# An analysis of acoustic properties of selected sounds of RP, General American and Standard Slovak 

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## Introduction

The present paper analyses qualitative features of selected sounds of standard Slovak in relation to Received Pronunciation (herein after as RP) and General American (herein after as GA) on the level of phonetics. The paper's attempt is to point out which one of the two English varieties in question bears articulatory features similar to that of Slovak, in order to suggest seemingly easier variety of English to be mastered by a Slovak learner of English as a foreign language (EFL). Correct pronunciation of English sounds plays a vital role within an academic setting when focusing on majors using English as the language of interaction. Previous research has tackled the main focus of this paper only partially, and in the literature, several theories have been proposed about the importance of English language learning. However, "there is extraordinary diversity in the ways in which English is taught and learnt around the world, but some orthodoxies have arisen. [...] EFL, as we know it today, is a largely $19^{\text {th }}$ century creation" (Graddol, 2006, p. 82).The target variety of a learner of English is a native speaker, usually British or American one (Graddol, 2006).

In the course of several past decades, the difference between Slovak and English phonetic systems was stressed by several authorities using RP as a key variety of English for their research studies. This field of research was pioneered by Ján Lenhardt. In his paper Kontrastívny rozbor anglických a slovenských hlások ${ }^{1}$, he carried out research as early as in 1977, stressing different features of English vocalic and consonantal systems as compared to Slovak ones. Based on the categorization of [r] in his paper (Table. 4, page 294) ${ }^{2}$, it is assumed that he was comparing standard Slovak pronunciation and RP. In his research, he primarily focused on the number of sounds in both, English and Slovak, while attempting to put them into the position of equivalents which, however, as he acknowledged, is impossible due to interlingual proximity of both languages. Therefore, he suggested observed sounds to be regarded as the closest corresponding sounds rather than equivalents, and this claim provides for the theoretical background of the paper. Kotuličová (2003) and Ološtiak (2004 and 2007) have demonstrated the transfer of English words into the Slovak language, using RP as a model variety of their comparison. Gregová (2008) used BBC radio recordings to compare the quantity of English and Slovak vocalic systems. Some scholars, namely Trudgill and Hananah (2008), even claim that RP is the first accent that EFL students come into contact with.

As all the above mentioned examples demonstrate, RP serves as a model variety not only for teaching and learning but also as a key variety for researchers in Slovakia. However,

[^0]none of the previous studies takes into account comparing Slovak sounds against more than one variety of English nor does it attempt to establish closer corresponding variety of English for Slovak sounds. Despite not dealing with the issue presented herein, all the discussed research offers rich theoretical and terminological background for this paper. Although several studies have indicated the differences between Slovak sounds and RP sounds, little attention has been paid to closer investigation of seemingly closer corresponding accent of English, which might result into the simplification of a learning process as Krashen (1982) points out in his interference theory. Therefore, this paper, by means of experiment, focuses on which of the two English varieties in question is closer to Slovak pronunciation.

This research does not present the two English varieties in question as correct ones as far as "there is no single variety of English, which provides the target of learning" (Graddol, 2006, p. 82), but rather focuses on them as being two most influential varieties of English.

## 1. Research question

All the above mentioned studies suggest that RP serves as a model variety in Slovakia. However, drawing on the lack of research in this particular issue and drawing also on Krashen's interference theory (1982), it can be assumed that Slovak learners of English should focus on the variety with articulatory features similar to their mother tongue. And so, the question arising from facts stated herein is, which one of the two English varieties, RP or GA, is closer correspondent to standard Slovak? In order to answer this question, attention has been paid to pronunciation differences of selected vocalic sounds (as John Wells suggests them), namely to distinction between $\mathfrak{p}-\mathrm{a}:, \mathrm{a}:-\mathfrak{x}, \mathrm{o}:-\mathrm{a}$ :, and the length of vowel preceding /r/ sound.

## 2. Methods and materials

The material of standard Slovak were audio recordings of pronunciation of six Slovak L1 speakers, all with higher education in standard Slovak. Recordings were recorded by integrated dictated machine for Apple iPhone4, with OS 7.1.2. The audio material for English varieties in question was recorded from interactive dictionary (available at http://dictionary.cambridge.org). The material was recorded by integrated Stereo Mix microphone (created for Realtek soundcard, integrated on ASUS mother board with the latest updates for Windows 8.1). The subjects remain anonymous.

The total number of 444 (148 per formant ${ }^{3}$ ) formant frequencies of pronunciation variants were analysed as pronounced by Slovak speakers and compared to 75 formant frequencies of pronunciation variants as pronounced in RP and 75 formant frequencies of pronunciation variants as pronounced in GA. All sounds were further analyzed by PRAAT created by Paul Boersma and David Weenink. The data were recorded in Hz and displayed in graphs suggesting the articulatory features of sounds in question and then compared with each other. The frequencies of selected sounds in isolation were drawn from Gumanová's research, 2015)

## 3. Analysis

The analysis of the collected data is divided into the following categories:

- p-a:distinction

[^1]- $\mathrm{a}:-\mathfrak{\text { distinction }}$
- $\mathrm{o}:-\mathrm{a}$ : distinction
- r-colouring and relation to preceding vowel


## 3.1 v - a: distinction

### 3.1.1 Results

For this distinction, words box, hot, o'clock, bother, honest, knowledge, non-profit, were chosen. The reason for this distinction is that GA does not recognize monophthong $/ \mathrm{p} /$, therefore, it is usually realized as [a:]. For selected words the following frequencies were recorded:

MONOPHTHONGS - $\mathrm{p}-\mathrm{a}$ : distinction

| $\begin{aligned} & \text { 믕 } \\ & 3 \end{aligned}$ | $\begin{aligned} & \text { n } \\ & \stackrel{\text { N }}{\text { n }} \\ & \text { y } \end{aligned}$ | Frequency of: (in Hz) |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\begin{gathered} \mathrm{RP} \\ \text { (average) } \end{gathered}$ | $\begin{gathered} \mathrm{GA} \\ \text { (average) } \end{gathered}$ | Slovak respondents |  |  |  |  |  |
|  |  |  |  | R1 | R2 | R3 | R4 | R5 | R6 |
| Box | F1 | 523 | 680 | 502 | 750 | 603 | 518 | 637 | 623 |
|  | F2 | 1101 | 1250 | 961 | 1086 | 873 | 1001 | 988 | 1104 |
|  | F3 | 2411 | 2769 | 2555 | 2571 | 2816 | 2777 | 2742 | 2837 |
| Hot | F1 | 857 | 829 | 570 | 694 | 518 | 572 | 635 | 611 |
|  | F2 | 1976 | 1229 | 865 | 1131 | 977 | 1045 | 1039 | 1051 |
|  | F3 | 3501 | 2922 | 2605 | 2392 | 2781 | 2694 | 3047 | 1832 |
| o'clock | F1 | 750 | 686 | 499 | 678 | 529 | 595 | 536 | 687 |
|  | F2 | 1555 | 1079 | 887 | 1035 | 891 | 945 | 955 | 1053 |
|  | F3 | 3021 | 3145 | 2530 | 2634 | 2982 | 2564 | 2781 | 2749 |
| bother | F1 | 543 | 734 | 481 | 587 | 734 | 557 | 755 | * |
|  | F2 | 1273 | 1133 | 916 | 914 | 1283 | 981 | 1326 | * |
|  | F3 | 2569 | 2606 | 2737 | 2701 | 2738 | 2825 | 2804 | * |
| honest | F1 | 804 | 718 | 618 | 485 | 599 | 641 | 676 | 836 |
|  | F2 | 2460 | 1220 | 787 | 860 | 1154 | 1130 | 1066 | 1624 |
|  | F3 | 3321 | 3052 | 2450 | 2164 | 3109 | 2501 | 2930 | 2839 |
| knowledge | F1 | 524 | 755 | 510 | 580 | 675 | 512 | 586 | 662 |
|  | F2 | 1846 | 1375 | 1123 | 1083 | 1486 | 1494 | 1078 | 1170 |
|  | F3 | 2885 | 3055 | 2407 | 2740 | 2486 | 2559 | 3168 | 2738 |
| non-profit | F1 | 641 | 671 | 578 | 567 | 687 | 794 | 614 | 590 |
|  | F2 | 1459 | 1275 | 995 | 1021 | 1400 | 1518 | 994 | 1237 |
|  | F3 | 3399 | 2704 | 2493 | 1912 | 5568 | 3204 | 2324 | 3014 |

Table 1 Monophthongs - $\mathbf{v}$ - a: distinction (*mispronounced)(drawn from PRAAT)
The frequencies of vocalic sounds in question were recorded into a common chart (Chart 1), suggesting the average position of both English accents, and the articulatory features of all respondents:


Chart 1 Monophthongs - $\mathbf{n - a}$ : distinction
These frequencies suggest that pronunciation of the vowel in question by a Slovak speaker may resemble that of a speaker of GA. From all the observed frequencies ( 123 of them; one of the words was mispronounced and so not taken into consideration), more frequencies are closer to an RP sound, regarding the height of the vowel. In terms of F1, 14 variants of pronunciation are closer to GA than RP. 15 variants are closer to RP, while 12 are recorded in the area between RP and GA. As to F2 (the frontness and backness), however, 31 pronunciation variants are closer to GA, and only 10 of them are closer to RP. 25 formant frequencies of F3 (roundness of the lips) are closer to GA and 16 F 3 frequencies are recorded as closer to RP.

Summing up the above data, $36 \%$ of F1 variants were pronounced with the tongue raised in the similar height as the RP sound, $34 \%$ were pronounced in the similar height as the GA sound while about $29 \%$ of variants were pronounced in interim area between RP and GA sounds. In the case of the frontness and backness of the tongue, app. $76 \%$ of Slovak speakers' variants were produced similarly to the GA sound and only $24 \%$ of the observed variable resembled that of RP. The shape of the lips was also closer to GA, as only $39 \%$ of pronunciation variants were closer to an RP sound.

### 3.1.2 Discussion

When adding the frequency of $\mathrm{o}_{\mathrm{S}}$ (Slovak sound $/ \mathrm{o} /$ ) in isolation, the fact that GA's pronunciation of / o / is a closer correspondent than the RP's one can easily be explained by os being pronounced at almost the same place as $\mathrm{a}: \mathrm{GA}$ (GA sound /a:/). However, based on perception, almost all pronunciation variants of the vowel in question pronounced by Slovak speakers sounded like $/ \mathrm{o} /$ rather than $/ \mathrm{a} /$. Based on this, it can be claimed that, in this particular case, Slovak speakers did apply the features of the Slovak sound when pronouncing an English word.

## 3.2 a: - æ distinction

### 3.2.1 Results

Both sounds are part of all three varieties. Though there is certain distinction between English $/ æ /$ and Slovak /ä/, these two sounds are quite often subjected to transphonemization (Ološtiak, 2007). Therefore, it is assumed that a Slovak speaker is familiar with both of these sounds.

MONOPHTHONGS - a: - æ distinction

| $\begin{aligned} & \text { 밍 } \\ & 3 \end{aligned}$ | 든 | Frequency of: (in Hz) |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | RP <br> (average) | GA (average) | Slovak respondents |  |  |  |  |  |
|  |  |  |  | R1 | R2 | R3 | R4 | R5 | R6 |
| class | F1 | 994 | 722 | 607 | 828 | 827 | 795 | 784 | 874 |
|  | F2 | 1142 | 1466 | 1485 | 1241 | 1288 | 1265 | 1054 | 1535 |
|  | F3 | 3121 | 2845 | 2443 | 2405 | 2969 | 2774 | 2983 | 2730 |
| last | F1 | 567 | 772 | 637 | 838 | 853 | 769 | 768 | 873 |
|  | F2 | 1515 | 1488 | 1396 | 1076 | 1283 | 1201 | 1119 | 1430 |
|  | F3 | 3010 | 2726 | 2566 | 3027 | 2758 | 2343 | 2681 | 2787 |
| ask | F1 | 1060 | 690 | 572 | 801 | 869 | 894 | 951 | 870 |
|  | F2 | 1581 | 1946 | 1731 | 1094 | 1360 | 1329 | 1315 | 1393 |
|  | F3 | 2508 | 2904 | 2453 | 2157 | 2501 | 2313 | 2891 | 2792 |
| $\underline{\text { answer }}$ | F1 | 657 | 631 | 640 | 605 | 667 | 803 | 726 | 654 |
|  | F2 | 1155 | 1989 | 1730 | 1058 | 1913 | 1229 | 1275 | 2125 |
|  | F3 | 2774 | 2850 | 2241 | 1951 | 2730 | 2322 | 1920 | 2985 |
| laugh | F1 | 541 | 824 | 602 | 1074 | 856 | 860 | 917 | 874 |
|  | F2 | 1645 | 1492 | 1135 | 1618 | 1218 | 1280 | 1258 | 1441 |
|  | F3 | 3198 | 2855 | 2760 | 2551 | 2527 | 2872 | 2736 | 2837 |
| can't | F1 | 845 | 464 | 740 | 794 | 862 | 750 | 723 | 803 |
|  | F2 | 1372 | 2327 | 1464 | 1070 | 1296 | 1200 | 1151 | 1580 |
|  | F3 | 2568 | 2904 | 2398 | 3066 | 2137 | 1967 | 2003 | 2752 |
| advanc <br> e | F1 | 362 | 459 | 588 | 629 | 802 | 785 | 711 | 973 |
|  | F2 | 1174 | 1578 | 1652 | 1193 | 1922 | 1170 | 1139 | 1457 |
|  | F3 | 2488 | 2566 | 2321 | 2253 | 2779 | 2184 | 2281 | 2834 |

Table 2 Monophthongs a: - æ distinction (drawn from PRAAT)
When converting these frequencies into the Chart 2, it can be claimed that more variants are pronounced as the RP /a:/ sound.

## MONOPHTHONGS -a:/æ DISTINCTION



Chart 2Monophthongs a: - $\mathfrak{x}$ distinction

The frequencies recorded in Table 2 show that 22 pronunciation variants regarding the height of the tongue in the oral cavity are closer to the GA variety, and 5 variants are recorded in the area between GA and RP, out of 42 pronunciation variants observed for this formant (F1). However, more speakers pronounced the sound in question with the raised part of the tongue being more front within the oral cavity, as 22 pronunciation variants are closer to the pronunciation variant of RP, out of all 42 observed variants for F2. However, the shape of the lips is in a half of the observed variants closer to the RP sound and the second half is closer to that of GA sound from the observed 42 pronunciation variants for this formant. The total number of 126 frequencies were observed for all three formants as produced by Slovak speakers.

Converting the above data into the percentage proportion, $52 \%$ variants were pronounced closer to the GA sound for F1, and $12 \%$ were in the interim area. For F2, however, $52 \%$ variants were closer to RP and $17 \%$ were recorded in the area between RP and GA sound. As to the F3, $50 \%$ of frequencies of pronunciation variants were closer to the RP sound and the second half had GA as its closer corresponding sound.

### 3.2.2 Discussion

The Slovak pronunciation variant of the observed sound in English words is probably influenced by consonants. Three lexical units in this set start with the consonant [1]. This, being classified as an approximant (and liquid sound), may reflect the quality of the following vowel, as these sounds are quite similar to vowels. As the transitions between this approximant and the following sound is similar to that of a diphthong ${ }^{4}$,the following sound may behave like the second element of a glide. Therefore, the following vowel (in this case the vowel in question) may not be able to reach its target frequency and this might be the reason why the average of the pronunciation of Slovak respondents resembles the RP sound in its formants' values.

## 3.3 o: - a: distinction

### 3.3.1 Results

Both of these sounds are well known in the three observed accents, and so Slovak speakers should encounter no complications while producing these sounds in English words.

MONOPHTHONGS - o: - a: distinction

| $\begin{aligned} & \text { 밈 } \\ & 3 \end{aligned}$ | 毕 둘 | Frequency of: (in Hz) |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\begin{aligned} & \text { RP } \\ & \text { (average) } \end{aligned}$ | GA (average) | Slovak respondents |  |  |  |  |  |
|  |  |  |  | R1 | R2 | R3 | R4 | R5 | R6 |
| thought | F1 | 418 | 708 | 331 | 580 | 596 | 591 | 645 | * |
|  | F2 | 894 | 1226 | 1270 | 1169 | 1102 | 1014 | 990 | * |
|  | F3 | 3158 | 2631 | 2197 | 2464 | 2481 | 2602 | 2809 | * |
| daught er | F1 | 413 | 619 | 514 | 485 | 608 | 484 | 582 | 456 |
|  | F2 | 1832 | 1359 | 1041 | 1120 | 1217 | 977 | 1009 | 1010 |
|  | F3 | 2771 | 2541 | 2749 | 2269 | 2531 | 2825 | 2838 | 2805 |
| caught | F1 | 417 | 779 | 527 | 485 | 614 | 509 | 552 | 553 |
|  | F2 | 1143 | 816 | 1023 | 775 | 1014 | 954 | 946 | 963 |
|  | F3 | 2371 | 2251 | 2384 | 2315 | 2482 | 2426 | 2848 | 2633 |

[^2]| author | F1 | 417 | 611 | 685 | 508 | 564 | 458 | 569 | 512 |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
|  | F2 | 1209 | 980 | 1109 | 779 | 988 | 895 | 950 | 973 |
|  | F3 | 2428 | 3350 | 1278 | 2637 | 2205 | 2584 | 2849 | 2958 |
| autumn | F1 | 424 | 683 | 554 | 502 | 570 | 557 | 534 | 560 |
|  | F2 | 1623 | 1085 | 832 | 821 | 1009 | 906 | 886 | 1011 |
|  | F3 | 2118 | 3270 | 2691 | 2496 | 2546 | 2595 | 2888 | 3101 |

Table 3 Monophthongs o: - a: distinction (*mispronounced)
The frequencies recorded in Table 3 suggest the following articulatory features of the sounds observed in this set.

## MONOPHTHONGS -o:/a: DISTINCTION



Chart 3 Monophthongs o: - a: distinction
The formant frequencies suggest that 8 pronunciation variants (out of 29 observed) were closer to the RP sound, for F1 and 13 are closer to GA, while 8 of them are recorded in between RP and GA averages. As to the F2, GA sound became a closer corresponding sound in 25 cases out of 29 observed for this formant, however, the shape of the lips largely imitates that of the RP sound (19 pronunciation variants out of 29 for F3), as suggested by Table 3.

To interpret the above mentioned data; $45 \%$ of variants are closer to the GA sound, while $28 \%$ are recorded in between the observed sounds of both English accents in question. As much as $86 \%$ of pronunciation variants are recorded closer to GA for F2, and $65 \%$ of formant frequencies for F3 imitated the shape of the lips of RP speakers.

### 3.3.2 Discussion

However, comparing the Slovak variants to English corresponding sounds, it seems that the GA sound is a closer corresponding sound. Based on Chart 3 above, when stressing the articulatory features of the observed sounds both, in lexical units and in isolation, it is obvious that Slovak respondents most probably applied articulatory features of their L1 while pronouncing English words.

## 3.4 r-colouring and relation to preceding vowel

### 3.4.1 Results

Regarding the sound $/ \mathrm{r} /$, Slovak accent is categorized as rhotic and it is quite different from both of the observed English accents. Therefore, it is assumed that English words observed in this chapter will imitate the pronunciation of GA rather than RP especially because of the rhoticity of GA, though articulatory features of sound $/ \mathrm{r} /$ in standard Slovak and GA are not the same. However, the production of /r/ highly influences surrounding sounds in all three accents. The attention is, therefore, paid to the articulatory features of the vocal preceding $/ \mathrm{r} /$.

The formant frequencies recorded in Table 4 were divided into two major groups, one dealing with sound $/ \mathrm{a}: /$ and the second one dealing with the sound $/ \mathrm{o}: /$. Two distinct sounds were chosen purposely, in order to interpret the closer corresponding accent for this group more accurately.
r - COLOURING (in relation to preceding vowel)

| $\begin{aligned} & \text { 밈 } \\ & 3 \end{aligned}$ | n <br> $\stackrel{7}{0}$ <br> $\stackrel{5}{0}$ | Frequency of: (in Hz) |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | RP (average) | GA (average) | Slovak respondents |  |  |  |  |  |
|  |  |  |  | R1 | R2 | R3 | R4 | R5 | R6 |
| car | F1 | 569 | 505 | 733 | 718 | 815 | 771 | 743 | 833 |
|  | F2 | 1075 | 1074 | 1301 | 1000 | 1243 | 1263 | 1182 | 1474 |
|  | F3 | 2451 | 2517 | 2312 | 2282 | 2670 | 2514 | 2892 | 2584 |
| park | F1 | 759 | 654 | 729 | 782 | 644 | 746 | 676 | 818 |
|  | F2 | 1137 | 1092 | 1212 | 1148 | 1127 | 1184 | 1107 | 1395 |
|  | F3 | 3428 | 2389 | 2172 | 2237 | 2504 | 2579 | 2732 | 2612 |
| start | F1 | 696 | 432 | 677 | 740 | 686 | 796 | 737 | 822 |
|  | F2 | 1704 | 1626 | 1273 | 1157 | 1176 | 1250 | 1134 | 1521 |
|  | F3 | 3160 | 2907 | 2103 | 2267 | 2169 | 2368 | 2613 | 2660 |
| more | F1 | 656 | 631 | 517 | 586 | 933 | 502 | 514 | 576 |
|  | F2 | 2001 | 1760 | 783 | 1525 | 2100 | 776 | 873 | 950 |
|  | F3 | 3400 | 3073 | 2423 | 2515 | 3788 | 2525 | 2475 | 2613 |
| $\frac{\text { cours }}{\mathrm{e}}$ | F1 | 430 | 509 | 442 | 505 | 578 | 510 | 480 | 548 |
|  | F2 | 1124 | 957 | 1164 | 779 | 887 | 902 | 827 | 1027 |
|  | F3 | 2444 | 2604 | 1952 | 2161 | 2268 | 2548 | 2984 | 2590 |
| $\underset{\mathrm{ng}}{\mathrm{morni}}$ | F1 | 570 | 581 | 521 | 669 | 732 | 421 | 556 | 576 |
|  | F2 | 1773 | 1426 | 766 | 742 | 1917 | 719 | 919 | 1041 |
|  | F3 | 3136 | 3321 | 2305 | 2325 | 2439 | 2537 | 2244 | 2476 |

Table 4 r-colouring in relation to preceding vowel (drawn from PRAAT)
The frequencies in table 4 show articulatory features of observed sounds as follows:


Chart $4 \mathbf{r}$ - colouring a:/a: distinction


## Chart 5 r-colouring o:/o: distinction

For the /a:/ sound, the formant frequencies of Slovak respondents suggest that the highest part of the tongue is closer to the highest part of the tongue of the RP sound (16 pronunciation variants are recorded near the RP average frequency, out of 18 frequencies observed for F1). As to the F2, Slovak respondents pronounced more sounds in a position closer to GA (8 pronunciation variants were closer to GA, while 6 were recorded between RP and GA), and the shape of the lips imitated the shape of the lips of the GA sound (16 variants out of 18).

For the /o:/ sound, the tongue, when the sound was pronounced by Slovak respondents, was in the position closer to the sound of GA ( 10 pronunciation variants for F1 and 15 pronunciation variants for F2 out of 18 observed for each formant). However, F3
suggests that the lips imitated the shape of its RP counterpart, as 10 pronunciation variants were closer to RP (out of 18 observed for each frequency).

The above described data of variants of both vocalic sounds were merged together suggesting that, though being an /r/ preceding vowel (while /r/ was pronounced with the features of rhoticity), $52 \%$ of variants were pronounced closer to RP for F1, however, $64 \%$ of variants were pronounced in a position similar to the GA sound and the shape of the lips of Slovak respondents imitated the shape of the lips of GA (67\%).

### 3.4.2 Discussion

Based on the analysis of Chart 4 and Chart 5, the average frequencies of both observed sounds are closer to those of RP even though the $/ \mathrm{r} /$ segment is pronounced (as demonstrated by empirical reasoning). The vowel preceding the $/ \mathrm{r} /$ sound in a rhotic accents is supposed to be of a different quantity than the vowel preceding the $/ \mathrm{r} /$ sound in non-rhotic accent (when [r] is in post-vocalic position). The reason for the phenomenon discussed in Results may be that Slovak speakers tend to prolong vocalic sounds pronounced in English words probably because of being afraid of not being understood (Gumanová, 2013).

## Conclusion

The objective of the research presented herein was to investigate which of the two most widely spread English varieties (RP or GA) is closer to standard Slovak, in order to provide Slovak users of English with more suitable variety for them to follow.

To determine this, Table 6 summarizes all the previously discussed results as follows.


Chart 6 The number of closest corresponding variants per formant - monophthongs
From the research that has been carried out, it is possible to conclude that our objective was not fully met and there is no simple answer to whether RP or GA should be considered a closer corresponding accent to standard Slovak. The main issue of interpretation of gathered data is the need of data comparison on the level of individual formants. Therefore, the results recorded in Chart 6 clearly indicate that when considering the frontness and backness of observed sounds, Slovak speakers may have tendency to pronounce sounds with similar articulatory attributes ascribed to this formant like speakers of RP. When comparing the number of pronunciation variations closer to RP to those closer to GA, there is no significant gap suggesting any tendency of whether Slovak speakers would pronounce sounds with articulatory attributes closer to RP or GA. When considering F2, however, the difference
of pronunciation variants closer to RP and GA is so significant that it can be claimed that Slovak speakers may have certain tendency towards applying articulatory attributes of GA sounds ascribed to this formant more often. As to the F3, similarly like with F2, it is assumed that Slovak speakers will have tendency to follow the articulatory attributes ascribed to this formant after GA speakers.

Summing these results up, it is suggested that though there is no single answer to the research question stated herein, GA seems to be the accent which might be considered a closer corresponding one to standard Slovak pronunciation. For the practical application of this research, however, it is necessary to eliminate limitations of this research.

In order to eliminate any possible limitation of this research, it is suggested that more research should be conducted focusing on the following matters:

- the frequency of applying Standard Slovak pronunciation features by Slovak speakers when pronouncing English words
- to what extent the vocalic sounds are influenced by surrounding consonantal sounds in all three varieties.
- gather a larger sample of data of all three accents in a longer period of time (at least 5 or 10 years), in order to acknowledge possible changes in pronunciation
- acknowledge sociolinguistic traits to a greater extent

Though the aim of this paper has not been fully met, and so the closest corresponding accent was not determined, it is believed that this research will function as a spin off for future, more detailed research in this field.

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## Resumé

## Analýza akustických vlastnosti vybraných hlások Received Pronounciation, General American a spisovnej slovenčiny.

Na základe Krashenovej interferenčnej teórie je možné tvrdit', že výslovnost’ nerodených hovoriacich v cudzom jazyku má základy v artikulačných vlastnostiach hlások materinského jazyka, odvíja sa od nich a pri hovoriacich s nižšou jazykovou kompetenciou v ciel’ovom jazyku je od nich takáto výslovnost' dokonca závislá. Táto teória slúži ako nosný pilier výskumnej otázky a tento výskum slúži ako odpoved' na otázku, ktorý z dvoch prestížnych variantov angličtiny je bližším ekvivalentom slovenského jazyka na úrovni fonetiky. Ciel’om je poukázat' na variant angličtiny, ktorý by sa svojimi artikulačnými vlastnost’ami priblížil slovenčine, a tým by bol aj funkčným variantom pre nerodených hovoriacich na nižších kompetenčných úrovniach. Úvod tohto výskumu hovorí o terminológií, poukazuje na podobné výskumy v tejto oblasti a zároveň slúži ako teoretický základ problematiky. Experimentálna sonda tvorí najväčšiu čast' tohto výskumu a sústred'uje sa na akustickú analýzu vybraných hlások. Tento výskum je prínosom v oblasti účelového porovnávania jazykových variantov s ciel’om možnosti aplikácie výsledkov do edukačného procesu.


[^0]:    ${ }^{1}$ A contrastive analysis of English and Slovak sounds
    ${ }^{2}$ The position of $/ \mathrm{r} /$ sound is described as post-alveolar in his paper.

[^1]:    ${ }^{3}$ Formants: Peaks of the resonance curve showing the glottal spectrum as modified by the vocal tract, represended by dark areas on spectrogram. There are 3 formants important for phoneticians:
    F1 - shows how closed or open the vowel is
    F2 - shows how front or back the vowel is
    F3 - determines the shape of the lips

[^2]:    ${ }^{4}$ SpeechResourcePages. Theaccousticcharacteristics of approximants,:
    [http://clas.mq.edu.au/speech/acoustics/consonants/approxweb.html](http://clas.mq.edu.au/speech/acoustics/consonants/approxweb.html), retrieved 03-29-2015

