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INTONATIONAL PHRASE BOUNDARIES AS MARKERS OF ARGUMENTATIVE DISCOURSE IN AN EFL DEBATE CLASS

Abstract: This paper addresses the use of intonation as a marker of argument structure in the corpus of 12 debate speeches of 6 ESL students attending a debate course at the English Department of the Faculty of Philosophy in Niš. Toulmin’s Model of Argument (1958) is used to determine the argument structure of the speeches, while the acoustic phonetic part of the research consists of a qualitative analysis of intonation contours in argumentative statements and a quantitative analysis of their pitch properties relative to the bordering intonational phrases. The results of the quantitative analysis of 420 intonational phrases extracted from the 12 speeches reveal a lack of significant and consistent variation in F0 properties such as initial F0 range, while the qualitative analysis shows an overuse of rising nuclear tones and high boundaries in argument and topic-final IPs, especially by female speakers. The implication of these findings is that EFL students in Serbia could benefit from additional exercises in argument construction and prosodic means of discourse segmentation.

Key words: Intonation, EFL debate, argument, rhetoric, discourse, boundary tones

1. Introduction

Debates are a type of rhetoric which, according to Broda-Bahm and Kempf (2004), can be described as:

> „more or less formal events in which advocates on opposing sides of a controversial issue make use of argument and the power of speech to express their own points of view and react to opposing points of view for the benefit of a large and non-specialized audience.“ (Broda-Bahm and Kempf, 2004: 13).

Debates were considered indispensable for democratic processes in Ancient Greece and later in Rome, and should be seen as a type of argumentative rhetoric. While Freely and Steinberg (2009) would argue that the main benefit from taking part in debate courses is the development of critical thinking, which „enables one to break argumentation down to its component parts“ (Freely and Steinberg, 2009: 3), debates have been an essential component of legislative processes and legal

proceedings, while similar formats can be seen in TV shows dealing with important public matters. However, the type of debate that we are concerned with in this paper is the *educational debate,* which, according to Stanojević i Avramović (2003) and Avramović (2008) exists in several formats*,* all of which follow several rules: a) both sides must have an equal number of speakers, b) both sides must be allotted an equal amount of time and c) the affirmative team has the right of the first and last address. Besides developing critical thinking among students, including debate courses in the educational process also helps promote tolerance, it prepares students for future systematic scientific production and helps them develop a rational approach to solving everyday situations (Stanojević i Avramović, 2003: 386–390).

One of the benefits of engaging students in debate courses also lies in the development of their argumentative skills, as it enables them to form logical and coherent arguments. Additional benefits for the students of English are the use of advanced syntactic and grammatical structures in order to convey their attitudes and opinions in the most convincing way possible. However, while *logos* as the argumentative content of public speech, and *ethos* as the „personal power or credibility that comes from a speaker's force of personality or depth of character" (Sprague and Stuart, 2008: 11) are two out of three types of *pisteis* in persuasive speech as defined by Aristotle in his work *On Rhetoric* (2007), the same author also includes *pathos*, responsible for leading the audience to „feel emotion" (Aristotle, 2007: 39). It is *pathos*, or delivery of speech, that helps the speakers present their arguments in a more effective way and catch the attention of listeners. Although these components relate primarily to ancient and modern rhetoric and public speaking, debates are no less a public event, and with the added difficulty of winning an argument against a well-prepared team of speakers and persuading not only the audience, but the judges as well, the form of the presentation (including body language, facial expressions and prosodic modulation) plays a major role in effective argumentation.

Since the speakers chosen for this research are second year students of English, without significant prior experience in public speaking and argument construction and presentation, the observation of the use of rhetorical tools would not produce relevant results. What we hope the students' use of prosodic features in a debate can tell us is how their argumentation is prosodically signalled by means of intonation phrase boundaries and whether differences exist in the prosodic characteristics of different stages of argument delivery. Significant departure from the expected use of prosody in this type of discourse should tells us in what way these prosodic features can be improved, in order to address such issues in courses dealing with English phonology and phonetics. In addition, it could help language professionals focus on those aspects of English pronunciation that students have problems acquiring, but could benefit from in future presentations and occasions where a well-argumented and convincingly presented speech is expected.

2. Previous research

2.1. Debates and argumentation

Academic debates as a type of argumentative discourse have been applied as an exercise in argumentation, critical thinking, public speaking and other skills taught at the tertiary level of education, over a varietz of different formats, including the Lincoln-Douglas Format, which was also used, with certain modifications, in the student debate from which we draw our data for this research.

What any number of educational debate formats have in common is the argument structure that governs the way ideas are put forward and stated so as to leave as little space as possible for a counter-argument to be made, or lapses in reasoning and logic to be exploited for the benefit of the opposing side in the debate. In order for an argument to be made, however, a proposition, i.e. a statement that represents the issue under dispute, has to be made clear. It can be either a statement of fact, value or policy (Freely and Steinberg, 2009: 55–57), and in educational debates it is the topic of the debate and is usually known and prepared for in advance.

In order to win a debate, one of the teams is expected to produce a series of arguments that would convince „a reasonable critic of the acceptability of a standpoint by putting forward a constellation of propositions justifying or refuting the proposition expressed in the standpoint.“ **(**Eemeren and Grootendorst, 2004: 1). In Toulmin *et al*.'s (1984) view, an explicit argument, which they see as a 'train of reasoning' that contains claims and reason, and whose main aim is that of persuasion (Meany and Shuster, 2002), contains several elements, including: (1) claims, (2) grounds, (3) warrants and (4) backing, while (5) modal qualifications, and (6) possible rebuttals have been added by Freely and Steinberg (2009). In short, claims are the conclusions that we try to establish, while the grounds are the evidence and reasoning that are the foundation of the claim. These are followed by warrants – evidence and reasoning advanced to justify the move from grounds to the claim, while backing is formed by additional evidence supporting the warrant. Finally, modal qualifications will place the claim on a scale from possibility to certainty, while rebuttals are the possible exceptions to the relation between grounds and claims, and will be pointed out by the opposing team if the argument does not appear as cogent as the affirmative team believed it to be (Freely and Steinberg, 2009: 163–166). What makes this argument structure especially suitable for modern debates is its verifiability by 'general tests of reasoning' (Freely and Steinberg, 2009: 174), which can test whether a specific argument is well-founded or weak and grounds for a rebuttal.

2.2. Intonation and discourse structure

With the structure of argument and discourse in mind, we will address some of the theoretical issues related to their relationship with the acoustic properties of pitch. In acoustic phonetic literature, the function of intonation in signaling discourse structure has been discussed at length in recent decades, some of the most important

contributions coming from Brazil (1980; 1985; 1994) and Chun (1998; 2002). As Paunović and Savić (2008) claim, the efforts in analyzing the discourse function of intonation have to do with its applicability in teaching L2, as it focuses on linguistic competence and the role of intonation in communication, since „crucial elements of intonational meaning can only be understood with reference to connected discourse" (Levis and Pickering, 2004: 506). This is, of course, in line with Chun's (2002) view that discourse intonation includes „a range of functions beyond the sentence level for the purpose of achieving continuity and coherence within a discourse" (Chun, 2002: 56), which she organizes into several subcategories: a) information structure marking, b) illocutionary/speech act; c) textual/discourse and d) interactive/discourse (Chun, 2002: 57).

Regarding the prosodic structure of discourse, which Grosz and Sidner (1986) find to be governed by its linguistic, intentional and attentional structure (Nakatani *et al*. 1995; Herman 2000), different intonation cues have been found to signal information on both sentence and discourse-level structure. These include: „the tone unit, prominence, proclaiming and referring tones, and high and low key" (Chapman, 2007: 4), „speech melody, tempo, pause, duration" (Geluykens and Swerts, 1994: 70), „pre-boundary lengthening, variation in intensity, and sloppy versus clear pronunciation" (van Donzel, 1997: 6), pitch level and pitch movement at tone unit boundaries for finality or continuity (Swerts et al., 1994), while Paunović and Savić (2008) also mention declination and downstepped contours. In signalling topic end or continuation, pauses, pitch range and final lowering (Pierrehumbert and Hirschberg, 1990) have been noted, as well as 'timing variation' in signalling topic structure (Nakatani *et al*., 1995), while „initiality is marked by relatively high pitch peaks (Johns-Lewis, 1986; Yang, 1995), high key (Brazil, 1975), or relatively high pitch range (Brown et al., 1980)." (Paunović and Savić, 2008: 59).

In their ELT-centered paper on teaching discourse intonation to Serbian students, Paunović and Savić (2008) supplied an overview of potential problems L2 learners might face in acquiring English intonation. They offered a list of such issues, compiled by Mennen (2006), which includes a narrower pitch range, incorrect prominence placement, inappropriate use of rises and falls, a smaller declination rate, etc. (Mennen 2006, cited in Paunović and Savić, 2008: 60). In addition, Chapman's (2007) study revealed that students (and teachers as well) were mainly troubled with the rising/falling tone distinction, followed by tone unit boundary location. The author finds a solution in task-oriented exercises, and Beaken (2009) proposes steps by which many of these issues, especially tone type, can be addressed in the way proposed by Chapman (2007).

In the course of this research, we will mention these and any issues pertaining to argument structure and discourse in debates on occasions where such information may shed light on our own research findings. This will be done by pointing out the ways in which intonation can be used in signaling changes in topic, elements of argument construction, continuation and finality, and other discourse-related issues. The outline of this research will be presented in the following section.

3. Method

In this paper, we will examine the use of intonation as a marker of discourse and argument structure in a recorded debate of EFL students taking part in regular tutorials for the *English Through Debate* elective course, in the fourth semester of studies at the English Department, Faculty of Philosophy in Niš, Serbia. The analysis will make a connection between the structure of argumentation in the debate and the characteristics of pitch change, tone type and phrase accent and boundary tones in intonation phrases as described by the autosegmental-metrical model of English intonation (Pierrehumbert, 1980) and the ToBI system of transcription for English, which will be supported by a quantitative analysis of changes in pitch register and key (Cruttenden 1997, cited in Gussenhoven, 2004: 76) between discourse and intonation units, in order to address the issue of topic continuation and finality. These analyses should reveal whether argumentation and its elements, such as claims, grounds, warrants and backing are prosodically signalled by means of intonation unit boundaries and prosodic phrasing, and whether differences exist in the prosodic characteristics of different stages of argument delivery. We will also take notice of any cases of significant deviation from the expected use of prosody in this type of discourse with reference to related literature, as it may reveal the aspects of L2 intonation, and discourse intonation in particular, that the students have not yet mastered in the course of their studies.

For our audio material, six participants in a debate were recorded (4 females and 2 males), with the age range of 19-21. Their EFL experience ranged from 10 to 15 years (mean 12 for all participants, 14 for males and 11 for females), while their language proficiency was estimated at B2+, in accordance with CEFR. No speakers reported any prior experience in public speaking or debate courses, workshops, etc. The students were divided into affirmative and negative teams (3 students in each), while the format was based on the Lincoln-Douglas debate, but with some adaptations made to suit the needs of the course.

Table 1. Debate format

First Affirmative Constructive	6 minutes (3x2min)
Negative preparation	5 minutes
First Negative Constructive	6 minutes (3x2min)
Affirmative Preparation	4 minutes
First Affirmative Rebuttal and Conclusion	5 minutes
Negative Preparation	5 minutes
First Negative Rebuttal and Conclusion	5 minutes
Affirmative Preparation	4 minutes
Affirmative Cross-Examination	3 minutes
Negative Cross-Examination	3 minutes

In this debate, instead of the 6-3-7-3-6-6-3-4 time allotment and two speakers, elements usually associated with this debate format (Freely and Steinberg, 2009: 343), six speakers in two teams were given the time organization shown in Table 2. The resolution debated was *Resolved: One should go abroad after finishing college for better job opportunities,* and was prepared for in advance by the participating debaters. The discussion numbered approximately 2170 words in 420 *intonational phrases*, the term we will use and which Wennerstrom (2001: 28) equates with *intermediate phrase*s (Pierrehumbert, 1980), *tone units* (Halliday, 1967; Brazil, 1985), and *intonation units* (Chafe, 1994). Differences in argument structure between separate speakers will be noted before the acoustic analysis, in which we will also distinguish between male and female speakers in order to avoid gender-based differences in pitch. Where significant grammatical and syntactic errors were made by the speakers, the tone units containing such erroneous structures were not included in the acoustic analysis, but will be included in the overview of the discourse structure of the speech in question.

In the quantitative acoustic analysis of pitch excursion and pitch range, performed in Praat (v. 5.3.48) (Boersma and Weenink, 2013), the units will be expressed in Herz (Hz), as well as semitones (ST), which should help us „express the magnitudes of these distances independently of the incidental frequency" (t'Hart *et al*., 1990: 24), i.e. eliminate the effect of individual speakers' F0 baseline and range and express the change in pitch more closely to the way it is perceived. Any statistical analyses will be performed using SPSS 13 and Microsoft Office Excel computer software.

4. Research

4.1. Argument construction

The first step in the analysis was to determine the argument structure of each of the speeches. The ideal structure of argument, following Toulmin *et al*.'s (1984) model, would include a claim, grounds, warrants and backing. Modal qualifications were not noted as they were expected to be found within the four elements mentioned above, while the possibility of a rebuttal would have to be traced to the *logos* of the argument which was beyond the scope of this research. For this reason, these two elements were not shown in Figure1 which shows the inter-relatedness of elements within a single argument.

However, the 12 speeches in our debate, not including the cross-examination stage, displayed variations and lapses in argument construction that would not be able to withstand a test of reasoning and may have in a few cases revealed the fallacy of the argument. The full structure was only seen in 4 out of 12 speeches (21 claims) and is usually presented as in Figure 1. In our corpus, out of the four speeches exhibiting the full argument structure, two belonged to a male affirmative speaker, one to a female affirmative speaker and one to a female negative speaker. The structure of an argument belonging to the male speaker is shown below.

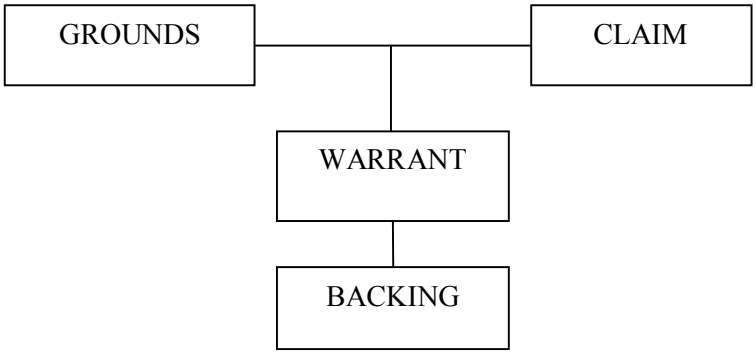

Figure 1. Simplified argument structure

The speeches whose argumentation was not thoroughly planned or carried out mainly failed to list any backing information that would validate the warrants authorizing the move from grounds to claims. This occurred for 17 out of 21 claims made by the speakers, while Table 2 shows additional errors, including missing warrants for 17 out of 30 grounds (56.7%), while 3 claims were made without any grounds. All of these, alongside irrelevant and defective grounds, are causes of fallacies (Toulmin *et al*., 1984), but as we are only interested in the structure of arguments and the prosodic cues involved in their comprehension, we will leave this issue aside, although it is an issue worth examining in a research dealing with debating skills.

It was also noticed that certain information appearing in seven speeches did not fit any of the categories. In some cases, these were abandoned grounds that did not fit the claim, in others chunks of discourse with too many syntactic and grammatical errors, filled pauses or words too unintelligible for their meaning and function to be clear. These sections will not be included in the acoustic analysis.

Table 2. Argument structure by speaker

First Affirmative Constructive			First Negative Constructive			First Affirmative Rebuttal and Conclusion			First Negative Rebuttal and Conclusion		
Speaker1 M	Speaker2 M	Speaker3 F	Speaker4 F	Speaker5 F	Speaker6 F	Speaker1 M	Speaker2 M	Speaker3 F	Speaker4 F	Speaker5 F	Speaker6 F
Claim Grounds Grounds Warrant Grounds Warrant Backing	Claim Grounds Warrant Grounds	Claim Grounds Warrant Grounds Warrant Backing Backing	Claim Grounds Grounds Grounds Warrant Grounds	Claim Grounds Grounds Warrant Claim Grounds	Claim Grounds Warrant Backing	Claim Grounds Claim Grounds Grounds Warrant Backing Grounds Warrant Backing Grounds	Claim Grounds Warrant	Claim Claim Claim Grounds	Claim Grounds Grounds Warrant Claim Grounds Warrant Claim Grounds	Claim Claim Grounds	Claim Grounds Claim Grounds Claim Grounds

We will, however, also leave out certain additional information that did appear rather consistently in the debate. Beginning with the first negative constructive

speech, each speaker introduced at least one of their claims with a reference to one of the opposing arguments. Although we cannot call this introduction a rebuttal, which would involve „introducing evidence and reasoning to weaken or destroy another's claim" (Freely and Steinberg, 2009: 166), and have a specific task of attacking its cogency by giving counter-arguments directly related to the information given in the opposing argument, its function of introducing a conflicting view into the argument seems to have been included into the format and practiced in class. An element which will be analyzed is the reiteration of the claim or grounds, appearing at the end of 3 speeches. While it may not be as systematically used as the previously mentioned structure, it is used purposefully to reinforce the argument, and because it differs in its content from the warrant or backing that precedes it, it may also be signalled prosodically.

4.2. Intonational marking

Using Pierrehumbert's (1980; 1986) model of intonation transcription, which views phrasing, accent placement, pitch range and tune as „sources of information about the *attentional* and the *intentional* structures of discourse" (Pierrehumbert and Hirschberg, 1990: 271), we will provide the transcription of tones, phrase accents and boundary tones found in intonation units relevant to our analysis.

In our first analysis, we tracked the pitch level of boundary tones of separate argumentation stages in relation to the pitch range of the final intonation phrase in each of these stages. Since a number of IP[1]s were not suitable for analysis, they were not included in Table 3.

Table 3. Inter-speaker variation in the production of grounds, warrants and backing elements

Argumentation elements	Boundary tone range (Hz)		Boundary tone mean Hz (and st. dev.)		Boundary tone range (ST)		Next phrase initial F0 range (Hz)		Next phrase initial F0 mean Hz (and st.dev.)	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Claims	60–123	205–314	88 (26)	256 (45)	12.4	7.4	112–143	208–228	128 (22)	216 (10)
Grounds	86–135	168–294	96 (19)	231 (40)	7.8	9.7	116–164	207–260	143 (21)	234 (21)
Warrant	83–109	166–275	92 (15)	225 (39)	4.7	8.7	129	191–241	129	220 (23)
Backing	119–184	258	152 (46)	258	7.5	/	/	/	/	/

Table 3 shows us the difference in pitch register between male and female speakers and the way pitch level progressed from the boundaries of claims, grounds, warrants (and backing) into the following IPs. What is clear is that male speakers had a significantly lower pitch register than female speakers in their argument elements, using mostly falling pitch contours and low boundary tones reaching the minimum

[1] Intonational phrases

of the phrase pitch range to signal the end of the argument element. We should note that an exception was found, in a claim made during the constructive speech of Speaker 2, where a high boundary tone after a low key nucleus (89-95Hz) was used at the end of the utterance in (1).

1. //*[CLAIM]* a LOT of PEOple are // MOVing to a foreign COUNtry // for only one PURpose MOney. // *[WARRANT]* for the exAMple //

Although the end of the argument element is signalled by the (grammatically incorrect) sentence modifier *For the example* introducing the new topic contained in the warrant of the argument, the high boundary tone suggests the continuation of the previous utterance. This is even more unexpected if we notice the low key at the onset of the next IP and the continued raising of phrase pitch range extending into the next phrase, suggesting that the following phrase was not intonationally separated from the IPs belonging to the claim.

The initiation of a new topic after grounds or warrants for males meant raising the F0 level by approximately 7 ST, while for female speakers this transition is not as clear and suggests that the IPs after these units followed the F0 level of the boundary tone, rather than having a reset in the F0 range, which created an unclear boundary between the two discourse units. Furthermore, all pitch properties shown above are lower for warrants than for grounds. We assume that this has to do with the proximity to the end of one's speech, but the higher pitch properties of backing structures do not confirm this. However, if we look at the boundary type, which is –H% for both male backing elements, such high values are justified, especially against the evenly distributed –H% and –L% tones of warrants. This proves how important it is to take into account nuclear and boundary tone types for our analysis, and this is summed up in Table 4.

Table 4. Nuclear tone and IP boundary types

		H*L		L*H		L+ H*L		L+H*H		H*+ L H	
		m	f	M	f	m	f	m	f	m	f
H%	C	/	4	/	/	/	/	/	/	/	/
	G	1	6	/	1	/	1	/	1	/	/
	W	1	3	/	/	/	/	/	/	/	/
	B	1	/	/	/	/	/	/	/	1	/
L%		3	1	/	1	/	/	/	/	/	/
	G	4	4	/	/	2	/	/	/	/	/
	W	1	1	/	2	1	/	/	/	/	/
	B	/	/	/	/	/	/	/	1	/	/

As with claims, where male speakers opted for low-falling nuclear tones and –L% phrase boundary tones while female speakers preferred the use of –H% boundary tones H*L tones, the difference in the choice of boundary tones appeared

in claims, grounds, warrants and backing elements as well. Although the choice of –H% boundary tones would not be surprising in mid-structure IPs (although topic change may occur even within argument structures), their location at the right edge of an argument structure suggests faulty information structuring, especially since finality has been related to „F0 fall, lowered F0 contour (Venditti & Swerts, 1996; Vaissiere, 2005), boundary tones lower than for continuation (Swerts & Geluykens, 1994)“ (Paunović, 2013: 193). In the case of male speakers' H*L H% contours, the high boundary tone appeared either after completed sentences and topics ((3) and (4)), or as a signal of omitted information in enumeration (5).

2. *[GROUNDS]* // you meet PEOple that have SImilar INterests, // that are NOT from your own COUNtry. // *[WARRANT]* they have DIFferent CULture. //

3. *[WARRANT]* //… because their STANdards are BIGger // and everything is much more BETter // than HERE. // *[GROUNDS]* WELL //… //we have to be we have to be REAL //

4. *[BACKING]* // there are a LOT of // medicinal DRUGS // that cannot be FOUND // in our COUNtry // but are aVAIlable // in other COUNtries // such as GERmany // SWItzerland…//

With female debaters, the choice of -H% tones after falling nuclear tones resembles the use in (3) and (4). It was also found after a nuclear L*H accent, which commonly denotes incredulity and yes/no questions (Pierrehumbert & Hirschberg, 1990), while the use after a L+H* accent is typically associated with contrast and corrections (Pierrehumbert & Hirschberg, 1990), although the use in (6) also responds to „the commitment to the instantiation of the open expression“, as it provides a specific realization of the relative clause in the previous IP.

5. … // whatEVER you CHOOSE // you will need to SACrifice SOMEthing // in order to GAIN what you're AFter // in this case this is ... GENeral imPROVEment //

The final usage of a –H% tone was after a H*+ L H tone, although in this case neither the pitch accent nor the phrase and boundary tones suited the meaning of the phrase, which did not need to be interpreted by the succeeding phrase. Since we are not principally interested in pitch accent type, as we are in boundary tones, we will not further analyze phrases ending in –L% tones. This is due to our assumption, confirmed upon inspection of IPs in our speech tokens, that boundaries of argument structures also mark the end of topics and contain information which does not need to be further specified or explained in succeeding IPs, thus not warranting the use of a –H% tone.

However, the high boundary tones after falling nuclear tones seem to be more frequently used by female speakers, in both cases where the claim was followed by grounds, and in the only case where it was met by another claim. In addition, in one of the two IPs containing L% boundary tones, the boundary tone was again at the

maximum F0 value in the phrase, much like in the phrases containing H% boundary tones following low-key nuclear tones, although these belong mainly to the same female speaker.

Another thing we can notice is that among the four phrases, only the one belonging to Speaker 5 is followed by an expanded pitch range at the onset of the following phrase, suggesting a new topic, while the three phrases belonging to Speaker 3 are followed by a narrower pitch range, even though, as exemplified in the sentences below, the syntactic structure was completed with the end of the claim.

6. *[CLAIM]* // i HAVE to aGREE // that one should NEver STOP // .. // making HIM or herself BETter. // but (erm) EVery person can do that HERE // maybe not in his homeTOWN // but .. somewhere else in the COUNtry // *[GROUNDS]* you mentioned MEdicine // as an exAMple.//

On the matter of pitch characteristics of initial IPs of grounds, warrants and backing, we were able to distinguish between several groups, based on the argument unit preceding the analyzed grounds, warrant or claim. Therefore, we could observe the claim/grounds pairing, grounds/grounds and warrant/grounds, while the analyzed warrants were preceded by either grounds or claims. Only one example of backing had sufficiently reliable data to be included in this analysis, and it was preceded by a warrant.

To this end we should point out a number of perceptually significant[2] consistencies in the relationship of F0-related variables between pairs of the same type:

1. **Claim/Grounds.** In all three analyzed sequences, the IP F0 range decreased in all 3 grounds in comparison to the claim-final phrase, by mean 6.4 ST. When the preceding claim contained an H% boundary tone, a drop by mean 4.1 ST occurred before the initial F0 level of the following phrase.
2. **Grounds/Grounds.** Although this sequence would not appear in a carefully planned argument, we analyzed the 2 examples occurring in our speech tokens. In these sequences, belonging to a male and a female speaker, fewer consistencies could be spotted, and included the raise of nuclear floor by mean 7.1 ST and an increase in L% tone F0 value by mean 7.9 ST. The final observable similarity in these sequences was the increase in initial F0 value of the second grounds after an L% tone of the previous IP by 5.2 ST.
3. **Warrant/Grounds.** Like the previous one, this sequence would also not be acceptable in a carefully constructed argument, as backing would be required to support a warrant lest the whole argument be dismissed as fallacious. Nevertheless, in all three examples collected from our corpus, one belonging to a male and two to female speakers, a rise of nuclear floor was followed by a fall in nuclear range, by mean 3.2 semitones.

2 The „just noticeable difference“ (JND) for pitch is 3ST (Paunović & Savić, 2008)

4. **Claim/Warrant.** This sequence appeared only once in our corpus, making any generalizations about its characteristics unlikely, although we did notice a lowering of F0 floor in both the onsets and the nuclear tones of these two units, resulting in the increase of onset and nuclear F0 range, as well as the overall phrase F0 range. The phrase-initial F0 level of the warrant was lower than the H% tone of the claim.
5. **Grounds/Warrant.** This structure gave us the most examples (9), belonging to one male and 4 female debaters. Only two variables were consistent in all 9 pairings: nuclear F0 floor had a mean increase of 2.5 ST over the grounds-final and warrant-initial IPs, while the phrase floor F0 value had a mean fall of 2.1 ST, but neither were higher than the JND for pitch. In addition, after L% boundary tones, the initial F0 level was higher by mean 4.8 ST, while the fall after H% tones was on average 2.2 ST, although one example was found with an additional rise after the H% tone, but only by 0.3 ST. Another variable with only one exception was the nuclear F0 peak, which showed a rise towards the warrant-initial phrase of mean 3.1 ST, while the decrease in the one remaining phrase was 1.7 ST
6. **Warrant/Backing.** This sequence belongs to the regular argument structure. Nevertheless, only one example was found in our corpus and was characterized by a decrease in nuclear F0 range (3.3 ST). No additional significant consistent changes were noticed.

5. Conclusion

Our analysis showed that Toulmin et al.'s (1984) argument structure can indeed be found in Serbian EFL students' debate speeches, although more attention should be paid by the speakers in their preparation and production. As only 4 out of 21 claims made by 6 speakers were followed by all of the supporting argument structures, it is likely that the majority of the two teams' arguments would be easily refuted in a debating competition or a similar venue, where assessment would be made not only of the truth value and the speakers' presentation skills, but most of all the how well the arguments were constructed and whether they contained all the essential information that would make them plausible to any listener, especially a trained one.

However, despite the fact the most of the presented arguments did not contain the appropriate sequence of supporting structures, the relationship between them could still be observed from an acoustic phonetic perspective, as the intonation patterns found in these stretches of discourse can help present the speech in a way that complex discourse segment relationships and rhetorical devices are easily understood and important information easily separated from the remainder of the discourse. However, there was a difference in intonational properties of argument structures between female and male speakers, as female speakers used both rising pitch accents and high

boundary tones in places where a change in topic was clear, whereas male speakers preferred declarative –L% tones after falling nuclear accents. Initial IPs of claims often did not receive sufficient initial F0 range expansion and were intonationally marked as a continuation of the previous phrase and dependent on its boundary F0 level. This was more related to female than to male speakers, as the second group did produce a mean 7ST range expansion at the beginnings of all argument elements, although differences in numbers varied depending on the preceding boundary tone type.

The analysis of different sequences of argument structures revealed that, apart from the rises and falls in phrase and onset baseline values, few F0 variables regularly achieved significant change although mostly quantitative differences could be found between different sequences.

In summation, the research results we obtained point to the need for additional effort to be made by students in their argument construction, whereas prosodically the areas in which improvement should be made are the choice of nuclear tone types and boundary tones, as well as the variation in F0 properties of IPs. Additional analyses not covered in this research would include the role of pauses and intensity in discourse intonation, as well as a more detailed approach to discourse segments and their relationships within argument structures.

APPENDIX
Transcription conventions

// //	intonational phrase boundaries
UPPERCASE	prominent syllables indicating stressed or salient words
UPPERCASE	nuclear syllable
(hm)	Vocalism
[GROUNDS]	beginning of an argument element

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ГРАНИЦЕ ИНТОНАЦИОНИХ ФРАЗА КАО МАРКЕРИ У АРГУМЕНТАТИВНОМ ДИСКУРСУ ДЕБАТЕ СТУДЕНАТА ЕНГЛЕСКОГ ЈЕЗИКА

Резиме: Овај рад се бави употребом интонације у обележавању структуре аргумента у корпусу 12 излагања у дебати шесторо студената енглеског језика који су похађали дебатни предмет на Департману за англистику Филозофског факултета у Нишу. Тулминов модел аргумента (1958) се користи за одређивање структуре аргумената у говорима, док се акустички фонетички део истраживања састоји од квалитативне анализе интонационих контура у аргументативним изјавама и квантитавне анализе њима припадајућих својстава висине тона у односу на суседне интонационе фразе. Резултати квантитативне анализе 420 интонационих фраза добијених из 12 говора откривају недостатак значајних и доследних варијација својстава висине тона као што је почетни распон фреквенције, док квалитативна анализа показује прекомерно коришћење узлазних нуклеарних тонова и високих граничних тонова у интонационим фразама на границама аргумената, нарочито код женских говорника. Ови резултати указују на то да би студенти енглеског језика у Србији могли имати користи од додатних вежби конструкције аргумената и коришћења прозодијских средстава за њихову сегментацију.