

DZINTRA BOND

Ohio University, Athens  
bond@ohio.edu

DACE MARKUS

Liepāja University  
dace.markus@rtu.lv  
ORCID 0000 0002 8938 6709

# Learning American Pronunciation: A Case Study from Latvian Experience<sup>1</sup>

## Summary

In the context of studying the acquisition of Latvian by children from ethnic minorities in Latvia, we had the opportunity to follow a related instance of acquisition, a young Latvian, Dainis (age 14 years 9 months), immersed in English in high school. The aim of our article is to make sure that good American pronunciation learning opportunities come directly from using language inside and outside the classroom. Our emphasis was on pronunciation, in part because the school provided academic instruction in reading and writing English but only indirect instruction in pronunciation. Consequently, changes in Dainis's pronunciation of English resulted primarily from exposure and a natural tendency to use the ambient language.

We compared Dainis's reading of a passage from a newspaper in September and January; the speech was transcribed and analysed using the Kay Elemetrics Computer Speech Laboratory (CSL), following standard laboratory procedures. Even in this short period of time, we found considerable changes in fluency accompanied by a more American version of vowels, particularly in unstressed syllables and function words. He had studied standardised English in Latvia and now had to fit into American society.

The article analyses sound pronunciation but also focuses on stress, sound quantity and tension. The school that Dainis attended is situated in a relatively small college town in southeastern Ohio. Students at the school come from quite diverse backgrounds. Some are from rural families of limited means;

© Dzintra Bond,  
Dace Markus,  
2023

[https://doi.org/  
10.37384/  
SM.2023.15.074](https://doi.org/10.37384/SM.2023.15.074)

---

<sup>1</sup> The article is supported by the National Research Program VPP-LETONIKA-2022/1-0001 "Letonika latviskas un eiropiskas un sabiedrības attīstībai".

others are the children of academics or graduate students, sometimes using English as a second language; finally, there are children of lawyers and others in various professions and townspeople. The speech patterns of these groups differ considerably, but all are considered acceptable within the school setting. English language instruction at school emphasises reading, writing, vocabulary, and other academic approaches firmly based on American English practice. In his daily experiences, Dainis was exposed to all these varieties. It is impossible to say what effects this variety may have had in creating a model of American English pronunciation for Dainis. Furthermore, Dainis was the only Latvian speaker in his school, so he had no choice but to use English to manage his daily affairs.

The results of our experiment are summarised and described in the following groups: 1) Sporadic pronunciation errors; 2) Consonantal substitutions; 3) Speech rate and phrasing; 4) Vowel durations; 5) Vowel formant values. The main conclusions:

- Even a short period of exposure proved adequate for some changes in pronunciation towards the ambient American model.
- Dainis spoke more fluently and rapidly in January than in September.
- Dainis' vowel durations began to approximate American durations, particularly for lax vowels and in unstressed syllables, both in multi-syllabic words and function words. This pattern is characteristic of English, so it is probably salient to learners.
- Dainis showed a tendency to modify vowel quality in unstressed positions towards formant values characteristic of schwa. His unstressed vowel productions were also considerably shorter.
- Over the period of four months, Dainis did not modify the pronunciation of consonants, either approximating difficult American segments or American allophones.
- Dainis's stressed vowel quality did not change appreciably, perhaps because discrepancies from the American model were inconsequential for successful communication.
- Although Dainis did not receive specific instruction in pronunciation, using the ambient language both in and out of class still provides opportunities for learning.
- Our research results show that the language environment is very important; therefore, the new reform in education, when all educational institutions in Latvia change their language of instruction to Latvian, could be evaluated as positive.

Though our report is quite preliminary, we hope it provides insight into the importance of the common national language use. The results of the studies confirm the conviction that it is the use of language in a given linguistic environment that is very important; therefore, the new reform in education, when all educational institutions in Latvia step by step change the teaching language to Latvian, is positive.

**Keywords:** American English, pronunciation, language environment, Latvian experience.

## AMERIKĀŅU IZRUNAS APGUVE: LATVIEŠA PIEREDZES PIEMĒRS

### Kopsavilkums

Vērojot etnisko mazākumtautību problēmas, mācoties latviešu valodu Latvijā, rakstā tika izmantotas iespējas analizēt līdzīgu pieredzi, latviešu zēnam Dainim (14 gadu un 9 mēnešu vecumā) nokļūstot angļu valodas vidusskolā. Pētījuma mērķis bija pārliecināties par to, ka labas amerikāņu izrunas apguves iespējas sniedz tieši valodas lietošana gan klasē, gan ārpus tās. Uzsvars tika likts uz izrunu, jo skolā pārsvarā notika akadēmiskas lasīšanas un rakstīšanas mācības, bet bija tikai netiešas norādes par izrunu. Tātad izmaiņas Daiņa izrunā galvenokārt veidojās no dabiskās vēlēšanās izmantot apkārtējo valodu un tās ietekmes.

Mēs salīdzinājām Daiņa ierunātu avīzes tekstu septembra sākumā un tādu pašu tekstu – janvārī, runa tika transkribēta un analizēta, izmantojot *Kay Elemetrics* datorrunas iekārtu (CSL), ievērojot laboratorijas standartprocedūras. Pat šajā īsajā periodā bija novērojamas pamanāmas pārmaiņas izrunas prasmē, kas parādījās amerikāniskākā patskaņu izrunas versijā, jo īpaši neuzsvērtās zilbēs un funkcionālos vārdos. Dainis Latvijā bija mācījies standarta angļu valodu, bet tagad viņam vajadzēja iekļauties amerikāņu sabiedrībā.

Rakstā analizēta skaņu izruna, pievērsta uzmanība arī uzsvaram, skaņu kvantitātei un saspriegumam. Dainis bija mācījies standartizētu angļu valodu Latvijā, tagad viņam bija jāiekļaujas amerikāņu sabiedrībā. Skola, kuru apmeklēja Dainis, atrodas salīdzinoši nelielā koledžas pilsētiņā Ohio dienvidaustrumos. Skolas audzēkņi nāk no diezgan dažādiem sabiedrības slāņiem. Daži ir no lauku ģimenēm ar ierobežotiem finanšu līdzekļiem, citi ir akadēmiski izglītotu absolventu bērni, ir arī tādi, kuri angļu valodu izmanto kā otro valodu, ir arī juristu un citu profesiju pilsētnieku bērni. Šo grupu runas modeļi ievērojami atšķiras, bet skolas vidē visi tiek uzskatīti par līdzvērtīgi pieņema-miem. Angļu valodas apgūvē skolā tiek uzsvērta lasīšana, rakstīšana, vārdu krājums un citas akadēmiskas pieejas, kas stingri balstītas uz amerikāņu angļu valodas praksi. Ikdienas pieredzē Dainis tika pakļauts visiem šiem variantiem. Nav iespējams precīzi pateikt, kādu iespaidu šāda pieeja varētu būt atstājusi, veidojot Daiņa amerikāņu angļu valodas izrunas modeli. Turklāt Dainis savā skolā bija vienīgais, kam dzimtā ir latviešu valoda, tātad viņam neatlika nekas cits kā ikdienas saziņā izmantot angļu valodu.

Eksperimenta rezultāti tika apkopoti un aprakstīti šādās grupās:

1) sporādiskas izrunas kļūdas; 2) konsonantu substitūcija jeb aizvietošana; 3) runas temps un frāzēšana; 4) vokāļu ilgums; 5) vokāļu formantu vērtības. Galvenie secinājumi:

- Pat īsais ekspozīcijas periods izrādījās piemērots vairākām izrunas izmaiņām attiecībā pret apkārtējo amerikāņu modeli.
- Janvārī Dainis runāja tekošāk un straujāk nekā septembrī.
- Daiņa runāto vokāļu ilgums sāka tuvināties ilgumam amerikāņu izrunā, īpaši tas bija vērojams nesaspriegtū patskaņu izrunā un neuzsvērtās pozīcijās gan daudzsilbīgos vārdos, gan arī funkcionālos vārdos. Šāds modelis ir raksturīgs angļu valodai, tātad tas ir iespējami nozīmīgs audzēkņu angļu valodas runas apgūvē.

- Dainis uzrādīja tendenci modificēt vokāļu kvalitāti neuzsvērtās pozīcijās uz *schwa* raksturīgām formantu vērtībām. Viņa nesapriegot patskaņu izruna arī bija ievērojami īsāka.
- Visā četru mēnešu periodā Dainis īpaši nemodificēja konsonantu izrunu, vai nu iespējami tuvinot sarežģītākus amerikāņu segmentus vai amerikāņu alofonus.
- Dainis uzsvērtā patskaņu kvalitāte būtiski nemainījās, iespējams, tāpēc, ka atšķirības amerikāņu modelī nebija konsekventi nozīmīgas veiksmīgai komunikācijai.
- Kaut arī Dainis nesāņēma speciālas pareizrūnas instrukcijas skolā, bija redzams, ka apkārtējās amerikāņu valodas lietošana gan klasē, gan ārpus tās joprojām sniedz mācību iespējas.

Kaut arī šis uzskatāms par sagatavošanās pētījumu, ceram, ka tas sniedz priekšstatu par vienotas valsts valodas lietojuma nozīmīgumu. Iegūtie pētījumu rezultāti nostiprina pārliecību, ka tieši valodas lietojums attiecīgā lingvistiskā vidē ir ļoti svarīgs, tāpēc jaunā reforma izglītībā, kad visas izglītības iestādes Latvijā soli pa solim maina mācību valodu uz latviešu valodu, vērtējama pozitīvi.

**Raksturvārdi:** amerikāņu angļu valoda, izruna, valodas vide, latvieša pieredze.

The inspiration for this study came from analysing the difficulties children and adolescents face learning the official language when it is not the language used at home (Markus et al. 2021: 7–29; Markus, Zīriņa, Markus 2023, etc.). Focusing on phonetics, we asked the question: what can we learn about the acquisition of pronunciation of American English by a native speaker of Latvian? We investigated changes in pronunciation in the speech of an adolescent Latvian male, Dainis, from recordings. Changes in his pronunciation resulted primarily from exposure to American English rather than explicit instruction.

This report is preliminary and quite limited, describing changes from September to January and examining only some acoustic-phonetic properties of his speech.

## Method

Dainis arrived in the United States in August 1998, age 14 years 9 months (b. d. November 1983). He had studied English in Latvia since the second grade though with no explicit attention to pronunciation and little experience in speaking. In the USA, he was placed in academic classes at the local high school and also given English as a second language instruction, which emphasised reading and writing for academic purposes. Although he heard English

spoken for most of the day, he was not given explicit instruction in pronunciation either in his high school or his ESL class. Consequently, any changes in his pronunciation reflect learning resulting almost entirely from exposure to American English.

Dainis recorded a short text from a newspaper in early September, shortly after his arrival. He recorded the same text in January. His speech was transcribed in order to investigate some global properties; in addition, vowel duration and formant measurements were obtained from the recordings using the Kay Elemetrics Computer Speech Laboratory (CSL) following standard laboratory procedures.

## Results

**Sporadic pronunciation errors.** Because Dainis was reading from a text, he was not familiar with a number of words. In September, he made 15 pronunciation errors; in January, he made 6 errors. Some examples of this type of mispronunciation are /falld/ for *field* and /artIfIkI/ for *artificial*. These errors represent no more than a lack of familiarity with the spelling conventions of English, and the improvement from September to January shows increasing familiarity with both spelling and vocabulary.

**Consonantal substitutions.** In addition to sporadically mispronouncing some words, Dainis employed some typical consonant substitutions. He consistently used the fricatives /s z/ in place of the notoriously challenging English interdental fricatives /θ, ð/, pronouncing the name of the city, Athens, as /æsnz/. He employed plosives /t d/ intervocallically instead of using the American flapped /ɾ/ pronunciation. Although American /ɹ/ may prove difficult for some non-native speakers, Dainis pronounced it acceptably.

**Speech rate and phrasing.** His speaking rate in September was approximately 56 words per minute, increasing to approximately 80 words per minute in January. The change was primarily a function of reducing the number of hesitation pauses he produced while reading the text. In comparison, native speakers typically read at a rate of 150 to 180 words per minute (Calvert 1992).

In September, Dainis read the text one or a few words at a time, pausing between words. He even paused within words which he did not know. For example, Dainis mispronounced *Parkersburg*, the name of a city in the region, and produced it one syllable at a time. By January, Dainis had developed considerably more fluency. He no

longer paused within words even when he mispronounced them, and his phrasing was now related, at least in part, to the grammatical structure of the text.

**Vowel durations.** Fig. 1 provides information about the durations of vowels that Dainis employed in September and January. In the figure, English tense and lax vowels, unstressed vowels, and vowels in function words are represented separately. The durations which Dainis employed for tense vowels did not change appreciably from September to January, both averaging close to 200 ms. In contrast, the durations of lax vowels decreased, on average, by more than one-third, from almost 160 ms to 100 ms. Vowel durations in unstressed syllables decreased by approximately 30 %. Vowels in function words also showed some decrease in average duration.

There are probably two reasons for these durational changes. One is increasing fluency. As Dainis learned to connect English syllables into words and phrases, the syllables no longer received the kind of pronunciation given to words in isolation. The second reason has to do with increasing mastery of English phonology, specifically the durational adjustments characteristic of vowels in unstressed and reduced syllables. However, Dainis had not yet achieved the durational adjustments characteristic of native speakers, who produce extremely short vowels in unstressed syllables, averaging perhaps 60 ms. Dainis's unstressed syllables averaged about twice that. The durations which Dainis employed for stressed vowels were also longer than those employed by native speakers in continuous speech, more similar to vowel durations found in words produced in isolation (see Crystal, House 1988; Fokes, Bond 1989; Fokes, Bond, Steinberg 1984; Umeda 1975).

**Vowel formant values.** The average vowel formant values which Dainis employed in stressed syllables are given in Fig. 2. For comparison, the figure also shows average vowel formant values taken from Hillenbrand, Getty, Clark and Wheeler (Hillenbrand et al. 1995; see also Peterson, Barney 1952). Although the formant values which Dainis employed provide reasonably acceptable tokens of American English words, there are some interesting differences. Dainis appears to distinguish the quality of the tense and lax high vowels /I i/ (as in *sit, seat*) less clearly than Americans tend to do. In his pronunciation, the front lax vowels /ε, æ/ (as in *set, sat*) are not quite as peripheral as the American pronunciation. The high back vowel /u/ (as in *suit*) shows a back rather than the American fronted pronunciation. The central vowel in words such as *bus* gave Dainis

considerable difficulty, being pronounced almost identically with /a/ in September and given a very high version in January. Although there is variability in the vowel tokens from September to January, there do not appear to be systematic changes in how Dainis pronounced the American vowels. Particularly, the lack of distinction between the American English so-called tense and lax vowels makes it seem likely that Dainis was essentially using the articulatory properties characteristic of Latvian vowels. In Latvian, the distinction would be made quantitatively, long and short.

The formant values of the unstressed vowels, given in Fig. 3, show some change from September to January. In September, Dainis appeared to use variants of the unstressed vowels, similar to the values suggested by orthography. In January, the formant values showed considerable reduction or centralisation. On average, the value of the second formant (F2) is approximately 500 Hz lower in January, indicating a centralised pronunciation of vowels in the second syllable of words such as *seven*. The formants of vowels which Dainis employed in function words are given in Fig. 4. For these vowels, both the September and January productions showed considerable variability, though there was a tendency for the January productions to show more centralised values than the September productions, so approximating American English pronunciation.

## Conclusions

The high school which Dainis attended is situated in a relatively small college town in southeastern Ohio. Students at the school come from quite diverse backgrounds. Some are from rural families of limited means; others are the children of academics or graduate students, sometimes using English as a second language; finally, there are children of lawyers and others in various professions and townspeople. The speech patterns of these groups differ considerably but all are considered acceptable within the school setting. English language instruction emphasizes reading, writing, vocabulary and other academic approaches firmly based on American English practice. In his daily experiences, Dainis was exposed to all these varieties. It is impossible to say what effects this variety may have had in creating a model of English pronunciation for Dainis. Furthermore, Dainis was the only speaker of Latvian in his school so he had no choice but to use English to manage his daily affairs.

- Even a short period of exposure proved adequate for some changes in pronunciation towards the ambient model.
- Dainis spoke more fluently and rapidly in January than in September.
- Dainis' vowel durations began to approximate American durations, particularly for lax vowels and in unstressed syllables, both in multisyllabic words and function words. This pattern is characteristic of English, so it is probably salient to learners.
- Dainis showed a tendency to modify vowel quality in unstressed positions towards formant values characteristic of schwa. His unstressed vowel productions were also considerably shorter.
- Over the period of 4 months, Dainis did not modify the pronunciation of consonants, either approximating difficult American segments or American allophones.
- Dainis's stressed vowel quality did not change appreciably, perhaps because discrepancies from the American model were inconsequential for successful communication.
- Although Dainis did not receive specific instruction in pronunciation, using the ambient language both in and out of class still provides opportunities for learning.
- Our research results show that the language environment is very important; therefore, the new reform in education, when all educational institutions in Latvia change their language of instruction to Latvian, could be evaluated as positive.

Even though a very brief period of exposure showed clear evidence of change, we would like to end with a caution. Though the findings are intriguing, they should be taken with some caution. More extensive analyses based on a longer time frame are necessary to understand learning pronunciation with little instruction.

### References

- Calvert, Donald R. (1992). *Descriptive Phonetics*. New York: Thieme.
- Crystal, T. H.; House, A. S. (1988). The duration of American-English vowels: an overview. *Journal of Phonetics*, 16, pp. 263–284.
- Fokes, Joann; Bond, Z. S. (1989). The vowels of stressed and unstressed syllables in non-native English *Language Learning*, 39, pp. 341–373.
- Fokes, Joann; Bond, Z. S.; Steinberg, Marcy (1984). Patterns of English word stress by native and non-native speakers. *Proceedings of the 10th International Congress of Phonetic Sciences*. M. P. R. Van den Broecke and A. Cohen (eds.). Dordrecht: Foris, pp. 682–686.
- Hillenbrand, J.; Getty, L. A.; Clark, M. J.; Wheeler, K. (1995). Acoustic characteristics of American English vowels. *Jl. of the Acoustical Society of America*, 97, pp. 3099–3111.

Markus, Dace; Zīriņa, Tija; Markus, Kārlis (2023). Valodas politikas īstenošana Latvijas pirmsskolā: mazākumtautību bērnu latviešu valodas prasme = Language policy implementation in Latvian pre-school: Latvian language skills of minority children. *Darnioji daugiakalbystē = Sustainable Multilingualism. Biannual Scientific Journal*, 22. Kaunas: Vytautas Magnus University, Institute of Foreign Languages, pp. 74–93. Available: <https://doi.org/10.2478/sm-2023-0004>

Markus, Dace; Bethere, Dina; Jakušina, Marta; Krasovska, Valērija; Markus, Kārlis; Tauriņa, Agrita; Valtere, Alise; Zīriņa, Tija (2021). Pirmsskolēnu latviešu valodas apguves rezultāti Latvijā: Kurzemē, Rīgā un Latgalē = Results of the Latvian language acquisition by pre-schoolers in Latvia: Kurzeme, Riga and Latgale. *Latviešu valodas apguve. XII Starptautiskais baltistu kongress : rakstu krājums*. Liepāja: LiePA, pp. 7–29. Available: <https://doi.org/10.37384/LVA.2021.001>

Peterson, G. E.; Barney, H. L. (1952). Control methods used in a study of the vowels. *Journal of the Acoustical Society of America*, 24, pp. 175–184.

Umeda, N. (1975). Vowel duration in American English. *Journal of the Acoustical Society of America*, 58, pp. 434–445.

Fig. 1.  
Duration of vowels  
in September  
and in January.  
1 represents tense  
vowels;  
2 represents lax  
vowels;  
3 represents vowels  
in unstressed  
syllables;  
4 represents vowels  
in function words.

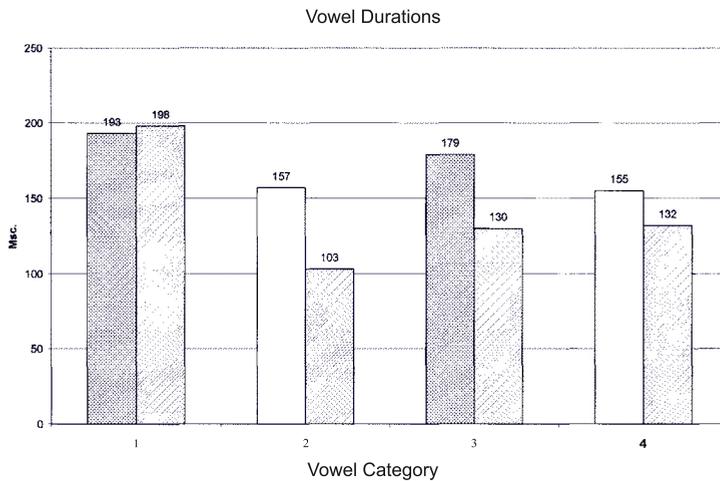
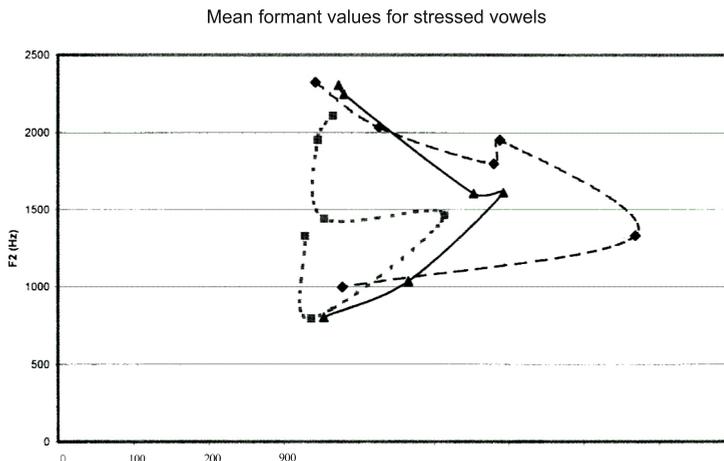


Fig. 2.  
First and second  
formant values  
of Dainis'  
stressed vowels  
in September  
and in January.  
American English  
formants  
are plotted  
for comparison.



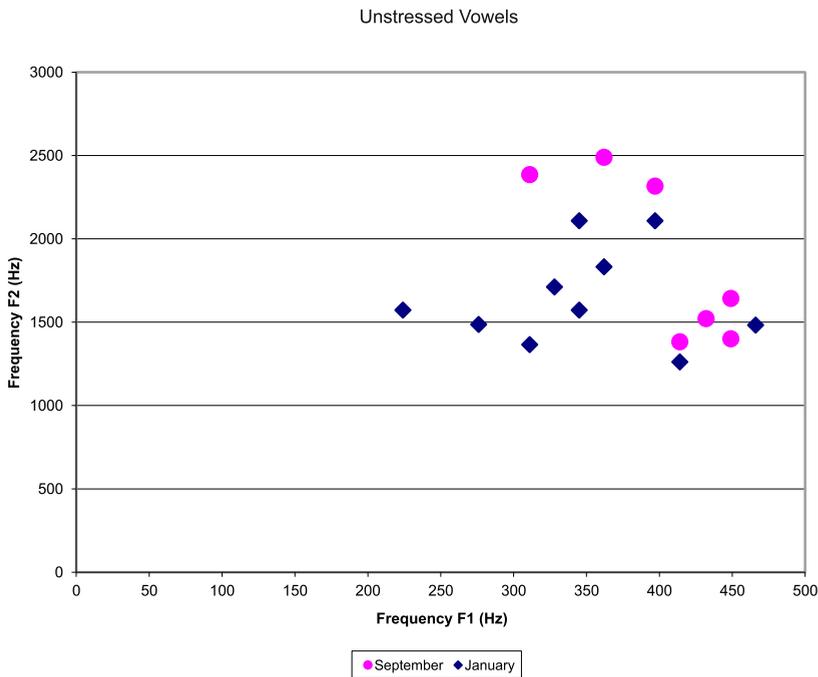


Fig. 3.  
Formant frequencies  
of vowels  
in unstressed  
syllables  
of polysyllabic words.

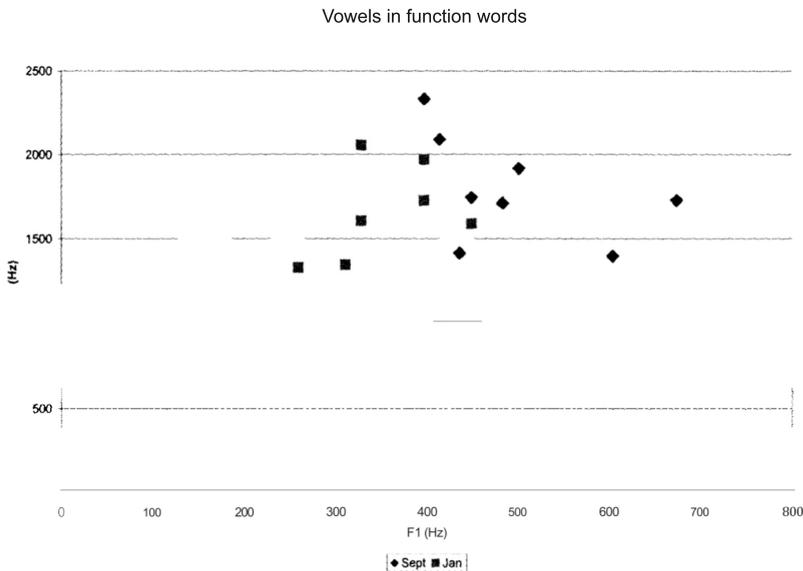


Fig. 4.  
Formant values  
of vowels  
in function words.