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SENTENCE STRESS IN SLOVENE MEDIA SPEECH

1 INTRODUCTION

Prosody or sentence phonetics, which studies sentence stress, the partition of texts with pauses, intonation, register, speech tempo and tone, has been relatively little researched within Slovene linguistics. This is particularly true of spontaneous speech production, as the rare studies of Slovene speech are mainly based on researchers' subjective evaluation and an extremely limited corpus of non-spontaneous text formation, such as (literary) texts being read out (e.g. Toporišič 1972; Podbevšek 2006).

With the development of new computer tools for the transcription and analysis of speech production (e.g. Praat; Boersma/Weenink 2013), speech studies can also be based on real, spontaneous media speech that is classified as one of the bearers of formal speech in Slovenia. Programme presenters and their guests produce an *ideal* media speech norm, which has a relatively large influence on listeners and viewers. Since national radio and television stations also play the role of connecting people nationally, the presenters on RTV Slovenia are now trained and taught the *correct* speech, which means that "media speech is in principle the *'ideal speech realisation'*, the speech realisation most harmonised with the norm" (Vitez 1999: 42). Media speech is thus an ideal opportunity for observing how the speech of (trained) speakers deviates from an *ideal* or the linguistic norm presented in reference books.

2 RESEARCH PREMISES

In this paper, sentence stress is understood as emphasis within the flow of speech, or as a prosodically realised emphasis on the surface of the text, which is a reflection of the information structure of the text at the deep level (Duběda 2005: 183) and is phonetically realised through the combination of a number of acoustic factors: a change in the length of individual sounds, the tonal level or frequency of the fundamental frequency (F_0), the intensity and speed of speech, and the appearance of pauses before and/or after stresses, etc. Researchers do not agree which of these signals is the most important for the perception of sentence stress, while stress lies on the syllables of the words within certain segments, which interlocutors or listeners perceive as marked.[1]

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1 The decision which word will carry sentence stress depends mainly on the speaker's choice. As stress expresses the speaker's judgment about whether, within a certain moment and context, a particular word is most important to him with regard to the information he/she is conveying, those words are stressed in speech that represent the knowledge shared by the speaker and the listener (Komar 1996: 39–41).

The research into sentence stress presented in this paper is part of a wider study where sentence stress in speech-trained people (presenters of television programmes) and (probably) somewhat less trained speakers (politicians) in chosen TV Slovenia programmes was analysed with regard to the frequency of appearance, intensity, F_0, sound lengthening, predictability of word types, frequency of appearance in the selected language units (interrogatives, negatory elements, affirmatives, indicative pronouns, comparatives and superlatives)[2] and connections with pauses (Huber 2013). In addition, stresses can be researched with regard to the roles they play in speech, intensification and repetition of what has been said, non-verbal means, with regard to the connections with other prosodic characteristics, such as intonation, speed of speech and so on. During the study, the combined auditory-experimental method of analysing sentence stress was used.

2.1 Hypotheses

On the basis of three methodological approaches, research hypotheses based on the Slovene linguistic reality and observation of media (political) speech were examined. The *first hypothesis*, that the speech of politicians contains more examples of sentence stress than that of television presenters, and the *second hypothesis*, that sentence stress by politicians is on average more intense (dB) and has a higher F_0 (Hz) than that of presenters, were formed on the basis of the assumption that in general politicians are less well trained than presenters on national television, which has for decades been giving speech training to its journalists. Moreover, we assumed that presenters are better prepared for the discussion in a programme (spoken interventions are pre-written). Due to these two assumptions we can conclude that the speech of politicians is more spontaneous than that of presenters and thus also more subject to unexpected and uncontrolled sentence stress.

The *third hypothesis* assumes that with regard to the auditory perception of sentence stress the most important role is played by a change/increase in the intensity of speech, while raising F_0 or lengthening sounds is slightly less important, and is based on the assumption that in Slovene speech a greater role is played by the dynamic accent and sentence stress, i.e. the changing of speech intensity, while tonemic stress, i.e. the changing of F_0, appears more rarely in media speech, and generally not at all in trained speakers.

2.2 Material and Speakers

Sentence stress was analysed within a corpus of authentic and more or less spontaneous speech of chosen politicians and presenters in TV Slovenia talk shows with political content (*Intervju*, *Pogovor s predsednikom vlade*, *Vroči stol*, *Pod žarometom*, *Omizje*, *Studio City*). In the programmes shown between 2006 and 2007 during evening slots between 20.00 and 00.10, the guests (politicians) speak mostly spontaneously, while

2 In comparison with English, e.g. Šuštaršič (1995: 164–178) states that in Slovene negative phrases, the stress usually lies on the negation, while in English it follows the negation. In open interrogatives, in English the unmarked stress position is on the last lexical unit, and in Slovene on the interrogative word. Within an analysis of comparatives and superlatives, Šuštaršič found that in English stress lies after the comparatives *more* and *most*, and in Slovene on *bolj* (more), *najbolj* (most) and *nadvse* (exceedingly).

the presenters speak both spontaneously and non-spontaneously – the latter, for instance, when presenting the guests and the programme theme. The programmes include dialogues, multilogues and monologues that turn into dialogues, as well as formal and public speech units, recorded in the Ljubljana studios of TV Slovenia without an audience. The specialised speech corpus *Korp-2MeGo* of a total duration of over two hours (involving 3 male and 3 female politicians and 5 male and 4 female TV presenters) was created specifically for the purpose of this study, with emphasis on the analysis of spontaneous speech, that is particularly the speech of politicians (see Table 1). All the chosen speakers are well known media or political personalities.

Table 1: Speech duration with regard to the sex of the speakers

Speakers	**Male**	**Female**	**Male + female**
Politicians	44 min and 51 s	37 min and 51 s	82 min and 42 s
Presenters	20 min and 35 s	15 min and 23 s	35 min and 58 s
Simultaneous speech	/	/	3 min and 55 s
Total: 122 min and 35 s			

All the speakers, whose first language is Slovene, have a university degree in social sciences; they were born between 1941 and 1970, live and work mostly in Ljubljana, and spent their childhood and teenage years in various places around Slovenia. The speakers have no speech defects and in a neutral, non-emotional speaking situation use unmarked sentence stress.

3 RESULTS AND DISCUSSION

This section provides detailed results of the study of sentence stress with regard to the frequency of appearance in speech, intensity, F_0 and the lengthening of sounds.

3.1 Frequency of Sentence Stress in Speech

The first part of the study is aimed at an analysis of the frequency of sentence stress in speech. A similar study was carried out by Fox (1989), when he analysed the speech of the presenters and reporters in three national TV news programmes: the speakers at the BBC on average use sentence stress 39.16 times per hundred spoken words, at the German ARD 22.31 times and at the Croatian TV Zagreb, 18.68 times.

In determining the number of instances of sentence stress, i.e. establishing the average number of words connected by one example of sentence stress within one or more segments, all the words that were perceived as stressed through auditory perception were taken into account. At the same time, these words can also be the bearers of the syllable with the highest measured intensity and/or the highest measured F_0 within the segment – the starting point is thus the auditorily perceived examples of sentence stress. All the words spoken during simultaneous speech and all the forms of filled pauses (lengthening, repetition, false starts, etc.) were excluded from the study.[3] The main interest in this

3 On filled pauses, see Huber 2013: 375–382.

part of the study was the differences in the number of spoken words between two sentence stresses that appear in the speech of politicians and TV presenters. The hypothesis was put forward that in the politicians' speech there are more instances of sentence stress than in the speech of TV presenters – the latter were assumed to pronounce on average more words between two examples of sentence stress than the former.

Table 2 shows the number of spoken words in the corpus (16,629), the number of auditorily perceived examples of sentence stress (4,401) and the average number of words connected by one example of sentence stress within one or more segments (3.78). The results are shown by individual categories (politicians and presenters) and the speakers' gender.

The results show that in the speech of presenters, a slightly higher number of sentence stresses appear (every 3.71 words, i.e. sentence stress appears in 26.98% of all the spoken words) than in the speech of politicians (every 3.81 words, 26.23%). The study confirmed the first hypothesis about a slightly higher frequency of sentence stresses in politicians, i.e. speakers who are presumably less well trained in speaking and less well prepared for the discussion in the programme. In the case of men, it was shown that politicians used sentence stress more often (every 3.84 words, 26.07%) than presenters (every 4.04, 24.74%), while with female speakers the situation was completely different: female presenters use sentence stress more frequently (every 3.33 words, 29.99%) than female politicians (every 3.79 words, 26.40%). In general, male speakers use sentence stress less (every 3.90 words, 25.64%) than female speakers (every 3.64 words, 27.44%).

Table 2: Frequency of appearances of sentence stress in speech

Speaker[4]	Number of words spoken	Number of auditorily perceived sentence stresses	% stressed words	Number of words/ sentence stress
Male and female politicians				
Pm	5,945	1,550	26.07	3.84
Pf	5,466	1,443	26.40	3.79
Pm+Pf	11,411	2,993	26.23	3.81
Male and female presenters				
Jm	2,987	739	24.74	4.04
Jf	2,231	669	29.99	3.33
Jm+Jf	5,218	1,408	26.98	3.71
Male and female politicians and presenters				
Pm+Jm	8,932	2,289	25.63	3.90
Pf+Jf	7,697	2,112	27.44	3.64
P+J	16,629	4,401	26.47	3.78

4 Abbreviations: Spkr – male/female speaker. P – male/female politician. J – male/female journalist/presenter. m – male, f – female, individual numbers 1 – 22 are used for individual speakers.

Among the politicians, in one of the two analysed programmes where he features, speaker *SpkrPm5+16* used sentence stress the most frequently (every 3.61 words) of all the politicians: *SpkrPm16* (every 3.25 words, 30.75%), but in the other programme, as speaker *SpkrPm5,* he used it considerably less frequently (every 4.09 words, 24.42%). The example of the speaker *SpkrPm5+16* clearly shows a connection between (un)emotional speech and sentence stress, since in one of the programmes the speaker replied calmly to questions and thus used sentence stress much less frequently (*SpkrPm5*) than in the other programme, when he responded to questions more emotionally and hence used stress very frequently (*SpkrPm16*). In the programme where he used sentence stress more, he was emotionally responding to current events on the border with Croatia and criticising the work of the government's political option; emotional speech, by definition, is presumed to contain a more frequent use of sentence stress, probably including higher utterance intensity and F_0 (which will be examined in section 3.2). All the other politicians used sentence stress very constantly and comparably, namely, on 22.1 to 27.08% of the spoken words.

Among the presenters with fewest examples of sentence stress, the most noticeable is journalist *SpkrJm2*, who uses sentence stress on average every 5.19 words (19.28%), followed by the presenter *SpkrJm6+13*, who in one of the analysed programmes, as presenter *SpkrJm6*, used sentence stress every 4.92 words (20.33%). In the other analysed programme (*SpkrJm13*) he used sentence stress much more frequently, every 3.03 words (33.06%), which is the second highest percentage in the corpus. The most frequent use of sentence stress appeared in the female presenter *SpkrJf15* (33.33%).

Within one hundred spoken words, the average use of sentence stress was 26.47% – among politicians 26.23% and among presenters 26.98%. A comparison of these results with the study carried out by Fox (1989: 82) shows that the analysed presenters use sentence stress much less than the BBC speakers (26.98 per one hundred spoken words versus 39.16), slightly more than the ARD speakers (22.31) and considerably more than the speakers in the TV Zagreb news programmes (18.68). According to Fox's rule, which says that the span of the auditory memory is up to 15 words maximum and that for successful communication sentence stress must be used at least seven times per one hundred spoken words, the speakers whose speech was analysed in this study made good use of this prosodic characteristic with the aim of successful communication.

3.2 Intensity and F_0 in Stressed Words

In Slovene linguistics, both accent and sentence stress are most often defined primarily in terms of dynamic accent or intensification (pronunciation with a greater quantity of exhaled air) of a certain syllable or a longer speech unit, but instrumental analyses (particularly for other languages) have shown that expressiveness (accent or stress) depends on the combined influence of a number of characteristics, e.g. F_0, intensity, duration and quality of vowels (Palková 1997: 156–157). Sentence stress is thus phonetically realised through a combination of a number of acoustic factors, among which the literature most often mentions a change in the duration of individual sounds, F_0 and

intensity (more details in section 3.3), while with regard to the perception of sentence stress, various combinations of the above (acoustic) parameters are decisive.[5]

Although different researchers agree with the selection of the acoustic signals of emphasis, they do not fully agree which of the above signals is the most important for the perception of sentence stress. Some, such as Škarić (1991) believe that it is the change of intensity that plays the biggest role. Ladefoged (1975) claims that the length of the sound is most important, followed by intensity and, lastly, F_0. But Bolinger (1972) gives F_0 as the most important acoustic signal of sentence stress, since he believes that F_0 must almost definitely change if we wish to emphasise a word. He maintains that sentence stress is perceptually strongest in the cases when the change in F_0 within a sentence is very large or varies strongly. Information about sentence stress is thus encoded in the acoustic signal as the relative intensity of the speech segment, as duration, F_0 and the precision of articulation. The relative contribution of each of these characteristics in accent and stress, according to the data of various researchers, varies between zero and one hundred percent, so that the feeling of accentuation or stress of a segment can be achieved even with the change of just one of the above dimensions of sound, but most often there is a small change in each of the characteristics (Bakran 1996: 245–248).

Because F_0 and speech intensity rank among the most important signals of the perception of sentence stress, they were measured in this part of the study. In the calculation of the average values of F_0 and speech intensity, the highest values of the emphasised word (words) within a segment were taken into account,[6] whereby words can be emphasised auditorily (perceptively), in terms of intensity, and/or pitch. Each segment may contain one or more auditorily perceived words and only one peak in terms of intensity and one in terms of frequency, where the two peaks can lie on a syllable of one of the auditorily stressed words or on one of the auditorily unstressed words. Below is a test of the hypothesis that the sentence stress of politicians is on average stronger in intensity and that politicians have a higher F_0 than the sentence stress of TV presenters.

Table 3 shows the number of words that constitute peaks in intensity and/or pitch within individual segments – words that were perceived as emphasised only on the basis of auditory analysis (usually in cases when within one segment more emphasised words were auditorily perceived) were not included in this – average intensities and average values of F_0 in emphasised words in terms of individual category (politicians or presenters) and the speaker's gender.

The average intensity value of all 3,373 highlighted words in the corpus is 81.46 dB, while the average F_0 value is 205.04 Hz. Generally, emphasised (stressed) words in male

5 I am aware of the key role of sentence stress within sentence intonation and the inseparability of these two prosodic characteristics. In spite of this, I have tried to examine the characteristics of sentence stress independently of intonation patterns, i.e. to use intonation peaks in the interpretation of the results. The concrete connections between sentence stress and intonation patterns will need to be further researched in future (see also Šuštaršič 1995).

6 A segment is understood as part of the speech flow, i.e. a language string, delimited on both sides by a pause, spoken by the same speaker, irrespective of its length.

speakers measured lower values (80.91 dB, 149.33 Hz) than in female speakers (82.06 dB, 265.98 Hz). The difference in average intensity values of emphasised words is relatively small (1.15 dB), but it is more pronounced in the pitch of the F_0 (116.65 Hz). In a comparison of politicians and presenters, Table 3 shows that politicians emphasised words slightly more strongly, i.e. with greater intensity and higher F_0 (81.55 dB, 207.25 Hz) than presenters (81.27 dB, 200.25 Hz), which only partly confirms the second hypothesis as this statement applies only to the female speakers (female politicians 82.33 dB and 271.17 Hz, female presenters 81.46 dB and 254.27 Hz), while the speech of male presenters is stronger in intensity (81.12 dB) and higher in terms of tone (153.26 Hz) than the speech of male politicians (80.81 dB, 147.46 Hz). Although the two values were not measured in words that were not emphasised or stressed, on the basis of subjective auditory analysis it can, as expected, be concluded that the speech of female politicians and presenters is characterised by higher F_0 and higher intensity than that of male politicians and presenters. In the future it would be good to build upon the research and to measure the highest value of F_0 and the intensity of all the unstressed words; in this way we could ascertain what (if any) differences there are between the stressed and unstressed words in the speech of politicians and presenters.

Table 3: Average intensity (dB) and average F_0 (Hz) in emphasised words

Speaker	**Number of emphasised words**	**Average intensity (in dB)**	**Average F_0 (in Hz)**
Male and female politicians			
Pm	1,193	80.81	147.46
Pf	1,116	82.33	271.17
Pm+Pf	2,309	81.55	207.25
Male and female presenters			
Jm	569	81.12	153.26
Jf	495	81.46	254.27
Jm+Jf	1,064	81.27	200.25
Male and female politicians and presenters			
Pm+Jm	1,762	80.91	149.33
Pf+Jf	1,611	82.06	265.98
P+J	3,373	81.46	205.04

An examination of the intensity and F_0 in individual speakers led to the conclusion that the two values are mutually connected since when one increases, the other also increases. If in one speaker a relatively high average intensity of emphasised words was measured, that speaker's F_0 pitch, in comparison with the speech of other analysed speakers in the corpus, was relatively high, and if the average intensity was low, the average F_0 was usually also low. For example, in the case of politicians, the greatest intensity was measured in the female speaker *SpkrPf7* (85.54 dB), while the same speaker's average F_0 value was

also measured as the highest (299.35 Hz). In the case of presenters, the lowest average intensity of emphasised words was measured in the speaker *SpkrJm13* (79.66 dB), in whom the lowest average F_0 was also recorded (126.93 Hz).

The measured intensities and F_0 pitches are to a certain extent undoubtedly a reflection of the situation in which the speakers find themselves (whether they are appearing in a programme where they answer questions without any special surprises or whether they are responding emotionally to statements by the other guests) and, above all, on the personal characteristics of individual speakers (the characteristics of their voice and manner of speaking), which is particularly apparent in the politician *SpkrPm5+16*, in whom higher values were measured (82.49 dB, 171.74 Hz) than the average values of all the politicians (80.81 dB, 147.46 Hz) and presenters (81.12 dB, 153.26 Hz). The measured intensity is even higher than in the female politicians (82.33 dB) and the female presenters (81.46 dB), or in comparison to all the speakers in the corpus (81.46 dB). This applies to the values measured in the politician *SpkrPm3+12* (79.88 dB, 119.87 Hz), which are among the lowest in the whole corpus. The characteristic of the speaker *SpkrPm5+16* is a higher speech register and a lively manner of speaking, and the characteristic of the speaker *SpkrPm3+12* is just the opposite: low register and a monotonous manner of speaking, without any great variations in intensity and F_0 pitch.

The subjective auditory impression that the sentence stress of TV presenters is, on average, less pronounced than that of politicians was also confirmed in the measurements of intensity and F_0 pitch, but the differences were relatively small (81.55 dB and 207.25 Hz versus 81.27 dB and 200.25 Hz). There are greater differences between female and male speakers with regard to the measured values (82.06 dB and 265.98 Hz versus 80.91 dB and 149.33 Hz), which is not unexpected since among female speakers greater intensity is accompanied by an inherently higher F_0.

3.3 Sentence Stress – Higher F_0, Greater Intensity or a Lengthened Sound?

The data on F_0 pitch and speech intensity presented in section 3.2 gain meaning only in a specific context. This section is thus a continuation of the analysis from the previous one, ascertaining which of the mentioned phonetic characteristics has greater influence on the auditory perception of sentence stress: the raising of the F_0, increasing speech intensity or the lengthening of sounds. In a comparable study of Swedish speech it was shown that stronger sentence stress also means a higher F_0 (Strangert 2003: 613–615), which was also confirmed in section 3.2 of this study. The absolute values are less informative than the variations of individual values within the whole context. A greater influence of F_0 on sentence stress in comparison with the duration or intensity has also been reported by Volk (2011).

This part of the study takes into account only the sentence stress that was perceived by the auditory analysis of stresses (Stress-AP), ignoring the words within a specific segment which had the highest measured F_0 and/or the highest intensity, but which were not auditorily perceived as stressed. Thus the research parameters included intensity, F_0 and lengthened sound, as well as the various combinations of these three basic elements (Table 4). The analysis tests the hypothesis that in auditory perception of sentence stress the

most important role in the analysed material is played by the increase in speech intensity, while higher F_0 or the lengthening of sounds plays a slightly smaller role.

Table 4: Stress sentence in terms of a chosen acoustic characteristic – symbols and descriptions

Symbol	**Explanation of the acoustic characteristics of sentence stresses**
Stress-AP+IHP (1)	auditory stress resulting from increased intensity
Stress-AP+BHP (2)	auditory stress resulting from higher F_0
Stress-AP+BHP+SL (3)	auditory stress resulting from the co-influence of higher F_0 and sound lengthening
Stress-AP+IHP+BHP (4)	auditory stress resulting from the co-influence of an increase in intensity and higher F_0
Stress-AP+SL (5)	auditory stress resulting from sound lengthening in the AP position and simultaneously possibly also increased intensity and/or higher F_0
Stress-AP+IHP+BHP+SL (6)	stress emphasis resulting from the co-influence of an increase in intensity, higher F_0 and sound lengthening
Stress-AP1 (7.1)	intensity and/or F_0 are higher/sound lengthened on another auditorily perceived stressed word within the segment (phrase, sentence, etc.)
Stress-AP2 (7.2)	auditory stress within a segment, while the highest intensity and/or highest F_0 are measured (or perceived lengthened sound) on an auditorily unemphasised word or words within the segment; it could also be that no part of the segment deviates (considerably) from the average
Stress-AP+IHP+SL (8)	auditory stress resulting from the co-influence of intensity and sound lengthening

The results in Table 5 are shown separately by individual types of stress, by individual speaker category (politicians/presenters) and by the speakers' gender. In this part of the study, 4,401 emphasised words were studied (2,112 uttered by female speakers and 2,289 by male speakers, 2,993 by male/female politicians and 1,408 by male/female presenters). The study confirmed the assumption from section 3.2 that in Slovene the most important role in the perception of stress is played by a change in F_0 pitch, as in 830 auditorily perceived words (18.9% of all the analysed emphasised words) the highest F_0 value was also measured in an analysed segment (AP+BHP), and in addition as many as 1,716 auditorily perceived stresses (39.0%), which had at the same time the highest F_0 and the highest measured intensity (AP+IHP+BHP). The highest intensity appears as an independent category in 726 auditorily perceived emphasised words (AP+IHP; 16.5%), while a considerable number of auditorily perceived emphases were observed, which could not be supported either by the highest intensity or highest F_0 within the analysed segment; these are categories AP1 (16.4% of all the auditorily perceived emphasised words in the corpus), AP2 (7.1%) and AP+SL (0.7%).

Table 5: Prosodic/acoustic characteristics of sentence stresses

Speaker	AP+ IHP (1)	AP+BHP (2)	AP+BHP+ SL (3)	AP+IHP+ BHP (4)	AP+SL (5)	AP+IHP+ BHP+SL (6)	AP1 (7.1)	AP2 (7.2)	AP+IHP+ SL (8)	Total
	no./%	no./%	no./%	no./%	no./%	no./%	no./%	no./%	no./%	no.
Male and female politicians										
Pm	289/18.6	272/17.5	4/0.3	569/36.7	10/0.6	7/0.5	273/17.6	117/7.5	9/0.6	1,550
Pf	200/13.9	269/18.6	6/0.4	645/44.7	6/0.4	6/0.4	221/15.3	86/6.0	4/0.3	1,443
Pm+Pf	489/16.3	541/18.1	10/0.3	1,214/40.6	16/0.5	13/0.4	494/16.5	203/6.8	13/0.4	2,993
Male and female presenters										
Jm	123/16.6	146/19.8	4/0.5	265/35.9	7/0.9	8/1.1	133/18.0	50/6.8	3/0.4	739
Jf	114/17.0	143/21.4	4/0.6	237/35.4	6/0.9	5/0.7	93/13.9	59/8.8	8/1.2	669
Jm+Jf	237/16.8	289/20.5	8/0.6	502/35.7	13/0.9	13/0.9	226/16.1	109/7.7	11/0.8	1,408
Male and female politicians and presenters										
Pm+Jm	412/18.0	418/18.3	8/0.3	834/36.4	17/0.7	15/0.7	406/17.7	167/7.3	12/0.5	2,289
Pf+Jf	314/14.9	412/19.5	10/0.5	882/41.8	12/0.6	11/0.5	314/14.9	145/6.9	12/0.6	2,112
P+J	726/16.5	830/18.9	18/0.4	1,716/39.0	29/0.7	26/0.6	720/16.4	312/7.1	24/0.5	4,401

The sequence AP+IHP+BHP – AP+BHP – AP+IHP – AP1 – AP2, in terms of the frequency of appearance of different types of emphasis in the corpus, can be confirmed in both male and female speakers; smaller differences appear only in the percentages within individual categories, e.g. the category AP+IHP+BHP appears in female speakers in 41.8% and in male speakers in 36.4%. The category AP+IHP appears in female speakers in 14.9%, and in male speakers in 18.0%; the third difference greater than one and a half percent appears in the category AP1 (female speakers 14.9% and male speakers 17.7%). The sentence stress of male speakers is divided more among the categories AP+IHP and AP1 than the sentence stress of female speakers in the category AP+IHP+BHP. The highest percentage of sentence stresses in the category AP+IHP+BHP appears in female politicians (44.7%), and the lowest percentage in the female presenters (35.4%). It is in the female presenters that the highest percentage of sentence stress appears in the category AP+BHP (21.4%), while the fewest sentence stresses appear in the male politicians (17.5%). Sentence stress of the type AP+IHP appears most often in female presenters (17.0%) and least frequently in female politicians (13.9%). The stress category AP1 appears most frequently in male presenters (18.0%), least frequently in female presenters (13.9%), while stresses of the type AP2 are most frequent in female presenters (8.8%) and least frequent in female politicians (6.0%). With regard to most stress categories the differences between different groups of speakers (male and female politicians and presenters) are very small: in four categories they are less than one per cent (AP+BHP+SL 0.3%, AP+SL 0.5%, AP+IHP+BHP+SL 0.7%, AP+IHP+SL 0.9%) and in the next four less than 5 per cent (AP2 2.8%, AP+BHP 3.9%, AP1 4.1%, AP+IHP 4.7%), while the greatest differences arise in the category AP+IHP+BHP (9.3%), where female politicians in particular stand out, with 44.7 per cent use of this type of stress.

In the overview of the appearance of sentence stress in individual speakers, it is striking that in 12 out of 15 speakers stress of the type AP+IHP+BHP predominates, while stress of the type AP+BHP is usually (nine times) in second place; stress of the type AP+IHP is most often found in third or fourth place (six times). With a reduction of the percentage in the category AP+IHP+BHP, most was on average gained by the categories AP+BHP and AP+IHP, which even further strengthened the influence of F_0 on the successful perception of stresses. What is surprising is the (greatest) influence of intensity on the perception of stress in the speaker *SpkrPm3+12*, since in that place, due to the tonemic base of the accent of the analysed speaker, the greater influence of the fundamental frequency was expected (AP+IHP 26.5%, AP+IHP+BHP 26.1%, AP1 20.5%, AP+BHP 17.9%). The analysed material thus confirms the slightly greater influence of F_0 on the auditory perception of sentence stress, while the influence of change in intensity plays a slightly smaller role, in spite of the fact that in Slovene (particularly in the media and education) non-tonemic or dynamic accent is presumed to be more widespread. This overthrows the third hypothesis, which was to a certain extent already hinted at in Vitez's (1995: 39) analysis of French and Slovene sentence intonation:

> It is undoubtedly true that the pitch of the fundamental frequency [...] is by far the most significant prosodic parameter, which realises within a sentence the forms

of sentence intonation. This is why the fact that the key places of intonation patterns are precisely the syllables, the core of which consists of accented and stressed vowels, is that much more interesting. It is known that for their realisation particularly the higher values of the other two prosodic factors are typical, i.e. sound intensity and duration.

Type AP1 sentence stress, which is relatively common in most speakers, is characterised by the fact that the words with this type of stress were perceived as stressed, but at the same time other words within the same segment, on which lay the intensity and frequency peak of the segment (often, there was a difference of only a few hundredths or tens of a dB or Hz), were perceived as emphasised. This type of emphasis is also the bearer of relatively high intensity and frequency values, but the words with these values, due to the limitation of one intensity or frequency peak within a segment, were placed into a special category.

With regard to 312 stressed words, or 7.1% of all the auditorily perceived sentence stresses (of type AP2) within the corpus, it was impossible to ascertain, using our methodology, why they are in certain segments perceived as emphasised, as the highest F_0 and the highest intensities were measured on other, auditorily unstressed words. Because in these words not even lengthened sounds were perceived, the various internal and/or external factors of stress perception can only be speculated upon (Verschueren 2000). This confirmed the findings of a number of Slovene and foreign speech researchers that sentence stress "is realised not only with the most intensive sound, but also with a raised tone" (Podbevšek 2006: 112).

4 CONCLUSION

To study sentence stress in terms of frequency of appearance, intensity, F_0 and sound lengthening, a spoken corpus was created involving 15 politicians and TV presenters on 10 programmes with political content on TV Slovenia. The corpus has a total duration of 122 minutes and 35 seconds. The methodology used was based on approaches established in other European countries and adapted to the goal of the study. Three theoretical hypotheses were formulated and then tested on the chosen material. On the basis of the results of the study, it can be concluded that in the speech of male politicians and female presenters there is on average a slightly higher occurrence of sentence stress than in that of female politicians and male presenters. The sentence stress of female politicians and male presenters is on average slightly more intense and these speakers have a higher F_0 than male politicians and female presenters. In all the speaker categories (except male politicians) a change or increase F_0 plays a more important role in the auditory perception of stress than an increase in the intensity of speech. The study also showed that both values, i.e. intensity and F_0, are closely connected with each other since an increase in one often meant an increase in the other. However, caution is needed in the interpretation of the results as they may be influenced by various linguistic, extra-linguistic or completely personal traits of an individual speaker, such as the speed and manner of speaking, age, experience, emotional state and so on.

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Abstract
SENTENCE STRESS IN SLOVENE MEDIA SPEECH

Media speech, at least on national radio and television, is one of the bearers of standard speech in Slovenia. Thanks to its relatively wide distribution and influence on the speech habitis of a broad circle of viewers and listeners, research into media speech is easy to justify. In this contribution, on the basis of three methodological approaches and with the help of the programme Praat, an analysis is carried out into a hitherto poorly researched prosodic phenomenon in Slovene – *sentence stress*. The study focuses on *sentence stress* with regard to frequency, intensity, tone and sound lengthening. Using a corpus taken from 10 television programmes with political content, with a total duration of two hours, three hypotheses were examined: 1) that the speech of male/female politicians contains sentence stress more frequently than that of male/female TV presenters; 2) that sentence stress used by female/male politicians is on average stronger in intensity (dB) and has a higher F_0 (Hz) than sentence stress used by male/female presenters; and 3) that in terms of auditory perception of sentence stress, the most important role is played by a change/increase in speech intensity and a slightly smaller role by the raising of F_0 or the lengthening of sounds.

Keywords: auditory-experimental analysis, media speech, prosody/sentence phonetics, sentence stress

Povzetek
POUDAREK V SLOVENSKEM MEDIJSKEM GOVORU

Medijski govor (vsaj nacionalne radiotelevizije) uvrščamo med nosilce govornega standarda na Slovenskem. Zaradi njegove razmeroma velike razširjenosti in vplivnosti na govorne navade poslušalcev oz. gledalcev, tj. uporabnikov jezika, je raziskovanje jezika v okviru medijskega govora vsekakor smiselno. V prispevku na podlagi treh metodoloških pristopov ter s pomočjo programa za analizo govora Praat analiziramo eno izmed besedilnofonetičnih značilnosti – *poudarek* –, ki je v slovenskem jezikoslovju razmeroma slabo raziskana. Prispevek je usmerjen v raziskovanje *poudarkov* z vidika pogostosti pojavljanja, jakosti, osnovnega tona in podaljševanja glasov. V okviru dvournega korpusa desetih TV-oddaj s politično vsebino smo preverili tri teoretične hipoteze, 1) da je v govoru politikov/političark prisotnih več poudarkov kot v govoru voditeljev/voditeljic TV-oddaj, 2) da so poudarki politikov/političark v povprečju jakostno močnejši (dB) in imajo višji F_0 (Hz) kot poudarki voditeljev/voditeljic ter 3) da ima pri slušni zaznavi poudarkov najpomembnejšo vlogo sprememba/povečanje jakosti govora, nekoliko manjšo pa povišanje F_0 ali podaljševanje glasov.

Ključne besede: avditivno-eksperimentalna analiza, medijski govor, besedilna fonetika, poudarek