

# Development of accentual categories in Japanese as a second language

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August 13, 2015

- ▶ Perception of L2 lexical prominence
- ▶ Spanish-speaking (Chilean) students of Japanese (S1J2)
- ▶ They perform poorly for unaccented words
- ▶ PhD work: bidirectional perception and production on Spanish and Japanese prominence as L2

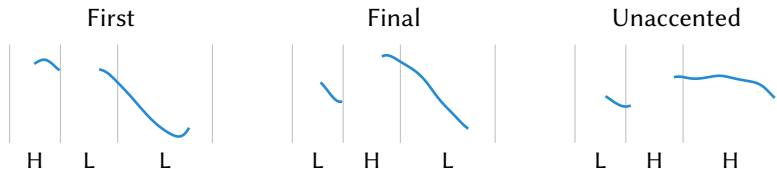
## Objectives in this study

- ▶ Is S1J2 perception affected by L1 cues absent in L2? (Yes?)
- ▶ Are S1J2 developing an L2 unaccented category? (No)
- ▶ Evidence from perceptual study

- ▶ Lexical prominence in Spanish and Japanese is *very* different

## Japanese

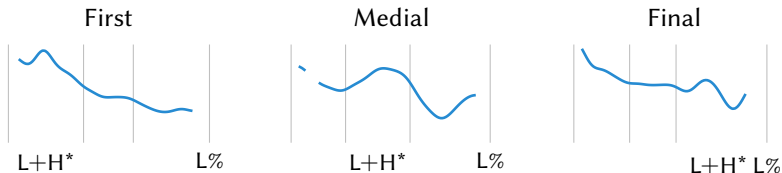
- ▶ Pitch accent
- ▶ Pitch is the only cue
- ▶ Prominence marked by pitch fall



- ▶ Lexical prominence in Spanish and Japanese is *very* different

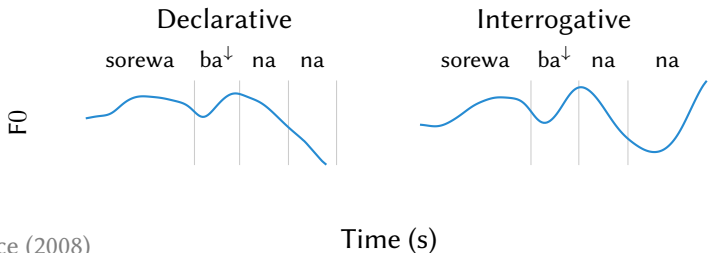
## Spanish

- ▶ Stress accent
- ▶ Pitch + duration + intensity
- ▶ Typically L+H\* or L\*+H (but sometimes L\*, etc...)



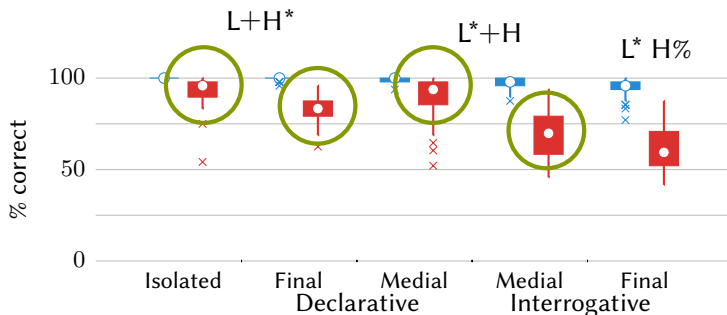
But prominence is acoustically similar in some contexts

- ▶ In short words, a pitch fall (from H) looks like a peak
- ▶ Previous results show relatively good performance in those cases



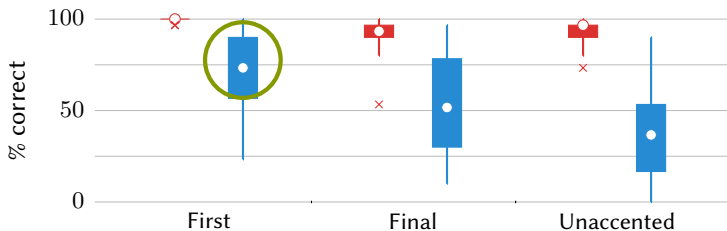
## Spanish as L2

- ▶ 3AFC identification task with J1S2
- ▶ Using natural stimuli / real words
- ▶ Good performance with f0 peak-like accents



## Japanese as L2

- ▶ 3AFC identification task with S1J2
- ▶ Using natural stimuli / real words
- ▶ No effect of sentence intonational context
- ▶ Strong effect of accent type / position: accented > unaccented



Why that bias for S1J2?

- ▶ Pitch is only cue → perceptually poor stimuli
- ▶ Pitch is peak-like for accented words, not unaccented
- ▶ Spanish has no unaccented (content) words

How do S1J2 cope with fewer cues?

- ▶ Natives only track pitch, and duration does not vary
- ▶ There may be small variations natives disregard S1J2 can't

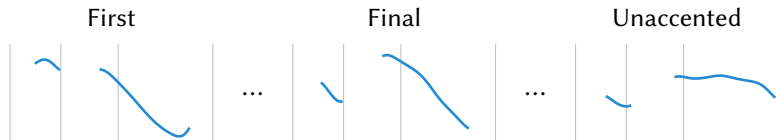


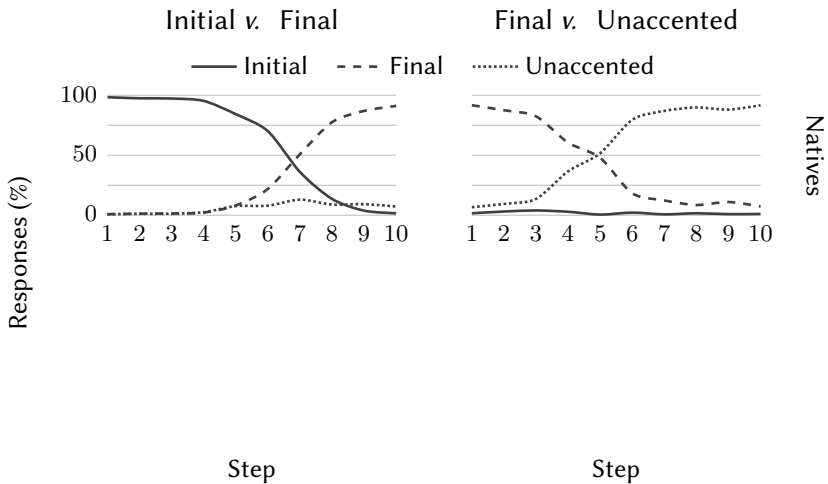
1. Groups have different weights for acoustic cues
  - ▶ Categorical boundaries will exist in different places
2. S1J2 are not developing an L2 unaccented category
  - ▶ Accented contrasts should have steeper slopes
  - ▶ Shallow or no slopes for contrasts with unaccented words

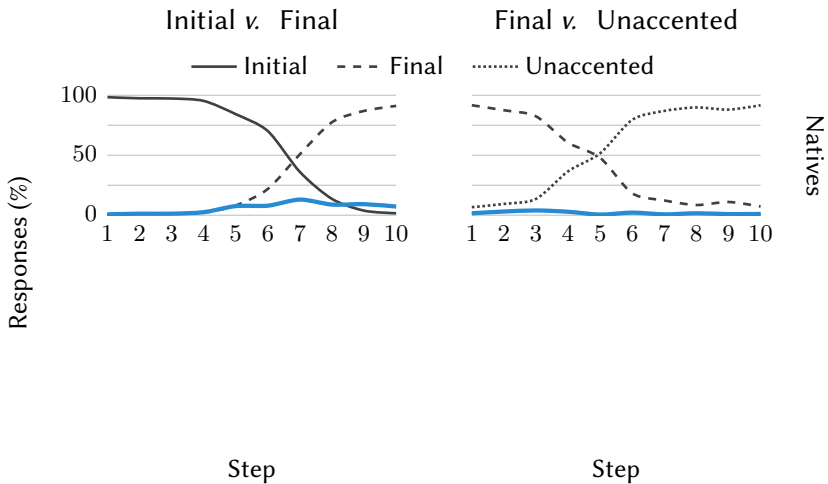
## Perception experiment

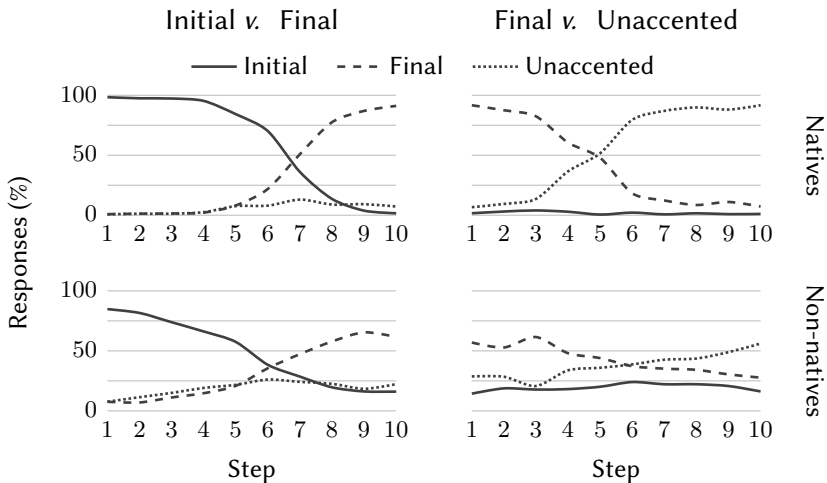
- ▶ 24 native (Japan) / 34 non-native (Chile)
- ▶ 3AFC categorical identification task
- ▶ LimeSurvey as platform, but local supervised testing
- ▶ Analysed using probit + 2-way ANOVA  
(boundary and slope; as in TRP)

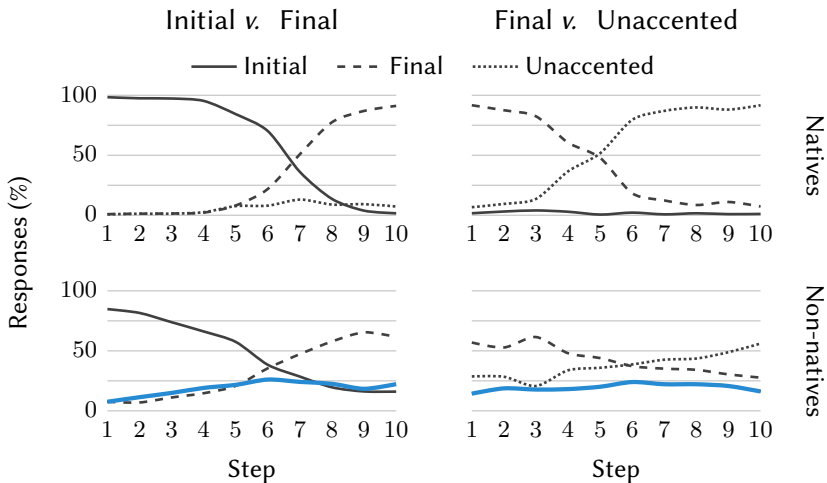
- ▶ Synthesis using TandemSTRAIGHT
  - ▶ Relatively low fine-control of spectral, etc... properties
- ▶ 2 10-step synthetic continua between members of minimal trio
- ▶ F0 allowed to vary freely
- ▶ other parameters fixed at extremes

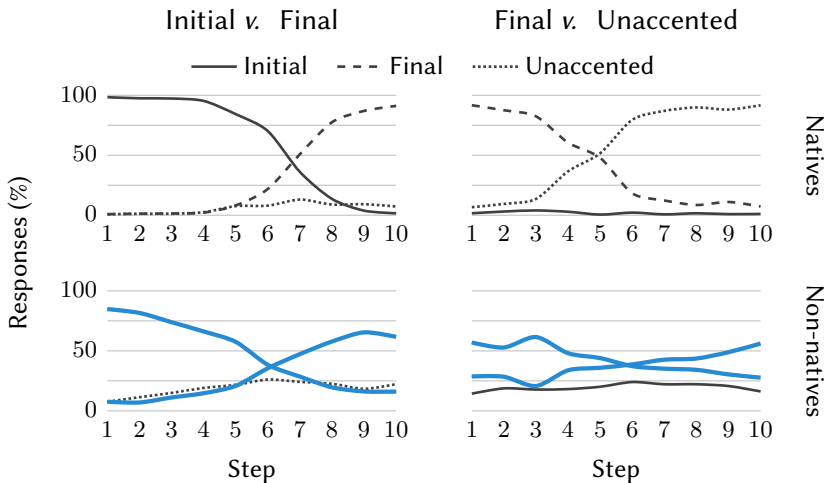














- ▶ Good performance for natives (stimuli are fine)
- ▶ Not so much for non-natives:
  - ▶ Shallow category slopes, shallower closer to unaccented

Category	Initial v. Final		Final v. Unaccented	
	N	NN	N	NN
Initial	-0.849	-0.320	-0.146	0.012
Final	0.749	0.294	-0.510	-0.108
Unaccented	0.112	0.068	0.540	0.067

## Slopes

- ▶ Accent category  $\times$  language group

## Boundaries (only for first contrast)

- ▶ Main effect of language group
- ▶ Accent category  $\times$  language group

1. Groups have different weights for acoustic cues. **Apparently**
  - ▶ For first contrast, boundary positions varied depending on language group
2. S1J2 are not developing an L2 unaccented category. **True**
  - ▶ Second contrast had no clear boundaries
  - ▶ Extremely shallow slopes for second contrast

- ▶ Chicken and egg question
  - ▶ Are S1J2 unable to develop unaccented categories because they can't hear the difference? Or the other way around?  
Despite lack of categorical boundary, steady rise. Sensitivity?
- ▶ What about categorical mapping?
  - ▶ In terms of eg. PAM, second contrast should be CG or UC
  - ▶ Both of these predict *high* discriminability
  - ▶ How suitable are current L2 perception models for suprasegmental categories?
- ▶ Motivation for improved prosodic training

End

Thank you!