A COMPARATIVE ANALYSIS OF SILENT PAUSES AND RATE OF ARTICULATION IN THE DISCOURSE OF SITCOM [1]

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Abstract

The objective of the present paper is to provide the results of follow-up research into conversations in an episode of the sitcom *Friends*. The study is based on two selected phonetic features: ungrammatical silent pauses and rate of articulation, in order to substantiate whether these features contribute to the spokenness of the film dialogue in the focal sitcom and to explore in what manner these features are produced in the original version and the dubbed version (Slovak).

Key words

within-speaker silent pause, rate of articulation, dubbing, spokenness, writteness

1 Introduction

The aim of the present paper is to introduce the results of research into dialogue in an episode of the sitcom *Friends*. The investigation is targeted at two selected phonetic features: ungrammatical silent pauses and rate of articulation, in order to discover whether these features contribute to the spokenness of the film dialogue in the focal sitcom. Another objective of the analysis is to compare in what manner ungrammatical silent pauses and rate of articulation are realized in the original version and the dubbed version (Slovak).

A number of researchers have been attracted by exploring sitcom conversation either as an object itself or by comparing its linguistic features to features of spontaneous conversation. Sitcom dialogue writers aim at representing the everyday exchanges people engage in; in other words, they strive for naturalness. Sitcoms are typified by a complex procedure of planning and production and, as a rule, a number of writers participate in the script and dialogue writing, hence they are characterized by multiple authorship (e.g. Mills 2009, Quaglio 2009, Romero Fresco 2009).

Sitcom conversations enable the viewer to recognize the fictional location, time and characters. Conversations help viewers comprehend the characters' personal traits and their motivation to act in a certain manner. Therefore, script writers disperse a variety of idiosyncrasies (such as slang, dialect expressions, catchphrases, etc.) throughout the characters' speech. Further, script writers use dialogues to guide the viewer and relate to the audience through the characters' conversation (cf. Quaglio 2009).

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Spontaneous conversations exhibit a number of conventional features which at the phonic level include pause phenomena and emphatic intonation contours (Kačmárová 2006); at the lexical level, use of clichés and vague expressions, incidence of interjections, intensifiers, colloquial, idiomatic and slang expressions, preference for monosyllabic words and a considerable degree of redundancy; features falling within phonetic and lexical levels, such as false starts, repetitions and self-corrections; features of the syntactic level, such as vague sentence boundaries, syntactic incompleteness, preference for paratactic structures and locating comment-clauses in end-position (Quian 2004: 152-160). These features are collectively referred to as 'performance phenomena'. (cf. Biber et al. 1999) or features of 'normal non-fluency' (Quian 2004).

Romero Fresco (2009) compared the conversations in *Friends* with natural conversations and revealed that unlike in spontaneous speech, at the phonic level sitcom conversations exhibit correct standard pronunciation, careful articulation, and avoidance of inapt pauses, prosodic vagueness as well as of unnecessary occurrence of simultaneous speech of several characters. At morphological and syntactic levels sitcom conversations manifest a lesser degree of syntactic incompleteness, fragmentation and divergence from norms than spontaneous dialogues, and, finally, at the discourse level, they exhibit avoidance of excessive alteration of topics (Romero Fresco 2009).

Based on Biber et al.'s study of English register variation (and Dimension 1 differentiating between involved versus informational production), Quaglio (2009: 140-149) conducted a multifaceted comparative analysis of two corpora – *Friends* and natural conversation. The analysis yielded similar scores (34.4 on D1 for *Friends* and 35.3 for face-to-face conversation), which supports the claim that sitcom conversation resembles natural conversation[2]. Further analysis of the use of vague linguistic devices revealed a minor divergence illustrating a higher occurrence of vague language in natural conversation than in *Friends*. Quaglio (2009) explains this difference by the fact that the 'real interlocutors' in a sitcom conversation are not characters themselves, rather they are script and dialogue writers and TV viewers who must share a common ground in order to be able to follow the conversations. Moreover, *Friends* consistently presented higher frequencies of the majority of features of involved registers (out of the 35 analyzed features, 31 exhibited a higher frequency in *Friends*). Quaglio's comparative analysis, however, unveiled considerable differences in the two registers in their extent of narrativeness (expressed through past tense verbs, third-person pronouns, perfect aspect, and public verbs). Although the analyzed corpora are both typical for their low degrees of narrativeness when compared to characteristically narrative registers (fiction), the natural conversations contained

a higher frequency of narrative portions than conversations in *Friends*, this disparity being attributable to the discourse immediacy of *Friends* conversations. Some of the potential differences between *Friends* and natural conversation seem to stem from either limitations imposed by the televised medium, the television network, or the type of this specific sitcom. Another factor that may be at play here, Quaglio notes, is humor that may have exercised influence on the selection of particular linguistic devices. Quaglio's study demonstrates that *Friends* shares typical linguistic features with involved registers, such as face-to-face conversation. Nevertheless, this finding does not show that the scripted language of *Friends* is identical with natural conversation (Quaglio 2009: 140-149).

Earlier research (Bilá & Kačmárová, forthcoming) on an episode of *Friends* investigated the position of sitcom discourse on a virtual scale of 'spokenness – writtenness'. The starting point of the investigation was the treatment of the target discourse as seeking to give an impression of spontaneous speech, designed to be acted out as if it was not premeditated and written in advance. The exploration comprised two sub-analyses: the former one included a description of speech (as opposed to writing) based on Crystal's (Crystal & Davy 1969) taxonomy of spoken mode features; speech being time-bound, spontaneous, face-to-face, socially interactive, loosely structured, immediately revisable, and prosodically rich. Each feature was detected in the target discourse functioning in a specific manner – altogether yielding the characteristics of pre-scripted text to be read out and performed. The latter analysis targeted the features of the spoken mode in the sitcom in question and was based on Mistrík's (1997) treatment of spontaneous speech typified by vocality, conversationality, familiarity, contextuality and expressiveness. The findings of this analysis showed that the discourse of the target sitcom represents verbal performance that is observable in spontaneous speech. With reference to vocality, the investigation of pause duration and pause-tonic-stress interrelation indicated potential similarity of the focal discourse with a publicistic/journalistic style, in other words the similarity of the sitcom discourse to the text to be read.

2 Analysis of silent pauses[3] in the English original and the Slovak dubbed version

Pauses are of major importance for both the speaker and hearer. Predictable or grammatical pauses (Silverman et al. 1992) are responsible for segmenting the flow of speech into semantic portions and drawing a listener's attention to the most important components of an utterance. Such pauses as a rule occur at syntactic constituent boundaries and are of longer duration (above 200 ms) whereas the pauses of physiological origin (respiratory pauses) are generally

of shorter duration (Zellner 1994). Neurolinguists claim that the frequency, distribution and duration of pauses are controlled by a neurological device through synchronising the stimuli transmitted to articulatory muscles (ibid.). This hypothesis has been supported by further research study conducted by Ramanarayanan and Bresch (2009). By analysing the speed of articulators at and around grammatical and ungrammatical pauses in spontaneous speech through real-time magnetic resonance imaging, they found that grammatical pauses have a significant fall in speed at the pause itself (unlike ungrammatical pauses). This supports their hypothesis that grammatical pauses are controlled by a central cognitive device.

In addition to physiological needs and syntactic structuring, the distribution and frequency of pauses depend on several other factors. Speech activity being a motor activity has an individual character and thus the occurrence of pauses in it is, to a large extent, dependent on an individual speaker (e.g. weak respiration, low muscle tone and slow rate of articulation will generate a higher frequency of pauses whereas fast articulation and good respiratory capacity will reduce their number). In addition to individual constraints, pauses can also be ascribed to temporal limitations and situational constraints (e.g. speaking in a stressful or emotional situation) (Zellner 1994).

Ungrammatical (e.g. word search) pauses tend to occur in spontaneous speech since planning of an utterance frequently lags behind the delivery. These pauses together with further features of impromptu speech (such as false starts, filled pauses etc.) are regarded as "common occurrences" and thus termed as "normal non-fluency" or "performance phenomena" (Zellner 1994, Biber et al. 1999, Quian 2004). "*Ungrammatical pauses* may be reinterpreted as merely being located at more embedded levels of bracketing in a syntactic structure than *grammatical pauses"* (Silverman et al. 1992, their italics).

It was hypothesised that ungrammatical pauses in the sitcom conversations would be utilised and thus manifest spokenness.

The data were extracted from an episode of the sitcom *Friends*, namely "The One Where No One Proposes", part one, season nine. In measuring the intra-sentential pauses, Steinberg software (program Wave Lab 6) was used. In each language version intra-sentential pauses in forty-six/fifty utterances were measured (a total of 453 pauses), experimental measurements being supported by perceptual checks. The measurements and subsequent evaluations were based on the linguistic typology of pauses as introduced by Sabol and Zimmermann (1984: 227-228). Their detailed typology seemed to be well suited to the data since it was hypothesized that pauses of extremely short duration would be prevalent in the research material.

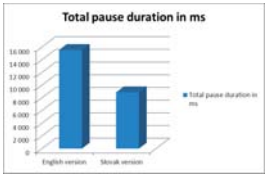
The following tables illustrate the frequencies of individual pause types and the total pause time in the two language versions (Bilá et al. 2011: 38-82).

Pause type	Number of pauses in English	Number of pauses in Slovak
Zero pause or extremely short pause (ES, ≤ 50 ms)	204	148
Very short pause (VS, 50 ms – ≤ 100 ms)	51	30
Short pause (S, 100 ms – ≤ 300 ms)	10	0
Normal or optimal pause (O, 300 ms – ≤ 1350 ms)	6	3
Long pause (L, 1 350 ms – ≤ 2 200 ms)	1	0
Very long pause (VL, 2 200 ms – ≤ 2 800 ms)	0	0
Extremely long pause (EL, ≥ 2800 ms)	0	0
TOTAL	**272**	**181**

Table 1: Pause types and their numbers in the English and Slovak versions

Language	Total pause duration in ms
English version	**15,547**
Slovak version	**8,862**

Table 2: Total pause time (in ms) in the English and Slovak versions



Graph 1: Total pause duration (in ms) in the English and Slovak versions

The data were further processed by means of descriptive statistics in which the highest frequency was observed in extremely short pauses (ES). Short pauses (S) manifested a high frequency in the English version and were absent in the Slovak version and very short pauses (VS) exhibited a higher frequency in the English version. Normal/optimal pauses (O) showed a considerably low frequency in both language versions and longer duration pauses were completely absent in both language versions. The shortest pause durations detected in both language versions were almost identical (21 ms in the English version and 22 ms in the Slovak one).

Statistics on data indicated that the duration of a sequence is not automatically dependent on the maximum total pause duration, meaning that the longest pause durations in the two language versions were different.

English	Pause type				Sum	Slovak	Pause type				Sum
	ES	S	VS	O			ES	S	VS	O	
Min	21	102	51	524	0	Min	22	0	51	372	22
Max	309	299	351	731	1124	Max	232	0	213	678	880
Average	129	180	123	634	342,4	Average	118	0	106	546	232
Med	**120**	**163**	**90**	**634**	**254**	**Med**	**113**	**0**	**84**	**586**	**184**

Table 4: Total durations of all pauses; minimal, maximal and average durations; median of four pause types (extremely short – ES, very short – VS, short – S and normal/optimal – O pause) in the two language versions

The following table illustrates the average durations, minimal, maximal and median values of the two most frequently occurring pause types (extremely short – ES and very short pause – VS) (cf. Bilá et al. 2011: 38-82):

English	ES	VS	Slovak	ES	VS
Min	**8,33**	**58**	**Min**	**19**	**58**
Max	**38,5**	**81**	**Max**	**42,33**	**86**
Average	**23,06**	**68,13**	**Average**	**30,12**	**67,27**
Med	**24,38**	**66,34**	**Med**	**29,33**	**65,09**

Table 5: Average durations, minimal, maximal and median of the two most frequently occurring pause types (extremely short – ES and very short pause – VS) in the two language versions

Further inductive statistics were applied, specifically the Kruskal–Wallis[4] one-way analysis of variance by ranks, which is a non-parametric method for testing whether the given samples originate from the same distribution (cf. Bilá et al. 2011: 38-82). A comparison of the mean durations of the two most frequently occurring pause types (extremely short – ES and very short – VS) was made and a statistically significant difference (at the significance level $\alpha = 0.01$) between the two language versions in the mean duration of extremely short pause was detected (as illustrated by Table 6). The comparison of the mean durations of very short pauses, however, did not reveal a statistically significant difference (at the significance level $\alpha = 0.01$) between the two language versions.

Dependent variable	Extremely short pause (ES) Kruskal-Wallis test: H (2, N=103) = 21,46358 p = .0000 Slovak
English	0,000022
Slovak	0,000022

Table 6: The Kruskal-Wallis one-way analysis of variance by ranks for extremely short pause (ES) in the two language versions

With regard to the difference and/or similarity in the utilisation and occurrence of pauses in the original version and the dubbed version, several differences could be spotted, specifically in the total number of pauses (272 in the English version and 181 in the dubbed version), in the total pause duration time (15,547 ms in the English version and 8,862 ms in the dubbed version). A high prevalence of short duration pauses (extremely short and very short) typical for spontaneous speech (cf. Sabol & Zimmermann 1984, Zellner 1994) was also found in the conversations of the investigated episode of *Friends* and thus it was possible to illustrate that this phonetic feature contributed to the spokenness of the given sitcom conversations.

2.1 Analysis of ungrammatical silent pauses in the English original and the Slovak dubbed version

In the present analysis the pauses are divided into grammatical and ungrammatical. Only pauses of duration of or above 200 ms are considered since the pauses of or below this duration are generally regarded as junctural phenomena or as pauses of physiological origin – respiratory pauses (Silverman et al. 1992). As illustrated in Table 7 below, merely ten pauses in the original version and three pauses in the dubbed version meet the criteria.

Pause type	Number of pauses in English	Number of pauses in Slovak
Grammatical of ≤ 200 ms	5	1
Ungrammatical of ≤ 200 ms	5	3

Table 7: Grammatical (light grey cells) and ungrammatical pauses (dark grey cells) in the English and Slovak conversations

Interestingly, two hesitation pauses can be detected in both language versions in the identical sequence and in the same location, their durations being 730 ms and 588 ms in the English version and 678 ms and 372 ms in the Slovak one.

The following table juxtaposes grammatical pauses in the English version and their equivalents in the Slovak version. In the dubbed Slovak version in all the dialogues extremely short pauses occur, which may be explained by the typological differences between the English and Slovak languages (more articulation time needed in the Slovak version owing to Slovak being an inflectional language).

Pause type	English original	Slovak dubbed version
Grammatical	299 ms	no equivalent (ES pause used)
Grammatical	731 ms	no equivalent (missing sequence)
Grammatical	237 ms	no equivalent (ES pause used)
Grammatical	563 ms	no equivalent (ES pause used)
Grammatical	285 ms	no equivalent (ES pause used)

Table 8: Grammatical pauses in the English original and their equivalents in the Slovak conversations

The following table juxtaposes ungrammatical pauses in the English version and their equivalents in the Slovak version. In the dubbed Slovak version two pauses of shorter duration occur and the remaining three ungrammatical pauses have zero pause equivalents in the Slovak version, which may likewise be attributable to the typological differences between the English and Slovak languages.

Pause type	English original	Slovak dubbed version
Ungrammatical	262 ms	no equivalent (ES pause used)
Ungrammatical	730 ms	678 ms
Ungrammatical	588 ms	372 ms
Ungrammatical	218 ms	no equivalent (ES pause used)
Ungrammatical	679 ms	no equivalent (ES pause used)

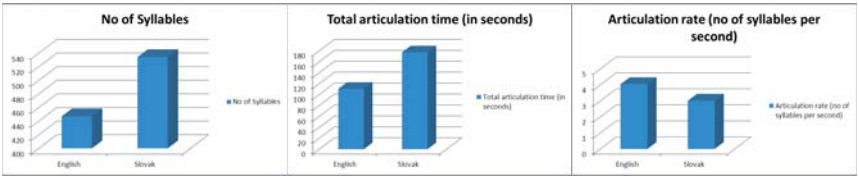
Table 9: Ungrammatical pauses in the English original and their equivalents in the Slovak conversations

2.2 Analysis of the rate of articulation in the original and the dubbed versions

In the following table the total syllable count and the total articulation time (time of extract minus pause time) are given. Subsequently, the rate of articulation (RA, number of syllables articulated per second) in both language versions is calculated and compared. The data are also illustrated in the graphs.

English original	Slovak dubbed version
447 syllables	534 syllables
110.53 s total articulation time	177.38 s total articulation time
4.04 syllables per second	3.01 syllables per second

Table 10: Total syllable count, total articulation time and rate of articulation in English and Slova versions



Graph 2: Total syllable count, total articulation time (time of extract minus pause time) and rate of articulation (number of syllables per second) in the English original and the Slovak dubbed versions

Research into the rate of articulation in English conducted by Jacewicz et al. (2009) reveals the following values of the overall mean articulation rate: in read sentences 3.40 syll/s (s.d. = 0.42) and in spontaneous talk: 5.12 syll/s (s.d. = 0.59). The data in the above-given tables and graphs show values which fall between these two values.

Research into the rate of articulation and information load in Slovak conducted by Sabol (1976) revealed the following values of the overall mean articulation rate: in spontaneous talk 4.05 syll/s, in publicistic/journalistic style 3.92 syll/s and in read literary texts 3.95 syll/s. Further research into the rate of articulation in media communication and its perception conducted by Smoláková (2010) revealed an increase of RA of 2.49 syll/s and provided the following categorization: slow RA up to 4.1 syll/s; rather slow 4.1 – 4.8 syll/s; appropriate 4.8 – 6.8 syll/s; rather fast 6.8 – 8.2 syll/s; and fast 8.2 – 8.6 syll/s. The results given in Table 10 can be interpreted as indicating slow RA, i.e. values more typical for read texts in media communication in a journalistic/publicistic style.

Regarding the differences between the original and dubbed version, these may be attributable to the specific features of dubbing as well as to the typological differences between the two languages in question. The chief aim of the dubbing is to provide an authentic experience akin to the effect achieved by the original (Makarian 2009). Hence the challenges of dubbing result from the necessity of accounting for the meaning of spoken utterances and the original actors' performance. What is more, it is imperative that the original

and the dubbed versions be synchronised (Makarian 2009), the synchronisation including (Paquin 1998) phonetic (the adjustment of the original actors' and dubbing actors' articulatory movements, notably lip movements), semantic (the equivalence of meaning of the original and dubbed text) and dramatic synchronisation (achieving 'realism').

3 Results and discussion

The investigation of the spokenness – writtenness scale in relation to the discourse sitcom appears to support earlier findings, namely that sitcom conversations represent a discourse exhibiting features of both spokenness and writtenness, that is to say, pre-written text to be acted out as if not written in advance (cf. Quaglio 2009, Romero Fresco 2009, Bilá & Kačmárová, forthcoming).

The results of the present research into ungrammatical pauses in the original and dubbed versions of the film conversations illustrate differences in the total number of this pause type in the original version (10) and in the dubbed version (3), identical utilisation and occurrence of two hesitation pauses, prevalence of extremely short pauses in the dubbed version and zero pause equivalents of three ungrammatical pauses in the dubbed version.

The results of the present research into the rate of articulation support the earlier findings that sitcom conversations represent a discourse combining the features of both spokenness and writtenness as the RA values tend to be lower than those for spontaneous dialogues but higher than those more typical for read texts.

The results of the present research into the rate of articulation in the original and the dubbed version reveal differences in the total articulation time, the total number of articulated syllables as well as the resulting rate of articulation. These findings appear to be ascribable to several factors: firstly, to the issue of synchronization (phonetic synchronisation, especially synchronization of lip movements and semantic synchronisation); secondly, to the typical feature of the English colloquial style – the prevalence of and preference for short, monosyllabic words; and thirdly to the typological differences between the two languages in question (an analytical language versus a synthetic language, in other words, the use of structure words in the English language and the addition of grammatical suffixes to the word stems in the Slovak language). The last two factors appear to be especially evidenced by the total syllable count.

Endnotes

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[2] Dimension 1 represents a continuum extending from extremely involved (interactive) to extremely informational registers. The former registers, like face-to-face conversation, are typified by high incidence of features comprising private/mental verbs, *that*-deletion, contractions, present-tense verbs, and first- and second-person personal pronouns. Conversely, highly informational registers tend to manifest high frequencies of nouns, nominalizations, prepositions, attributive adjectives, and agent-less passive constructions. The analysis in question manifested the similarity in the core linguistic features with involved registers (Quaglio 2009: 140).

[3] Silent pauses in this study are understood as "within-speaker acoustic silences" (Heldner & Edlund 2010).

[4] Kruskal–Wallis one-way analysis of variance by ranks (named after William Kruskal and W. Allen Wallis) is a non-parametric method for testing whether samples originate from the same distribution. It is used for comparing more than two samples that are independent, or not related (http://en.wikipedia.org/wiki/Kruskal%E2%80%93Wallis_one-way_analysis_of_variance). The test applied is a component of the Statistica 12 software purchased by the Prešov University, included in the package available at: http://www.unipo.sk/cvtpu/helpdesk/stat12.

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