Chapter 5

An Autosegmental-Metrical Analysis of Albanian Prosody[1]

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5.1 Introduction

Albanian is a language of the Indo-European family with 6-7 million speakers (Klein, Joseph, and Fritz 2017; Rusakov 2017) who live mostly in the Republic of Albania, the Republic of Kosovo, Montenegro and the Republic of North Macedonia. There are also Albanian-speaking minority communities in Croatia, Greece, Italy, and Ukraine, but in this chapter, we will be concerned with Albanian spoken in Albania, which has traditionally been described as comprising two main dialects: Gheg (*Geg*), spoken in northern and central Albania, and Tosk (*Tosk*), spoken in the south of the country (e.g. Beci 1987, 1987, 1965; Çabej 1964, 1975; Desnickaja 1976; Gjinari 1988; Hahn 2013). It is widely accepted that Albanian forms a branch of its own within the Indo-European language family (e.g. Bopp 1855; Çabej 1976; Pedersen 1897) and there has been no evidence to date that relates Albanian to any other sister language within this family (Demiraj 2018). It has a relatively young tradition of grammatical studies and an even younger history of phonetic investigations.

Until very recently, descriptions of Albanian prosody had no more than a couple of pages in introductory phonetics books, with contours drawn in pencil, and eventually some Praat images of the intonational contours of declarative, interrogative, and imperative utterances (e.g. (e.g. Beci 2004; Boriçi 1987; Memushaj 2015). Beci (2004), for instance, proposed and drew the contours in Figure 5.1 for declaratives, questions and imperative utterances. Boriçi (1987), in a more thorough study starting from a Hallidayan perspective[2], suggested that phonological resources of Albanian intonation, i.e. F0 and pauses, contribute to grammatical meaning. However, these studies were sparse, not systematic, impressionistic in nature, and did not consider a description of the language's intonation system as a whole.

[1]This research was supported by European Research Council Grant No. 742289 'Human interaction and the evolution of spoken accent' (2017–2022).

[2]Boriçi (1987) builds her argumentations inspired by (Halliday, 1963, 1970).

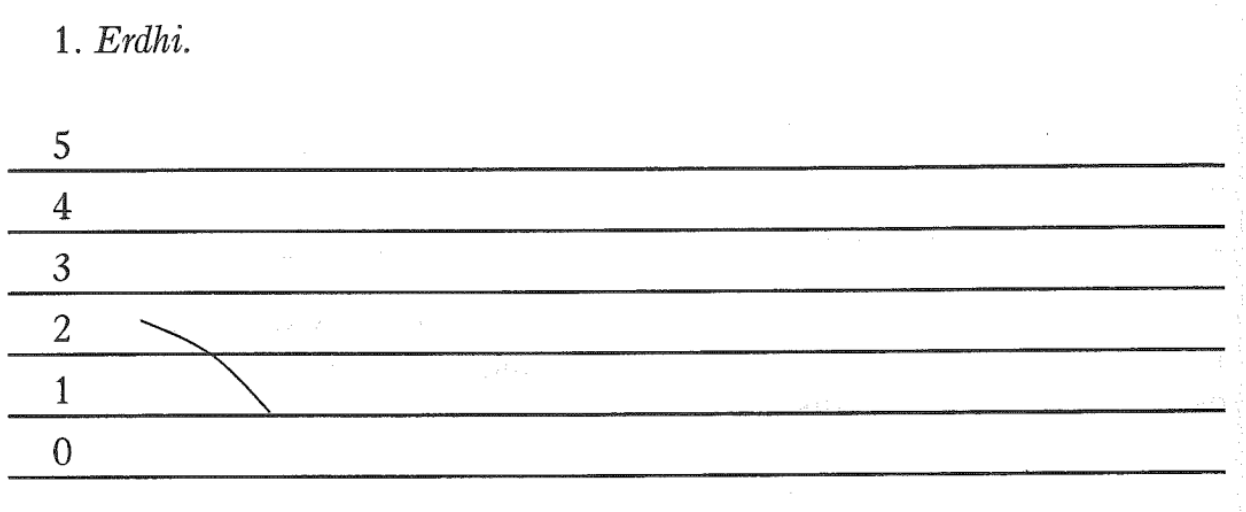

Figure 5.1 Intonational contour for the declarative utterance *Erdhi* (S/he came) according to Beci (2004)

More recent empirically-based research within the "Autosegmental-Metrical (AM)" framework (Beckman et al., 2005; Beckman & Pierrehumbert 1986; Ladd 1996; Pierrehumbert, 1980) has suggested that Albanian marks prominence with pitch accents (Kapia et al., 2020; Kapia & Brugos 2016, 2019). Specifically, Kapia and Brugos (2016) offered the first preliminary analysis of melodies in Albanian intonation using the ToBI framework from a corpus created through a reading task with nine native Albanian-speaking subjects. It also provided the first preliminary inventory of pitch accents and edge tones. Additionally, Kapia and Brugos (2016) examined the prosodic realization of four types of information structure notions and found that speakers systematically mark syntax with differing prosodic patterns. Some of these proposed pitch accents were further tested in a Rapid Prosodic Transcription (Cole, Mo, and Baek 2010; Cole, Mo, and Hasegawa-Johnson 2010; Cole and Shattuck-Hufnagel 2016) perception study (Kapia & Brugos 2019) in which the experimental items were extracted from the production study above. This follow-up study found that agreement on prominence marking was generally high among phonetically untrained, native speakers-turned-listeners of Albanian and, in most cases, tokens with high prominence scores were characterized by F0 movements compatible with the pitch accents reported in the 2016 study. Taken together, these results further support the idea that Albanian marks prominence acoustically with pitch accents. Given that these two studies have been the first approaches towards a comprehensive description of the phonetics and phonology of the Albanian intonation system based on acoustic and auditory analyses, very few generalizations could be made about F0 movements associated with prominence in Albanian. Also, because these studies were based on nine speakers only and used items specifically designed to test different types of information structure, they do not offer a comprehensive view of how intonational melodies are used in other discourse contexts.

In order to address these questions more comprehensively, the present study considers a wider range of communicative contexts in the standard variety of Albanian (hereafter, SA). It needs to be noted here that SA is a product that came about as a result of a political agenda during communist times, reaching its peak at the National Congress of Orthography in 1972, during which Albanologists determined linguistic features that would constitute SA; the end result was a variety that was different in some ways from Tosk or Gheg, but with more features from Tosk than from Gheg (Byron 1976; Moosmüller and Granser 2006).

5.2 Materials and Data Processing

Following Jun & Fletcher (2014), materials for the production study were designed with the aim of investigating pitch movements in a wide range of prosodic contexts for a language whose intonation is under-studied. This meant that in order to tease apart word prosody from phrasal prosody, this study mainly examined the F0 contours of multi-word phrases, i.e. three-word declarative sentences, consisting of as many sonorants as possible, with target words in different sentence positions, with varying locations of stress (Jun & Fletcher 2014). The aims were twofold: 1) to offer a thorough analysis of the basic intonational units of Albanian[3] by providing not just a descriptive analysis, but also empirical evidence where possible, and 2) to understand how Albanian prosody is typologically related to (or different from) the prosody of other languages.

The production study consisted of two corpora of spoken Albanian, which differed only in that the second corpus contained target words with different stress patterns, while the first corpus mainly had target words with penultimate stress, claimed by most as the most common stress type in Albanian (e.g. Memushaj 2017). In total, 3300 utterances were spoken (read speech) by a total of 21 adult native speakers living in Tirana (11 males and 10 females; mean age 41.14, sd = 7.4 years). The data were collected under laboratory conditions at the Institute of Linguistics and Literature in Tirana, Albania between August 2018 and April 2019 and were inspected both auditorily and acoustically, with the exception of the data discussed in section 5.4.1.1.2, which were collected online using various devices. Seventeen out of the 21 speakers participated in both studies.

The materials were designed to address issues concerned with word, phrase, and utterance level prosody and to include variations in the scope of focus. The target words were chosen to avoid non-sonorant segments, in order to figure out the tonal patterns of the language using combined acoustic and auditory information. They also were chosen to have different types of stress, i.e. ultimate, penultimate, antepenultimate, in order to investigate the association between certain pitch accent targets or pitch movements and stressed syllables. Broad focused conditions were elicited as out-of-the-blue utterances and narrow focus conditions as answers to the question *What did Subject verb?* The corpus also contained wh-questions, polar (yes-no) questions, and alternative questions. Additionally, subjects read sentences in which they named a list of items from a shopping list (in corpus 2). Prior to the recordings, all sentences to be read by the subjects were judged by four independent native and phonetically untrained speakers of Albanian as naturally sounding sentences in Albanian. The speakers were instructed to produce in SA the sentences they saw on the screen. Additional observations about the prosodic system of the language were also made using a smaller corpus of 5 subjects reading at a natural tempo the passage *The North Wind and the Sun* for an IPA illustration study at the Institute for Phonetics and Speech Processing in Munich (Coretta et al. 2022).

Utterances were recorded using the Speech Recorder Software (Draxler and Jänsch 2004) and a Beyerdynamic Custom One Pro Headset in a quiet room at the Institute of Linguistics in Tirana or the Institute of Phonetics and Speech Processing in Munich. All recordings were labelled semi-automatically with the Munich Automatic Segmentation System (Kisler, Reichel, and Schiel 2017) using the language independent model and stored as an EMU speech database (Winkelmann, Harrington, and Jänsch 2017). Word and segment boundaries were subsequently manually checked in all sentences and hand-corrected where necessary. For the prosodic analysis of the production data, each token was independently analyzed both auditorily and acoustically and labeled by the

[3] Henceforth, 'Albanian' refers to 'SA' (Standard Albanian), unless stated otherwise.

three authors following transcription guidelines within the ToBI framework to lay the foundation for an Albanian AL-ToBI system.

5.3 Prominence below and above the word in Albanian

5.3.1 Lexical stress and its interaction with pitch accents

Albanian is a stress accent language, described in traditional grammars as having "dynamic stress" (Çabej 1976; S. Demiraj 1984; Topalli 1995). There have been some attempts to show that the location of the syllable with primary lexical stress can be predicted from phonological structure, with syllable weight distinctions playing a role (Memushaj 2017). However, it has also been argued that its lexical stress pattern can be determined by morphology (S. Demiraj 1984; Memushaj 2017). At the sub-word level, Albanian distinguishes between metrically strong and weak syllables. The word's strongest syllable is the rhythmically strongest syllable (i.e., the syllable that is the prosodic head of the word) or in traditional terms the syllable with primary lexical stress (Memushaj, 2017), e.g. /la/ in */ka.ˈla/* 'castle' or /li/ in */ˈli.bra/* 'books'. The prominence of this rhythmically strongest syllable is further enhanced when the word is accented i.e., bears an utterance-level prominence. The enhancement comes about because it is associated with a pitch-accent that causes a pitch obtrusion - typically a trough, but also sometimes a peak - in its temporal vicinity. This is illustrated in Figures 5.2 to 5.4 for three phase-initial, pitch-accented words with different stress patterns. It should be noted here that iambic and trochaic stress types as in /ba.ˈri/ 'shepherd' in Figure 5.2 and /ˈba.ri/ 'grass' in Figure 5.3 are the most common in Albanian, constituting about 98% of the words (Topalli 1995). Only a few words have lexical stress on the antepenult, as in /ˈflu.tu.ra/ 'butterfly' in Figure 5.4. In Figure 5.2, a pitch trough can be seen caused by L* in the stressed syllable /ri/, whereas in Figure 5.3, the association of the L* causes a pitch trough in the stressed syllable /ba/. In Figure 5.4, the L* associates with the stressed syllable /flu/.

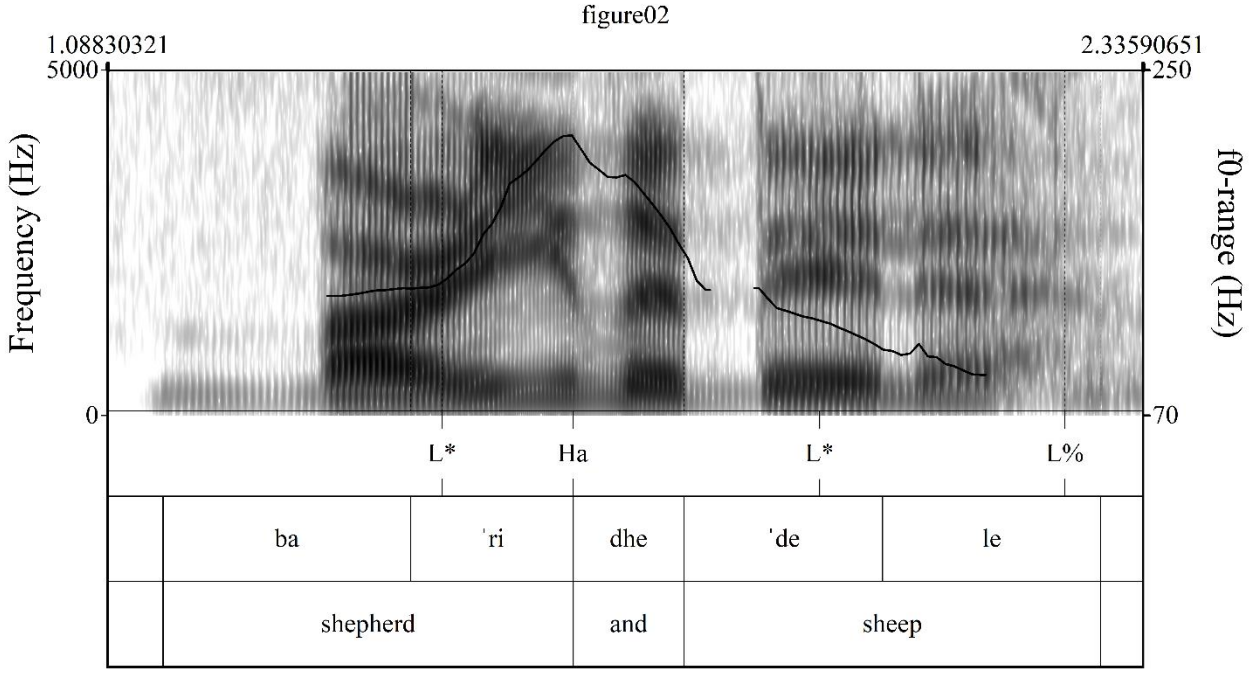

Figure 5.2 Pitch contour for /ba.ˈri/ embedded in the phrase *bari dhe dele*[4] ‘shepherd and sheep’

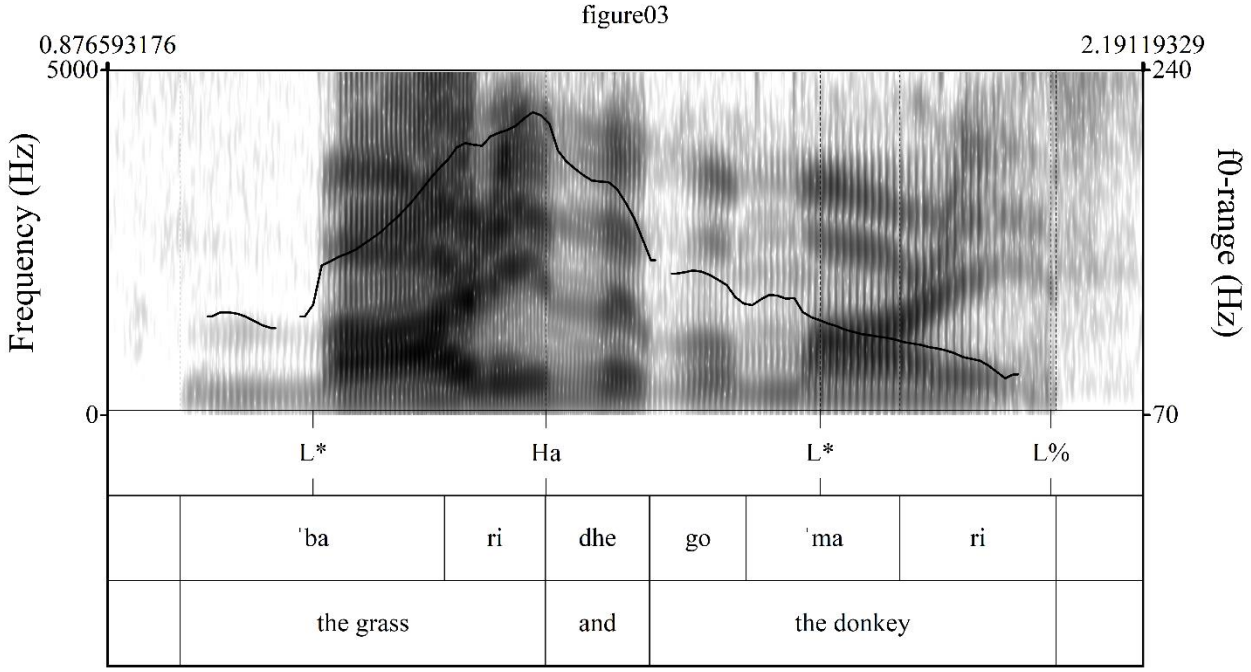

Figure 5.3 Pitch contour for /ˈba.ri/ embedded in the phrase *bari dhe gomari* ‘grass and donkey’

[4] From here and in all other examples, for ease of reference, the syllable tier will provide the Romanized representation of the segments in the utterance, and not the IPA or the formal SA writing. For example, if the word *flutura* ‘butterfly’ is pronounced as /flutra/, it will be written as *flutra* and not as *flutura,* as it would be in SA. However, the SA orthography will be given in the captions of each figure.

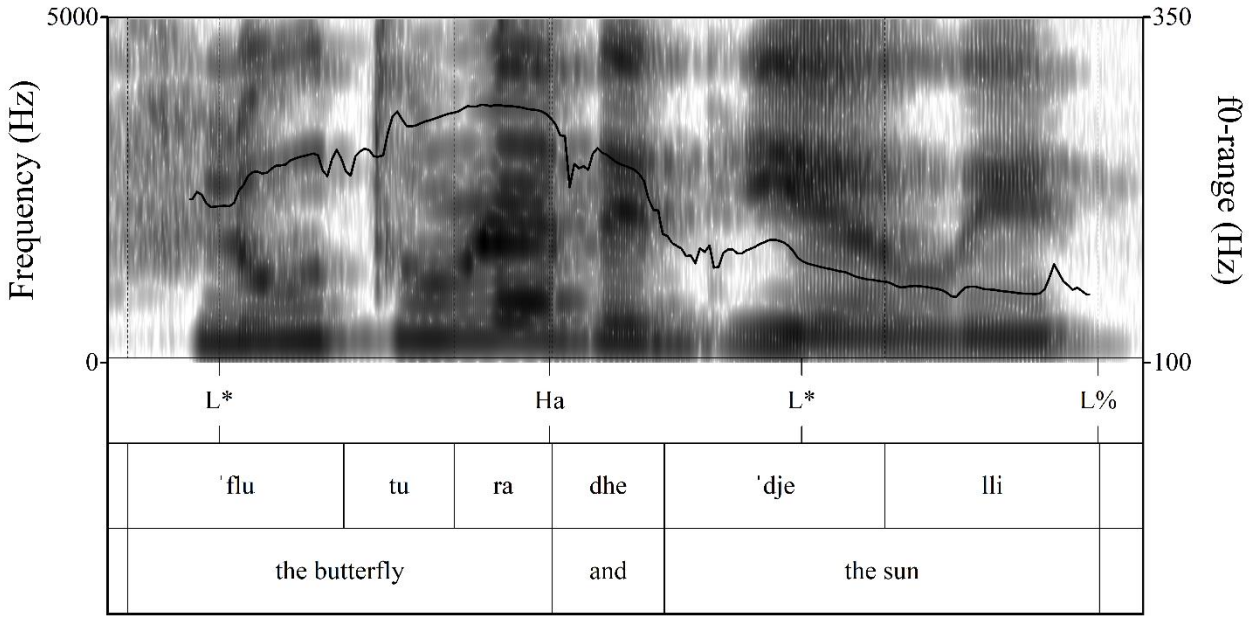

Figure 5.4 Pitch contour for /ˈflu.tu.ra/ embedded in the phrase *flutura dhe dielli* 'butterfly and sun'

Weak syllables can be post-lexically reduced or deleted in more casual speaking styles in SA and, no doubt, in most varieties (e.g. /'flu.tu.ra/ → /'flu.tra/, 'butterfly'; /'kum.bu.ła/ → /'kum.bła/, 'plum'; /'njo.mə.zən/ → /'njo.mzn/, 'sapling'; /kom.bə'tar/ → /komb.'tar/, 'national').
From all these perspectives, lexical stress and its association to post-lexical pitch-accents is quite similar to culminative stress languages like English, German and Italian, in which one syllable of the word is the most prominent, i.e. stressed, and can be made more prominent when a pitch-accent is associated with it (Hayes 2009). Very little is known about rhythm in Albanian, i.e., how Albanian is positioned between stress-timed languages such as English and syllable-timed languages such as French and Spanish (Grabe and Low 2002). The only two studies that have addressed this issue have suggested that Albanian is stress-timed (Belluscio, Mendicino, and Romito 1997; Jubani and Çabej 2017).

5.3.2. Pitch accent types

The pitch-accent inventory of SA includes two types: a low L* and a bitonal L+H*. In declarative, non-focus sentences (i.e. ones produced in a broad focus context), the head syllables of accented words are usually associated with a low tone (L*) tone. In the non-focus production of *Lumja lau barin* 'Lumja washed the grass' in Figure 5.5, all words are accented and associated with an L* tone[5].

[5]We will only discuss pitch accents in this section and not boundary tones. Boundary tones will be discussed in Section 5.4.

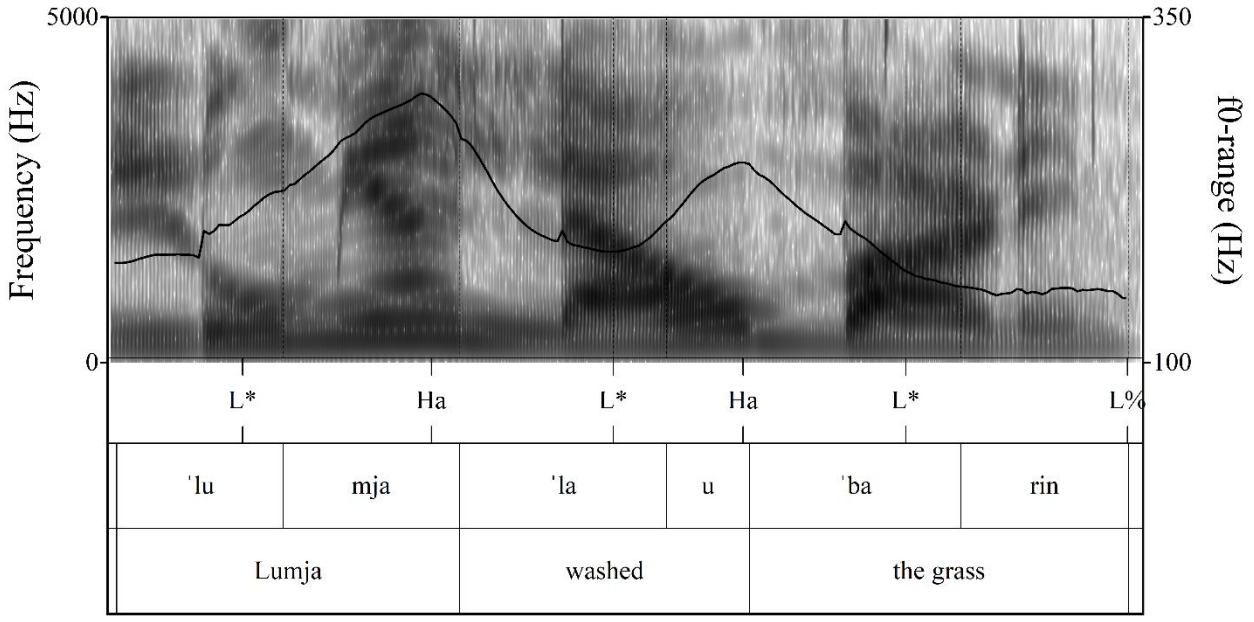

Figure 5.5 Pitch contour and text grid from female speaker for *Lumja lau barin* 'Lumja washed the grass.'

Figure 5.5 also shows that the L* tone of the first two words is followed by a rise that extends over the entire word, ending with a high target on, or at the end of, the final syllable of the word. For reasons elaborated in section 5.4, we consider this to be a high boundary tone, and not a pitch accent.

When the target word is narrowly focused, the pitch accent that is associated with its stressed syllable is typically a bitonal L+H*, as shown in Figure 5.6 in which narrow focus falls on *murin* (*Lena leu MURIN,* 'Lena painted THE WALL'). This should be compared with the broad focus production in Figure 5.7 in which *murin* is associated with L*. The justification for a bitonal L+H* pitch accent is that the rise in narrowly focused contexts quite consistently begins at, or near, the acoustic onset of the pitch-accented vowel, regardless of the number of following post-focal syllables, as shown in the examples in Figure 5.8.

We tested whether there were distinctions between the tonal patterns of broad focused and narrow focused words with a congruence matching test (Kapia et al. in review) in which 42 listeners of SA heard a narrow focus question and then had to decide which of the following perceived pairs was most appropriate as an answer: a sentence synthesized with an early peak (L+H*) on the object noun and a sentence synthesized with a late peak (L*+H) on the object noun. We found that listeners matched the early peak (L+H*) significantly more often to a narrow focus context. This was consistent with our prior observations that Albanian distinguishes broad from narrow focus with L* vs L+H* tunes.

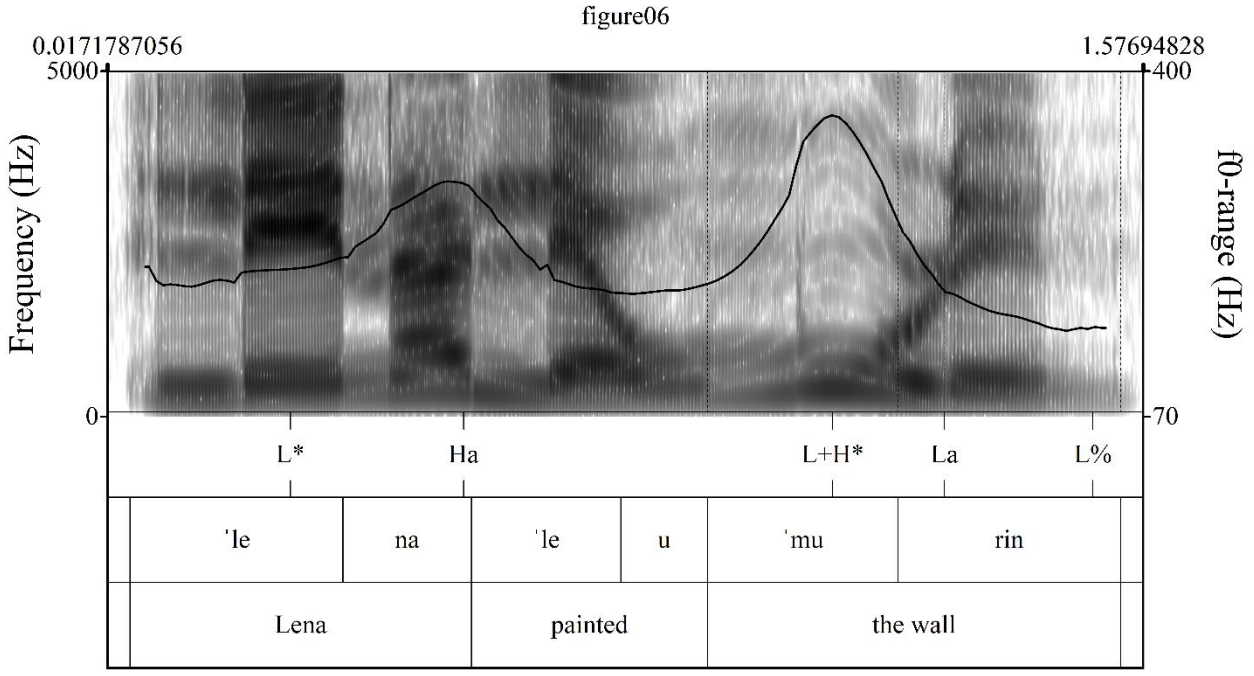

Figure 5.6 Pitch contour and text grid for *Lena leu MURIN* 'Lena painted THE WALL'

While the rise in narrow focus is likely to be due to the bitonal L+H*, the question remains about what tone(s) might be responsible for the fall. There are at least two different cases to consider. The first is that the fall comes about because this is a tritonal pitch accent i.e. L+H*+L. The second is that the fall is caused by a following low boundary tone. Although tritonal pitch accents do occur in some analyses (Froemming and Roa 2021; Gabriel et al. 2010; Gussenhoven 2004; Prieto, D'Imperio, and Fivela 2005), we consider this to be an unlikely solution for these narrowly focused word productions in Albanian. Consider, for example, the data in Figure 5.8 in which the pitch-accented syllable is followed by an increasing number of unaccented syllables to the end of the utterance. If the accent were tritonal, then we might expect a steep fall right after the stressed syllable, regardless of the number of post-tonic syllables. However, the pitch falls more gradually when there are more post-tonic syllables, reaching the low target on the word-final syllable, as in /li'ri/ 'freedom', in which pitch-accented /ri/ is utterance-final or in the admirative verb form /pu'nuakemi/ 'we would have worked' with the pitch-accented /nu/. In the first, the pitch ends quite high, possibly because the fall to a low *boundary* tone is truncated (Grabe 1998). In the second, there seems instead to be a gradual decline in F0 towards the end of the phrase. Figure 5.8 also shows that the peak of the rise is aligned with the end of the stressed syllable irrespective of the number of following unaccented syllables. Thus, the rise-fall contours in focused phrases seem to be more consistent with L+H* ... La pattern, where the last La is a boundary tone (Martine Grice, Ladd, and Arvaniti 2000). More examples of these contours in phrase-medial positions will be discussed in section 5.5 where we will elaborate on focus realization in Albanian.

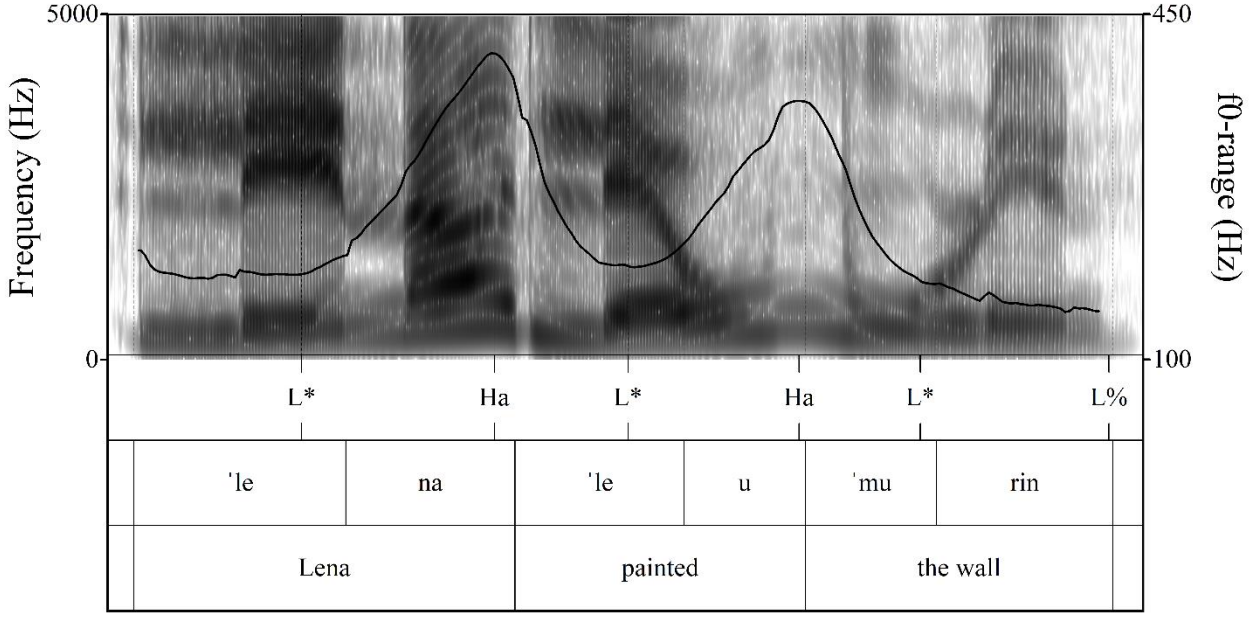

Figure 5.7 Pitch contour and text grid for *Lena leu murin* 'Lena painted the wall'

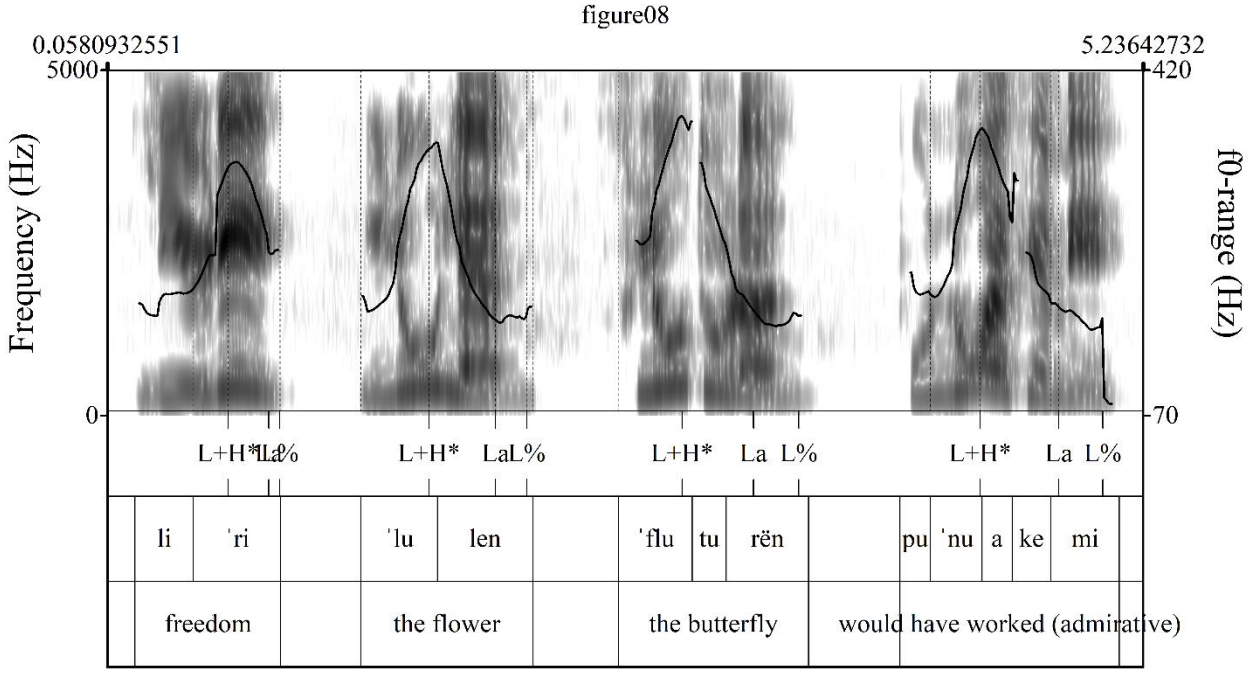

Figure 5.8 Pitch contours and text grids for the following words *li.ˈri, lu.ˈlen, ˈflu.tu.rën, pu.ˈnu.a.ke.mi* 'freedom, flower, butterfly, we work (in admirative mood)'

5.4 Boundary tones and phrasing

Based on the auditory and acoustic analysis of the present corpus, we propose that an utterance in Albanian is prosodically organized following the strict layer hypothesis (Beckman & Pierrehumbert 1986; Nespor & Vogel 2007; Selkirk 1981a, 1981b, 1984, 1986) into a hierarchy of one or more intonational phrases that include one or more accentual phrases. Intonational phrase boundaries differ from plain accentual phrase boundaries in the following two ways. Firstly, there is more pronounced lengthening before intonational boundaries, but not before plain accentual phrase boundaries. Secondly, intonational phrases are marked by a pitch reset, as shown in section 5.4.2 in more detail.

The analysis of the corpus so far suggests that there are two levels of two types of boundary tones associated with the right edges of a prosodic unit: L% and H% are associated with intonational phrases and Ha and La boundary tones are associated with accentual phrases. Given that the present corpus also shows no evidence for complex fall-rise or rise-fall-rise configurations at phrase edges in SA, we propose tonal replacement at boundaries for non-focus APs, i.e. concurrent boundary tone overriding, according to which a boundary tone of a lower prosodic unit is overridden by the boundary tone of a higher prosodic unit, a phenomenon also seen in Bengali (Khan, 2014), Tamil (Keane 2014), and Seoul Korean (Jun, 1993, 1998, 2005, 2007) among other languages. Thus, what we see in Albanian is that the Ha boundary tone of an accentual phrase is replaced by, or overridden by a L% or H% boundary tone when it coincides with an IP-boundary (note, however, how the La boundary tone of an IP-final focused AP is present and visible).

5.4.1 Accentual phrases

The basic unit of Albanian prosody is the accentual phrase, which is underlyingly composed of two tones, i.e. a pitch accent (T*) and a boundary tone (Ta). Pitch accents within an AP can be either low (L*) or rising (L+H*). At the right edge of each AP there is a boundary tone that can also be either high (Ha) or low (La). It is often the case that if the pitch accent is a low tone (L*), then the boundary tone is a high tone (Ha), and if the pitch accent is a rising tone (L+H*), then it is paired with a low boundary tone (La). Similar tonal opposition patterns within the AP have also been proposed for Bengali (Hayes and Lahiri 1991; Khan 2014; Selkirk 2007).

5.4.1.1 Tonal patterns

5.4.1.1.1 L* ... Ha

Of the two tonal patterns described above, the most common one is the L* … Ha pattern. As shown earlier in Figures 5.2-5.5, accented words in non-focussed contexts are characterized by an L* that associates with the syllable with primary lexical stress and a following rise that occurs in time close to the accented word's right edge. Kapia et al (2020) analyzed whether this H tone is grouped with the preceding L* as a bitonal L*+H accent in two sentence positions, i.e. initial and medial, or whether, instead, H was independent of the preceding L* pitch accent. The following two results from their production study are relevant to this issue (see Kapia et al. 2020 for details regarding segmentation and labeling): first, the pitch accent's low target tone was reached later in iambs than in trochees, as shown by the proportional L delay (left panel, Figure 5.9), which was calculated as the duration between the word onset and L* divided by word duration. The finding of a stress-dependent, but position-independent difference in the proportional L delay suggests that L* is

consistently aligned with the primary stressed syllable for different stress patterns. Secondly, and as shown in Figure 5.9 (right panel), the H was consistently aligned with the accented word's right boundary, regardless of the number of syllables between the L* and the H boundary tone. Based on these (and further) findings and, also following similar arguments in Grice et al (2005) and Keane (2014), Kapia et al (2020) proposed that H is independent of L* and that the accentual phrase (AP) is the smallest prosodic unit above the word. The L* and Ha mark the endpoints of a relatively constant rise in pitch over the AP, with no other rises or falls in between.

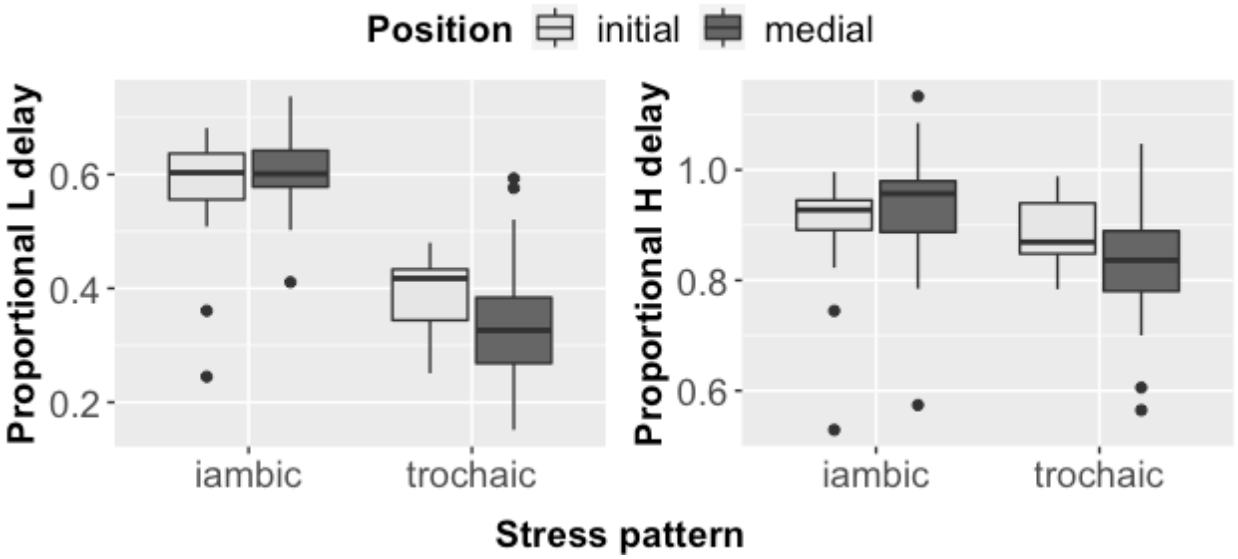

Figure 5.9 Proportional delay of the L (left) and H (right) tone in iambic and trochaic words in medial and initial positions (data from Kapia et al, 2020). The proportional delay is given by $(T_t - O_t)/W_{dur}$, where T_t, O_t, and W_{dur} are the time of the tone, the time of the acoustic word onset, and word duration respectively.

5.4.1.1.2 L+H*… La

The less common AP tonal pattern is the rise-fall AP (L+H* … La) which can occur in focused elements in declarative utterances, as shown in Figure 5.6. Unlike the rising AP (4.1.1.1), the rise-fall AP is composed of three tonal targets: the bitonal pitch accent L+H* and the low boundary tone La. As with the L*, the L+H* pitch accent associates with the syllable with primary lexical stress; the La boundary tone occurs close the focused word's boundary.

A separate (and preliminary) corpus in which 12 speakers each produced one trochaic (*libra* 'books') and one iambic word (*ullinj*, 'olives') in initial, medial and final focused positions within a sentence (i.e. 12 speakers × 2 words × 3 positions = 72 tokens) was used to explore the tune-text alignment for this L+H*… La melody following the analysis in Kapia et al. (2020). We analyzed the positions of the H* tone and that of the final La tone within the focused words using the same measures as described in 4.1.1.1. The results in Figure 5.10 suggest that: a) the H tone occurs earlier within sentence-final trochaic vs iambic words (Figure 5.10, left), thus again suggesting a consistent alignment with the primary stressed syllable; b) the final La tone is again consistently aligned with the focused word's right edge (Figure 5.10, right). This alignment and the tendency shown in Figure 5.10 (right) of the La in trochaic final words to appear earlier than those in iambic final words will be discussed in more detail in section 5.5.

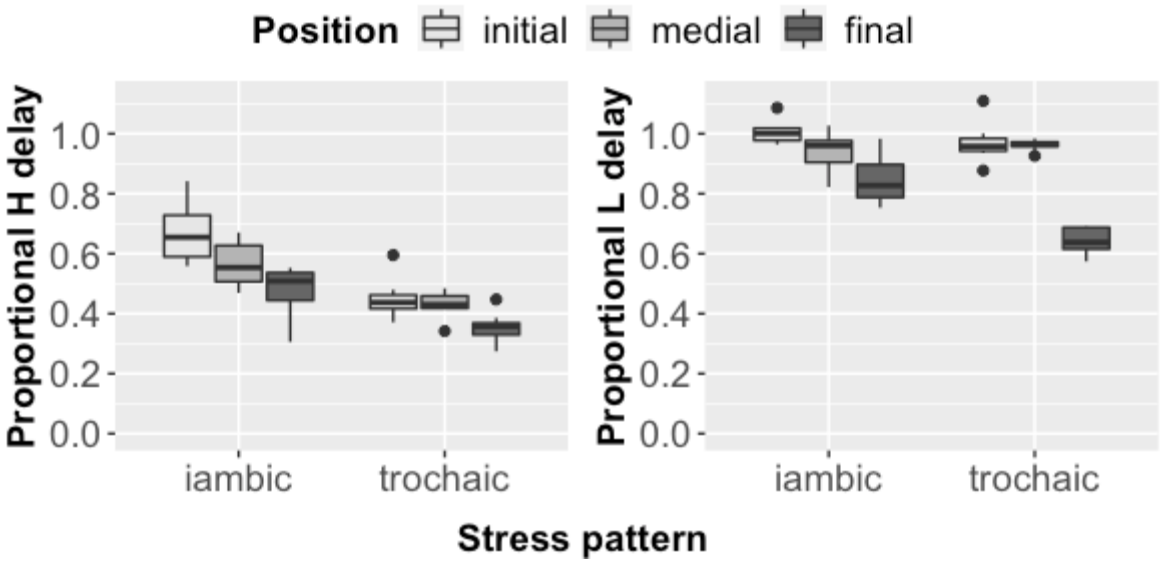

Figure 5.10 Proportional delay of the H (right) and L tone (left) in iambic and trochaic focused words in sentence- or IP-medial, initial, and final positions.

5.4.1.2 Interpolation and the Domain of Accentual Phrases

Between the starred and the boundary tones, there is interpolation: this is so both over the interval (...) in L+H*... La that usually occurs in narrowly focused contexts (Figure 5.18) and in L* ...Ha that is characteristic of non-focused APs, i.e. broad focused APs. Interpolation is also possible over Ha ... L*, that is from the high boundary that marks the end of one AP and the L* of a following AP: this is evident in Figure 5.11 over the long interval from Ha to the L* of the accented *udhëtar*.

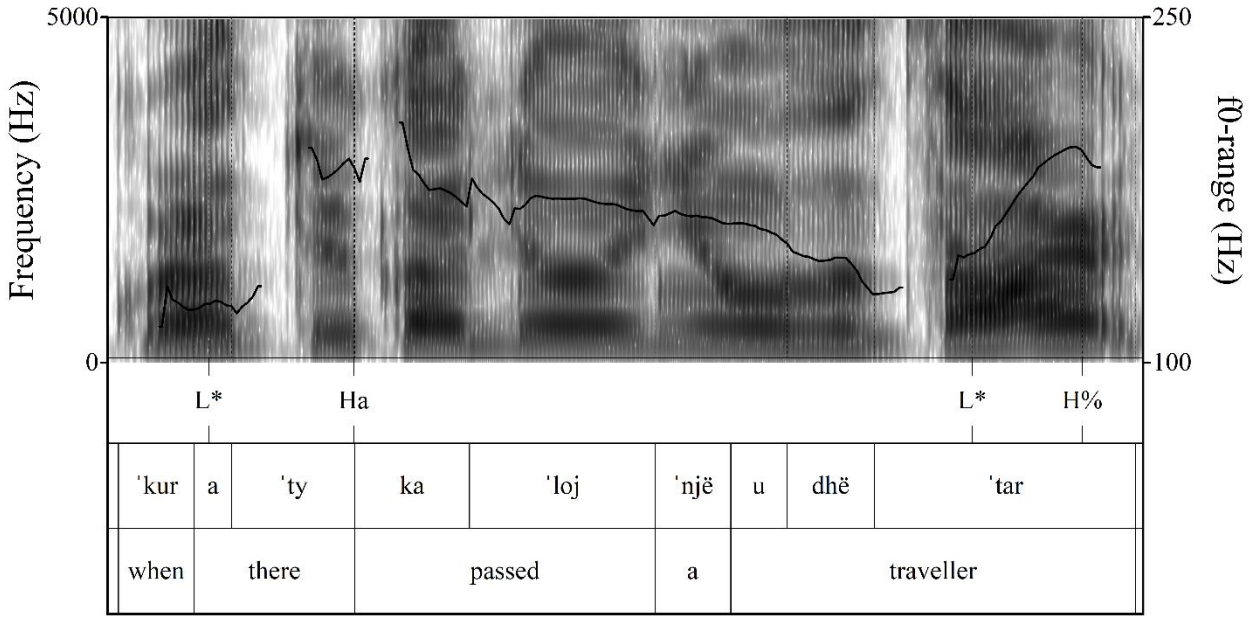

Figure 5.11 Pitch contour and text grid from male speaker for *Kur aty kaloi një udhëtar.* 'Then there a traveller passed by.'

An AP can include more than one word: in this case, only one of them receives a pitch accent. The unaccented words are often (but not necessarily) function words, as in Figure 5.11 above, in which *kaloj një udhëtar* "passed a traveler" forms one AP which contains two content words, out of which only the final word *udhëtar* is accented.

5.4.1.3 Declination in intonational phrases

There is some evidence that the H components of the rising AP undergo declination when APs are organized within an intonational phrase, as in Figure 5.12, where the Ha of the second AP is lower in pitch than the preceding Ha tone of the first AP. Declination always occurs in relation to a preceding boundary tone with the result that F0 is progressively lowered, as seen also in the contour of the utterance in Figure 5.13, uttered in a more spontaneous speech style. Declination shares similarities with the phenomenon of intonational downstep, as described in the context of languages such as English and German (Ladd 1996), but it should be noted here that differently from the downstep, declination refers to a predictable lowering of only the AP-level H tones, following an accented AP, within the scope of the F0's topline (Cohen and Hart 1968). In this way, declination in Albanian is more similar to the downtrend proposed for Bengali (Khan, 2014), Georgian (Vicenik and Jun 2014), Korean (Jun, 1993, 2005) (Jun 1993, 2005), Tamil (Keane 2014).

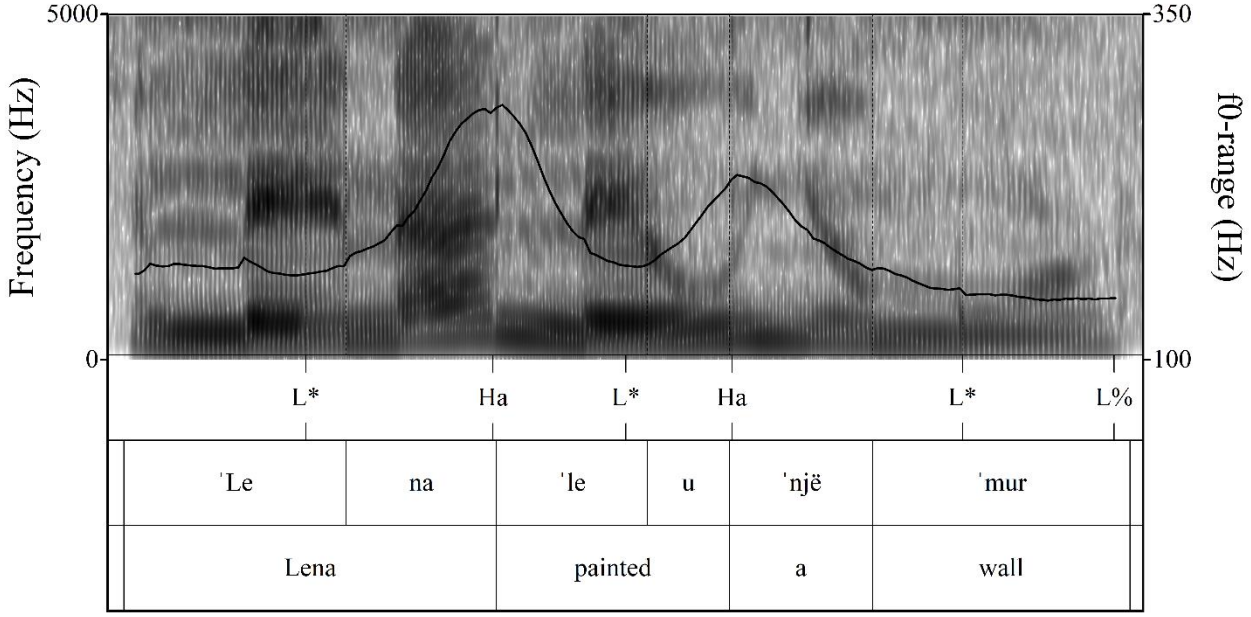

Figure 5.12 Pitch contour and text grid from female speaker for *Lena leu një mur*. 'Lena painted a wall.'

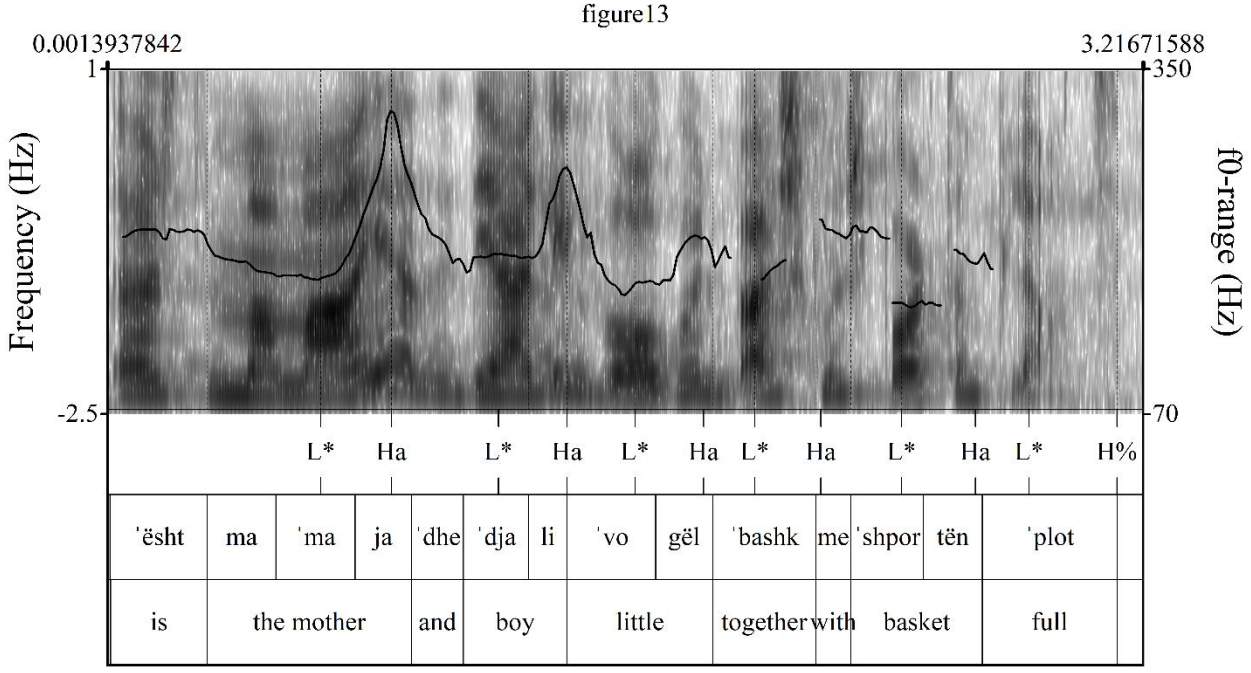

Figure 5.13 Pitch contour and text grid from female speaker for *Është mamaja dhe djali i vogël bashkë me shportën plot.* 'It is the mother and the little boy with the basket full (of things).'

5.4.1.4 Overriding and undershooting of boundary tones

In Figure 5.12, one can also observe that the final AP in the IP does not show a rising pattern. As discussed previously, this is because the concurrent boundary tone is overriden by one that is higher in the prosodic hierarchy: thus, in this case, the AP boundary tone Ha is overridden by the IP boundary tone L%, when they coincide. Consequently, an utterance-final non-focused AP is always marked by an IP boundary tone, which makes Albanian quite similar to prosodic structures in Bengali in this respect (Khan 2014). There is one exception to this generalization, however. This is when the AP contains a pragmatically focused element that is characterized by a rise-fall pattern (L+H* ...La) and, importantly, occurs in final positions. In this case, and as discussed in futher detail in section 5.5.3 below, the AP boundary tone is not overriden by the IP boundary tone, but is, instead, visible preceding the IP boundary tone (e.g. Figures 5.28-5.30).
In the present corpus we also observed that in casual, spontaneous speech, the Ha boundary tones of an AP become reduced and are highly undershot. Figure 5.14 and figure 5.15 show two examples, where, even though the F0 range is low, it still not quite level. Instead, very reduced H targets can be seen, followed by minor falls at the end of the verb *lumturova* 'became happy' in Figure 5.14 and at the end of pronoun *e tjera* 'other' in Figure 5.15. In Figure 5.14, further evidence for the existence of an undershot Ha at the end of the AP in *lumturova* is the lengthening of the initial segment of the word *shum* right after the juncture. Indeed, the initial segment of *shum* is about 0.6 sec longer than the initial segment of *shportën*. This suggests that a Ha is still there at the end of the juncture, but highly undershot – a phenomenon also in line with the Obligatory Contour Principle or OCP (Leben 1973; Mccarthy 1983) which prohibits two tones of the same type in a sequence. In both Figure 5.14 and Figure 5.15, which are parts of larger declarative sentences, the H% at the end of the IP signals that the speaker is not done with finishing her thought, i.e. non-finality.

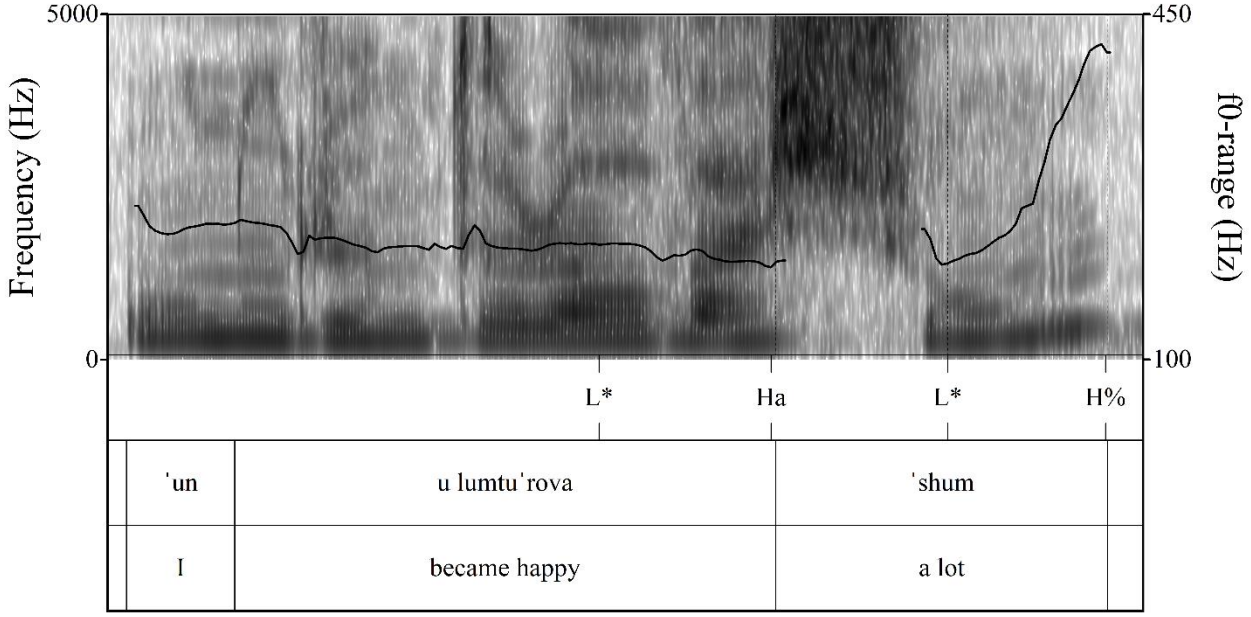

Figure 5.14 Pitch contour and text grid from female speaker for *Unë u lumturova shumë.* 'I became very happy.'

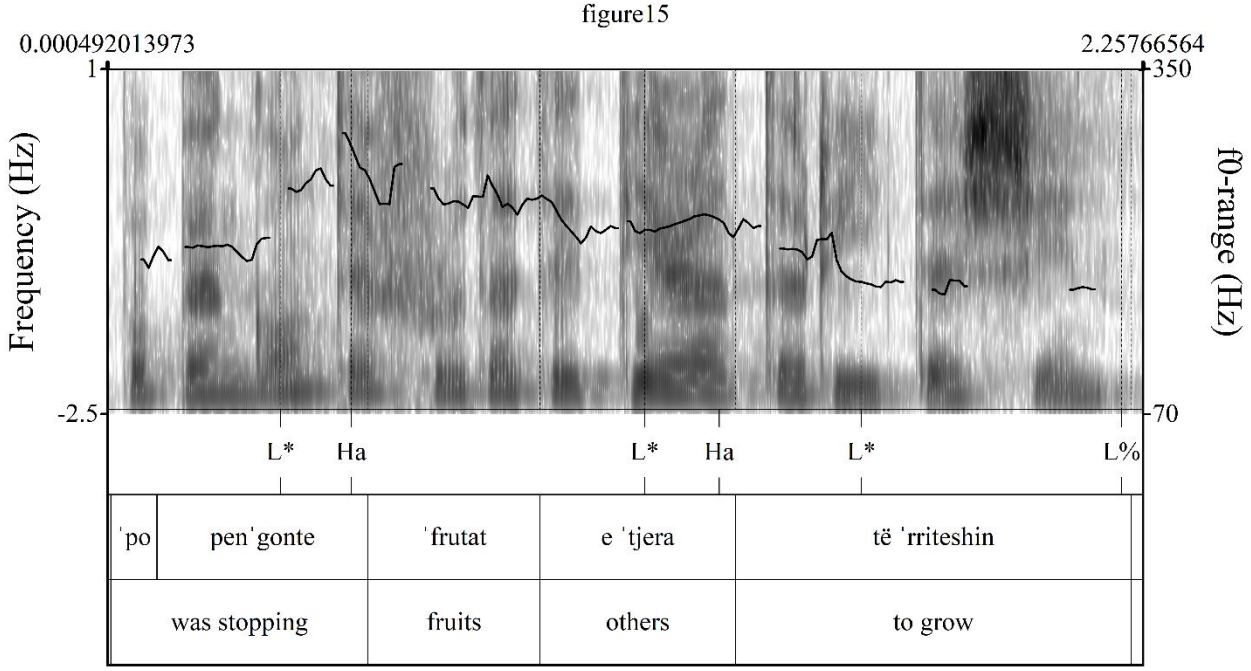

Figure 5.15 Pitch contour and text grid from female speaker for *Po pengonte frutat e tjera të rriteshin.* 'It was preventing the other fruits to grow.'

5.4.2 Intonational Phrases

As already indicated, an intonational phrase (IP) is the largest tonally marked unit in Albanian and is composed of one or more APs. It is accompanied by phrase-final lengthening and is usually followed by a pause. The IP's right edge has an obligatory boundary tone, either an L%, H% or a !H%, which, as discussed earlier, override the boundary tones of the non-focused IP-final APs. The H% boundary tone is common and is sometimes used to indicate that the speaker has not yet completed the utterance, as seen in Figures 5.14 and 15 in section 5.4.1.4 above; it can also be used for questions (see section 5.5 below for a further discussion) and for list intonation (Figure 5.16). The L%, on the other hand, is often found at the end of declarative sentences, indicating some form of completion of thought.

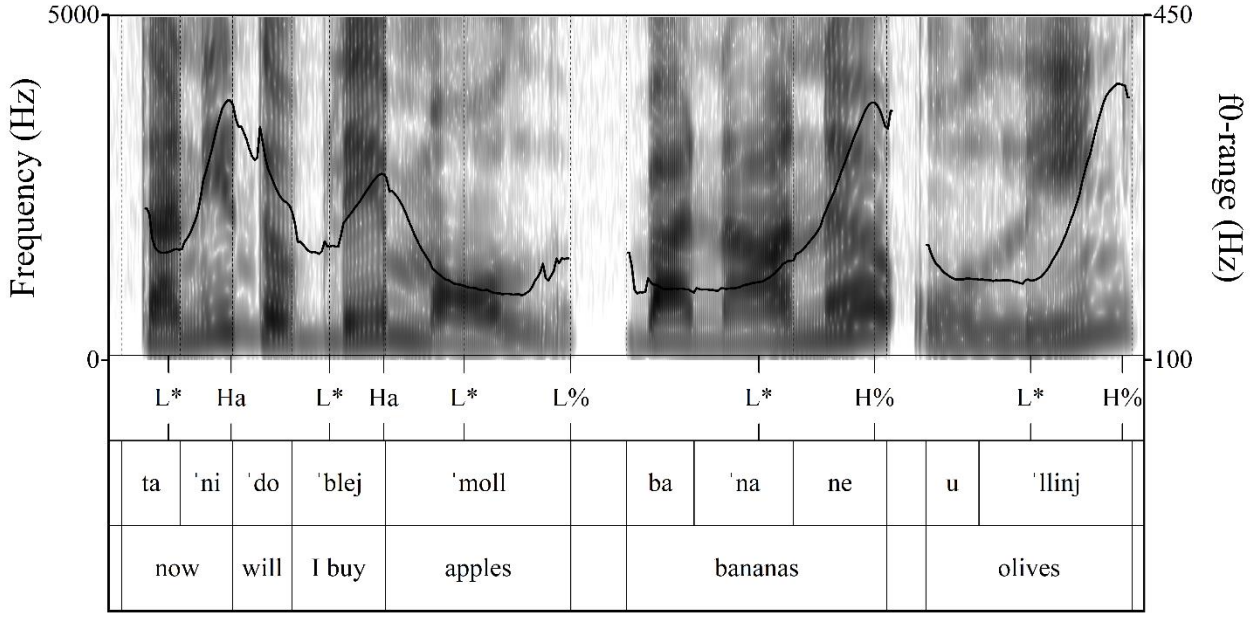

Figure 5.16 Pitch contour and text grid for female speaker for *Tani do blej mollë, banane, ullinj* 'Now I will buy apples, bananas, olives.'

5.5 Focus Realization

There are two main issues to be considered here. Firstly, the intonational characteristics of focused constituents and secondly, how these interact with word order. Albanian typically follows an SVO word order (e.g. Floqi 1969, 1976; Përnaska 1979; Rushi 1983, 1988) in which the preferred location of discourse-given information is utterance-initial and that of discourse-new is utterance-final (Rushi, 1983). But, as in other free word order languages, the subject and the object can appear

pre- or post-verbally and OVS has been suggested to be the second most common word order (Floqi, 1969). Our corpus shows that sentences with narrow focus generally show deaccentuation until the focused element is reached. Figure 5.17 shows a typical pitch contour for *Djali bleu LIBRA* 'The boy bought BOOKS' with no other word accented except the phrase-final focused word *libra*.

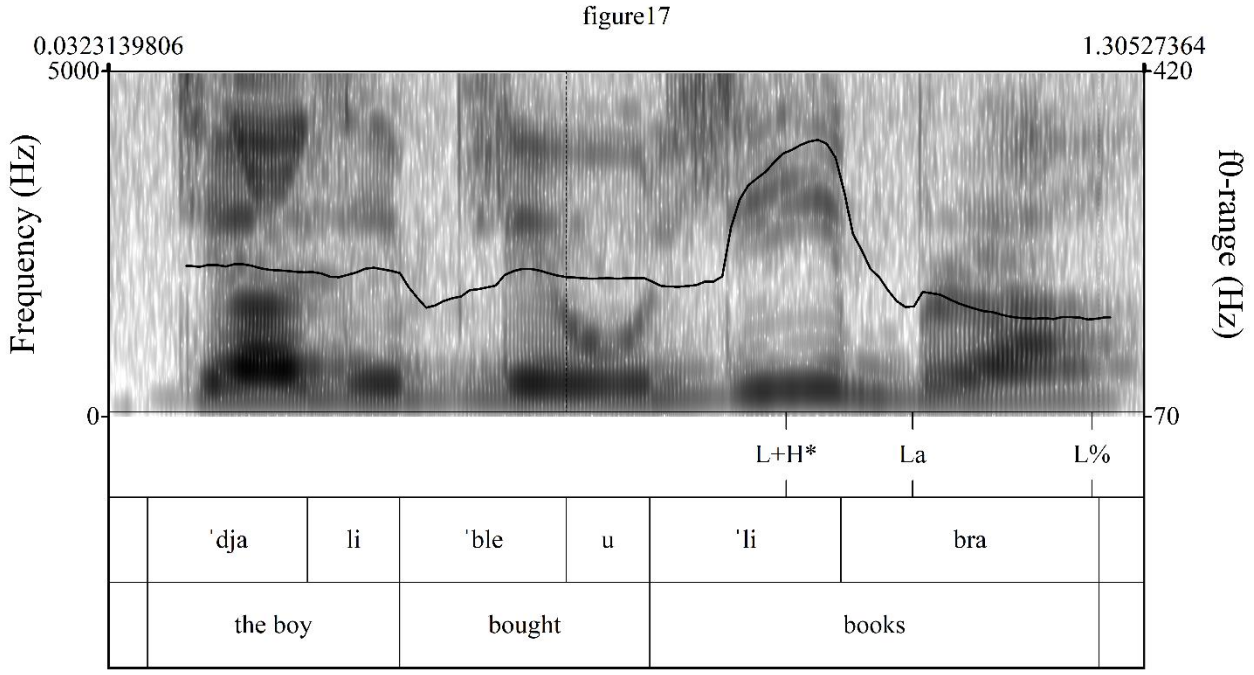

Figure 5.17 Pitch contour and text grid from female speaker for *Djali bleu libra.* 'The boy bought BOOKS.'

The F0 contour for focused words shows an early peak associated with the stressed vowel of the focused word that is followed by a rapid fall which stays low until the end of the word. We have analyzed this contour as having a L+H* pitch accent followed by a boundary tone La which in Figure 5.17 is not overriden by the IP boundary tone L%, as shown by the short flat F0 on the syllable /bra/ that follows the fall from the H* on /li/ to the /b/ of /bra/. We think the flat F0 at the end of focused utterance-final *libra* is caused by first La and then L%. The final syllable /bra/ is not followed by another syllable and, importantly, it is the place where L% of the final IP has to reach its minimum F0, causing both L tones to be realized at about the same time with La first and then L% following it. The same degree of L delay does not happen in the iambic condition's sentence-final focused word because the sentence-final syllable carries both L+H*, La and L%, thus L% cannot be fully realized on the final syllable (see Figure 5.8 for illustration of an iambic IP-final example). We do, however, intend to pursue the issue of La further in our future work in order to understand whether the duration between the La boundary tone and the stressed syllable or the starred tone play a role in focus identity in Albanian, not just for focus final APs, but also focus medial and initial APs.

Figure 5.17 also shows that words before focus can be deaccented and dephrased, i.e., there is no L* and Ha before /libra/. But in Figure 5.22, for example, the subject forms its own AP even though

the object is focused (see also Figure 5.17), suggesting that deaccenting/dephrasing before focused words is optional. Our corpus shows that deaccenting/dephrasing in many context: future research is planned for analysing this type of variation in further detail.

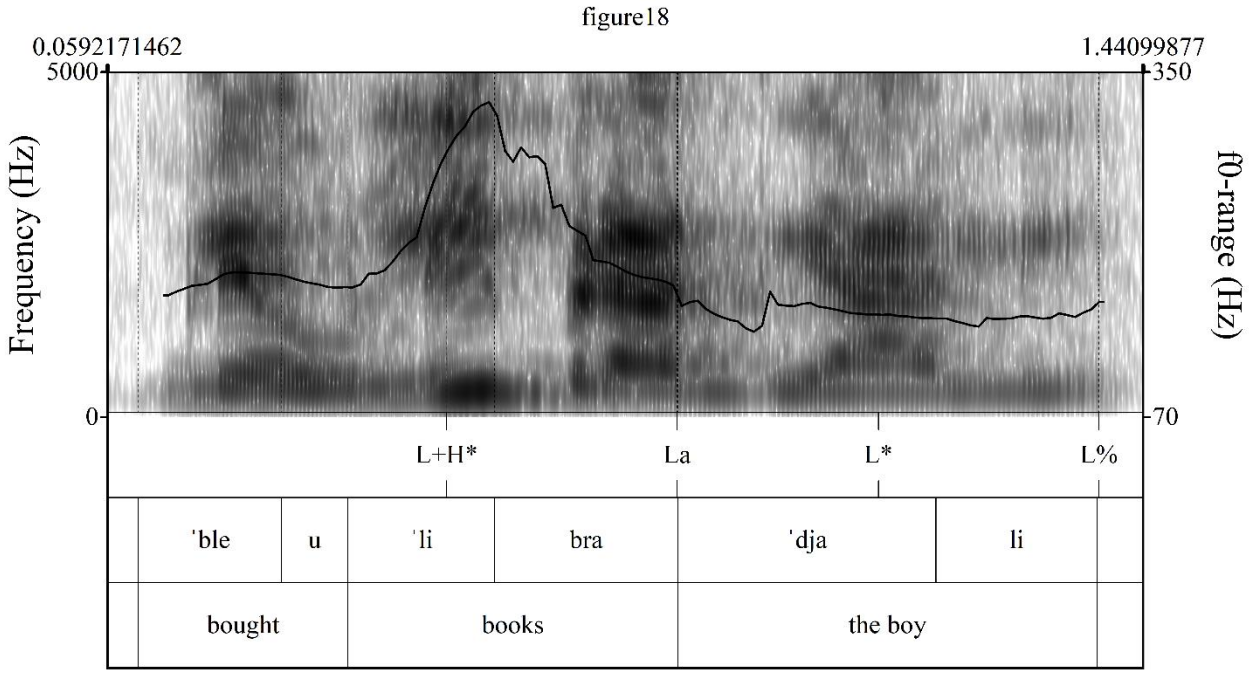

Figure 5.18 Pitch contour and text grid from female speaker for *Bleu LIBRA djali* 'The boy bought BOOKS'

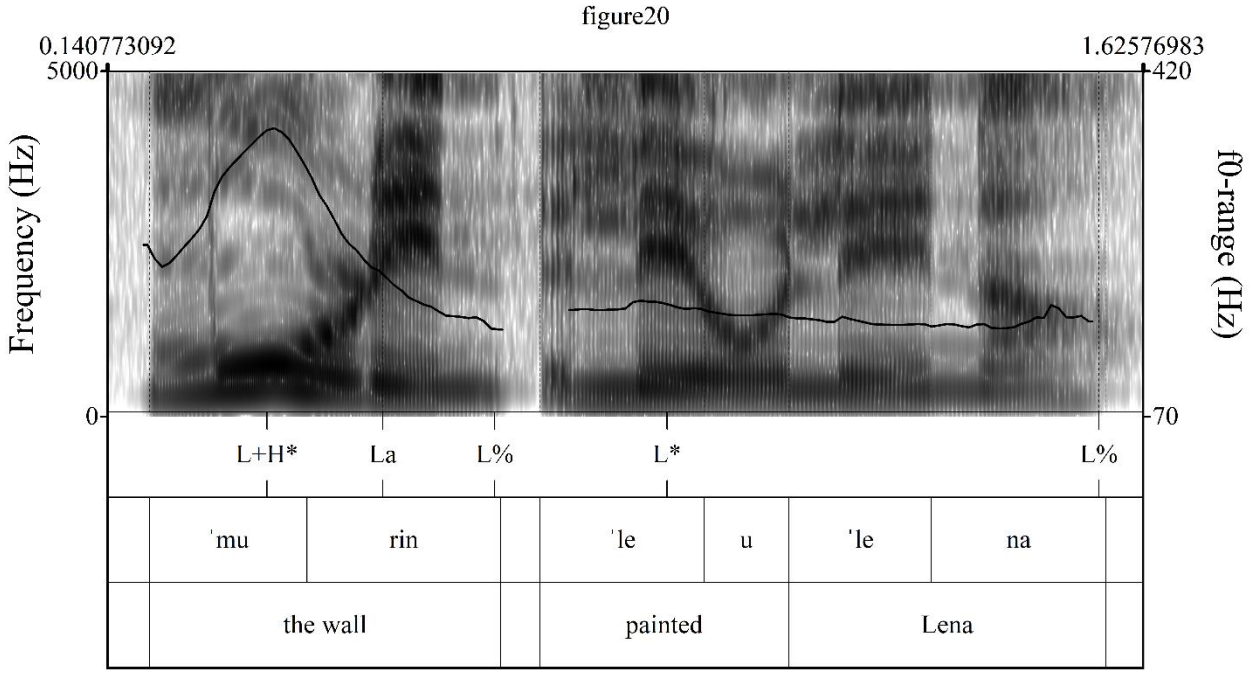

Figure 5.19 Pitch contour and text grid from female speaker for *MURIN leu Lena* 'Lena painted THE WALL'

Narrowly focused utterance-initial constituents very often form their own intonational phrase, as in Figure 5.19. This phrase usually ends on a low tone (L%) and is followed by a pitch reset: this can be seen at the beginning of the following IP phrase *leu Lena* 'Lena painted'. Phrasing alone is not enough to signal narrow focus, however, and requires an L+H* … La tonal pattern. In common with Georgian (Vicenik and Jun 2014), but in contrast to Bengali (Khan, 2014), for instance, words following narrowly focused word are not always deaccented, as shown in Figure 5.21. However, the L+H* of narrowly focused constituents is scaled higher than preceding H boundary tones, thus perhaps serving as a signal that the focused element is the most salient AP in the entire IP. Compare, for instance, the non-focused AP *djali* 'son' with the focused AP *ullinj* 'olives' in Figure 5.20. As our corpus did not contain enough relevant material, it remains as a topic of interest for future research whether different types of focus, i.e. corrective, contingency, definition, counter presupposition, etc. (Gussenhoven 2007) are characterized by different pitch contours.

The location of the L target of the L+H* in relation to the tonic and pre-tonic syllable will also be analyzed in a future study in further detail. Given that a leading tone (L+) should be near the H* syllable, i.e. immediately preceding the H* syllable, the question arises whether the L target of the L+H* in focused words in Albanian occurs within the H* syllable or the preceding syllable. Figure 5.6, for example, shows a similar alignment of the L+ target that we see in Figure 5.20, i.e. an L target on the word (verb) before a focused word, though, arguably, in the preceding syllable. But in Figure 5.6, the rising of L+H* is sharp, whereas in Figure 5.20, the rising of L+H* is shallow; it looks like F0 is interpolating between L on /ble/ and H on /llinj/. Future work should focus on investigating how variable the alignment of L of L+H* in this case.

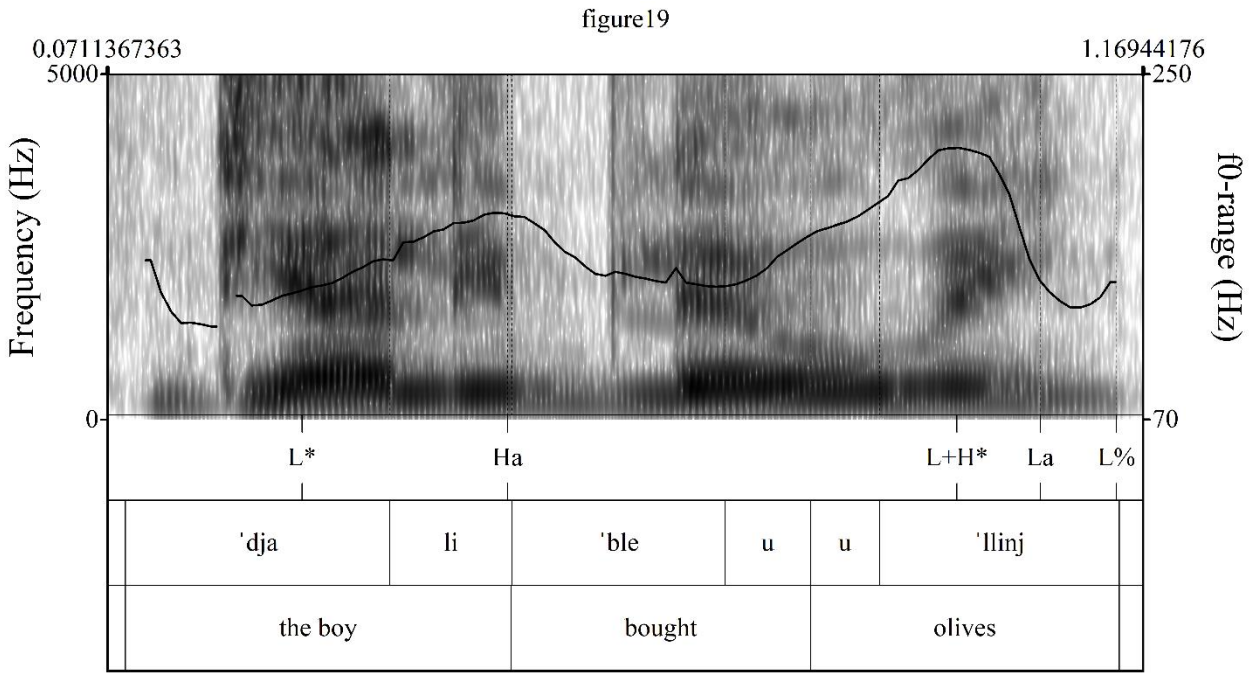

Figure 5.20 Pitch contour and text grid from female speaker for *Djali bleu ullinj* 'The boy bought OLIVES'

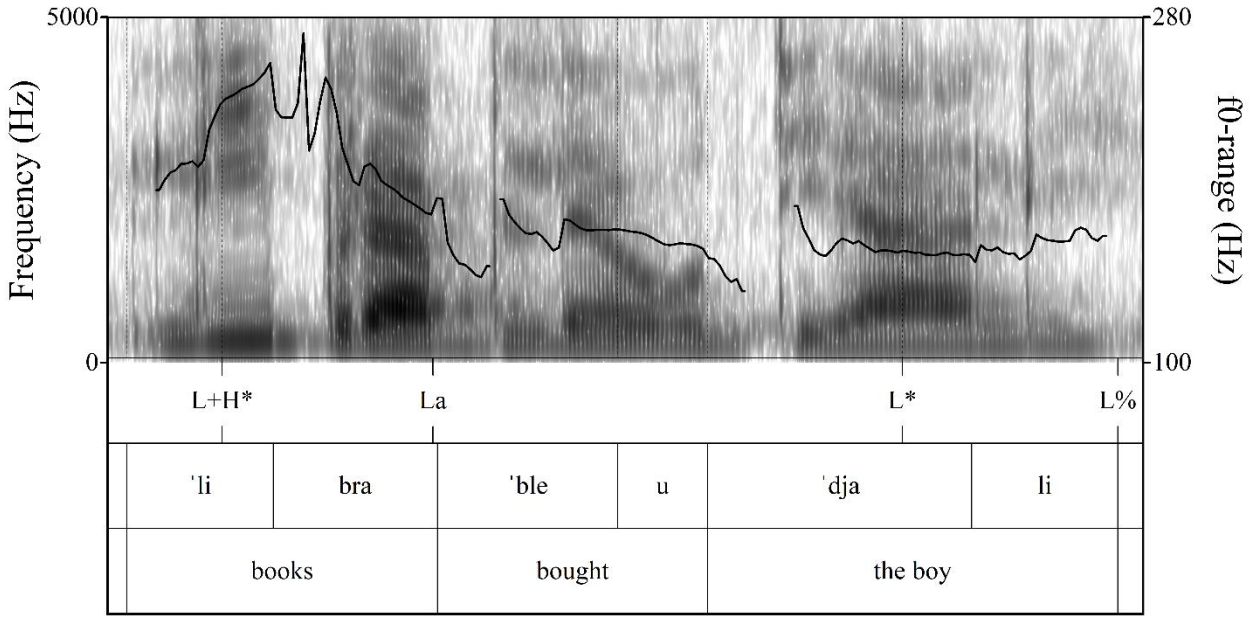

Figure 5.21 Pitch contour and text grid from female speaker for *LIBRA bleu djali* 'The boy bought BOOKS'

5.6 Sentence types

5.6.1 Non-interrogatives

Our corpus showed that virtually all declaratives introduced earlier in the chapter through pitch accent and boundary tone sections as well as the section on focus realization, are marked by a low IP boundary tone (L%) when the speaker has completed his/her utterance. Otherwise, if the speaker intends to continue the utterance, but produces a pause, the declaratives in that contexts are marked by H%. Unfortunately, we did not have data with imperatives for a systematic empirical analysis, but the first author's native speaker intuition is that these types of sentences also are marked by a low IP boundary L%.

5.6.2 Interrogatives

In traditional grammatical studies in Albanology, there are at least 10 types of questions in accordance with their pragmatic function (Çeliku et al. 2002). Our corpus contained a limited number of them, which are considered below, i.e. wh-questions (confirmation, informational) wh-questions, yes-no questions (informational, confirmation, surprise), and alternative questions.

5.6.2.1 Wh-questions

Intonationally, wh-questions are typically distinguished by one obligatory feature. i.e. a high boundary tone at the right edge (H%). Otherwise, their melody depends on what is considered given or shared information by the speaker.

5.6.2.1.1 Informational wh-questions

In the absence of shared information, speakers mark the wh-question using a high boundary tone H%, as in Figure 5.22, in which the wh-pronoun *çfarë* 'what' is characterized by a low tone pitch accent (L*) and a high tone boundary tone (Ha)[6].

[6]It is to be noted here that almost all question words in Albanian consist partially of non-sonorant sounds and are mainly monosyllabic, i.e. who kush, cili 'what', *kujt* 'to whom', *ku* 'where', *si* 'how', *sa* 'how many', *çfarë* 'what', *kur* 'when', with the exception of two, i.e. *cilit/cilin* 'to whom/whom', *përse* 'why'. All these wh-words are typically produced with melodies similar to those for *çfarë/çfar* 'what' in the two types of wh-questions in Figures. 5.22-5.23.

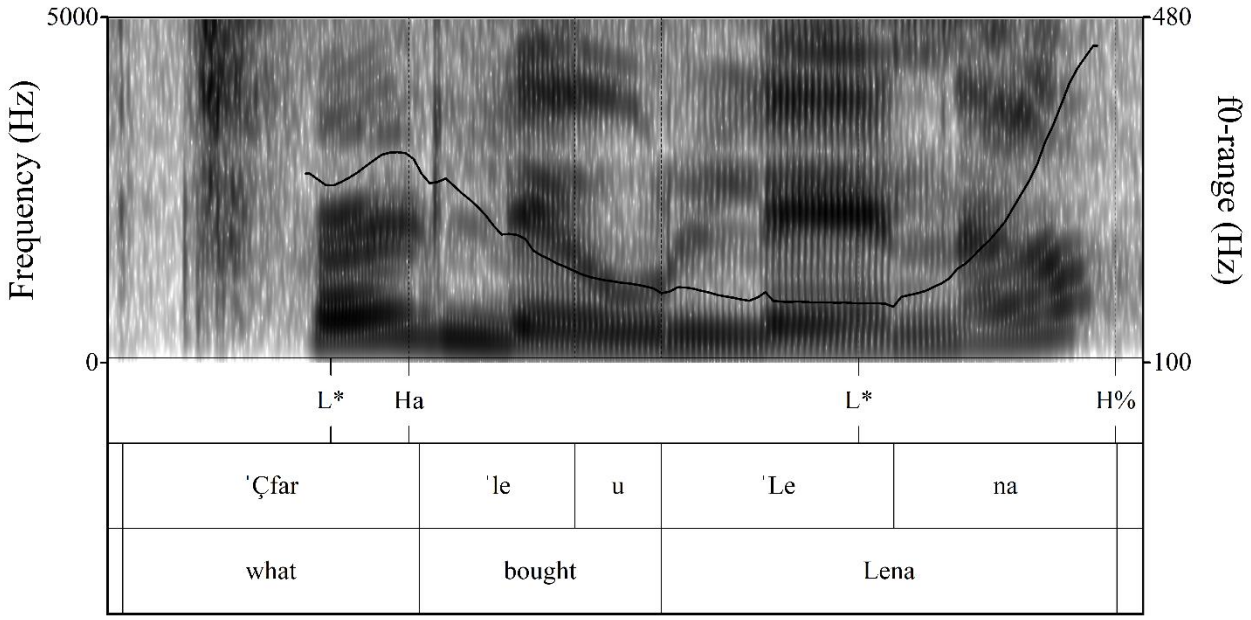

Figure 5.22 Pitch contour and text grid for female speaker for *Çfarë leu Lena?* 'What did Lena paint?'

5.6.2.1.2 Echo wh-questions

When the speaker seeks to confirm some knowledge that she has heard previously about the shared context, then wh-questions are often marked by a low tone pitch accent on the wh-word and a H% boundary tone, as in Figure 5.23 (here, WHAT did Lena paint?). In other words, the speaker shares some information with the listener about Lena painting something and wants to confirm via this type of question what it is. The difference between these two examples is that in Figure 5.22 *Lena* is accented and bears a pitch accent L*, while *Lena* in Figure 5.23 is unaccented. A pilot perception study showed that 9 out of 10 native speakers of Albanian judged *Lena* to be more prominent when accented (Figure 5.22) than unaccented (Figure 5.23).

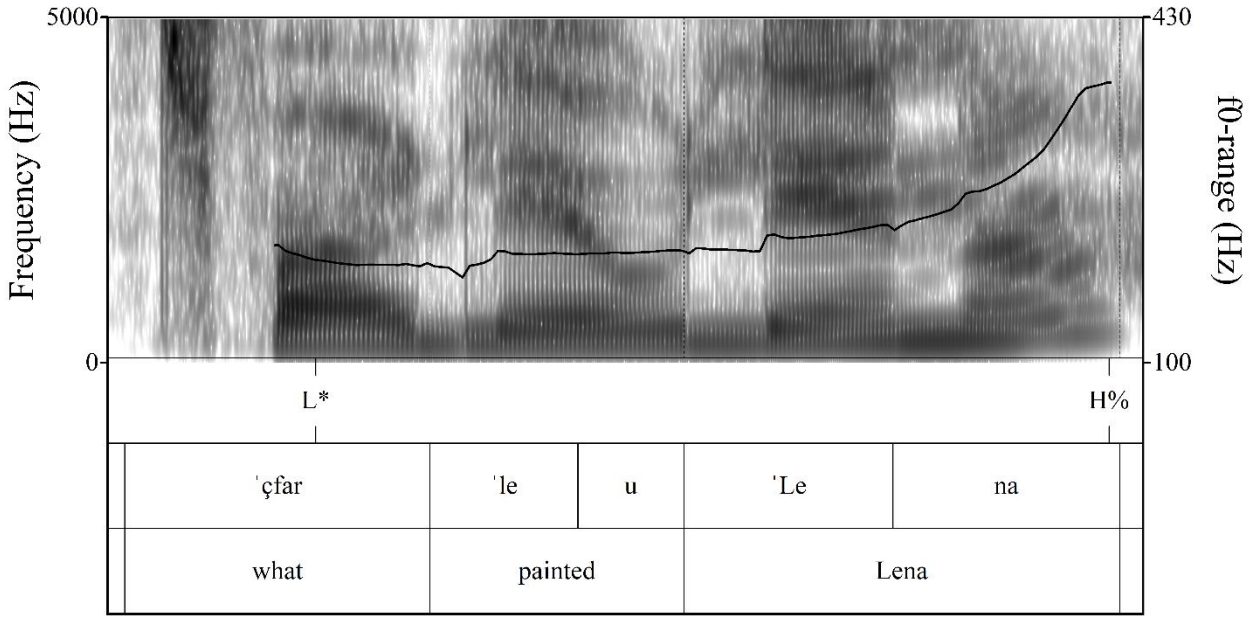

Figure 5.23 Pitch contour and text grid from female speaker for *ÇFARË leu Lena?* 'WHAT did Lena paint?'

5.6.2.2 Yes-no questions

5.6.2.2.1 Yes-no informational questions

Yes-no questions in SA can be marked with the question particle /a/ and/or via intonation. Yes-no questions with an initial /a/ question particle are produced with an accented /a/, as in Figure 5.24, and usually indicate in SA that the speaker has no prior knowledge of the background information, i.e. he or she wants to find out specificities about the situation (Çeliku et al. 2002). The spectrogram of such a question in Figure 5.24 shows that the first syllable /a/, i.e. the question particle, has very strong intensity, different from the /a/ vowel in /Lena/, suggesting the presence of a pitch accent, in this case an L*. Also, the F0 contour shows interpolation from L* to H%. Figure 5.24 and Figure 5.23 are quite similar, but differ with regards to the rising slope: in Figure 5.23, F0 stays low flat till /leu/ and then slightly rises on /le/ before sharply rising on /na/. In Figure 5.24, however, F0 starts rising after L* and keep rising till the /mu/ syllable, followed by a sharper rise on the final syllable /rin/.

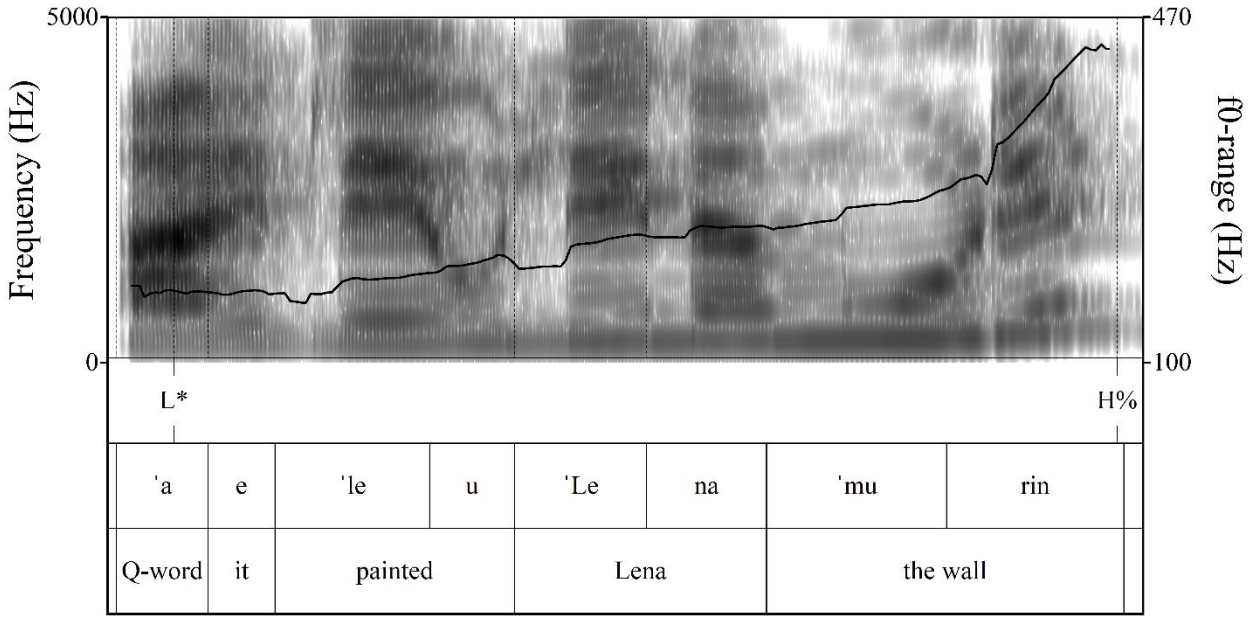

Figure 5.24 Pitch contour and text grid from female speaker for *A e leu Lena murin?* 'Did Lena paint the wall?'

5.6.2.2.2 Yes-no confirmation questions

Yes-no questions without the question particle /a/ can also have the same word order as in declarative utterances and are usually used to indicate that the speaker has some prior knowledge about the situation that he or she is trying to confirm. In these cases, speakers can vary utterance-level prominence depending on what they want to confirm. For instance, Figure 5.25 illustrates an example of a yes-no question in which the speaker requires confirmation about whether it was in fact Lena that painted the sapling. The spectrogram shows that *Lena* is accented. The F0 rises from L* to H%. The very little dips in F0 seen around /nj/ and /z/ in /njomzën/ are due to microprosody.

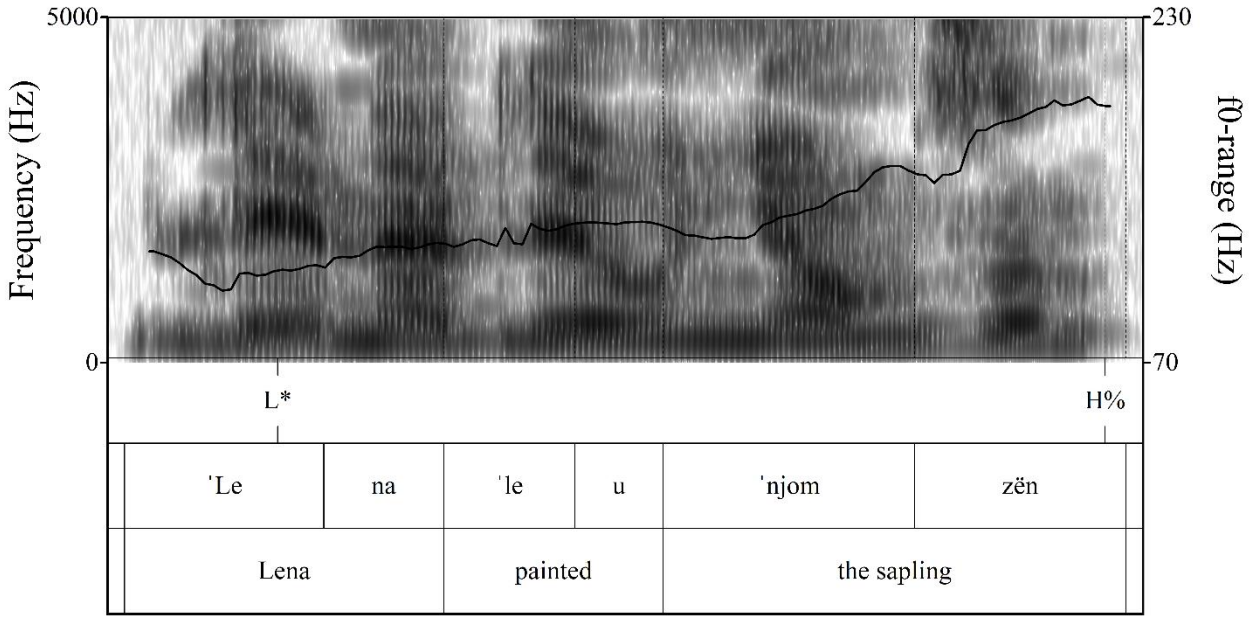

Figure 5.25 Pitch contour and text grid from male speaker for *LENA leu njomzën?* 'LENA painted the sapling?'

Figure 5.26 shows an example of a similar yes-no question in which the speaker wants to confirm information about *njomzën.* Note how, differently from what we have seen so far, the L+H* ... La pitch accent is realized over the non-focused word *Lena* as a rise which reaches its peak at the end of the lexically stressed syllable, followed by a fall, during which F0 interpolates from the H* to the word's right edge boundary. From here, F0 stays at a low level until it reaches the low tone on the first syllable of *njomzën,* after which it interpolates to the H% tone at the end of the question. Thus, in these types of questions, while L* pitch accents are reserved for words about which the speaker needs to confirm information, the L+H* pitch accent is used elsewhere.

Figure 5.27 demonstrates another example of the same usage of this tonal pattern in a longer word within the same type of yes-no confirmation question. Again, the L+H* ... La contour quite visibly begins with the rise over the stressed syllable /le/ of *Marilena* followed by a fall from the H* to the end of the word's right edge boundary, stays low until it reaches L* on /njom/ and then rises sharply towards H% at the end of the IP.

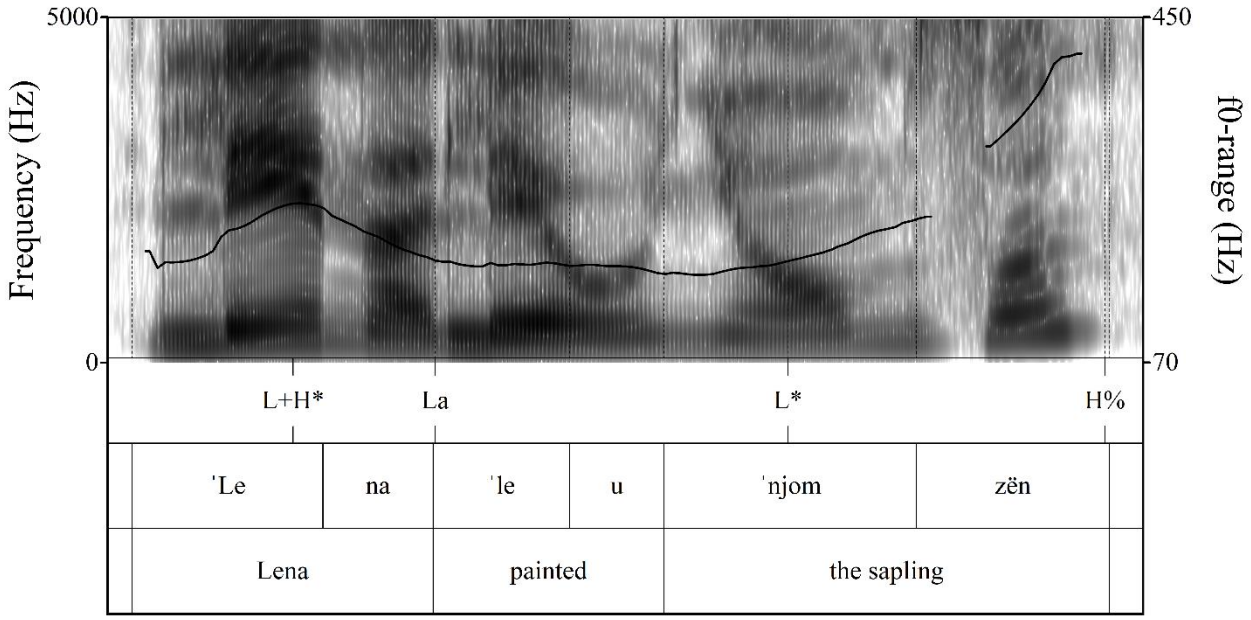

Figure 5.26 Pitch contour and text grid from female speaker for *Lena leu NJOMZËN?* 'Lena painted THE SAPLING?'

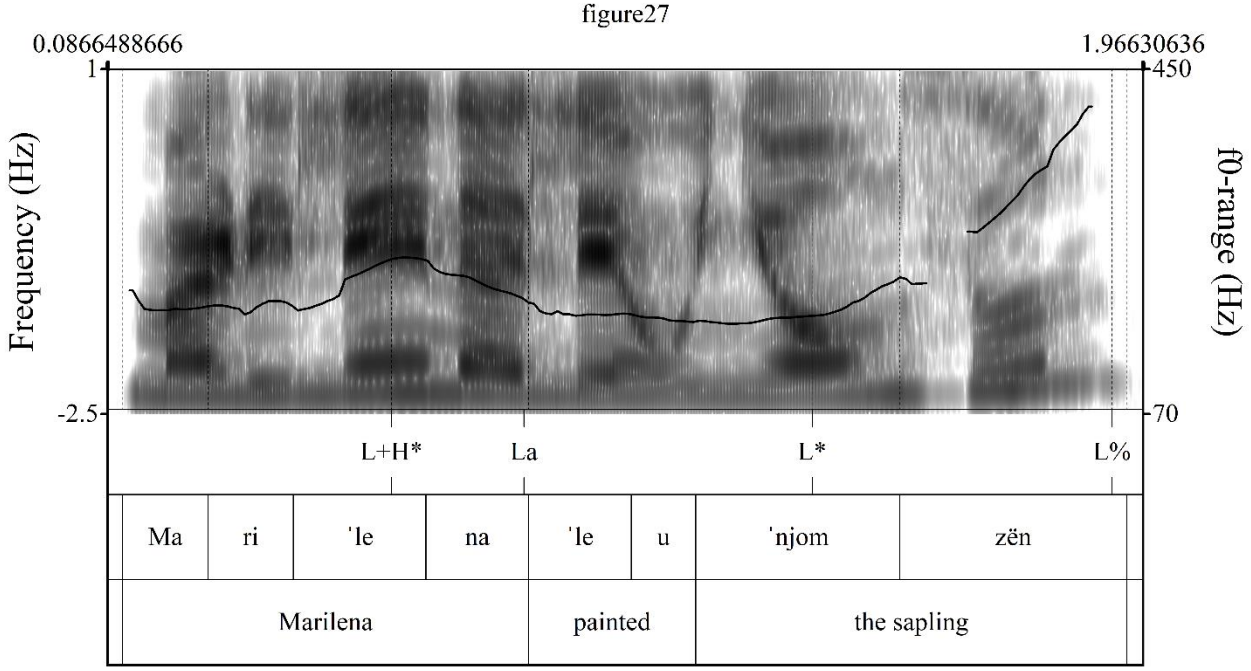

Figure 5.27 Pitch contour and text grid from female speaker for *Marilena leu NJOMZËN?* 'Marilena painted THE SAPLING?'

5.6.2.2.3 Yes-no surprise questions

Figures 5.28, 5.29 and 5.30 are, by contrast, examples of yes-no questions in which the speaker does not want to confirm shared information, but is, instead, very surprised about the information that has just been established. In Figure 5.28, the speaker is very surprised either that Lena painted the sapling (and not something else) or that the speaker painted the sapling at all. In this example, F0 stays at a low level until it reaches the rise on the first syllable of *njomzën*, after which it falls sharply towards the end of the same syllable and then continues to stay flat at mid F0 level during the last syllable with a tiny rise at the end. We have analyzed this example as having an L+H* ...La followed by a downstepped !H% because the La triggers a downstep in the following H% boundary tone. But note the relative height of F0 here, which is more like a medium high when compared to the preceding L tone of the L+H*. Although this example is very much like the calling contour in German (M. Grice, Baumann, and Benzmüller 2005), it by no means serves the same function. Moreover and, importantly, it also serves as good evidence of the presence of La as a boundary tone alongside the L+H* pitch accent.

The examples in Figure 5.28, 5.29 and 5.30 were checked with 9 native speakers regarding their function, including a 10 year old girl in this sample, and they all confirmed that the three utterances would be used if the speaker is surprised about the last element in the question. Thus, one can say that the element of surprise in these questions is quite robust.

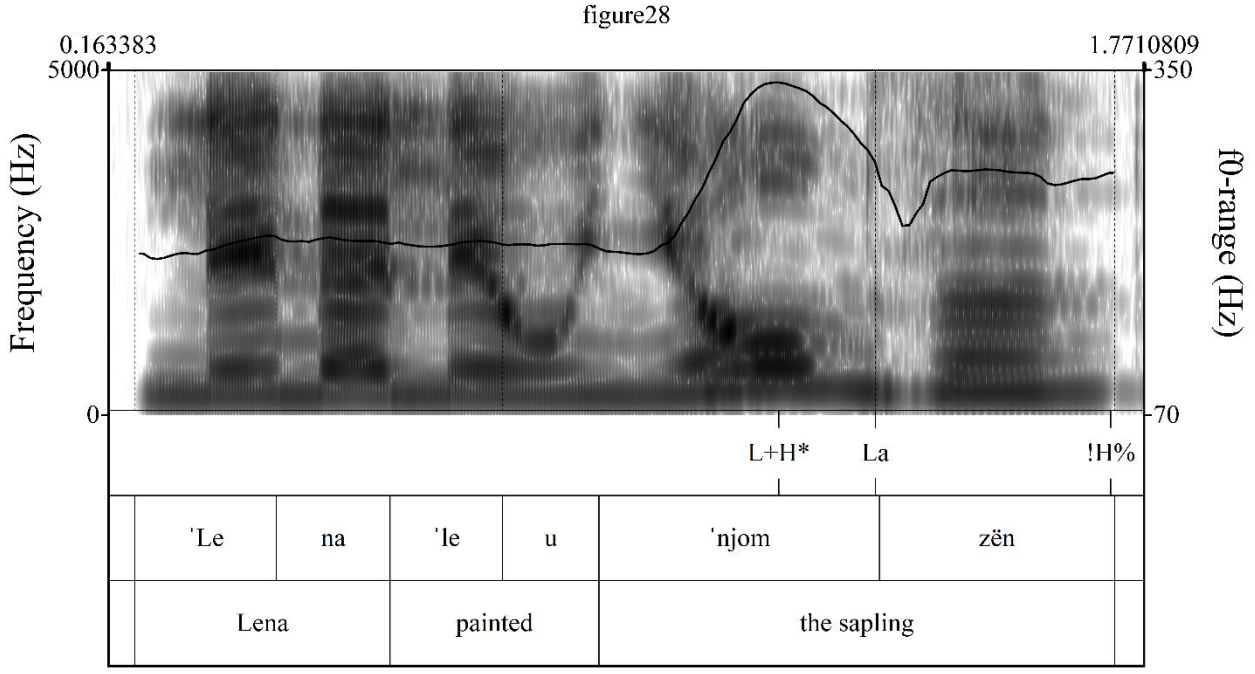

Figure 5.28 Pitch contour and text grid from for *Lena leu njomëzën?* 'Did Lena paint the sapling?'

Figure 5.29 is an example of a yes-no surprise question similar to that in Figure 5.28, except in the example in Figure 5.29, the consitutent that the speaker is surprised about is expressed by a noun with 3 syllables and not 2 as in Figure 5.28. Note again the L+H* ...La !H% on the final AP of the question (which is an object noun) with the location of the La boundary tone on the penultimate syllable /tu/ of the word *fluturën* 'the butterfly' . In this case, as in 28 above, La is realized as mideum high, i.e. note the relative height of F0 here compared to the preceding low F0 in the syllable /mi/ of *Mira.*

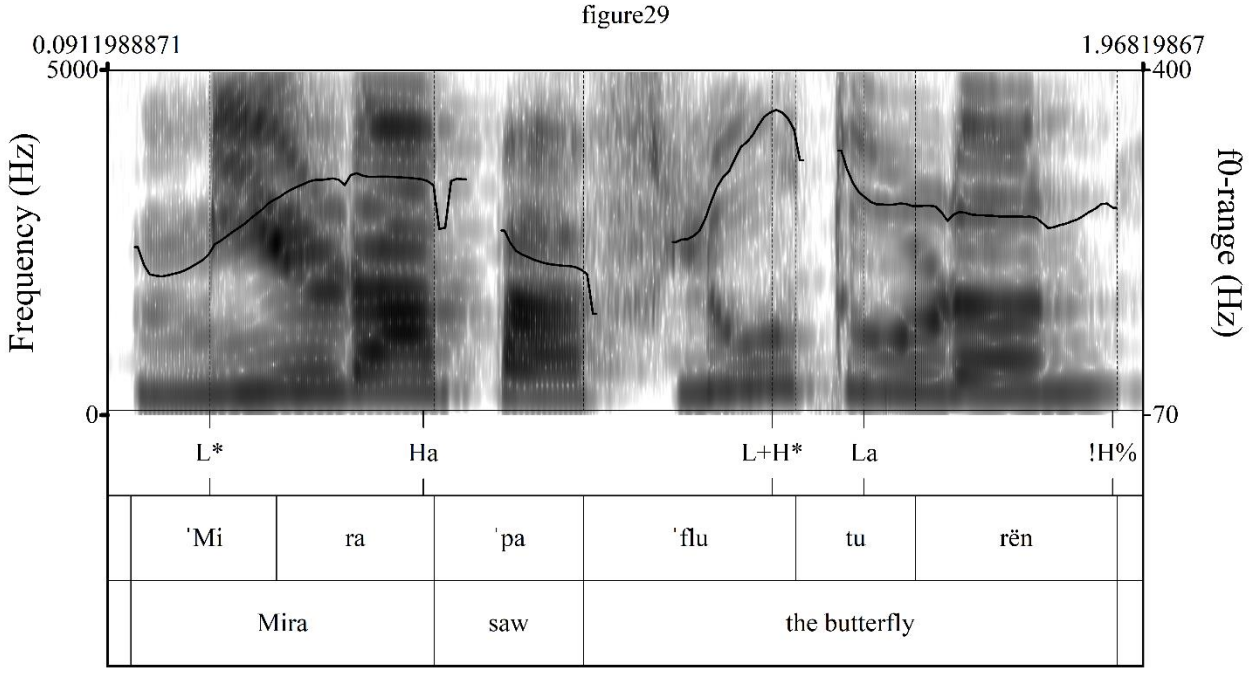

Figure 5.29 Pitch contour and text grid from female speaker for *Mira pa fluturën?* 'Did Mira see the butterfly?'

In Figure 5.30 the speaker is surprised about the subject *Lena* which she positions IP-finally in an OVS non-canonical word order. This question also bears the downstepped IP boundary tone !H% which follows the L+H* ...La complex tone signalling surprise.

As seen, the tonal markings of yes-no questions, i.e. informational, confirmation, and surprise yes-no questions, are very complex and depend heavily on what the speaker and the listener consider given or shared with one another. But in all cases, speakers use a high or a downstepped high IP boundary, i.e. H% or !H% for yes-no questions.

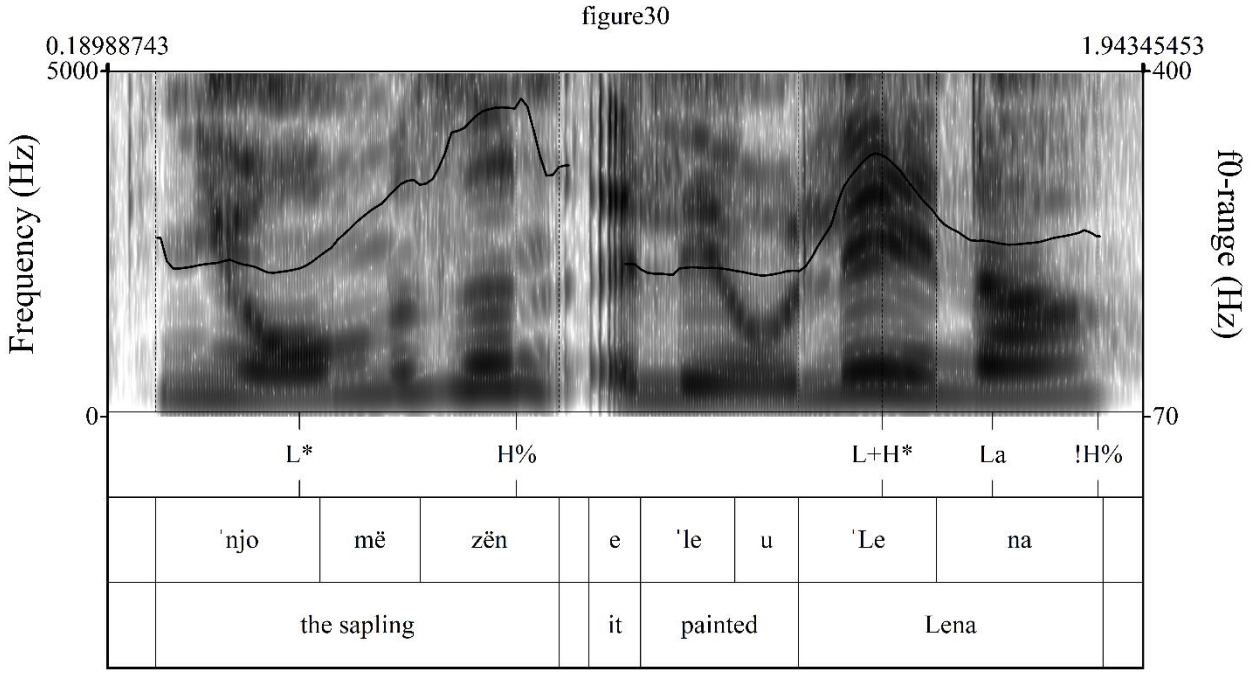

Figure 5.30 Pitch contour and text grid for *Njomëzën e leu Lena?* 'Did Lena paint the sapling'

5.6.2.3 Alternative Questions

Alternative questions, which offer the listener a closed choice between two or more alternatives, are marked in Albanian with the particle /apo/ 'or' positioned between the two alternatives. The differentiating feature of this type of question from the other types is the low boundary tone L% that characterizes them, as seen in Figure 5.31. Typically, /apo/ links the two alternatives that each occur in their own AP. The Ha boundary tone after the first alternative *murin* in Figure 5.31 is scaled higher than the Ha following *Lena.* Whether this higher scaling is typical of these kinds of *apo* questions also needs further investigation.

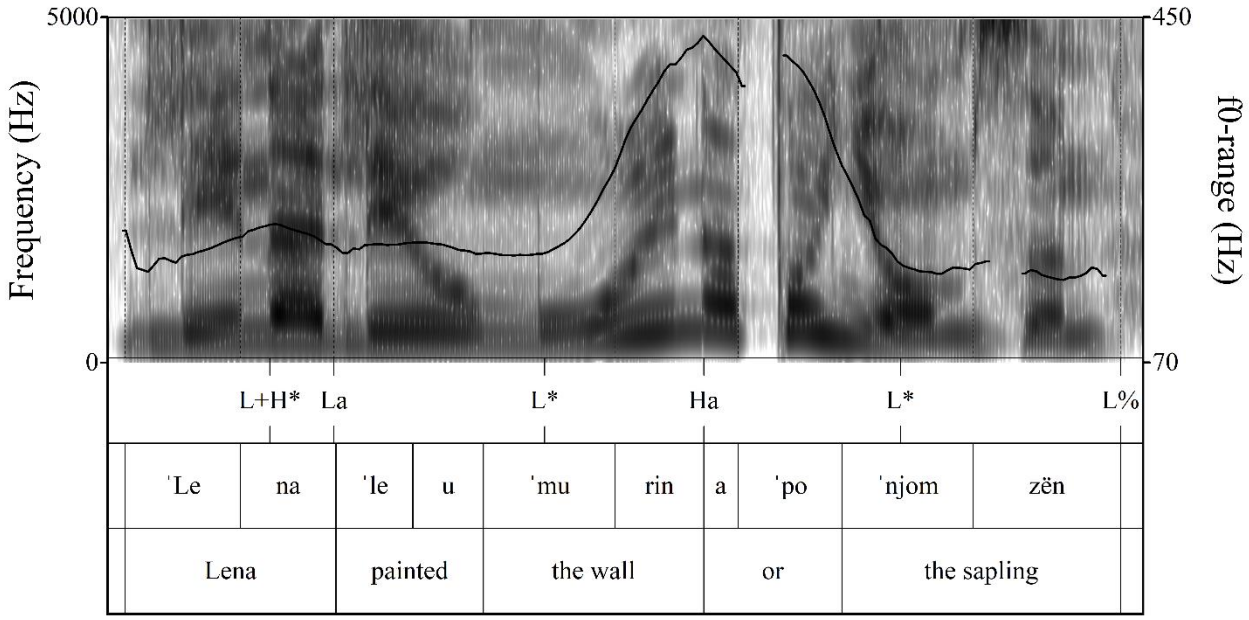

Figure 5.31 Pitch contour and text grid from female speaker for *Lena leu murin apo njomëzën?* 'Did Lena paint the wall or the sapling?'

5.7 Discussion and Conclusive Remarks

The proposed inventory of tones for Standard Albanian is shown in Table 1 below.

Table 1 Inventory of tones in Standard Albanian

	Pitch-accents
L*	broad focus in declaratives confirmation focus in questions
L+H*	narrow focus in declaratives non-focus in echo and information type questions focus in yes-no surprise questions
	AP Boundary Tones
Ha	after L* realized at the end of the final syllable of an AP overridden when AP is IP-final
La	after L+H* realized at the end of the final syllable of an AP not overridden when AP is IP-final
	IP Boundary Tones

L%	in declaratives realized on IP-final syllable characteristic boundary tone for alternative-type questions
H%	in wh-questions and yes-no questions and listings realized on IP-final syllable
!H%	in yes-no questions with IP-final focused word realized on IP-final syllable

This chapter shows an AM model of Albanian intonation, which will be used as a ground work in developing the AL-ToBI for the tone tier labels (i.e., the 'To' part); however, this chapter does not propose anything about break indices, which is the 'BI' part of ToBI. In the model that we propose here, there is a hierarchy of prosodic units consisting of intonational phrases (IP) that are made up of one or more accentual phrases (AP). The right edge of each of these units is associated with a boundary tone. In contrast to other languages such as English, SA only has one complex tune configuration at boundaries in contexts where L+H* …La. In this case, the boundary tone La is not overridden by the % tone when the word is IP-final, e.g. in surprise questions. Otherwise, tune configurations at boundaries are simple because boundary tones of higher prosodic phrases override the boundary tones of the lower non-focused AP prosodic phrases.

An AP in Albanian can have more than one word, but can have only one pitch accent which is realized on the stressed syllable of the pitch-accented word. Pitch-accented words are typically marked with a rising pitch, unless they are focused. The rising pitch in broad focus declaratives is due to an L* … Ha configuration such that the L* is aligned with the rhythmically strongest syllable and Ha with the AP's final word's right edge. Accented words in narrow focus are typically produced with a rise-fall pitch due to an L+H* on the stressed syllable and La aligned with the right edge of the word/AP. Words following a focused word in the same phrase are not always deaccented, though deaccentuation is quite typical in this context.

Declarative sentences in canonical word order SVO usually end in an L% boundary tone. Questions in Albanian can be communicated both syntactically and prosodically. H% is typical for wh-questions and yes-no questions, while alternative questions are marked by L%. Focus realization is also made possible through both syntax and intonation, and accented words are typically marked with a rise-fall pitch accent, i.e. L+H* …La in declarative sentences and L* in yes-no questions in which the speaker seeks to confirm information about the discourse context.

Prominence in Albanian is marked both through prosodic heads (which are made more prominent when associated with a pitch accent) and edges. Albanian displays characteristics of other proposed head-and-edge prominence languages, such as Bengali, French, Georgian, Japanese, Tamil, etc. (S.-A. Jun and Fougeron 2000; Keane 2014; Khan 2014; Venditti 2005; Vicenik and Jun 2014). In Bengali and Georgian, when an AP includes more than one word, the AP-initial word's initial syllable is associated with L* and the final syllable of the AP-final word with Ha: that is, the AP-initial word carries a pitch accent, but this pitch accented word's right edge is not marked by Ha. By contrast, Albanian typically marks the accented word by a T* tone on its stressed syllable and the final syllable of the AP with Ta boundary tone, which signals the end of the accentual phrase.

This initial AM model of Albanian intonation has inevitably left some issues unresolved including at least the following issues: a) the presence or absence of intermediate phrases in the language, b) whether different types of focus, such as corrective, contrastive, broad and narrow, are characterized by different pitch contours, c) the function of the L* … Ha and L+H* … La melody

in other types of questions, d) the tonal contour of imperatives and f) the alignment variability of L in L+H* in making focus in declarative utterances . Future studies should deepen the understanding of the model proposed here also by: i) analyses of a more casual, spontaneous speaking style in different dialects ii) validating the proposed tones through perception studies, and iii) analyzing the applicability of the proposed model to intonation and phrasing in child language acquisition and atypical language development.

Nevertheless, this initial analysis of Albanian has shown that it is possible, even for less studied languages, to formulate a set of hypotheses and predictions in order to begin to uncover the tune-text relationship. Analyses of additional data of the type (i)-(iii) above should further refine our understanding of intonation and prosody in Albanian and their typological relationship to those in other languages.

Acknowledgments

We are very grateful for the detailed and constructive feedback that Sun-Ah Jun and Sameer Khan provided on an earlier version of the manuscript. Our analysis has also benefited from discussions with Mary Beckman and Janet Fletcher while they were at IPS. We would also like to thank our speakers for lending their voices and contributing their time to this study. This research was funded by the project InterAccent, which has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement no. 742289; https://www.phonetik.uni-muenchen.de/Forschung/interaccent/interAccent.html). The first author also received funding from an Alexander von Humboldt Fellowship.

Ethics Statement

This research was approved by the Ethical Committee of the Medical Faculty of the Ludwig-Maximilians University of Munich and the Office of the Commissioner for the Right to Information and the Protection of Personal Data in the Republic of Albania. Informed consent was obtained from all the adult participants.

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