Prosodic Dimension in Simultaneous Interpreting of Some Spoken Corpora of English-Arabic-English Language Pair

البعد التطريزي في الترجمة الفورية لبعض المدونات اللغوية المترجمة باللغتين العربية والإنجليزية

إعداد

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المستخلص باللغة العربية

يهدف هذا البحث إلى دراسة البعد التطريزي في الترجمة الفورية لبعض المدونات اللغوية المترجمة باللغتين العربية و الإنجليزية. تكونت المدونات اللغوية من خطابين كنصي المصدر (واحد باللغة العربية وآخر بالإنجليزية) مع الترجمة الفورية لكل منهما إلى الإنجليزية وإلى العربية بالإضافة إلى رَوْمَنةِ اللغة العربية لنص المصدر و النص المترجم. تم تقسيم نص المصدر إلى وحدات لغوية صغيرة، كل وحدة تحتوي على مجموعة أفكار متشابهة، ولها مكافئٌ في النص المترجم. تم تطبيق نموذج التحليل المقترح و الذي يتضمن البعد التطريزي (درجة النبر الصوتي و التنغيم و البروز الصوتي للمقطع) على هذه المدونات اللغوية. تم استخدام الأسلوب الكيفي باستخدام نظام ToBI . و لقد خلص الباحث من نتائج الدراسة الحالية إلا أنَّ هناك أوجه تشابه واختلاف كبيرة بين الملامح التطريزيةِ في المدونات اللغوية باللغتين العربية و الإنجليزية. كما أوصى الباحث من خلال نتائج دراسته بضرورة إكساب طلاب الترجمة الفورية القدرة على إتقان الأنماط

التطريزية الصحيحة عند الترجمة من الإنجليزية إلى العربية و العكس و ذلك من خلال برنامج تدريبي قائم

على الترجمة الفورية يتضمن الملامح التطريزية.

الكلمات المفتاحية: الملامح التطريزية – العبارة التنغيمية – البروز الصوتي للمقطع – الترجمة الفورية –

المدونة الإنجليزية–العربية – المدونة العربية–الإنجليزية

Abstract

This study aims to investigate the prosodic dimension in simultaneous interpreting (henceforth SI) of some spoken corpora of English-Arabic-English language pair. The corpora of the study – two speeches (i.e., one delivered in Arabic and one in English) with their simultaneously rendered versions (i.e., one interpreted into English and one into Arabic) – are divided into segments in which each source text/speech (henceforth ST) segment that consists of a similar set of ideas (i.e., unit of meaning), has a rendered equivalent in the target text/speech (henceforth TT). The English-Arabic-English corpora are then transcribed verbatim with Arabic STs and TTs being romanized using a set of defined phonemes. The proposed analysis model including intonation intonational phrases (henceforth IPs) and prominence has been applied to the corpora of the study. The prosodic dimension is then analysed qualitatively using ToBI system for transcribing and annotating the prosody of speech. It is concluded that there are similarities

and differences between the prosodic features of the English-Arabic corpus and those of the Arabic-English one. Based on these results, it is recommended that an SI-based training program incorporating the prosodic features can help the student interpreters master the correct prosodic patterns when simultaneously interpreting from English into Arabic and vice versa.

Key words: prosodic features; intonational phrase IP; prominence; simultaneous interpreting SI; English-Arabic corpus; Arabic-English corpus.

1. Introduction

In spite of the contributions made by many scholars (e.g., Setton, 1999:2015, Padilla et al., 2015; Gile, 2003:2009) in recent years on the aspects of simultaneous interpreting (Henceforth SI), (e.g. role of memory, quality of interpreting, interpreting techniques, neurolinguistic processes, transmission of content, aptitude for interpreting), few are the interpreting scholars (e.g., Shlesinger 1994; Williams 1995; Ahrens 2004; El-Zawawy, 2019) who have researched the features of prosody in SI. Martellini (2013, p. 64) claims that "the analysis of prosodic elements is an integral part of the interpretation studies, yet only few systematic studies on orality involving the source text/speech (henceforth ST)-

target text/speech (henceforth TT) relationship have been conducted." The same claim is supported by Ahrens (2004) who points out that prosodic features, being an essential part of the SI process, need to be taken into account in future research.

Orality as an integral part of SI process comprises a number of elements that constitute the features characteristic of ST on the one hand, and of the simultaneously interpreted speech, on the other. The prosodic features, according to many interpreting scholars, e.g., Shlesinger (1994), Collados Aís (1998), Ahrens (2005), include intonation, prominence, stress, and accent. In addition, Tiittula (2015, p. 292) provides another classification of features called "voice-related phenomena", which are medium-dependent features characteristic of spoken language. Accordingly, features such as intonation, tone, loudness and voice quality are language- and speaker-specific. Thus, to understand the features of the ST in order to produce an adequate and accessible TT, the present study centers on the prosodic features in SI.

2. Statement of the Problem

The scholarly research on SI has often referred to SI phases/components (e.g., Gerver, 1975; Schjoldager, 1994; MacWhinney, 1997 and Gile, 1999), technical strategies

(e.g., Lambert & Moser, 1994; Gile, 2003:2009), lexical and syntactic features (e.g., Darwish, 2006; Papadopoulou and Clashen, 2006). However, little is the scholarly research conducted on the prosodic dimension in SI. Thus, this study aims to investigate the prosodic dimension in SI of some spoken corpora of English-Arabic-English language pair. The prosodic dimension to be investigated includes intonation (i.e., intonational phrases (IPs) and prominence. To this end, the following questions can be formulated.

3. Questions of the Study

1. What are the similarities/differences between the intonational phrases in SI of the spoken corpora of English and Arabic languages?

2. What are the similarities/differences between prominence in SI of the spoken corpora of English and Arabic languages?

4. Objectives of the Study

The main purpose of this study is to investigate the prosodic dimension in SI of some spoken corpora of English-Arabic-English language pair.

5. Literature Review

Prosody, according to Wennerstrom (2001, p. 6), "includes a number of speech characteristics traditionally considered 'suprasegmental' or separate from segmental phonology", that is to say, suprasegmental phenomena that go beyond the individual sounds of a language. Thus, prosodic features, as viewed by Cruttenden (1997, p. 1), are those which "generally extend over stretches of utterances longer than just one sound and are hence often referred to as suprasegmentals". According to him (p. 2), there are a large number of prosodic features that help analyze the prosody of connected speech. Chief among these features are pitch, length and loudness. Pitch refers to the varying height of the voice pitch; length refers to the relative durations of one or a number of successive syllables; loudness is associated with the changes of loudness within one syllable or a number of successive syllables.

In simultaneous interpretation, the prosodic aspects associated with the simultaneous interpreter's delivery affect the way listeners/audience perceive and assess their performance (Collados Aís et al. 2007, 2011, cited in Diriker, 2015, p. 384). Ahrens (2015), for instance, refers to the equal importance of both the prosody of the simultaneous interpreter and that of the original speaker. She (p. 327) states that interpreters are required to "make effective use

of their voice and mode of speaking to ensure intelligibility in communicating the message". Likewise, the prosody of the original speaker is pivotal as it provides the interpreter with signals that highlight essential elements and make the process of comprehension much easier. To show to what extent the prosodic aspects of the original speaker's delivery can affect the simultaneous interpreter's performance, Gerver (1976), in his study, claims that monotonous/flat intonation and the absence of pauses in the ST has a negative impact on the interpreter's performance.

5.1 Intonation

Regarded as a fundamental component of the prosody of speech, intonation can be defined as, according to Cruttenden (1997, p. 8), "the occurrence of recurring pitch patterns, each of which is used with a set of relatively consistent meanings, either on single words or on groups of words of varying length". The key word in this definition is 'pitch', that is, the pitch movement of an utterance measured in *F0* is often referred to as intonation. Intonation is also important in communication as "it may indicate a discoursal meaning", e.g., signaling an invitation to the conversation partners to make a contribution (Cruttenden, 1997, p. 8). Celce-Murcia et al. (1996) also confirms that

speakers, when changing the intonation of an utterance, can express different attitudes in occasions in which the speaker may decide to appear indifferent, enthusiastic or sarcastic. The non-native speakers of English, however, tend to use intonation inadequately, the thing that does not make intonation fulfil its functions properly. Celce-Murcia et al. (1996), for instance, refers certain cases in which the non-native speakers may (1) overgeneralize intonation patterns, such as the use of falling, rising, and level tones, which indicates the speaker's failure to signal that he/she has finished his turn in a conversation, and/or (2) produce abnormal/unnatural variation of pitch, which appears to be delivered quickly if the pitch variation is overly narrowed, or sounds pretentious if it is exaggerated.

5.2 Intonational Phrases (IPs)

Intonation can best be described with reference to *Intonational Phrase* (Wennerstrom, 2001). A more precise description for the Intonational Phrase (henceforth IP) is given by Wennerstrom (p. 28) who defines it as "a more or less continuous pitch contour with, at minimum, an initial key, a number of pitch accents, and a pitch boundary". In addition to pausing and declination/final syllable lengthening as criteria for marking IPs boundaries, 'anacrusis' can signal the beginning of an IP. As claimed by Cruttenden (1997, p. 21), anacrusis refers to a number of unstressed syllables

preceding the first stressed syllable in an IP. These unstressed syllables are pronounced more quickly indicating that a new IP is to be marked.

5.3 Tone and Break Index (ToBI)

The *Tone and Break Index* (hereinafter ToBI) is first introduced by Beckman and Pierrehumbert (1986). There are previous attempts to trace its origins. For instance, according to Gussenhoven (1984), ToBI originally comes from the *Autosegmental Theory of Intonation*. As summarized by Balog (2012, p.142), in auto-segmental approaches, intonation is characterized as having "a sequence of high and low pitch accents (marked as H* and L*), phrasal accents (marked as -) and edge tones (marked as%)." High and low pitch accents are defined relative to a speaker's pitch range. In addition, the same pitch pattern either H* or L* can apply to an entire utterance. Downstepping (also called downdrift), which is marked by (!H) provides further evidence for phrasal organization because this pattern is supposed to reset when another IP is produced. In the IP, the first pitch accent is not downstepped. Downstepping is just a relative feature of the following H* in comparison with the initial H* or the one right before it.

Several attempts have been made to investigate the role that intonation plays in SI. Chief among the SI scholars who research intonation in SI are Shlesinger (1994); Collados Ais (1998, 2011); Ahrens (2005). Focusing on this line of research, Ahrens (2005), in a descriptive study involving six professional interpreters, analyzes an authentic SI corpus (three German versions of a 72-minute English source speech) in order to investigate the simultaneous interpreters' deviation from normal intonation patterns. Ahrens concludes that in spite of the fact that the falling type of intonation normally features the final pitch movement in the source speech, the three versions simultaneously interpreted into German are characterized as having 'rising, level and rise-level contours' as predominantly occurring. This might explain why interpreters avoid intonational closure and tend to use a final pitch movement that signal continuation. The interpreters cannot be so sure whether the chunk of information has been completed when s/he starts producing the TT. Thus, Ahrens points out that "final pitch contours of this type can be used as a means of signaling that further elements might follow — even if they actually do not" (p. 71).

Further evidence of the role that intonation plays in evaluating the interpreter's performance is given by Holub (2010, p. 121) who investigates the impact of monotonous

intonation in SI on users' quality judgements. The result of the study (p. 124) shows that the users' comprehension is negatively influenced by monotonous intonation (i.e., flattened F0, and that the interpreter's lively intonation receives a higher rating than that of monotonous intonation.

In SI research, prominence is investigated by a number of scholars, e.g., Shlesinger (1994); Williams (1995) and Ahrens (2004). Shlesinger (1994), for instance, investigates the kind of words on which the interpreters place the stress. She (p. 231) finds out that the usually unstressed words or function words (e.g., prepositions) that, unlike the content words which carry new information, tend to be stressed by the interpreters. This results in erroneously perceiving the new and given information because such unstressed words lack semantic density.

6. Methodology

6.1 Corpora Transcription & Segmentation

In a first step, all the STs and TTs of the corpora are transcribed verbatim with Arabic STs and TTs being romanized by adopting a set of defined symbols for the sounds and transcribed phonemically. Second, transcribing the prosodic and temporal features is carried out by

adopting a set of defined conventions. As for the segmentation strategy adopted in this study, the ST is divided into chucks/segments. Each segment contains a unit of thought or set of ideas, which are translated in the TT. Thus, the unit of thought in the ST segment has a rendered equivalent in the TT. This also means that corpus segmentation in this study is not based on equal time duration between ST and TT.

6.2 Instruments

For the purpose of the study, the following instruments are used:

1. A model for analyzing the prosodic dimension (i.e., intonation and prominence) in SI of spoken corpora of English-Arabic-English.

2. The acoustic analysis software PRAAT (version: 6.3.17) and Audacity software for audio editing (version: 3.3.3),

3. ToBI system for transcribing and annotating the prosody of speech.

7. Delimitations of the Study

The experimental part of the study is delimited to the following:

a. Two speeches on political topics drawn from international TV channels on YouTube to represent

the English-Arabic-English corpora, delivered in 2021 and 2022.

b. Some prosodic features including pitch, intonation (i.e., intonational phrases, pitch accents, bitonal pitch accents, phrasal accents, boundary tones) and prominence.

8. Data Analysis and Discussion

The method of analysis used is qualitative analysis, which is concerned with the prosody of the speeches and their renditions using ToBI to compare and contrast pitch accents, bitonal pitch accents, phrasal accents, downstepping, boundary tones and break indices of both IPs and intermediate phrases. Qualitative analysis focuses on ToBI framework for analyzing the prosody of the English-Arabic-English corpora by means of auditory perception and PRAAT software.

8.1 ToBI for the Prosody of the English-Arabic Corpus

In the IPs of speech one, for instance, the average time duration of the most prominent syllables is 0.28 milliseconds for the ST and 0.27 milliseconds for the TT with an average maximum intensity of 62.4 dB for the ST and

67.3 dB for the TT and a pitch height of 154.8 Hz for the ST and 173.3 for the TT. So, based on the auditory perception and speech signal analysis, the most prominent and noticeable IP is found in the English ST segment 12, *this is also a time of change for my family* in which the max. F0 is 181 Hz and the min. F0 is 59 Hz, and its simultaneously interpreted Arabic version, which reads in Roman transcription as follows: *hādhā ʔayđan waqtun lil-taghyīr li-ʕāʔilatī,* whose max. F0 is 243 Hz and min. F0 is 78 Hz. Figure 8.1 shows the results of applying ToBI system to these two IPs including bitonal pitch accents, downstepping, boundary tones and break indices.
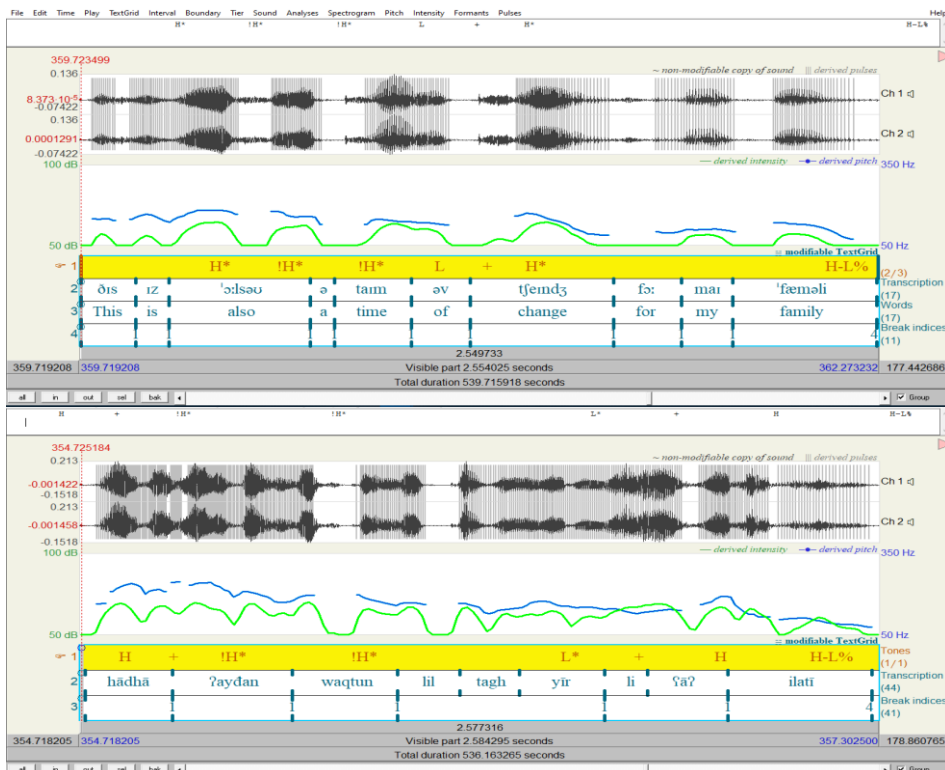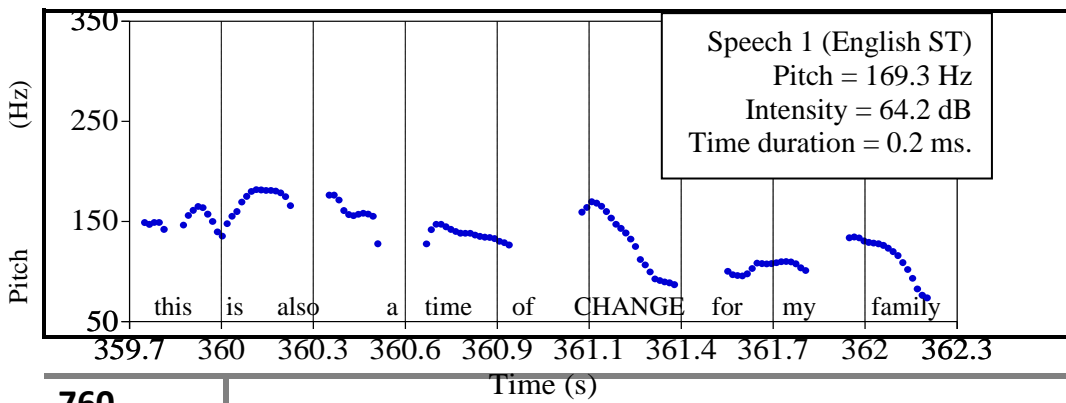
Figure 8.1 Screen view of the ST and TT most prominent IPs from speech one of the English-Arabic corpus.

An analysis of these two IPs using ToBI system shows that both share the same type of pitch accent 'H*' (179.1 Hz) for the ST and (240.4 Hz) for the TT at the beginning of the IP. Downstepping also drifts downwards in F0 two times for the ST: !H* (160.3 Hz) followed !H* (145.5 Hz) and one time !H* (197.2 Hz) for the TT after the first pitch accent. Both IPs also share the same type of boundary tones, i.e., H-L%, which is a "plateau" pattern and occurs when a high phrase accent (i.e., 133.4 Hz for the ST and 133 Hz for the TT) is followed by a low (i.e. declining) boundary tone (i.e., 60 Hz for the ST and 80 Hz for the TT). However, in the TT IPs, the bitonal pitch accent 'H+!H*' often occurs at the beginning of the IPs.
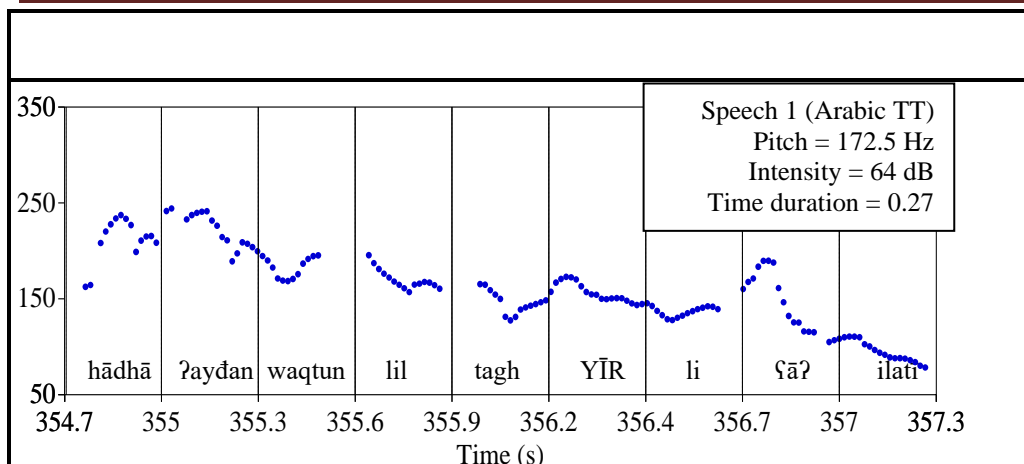

760

Figure 8.2 Screen view of pitch height, intensity and time duration of the most prominent syllable in the ST and TT IPs of speech one of the English-Arabic corpus

Given the characteristics of prominence, the syllable in which the pitch changes lies in the content word '*change*' in the English ST because it receives perceptual significance. It is one-syllable word, which contains a diphthong /eɪ/. This is referred to as 'vowel quality'. The highest level of pitch change is 169.3 Hz with a maximum intensity of 64.2 dB and with a time duration of 0.2 milliseconds. In the Arabic TT, the word '*lil-taghīr*' is the equivalent rendition, which contains three syllables: the antepenultimate /i/, the penultimate /a/ and the last one /ī/. The most prominent syllable is the long vowel /ī/ whose highest level of pitch change is 172.5 Hz with a maximum intensity of 64 dB and with a time duration of 0.27

milliseconds. Figure 8.2 shows the acoustic measurements related to the characteristics of the most prominent syllable in each word.

It is clear from figure 8.2 that the characteristics of the most important syllable in each word tends to be same with a relatively higher pitch level in the Arabic TT than the English ST. This similarity may indicate that the English-Arabic interpreter manages to copy the intonational pattern (i.e., prominence) of the source speaker, and thus deliver it properly. However, the interpreter's pitch level is considerably higher than that of the source speaker. The demonstrative pronoun '*hādhā'*, which is a function word, has a higher pitch level (235.8 Hz) than the word '*this'* (162.4 Hz) in the ST. Despite being a common feature that occurs at the beginning of a new IP, the excessive or abnormal use of prominence pattern may impede the listener's comprehension (Ahren, 2005).

8.2 ToBI for the Prosody of the Arabic-English Corpus

Speech two is divided into 16 segments. The segments of the Arabic ST and English TT are checked for the IPs by means of the speech signal, which is measured by max. F0, min. F0 and time duration. The analysis of the speech signal, which is supported by the auditory

perception, indicates the average max. F0 in both the ST and TT IPs tends to be approximately the same (i.e., 220.7 Hz for the ST and 217.7 for the TT) of both the ST & TT.

The average min. F0 in the ST, however, tends to be considerably higher (i.e., 135.5 Hz) than that of the TT (i.e., 91.4 Hz). This is crystal clear in the boundary tone of the ST IP shown in figure 8.3 where the pitch moves from a low level (i.e., 211.2 Hz) to a higher one (i.e., 233.5 Hz). In addition, relying on auditory perception and acoustic measurement of the highest speech signal level of the ST segments, the most noticeable Arabic ST IP is found in segment 15 along with its corresponding English TT one. Figure 8.3 shows the use of ToBI system to analyze, via PRAAT software, these two IPs including bitonal pitch accents, downstepping, boundary tones and break indices.
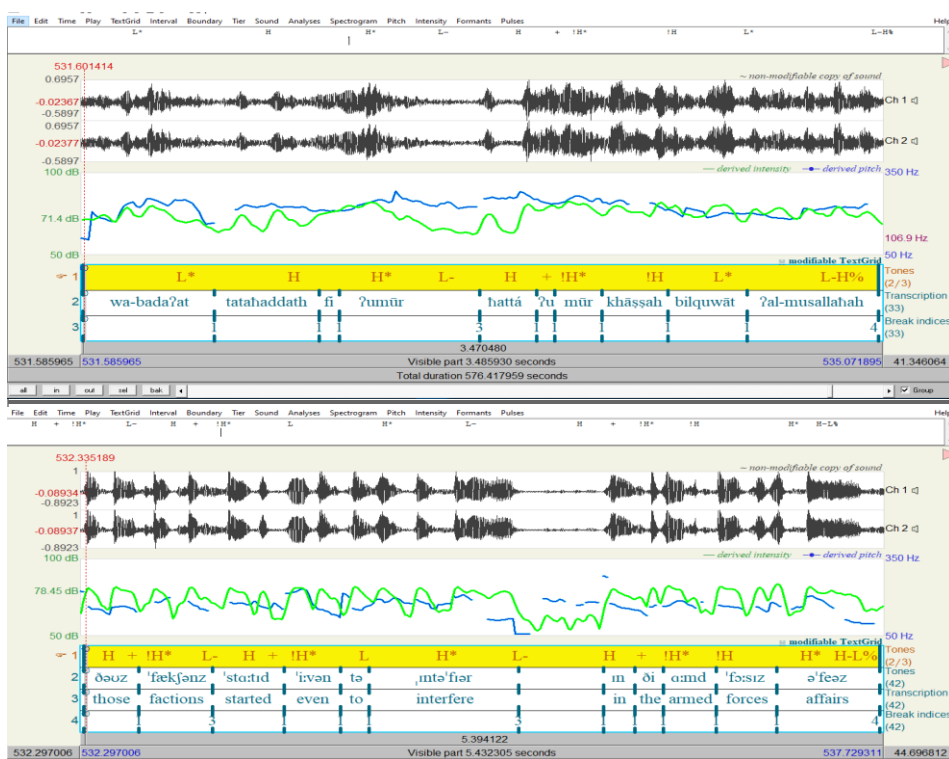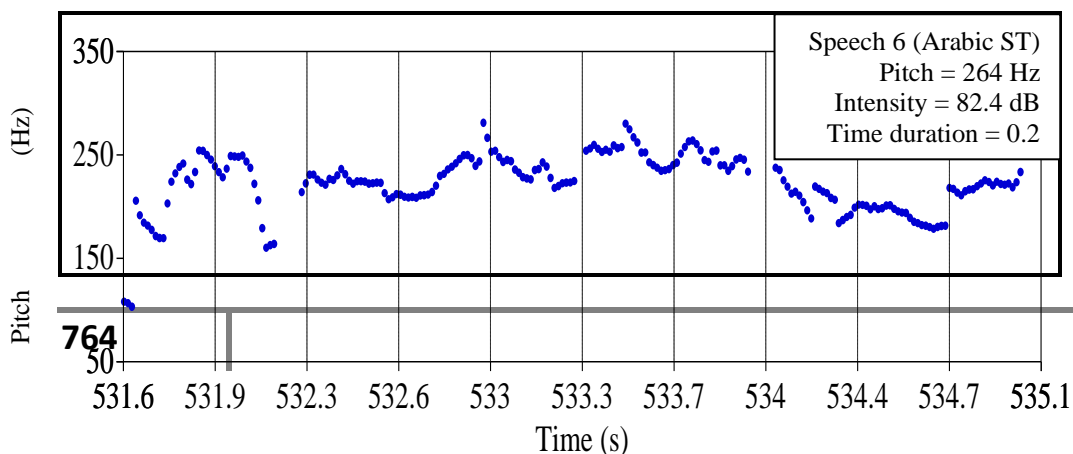
Figure 8.3 Screen view of the ST and TT most prominent IPs from speech two of the Arabic-English corpus.

As shown in figure 8.3, the Arabic ST IPs reads in Roman transcription as follows: *"wa-badaʔat tataħaddath fī ʔumūr ħattá ʔumūr khāṣṣah bilquwāt ʔal-musallaħah"*. Its max. F0 is 288 Hz and 178 Hz for min. F0 with a time duration of 3.4 seconds. The simultaneously English-interpreted version reads: *"those factions started even to interfere in the armed forces affairs"* whose max. F0 is 204.5 Hz and min. F0 is 95.2 Hz with a time duration of 5.4 seconds.

wa-badaʔat tataħaddath fī ʔumūr ħattá   ʔu**MŪR** khāṣṣah bilquwāt ʔal-musallaħah

Speech 6 (English TT)
Pitch = 204 Hz
Intensity = 81.7 dB
Time duration = 0.5
ms

those | factions | started | even | to | interfere | in the | armed | forces | **affAIRs**

350
250
150
50

532.3   532.8   533.2   533.7   534.1   534.6   535   535.5   535.9   536.4   536.8   537.3   537.7
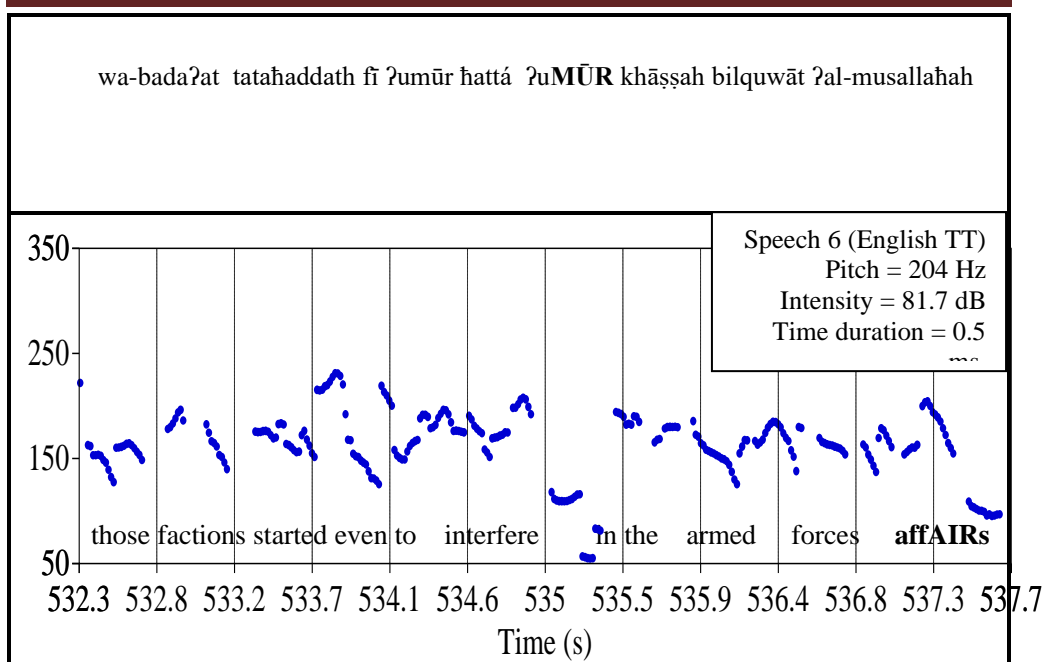
Time (s)

Figure 8.4 Screen view of pitch height, intensity and time duration of the most prominent syllable in the ST and TT IPs of speech two of the Arabic-English corpus

As for prominence, all the syllables in both the ST and TT IPs are checked for the most prominent syllable. As shown in figure 8.4, the last syllable /-ˈmūr/in the ST word "ʔu**mūr**" receives the highest pitch level (i.e., 264 Hz) and a maximum intensity of 82.4 dB with a time duration of 0.2 milliseconds. However, in the TT IP, the corresponding interpreted two-syllable word "*affairs*" receives a relatively lower pitch level on the second syllable /-ˈfeəz / (i.e., 204 Hz), with maximum intensity of 81.7 dB, yet a considerably higher time duration (i.e., 0.5 milliseconds) when compared

with the ST word. This finding along with the previous finding in the Arabic-English corpus confirms the notion that the Arabic-English interpreters tend to extend the time duration of the prominent syllables included in the IPs.

9. Summary of Results and Discussion

Based on the speech signal analysis, the TT IPs tend to have a relatively higher pitch (i.e., 209 Hz for max. F0 and 96 Hz for min. F0) than those of the ST (i.e., 172 Hz for max. F0 and 79 Hz for min. F0) in the English-Arabic corpus. This might explain the risk of cognitive saturation that increases when certain prosodic patterns are retrieved from the working memory during SI (Gile, 2009). However, in the Arabic-English corpus, the pitch height associated with the TT IPs tends to be relatively lower (i.e., 189 Hz for max. F0 and 88 Hz for min. F0) than that of the ST IPs, which ranges from 219 Hz for max. F0 to 127 Hz from min. F0. This can be attributed to the translation strategies (i.e., skipping omission) that the Arabic-English interpreters use as they frequently tend to skip some source textual segments. This, however, helps them perform SI more comfortably, which is crystal clear in their normal/moderate use of pitch. Thus, according to Iglesias Fernández (2007),

an interpreter's insecurity and inexperience are manifested in his/her high pitch and nasal timbre. However, a lower tone and higher resonance refer to an interpreter's more credibility and experience.

The speech signal analysis also shows that the average time duration of the TT IPs in the English-Arabic corpus tends to be relatively longer (i.e., 3.0 seconds) that of the ST IPs (i.e., 2.0 seconds). Similarly, in the Arabic-English corpus, the average time duration is slightly longer in the TT IPs (i.e., 2.5 seconds) than that of the ST ones (i.e., 2.0 seconds). This finding indicates that the time durations of the TT IPs seem to be located within the normal range, yet somewhat exceeds those of the ST IPs. This goes in line with Al-Salman and Al-Khanji's (2002) study results, which confirm that the English-Arabic-English interpreters seem to be more comfortable when interpreting from Arabic into English than vice versa, especially with reference to oral fluency and coping with intonational patterns.

As for the types of accents associated with the IPs, the English-Arabic-English corpora include a variety of pitch accents (H*, L*), bitonal pitch accents (H+!H*, L+H*, L*+H), phrasal accents (L-, H-). Downstepping (!H), which drifts downwards in *F0*, occurs after the first pitch accent, is also abundantly available in the corpora. In addition,

downstepping occurs once in both the ST and TT IPs in speech one. In addition, in speech two, the ST IP starts with the pitch accent (L*) followed by (H), whereas the TT one starts with the bitonal pitch accent (H+!H*). In addition, in the ST IPs, there is a wide variety of pitch accents, which are echoed in those of the TT. Downstepping, for instance, frequently occurs in speech two in both the ST and TT IPs.

The English-Arabic interpreters make a normal use of the high pitch accent (H*), which signals new information and entities new to the discourse with a peak in *F0*. However, the Arabic-English interpreter makes use of both the high (H*) and low (L*) pitch accents. The boundary tone (H-L%) along with (L-L%) is also mutually associated with the end of both the ST and TT IPs. This low phrase-final boundary tone is always used to signal completeness and definiteness, and conveys a sense of finality (Roach, 1998). However, the English-Arabic-English interpreter sometimes associates the high phrase accent (H-) with the end of the intermediate phrases to signal incompleteness.

A broad overview of prominence in the English-Arabic-English corpora shows that there is not a marked contrast between the most prominent syllables of the ST IPs and those of TT. Given the criteria of determining the most

accented syllable in an IP, there are not any significant differences in prominence including pitch (Hz), intensity (dB) and time duration (ms.) between the ST and TT in the English-Arabic corpus. However, in the Arabic-English corpus, the average time durations of the most noticeable syllables of the English TTs seem to be relatively longer (i.e., 0.32 milliseconds) than those of the Arabic STs (i.e., 0.24 milliseconds). This might explain that the Arabic-English interpreters tend to extend the accented syllables to emphasize the new idea/information given by the source speakers. This seems clear in the longer time duration made, which is one of the prosodic characteristics of prominence as stated by Wennerstrom (2001, p. 275) who claims that prominence "may be manifest as higher pitch, increased volume, or longer duration".

10. Conclusion

The English-Arabic interpreters tend to use a higher pitch level than those of the source speakers. This might explain the risk of cognitive saturation that increases when certain prosodic patterns are retrieved from the working memory during simultaneous interpreting. However, a lower pitch level is associated with the Arabic-English interpreters, who, despite missing some source textual segments, might perform SI more comfortably. As a result, the risk of

saturation decreases, which in turn affects their pitch height. In addition, given the declining trendline or falling pitch movement, which feature the end of the TT IPs, the English-Arabic interpreters demonstrate a high ability in copying the ST intonation contour, and thus deliver it successfully as shown in the TTs.

The mismatch and variation between the ST and TT IPs in the Arabic-English corpus concerning the abnormal use of boundary tones may indicate that the interpreters may not be able to copy the proper intonation contour associated with the end of the ST IPs, and thus to produce falling final pitch, which conveys a sense of finality, definiteness and certainty. Furthermore, the English-Arabic interpreters manage to successfully copy the types of pitch accents and bitonal pitch accents associated with the ST IPs. This is indicative of the high performance of the SI processing capacity and the divided attention to the various intonational patterns involved in the SI task. As for prominence, the longer time durations of the most prominent syllables found in the TT IPs may indicate that the Arabic-English interpreters want to make themselves intonationally clear by extending the accented syllables. Given English as their B language, they also seem to

emphasize the new idea/information given by the source speakers.

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