibility to stress rules
  - applicable to peripheral constituents

(        ×        )  
(× .)(× .)  
universii<tet>  
university<sub>POLISH</sub>

- extrametricality  $\stackrel{def}{=}$  invisibility to stress rules
  - applicable to peripheral constituents
  - right edge unmarked

(        ×        )  
 (× .)(× .)  
university<sub>POLISH</sub>

- extrametricality  $\stackrel{def}{=}$  invisibility to stress rules
  - applicable to peripheral constituents
  - right edge unmarked
  - does not chain

(        ×        )  
 (× .)(× .)  
university<sub>POLISH</sub>

- little research on the language's suprasegmental phonology

## LITERATURE REVIEW

- little research on the language's suprasegmental phonology
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sɪfot<sup>h</sup>õ+<sup>m</sup>bi

float=NEG

*not float*

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(            ×            )  
( × . )( × . )  
**sifot<sup>h</sup>õ<sup>m</sup>bi**  
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(            ×            )  
( × . )( × . )  
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*not float*

- Fischer and Hengeveld (in press) link stress and morphology
  - inflectional morphology does not affect stress
  - derivational morphology affects stress



diphthongs and glottal stops contribute to weight

diphthongs and glottal stops contribute to weight  
in two different ways

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in two different ways

based on elicitations with Hugo Lucitante '19

$\overset{L}{\underset{.}{p}}\overset{L}{\tilde{a}^n}dza$   
hunt

L    L  
pā<sup>n</sup>dza  
hunt

    L  L  L  
atapa  
breed

L      L  
pã<sup>n</sup>dza  
hunt

L   L   L  
atapa  
breed

H   L  
fiite  
help

L     L  
pã<sup>n</sup>dza  
hunt

L   L   L  
atapa  
breed

   H   L  
f*i*ite  
help

   L     H  
f*i*<sup>n</sup>d*i*i  
sweep

L   L   H  
atapõẽ  
breed-CAUS  
*make breed*

   H     H  
f*i*itĩã  
help-CAUS  
*make help*

<sup>L</sup> <sup>L</sup>  
pã<sup>n</sup>dza  
 hunt

<sup>L</sup> <sup>L</sup> <sup>L</sup>  
 atapa  
 breed

<sup>H</sup> <sup>L</sup>  
fĩite  
 help

<sup>L</sup> <sup>L</sup> <sup>L</sup>  
pã<sup>n</sup>dza+je  
 hunt=INF  
*to hunt*

<sup>L</sup> <sup>L</sup> <sup>L</sup> <sup>L</sup>  
 atapa+je  
 breed=INF  
*to breed*

<sup>H</sup> <sup>L</sup> <sup>L</sup>  
fĩite+je  
 help=INF  
*to help*

<sup>L</sup> <sup>H</sup>  
fĩ<sup>n</sup>dĩi  
 sweep

<sup>L</sup> <sup>L</sup> <sup>H</sup>  
 atapõẽ  
 breed-CAUS  
*make breed*

<sup>H</sup> <sup>H</sup>  
fĩitĩã  
 help-CAUS  
*make help*



syllabic trochee

 $( \times . )$   
 $\sigma \sigma$ 

foot layer

 $\times \dots$   
 $\leftarrow$ 

word layer

 $( \quad \times )$   
 $\dots \times )$

pã<sup>n</sup>dza  
hunt

atapa  
breed

fiite  
help

pã<sup>n</sup>dza+je  
hunt=INF  
*to hunt*

atapa+je  
breed=INF  
*to breed*

fiite+je  
help=INF  
*to help*

fĩ<sup>n</sup>dii  
sweep

atapõẽ  
breed-CAUS  
*make breed*

fiitĩã  
help-CAUS  
*make help*

( × . )

pã<sup>n</sup>dza

hunt

( × . )

atapa

breed

( × . )

fiite

help

( × . )

pã<sup>n</sup>dza+je

hunt=INF

*to hunt*

(× .)(× .)

atapa+je

breed=INF

*to breed*

( × . )

fiite+je

help=INF

*to help*

( × . )

fĩ<sup>n</sup>dii

sweep

( × . )

atapõẽ

breed-CAUS

*make breed*

( × . )

fiitĩã

help-CAUS

*make help*

( × )  
( × .)

pã<sup>n</sup>dza  
hunt

( × )  
( × .)

atapa  
breed

( × )  
( × .)

fiiite  
help

( × )  
( × .)

pã<sup>n</sup>dza+je  
hunt=INF  
*to hunt*

( × )  
(× .)(× .)

atapa+je  
breed=INF  
*to breed*

( × )  
( × .)

fiiite+je  
help=INF  
*to help*

( × )  
( × .)

fĩ<sup>n</sup>dii  
sweep

( × )  
( × .)

atapõẽ  
breed-CAUS  
*make breed*

( × )  
( × .)

fiiitĩã  
help-CAUS  
*make help*

pã<sup>n</sup>dza+'he

hunt-IMPF

*be hunting*

fĩ<sup>n</sup>dĩi+'he

sweep-IMPF

*be sweeping*

pã<sup>n</sup>dzã+<sup>ŋ</sup>gi

hunt-VEN

*come to hunt*

fĩ<sup>n</sup>dĩĩ+<sup>ŋ</sup>gi

sweep-VEN

*come to sweep*

\*(        ×        )  
   (        ×        . )  
pã<sup>n</sup>dza+ 'he  
 hunt-IMPF  
*be hunting*

\*(        ×        )  
   (        ×        . )  
pã<sup>n</sup>dzã+<sup>n</sup>gi  
 hunt-VEN  
*come to hunt*

(        ×        )  
   (        ×        . )  
fĩ<sup>n</sup>dĩi+ 'he  
 sweep-IMPF  
*be sweeping*

(        ×        )  
   (        ×        . )  
fĩ<sup>n</sup>dĩĩ+<sup>n</sup>gi  
 sweep-VEN  
*come to sweep*

syllabic trochee

 $( \times . )$   
 $\sigma \sigma$ 

foot layer

 $\times \dots$   
 $\leftarrow$ 

word layer

 $( \quad \times )$   
 $\dots \times )$

moraic trochee	$(\underset{\cdot}{\times} \underset{\cdot}{.})$ $(\times)$ or      -	lexicon
foot layer	$\times \dots$ $\longleftarrow$	$\langle + 'he \rangle$ -IMPF
word layer	$( \quad \times )$ $\dots \times )$	$\langle + ^{\eta} gi \rangle$ -VEN



pã<sup>n</sup>dza+'he

hunt-IMPF

*be hunting*

fĩ<sup>n</sup>dĩi+'he

sweep-IMPF

*be sweeping*

pã<sup>n</sup>dzã+<sup>ŋ</sup>gi

hunt-VEN

*come to hunt*

fĩ<sup>n</sup>dĩĩ+<sup>ŋ</sup>gi

sweep-VEN

*come to sweep*

pã<sup>n</sup>dza⟨+'he⟩

hunt-IMPF

*be hunting*

fĩ<sup>n</sup>dĩi⟨+'he⟩

sweep-IMPF

*be sweeping*

pã<sup>n</sup>dzã⟨+<sup>n</sup>gi⟩

hunt-VEN

*come to hunt*

fĩ<sup>n</sup>dĩĩ⟨+<sup>n</sup>gi⟩

sweep-VEN

*come to sweep*

( × )

( × . )

pã<sup>n</sup>dza⟨+ 'he⟩

hunt-IMPF

*be hunting*

( × )

( × . )

pã<sup>n</sup>dzã⟨+<sup>n</sup>gi⟩

hunt-VEN

*come to hunt*

( × )

( × )

fĩ<sup>n</sup>dĩi⟨+ 'he⟩

sweep-IMPF

*be sweeping*

( × )

( × )

fĩ<sup>n</sup>dĩĩ⟨+<sup>n</sup>gi⟩

sweep-VEN

*come to sweep*

pã<sup>n</sup>dza  
hunt

atapa  
breed

fiite  
help

pã<sup>n</sup>dza+je  
hunt=INF  
*to hunt*

atapa+je  
breed=INF  
*to breed*

fiite+je  
help=INF  
*to help*

fĩ<sup>n</sup>dii  
sweep

atapõẽ  
breed-CAUS  
*make breed*

fiitĩã  
help-CAUS  
*make help*

( × )  
( × .)  
pã<sup>n</sup>dza  
hunt

( × )  
( × .)  
atapa  
breed

( × )  
( × )  
fiiite  
help

( × )  
( × .)  
pã<sup>n</sup>dza+je  
hunt=INF  
*to hunt*

( × )  
(× .)(× .)  
atapa+je  
breed=INF  
*to breed*

( × )  
( × )(× .)  
fiiite+je  
help=INF  
*to help*

\*( × )  
( × )  
fĩ<sup>n</sup>dii  
sweep

\*( × )  
(× .)(× )  
atapõẽ  
breed-CAUS  
*make breed*

\*( × )  
( × )(× )  
fiiitĩã  
help-CAUS  
*make help*

moraic trochee	$\begin{array}{cc} (\times \cdot) & (\times) \\ \sim & \sim \end{array} \quad \text{or} \quad -$	lexicon
foot layer	$\begin{array}{c} \times \dots \\ \longleftarrow \end{array}$	$\langle + 'he \rangle$ -IMPF
word layer	$\begin{array}{c} ( \quad \times ) \\ \dots \times ) \end{array}$	$\langle + ^{\eta} gi \rangle$ -VEN

mora extrametricality

$$\mu \longrightarrow \langle \mu \rangle / . \mu \_$$

moraic trochee

$$\begin{array}{cc} (\times \cdot) & (\times) \\ \sim & \sim \quad \text{or} \quad - \end{array}$$

foot layer

$$\begin{array}{c} \times \dots \\ \longleftarrow \end{array}$$

word layer

$$\begin{array}{c} (\quad \times) \\ \dots \times) \end{array}$$

lexicon

$\langle + 'he \rangle$   
-IMPF

$\langle + ^\eta gi \rangle$   
-VEN

pã<sup>n</sup>dza  
hunt

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help=INF  
*to help*

fĩ<sup>n</sup>dii  
sweep

atapõẽ  
breed-CAUS  
*make breed*

fiitĩã  
help-CAUS  
*make help*



pã<sup>n</sup>dza  
hunt

atapa  
breed

fiite  
help

pã<sup>n</sup>dza+je  
hunt=INF  
*to hunt*

atapa+je  
breed=INF  
*to breed*

fiite+je  
help=INF  
*to help*

fĩ<sup>n</sup>dĩ<ĩ>  
sweep

atapõ<ẽ>  
breed-CAUS  
*make breed*

fiitĩ<ã>  
help-CAUS  
*make help*

( × )  
( × .)

pã<sup>n</sup>dza  
hunt

( × )  
( × .)

atapa  
breed

( × )  
( × )

fiite  
help

( × )  
( × .)

pã<sup>n</sup>dza+je  
hunt=INF  
*to hunt*

( × )  
(× .)(× .)

atapa+je  
breed=INF  
*to breed*

( × )  
( × )(× .)

fiite+je  
help=INF  
*to help*

( × )  
( × .)

fĩ<sup>n</sup>dĩ<ĩ>  
sweep

( × )  
( × .)

atapõ<ẽ>  
breed-CAUS  
*make breed*

( × )  
( × )

fĩitĩ<ã>  
help-CAUS  
*make help*

- stress is sensitive to syllabic weight

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- diphthongs count as heavy

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- **diphthongs** count as **heavy**
- difficult to spot due to:
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  - rightmost primary stress
  - rarity of diphthongs



fi't<sup>h</sup>i  
kill

fi't<sup>h</sup>i  
kill

fi't<sup>h</sup>i+je  
kill=INF  
*to kill*

## SECOND COMPLICATION

( × )  
( × .)  
fi't<sup>h</sup>i  
kill

\*( × )  
( × )( × .)  
fi't<sup>h</sup>i+je  
kill=INF  
to kill

## SECOND COMPLICATION

( × )  
( × . )  
fi't<sup>h</sup>i  
kill

\*( × )  
( × )( × . )  
fi't<sup>h</sup>i+je  
kill=INF  
*to kill*

( × )  
( × )( × . )  
fi't<sup>h</sup>i+je  
kill-PASS  
*be killed*

## SECOND COMPLICATION

( × )  
( × . )  
fi't<sup>h</sup>i  
kill

\*( × )  
( × )( × . )  
fi't<sup>h</sup>i+je  
kill=INF  
*to kill*

( × )  
( × )( × . )  
fi't<sup>h</sup>i+je  
kill-PASS  
*be killed*

( × )  
( × . )  
pã<sup>n</sup>dza  
hunt

( × )  
( × . )  
pã<sup>n</sup>dza+je  
hunt=INF  
*to hunt*

( × )  
( × . )  
pã<sup>n</sup>dza+je  
hunt-PASS  
*be hunted*

mora extrametricality

$$\mu \longrightarrow \langle \mu \rangle / . \mu \_$$

moraic trochee

$$\begin{array}{cc} (\times \cdot) & (\times) \\ \sim \sim & \text{or} \quad - \end{array}$$

foot layer

$$\begin{array}{c} \times \dots \\ \longleftarrow \end{array}$$

word layer

$$\begin{array}{c} (\quad \times) \\ \dots \times) \end{array}$$

lexicon

$\langle + 'he \rangle$   
-IMPF

$\langle + ^\eta gi \rangle$   
-VEN

mora extrametricality

$$\mu \longrightarrow \langle \mu \rangle / . \mu \_$$

moraic trochee

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glottal prominence

$$\sigma' \xrightarrow{\times} \sigma'$$

foot layer

$$\begin{array}{c} \times \dots \\ \longleftarrow \end{array}$$

word layer

$$\begin{array}{c} (\quad \times) \\ \dots \times) \end{array}$$

lexicon

 $\langle + 'he \rangle$ 

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+je

-PASS

fi't<sup>h</sup>i  
kill

pã<sup>n</sup>dza  
hunt

fi't<sup>h</sup>i+je  
kill=INF  
*to kill*

pã<sup>n</sup>dza+je  
hunt=INF  
*to hunt*

fi't<sup>h</sup>i+je  
kill-PASS  
*be killed*

pã<sup>n</sup>dza+je  
hunt-PASS  
*be hunted*



[ × .]

fi't<sup>h</sup>i

kill

pã<sup>n</sup>dza

hunt

[ × .]

fi't<sup>h</sup>i+je

kill=INF

*to kill*pã<sup>n</sup>dza+je

hunt=INF

*to hunt*

[ × .]

fi't<sup>h</sup>i+je

kill-PASS

*be killed*pã<sup>n</sup>dza+je

hunt-PASS

*be hunted*

[ × .]  
fi't<sup>h</sup>i  
 kill

pã<sup>n</sup>dza  
 hunt

[ × .]  
fi't<sup>h</sup>i+je  
 kill=INF  
*to kill*

pã<sup>n</sup>dza+je  
 hunt=INF  
*to hunt*

[ × .] ✕  
fi't<sup>h</sup>i+je  
 kill-PASS  
*be killed*

✕  
 pã<sup>n</sup>dza+je  
 hunt-PASS  
*be hunted*

[ × .]  
fi't<sup>h</sup>i  
 kill

pã<sup>n</sup>dza  
 hunt

[ × .]  
fi't<sup>h</sup>i+je  
 kill=INF  
*to kill*

pã<sup>n</sup>dza+je  
 hunt=INF  
*to hunt*

fi't<sup>h</sup>i+je  
 kill-PASS  
*be killed*

pã<sup>n</sup>dza+je  
 hunt-PASS  
*be hunted*

[ × .]  
fi't<sup>h</sup>i  
 kill

( × .)  
pã<sup>n</sup>dza  
 hunt

[ × .]  
fi't<sup>h</sup>i+je  
 kill=INF  
*to kill*

( × .)  
pã<sup>n</sup>dza+je  
 hunt=INF  
*to hunt*

( × .)  
fi't<sup>h</sup>i+je  
 kill-PASS  
*be killed*

( × .)  
pã<sup>n</sup>dza+je  
 hunt-PASS  
*be hunted*

( × )  
 [ × .]  
fi't<sup>h</sup>i  
 kill

( × )  
 [ × .]  
fi't<sup>h</sup>i+je  
 kill=INF  
*to kill*

( × )  
 ( × .)  
fi't<sup>h</sup>i+je  
 kill-PASS  
*be killed*

( × )  
 ( × .)  
pã<sup>n</sup>dza  
 hunt

( × )  
 ( × .)  
pã<sup>n</sup>dza+je  
 hunt=INF  
*to hunt*

( × )  
 ( × .)  
pã<sup>n</sup>dza+je  
 hunt-PASS  
*be hunted*

- two dimensions of syllabic weight

# CONCLUSIONS

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Thank you!

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SPECIAL THANKS TO

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