

Background

The effects that one's native language (L1) can exert on the pronunciation in one's second language (L2) have been studied quite thoroughly.

The opposite, however, that is the influence that L2 may have on the native productions has only been brought to the forefront of attention in the last decade or so.

Phonetic drift (Chang 2010 *et seq.*) - short-term changes in the acoustics of L1 resulting from recent exposure to L2:

- attested in both L2-immersion and L1-dominant environments
- for both novice and proficient speakers
- across various phonetic parameters: VOT, pitch at vowel onset, F1/F2
- in both production and perception

Here we focus on **phonetic drift effects in vowel production** - attested by previous phonetic studies, e.g.:

- **L1 (American) English - L2 Korean** (Chang 2012): English vowels found to drift to approximate Korean norms, in height but not advancement; the whole inventory targeted;
- **L1 Catalan - L2 Spanish** (Mora&Nadeu 2012) - more L2 Spanish input hinders robust L1 Catalan vocalic contrast production;
- **L1 Quichua - L2 Spanish** (Guion 2003): speakers who successfully acquired L2 vowels showed more noticeable drift effects in L1 vowel height;
- **L1 French - L2 Danish/Russian** (Kartushina et al. 2016): even brief phonetic training on novice learners triggered the occurrence of phonetic drift in L1 vowel formants

The present experiment sought to fill the research gap with regards to the effects on learning L2 English on L1 Polish vowels.

Methods

Participants: native Poles, proficient learners of English

- **1st-year students:** N=20, recorded three times over the course of nine months (T1=October, T2=February, T3=June);
- **2nd-year students:** N=15, recorded once
- **3rd-year students:** N=15, recorded once
- **"Monolingual" control group:** N=15

1st- and 2nd- year students: **intensive phonetic training** in L2 English (both theoretical and practical); 3rd-years - no training, but daily exposure to English present;

Materials: /b, d, g/ and /p, t, k/-initial mono- and disyllabic Polish words followed by vowels /a/ or /ɛ/;

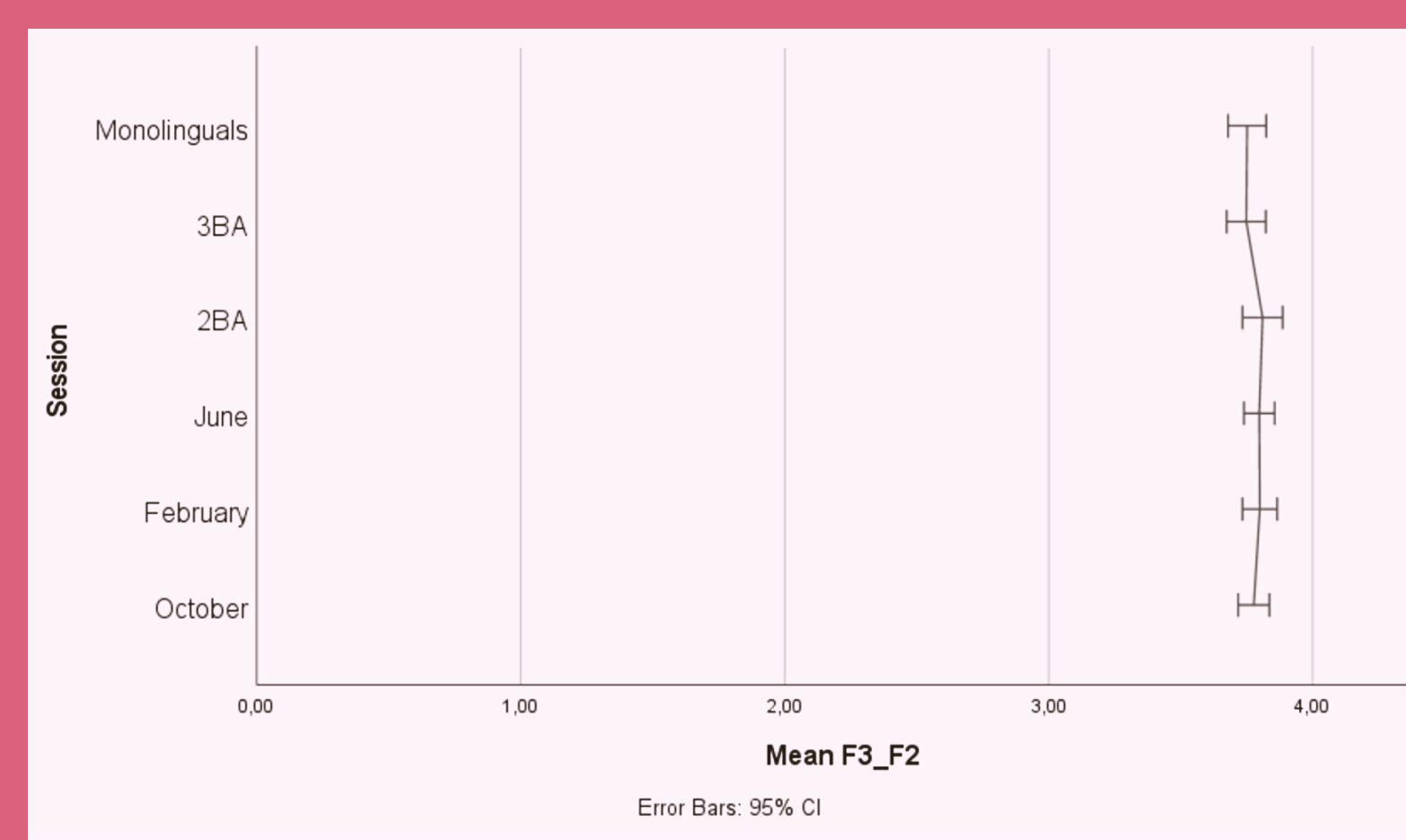
Procedure: words elicited via PowerPoint slides, participants recorded in a sound-proof booth;

Acoustic analysis: done manually in Praat; the mean values of F1 (difference between F1-f0; Bark normalised) and F2 (difference between F3-F2; Bark normalised) from the middle 20% of the vowel analysed;

Statistics: two GLMM models with F1/F2 as the DVs, the main interaction of interest: Vowel*Session; Speaker and Item - random factors.

/a/

3189 items analysed



Vowel height: progressive lowering of the vowel as the training progresses:

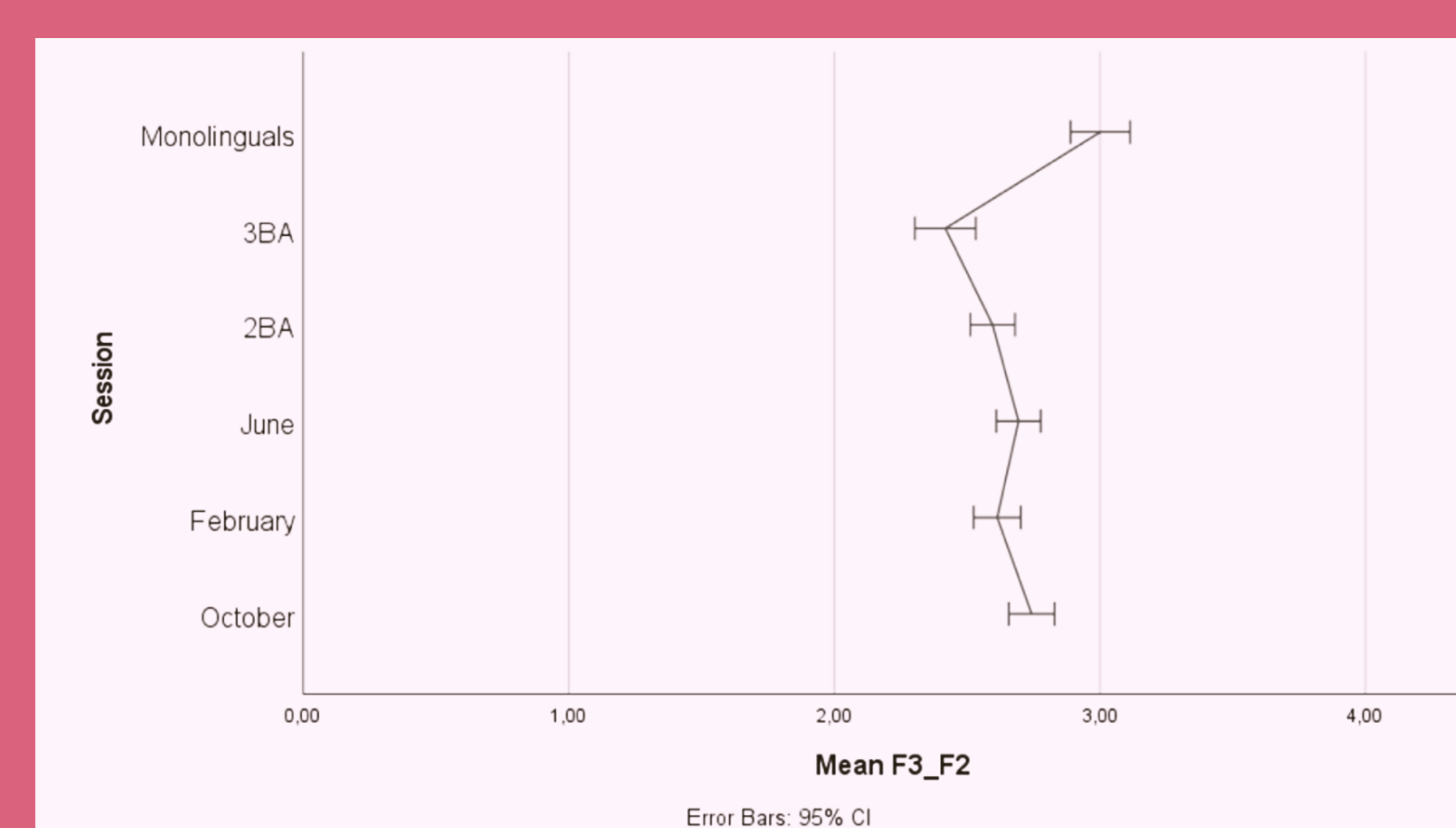
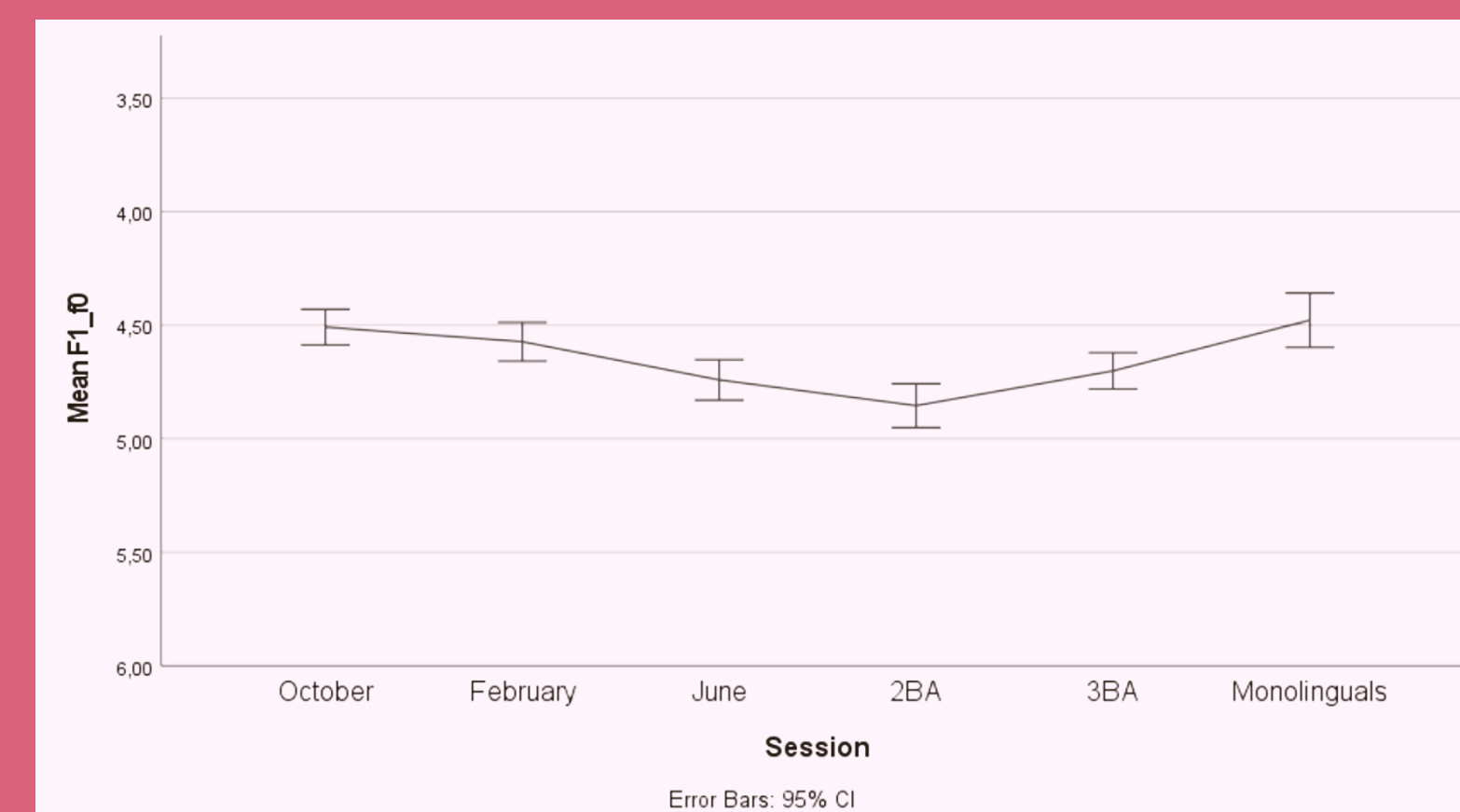
- all groups aside from 1st year students at T1 significantly different from the monolingual controls;
- significant differences between T1 and T2, T2 and T3; T1 differed also from the 2nd and 3rd year students;
- /a/ moved to a more peripheral position over the course of the three years of English instruction

Vowel advancement: no changes

- no statistically significant differences across the groups with respect to frontness

/ɛ/

990 items analysed



Vowel height: some lowering taking place as the training progresses;

- significant differences between T1 and T3, T2 and T3; T1 differed also from 2nd year students;
- only 2nd year students significantly different from the monolingual controls;
- effects most visible after eight months and two years of pronunciation instruction;
- 3rd-year students: the quality moving back towards the monolingual norm?

Vowel advancement: movement towards more front realisations as the phonetic instruction progresses, peaking in the productions of 3rd year students;

- significant differences between T1 and T3, and T3 and 3rd year students;
- monolingual productions significantly less front from T2, and both 2nd and 3rd year students.

Discussion

While the differences were overall rather small, the results indicate that the quality of L1 Polish vowels was affected by phonetic training in L2 English, despite the fact that the speakers were living in an L1-dominant environment

The effects were most striking in the productions of the students who were finishing their second year of phonetic instruction.

Both Polish vowels investigated here appeared to move towards more peripheral positions, which goes in line with the postulate of **common phonological space** - L1 and L2 sounds co-exist. The vowel space needs to be progressively expanded so that the new L2 categories being acquired can be accommodated.

L1 categories seem to be malleable across the lifespan of the user.

/a/

/ɛ/

