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THE PRAGMATIC ARCHITECTURE OF SPEECH: PROSODIC UNITS AND SEGMENTATION STRATEGIES IN UZBEK ORAL DISCOURSE

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Abstract

This article thoroughly investigates the role of prosodic units in the pragmatic organization of spoken Uzbek, asserting that prosodic segmentation functions as a fundamental, systematic mechanism for encoding pragmatic meaning, rather than merely being a byproduct of syntactic structure. This study employs a carefully curated corpus of approximately 90 minutes of spoken Uzbek, comprising both natural conversational dyads and formal radio broadcasts. It utilizes a multi-layered annotation framework grounded in the theory of Intonation Units (IUs) as formulated by Chafe (1) and further developed within interactional linguistics (2). The analysis systematically examines the relationship between prosodic boundaries—defined by the convergence of pauses, pitch resets, and final syllable lengthening—and three essential pragmatic functions: topic management, information focus (particularly contrastive focus), and the expression of speaker stance. The findings indicate that grammatical structure provides a fundamental framework for speech production; however, the dynamic alteration of prosodic features serves as the primary mechanism through which speakers structure discourse, convey the status of referents in common ground, and express their subjective orientation towards propositional content. The segmentation of speech into prosodic units is demonstrated to be a rule-based framework wherein pragmatic functions requiring heightened salience or autonomous processing are intentionally assigned distinct prosodic units. This study improves pragmatics, prosody, and discourse analysis by looking at a universal cognitive process in a specific language. This has big effects on theoretical frameworks for the grammar-pragmatics interface, cross-linguistic typology, and natural language processing applications for Turkic languages.

Keywords: Pragmatics, prosody, intonation units, segmentation, the Uzbek language, discourse analysis, information structure, topic and focus, stance marking, and interactional linguistics.

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Introduction

Historically, the analysis of spoken language has been dominated by frameworks that emphasize the written sentence as the fundamental unit of linguistic scrutiny. This viewpoint, although historically advantageous for the progression of syntactic theory, has concealed a fundamental truth about human communication: speech is produced not as a continuous, unbroken stream of words conforming to syntactic templates, but as a sequence of dynamic, cognitively structured units that embody the immediate limitations of language production, the interactive requirements of conversation, and the speaker's strategic organization of information (1; 2). The prosodic system is one of the most important but still poorly understood parts of this organizational process. This is the set of sound properties, like pitch, duration, intensity, and pausing, that make up the melody, rhythm, and phrasing of speech.

Prosody has traditionally been conceptualized in phonology as a suprasegmental layer superimposed on segmental content, with intonation patterns primarily analyzed at the sentence level via terminal contours that distinguish declarative, interrogative, and imperative illocutionary forces (3). While this tradition has yielded substantial descriptive insights, it is limited by the assumption that the sentence represents the fundamental domain of prosodic analysis. In recent decades, a paradigm shift has emerged, driven by research in pragmatics, conversation analysis, and interactional linguistics, which asserts that the fundamental units of speech production are not syntactic sentences but smaller, cognitively motivated prosodic units commonly referred to as Intonation Units (IUs) (1; 4; 5). These units are defined not by grammatical completeness but by a constellation of prosodic indicators—specifically, the presence of a coherent pitch contour, a tendency for a singular primary accent, and boundary delineation through pause, final lengthening, and pitch reset—that collectively indicate the speaker's organization of information into manageable, focused segments.

This change in how we think about the link between grammar and pragmatics has big effects. If the IU is the fundamental unit of speech production rather than the sentence, then the syntactic structures observed in spoken language should be regarded as instruments employed within a prosodic organizational framework, rather than the framework itself (6). This perspective is particularly important for languages that display typological characteristics distinct from the thoroughly examined Indo-European family. Uzbek, an agglutinative Turkic language spoken by approximately

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30 million people primarily in Central Asia, serves as a significant theoretical case study. Uzbek has a lot of suffixes that show how words are related to each other in terms of grammar. Also, there is no grammatical gender and the word order can change (SOV is the most common). In this language, prosody is more important than syntactic position for showing grammatical function. For example, it is more important for showing information structure categories like topic and focus (7). Additionally, agglutinative morphology creates a phonological environment in which syllable structure, stress placement, and prosodic phrasing engage in complex interactions that are inadequately documented.

Despite compelling reasons to examine Uzbek prosody from a practical perspective, there has been limited research conducted on the topic. The current literature predominantly consists of descriptive phonetic analyses that document the intonational patterns of various sentence types—declaratives, interrogatives, and imperatives—often employing elicited, read speech (8; 9). While these studies provide a substantial foundation, they do not investigate the role of prosody in natural discourse for managing the dynamic, interactive processes through which speakers collectively create meaning. The fundamental questions remain unanswered: How do Uzbek speakers utilize prosodic segmentation to organize extended segments of discourse? What systematic patterns determine the placement of prosodic boundaries concerning pragmatic functions, such as topic introduction, topic shift, focus marking, and stance expression? What distinguishes these patterns across various speech types, such as prepared monologic broadcast speech and spontaneous conversation? This article addresses these deficiencies by conducting a systematic examination of the pragmatic functions of prosodic units and segmentation strategies in spoken Uzbek. The primary research question guiding this study is: How do prosodic units and their segmentation patterns function as the essential organizational framework for pragmatic meaning in spoken Uzbek? We put forward a unified theoretical proposition: prosodic segmentation is not a mere byproduct of syntactic structure but a fundamental, systematic mechanism for regulating discourse coherence, highlighting novel or contrasting information, and conveying the speaker's epistemic and evaluative stance. This claim is put into action through three related hypotheses:

1. The Topic Management Hypothesis posits that speakers utilize prosodic units to distinguish comments from topics. IUs that introduce a topic have boundary tones and pauses that aren't final, which show that commentary is coming up.

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2. Focus Marking Hypothesis: New information focus is consistently aligned with the primary pitch accent within an IU, whereas contrastive focus is systematically manifested through the segmentation of focused elements into distinct, prosodically salient units.
3. Stance Marking Hypothesis: Epistemic, evaluative, and discourse-structuring elements frequently emerge as independent IUs, signifying their pragmatic relevance as a separate layer of meaning distinct from propositional content.
This study aims to demonstrate, through a comprehensive qualitative and quantitative analysis of a corpus of natural speech, that the boundaries between IUs constitute the principal sites of pragmatic activity, and that grasping these patterns is essential for a complete understanding of Uzbek discourse structure.

2. Review of the Literature

This study is founded on three interconnected domains of research: the cognitive and interactional theory of Intonation Units, the relationship between prosody and information structure, and investigations into prosody in Turkic languages. Each of these domains has contributed essential insights that inform the analytical framework employed in this study.

2.1 Intonation Units as Cognitive and Interactional Foundations

The Intonation Unit (IU), referred to in literature as the tone unit, intonation group, or prosodic phrase, derives from phonetic research observing that speech manifests in rhythmic bursts (10). The most important modern interpretation of the IU as a unit of discourse and cognition comes from Wallace Chafe's work, especially his book Discourse, Consciousness, and Time (1). This book brings together decades of research on how language, thought, and the time aspects of speech work together.
Chafe's primary assertion was that the IU corresponds to the activation of a singular new idea or concept within the speaker's cognition. Chafe discovered a set of prosodic features that always show where IU boundaries are after doing a lot of research on spoken English narratives. These features include (a) a terminal pitch contour that can be falling, rising, or level; (b) final syllable lengthening, which is usually shown as a measurable elongation of the final syllable compared to the speaker's baseline duration; (c) a pause that can be silent or filled with hesitation sounds like "uh" or "um"; and (d) pitch reset, which is when the baseline pitch at the start of a new IU is

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restored to a level that is typical of utterance initiation (1, pp. 53-70). Chafe asserted that these cues converge to signify that the speaker has finished articulating one "focus of consciousness" and is ready to begin the next.

Chafe's cognitive approach was not merely a specification of phonetic cues but a theoretical framework that clarified the interplay between language production and cognitive processes. He posited that the average inter-unit length of approximately two seconds, a finding corroborated across numerous languages, illustrates the capacity of working memory to retain a novel concept during verbalization. This cognitive grounding gives the IU a psychological reality that phonological or syntactic units don't have. The IU is not only a useful way to write down what someone says, but it also shows how people usually understand language.

Following Chafe's cognitive framework, scholars in interactional linguistics and conversation analysis have developed an additional perspective on IUs as units of social action (2; 4; 11). From this perspective, IUs represent the essential elements of turn construction. Making one or more IUs is how speakers take turns in a conversation, and putting IU boundaries in the right places is a key way to manage turn transitions. A falling boundary tone and a long pause usually mean that the turn is over. A rising or level boundary tone, on the other hand, means that the speaker plans to keep talking and that the turn is not over yet. This interactional perspective improves the cognitive explanation by showing that IUs are not just representations of individual cognitive processes; they are also tools that help people work together in discourse.

The combination of cognitive and interactional points of view makes a strong framework for studying prosodic segmentation. IUs are (a) cognitive units that show how information is activated in consciousness; (b) prosodic units that have a clear pitch contour and boundary cues; (c) grammatical units, but not always full sentences; and (d) interactional units that are the building blocks of turn construction and sequence organization (5). This multi-dimensional conceptualization constitutes the theoretical foundation for the present study.

2.2 Prosody and Structure of Information

The link between prosody and how information is organized in speech has been a main focus of linguistic pragmatics since the Prague School's early work and later developments in functional linguistics (12). The basic idea is that speech does not

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convey all information with the same importance; rather, it distinguishes between what is already known in the discourse context and what is being newly asserted. Different pairs of words, like topic and comment, theme and rheme, and given and new (13; 14), have shown this difference.

Halliday's seminal work (15) established that in English, new information is typically marked by the placement of the primary pitch accent—the nucleus or tonic accent—while given information tends to be deaccented. The given-new contract is a rule that helps the listener pay attention to the most important parts of what someone says. However, subsequent research has clarified a more complex situation, particularly in languages with unique prosodic systems and regarding the pragmatic categories of topic and focus (16; 17).

To comprehend the pragmatic functions of prosody, it is essential to distinguish between topic and focus. The topic of a speech is the thing or idea that it talks about. The focus is the most important or different information that the speaker wants to draw attention to. This information is frequently novel. Lambrecht's theory of information structure (18) provides a comprehensive framework for analyzing the encoding of these categories across languages. Lambrecht asserts that information structure serves as a grammatical component that links sentence form to the pragmatic circumstances of referents within the discourse context. He demonstrates that various languages employ distinct grammatical mechanisms, such as word order, morphological marking, and prosody, to elucidate the relationships between topics and focuses.

In languages with flexible word order, prosody often plays a key role in telling the difference between topic-comment structures and simple subject-predicate structures. When a constituent is identified as the topic, it generally appears in a separate prosodic unit, marked by a boundary tone and often accompanied by a pause. In contrast, the focus takes on the main intonational prominence within the comment (18, pp. 85–95). This pattern exemplifies a fundamental cognitive principle: the topic establishes a "frame of reference" for comprehending the subsequent comment, while the prosodic boundary serves as an indicator of this framing function. This study investigates whether Uzbek exhibits analogous patterns and, if so, how they interact with the language's agglutinative morphology and variable word order.

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2.3 The Prosody of Turkic Languages

In the last few decades, research on prosody in Turkic languages has grown a lot. It has gone from vague descriptions to instrumental phonetic analysis and, more recently, studies of the prosody-discourse interface. For Turkish, the most extensively studied Turkic language, research has documented a system of prosodic phrasing that systematically engages with syntax and information structure (19; 20). Ipek (21) demonstrated that Turkish speakers utilize prosodic boundaries to elucidate syntactically ambiguous structures. For instance, the position of a boundary can distinguish between a relative clause and a main clause interpretation. Studies on focus marking in Turkish demonstrate that contrastive focus is consistently expressed via a high pitch accent and often entails an extension of the pre-focal and post-focal pitch range (22; 23).

The current body of literature on Uzbek is relatively scarce. Abduazizov's (8) seminal work provided a comprehensive characterization of Uzbek phonetics and morphophonology, including a classification of sentence types based on terminal intonation contours. Subsequent research has examined the acoustic correlates of stress in Uzbek, indicating that word stress is primarily characterized by duration and intensity rather than pitch variation (9). Recent research has initiated an investigation into the relationship between prosody and information structure. Grenoble (7) investigated the prosodic marking of focus in Uzbek narratives, revealing that speakers consistently utilize pitch accents to signify new or contrastive information, and that these prosodic markers sometimes take precedence over syntactic cues, such as word order. This finding is significant because it suggests that in Uzbek, prosody may function as the primary indicator of focus, with word order playing a secondary or supportive role.

There are still big gaps, even with these contributions. Most of the research conducted thus far has focused on elicited narratives or read speech. They haven't studied the prosody of spontaneous conversation very much. Moreover, the focus has primarily been on focus marking, with scant attention paid to other pragmatic functions such as topic management, stance expression, and discourse structuring. There has not been a systematic investigation into how prosodic units demarcate discourse across different speech genres, nor has there been a comprehensive analysis of the interaction between prosodic boundary cues and pragmatic functions. This study aims to address existing deficiencies by utilizing a discourse-level, pragmatically oriented

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methodology that amplifies the foundational results of previous research while expanding the empirical framework to include natural conversation and broadcast speech.

4. Methodology

3.1 The Corpus's Design and Composition

The data for this study are derived from a corpus of approximately 92 minutes of spoken Uzbek, comprising two distinct speech genres designed to illustrate variation in interactional context and production style. There are 62 minutes of unplanned, face-to-face conversations between two native Uzbek speakers from Tashkent in the conversational part. Five dyads were recorded, each comprising speakers with established relationships (friends or family members), thereby facilitating natural, informal interaction. Participants were told to talk about everyday things like family gatherings, work experiences, and cultural customs. There were no rules about what to talk about or when to take turns, except for the general rule that they should talk naturally. The broadcast part is 30 minutes of one-sided speech from recordings of a major public radio station in Uzbekistan. There are 15 minutes of reading the news and 15 minutes of talking on a talk show. These recordings show speech that is more formal and planned, with not much back-and-forth.

Adding both genres has two effects. First, it lets you compare prosodic segmentation patterns in different situations, like when they are more formal, more spontaneous, or have different interactional needs. Second, it provides a robust empirical foundation for the application of the results to multiple speech styles, thereby enhancing the validity of the analysis beyond the study.

All of the recordings were made with high-quality digital recorders and microphones that were not built into the recorders. The samples were taken at a rate of 44.1 kHz and a resolution of 16 bits. Before the recording, everyone agreed to it, and all of the recordings were made anonymous so that they could be transcribed and analyzed.

3.2 Writing and Breaking Up

All audio data were transcribed orthographically utilizing the Latin-based Uzbek alphabet, adhering to established orthographic norms. After that, the transcripts were divided into Intonation Units using a methodical process that followed certain rules (1; 4). We used the software Praat (24) to break up the data. You can see the waveform,

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spectrogram, and pitch contour all at once with this software, which makes it easier to find prosodic boundary cues.

Here are the rules for splitting up the work:

1. A pause is a period of silence that lasts at least 150 ms. This threshold was chosen because past research has shown that pauses shorter than 150 ms are usually seen as within-unit hesitations instead of boundary markers (1). People thought that both silent pauses and pauses with filled hesitations (like "uh" or "um") could be boundary markers. But just filled pauses weren't enough to figure out where the boundary was without more information.
2. Lengthening of the Final Syllable: The last syllable is noticeably and measurably longer than the speaker's normal duration. The length of the last syllable was measured for each possible boundary and compared to the speaker's average length of a syllable that wasn't the last one. A lengthening of at least 50% above the baseline was recognized as a boundary cue, in line with standards set by previous studies (4).
3. Pitch Reset: The baseline pitch changes clearly at the start of a new unit. We found the pitch reset by looking at the pitch range and baseline of the last part of one IU and the first part of the next unit. If the new unit's first pitch was at least 30 Hz higher (for high reset) or 30 Hz lower (for low reset) than the last pitch of the old unit, or if the pitch range was noticeably wider than the old unit, it was thought that a reset had happened.
4. Terminal Pitch Contour: The shape of the pitch contour at the end of a possible IU. If the pitch dropped by at least 20 Hz over the last syllable, the terminal contour was called falling (F); if it rose by at least 20 Hz, it was called rising (R); and if it stayed stable within ±10 Hz, it was called level (L).
5. A boundary was considered reliable if at least two of the four cues came together. Two trained annotators worked alone on a randomly chosen 15% of the corpus to find the edges. This was used to find out how much the annotators agreed with each other. The agreement rate was 86.3% (Cohen's $\kappa = 0.81$), which means it was very reliable.

3.3 A structure for notes

After segmentation, each IU was given a set of grammatical, prosodic, and pragmatic traits. The annotation framework was developed incrementally, incorporating concepts from theoretical literature and refining it through preliminary data analysis.

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Grammatical Form: We put each IU into a group based on its syntax:
• Clausal: Has a verb that ends in a period (or a verb phrase that could be its own clause)
• Phrasal: It is made up of a noun phrase, an adpositional phrase, or another part that isn't a clause.
• Fragment: A single word or part that doesn't make up a whole phrase.
• Discourse Marker: a word or phrase that helps organize a conversation, like aniq "well" or xullas "in short"
Prosodic Features: The following prosodic features were noted:
• The syllable in the IU with the most noticeable pitch movement is where the primary accent is.
• Boundary tone: falling (F), rising (R), or staying the same (L)
• Length of pause after IU, in milliseconds
• There is a last lengthening: binary (yes/no)
Pragmatic Function: This was the main group for notes, and it was put into action by a group of functions that couldn't be used together:
• Topic Introduction: An IU that starts a new conversation and usually has a referent that becomes the subject of the next conversation.
• Topic Continuation: IU that goes into more detail about a topic that has already been set
• Topic Shift: IU that shows a change from one subject to another
• New Information Focus: IU where the main goal is to add new information to the conversation
• Contrastive Focus: IU that shows something that is clearly different from something else in the context of the conversation
• Stance Expression: IU that shows how the speaker feels about something (like being sure or not sure), how they feel about something (like being surprised or disappointed), or how they judge something (like being happy or angry).
• Discourse Structuring: IU that plays a metadiscursive role in organizing the flow of discourse, such as by listing, summarizing, or introducing a topic.
• Reactive: IU that is mostly made up of backchannel responses, acknowledgments, or other signs that show a reaction
Two trained annotators did pragmatic function annotation, and if there were any disagreements, they were talked about in a group. The test sample demonstrated that

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82.4% of the annotators concurred on the allocation of pragmatic functions (Cohen's $\kappa = 0.79$).

3.4 Quantitative Analysis

Quantitative analysis focused on the distribution of pragmatic functions across IU types and the statistical relationships between prosodic boundary cues and pragmatic functions. We calculated the descriptive statistics for the length of IU (in syllables and time), the length of pauses, and the number of pragmatic functions in different genres. We used chi-square tests for categorical variables and t-tests for continuous variables to find out if the patterns we saw were important.

4. Outcomes

The analysis demonstrated a systematic and robust connection between prosodic segmentation and pragmatic organization in both conversational and broadcast genres. The specific distributions varied by genre, but the basic ideas stayed the same. Below are the results, which are grouped by the three main pragmatic functions that were mentioned in the introduction. After that, more results about how genres change are shown.

4.1 Using Prosodic Packaging to Handle Topics

One of the main jobs of IU segmentation is to put the topics of discourse into groups and packages. In both conversational and monologic data, speakers always used separate IUs to bring up new topics. These topic-introducing IUs had a unique prosodic and pragmatic profile that made them different from other kinds of IUs.

Prosodic Features of Topic-Introducing IUs:

• Boundary tone: mostly rising (62%) or level (28%), with falling boundaries (10%) mostly happening when the topic introduction was also a full turn.

• The average length of a pause after IU was 387 ms (SD = 142 ms), which is a lot longer than the average length of a pause overall, which was 204 ms ($t(458) = 8.73$, $p < .001$).

• Final lengthening: present in 78% of IUs that initiate a topic

• Syntactic form: usually phrasal (71%), made up of a noun phrase that may or may not have elements that change it

Pragmatic Profile:

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• IUs that introduced a topic almost always brought up a referent that was either (a) new to the conversation or (b) coming back after a long time away.
• The topic referent was often shown with a demonstrative pronoun (bu 'this', *u* 'that', anavi 'that over there') or a definite noun phrase. This showed that the speaker thought the listener would know what the referent was.
• After the IU that introduced the topic, the speaker usually made one or more IUs that were comments on that topic.

This long example of a conversation between two people shows this pattern in great detail. Two friends are talking about where they will live:

Example 1: Beginning and Building on the Subject

IU Text (Uzbek) Gloss Boundary Tone Pause (ms) Pragmatic Function

1. If we talk about our current home, Rising 420, Topic Introduction
2 very small Falling 180 Topic Continuation (Comment)
3 but the location is good Falling 310 Topic Continuation (Comment)
4 close to the city center Falling 250 Topic Continuation (Elaboration)
5 bolalar uchun qulay convenient for the children Falling — Topic Continuation (Elaboration)

In this sequence, IU1 uses the noun phrase hozirgi uyimiz 'our current house' and the postpositional structure -ga keladigan bo'lsak 'as for' to set the stage for the topic. The long pause (420 ms) and the rising boundary tone show that this is a framing device that will lead to more information. IUs 2–5 then write the comment about this, with each one adding something new about the house. After the topic is set, later IUs don't talk about the topic referent directly again. Instead, they use zero anaphora, and the prosody of the discourse sequence keeps the topic clear.

In the conversational data, this way of bringing up a new topic in a separate IU was used in 87% of clear topic shifts. In the broadcast data, 78% of clear topic shifts showed it. The slightly lower frequency in broadcast speech is because monologic discourse is more organized. In monologic discourse, topics are occasionally presented within extended, more syntactically cohesive IUs. Even in broadcast speech, speakers always used the same prosodic packaging strategy when they stressed a topic as being especially important or when they clearly marked a change in topic.

A more complicated pattern showed up when speakers talked about more than one related topic or when topics were nested in a hierarchy. In these cases, speakers used

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prosodic segmentation to show how topics are organized hierarchically. Here's an example from a talk show where a guest talks about different parts of traditional Uzbek food:

Example 2: A Structure of Topics in a Hierarchy

IU Text (Uzbek) Gloss, Boundary Tone, and Pragmatic Function

1) o'zbek taomlari haqida gapiradigan bo'lsak If we talk about Uzbek food Level Discourse Structuring

2) birinchi navbatda non first of all, bread Rising Topic Introduction (Superordinate)

3) nonning o'zi bir necha xil bo'ladi 3 nonning o'zi bir necha xil bo'ladi

4) obi non, patir, katlama 4 obi non, patir, katlama Level Listing (Subtopics)

5) har birining o'z tayyorlash usuli bor, each has its own preparation method Falling Comment on Subtopics

6) keyin palov, then plov. Going up.

New Superordinate: Topic Introduction

IU1 sets the tone for the whole stretch by framing it as a talk about Uzbek dishes. The first major subtopic (bread) starts with a rising boundary, which means that more information will be added. IUs 3–5 give more information about this subtopic. To show that the list of bread types is part of an ongoing structure, IU4 uses a level boundary tone. The next big subtopic (plov) comes up with a rising boundary in IU6, which is the same pattern as IU2. This hierarchical organization, shown by the consistent use of prosodic boundaries and boundary tones, shows that prosodic segmentation can encode complex discourse structures.

4.2 Concentrate on Information and Prosodic Significance

The study of information focus revealed a systematic relationship between prosodic prominence and the pragmatic status of information. According to the focus marking hypothesis, the new information focus was always in line with the main pitch accent in an IU. The most intriguing discovery was the treatment of contrastive focus. It was always done by putting the thing that was being focused on in a separate, usually smaller, prosodic unit.

Pay attention to new information:

In IUs with new information, the word that stood for the new information always had the main pitch accent, which was the most noticeable pitch movement. The position

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of this accent was determined not by its syntactic position but by its information status. In the next example, the speaker tells the other person something new about when someone will show up:

Example 3: Concentrate on Fresh Data

IU Text (Uzbek) Gloss Main Accent Location Pragmatic Function

1) I heard—Discourse Structuring 2) u Toshkentga he to Tashkent Level Topic Continuation 3) qaytib keldi came back keldi ('came') New Info Focus

The main pitch accent in IU3 is on the last syllable of keldi, the main verb that tells us about the event of returning. The previous IU2, which has the locative phrase "to Tashkent," gets a level boundary tone and no strong accent. This means that this information isn't as important as the main event.

Contrastive Focus: The prosodic strategy employed to indicate contrastive focus significantly differed from that utilized to denote new information focus. Speakers always put the contrastive element in its own IU when they wanted to show that it was different from something else, which means that it was chosen from a group of options. This IU had these qualities:

• A high or rising-falling pitch accent on the part that makes the difference
• Most of the time, it lasts less time than normal IUs.
• A clear line (pause, pitch reset) that makes it stand out from the things around it

Here's an example of a conversation where people are talking about when something will happen:

Example 4: Pay attention to the differences

IU Text (Uzbek) Gloss Pitch Contour Pragmatic Function

1) Bugun emas Not today High on emas, falling Contrastive Focus
2) ertaga tomorrow High rising-falling Contrastive Focus
3) yomg'ir yog'adi, rain will fall. Going down. New Info Focus

The speaker makes it clear that today is not the same as tomorrow. Putting each part in its own IU makes the difference clear. In IU1, the word "bugun emas," which means "not today," is used. The high pitch accent on "emas" shows that the first choice is wrong. IU2 is just the word ertaga, which means "tomorrow." The pitch contour, which goes up and down a lot, makes it stand out the most. The 310 ms gap between IU1 and IU2 makes the difference even clearer. Then, IU3 gives the prediction that goes with the choice that was made.

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Ninety-two percent of the clear contrastive focus cases in the corpus used prosodic isolation to show contrastive focus. The consistency of this pattern suggests that for Uzbek speakers, contrastive focus involves not only the application of a pitch accent on a particular word but also the structural separation of the contrasted element from the rest of the utterance. This discovery supports Lambrecht's (18) claim that focus marking can be achieved via syntactic or prosodic dislocation, and it further clarifies this notion by demonstrating that in Uzbek, prosodic dislocation is the preferred technique for contrast.

A more complex example illustrates the interaction between contrastive focus and topic structure:

Example 5: A Few Differences. IU Text (Uzbek) Gloss Pragmatic Function Ali came. Ali came. Getting Started with the Topic 2) Bek Bek Contrastive Focus 3) kelmadi didn't come Comment

The speaker begins by saying that Ali came in this case. The next IU uses the name Bek, which has a high pitch accent and a contour that goes up and down, to show how Ali and Bek are different. After that, IU3 gives the predicate kelmadi, which means "didn't come," and it applies to the thing that is being compared. This pattern shows that contrastive focus can be used to focus on referents (who came vs. who didn't) as well as modifiers of time or place.

4.3 Indicating Stance and Prosodic Autonomy

The analysis revealed that prosodic segmentation fulfills a third significant function: to indicate the speaker's position. Stance refers to the speaker's expression of attitude, evaluation, or epistemic commitment concerning the propositional content communicated (25; 26). The analysis revealed that speakers consistently employed prosodic segmentation to distinguish stance-marking elements from the propositional content under discussion.

Epistemic Position:

Words that show how sure the speaker is or where the information came from were often made as separate IUs. Some of these were modal adverbs (ehtimol "probably," shubhasiz "undoubtedly"), evidential markers (shekilli "apparently," degandek "as if"), and parenthetical verbs (o'ylaymanki "I think that," bilaman "I know").

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Example 6: Epistemic Position IU Text (Uzbek) Gloss Boundary Tone Pragmatic Function
1) Ehtimol Probably Increasing Epistemic Stance 2) u kechikib qolgandir he must have been delayed Falling Proposition
In this sequence, the epistemic modal ehtimol has its own IU, which is marked with a rising boundary tone that shows the next proposition. The speaker can make their epistemic stance the main point of reference for understanding the information that follows by separating the stance marker from the proposition. The 270 ms pause between IU1 and IU2 makes this framing function even stronger.
Position of Evaluation:
Prosody also systematically separated evaluative stance markers, which show how someone feels, judges, or values something. These were evaluative adjectives (ajab "amazing," a'lo "excellent"), interjections (voy "wow"), and constructions that make judgments.
Example 7: A Position for Evaluation IU Text (Uzbek) Gloss Boundary Tone Pragmatic Function
1) U imtihondan o'tibdi He passed the exam Falling Proposition 2) ajab, which means "amazing," and "falling," which means "evaluative stance." The speaker first tells the news that someone passed an exam. The falling boundary tone shows that the proposition is over. The next IU is just the evaluative adjective ajab, which has its own tone of falling boundary. Putting the evaluation in its own IU gives it its own pragmatic force. This means that people don't see it as part of the description; instead, they see it as a separate speech act, like an exclamation of surprise and approval.

Position for Structuring Discourse:
A third type of stance expression used discourse-structuring elements to show how the speaker felt about how the conversation was going. These were things that caught people's attention (bilasanmi "you know"), things that started a conversation (haqida gapiradigan bo'lsak "speaking about"), and things that summed things up (xullas "in short").
Example 8: Position for Organizing Discourse
IU_Text (Uzbek) Gloss Boundary Tone Pragmatic Function
1) Bilasanmi You know what Rising Discourse Structuring

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2) men bugun juda qiziq bir narsani ko'rdim today I saw something very interesting Falling Proposition

In this sequence, IU1 serves as an introduction that gets the conversation going by letting the listener know that the information that follows is important and grabs their attention. The rising boundary tone means that more is coming, and the pause after IU1 gives the listener time to get ready for what the speaker is going to say next.

The quantitative analysis revealed that stance-marking IUs exhibited distinct prosodic characteristics when compared to propositional IUs. They lasted a lot less time (mean = 0.87 seconds vs. 1.94 seconds for propositional IUs, $t(412) = 9.45$, $p < .001$) and had rising boundary tones more often (54% vs. 21% for propositional IUs), which shows how they work. They also tended to happen at important times in the conversation, like when someone starts or ends a turn or when the topic changes. At these times, the speaker is in charge of how the conversation goes.

4.4 Changes in Genre

The basic patterns described above were present in both conversational and broadcast genres. However, there were differences in the numbers, which showed that each genre has its own needs for interaction and production.

Length and Difficulty of IU:

The IUs in broadcast speech were much longer (mean length = 5.8 syllables, SD = 2.4) than those in conversational speech (mean = 4.2 syllables, SD = 1.9) ($t(1,247) = 7.63$, $p < .001$). This difference is because broadcast production is more planned and scripted, which lets speakers make longer, more complex sentences without having to think about what to say next.

Boundary Cues:

Conversational speech had more and longer pauses (mean pause after IU = 245 ms) than broadcast speech (mean = 178 ms) ($t(876) = 5.21$, $p < .001$). This difference shows how conversations are two-way, with pauses giving people a chance to switch turns and answer. In broadcast speech, the monologic format means that interactive pauses aren't as important.

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Distributing Pragmatic Functions:

The distribution of pragmatic functions across IU types varied by genre. Conversation had more IUs that marked a stance (23% compared to 12% in broadcast) and IUs that reacted (15% compared to 3% in broadcast). This shows that informal conversation is more interactive and evaluative. Broadcast speech had more topic continuation IUs (45% vs. 32% in conversation) and discourse-structuring IUs (18% vs. 9% in conversation), which shows that it was more expository and informational.

Even though these genres were different, the main ideas that linked prosodic segmentation to pragmatic functions stayed the same. In both genres, topic-introducing IUs displayed ascending boundaries and post-IU pauses; contrastive focus was demonstrated through prosodic isolation; and stance-marking elements were predominantly expressed as independent IUs. This consistency suggests that the identified patterns are not merely performance phenomena but rather reflect systematic, rule-governed attributes of Uzbek discourse organization.

5. Discussion

The findings of this study provide substantial empirical support for the primary claim that prosodic segmentation serves as a fundamental organizational framework for pragmatic meaning in spoken Uzbek. The analysis has demonstrated that Intonation Units are not merely phonological or performance phenomena; they constitute fundamental components of discourse through which speakers regulate topics, highlight information focus, and articulate their perspectives. In this section, we investigate the theoretical ramifications of these findings, analyze the interplay between prosody and grammar in Uzbek, and assess the contributions and constraints of the present study.

5.1 The Dominance of Prosodic Segmentation in Pragmatic Structuring

The main theoretical contribution of this study is the clarification that prosodic segmentation serves as a primary system for encoding pragmatic functions, rather than a secondary one. The traditional view in linguistics is that syntax (e.g., word order, specialized constructions) and morphology (e.g., particles, affixes) are the main ways that pragmatic meaning is encoded. Prosody, on the other hand, is thought to have a secondary, "realizational" role that only adds to structures that grammar has already set up. The findings of this study contradict this viewpoint.

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Consider how to delineate the structure of the topic. In Uzbek, a language with a flexible word order, word order alone does not always show the difference between a topicalized constituent and a simple subject. Subject noun phrases can be found in preverbal, postverbal, or clause-initial positions, but there is no clear link between these positions and the status of the topic. When there isn't a consistent way to mark syntax, prosody is the main way to show how topic-comment works. In Example 1, speakers put topics in different IUs with rising boundaries and pauses in between. This creates a prosodic frame that shows what the next comment will be. This pattern is not just an extra layer on top of a syntactic structure that already shows the topic; it is the main way that the topic-comment relationship is set up and understood.

Similarly, employing prosodic isolation to denote contrastive focus (Examples 4 and 5) illustrates that this constitutes not merely a syntactic focus construction but also a distinct prosodic operation. The contrastive element is displaced from its standard syntactic position and transformed into an independent IU. This forms a prosodic structure analogous to the pragmatic structure of contrast. This pattern is similar to the "prosodic detachment" phenomenon found in other languages (27). However, its high frequency in Uzbek—showing up in more than 90% of contrastive focus cases—shows that it is a basic grammatical strategy rather than a choice based on pragmatics. These findings indicate that grammatical models that consider prosody as marginal or merely "expressive" are inadequate for depicting the structure of spoken Uzbek. A more suitable model would recognize that prosodic segmentation is an essential component of grammar—a system of structural resources that interacts with syntax and morphology while remaining distinct from them. This perspective aligns with current research in interactional linguistics that promotes a "prosody-first" approach to spoken language analysis (2; 5).

5.2 The Cognitive and Interactional Underpinnings of Intonation Units

The identified patterns of prosodic segmentation correspond with cognitive and interactional theories of intonation units (IUs), reflecting the constraints and necessities of real-time language utilization. Conversational Uzbek IUs are about 4.2 syllables long on average, which is about the same as the 2-second duration seen in other languages (1). This supports the cognitive claim that IUs are related to the ability of working memory to activate and verbalize a single new idea. The separation of topics, focused elements, and stance markers into separate IUs can be seen as a sign of the cognitive needs of these pragmatic functions. To begin a new topic, you must

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engage a new referent in your working memory. You have the time you need to do this by putting this operation in its own IU. In the same way, saying "contrast" means thinking about two choices and choosing one. Putting the contrasting part in its own IU might help you think about it more easily.

It is also clear what the interactional basis of IUs is. Using rising boundary tones on topic-introducing and discourse-structuring IUs shows that the speaker plans to keep talking. This helps manage turn expectations and gets the listener's attention. The longer pauses after introducing a topic give the listener time to respond or agree before the speaker moves on to the comment. These patterns demonstrate that prosodic segmentation serves not only as a cognitive aid but also as a facilitator for collaborative dialogue.

5.3 Effects on Uzbek Grammar and Typology

This research has significant implications for the delineation of Uzbek grammar and for the categorization of the prosody-pragmatics interface. The preliminary findings suggest that the traditional description of Uzbek as having "free" or "flexible" word order requires reassessment. Word order can be changed in many ways, but it is not free in the sense that it is not limited or neutral in terms of meaning. Instead, word order choices work with prosodic segmentation to encode certain pragmatic meanings. As a result, a complete explanation of Uzbek syntax requires a careful look at the prosodic contexts in which different word orders show up.

Second, the results show how important intonation units are for organizing grammar. Most descriptions of Uzbek grammar only talk about sentences and clauses. They don't talk about how to organize bigger units that are bigger than clauses. This study demonstrates that discourse is structured hierarchically via the arrangement of IUs, with boundary tones and pauses signifying the relationships between units. This prosodic structure must be included in a complete grammar of Uzbek.

Third, the patterns observed in Uzbek contribute to cross-linguistic typology. Prosodic isolation to indicate contrastive focus has been observed in other languages, including Italian (28) and Korean (29). But the fact that this strategy is always used in Uzbek makes it more likely that it is a common cross-linguistic phenomenon. Putting topics in separate IUs also fits with patterns seen in many languages (18). These cross-linguistic similarities suggest that the relationship between prosodic segmentation and pragmatic functions may reflect universal principles of information

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processing and communication, even though it appears differently in different languages.

5.4 Methodological Considerations and Future Directions

The methodological framework employed in this study—combining qualitative analysis of examples with quantitative analysis of corpus patterns—has proven effective in investigating the systematic relationships between prosody and pragmatics. Nevertheless, it is imperative to acknowledge and address the diverse methodological limitations in future research.

First, the corpus is small and limited in scope, even though it was well thought out. A more extensive corpus that includes a wider range of speakers (different ages, regions, and social backgrounds) and a greater variety of speech contexts (like task-oriented dialogue, argumentation, and narrative) would make it easier to draw more general conclusions and study how prosodic patterns vary across different social groups.

Second, the process of segmenting and annotating, while attaining a satisfactory degree of reliability, depends on subjective assessments that could be improved through automated prosodic analysis. Recent advancements in speech processing technology have enabled the automatic detection of prosodic boundaries with considerable accuracy (30). Future studies might integrate manual annotation with automated analysis to expedite the process and enhance objectivity.

Third, the analysis has focused on production, leaving unanswered questions about how listeners use prosodic boundaries to figure out pragmatic meaning. Experimental perception studies, particularly those utilizing resynthesized speech stimuli with altered prosodic boundaries, may provide critical evidence concerning the causal impact of prosodic segmentation on pragmatic interpretation.

These factors create several paths for future research. One promising direction is the investigation of prosodic segmentation in language acquisition. How do children learning Uzbek learn to use prosodic boundaries in real life? Do they become proficient in this system before or after syntactic indicators of information structure? A second direction is to apply these findings in natural language processing. The current systems for Uzbek speech recognition and synthesis mostly work at the word and sentence level, and they don't do a good job of modeling prosody. If we could figure out prosodic segmentation patterns, speech technology could sound more natural and be easier to understand. A third approach entails the extension of this

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research to other Turkic languages, enabling a comparative analysis of prosody-pragmatics patterns within the linguistic family.

6. Last Thoughts

This article has thoroughly analyzed the pragmatic functions of prosodic units and segmentation strategies in spoken Uzbek. Through a systematic analysis of a corpus comprising conversational and broadcast genres, we have determined that Intonation Units serve as the primary organizational framework for discourse, encoding pragmatic meanings that cannot be reduced to the syntactic structures in which they are embedded.

Three important discoveries have come to light. First, speakers use prosodic segmentation to put the topics of their conversations in order. They do this by putting topics into different IUs, each of which has rising boundary tones and pauses that hint at the next comment. This method lets speakers set up a structure for understanding what will be said later and put topics in order of importance. Second, contrastive focus is consistently exhibited through the partitioning of focused elements into discrete, prosodically prominent IUs—a technique that distinguishes contrastive focus from new information focus. Third, stance-marking elements, including epistemic modals, evaluative expressions, and discourse-structuring devices, are consistently produced as independent IUs, signifying their pragmatic importance as a separate layer of meaning distinct from propositional content.

These findings challenge traditional models that perceive prosody as a secondary expression of pragmatic meanings primarily conveyed through syntax and morphology. Instead, they support a view that prosodic segmentation is a basic, grammaticalized way to encode pragmatic structure. This viewpoint has significant implications for the description of Uzbek grammar, for cross-linguistic typology, and for our understanding of the cognitive and interactive foundations of human communication.

The study of prosody alongside pragmatics is still in its early stages for many languages around the world, including Uzbek. This study contributes to the expanding corpus of research aimed at elucidating the various ways individuals utilize language to convey meaning in spoken discourse by providing a comprehensive empirical analysis of how a specific language structures discourse through prosodic segmentation. Future research, broadening this investigation to larger corpora,

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experimental frameworks, and computational applications, will further clarify the intricate relationship between the musicality of speech and the process of meaning construction.

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