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Korean learners' acquisition of intervocalic /b d g/ in Spanish

Avizia Y. Long

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Motivation

- Bias toward English-speaking learners in the Spanish SLA literature ([Geeslin, 2011](#); [Gudmestad, 2014](#); [Long & Geeslin, 2017](#))
- Given the rise of Spanish language (instruction) globally ([Ammon, 2010](#); [Long & Geeslin, 2017](#)), more research on non-English-speaking learners is needed to
 - Evaluate assumptions about Spanish language learning and associated learning challenges
 - Examine generalizability of attested findings
 - Evaluate appropriateness of pedagogical materials

The present study

- Cross-sectional investigation of Korean learners' development and use of voiced intervocalic stops, a well-documented and well-studied learning challenge for English-speaking learners (e.g., Cabrelli-Amaro, 2017; Face, forthcoming; Face & Menke, 2009; Gonzalez Bueno, 1995; Shea & Curtin, 2010; Shively, 2008; Zampini, 1994, 1997)

Background

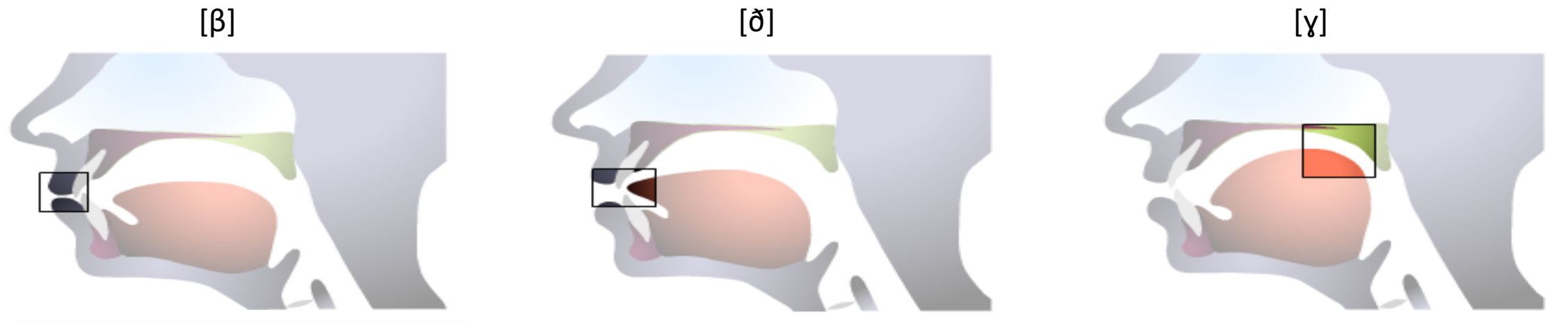
Spanish intervocalic /b d g/

Intervocalic /b d g/ in L2 Spanish

Korean stops

Spanish intervocalic /b d g/

- Produced as approximants [β δ γ] (e.g., Hualde, 2014; Martínez-Celdrán, 1991), reflecting process of spirantization
 - Considerable variability in degree of spirantization (e.g., Cole, Hualde, & Iskarous, 1999; Eddington, 2011; Ortega-Llebaria, 2004)



Intervocalic /b d g/ in L2 Spanish

- Research has focused on adult English-speaking learners (e.g., Cabrelli-Amaro, 2017; Face, forthcoming; Face & Menke, 2009; Gonzalez Bueno, 1995; Shea & Curtin, 2010; Shively, 2008; Zampini, 1994, 1997)
 - English: intervocalic /b d g/ > [b d/r g]
 - Learning challenges
 - **Systematic spirantization** (see Brown, 1990; Gimson, 1989; Hieke, 1987)
 - Associating [ð] with /d/
 - Dissociating [r] from /d/
 - Fine-tuning acoustic characteristics of [β ð ɣ]

Intervocalic /b d g/ in L2 Spanish

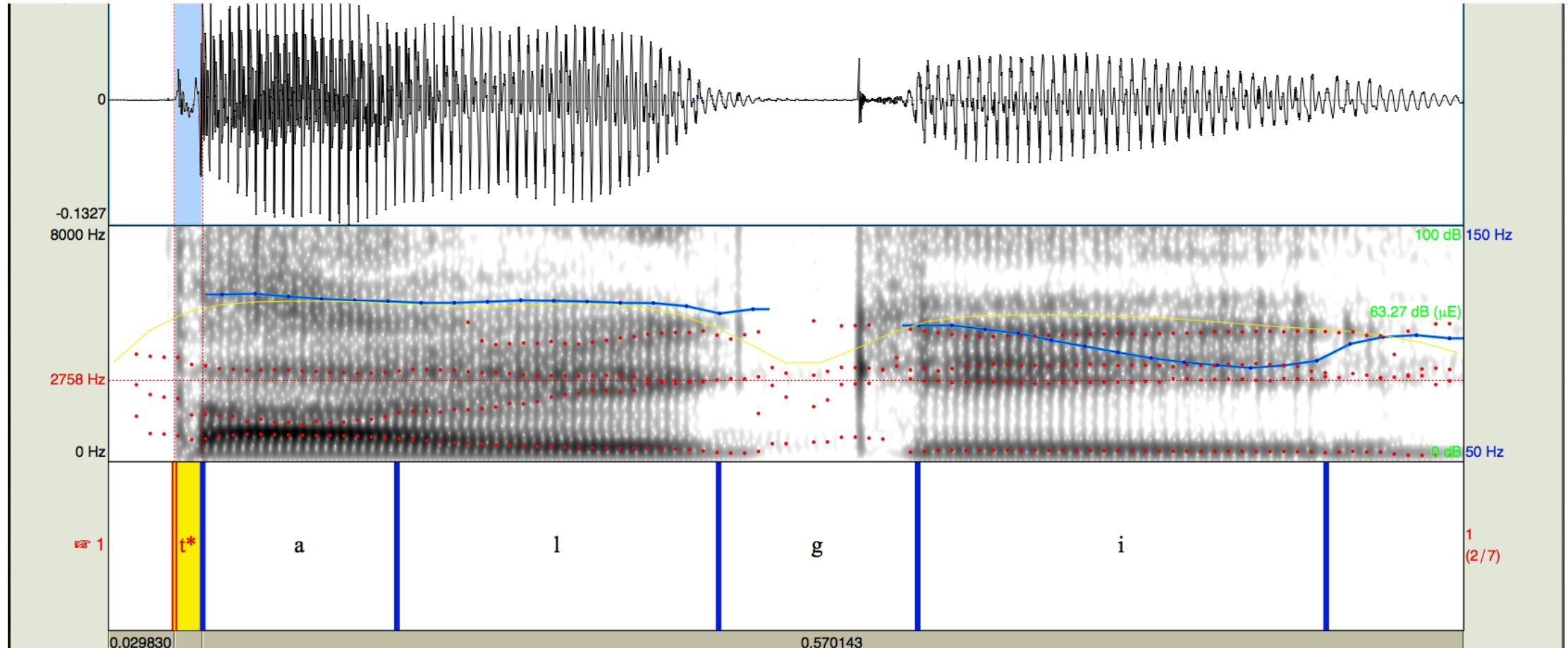
- Research has focused on adult English-speaking learners (e.g., Cabrelli-Amaro, 2017; Face, forthcoming; Face & Menke, 2009; Gonzalez Bueno, 1995; Shea & Curtin, 2010; Shively, 2008; Zampini, 1994, 1997)
 - English: intervocalic /b d g/ > [b d/r g]
 - Key findings
 - Approximant (as opposed to stop-like) productions increase as language experience/ learner level increases
 - Word position matters (**word-medial** vs. word-initial)
 - Greater accuracy in less formal tasks
 - Role of context of learning is unclear (e.g., Alvord & Christiansen, 2012; Bongiovanni, Long, Solon, & Willis, 2015; Díaz-Campos, 2004; Lord, 2010)

Korean stops

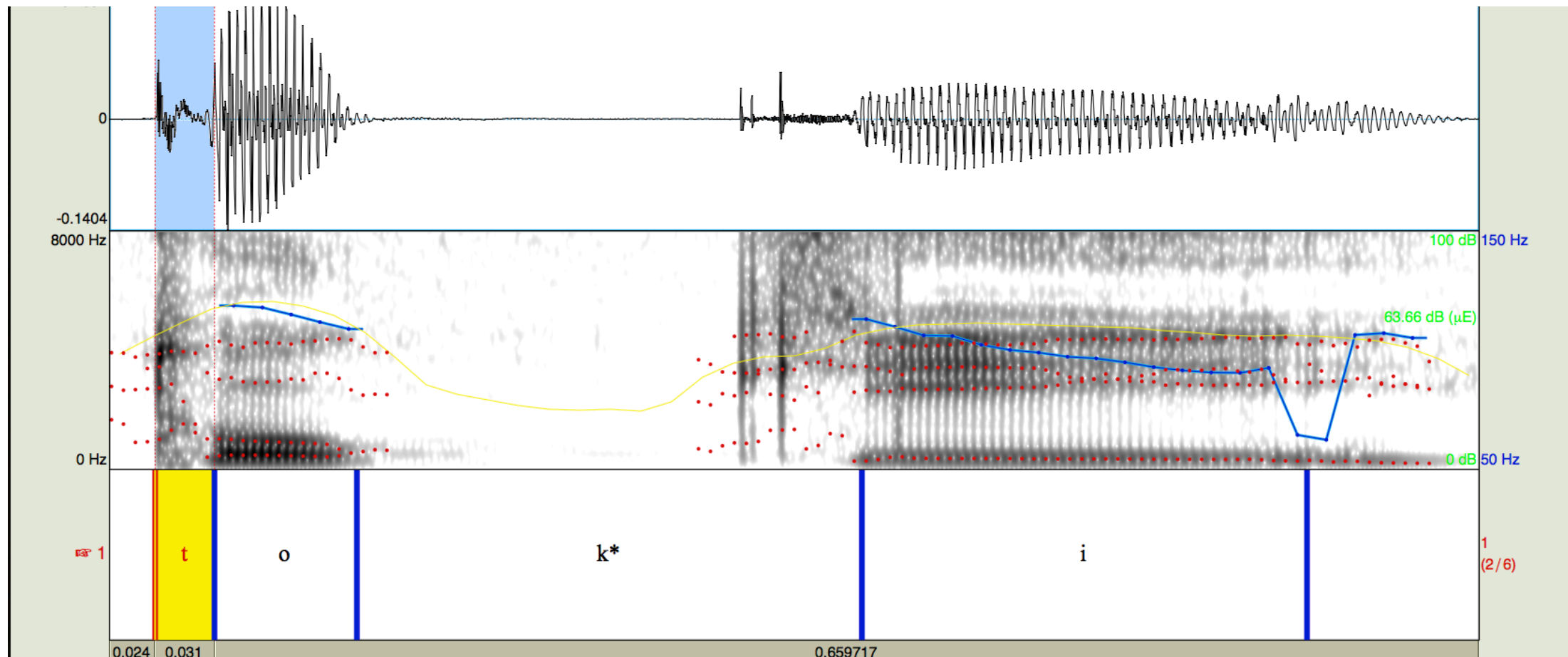
- Three-way contrast
 - Acoustic correlates of contrast include aspiration and pitch of following vowel
- All stops are voiceless (Shin, Kiaer, & Cha, 2013)
 - Lax /p t k/ show variable voicing in contexts that facilitate voicing (Shin et al., 2013)

Place of articulation	Tense /p* t* k*/	Lax /p t k/	Aspirated /p ^h t ^h k ^h /
Bilabial	p*ul 'horn'	pul 'fire'	p ^h ul 'grass'
(Denti-)Alveolar	t*al 'daughter'	tal 'moon'	t ^h al 'mask'
Velar	k*i 'talent'	ki 'energy'	k ^h i 'height'

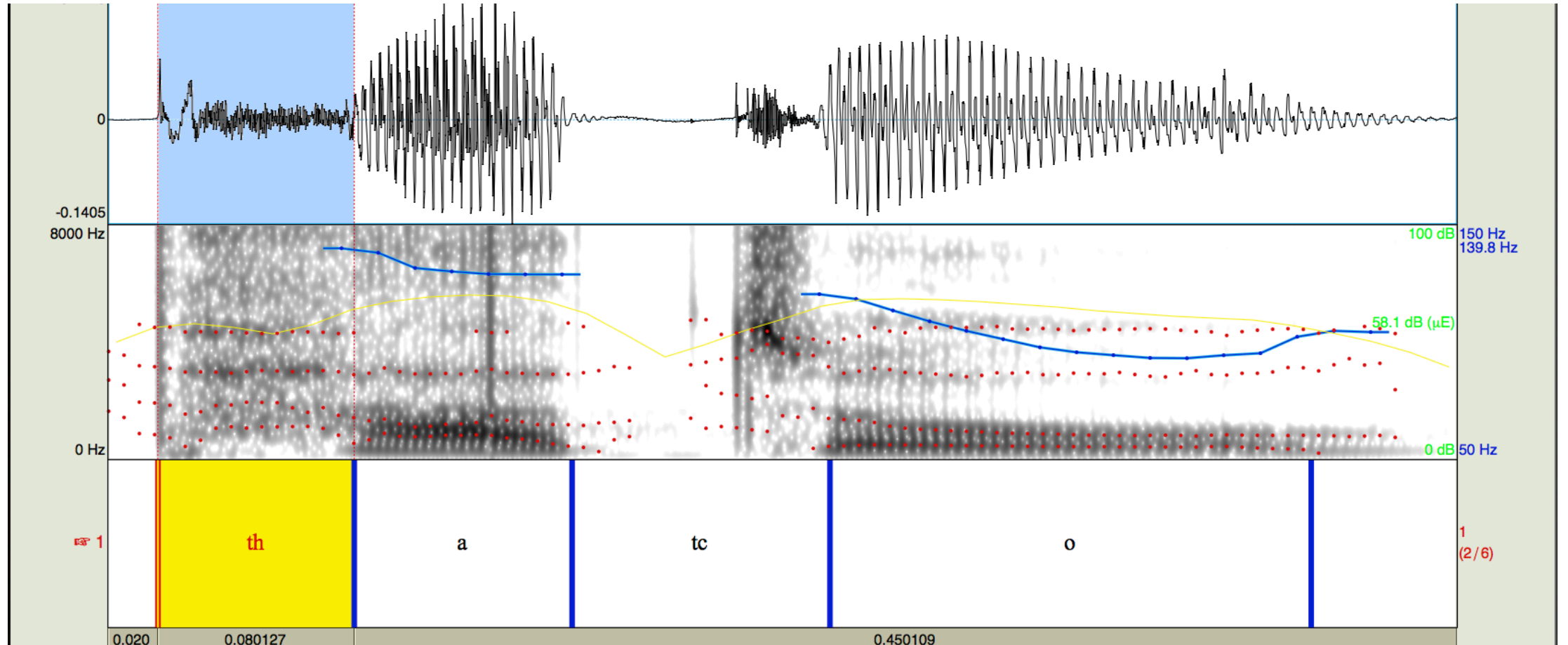
Tense [t*]: *ttalgi* 'strawberry'



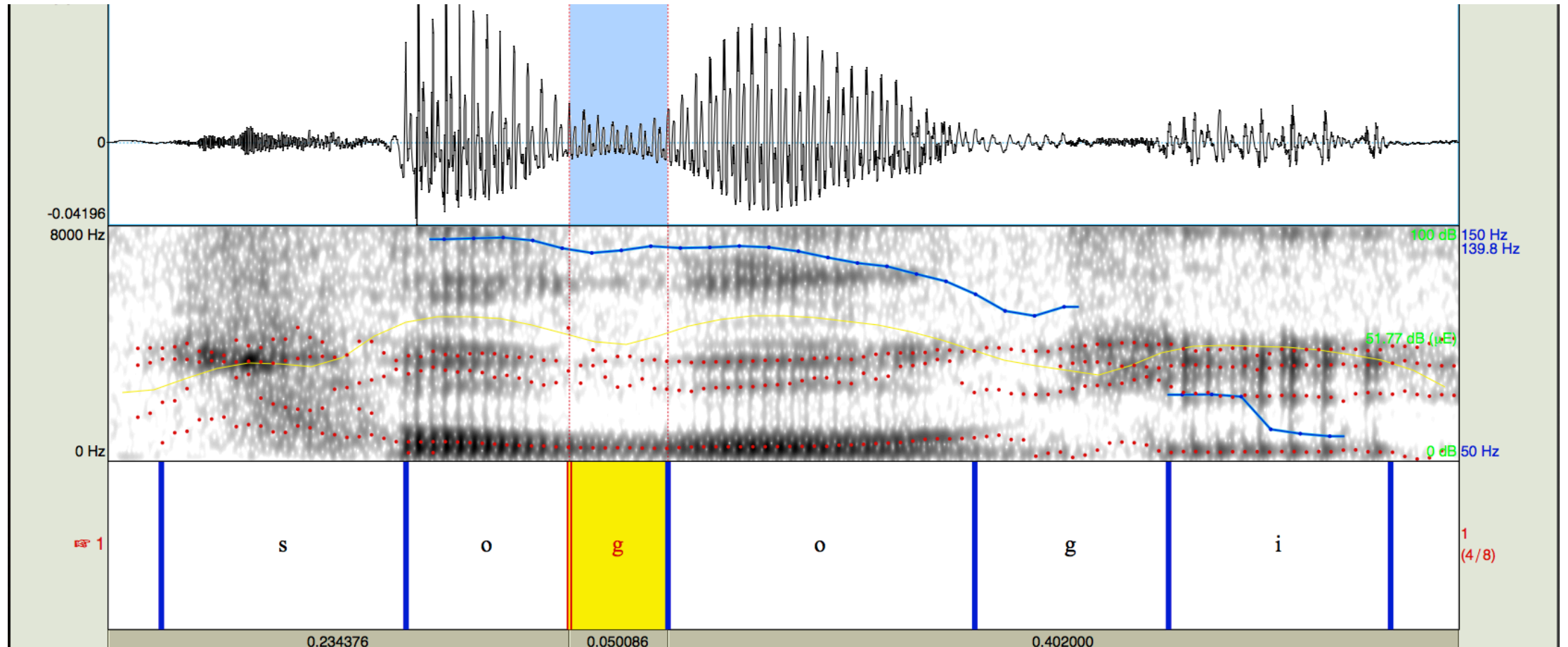
Lax [t]: *dokki* 'ax'



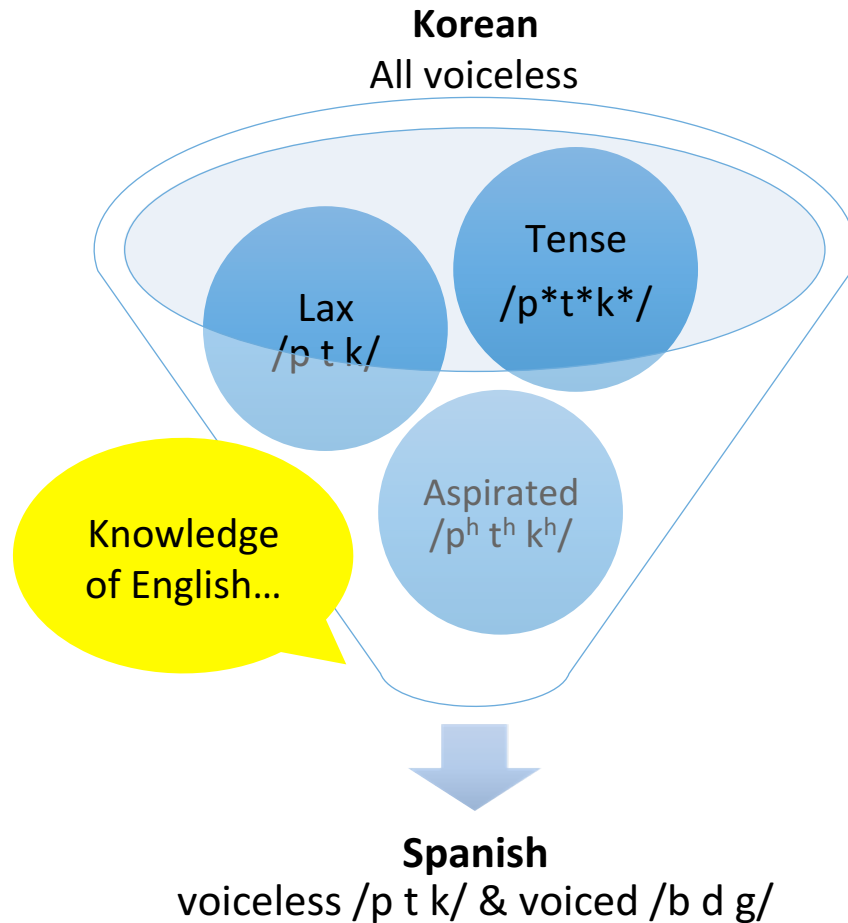
Aspirated [t^h]: *tajo* 'ostrich'



Intervocalic lax [k]: *sogogi* 'beef'



Learning challenges: Korean learners



- **Move from three-way contrast to two-way contrast that incorporates voicing**
- Acquire spirantization
- Fine-tune acoustic characteristics of [β ð γ]

cf. Challenges facing English-speaking learners:
Systematic spirantization
Associating [ð] with /d/
Dissociating [r] from /d/
Fine-tuning acoustic characteristics of [β ð γ]



The present study

What is the range and frequency of phonetic forms produced by adult Korean learners of Spanish in intervocalic /b d g/ contexts?

How does the range and frequency of phonetic forms compare across distinct learner levels?

Participants and setting

- 66 adult Korean learners enrolled in Spanish conversation courses at Chosun University
 - Average 20.98 years
 - Born in South Korea
 - Reported Korean as their native language and native language of parents

Level	<i>N</i>	Years Spanish study	Avg. proficiency score (Max. 25)	<i>n</i> study abroad
1	29	0 to 1	8.76	1
2	14	1+ to 2	10.64	2
3	14	2+ to 3	11.86	0
4	9	3+	14.56	4

Data elicitation

- Contextualized picture description task administered via PowerPoint (cf. Schmidt & Willis, 2011; Solon, 2017)
- Recorded in a small room using USBPre recorder and Shure head-mounted microphone

Data elicitation (cont.)

Viaje a *Kassi*

Hoy tienes la oportunidad extraordinaria viajar al planeta *Kassi* - ¡qué ilusión!

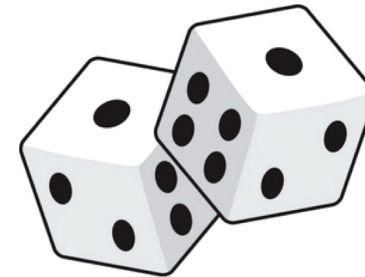
¿Cómo vas a prepararte?
¿Qué vas a ver?

Haz clic para continuar.



Lee cada palabra abajo en voz alta.

DADOS

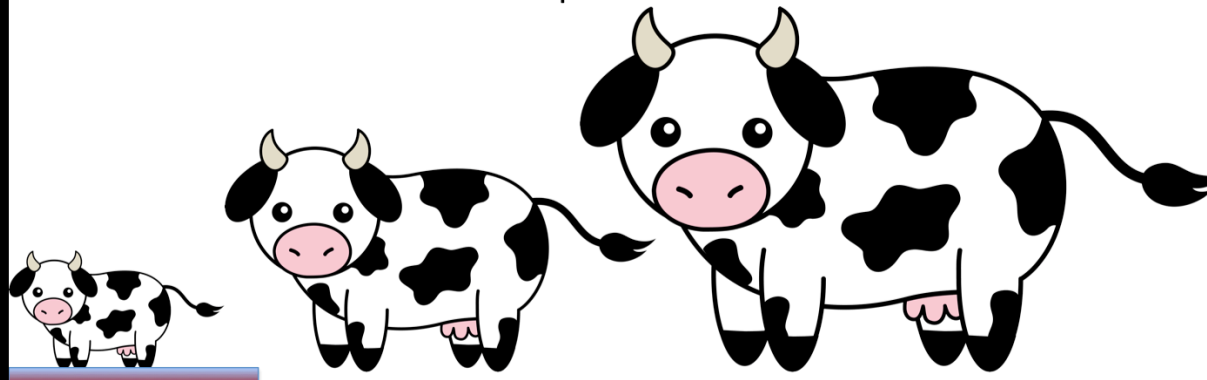


Data elicitation (cont.)

¡Qué raro!

Después de explorar un poco, ves que todas las cosas en *Kassi* pueden ser de sólo tres tamaños: pequeño, mediano o grande. ¡Qué raro! Tú sabes que tus amigos y familia no te van a creer, así que decides hacer un diario de video para documentar todo.

Haz clic para continuar.

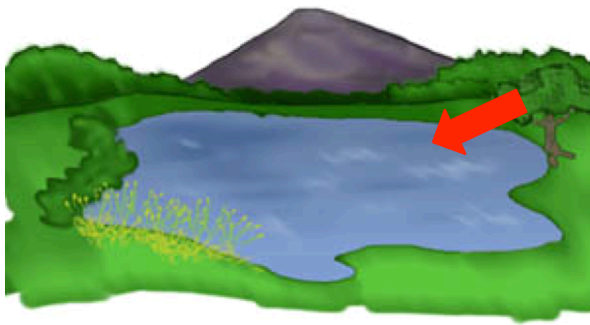


Data elicitation (cont.)

Targeted voiceless and **voiced** stops in word-initial and word-medial intervocalic position

¿Qué ves?

“Veo un _____ grande”



¿Qué ves?

“Veo una _____ mediana”



Data analysis

- Theoretical ceiling for Spanish tokens = 7,722 (117 intervocalic stop contexts × 66 learners)
 - Exclusions for nontarget productions, misreading, pausing, etc.
 - Tokens analyzed: $N = 3,212$ ($n = 1,479$ for /b d g/ and $n = 1,733$ for /p t k/)

Data analysis (cont.)

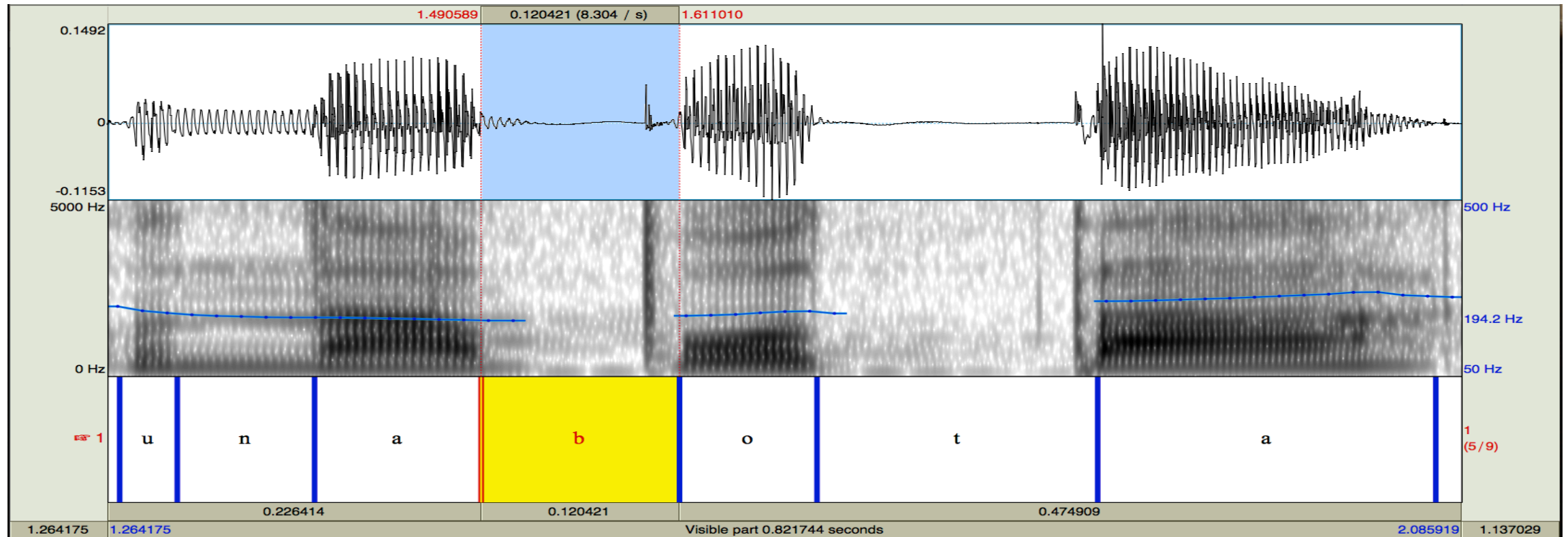
- Each token analyzed in Praat ([Boersma & Weenink, 2015](#))
- Visually examined each target intervocalic stop context to determine range of productions and establish categories

Production type	Description
Voiceless stop	Silent period followed by stop burst, then aspiration (if any)
Voiced stop	Silent period accompanied by voicing; may be followed by stop burst
Approximant	Looks similar to surrounding vowels, but reduction evident in waveform
[f]	Long period of noise in waveform; frication in spectrogram
Other	Voiced fricatives, tap/flap

Production types: Voiceless stop

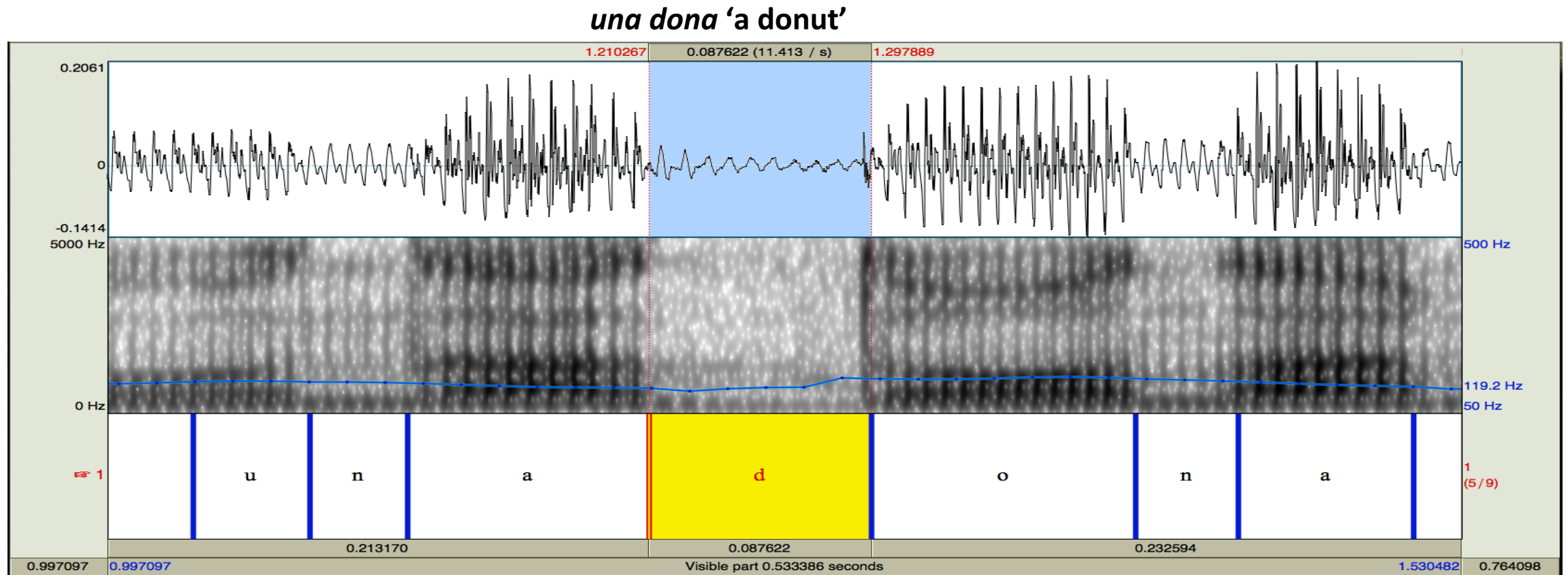


una bota 'a boot'



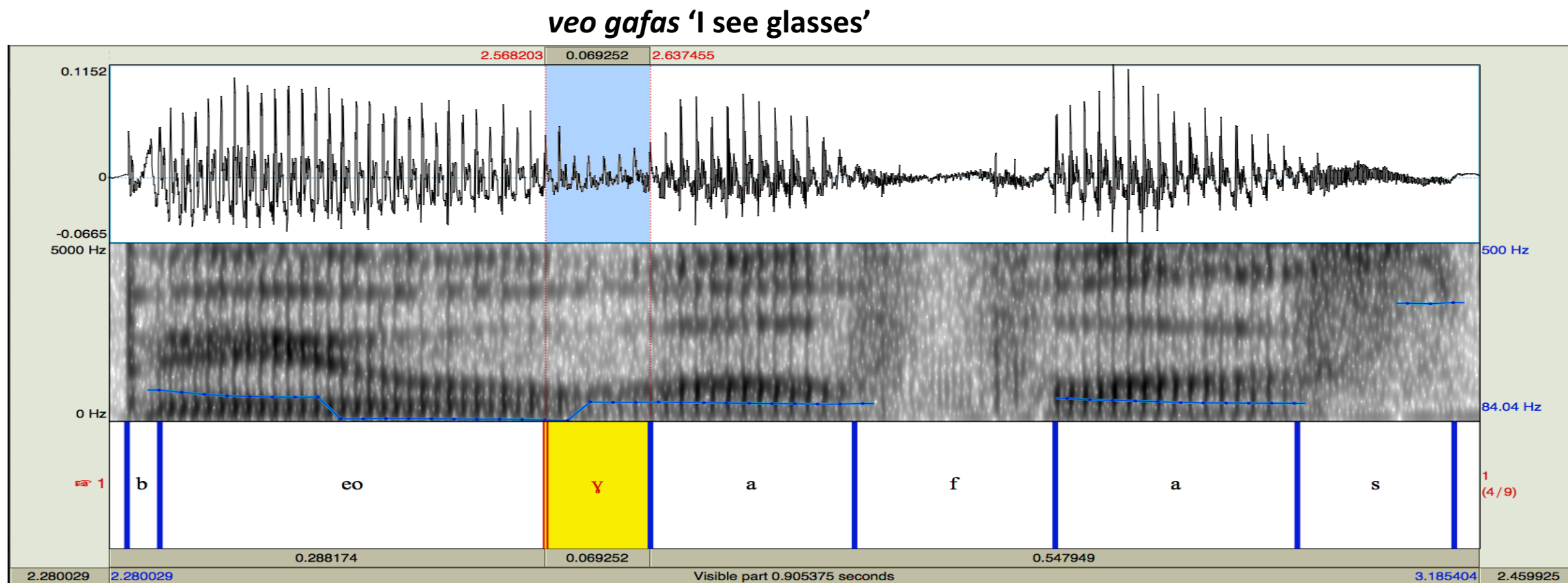
P52, female, Level 2

Production types: Voiced stop



P41, male, Level 2

Production types: Approximant

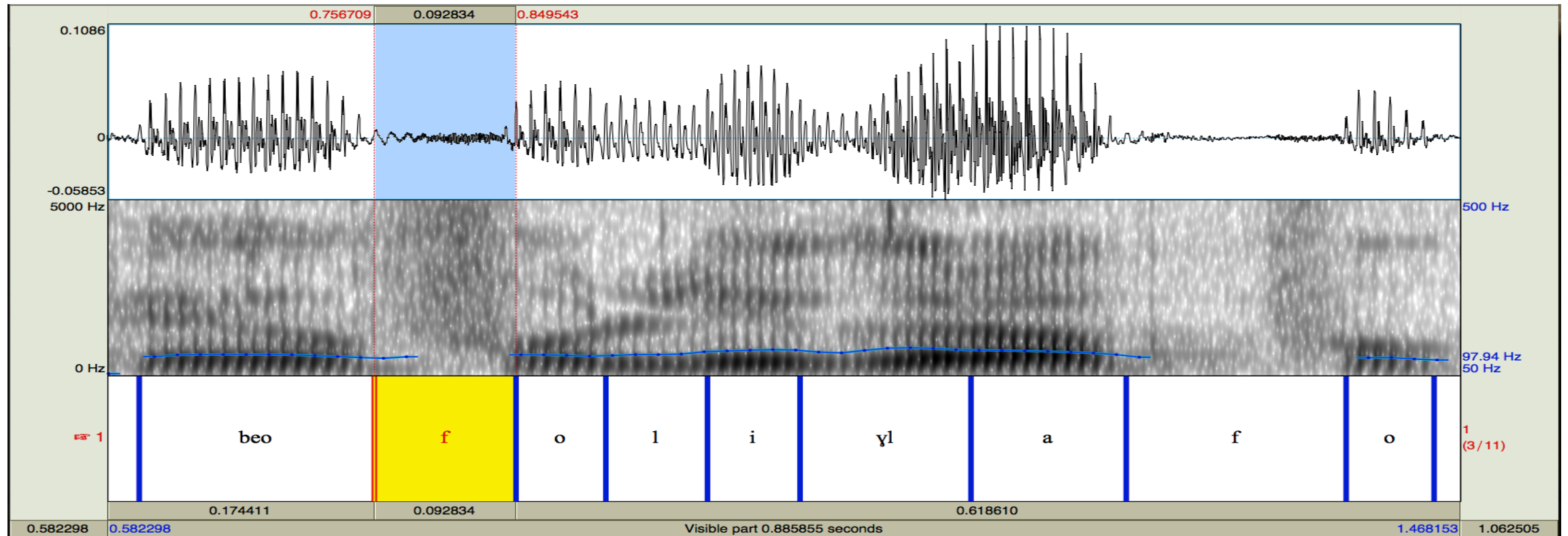


P33, male, Level 1

Production types: [f]



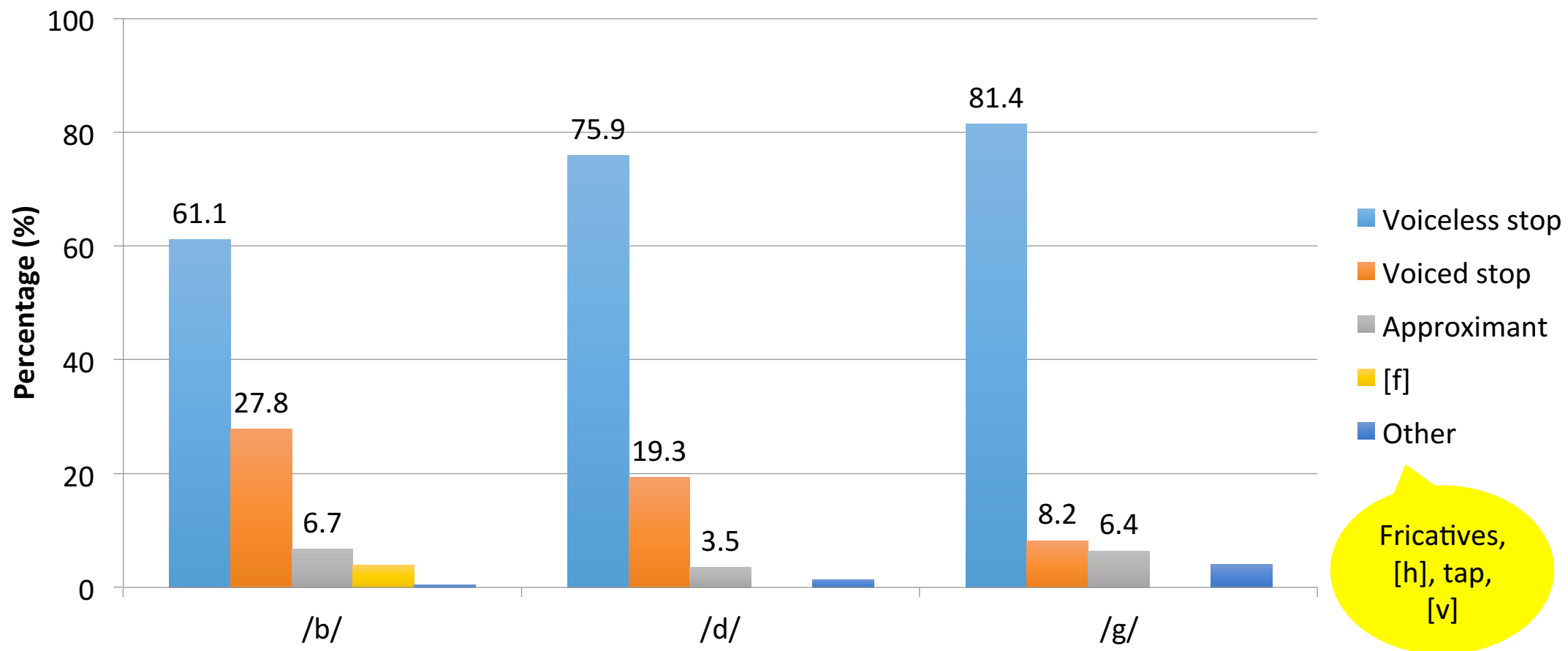
veo bolígrafos 'I see pens'



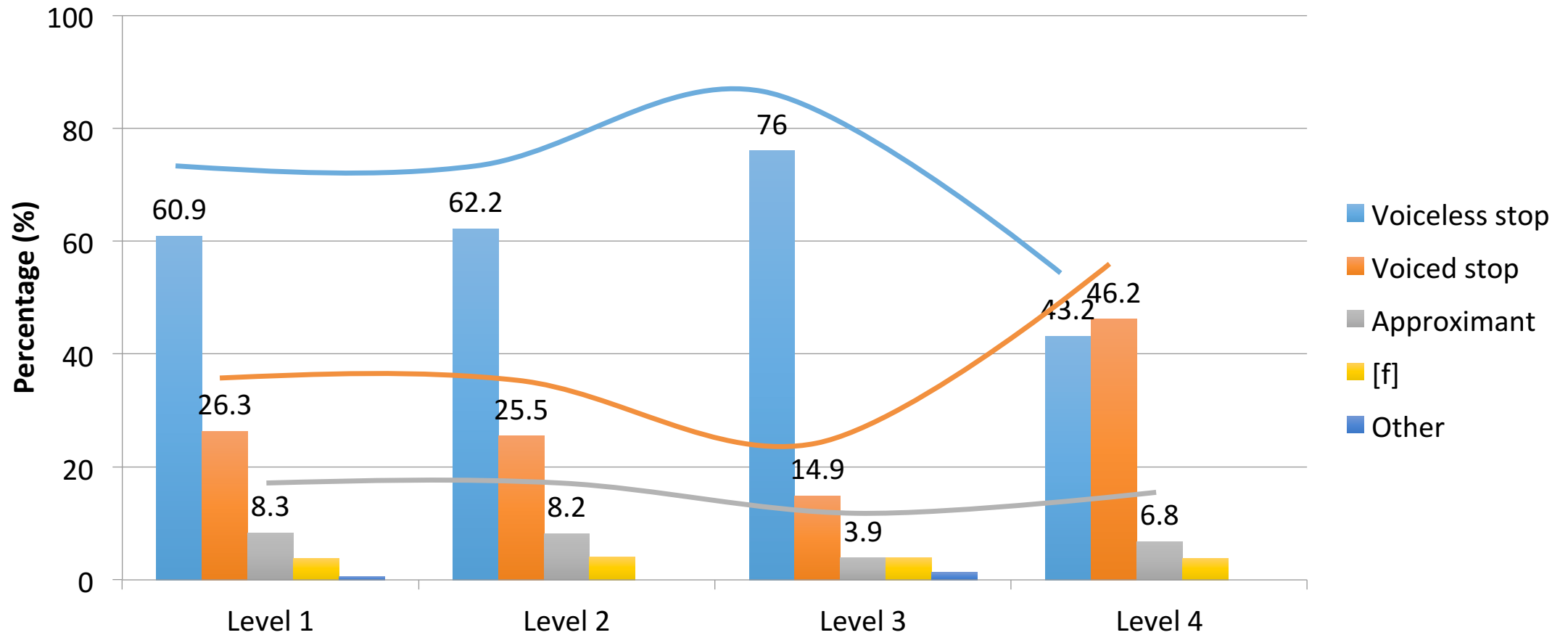
P48, male, Level 1

Findings

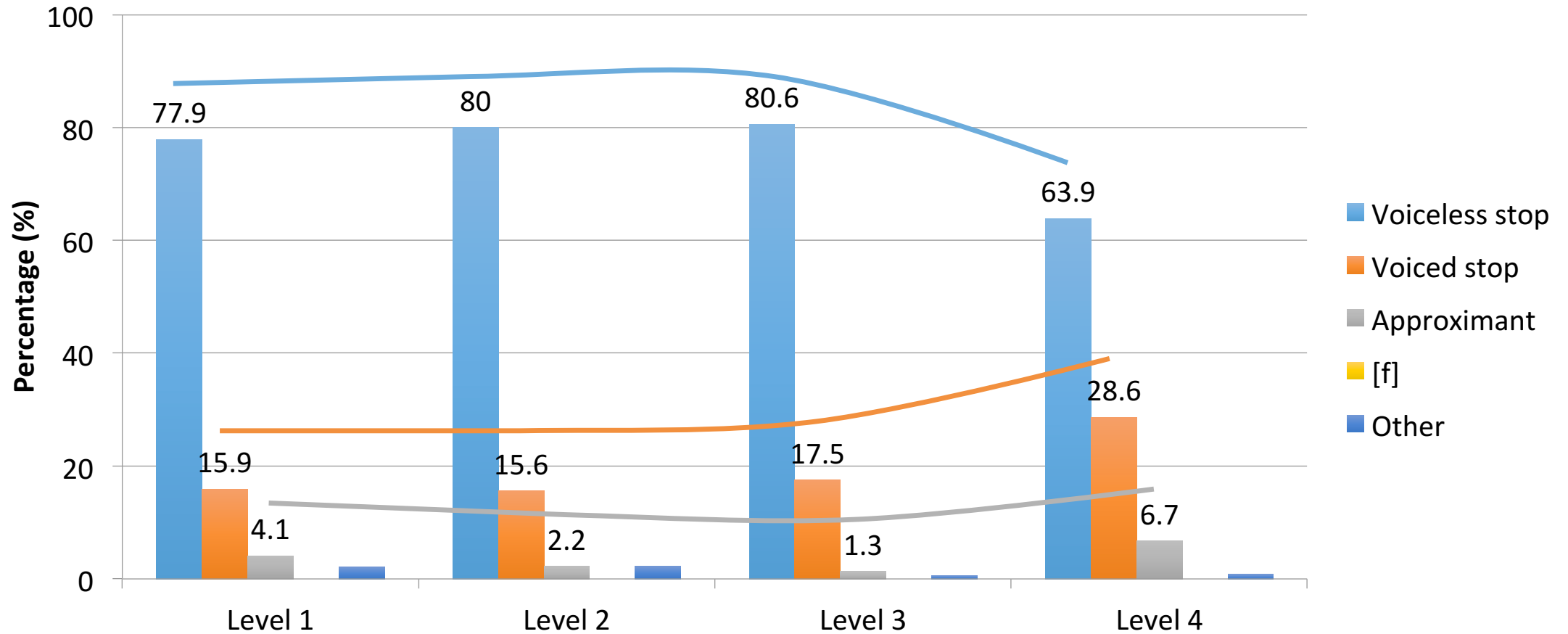
Production types



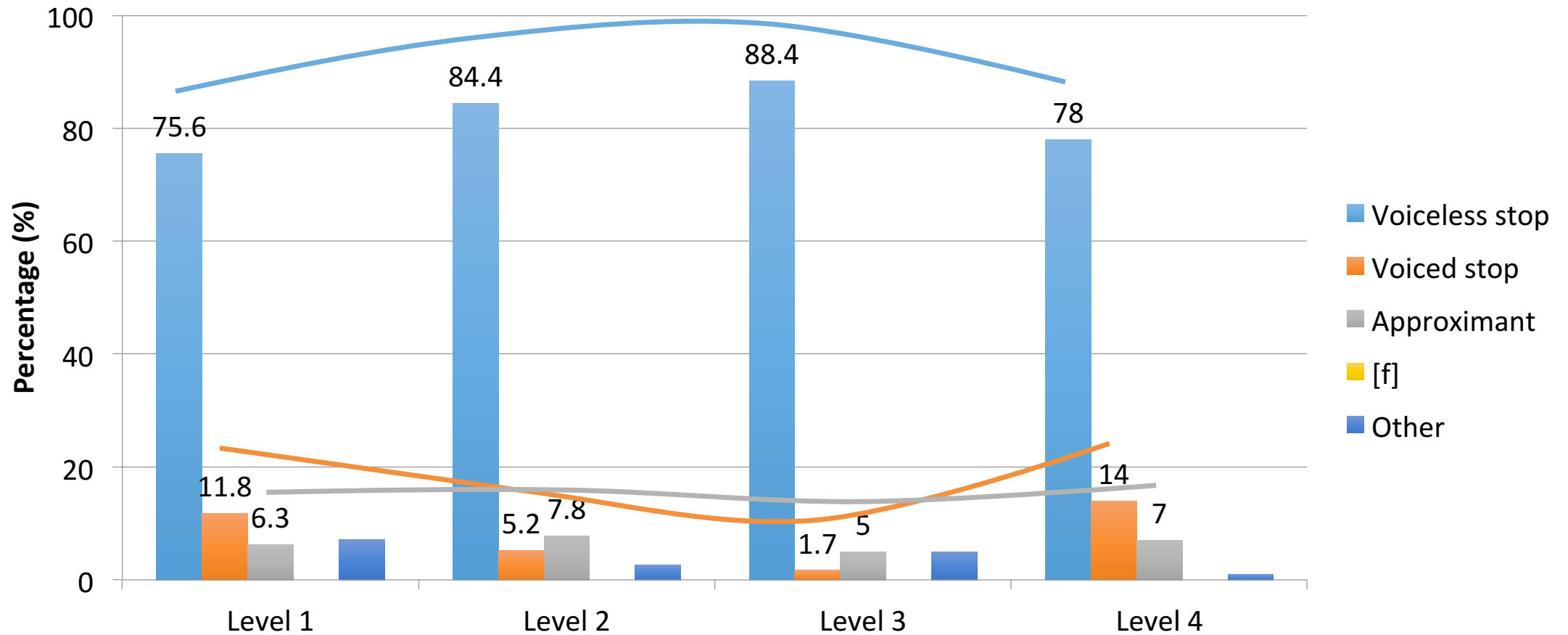
Production types by level: intervocalic /b/



Production types by level: intervocalic /d/



Production types by level: intervocalic /g/



Discussion

Summary of findings

- Korean learners produce primarily voiceless stops, followed by voiced stops and then approximants
- Approximants are produced at a very low rate (< 10%)
- Development characterized by increased production of **voiced stops** and (to a lesser extent) approximants as level increases; this observation is stronger for /b/ and /d/ than /g/

When Korean learners produce intervocalic /b d g/ as voiceless stops, (how) do they distinguish these productions from intervocalic /p t k/?

Challenges: Comparing Korean and English-speaking learners

Distinct

- Move from three- to two-way contrast
- Reduce production of voiceless stops

Shared

- Produce greater frequency of approximants [with corresponding acoustic characteristics]

Although the frequency of approximants produced by Korean learners does not exceed 7% at any level (cf. \approx 30-35% in Face & Menke [2009] and Zampini [1994]; \approx 13-24% in Long [2016])

Implications

- Across typologically-distinct L1 learner groups, aspects of Spanish language learning differ
 - But, there are some shared characteristics
- Challenges with intervocalic /b d g/ have provided motivation for intervention with English-speaking learners (e.g., Elliott, 1995, 1997; Lord, 2005; Kissling, 2013)
 - Korean learners may benefit from explicit instruction and practice

그라시아스! (¡Gracias!)

Visit www.avizialong.com to download a copy of this PPT

Additional questions and comments welcome! avizia.long@ttu.edu