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Observations on Basic Intonational Patterns of Questions and Statements in Standard Lithuanian¹

Svarbesnieji bendrinės lietuvių kalbos klausimų ir teiginių intonaciniai dėsningumai

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Abstract

This paper discusses the results of the pilot study on intonational patterns of questions and statements in Lithuanian. Special attention is devoted to the tone changes at the end of the intonational phrase, i. e. to the boundary tone and the pitch accent of the last word. In order to identify the main patterns, a corpus of 96 tokens (statements, questions with wh-word 'kada' and yes/no questions with and without interrogative word 'ar' read by four speakers) has been examined. F0 measurements were extracted using Praat. The audio files were annotated based on the main principles of the autosegmental-metrical phonology: high tone is marked with H, low tone – L, pitch accent – "*" and boundary tone – '%'. In the perception experiment, the participants were asked to identify the statements and questions (the interrogative words were removed). 21 native speakers participated in the experiment.

The results have shown that the end of the statements in Standard Lithuanian is described by low tones (L* L%), whereas questions can have tones as follows: high-low (HL* L%), low (L* L%) and low-high (LH* H%). The tone patterns at the end of the questions depend on the presence or absence of the interrogation word: wh- questions are characterized by low tones at the end of phrase (L* L%), yes/no questions with an interrogative word 'ar' may have low (L* L%) or rising tones (LH* H%), and yes/no questions without an interrogative word end in rising (LH* H%) or falling (HL* L%) tones. The patterns with low or falling tones are common for the questions with an interrogative word and (or) focus word in a non-final position of the phrase. The results of the perception experiment allow us to draw preliminary conclusions that the high boundary tone, the interrogative word and the pitch accent of the focused word are equivalent markers of a question in Lithuanian.

KEYWORDS: yes/no question, wh- question, statement, fundamental frequency, boundary tone, pitch accent.

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Introduction

This paper aims to provide a pilot description of the basic intonational patterns of statements and questions of Standard Lithuanian and to start the preparatory work for Lithuanian intonation research within the framework of autosegmental-metrical (AM) phonology (Pierrehumbert, 1980; Pierrehumbert & Beckman, 1988; Ladd, 1996, 2008; Gussenhoven, 2016; and others). AM reflects the connection between an autosegmental tier representing intonation melody and metrical structure representing prominence and phrasing. In the AM framework, intonation is phonologically represented as a string of autosegments – Low (L) and High (H) tones – and their combination (Ladd, 2008, p. 134). It is assumed that there are three types of tonal events: pitch accents, phrase accents and boundary tones. Pitch accents (F0 movements) are phonologically associated with stressed syllables and are expected to phonetically align with these syllables, whereas edge tones (phrase accents and boundary tones) are expected to associate phonologically with intermediate and intonational phrase boundaries, respectively (Pierrehumbert & Beckman, 1988).

Pitch accents can be divided into nuclear and prenuclear pitch accents. The nuclear pitch accents form the head of the intonational phrase and typically occur before a phrasal break, i.e., the nucleus falls on the last content word of the utterance. Nevertheless, under a narrow or contrastive focus, it may also occur earlier (Arvaniti & Baltazani, 2000). Nuclear accents are perceived as more prominent than prenuclear accents (Terken, 1991), they can signal focus location and domain (Birch & Clifton, 1995; Breen et al., 2010; Baumann, 2012), and the choice of the nuclear accent type may indicate differences in information status (*new, given*) (Baumann, 2012), attitudinal information (Lommel & Michalsky, 2017), etc.

Prenuclear pitch accents precede nuclear accents within the same intonation unit. The status of prenuclear pitch accents is still under-investigated: some scholars argue that these pitch accents are optional (Büring, 2007; Chodroff & Cole, 2018), they “may be used due to general principles of rhythmic organization and do not reliably mark information structural distinctions” (Calhoun, 2010, as cited in Bauman et al., 2020, p. 16); others assign more importance to the prenuclear pitch accents as they may contribute to the informativeness on phrase initial arguments (Baumann et al., 2020).

Boundary tone refers to a monotonal (low, high), bitonal (rising, falling) and sometimes tritonal intonational tone that occurs at the end of the intonational phrase. In many languages boundary tones are the most significant markers between a statement and question. For this reason, the intonational patterns of questions and statements of various languages have been described (see Pierrehumbert & Hirschberg (1990), Hedberg & Sosa (2002), Ladd (2008), Gussenhoven (2016) for English, D’Imperio (2002), Frota, Prieto (2015) for Romance languages, Odé (2003, 2008) for Russian, Gussenhoven et al. (2019) for Dutch, Grice, Bauman (2002) for German, Arvaniti, Baltazani (2000), Arvaniti (2002), Arvaniti, Ladd (2009) for Greek, and for various languages, Jun (2005, 2014).

Quantitative as well as qualitative data about the intonation of Standard Lithuanian are still scarce. The statements have been analysed to some extent; nevertheless, the studies were conducted applying various methods. The earliest experiments on Lithuanian intonation were carried out by Ekblom (1925). He noted that statements and questions were characterized by a falling end and a sufficiently high beginning, especially in statements. However, his research material consisted only of several statements and only one wh-question.

Pukelis (1968, 1972) analysed F0 changes of syllables in the stressed, pre- and post-stressed syllables in different types of yes/no questions. According to the author, the main differences appear in the F0 change in pre- and post-stressed syllables with respect to the stressed syllable of the focal word. There is no essential variation of F0 in pre-stressed syllables, whereas F0 change in post-stressed ones is the greatest, hence, distinguishing the types of questions best. Moreover, the author claims that the F0 change at the end of an utterance helps to highlight its interrogative and communicative significance.

Vaitkevičiūtė (2001) compared the emphasis in declaratives and statements and noted that in multiple-word statements the pitch of the words preceding the emphasized word tends to be considerably higher than that of the emphasized word. In contrast to statements, the highest pitch of yes/no question is intrinsic to the words in focus. If the focus is the final word in an utterance, such a phrase terminates in the highest pitch. If the focal word is followed by another word, the pitch falls very sharply on the subsequent word. The statements with question words are characterized by a rising-falling intonation tone at the end of the utterance.

The most recent research (Kundrotas, 2018) shows that there are seven types of intonational contours for different types of utterances in the Lithuanian language, where statements are described by four patterns: the falling, the gradually rising, the rising-falling and the falling-rising tone.

A number of significant observations on F0 changes in questions and statements has been provided by Pakerys (1982), while the newest experiments on a similar topic were conducted by Sabonytė and Goldshtein (2021). However, these studies are not intended for the analysis of intonation of questions and statements, but for the realization of stress and syllable accent in questions and statements.

Material and Participants

Method

In order to identify the main patterns of the intonational structure of questions and statements in Lithuanian, 4 types of syntactically almost identical sentences were constructed (the underlined syllables in the orthographic word forms indicate the stressed syllables):

- 1 a declarative sentence: [ˈgɑ:lɪmʲɛ ˈɛɪˈtʲɪ nɛˈmoː]; Galime eiti namo. ‘We can go home.’
- 2 an interrogative sentence without an interrogative word: [ˈgɑ:lɪmʲɛ ˈɛɪˈtʲɪ nɛˈmoː], Galime eiti namo? ‘Can we go home?’
- 3 an interrogative sentence with an interrogative word²: [ɛrˌgɑ:lɪmʲɛ ˈɛɪˈtʲɪ nɛˈmoː], Ar galime eiti namo? ‘Can we go home?’
- 4 a wh- question: [kɛˈdɛ ɡɐˈlʲeːsɪmʲɛ ˈɛɪˈtʲɪ nɛˈmoː]; Kada galėsime eiti namo? ‘When can we go home?’

Four native male speakers of Standard Lithuanian participated in this study (average age 25–30). The task of the speakers was to read the target sentences as naturally as possible considering the following context: the participants have been working for a long time and now they are stating that they can go home or asking the head if they can go home or when they will be able to go home. Each speaker repeated each sentence six times. The experiment resulted in a corpus of 96 tokens (4 sentences, 6 repetitions, 4 speakers).

Additionally, in order to clarify the significance of the interrogative words in question identification, a perception experiment was conducted. The interrogative words ([ɛr], [kɛˈdɛ]) were removed. The sentences of the current research may be used with and without an interrogative word; therefore, after removing ‘ar’ and ‘kada,’ the sentences remained natural, not artificial. The participants were asked to identify the type of the phrase: a statement or a question. 21 native speakers (undergraduate students) participated in the experiment.

Inventory of Pitch Accents and Boundary Tones

Pitch accents are marked with a star ‘*’ to indicate their association with metrically strong syllables, whereas diacritics ‘-’ and ‘%’ indicate their alignment with the edge of an intermediate (phrase accent, e.g., H-)³ or intonational phrase (boundary tone, e.g., L%). Languages very often introduce only the right boundaries (the edge boundary tones are associated with the end of the prosodic unit) but not the left ones (the edge tones that are associated with the beginning of the prosodic unit). In the latter case, the boundary tones are notated with the % sign which precedes the tone (e.g., %L).

In the current research, the inventory of pitch accents is introduced as follows: two monotonal L*, H*, three bitonal LH*, L*H, HL* pitch accents, two monotonal boundary tones L%, H% and one monotonal boundary tone %L associated with the beginning of the utterance.

L* is phonetically realized as low plateau, at a local pitch minimum in the speaker’s range, whereas H* – as high plateau or peak with no initial dips in the contour. Both tones are aligned with the stressed syllable. Bitonal LH* pitch accent is phonetically realized as a gradual rising pitch movement throughout the stressed syllable. The rise starts at the onset of the stressed syllable and ends at the end of the same syllable. The realization difference of the L*H lies in the alignment of the H tone: the low tone is followed by a late rise

² Yes/no questions with or without an interrogative word (3 and 2, respectively) in spoken Lithuanian basically do not differ; probably only a question with an interrogative word is more formal and frequent in polite language.

³ In this pilot research, phrase accents were not considered.

within the stressed syllable and delayed peak in the post-stressed syllable or even later. The pitch accent HL* is manifested as a fall throughout the stressed syllable, i.e., the start of the fall is aligned with the beginning (or a little bit earlier) of the stressed syllable and the end of the fall is aligned with the end of the stressed syllable.

The boundary tone L% is phonetically realized as a low sustained tone or a low descending tone that reaches the bottom of the speaker's range. H% is realized as a rising pitch movement or a sustained high pitch at the end of the utterance. The bitonal boundary tones (rising or falling) in the current study were not introduced. The last syllable of the phrase final word is stressed (*namo*); therefore, any F0 changes are associated with pitch accent of the stressed syllable, not a boundary tone. Nevertheless, the combination of the last pitch accent and the boundary tone reflects the intonational events occurring at the very end of the phrase. The bitonal description (rising or falling) used in this paper, represents these two events.

Annotation and measurements

The audio files were annotated using the ToBI labelling system⁴ by two phoneticians. Upon the agreement on ambiguous situations, all the intonational patterns of phrases of all speakers were compared and classified. Additionally, for each stressed syllable F0 measurements were extracted using Praat (Boersma, Weenink 2018) script ProsodyPro (Xu, 2013). The examples of F0 contour patterns are plotted in the graphs and the results of the empirical data are presented in the box plots.

Results

Statements

The analysis of the intonational patterns shows that a statement is characterized by a quite low continuous or down-drifting pitch pattern (see **Figs 1, 9a**).

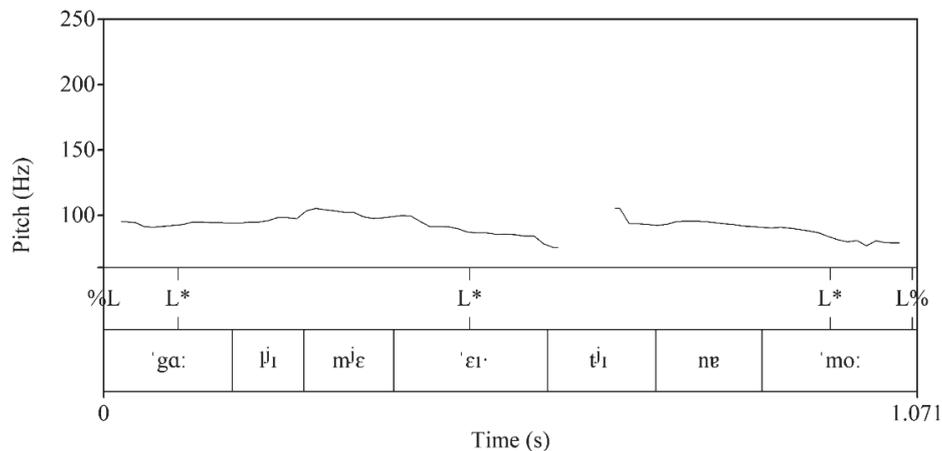


Fig. 1 F0 contour and autosegments of a statement

The typical nuclear configuration is L* L%. The nuclear accent in these statements falls on the final word of the phrase. This corresponds to the universal tendencies that if there is no contextual requirement and no focal highlighting of the object, the main locus of prominence lies rightmost of the intonational phrase. 98% of the examined patterns have a low edge tone at the beginning of the utterance (%L) and only a few patterns were found with an initial high tone, which pertained either to an initial boundary tone (%H) or to the first stressed syllable (H*), signalling a particular constituent being focalized. However, the latter model is rare in the corpus under the present investigation. The distribution of the frequency of tonal events is shown in **Table 1**.

⁴ For more details on ToBI labelling see Beckman & Ayers (1997).

Yes/no Questions without an Interrogative Word

Statements containing no interrogative markers are similar in structure to statements. They may be syntactically identical but characterized by distinctive intonation patterns and sometimes word order (Ambrasas, 1997, p. 712).

In our corpus, for the yes /no questions without an interrogative word, two patterns have been found differing in boundary tones and the location of a word in focus. Both examples are relatively equally distributed: almost half of the examples initially have a level contour terminating in a high boundary tone (H%) and carrying the nuclear pitch accent LH* on the last word *namo* (56%, see Fig. 2, Table 1).

Fig. 9 (b) demonstrates that all the words in the phrase are described by a rather high variance of FO values, which indicates the nature of both, inter- and/or intraspeaker variability.

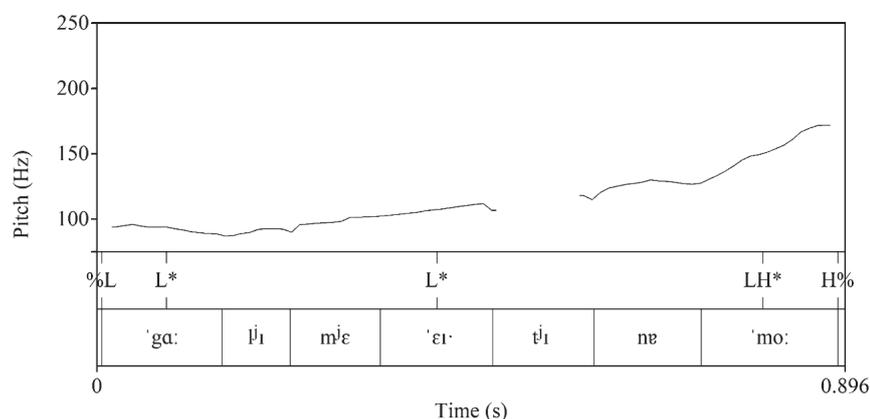


Fig. 2 FO contour and autosegments of a yes/no question without an interrogative word (LH* H%)

Another half of the examples are characterized by a low boundary tone (L%) and a nuclear pitch accent L*H on the focused word *galime* (44%, see Fig. 3). Here the low tone is spread out through the entire stressed syllable *ga*, then it starts to rise in the post-stressed syllable and reaches its FO peak in the second poststressed syllable *me*. The tone continues to rise, and the highest point is attained in the adjacent word *eti*, which indicates a broader emphasis of the same question. Afterwards, the tone starts to fall and is falling (HL*) throughout the last word of the phrase (*namo*).

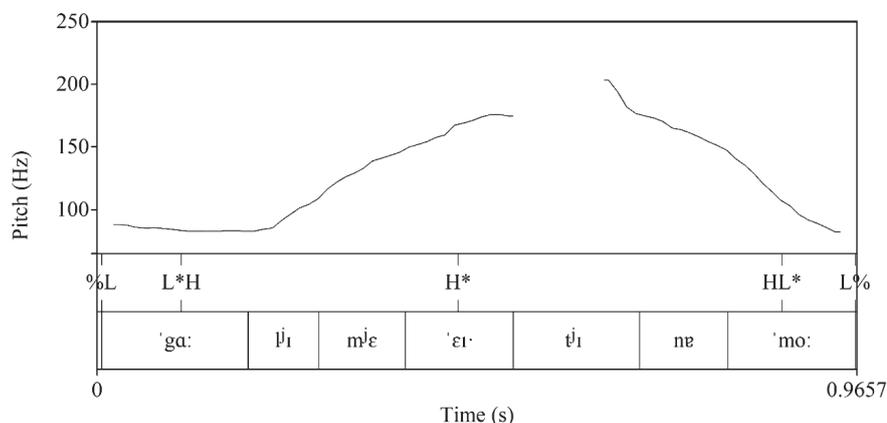


Fig. 3 FO contour and autosegments of a yes/no question without an interrogative word (HL* L%)

The box plots in Fig. 9 (c) illustrate that the tone realisation of this word varies considerably; yet it always remains high.

Yes/no Questions with an Interrogative Word

The yes/no questions with an interrogative word have three patterns and are represented in Figs. 4, 5 and 6. The most frequent pattern is a question with a high boundary tone (H%) and nuclear pitch accent LH* on the last word *namo* (occurred 43%, see Fig. 4). Prenuclear contour shows a high or a low plateau, with an early prenuclear LH* pitch accent on the word *galime*.

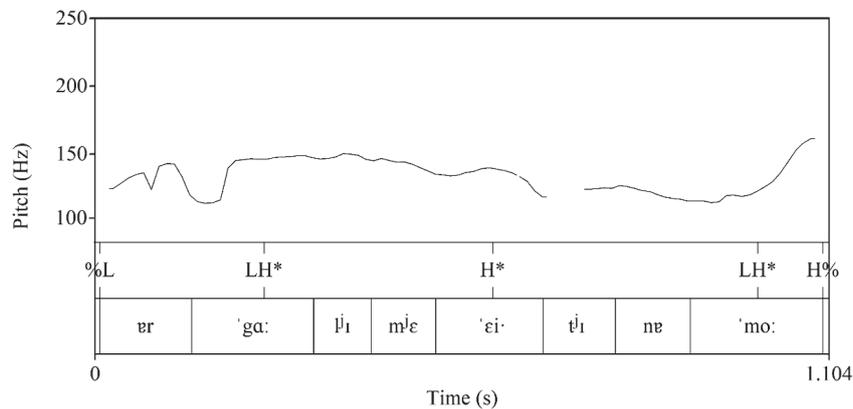


Fig. 4 F0 contour and autosegments of a yes/no question with an interrogative word (LH* H%)

The second most frequent pattern (35%) from the first one is different in the boundary tone, which is low here (L%) and focus marking (see Fig. 5). In current case, the question is pronounced with a narrow focus on the first word *galime*, which bears a bitonal L*H pitch accent and is characterized by a steep rise and a sharp fall in post-stressed syllables. Then, until the end of the utterance the tone remains low.

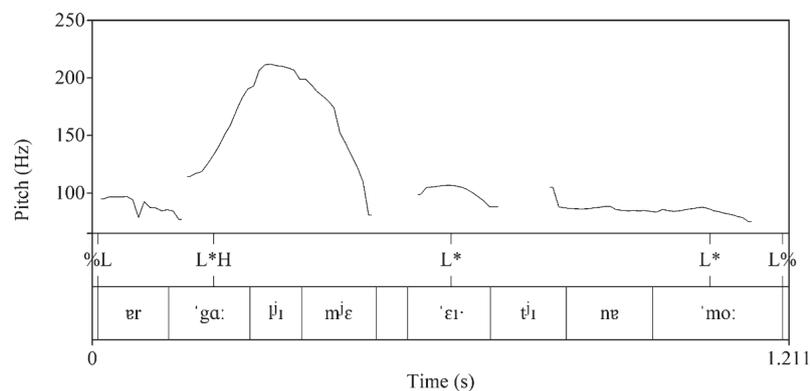


Fig. 5 F0 contour and autosegments of a yes/no question with an interrogative word and focused word 'galime'

The third pattern (22%) has a low boundary tone (L%) and an early nuclear pitch accent L*H on the focused word *galime* (see Fig. 6). As in the previous pattern (see Fig. 5), the nuclear pitch accent is characterized by a peak delay, only that in the current pattern this F0 peak is reached in the second post-stressed syllable while in the former one – in the post-stressed syllable. Moreover, after the maximum pitch is reached, the tone in the pattern

illustrated in Fig. 5 drops down rapidly on *eiti* and uninterruptedly remains low, slightly declining throughout the rest part of the utterance. In the current pattern, after the maximum peak is reached, the tone remains high (H* on *eiti*) and only in the phrase-final word *namo* it starts to fall and stays low (L*).

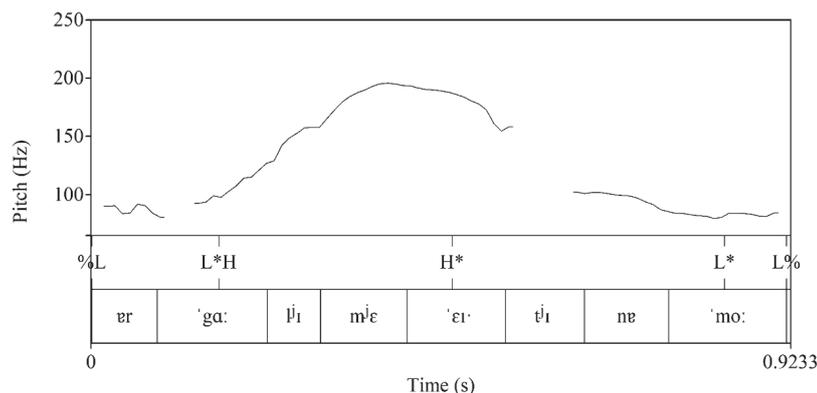


Fig. 6 F0 contour and autosegments of a yes/no question with an interrogative word and focused word 'galime'

The results of the perception experiment have revealed (see **Table 1**) that the patterns which have been the most accurately perceived had a low tone boundary (98%, Fig. 5 and 91%, Fig. 6) although the most frequent intonation pattern was with a rising end (which is typical of questions). However, the listeners did not identify them very accurately. The varying tone of the utterance (the F0 varies in a wide range in all words of this model, see Fig. 9 (d–f)) may have resulted in poor identification. Therefore, it can be assumed that neither an interrogative word nor the rising tone is the most significant indicator of a yes/no question. Presumably, the emphasised word (and its pitch accent) allows us to identify these phrases as a question.

Comparing the compositional structure of the intonation of all types of yes/no questions, it can be seen that within and among these types of statements, they differ in tones at the end of the phrase, pitch accents and the location of words in focus. Surprisingly, most patterns consist of the low boundary tone (L%) or falling tone (HL* L%, for illustration the preceding pitch accent of the phrase-final word see Figs. 3, 5, 6) not a high (H%) or rising one (LH* H%, if to consider the preceding pitch accent of the phrase-final word, see Figs. 2 and 4). Our data show that if there is focus in the question (non-final position), the focus marker (with its pitch accent) carries the meaning of the interrogation and the utterances typically end in a low or falling tone. If there is no focus marking (non-final position) in the yes/no question, the nuclear pitch accent falls on the last word in the intonational phrase and always has a rising end.

Both groups are described by nuclear bitonal pitch accents: LH* is common for the patterns with boundary rise and L*H - with boundary fall. It can be seen that the shape of the L*H accent is not identical among patterns. For example, the shape of the nuclear pitch accent is characterized by a steep rise and sharp fall in post-stressed syllables of the focused word (see Fig. 5) and may be described as a distinctive feature of the narrow focus. This corresponds with findings of Vaitkevičiūtė (2001), where she pointed out that the pitch falls very sharply on the subsequent word if the focal word is not phrase-final. Nevertheless, the rise and/or fall time of pitch may be longer or shorter and the height of the peak of the L*H pitch accent may be lower in the prenuclear position (see **Figs 4**) or in broad focus questions (see Figs 3, 6). These variations in alignment and scaling, however, should be examined in more detail in the future analysis.

Cross-linguistic studies reveal that the yes/no questions display rich intonational variation within and across languages. Similarly to Lithuanian, in most languages these questions may be pronounced either with a rising (all-rising, falling-rising) and/or falling (all-falling, rising-falling or level) tone (for example, American English (Pierrehumbert & Hirschberg, 1990; Hedberg & Sosa 2002), Romance languages (Frota & Prieto, 2015) and Russian (Igarashi, 2006). Rising patterns are more common overall; however, there are languages which do not exhibit rising boundary tones, only terminal falls (for example, Sardinian (Frota & Prieto, 2015) or Greek (Arvaniti, 2002). According to the data of this study, Lithuanian may have either intonational pattern; however, boundary fall is more common.

Hedberg et al. (2017) suggest that the falling tone is characteristic of the questions that are termed as ‘non-genuine’, i. e. “where one or more felicity conditions on the use of questions do not apply” (for example, the speaker already knows the answer to the question or does not desire an answer to the question). The questions that have “the illocutionary force of genuine requests for information” are typically pronounced with a low-rise boundary tone, and those that are uttered with a high-rise final tone tend to mark information that is given in the discourse or a function word (Hedberg et al., 2017, p. 43–44).

Wh- Questions

The wh- questions in Lithuanian are defined by a falling tone: %L LH* L* L* L* L% (61%) and %L L*H H* L* L* L% (39%). The patterns differ in the nucleus placement and nuclear pitch accents. In the first pattern (see Fig. 7), the emphasis occurs early in the question, it falls on the interrogative word ‘kada’ and bears a LH* pitch accent. The post-focal contour shows a low plateau (L*) throughout the entire phrase. In another pattern, the second word *galésime* is focused and is described by a H* nuclear pitch accent, followed by a falling tone (see Fig. 8). As in the previous pattern, the interrogative word (which is prenuclear here) is also characterized by a bitonal pitch accent (L*H), only in this case the peak is aligned in the post-stressed position. The box plots show that the second pattern (see Fig. 10) has a considerable variety of F0 values. Again, this might be the result of differences of individual speakers or various speaker-specific ways to compose a question.

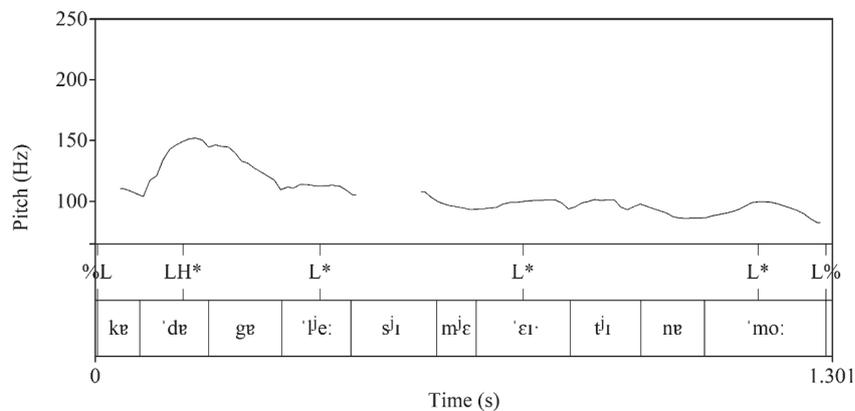


Fig. 7 Wh- question with focus on the interrogative word ‘kada’

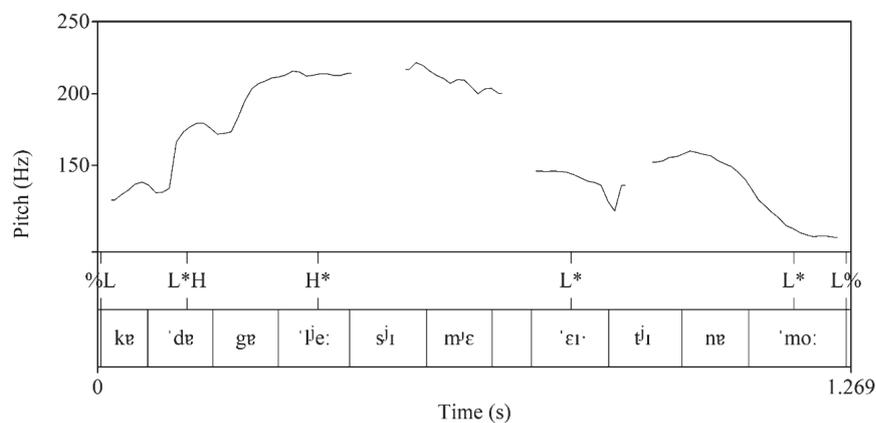


Fig. 8 Wh- question with focus on the word ‘galésime’

The perception test results have demonstrated that after cutting off the interrogative word ‘kada,’ the phrase was identified as a statement (more than 90%, see Table 1). Apparently, the location of interrogation lies in the inter-

rogative word, which is marked with LH* (when nuclear) or L*H (when prenuclear) pitch accent (see Figs. 7, 8), i. e. the wh- word signals interrogativity without the need for a certain intonational marking. In addition, the contour of wh- questions without interrogative words resembles the contour of the declaratives.

In case of those 8% (see Table 1) that were perceived as questions, it appeared that it was a speaker-specific case: at the end of the utterance, the aforementioned falling pattern included a very small rise which was probably enough for listeners to identify the phrase as a question. In any case, this demonstrates that it is important to examine the intonational patterns across and within speakers in greater detail.

Cross-linguistic studies show that wh- questions generally tend to be falling (English (Hedberg & Sosa, 2002; Hedberg et al., 2010), Greek (Karra, 2003; Arvaniti et al., 2014; Baltazani et al., 2019), Russian (Odé, 2008; Igarashi, 2006), Romance languages (Frota & Prieto, 2015)) and, similarly, in Lithuanian, the locus of interrogation (the wh- word) is frequently marked with LH* (English, Greek) pitch accents.

Information-seeking wh- questions across languages generally occur with a falling tone; however, there are languages or situations where wh- questions may be produced with a rising tone, for example, expressing politeness (in Portuguese, Spanish, Italian, Catalan or French (Frota & Prieto, 2015, p. 405)), asking for background information or a reclamatory wh- question (echo questions in American English, Hedberg et al., 2010) or asking from curiosity (in Greek, Karra, 2003).

Hedberg and her colleagues (2010) consider that the difference between falling or rising tones in wh- questions (at least in American English) usually “is correlated with differences in their discourse functions. Falling questions are most often used to get more detailed information, to open up a new subtopic or to influence the development of the ongoing topic,” whereas the rising tone is rather used to ask “for background information or to clarify information that is not audible” (reclamatory wh- question) (Hedberg et al., 2010, p. 4). In Greek, on the contrary, the rising rather than the falling tone marks the incomplete status of the utterance, thereby expecting an answer (information-seeking question), whereas the low boundary tone (L%) marks the utterance as complete, i. e. no linking to a subsequent discourse (Arvaniti et al., 2014).

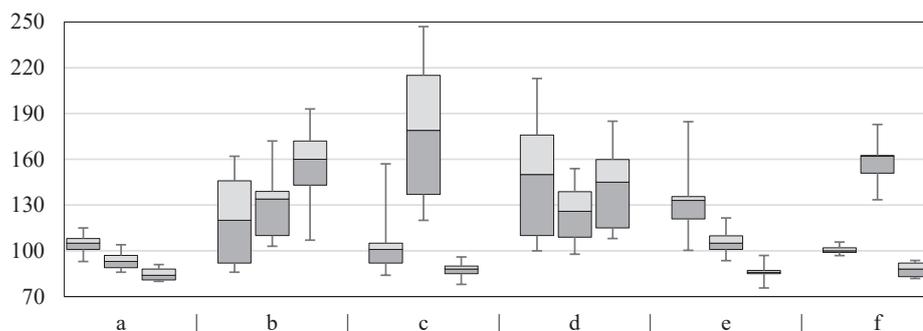


Fig. 9 The scores of F0 mean (Hz): three columns represent three words in phrase; a – a statement; b, c – yes/no questions without an interrogative word (b - %L L* L* LH* H%, c - %L L*H H* HL* L%); d, e, f – yes/no questions with an interrogative word (d - %L H* L* LH* H%, e - %L L*H L* L* L%, f - %L L*H H* L*L%)

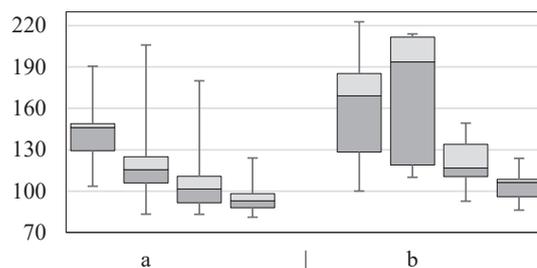


Fig. 10 The scores of F0 mean (Hz) in wh- questions: four columns represent four words in phrases; a - %L LH* L* L* L%, b - %L L*H H* L* L%

Table 1 Overview of patterns, frequency and perception of different types of phrases⁵

Type of phrase	Pattern	Frequency within the type of phrase (%)	Accurate perception (%)
statement	%L L* L* L%	98	100
	%H H* L* L%	2	100
yes/no question without an interrogative word	%L L* L* LH* H%	56	90
	%L L* H H* HL* L%	44	94
yes/no questions with an interrogative word	%L H* L* LH* H%	43	88
	%L L* H L* L%	35	98
	%L L* H H* L* L%	22	91
wh- question	%L LH* L* L* L%	61	8
	%L L* H H* L* L%	39	8

Conclusions

The aim of the current study was to present the basic intonational patterns of statements and questions, especially focusing on the tonal events at the end of the intonational phrase (pitch accent of the last word of the phrase and boundary tone).

The results have demonstrated that the end of the statements in Standard Lithuanian are described by low tones (**L*** L%), whereas questions may have the following tones: high-low (HL* L%), low (**L*** L%) and low-high (LH* H%). Wh- questions are characterized by low tones at the end of the phrase (**L*** L%), yes/no questions with an interrogative word 'ar' may have low (**L*** L%) or rising tones (LH* H%), and yes/no questions without an interrogative word end in rising (LH* H%) or falling (HL* L%) tones. The patterns with low or falling tones are common for the questions with interrogative word and (or) focus word in non-final position of the phrase. The patterns with rising end are found only in yes/no question (both with and without interrogative word).

Wh- questions are characterized by a low boundary tone (L%), yes/no questions with and without an interrogative word 'ar' may have low (L%) or high (H%) boundary tone. It depends on the presence or absence of a focus word: the questions with a focus word in non-final position of the phrase have low boundary tone.

The data of the current research have revealed that a focus word (which is usually realized as a nuclear pitch accent) is very significant. The patterns of questions and statements in the current corpus consist of the following nuclear pitch accents: the **L*** pitch accent is found in statements; LH* - in yes/no questions with or without an interrogative word and in wh- questions; **L***H - in yes/no questions with or without an interrogative word; H* - in wh- questions. In this data, the nuclear pitch accents indicate the words in focus or, in case there is no focal highlighting, the most prominent part of the phrase: the last word in statements and questions with rising end (when it is difficult to decide whether the rising end signals the nature of question or the focused last word). The most frequent nuclear pitch accents are bitonal **L***H and LH*. The LH* pitch accent typically occurs in yes/no questions on the final word of a phrase, and in wh- question - on the interrogative word. The pitch accent with a peak delay **L***H occurs in the focused yes/no question.

The results of the perception experiment allow us to draw preliminary conclusions that high boundary tone, interrogation word and pitch accent of the focused word are equivalent markers for interrogation.

Given the small number of speakers and measurement variables, the results of this study must be taken as provisional. In the future research, the focus (broad, narrow, contrastive, etc.) should also be controlled and analysed more systematically; word order, stress position or lexical tonal specifications should be considered as well, as they may affect intonational contours.

⁵ Nuclear pitch accents are in bold.

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Summary

Asta Kazlauskienė, Sigita Dereškevičiūtė. Svarbesnieji bendrinės lietuvių kalbos klausimų ir teiginių intonaciniai dėsniumai

Straipsnyje pristatomas žvalgomas bendrinės lietuvių kalbos teiginių ir klausimų intonacijos dėsniumų tyrimas. Didžiausias dėmesys skiriamas frazės pabaigos – paribio ir paskutinio žodžio (jis dažnai

turi frazės kirtį) – tonams. Tiriamąją medžiagą sudaro 96 įrašai (teiginiai, klausimai su klausiamaisiais žodžiais „kada“, „ar“ ir be jų), kuriuos perskaitė keturi diktoriai vyrai. Pagrindinio tono dažnis nustatytas garsų analizės programa „Praat“. Analizuotos frazės anotuotos remiantis baziniais autosegmentinės metrinės fonologijos principais: aukštas tonas žymėtas H, žemas – L, žodžio tonas – *, intonacinės frazės ribų – %. Audiciniam eksperimentui buvo pateikti teiginiai ir klausimai (klausiamieji žodžiai buvo iškirpti). Šiame eksperimente dalyvavo 21 studentas.

Tyrimo rezultatai leidžia daryti preliminarias išvadas, kad lietuvių kalbos teiginiams būdingi žemi frazės pabaigos tonai (L* L%). Klausimų pabaigos tonai gal būti trejopi: žemėjantys (HL* L%), žemi (L* L%), aukštėjantys (LH* H%). Klausimų pabaigos tonų pobūdis priklauso nuo klausiamojo žodžio (ne)buvimo: klausimams su klausiamuoju žodžiu „kada“ būdingi žemi pabaigos tonai (L* L%), klausimų su „ar“ pabaigos tonai gali būti žemi (L* L%) arba aukštėjantys (LH* H%), klausimai be klausiamojo žodžio gali būti reiškiami aukštėjančiais (LH* H%) arba žemėjančiais (HL* L%) pabaigos tonais. Žemi ar žemėjantys pabaigos tonai būdingi klausimams, kurie turi klausiamąjį žodį ir (ar) loginį kirtį klausimo viduryje. Audicinio eksperimento rezultatai suponuoja preliminarią prielaidą, kad lietuvių kalboje aukštas pabaigos tonas, klausiamasis žodis „kada“ ir loginis kirtis gali būti lygiaverčiai klausimo rodikliai.

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