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An Analysis of Intonation Patterns of English Interrogative Sentences Produced by Undergraduate Students in District Mansehra

Touseef Ahmed

M.Phil. Scholar, Department of English, Hazara University, Mansehra, KP, Pakistan.

Ghani Rahman

Assistant Professor, Department of English, Hazara University, Mansehra, KP, Pakistan.
Email: ghani.rahman@edu.pk
(Corresponding Author)

Shahabullah

Lecturer, Department of English, Abbottabad University of Science and Technology, Abbottabad, KP, Pakistan

Abstract: *This research intends to discover the tonal configurations of English Interrogative sentences used by undergraduate students of English in District Mansehra. The intonation patterns of English interrogative sentences used by undergraduate students were compared with those of native speakers of English. An experimental design was used to collect data from a sample of eighteen students (nine female and nine male) in the form of recordings and was run on PRAAT software to identify the intonation configuration of the recorded utterances. The analysis showed that non-native speakers used a variety of intonation patterns in the utterances of English language. In the comparison with the results of utterances by native speakers, it was observed that in yes/no questions, there was a slight difference between the percentages. Contrastively, in wh-questions, a significant difference was observed, as native speakers used a High-Low pattern whereas non-native speakers used the opposite one.*

Key Words: Intonation, English Interrogatives, Patterns, ToBI Model, Native, Non-native

Introduction

Language is studied and researched from various perspectives. These perspectives might be interlanguage and interlanguage focusing on the language's internal structures and their function or their relation with other languages respectively. One such important structural aspect is the formation of integrative structures in a language and its resultant acquisition by first and second-language learners. Similarly, interrogatives across languages have been investigated from various perspectives. These perspectives could be structural (Umami, 2015; Choi, 2012; Nikmah, 2019) or functional (Firbas, 1976) by taking into account the theocratical (Li & Liu, 2016; Díaz, 2017), acquisitional (Nemoto, 2015), cognitive (Khurshid & Hassan, 2014) or computational (Shaalan, 2000; Garje, Bansode, Gandhi, & Kulkarni, 2016) and

code-mixing (Ezekiel, Omowunmi, & Rifqat, 2014) perspectives. All languages have different realizations for interrogative constructions which could be phonological, syntactic or morphological in nature; as a consequence, making it is difficult to learn such constructions in a second language because of L1 interference which hinders learning for many other reasons. In English, interrogative structures are formed by moving the auxiliary other elements of the clause to the front of the sentence. The many types of interrogative sentences (three among these are very common) in English ask questions in different forms for different functions. These questions are asked where yes/no answers are required, open-ended answers for wh-questions and asking for assertions from the listeners for tag questions (Haddican, Holmberg, Tanaka, & Tsoulas, 2014). All these types of questions have some characteristics in common which are:

a) An interrogative sentence is used with a rise in pitch
b) It has a question mark (?),
c) It has the function of for asking information.

The yes/no questions are formed by moving the auxiliary (either model or non-model) operators to the front of the sentence. In English, we need to change the word order and insert auxiliary verbs on the basis of the tense of the sentence to make questions (Umami, 2015). The *be* operator is used for the progressive aspect, *have* for perfective and *do* is used when an aspect is irrelevant (Díaz, 2017). The wh-question is formed by moving the wh-words (like who, what, why, when, where and how etc.) to the front of the sentence. The tag questions are formed by adding a form of *be*ing or other model/non-model auxiliary verbs. The movement of auxiliary or wh-word to form English interrogative sentences makes its acquisition difficult for children compared to those children learning interrogatives of their L1

where there no movement of the auxiliary or other elements (and so parametric setting) is needed (Nemoto, 2015). These problems, no doubt, are faced more by second-language learners of English having no overt movement of elements to form interrogatives. Interrogative sentences are used to seek information about a certain thing. Interrogatives or questions are used to achieve one of the discourse acts of speech which is an elicitation or requesting a linguistic (verbal) response. According to how they are constructed and the kind of reply they expect, interrogatives can be divided into different types like yes/no questions, wh-questions, tag questions and alternative questions. The first and second types of questions are analyzed in the current study. The English interrogative sentences are recognized from the different intonational patterns along with other structural clues. Intonation is the major component in suprasegmental phonology; whereas perceptually, intonation is perceived or understood as pitch variations that convey various meanings of a sentence. Intonation is undoubtedly important and crucial in communication. It works not only in putting across linguistic information but also does an important role in controlling discourse and is an imperative pointer of the speaker's physical, psychological and sociolinguistic identity. Intonation also enhances intelligibility (Grading, 1993). Ladd (1996) describes intonation as "the use of suprasegmental phonetic features to convey 'post–lexical' or sentence-level pragmatic meanings in a linguistically structured way". On the other hand, Eva (2009) defines the term intonation as "the use of pitch patterns to convey non-lexical or sentence-level meanings" and describes pitch as "the perceptual sensation of fundamental frequency (F0), which is the acoustic correlate of the repetition rate of vocal fold vibration". The variation in tone or intonation is perceived and uttered in fixed learned patterns for most kinds of sentences.

Intonation patterns have different functions to perform like variation in tone may indicate discourse or grammatical functions.

Intonation takes linguistic information as well as performs a number of functions. Nolan (2014), and many researchers, suggest that there are three basic intonation functions, which are: attitudinal (emotional state), grammatical, and informational (discourse). The intonation, in different languages, has universal and language-specific components. The language-specific components involve morphology and intonational phonology (Gussenhoven, 2002).

Purpose of the Study

The role of intonation in a foreign accent has been analyzed in various studies. The intonation patterns for English interrogative sentences are equally significant in learning English as a foreign language. The patterns of intonation for these interrogative sentences are assumed to be different from the patterns of intonation by native speakers of English. The native data for these intonation patterns are compared to the non-native data in the present study since all languages differ in these intonation patterns for interrogative sentences. The present study attempts to analyze how similar non-native intonation patterns for interrogative sentences are to native speakers' patterns of the same because the patterns of the first language are imposed on the patterns in the second language (Dobrovolsky, 2016) which are sometimes even reflected in second language teaching context of these patterns (Atoye, 2005). The present study, therefore, aims at exploring the acquisition of intonation patterns in English interrogative sentences by undergraduate students of English in District Mansehra as interrogative sentences play a significant role in learning English. The study explores the extent to which these patterns match the patterns for native speakers (the standard British variety of English). The

native-like patterns help in comprehending the meaning and functions of these structures of English by making sure of ease of communication in English. This research has significant instructional associations since it might aid language instructors in understanding the intonation patterns of English interrogative sentences by second language learners in Mansehra, Khyber Pakhtunkhwa. It will also help Pakistani students in grasping complex and problematic intonation patterns. The teachers likewise, can identify areas where communication problems may arise.

Literature Review

Scholars have been studying intonation patterns of different structures in English and other languages for the past three decades. Intonation does not exist in a vacuum but rather works in tandem with the surroundings and speech to fulfil a variety of functions playing systematic functions in English, for example, reflecting speakers' sentiments (O'Connor & Arnold, 1973). According to the classic definition of intonation, in verbal English, the relationship between tone and speech is crucial for understanding and evaluating operational interpretation. Halliday (1967) studied the relationship between intonation and grammatical constructions of tag or subordinate clauses, where a speaker's level of conviction was largely determined by whether he utilized a falling or rising tone. If the tones are effectively employed in speech, the phonological, grammatical form and the meaning of words are much more easily transmitted (Crystal, 1981). In the past few years, theorists and researchers on modulation have laid stress on the structures and functions of intonation outside of sentences (Chun, 2002). The goal of employing intonation, so according to Gilbert (1993), is to help comprehend what a speaker is trying to articulate. The scheme of purposes of English intonation, on the other

hand, is far more complex than Gilbert's assertion.

The meaning and purposes of intonation can be interpreted in a variety of ways, for example, attitudinal, accentual, grammatical, and discourse intonation are the four categories of intonation identified by Roach (2000). Emotional, grammatical, informative, textual, psychological, and indexical intonation roles were identified by Crystal (1996). Chun's (2002) book provided a more up-to-date and comprehensive overview of the roles of intonation, categorizing it into four classes: linguistic, attitudinal, speech, and sociolinguistic. The grammatical function marks emphasis or stress by segmenting discourse into words, phrases, and sentences to distinguish statements from questions. In attitudinal function, intonation is used to precise feelings, insolences, and intents; for instance, a piercing falling tone could be used to indicate an expletive (e.g., "What a wonderful SURprise!"), and an increasing tone in English could direct passions such as non-finality, astonishment, uncertainty, attention, and lack of self-confidence (Chun, 2002). Thompson (1995) looked at the underappreciated practice of employing a lowering tone when answering yes/no questions. She discovered that conducive and non-conducive questions had differing tone patterns. A falling tone was regularly used on pertinent enquiries when the broadcasters think that they know the response and want affirmation from the listeners. An increasing tone was commonly used on non-conducive questioning, compared to real inquiry, when presenters did not actually believe they knew what had happened but thought the audience did.

The intonation patterns of the first language may influence the use of intonation patterns of the second language because the intonation contours in the first language and a second language may not be the same. That is why, when speaking English, German speakers of English indicated hesitation with

their increasing intonation in declarations (Chun, 2002). Swertz and Zerbian (2010) used perceptual and auditory analyses to investigate L2 intonation transfer in Zulu English speakers. Zulu's intonation differs from English intonation in that it is not used to distinguish focus words. In contrast to their original language, English L2 speakers in the study did not employ intonation to express emphasis. This transfer of L1 phonological structures impacts L2 phonological learning which is used to easily identify the group of a speaker. Similarly, tone distinctions between Russian and English were found to as challenges in transferring tone from one language into the other (Mentcher, 1979) as potential difficulty areas between Russian and English. In this connection, segmental considerations like vowel length and suprasegmental concerns like the practical weight of phonemic stress differentiating words were analyzed. Transferring one's language intonation pattern into another results in a misinterpretation of the meaning or intent rather than a misunderstanding of the content (Mentcher, 1979) and as a result, people can comprehend the whole speech but not the intent after it.

A number of longitudinal studies have looked at how pronunciation changes over time, as well as probable intonation transfer. Derwing et al. (2006) looked at how accent, or target-like pronunciation, fluency, or general aptitude developed over time. Twenty Mandarin and twenty Slavic adult English learners took part in the study. At the start of the trial, after two months, and then after ten months, L2 speech samples were evaluated. While both groups' accents improved slightly, the Slavic speakers' fluency improved significantly, while the Mandarin speakers' fluency remained unchanged. At the end of the ten months, both groups' fluency was evaluated the same. Over the course of 10 months, this study found only a minor improvement in

pronunciation. This suggests that those who are primarily concerned with learning the language may not be concerned with improving pronunciation or, more precisely, intonation. They may maintain the intonation of L1 or fail to obtain objective intonation as a result of this. Even those who increased their fluency did not significantly enhance their pronunciation. Despite the fact that this was longitudinal research, tracking the evolution of pronunciation, it did not address the influence of L1 intonation. Further, longitudinal research of pronunciation, comprising intonation and the influence of L1 intonation, can help us better recognize the evolution of L2 languages. The similarity and differences in interrogative sentences in different languages have been compared in various studies suggesting a significant role of interrogative in learning a second language (Haddican, Holmberg, Tanaka, & Tsoulas, 2014). Second-language learners begin learning an interrogative sentence without movement in their earlier stage of interlanguage (Cook, 2001) and then learn the movement of the word, phrase, sentence and then a subordinate clause (Choi, 2012). Even for a machine, to better translate interrogative, the rearrangement of algorithms and bilingual lexicon (Garje, Bansode, Gandhi & Kulkarni, 2016) and filling the syntactic gap between languages is needed (Shaalan, 2000). That is why form-based instructions of interrogative sentences are considered more effective for learning interrogative structures in L2 settings (Lightbown & Pienemann, 1993).

Research Methodology

This study aimed at exploring the use of intonation patterns of interrogative sentences by second-language learners of English in Pakistan. It anticipated discovering the nature of several intonation arrangements used by ESL learners. It also attempted to discover the difference in the use of intonation from the patterns by native speakers of a standard variety of British English. The population of the study were English language learners at the undergraduate level in Pakistan. The data was collected from eighteen undergraduate-level ESL students from three different institutes in the district of Mansehra. The instrument used for data collection was an elicitation test. The test consisted of eighteen interrogative sentences, nine of these questions was about wh-questions and nine were about yes/no questions. These constructions were considered in three equal sets of sentences having different structures. The wh-questions consisted of three equal sets of questions starting with 'what, 'why' and 'where'; whereas yes/no questions consisted of three equal sets of questions starting with the helping verb for a present, past and modal verb for future. The data was inscribed on flash cards and the participants were asked to read out these cards. The questions in the data set of both types for the analysis are given in the table below:

Table 1. Data Set used for the investigation of wh-questions in English

S. No	Sentence Structure	Sentence
1	What	What did you read?
		What are you waiting for?
		What is he doing here?
2	Why	Why am I afraid?
		Why are you calling me?
		Why is he sleeping here?
3	Where	Where are you?

S. No	Sentence Structure	Sentence
		Where is my house?
		Where are you going now?

Table 2. Data set used for the investigation of English yes/no questions

S. No	Sentence Structure	Sentence
		Is he hungry?
1	Present	Are you eating mangoes?
		Have you driven fast?
		Was I late?
2	Past	Was he reading the newspaper?
		Had he come here?
		Will you go home?
3	Future	Will you be playing?
		Will you stay here?

Before beginning the recording practice, members were stimulated to acquaint themselves with the script on flash cards so as to eradicate the likelihood of mistakes during recordings. These sentences were vocalized at the regular speech frequency by the participants. Hence, a whole of 324 expressions was recorded and examined for the current research. The data was collected through recordings with the help of a Sony Digital Voice Recorder. The recordings were analyzed through PRAAT. The contours were marked using the ToBI model of intonation. The ToBI model is a revised version of Pierrehumbert's intonation model, which was first introduced in the 1980s (Banziger & Scherer, 2005). This model was created with the intention of serving as a universal standard for prosodically annotating speech databases, similar to how IPA is used for phonological annotation over the world. ToBI was created with the intention of studying the intonation delineations of American spoken English (Wagner, 2008). Since then, it is being used to research intonation outlines in varieties of particular languages. ToBI's intonation model may be broken down into two fragments: Tones, and Break indices (Hirst, 2005). Pitch accent, phrase accent, and the final boundary tone are the three types of tones. Pitch accent is defined by Wagner as the last stressed syllable in a tone unit, however, phrase accent is the tone that follows the pitch accent in the same tone unit (Queen, 2001). The final boundary tone is the closing tone in the tone unit represented by a percentage symbol. An intonational phrase's boundary tone is the last intonation pattern.

Hirst (2005) argues that ToBI: "Combines representations of the prosodic form (H, L) with representations of prosodic function (- * %) in so far as the latter symbols convey aspects of prosodic structure which are clearly expressions of what prosody does in the language (i.e. its function) rather than what prosody sounds like (its form)" (p. 338)

Such an approach was created principally to aid in the development of speech separation tools and the labelling of speech catalogues (Mozziconacci, 2002). The reliability of the study of intonation patterns using the TOBI structure of intonation was reviewed by Silverman et al. (1992). They prepared their research participants for TOBI-based analysis and then assessed intra-transcriber agreement. The findings of their study reveal that even between experienced transcribers and individuals with little or no prior expertise in prosodic transcription, more than 80% agreement can be reached.

The recorded data came under two categories i.e., both types of questions. The recordings were segmented to the level of individual utterances for keen analysis. They were then analyzed in PRAAT to have the observation of tone variation as well as other features of intonation. For further analysis, the samples needed to be labelled using some standard. The ToBI model was selected for this purpose because it has a distinguishable and easily understandable set of symbols for different features of tone.

After converting the spectrographs of speech sounds into the symbols' framework gained from ToBI in tabular form, intonation patterns of English interrogative sentences were obtained. These results were then compared with IViE proposed by Grabe and Post (2002). IViE presents the intonation patterns of interrogative sentences uttered by British native speakers of English.

The difference in percentages shows the difference between intonation patterns of interrogative sentences uttered by undergraduate students of English in district Mansehra and British native speakers of English.

Data Analysis

Grabe and Post (2002) found that English native speakers utilize a wide range of delineations for yes/no questions. L* H per cent is the most commonly used contour for yes/no interrogative sentences, accounting for 38.9% of the data. The symbol (*) has been replaced with the symbol (-) in the revised version of the ToBI model. The data from Grabe and Post (2002) for intonation patterns of native speakers, therefore, has been adapted according to the symbols in this new and revised version. However, with 27.8% data coverage, the frequency of H – L % was also significant along with some non-significant patterns. The following table only shows the significant patterns for the intonation of interrogative structures. The non-significant patterns were not given for the sake of convenience in comparing the data from non-native speakers.

Table 3. Intonation Patterns of 'Yes/No' Questions by English Native Speakers

Sentence Construction	Intonation pattern	Percentage
Interrogative (Yes/ no)	L- H%	38.9
Interrogative (Yes/ no)	H- L%	27.8

The above table shows that the pattern L- H% was more in percentage than the H – L% pattern for yes/no interrogative structures. Similarly, the analysis of English wh-questions by Grabe and Post (2002) reveals the English native speakers' partiality for H-L% intonation structures (55.6%) of the entire data.

Table 4. Intonation Patterns of Wh-Questions by English Native Speakers

Sentence form	Intonation pattern	Percentage
Wh- Interrogative	H- L %	55.6

The intonation patterns by English native speakers for interrogative sentences were compared with patterns by non-native speakers. The comparison was done on the basis of closing contour, as the boundary tone helps in the identification of patterns. Data was arranged for both possible tones in boundary tone that are H% and L%. Once the frequency for both was known, it was then converted into a percentage for better

understanding. Finally, the results were compared with the intonation patterns for interrogative questions by native speakers of English. The following table presents the summary of all the possible patterns that were observed from the recordings of 'yes/no' questions.

Table 5. Total Frequency of Intonation Structure for Yes/No Questions by Non-Native Speakers

IP	Frequency	Percentage
H- H%	18	11.3
L- H%	52	32.7
L- L%	43	27
H- L%	46	29

The patterns by non-native speakers are more than the patterns for native speakers of interrogative structures. Similarly, the following table presents the summary of all the possible patterns that were observed from the recordings of wh-questions by non-native speakers.

Table 6. Total frequency of intonation structure for wh-questions by non-native speakers

IP	Frequency	Percentage
H- H%	14	8.6
L- H%	55	33.9
L- L%	49	30.4
H- L%	44	27.1

The results of the intonation structure of English interrogative sentences on the basis of boundary tone for both wh-questions and yes/no questions are given below. The results show generally low and high outlines for both wh and yes/no questions. The obtained data helped in comparison with the intonation patterns of native speakers of English as the results in intonational variation in English are also represented in this way. The difference between the intonation patterns of interrogative sentences by non-native speakers in the present study and native speakers in Grabe and Post (2002) was easily brought out through the comparison of the frequency percentage in the tables. After comparing the utterances related to both types of questions, i.e., wh and yes/no questions, the differences can clearly be observed in both tables. It can also be seen that some of the patterns show more similarity in both structures than the others. The following table compares the patterns for interrogative structures by both native and non-native speakers.

Table 8. Comparison of the interrogative structure by native and non-native speakers of English

Structures	Native Speakers of English	Non-native Speakers of English
Yes/no Questions	L- H % (38.9%) H- L % (27.8%)	L- H% (32.7%) H- L% (29%)
Wh- Questions	H- L %	L- H% (33.9%)

Structures	Native Speakers of English	Non-native Speakers of English
	(55.6%)	L- L % (30.4%)

In the comparison of utterances of both types of question i.e. 'wh' and 'yes/no' by native and non-native speakers, the data for native speakers were taken from the IVIE model. It contained other sentence types as well but only interrogative sentences were taken for the comparison from the IVIE model. The yes/no questions in native speakers' data came in the patterns L- H % and H- L% with percentages of 38.9% and 27.8% respectively. In the data collected from non-native speakers, the patterns L- H% and H- L% with the percentages 32.7% and 29% for yes/no questions were observed. For wh-questions, the native speakers' only used the pattern H- L %. It shows the uniformity of intonation patterns used for wh-questions by native speakers. On the other hand, the utterances by non-native speakers show that they used two patterns in the greatest percentages. They are L- H% and L- L%. The percentages against these patterns are 33.9% and 30.4%.

If we compare the two question types separately, in yes/no questions, both native speakers and non-native speakers used L- H% with the greatest percentage. The second highest percentage comes in the pattern H-L% in both categories. Both of these patterns show a similarity of intonation patterns with a bit of difference that the L- H % of yes/no for native speakers was more than it for non-native speakers. This difference was non-significant in the H-L % pattern for both native and non-native speakers.

The comparison of results from both native and non-native speakers in wh-questions shows a significant difference. H- L % was used by native speakers as the only intonation pattern, apart from some exceptions, that did not significantly affect the overall results. On the other hand, non-native speakers used intonation patterns in a wide variety. The two greatest percentages were identified for L- H% (33.9%) and for L-L% (30.4%). The one used by the native speakers (H- L %) was found highest (55.6%).

If we look at the differences in yes/no questions, both categories of speakers used the patterns with no big difference, except the difference in the percentage of frequency. Whereas, a huge difference was observed in the other type of question (wh-question), where the results were totally opposite. H- L %, the structure was used most frequently by native speakers which does not lie in the top two preferences of non-native speakers. Damron ([2004](#)) found a resemblance between the suprasegmental structures of the Urdu language and the Pakistani variety of English in his research. She says that the utilization of prosodic resources by Pakistani Urdu and English language speakers differs from that of participants from America. This dissimilarity is reflected in the findings of this research, which show that the usage of intonation patterns by American and Pakistani English speakers for different types of phrases is not identical. The same can be said for British English. Swerts and Zerbian's ([2010](#)) investigation of the transfer of suprasegmental features in the use of the English language by Black South Africans confirms that mother language traits stimulate the usage of L2 English variations.

Conclusion

The present study was concerned with the analysis of intonation patterns of English sentences by undergraduate students in the district of Mansehra. The study specifically looked for the patterns of yes/no and wh-questions. The study looked for possible patterns for these sentences and compared them with patterns by English native

speakers. The analysis of the data showed that undergraduate students used a variety of intonation patterns in the utterances of Interrogative sentences. They used a Low-High boundary tone in most of the utterances of both types of questions. In the comparison with the results of utterances by native speakers, it was observed that in yes/no questions, there was a slight difference between the percentages and non-native speakers used more patterns than native speakers. On the other hand, in wh-questions, a significant difference was observed, as native speakers used a High-Low pattern whereas the non-native speakers in the present study used the opposite one. The analysis suggests that like other aspects of language, there was a possible impact of L1 suprasegmental features on the structures of the target language. Language learning needs to be advanced to the level of suprasegmental phonology in order to learn these features of the language. This difference can make a hurdle in the communication process with respect to discourse functions, as intonation has a vital role in the discourse and other levels of meaning.

References

Bänziger, T., & Scherer, K. R. (2005). The role of intonation in emotional expressions. *Speech Communication, 46*(3-4), 252–267. https://doi.org/10.1016/j.specom.2005.02.016.

Choi, K. (2012). A study on learning to write English interrogative sentences. *English Language & Literature Teaching, 18*(2), 21-44.

Chun, D. M. (2002). *Discourse intonation in L2: From theory and research to practice* (Vol. 1). John Benjamins Publishing.

Cook, V. (2001). *Second language learning and language teaching (3rded.)*. London: Arnold.

Crystal, D. (1981). *The Scope of Clinical Linguistics. In Clinical Linguistics* (pp. 1-22). Springer, Vienna.

Crystal, D. (1996). Language play and linguistic intervention. *Child Language Teaching and Therapy, 12*(3), 328–344. https://doi.org/10.1177/026565909601200307.

Damron, R. L. (2004). Prosody in Urdu and Pakistani English conversational discourse. In C. L. Moder & A. Martinovic-Zic (Eds.), *Discourse across languages and cultures:* John Benjamins Publishing.

Díaz, M. A. M. (2017). An account of English yes/no interrogative sentences within ARTEMIS. *Revista de Lenguas para Fines Específicos, 23*(2), 41-62. http://dx.doi.org/10.20420/rlfe.2017.172.

Bolaji, E. T., Sanni, R. O., & Adebanjo, O. M. (2014). Patterns of Codeswitching in Mixed Yoruba-English Interrogative Sentences. *Journal of Cognitive Science, 15*(2), 259–286. https://doi.org/10.17791/jcs.2014.15.2.259.

Firbas, J. (1976). A study on the functional perspective of the English and the Slavonic interrogative sentence. *Digilib.phil.muni.cz*.

http://hdl.handle.net/11222.digilib/118071.

Garje, G. V., Bansode, A., Gandhi, S., & Kulkarni, A. (2016). Marathi to English Sentence Translator for Simple Assertive and Interrogative Sentences. *International Journal of Computer Applications, 138*(5), 42–45. https://doi.org/10.5120/ijca2016908837.

Grabe, E., & Post, B. (2002). *Intonational variation in the British Isles.* Paper presented at the Proceedings of Prosody Aix-en-Provence, France.

Gussenhoven, C. (2002). Intonation and interpretation: Phonetics and phonology. In Proceedings of the Speech Prosody Conference, pp. 47-58, 2002.

Haddican, B., Holmberg, A., Tanaka, H., & Tsoulas, G. (2014). Interrogative slifting in English. *Lingua, 138*, 86–106. https://doi.org/10.1016/j.lingua.2013.10.006.

Halliday, M. A. K. (1963). INTONATION IN ENGLISH GRAMMAR. *Transactions of the Philological Society, 62*(1), 143–169. https://doi.org/10.1111/j.1467-968x.1963.tb01003.x.

Hirst, D. (1992). *Prediction of prosody: An overview (pp. 199-204)*. Amsterdam: Elsevier Science Publishers.

Khurshid, M. A., & Hassan, R. (2014). Cognitive problems of Urdu-medium college students in learning English interrogative sentences. *Kashmir Journal of Language Research,(17)*, 2, 87-111.

Ladd, R. (1996). *Intonational phonology*. Cambridge University Press.

Li, X., & Liu, J. (2016). Syntactic comparison between the English and Chinese interrogative sentences. *International Journal of Liberal Arts and Social Science, 4*(9), 104-110.

Lightbown, P. M., & Pienemann, M. (1993). Comments on Stephen D. Krashen's "Teaching Issues: Formal Grammar Instruction". Two Readers React. *TESOL*

Quarterly, 27(4), 717–722. https://doi.org/10.2307/3587404.

Mentcher, E. (1979). Teaching English to Russian Students. *ELT Journal*, 34(1), 47–52. https://doi.org/10.1093/elt/34.1.47.

Mozziconacci, S. (2002, 11-13 April). *Prosody and emotions*. Paper presented at the Speech Prosody, Aix-en-Provence, France.

Nemoto, T. (2015). First Language Acquisition of Interrogative Sentences by English and Japanese Speakers.

Nikmah, K. (2019). Interrogative Sentence: A Contrastive Study of Arabic and Indonesian. *Izdihar: Journal of Arabic Language Teaching, Linguistics, and Literature*, 2(3), 183-200.

Nolan, F. (2014). Intonation. *Linguistics at Cambridge*, 11-21.

Pierrehumbert, J., & Hirschberg, J. (1990). The meaning of intonational contours in the interpretation of discourse. In P. R. Cohen, J. Morgan & M. E. Pollack (Eds.), Intentions in communication (pp. 271-311). Mass.: MIT Press.

Roach, P. (2000). *English phonetics and phonology*. Cambridge University Press.

Robin M. Queen. (2001). Bilingual Intonation Patterns: Evidence of Language Change from Turkish-German Bilingual Children. *Language in Society*, 30(1), 55–80. http://www.jstor.org/stable/4169069.

Sethi, J., & Dhamija, P. V. (2004). *A course in phonetics and spoken English*. PHI Learning Pvt. Ltd.

Shaalan, K. (2000, December). Machine translation of Arabic interrogative sentences into English. In *Proceedings of the 8th International Conference on Artificial Intelligence Applications* (pp. 473-483). Egypt: Egyptian Computer Society (EGS).

Swerts, M., & Zerbian, S. (2010). *Prosodic transfer in Black South African English*. Paper presented at the Proceedings of Speech Prosody Chicago.

Thompson, S. (1995). Teaching intonation on questions. *ELT Journal*, 49(3), 235–243. https://doi.org/10.1093/elt/49.3.235.

Umami, M. (2016). A Contrastive Analysis of Interrogative Sentences in English and Indonesian. *Register Journal*, 8(2), 151. https://doi.org/10.18326/rgt.v8i2.151-162.

Wagner, A. (2008). *A comprehensive model of intonation for application in speech synthesis*: Adam Mickiewicz University.