

An Analysis of Intonational Characteristics of the Word in Speech Discourse

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Abstract

Speech production and perception play a vital role in EFL learning. Based on Autosegmental-Metrical Theory, this study firstly investigated intonational characteristics of the keyword “home” in the Christmas speech delivered by Queen Elizabeth II in 2017 through using Praat as well as Tones and Break Indices labelling system. Results found that when the word “home” was at the end of the sentence, different uses of intonation contours (H* L-L% and L-H%) had the close connection with discourse cohesion and could usefully attract hearers’ attention. When the word “home” was in the middle of the sentence, the conversion of tones (L- and H* L-) accentuated the separation between two intermediate phrases that were helpful for hearers to understand the content of discourse. Moreover, it was supposed that for EFL learners, speech perception could be improved through grasping specific pitch values and intonation contours. EFL learners are encouraged to employ distinctive pitch when aiming at making a word salient and digest the intonational meaning of different intonation contours to have a better understanding of the speech content.

Keywords: Intonation, speech perception, AM theory, Motor theory

1. Introduction

As the distinct melodic patterns in oral English (Crystal & Sheng, 2004), intonation can be employed to represent the function of an utterance, the emotion of the speaker or to highlight cores of a talk (Edelson, 2017). On the basis of distinctive intonational theories (Wang, 2008), related studies put efforts in probing into the relationship between intonation and emotion (Rodero, 2011; Zhang, 2015), exploring melodic characteristics of the specific language (Grice, Ritter, Niemann, & B. Roettger, 2017) or different dialects of a specific language (Ballesteros Panizo & Font-Rotchés, 2019).

There were, moreover, studies concentrating on modelling the intonation (Zellers, et al., 2009; Sreenivasa & Yegnanarayana, 2009), or combining intonation with pragmatics (Romero-Trillo, 2019; Baltazani, 2006; Burdin & Tyler, 2018; Rodero, 2011; Wang, 2016). Pedagogically, EFL learners' intonation patterns (IP) were studied to give suggestions to teaching and learning (Chen, 2006; Chen, 2008; Guo, 2015; Cai, 2018). In terms of speech perception, plenty of research focused on investigating EFL learners' phonetic perception (Chen, 2013; Wu & Yang, 2016; Cheng, Zhang, & Zhang, 2017; Chang, 2015) or segmental categories (Steffman, 2019), while relatively few studies on speech perception took note of the suprasegmental features (Yin & Hui, 2017; Ji, Zhang, Li, & Gong, 2018; Yao, 2019).

By and large, presidents' speech drew the most attention in terms of public speech. Research with distinct focuses encompassing shell nouns (Hu & Chen, 2018), metaphorical framework (Huo & Liu, 2018), rhetoric structures (Ficcadenti, Cerqueti, & Ausloos, 2019) and behavioural speech (Belisle, Paliliunas, Dixon, & Tarbox, 2018) were carried out. About Christmas speech delivered by Queen Elizabeth II, Jiang (2018) analysed Queen's 2017 Christmas speech under the framework of transitivity. Du (2016) did the critical analysis of Queen's Christmas speech in 2015. However, studies penetrating phonological significance of the Queen's speech were few.

It has been well recognised that speech production and perception play a vital role in second language acquisition (SFL) (Chen, 2011). Intonation, as the essential element of language, has its specific significance of transferring and receiving information speakers (Sperber & Wilson, 1995; Kreiner & Eviatar, 2014). Besides, intonation is a tool for speakers to make their speech more vivid and acceptable. It is of great importance for EFL learners to practice intonation, which can represent comprehensibility and intelligibility quite accurately and can be regarded as the subjective index for the relevant examination (Liu, 2016). Pedagogically, training intonation perception is beneficial to EFL learning no matter in social communication or examinations. However, currently, studies about the intonational features and intonation perception, especially in speech discourse, are relatively limited.

This study first probes into the intonational characteristics of the word in speech discourse in the light of the Autosegmental-Metrical (AM) Theory, taking intonational features of the keyword "home" from Queen Elizabeth II's 2017 Christmas speech as the case. Then, to provide EFL learners with suggestions for intonation perception in the speech discourse, the intonational significance of the word is investigated and analysed based on the intonational meaning explored by Pierrehumbert and Hirschberg (1990) and Motor Theory established by Liberman and his colleagues (1967).

1.1 Intonation and AM Theory

Intonation was the "use of suprasegmental phonetic features to convey 'post-lexical' or sentence-level pragmatic meanings in a linguistically structured way" (Ladd, 1996). Specifically, the intonation of all the languages has the fundamental frequency (F0), which is the physical attribute of its acoustic signal (Chang & Zhou, 2018; Chang, 2015). There were four significant theories of intonational analysis in the 20th century -- configurational approach, level approach, Instituutvoor Perceptie Onderzoek theory and AM Theory, which had the historical origins of generative phonology. The former two theories mostly concentrated on the intonational behaviour on the phonetic level, while the latter focused on intonational research on the phonological facet (Wang, 2008).

AM Theory stated that intonation was composed of three kinds of pitch events including pitch accents, phrase accents and boundary tones (Pierrehumbert, 1980). All pitch events were constituted by H for high as well as L for low with some symbols. Unique kinds of intonation can be described by

seven pitch accents (H^* , L^* , H^*+L^- , H^-+L^* , L^*+H^- , and H^*+H^-), two phrase accents (H^- , L^-) and two boundary tones ($H\%$, $L\%$). Only using two basic tones to analyse the change of pitch accents and boundary tones solved the argument about description of prosody between level approach and configuration approach. AM Theory explicitly proposed a linear structure of the tone; that is, the pitch curve is represented as a linear sequence of discrete pitch events. This statement held the critical significance of linguistics (Ma & Jia, 2009).

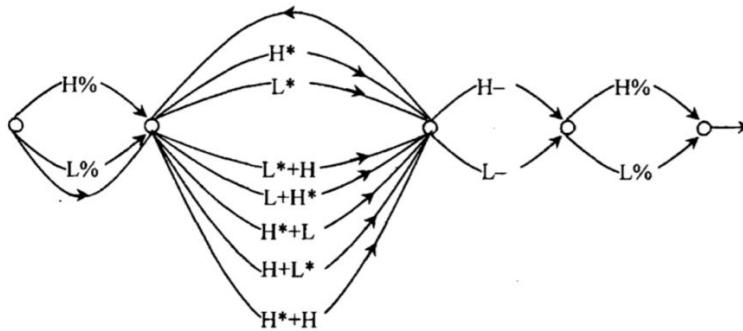


Figure 1.1 Pierrehumbert's intonational structure (1980:29)

1.2 Intonational meaning

Based on AM Theory, a general framework for the meaning of intonation was proposed by Pierrehumbert and Hirschberg (1990). They claimed that the meaning of intonation was decomposable just like the form of the intonation could be likewise decomposable into a series of pitch events. That was to say the significance of an intonation contour could be attributable to the meaning of the pitch accents as well as boundary tones which comprise it (Burdin R. S., 2018). Taking intonation contour $H^* H-H\%$ as an example, in this contour pitch accent H^* showed the new information in the discourse. Intonational phrase with pitch accent H^* was produced to signal to hearers that the open expression was to be represented by the accented items and the corresponding proposition fulfilled by the phrase was to be added to the mutual belief of hearers (Pierrehumbert & Hirschberg, 1990). Apart from pitch accents, edges of intonational phrases (edges tones consisting of phrase accents and boundary tones) contained pragmatic meaning as well. $H\%$ marked that the current phrase was to be interpreted regarding a subsequent phrase. Thus $H^* H-H\%$ could be used when speakers believed that the answer to a question was yes (Pierrehumbert & Hirschberg, 1990).

1.3 Speech perception and Motor Theory

About the perception and recognition of continuous speech, prosodic factors involving stress, intonation, along with the rate influenced the perception of speech (David, 2008). Prosodic factors such as stress pattern of speech could deliver hints for receivers to predict the new information in the speech discourse (Martin, 1972).

The Motor Theory of speech perception proposed that the listener received a speech sound and analyzed it by eliciting an auditory model of his production of it (Chen, 2015). This theory was based on the notion that listeners used implicit articulatory knowledge - knowledge about how sounds were produced - as an aid in perception (David, 2008). The direct link between sound perception and production was highlighted, and the role that articulator knowledge played during the perception of speech was supported by some experimental evidence (MacDonald & McGurk, 1978).

According to the vital point of the Motor Theory, this study suggests that such link between perception and articulation can not only be used in the isolated speech perception but also in the continuous speech perception, especially when considering some prosodic factors such as intonation and stress. In other words, through practising using different intonation with diverse intonational meaning, correspondingly EFL learners' perception of intonation is likely to be improved.

2. Research Methodology

2.1 Description of the corpus

The corpus employed in this study is the Christmas speech delivered by Queen Elizabeth II in 2017, in which she took "home" as the theme and shared her specific interpretation. Reasons for choosing this speech can be divided into two significant facets. From one aspect, Queen's annual speech enjoys significant national fame along with international importance. Additionally, unlike Christmas speech presented in 2018, 2017 Christmas speech has a clear theme with a particular keyword "home", which can be treated as the research subject directly. Altogether there are 40 sentences in 2017 Christmas speech and data for this study are collected using ten sentences involving the keyword "home".

Table 2.1 Description of the corpus

Subject	Quality
Sentences with the word "home"	10
Sentences in 2017 Christmas speech	40

2.2 Research Questions

With the intention of investigating intonational features the word in speech discourse, choosing a typical word with significance is necessary. The current study has altogether two main tasks, of which one is to analyze the intonational characteristics of the keyword in speech discourse and another one is to provide EFL learners with suggestions for precepting keywords in corresponding spoken discourse. Two general questions are as bellows:

- (1) What are the intonational characteristics of the keyword "home"?
 - (a) What are the features of the keyword's pitch values?
 - (b) What are the features of the keyword's intonation contours?
- (2) How can EFL learners practice speech perception based on Motor Theory?
 - (a) How to practice the perception of pitch values?
 - (b) How to practice the perception of intonation contour?

2.3 Research instrument and data processing

By employing the acoustic tool Praat, pitch curves, pitch values, fundamental frequencies and sound annotation were realized. The current study drew on Praat to obtain pitch values of sentences involving the keyword "home" and that of "home" itself. Besides, labelling results could also be encoded through this tool. Then Excel, SPSS and T test were used to calculate the mean of pitch values as well as to figure out the significant difference.

After recording and transcribing the sound file, labelling procedure was carried out following Tones and Break Indices (ToBI) labelling system. ToBI contains typical labels for elements embodied in four separate tiers. These tiers are the tone tier marking phonological representation of intonation, the orthographic tier showing the correct spelling of words, the break index tier describing the

closeness between separate words by using five grades and the miscellaneous tier recording paralinguistic circumstances. For the sake of exploring intonational characteristics of the keyword "home", the tone tier, the orthographic tier and the break index tier are revealed in the labelling procedure.

A ToBI annotation example is made below based on the audio wave file, the fundamental frequency contour and text information ("Hello, Ms Zhang, happy New Year").

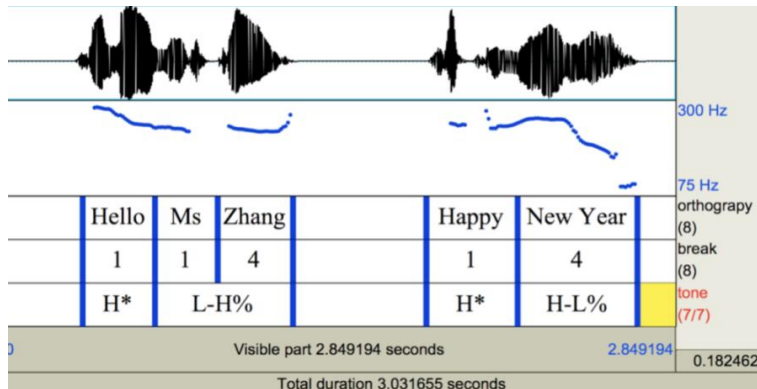


Figure 2.1 An example of ToBI labelling

The pitch of this sentence ranges from 75 Hz to 300 Hz, and clearly, there appear two peaks. Regarding circumstance, the fundamental frequency of the word "Hello" at the beginning of the sentence is higher than that of other words in the sentence. Thus "Hello" is marked as H*. Similarly, the word "happy" should be marked as "H*" as well. "1" and "4" in the figure are labelling results of the break index tier. "1" for the natural transition between two words, and "4" for the relatively long transition, as the interval between "Zhang" and "happy". In the concise time zone near the first boundary, the pitch curve is upward quickly. Thus it is marked as "L-H%". While the trend at "New Year" is downward, so it is marked as "H-L%".

After finishing data processing, results were collected and arranged according to different kinds of intonation contours. Sentences involving the word "home" were labelled as sentence 1-10.

3. Results and Discussion

To begin with, two major research subjects embracing pitch values and intonation contours were revolved around. Then intonational meaning conveyed by obtained intonational features were analysed. Afterwards, suggestions for EFL learners' speech perception were suffered considering Motor Theory.

3.1 Pitch values of the word "home"

By means of manipulating Praat, generally, pitch values of sentences involving the word "home" and ten keywords were gained.

Table 3.1 Pitch values of “home” and sentences involving “home”

Sentence Rank	Pitch values of sentences (Hz)	Pitch mean of sentences (Hz)	Pitch values of “home” (Hz)	Pitch mean of “home” (Hz)
S1	199.3		134.2	
S2	187.1		171.4	
S3	161.7		216.2	
S4	215.2		259.1	
S5	198.3	199.1	186.9	200.35
S6	219.5		200.3	
S7	182.4		166.2	
S8	226.1		182.7	
S9	191.1		241.4	
S10	210.3		245.1	

Significant difference: $p=0.93>0.05$

(Note: S for sentence)

As Table 3.1 shows, it was found that the significant difference between pitch values of sentences and that of “home” is not salient ($p=0.93>0.05$). Nevertheless, the pitch mean of “home” (200.35Hz) is still subtly higher than that of sentences (199.1 Hz).

For the convenience of labelling, the word “home” was abbreviated as W. The word before “home” was abbreviated as W_{i-1} , and the word after “home” was abbreviated as W_{i+1} . Specifically, sometimes the word "home" is in the middle of the sentence, while sometimes it appears at the end of the sentence. Circumstance mentioned above needed to be handled separately. Here pitch values of both W_{i-1} and W_{i+1} were calculated when the word "home" was at the middle of the sentence, and that of W_{i-1} was merely focused when the word “home” was at the end of the sentence.

Table 3.2 Pitch values of W_{i-1}

Sentence Rank	Pitch values of W_{i-1} (Hz)	Pitch mean (Hz)	Pitch values of “home” (Hz)	Pitch mean (Hz)
S1	194.7		134.2	
S2	130.2	144.5	171.4	195.22
S3	82.83		216.2	
S4	168.5		259.1	

(Note: W for word “home”; i for the position where the word “home” is; S for sentences)

Table 3.3 Table 3.3 Pitch values of W_{i-1} and W_{i+1}

Rank	Pitch values of W_{i-1} (Hz)	Pitch mean (Hz)	Pitch values of W (Hz)	Pitch mean (Hz)	Pitch values of W_{i+1} (Hz)	Pitch mean (Hz)
S5	91.35		186.9		90.84	
S6	82.94		200.3		190.4	
S7	210.4		166.2		217.4	
S8	193.6	170.33	182.7	203.77	75	156.22
S9	221.4		241.4		181.9	
S10	222.3		245.1		183.6	

(Note: W for word “home”, i for the position where the word “home” is)

Based on Table 3.2 and Table 3.3, usually, pitch values of the word "home" is higher than that of its adjacent words either at the end of the sentence (195.22Hz > 144.5Hz) or in the middle of the sentence (203.77Hz > 170.33Hz > 156.22Hz). There are still some exceptions that pitch values of adjacent words are higher "home" such as W_{i-1} in S1, S7 and S8, of which some have specific significance to be discussed later.

3.2 Intonation contours of the word “home”

After analyzing the sound file of 10 sentences involving the word “home” and further labelling the transcription, it was found that the word in 10 sentences displayed different intonations when it was at different positions. When the word “home” was at the end of the sentence, its intonation was H* L-L% or L-H%, while its intonation could be L- or H*L- when it was in the middle of the sentence.

3.2.1 When the word “home” is at the end of the sentence

There were two kinds of intonation contours of “home” appearing at the end of the sentence, of which one was H* L-L% and another one was L-H%.

The pitch curves of the word “home” at the end of sentences 1-3 are first raising to a peak and then continuously dropping till the phrase boundary. Taking the description of S3 in Praat as an example, the pitch curve is stable at a lower position on “as a festival of the” and suddenly rising to a quite high position at the word “home”. Later, it approaches uninterruptedly to the lower level until the boundary of the IP. H*L-L% here implied that the Queen shared her idea of home with a continuously decreasing tone and ended with a long pause.

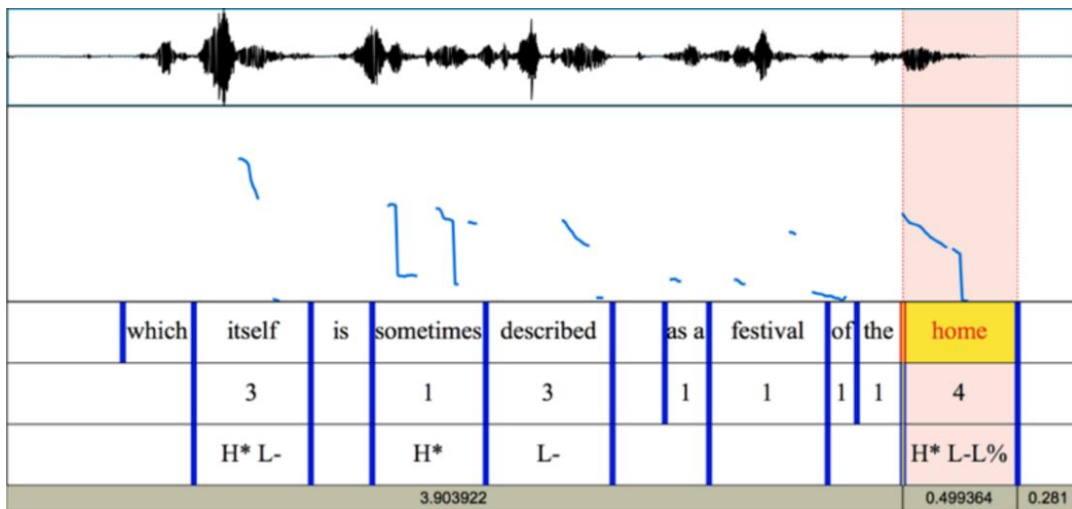


Figure 3.1 Example of labelling result of H* L-L%

The pitch accent H* indicates that a new item of information appears, and intonation contour H*L-L% is a neutral declarative tone that is often used to convey information. It should be noted that the boundary tone L% means that the sentence can be understood by the listener until now, and it is not necessary to consider the following content. In sentences 1-3, the Queen's tone is increased when referring to "home". These three upgrading tones help to supply the mutual belief to listeners. S1 is taken as an example listed below,

S1: *Many of you will be watching this at home.*
 1 1 3 1 1 1 1 1 4
 H* L- H* L- H* L-L%

In S1, the Queen mentioned that she believed that many people must watch Christmas speech in their own homes. The tone of the word “home” reflects that the Queen believes that hearers have already acquired in advance that many people will “watch this at home”. Besides, this situation does not need to give more explanation after the narrative, for it has been added to the listener's mutual belief. The next sentence with another new topic (“We expect our home as places of warmth, familiarity and love”) also proves this point.

In S4, the intonation contour of the word “home” was L-H%. In the IP “the pull of home” in Figure 3.2, the pitch of the word “pull” reaches a peak, then the pitch curve goes down till the word “home”. However, the pitch curve is sharply rising near the phrase boundary, where the H% boundary tone is labelled. Specifically, H% boundary tone portrays that the Queen had a rising tone and a relatively long pause at the word “home”.

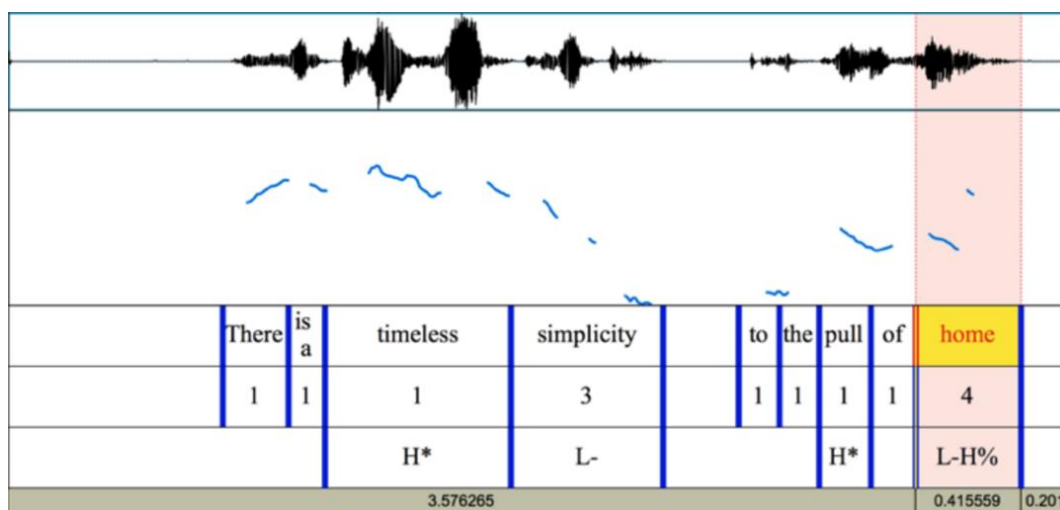


Figure 3.2 Example of labelling result of L-H%

Pierrehumbert and Hirschberg (1980) believed that the boundary tone could convey the relationship between IPs in some cases, especially when the current phrase should be interpreted mainly in the light of a subsequent IP. Meanwhile, the H% boundary tone indicated the speaker's hope that hearers could understand the claim through comprehending following the content. In S4, the Queen discussed her understanding of home and raised her tone at the end of the word “home”. H% boundary tone suggests that the next statement is still related to the understanding of “home”. The sudden rise of the Queen’s tone near the IP boundary plays the role of attracting the readers’ attention to the text.

3.2.2 When the word “home” is in the middle of the sentence

In the middle of the sentence, the word "home" held two distinctive types of intonation contours, including L- as well as H* L-.

The word “home” is mostly at the boundary of the intermediate phrase in the sentence 5-8. The pitch curve does not rise sharply, and there is no continuous salient drop to form an apparent valley either. Taking the labelling result of S8 in Figure 3.3 as a sample, the word “home” is at the boundary of the first intermediate phrase, of which the pitch curve forms an apparent peak at “we” and then continues to fall till the edge. L- showed that the Queen’s tone was continuously decreasing in sentence 5-8 when she narrated “home” followed with a short pause.

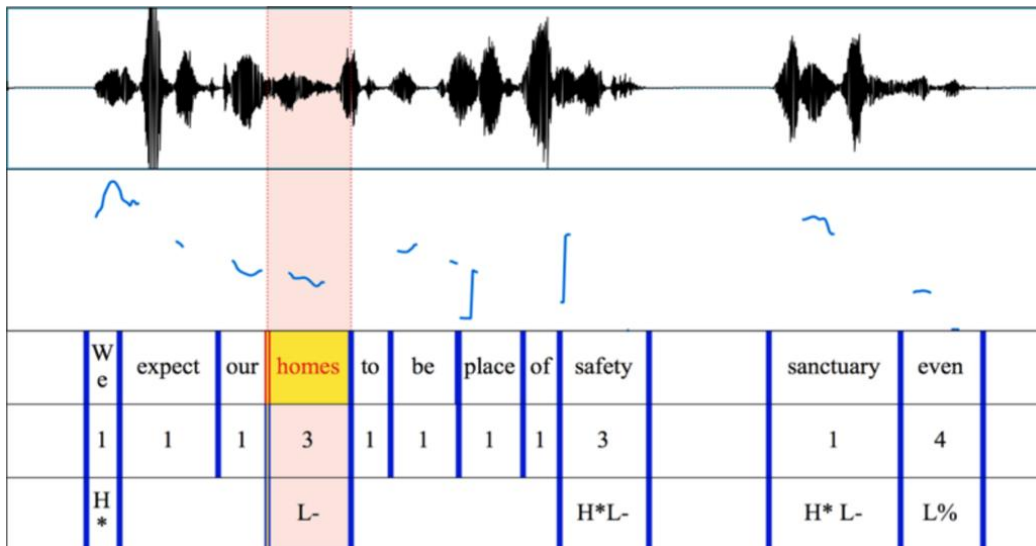


Figure 3.3 Example of labelling result of L-

Phrase accent L- is usually used to indicate the directions and the appearance of the phrase boundary. Here S5 is taken as an example presented beneath,

S5: *Many of them, of course, will not be at home today.*
 1 1 3 3 1 1 1 1 3 4
 H* H- H* L- H* L- L%

In S5, the word “home” is at the boundary of the intermediate phrase “will not be at home”, in which the phrase accent is located on the word “not”. The use of the decreasing tone here clarifies the integrity of “will not be at home”, and the phrase accent L- before the IP boundary also emphasizes “today” through a quite short pause.

H* L- was labelled on the word "home" in sentence 9-10 where the pitch curve raised to the peak at the word "home" without a visible valley before it. Seeing Figure 3.4, the pitch at the word "home" suddenly raises and a sharp peak appears, on which a drop follows close. In S9 and S10, the Queen raised her tone suddenly when pronouncing the word “home” with a short pause followed. Figure 3.4 shows the labelling result of S9.

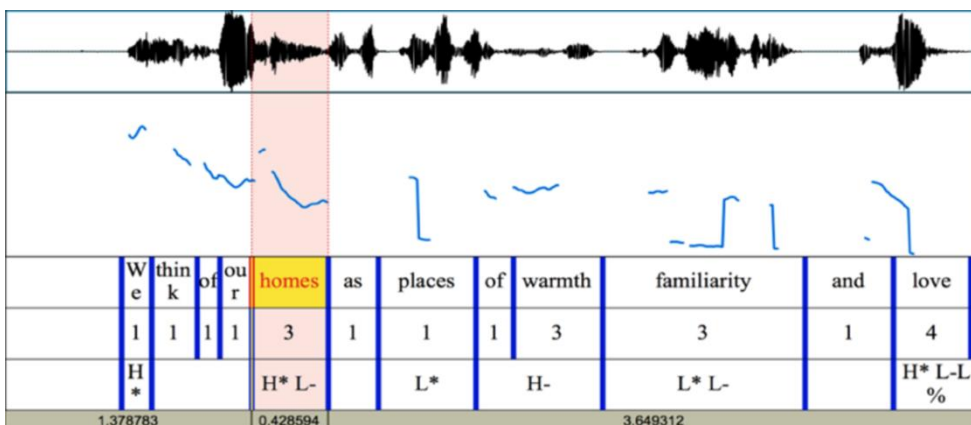


Figure 3.4 Example of labelling result of H* L

Intonational meaning of pitch accent H* and phrase accent L- has already been discussed. Taking S9 as an example, the rise of the word “home” aims at adding the mutual belief to hearers that home is a place full of warmth, familiarity and love.

3.3 Suggestions for EFL learners' speech perception

Intonational features, including salient pitch values as well as diverse intonation contours, have been discussed in 3.1 and 3.2. Usually, Motor Theory is used in the perception of isolated speech, claiming that listeners can use their knowledge about the production of speech sounds as an aid in their perception process. In this study, Motor Theory is supposed to be employed in continuous speech perception, which means intonational characteristics can be grasped through practising the corresponding intonation

3.3.1 Speech perception from the perspective of pitch values

Generally, the pitch value of the keyword in the speech discourse might not have a significant difference when compared with the overall pitch value of the whole text. However, knowing that the keyword regularly holds specific pitch value is essential. Either when the word "home" is in the middle or at the end of the sentence, its pitch, to the most extent, is higher than its adjacent words. It is of great importance for EFL learners to bear this circumstance in mind and to keep practising such a rising tone. Two main methods are practical, of which one is to raise the pitch suddenly at the position of the keyword, while another one is making a drop of the pitch when saying adjacent words. Here are two examples presented in the italic format with the keyword underlined and corresponding pitch values (Hz) are shown beneath,

Example 1: S3 Which itself is sometimes described as a festival of the home

Pitch (Hz) 82.83 216.2

Example 2: S5 Many of them, of course, will not be at home today.

Pitch (Hz) 91.35 186.9 90.84

Example 1 shows that the pitch of the word "home" is rapidly increased to 216.2Hz which is a significant rise of pitch value compared with its adjacent word "the" (82.83Hz) and the pitch mean (199.1Hz) of all the related sentences. The swift rise of the pitch makes the keyword salient from other words. In example 2, of the pitch, the difference between "home" (186.9Hz) and the pitch mean (199.1Hz) of related sentences is not so conspicuous. Nonetheless, the distinction between "home" and its adjacent words (91.35Hz and 90.84Hz) is relatively striking. Through dropping the pitch of adjacent words, a task of making the keyword significant is made as well.

It is of great importance for EFL learners to notice these two phonological circumstances while receiving the sound and grasping its explicit or implied meaning. Furthermore, during their daily practice, digesting the use of rising and falling pitch is necessary.

3.3.2 Speech perception from the perspective of intonation contours

For EFL learners, the first step of grasping English intonation contour is an imitation, which tallies with the key point of Motor Theory. Through imitation, listeners can have a more thorough comprehension of English intonation and its discourse meaning. Several examples are listed below to illustrate the claim.

Example 3: S1 Many of you will be watching this at home.

H L- H* L- H*L-L%*

Firstly, EFL had better understand that L% boundary tone is mostly used to mark the end of the topic. When reading or delivering the utterance or speech, EFL learners are suggested to deliberately

use more decreasing tone at the end of one specific topic. Then, repeatedly producing L% boundary tone at the end of the topic can help listeners get familiar with this downward tone. After that, it might be helpful for EFL learners to understand the decreasing tone and its discourse meaning when continuous speech is imputed. In example 3, when listening to the decreasing tone of the word "home", it is supposed that listeners can notice that the topic is going to end immediately. Besides, subsequent utterance probably does not provide more detailed information to support the current topic. Through understanding the situation mentioned above, EFL learners can save their time and pay attention when taking speech perception, such as listening to a lecture or having an English listening test.

Additionally, H* pitch accent is an evident cue for hearers to know what is coming next. Knowing the discourse meaning of H* helps EFL learners grasp the new information rapidly. Sometimes, suddenly rising tones also remind listeners of catching up with speakers. Probably the keyword is appearing, or the new information is approaching. Hence, EFL learners should spare efforts to use high rising tone when they want to highlight core information or call others' attention to the change of new topics.

Example 4: S4 There is a timeless simplicity to the pull of home.

H* L- H* L-
H%

When EFL learners narrate one topic and want to add more evidence or comprehensive information, H% boundary tone can always be employed. Through using this rising tone at the end of the sentence, the hint that some related content to be continued is provided. H% boundary tone also indicates that the subsequent sentence is closely related to the current sentences. By practising using H% boundary tone between two IPs, EFL learners perchance can notice speakers' intention more clearly and have more time to prepare to receive the related information in the subsequent sentence. Based on example 4, listeners should focus more on the adjacent sentences while hearing the rising tone at the end of the utterance. Meanwhile, it is also possible for learners to pre-guess content about the current topic that will appear soon.

Example 5: S8 We expect our homes to be a place of safety, sanctuary even.

H* L- H* L- H* L-L%

Knowing discourse meaning of phrase accent L- is quite significant for EFL learners to understand the general meaning of the speech content. When EFL learners are listening to the utterance, it is useful for them to pay much attention to the short pause and changing tones in the middle of the utterance. During the daily practice, if EFL learners know how to use the decreasing tone with a short pause in the middle of the sentence, it is possible to recognize what speakers really highlight. In example 3, the pitch is dropping at the word "home" with a short pause. By observing the combination of the decreasing tone together with a quite short gap between two IPs, EFL learners have more chances to concentrate on the following words which are related to the word "home" – "a place of safety", where is always set as the tested part in the listening exam like filling suitable words in the blank.

3.4 Conclusion

By using the word "home" as an example to explore the intonational characteristics of words in speech discourse, this study finds that the keyword can be made salient from two perspectives, of which one is to change the pitch value flexibly while the other one is to use vivid intonation contours. Firstly, the study suggests that EFL learners should digest two practical ways of accentuating the keyword, including raising the pitch suddenly at the position of the keyword and making a drop of the

pitch when producing adjacent words. Then the second main suggestion is based on the intonation contour. In the case selected, the word has different intonation contours when it is in different positions of the sentence. Either the word "home" is at the end of or in the middle of the sentence, its intonational all attract hearers' attention, provide hearers with cues to know what is coming next, and highlight the critical information. The word "home" at the end of the sentence (profiled as H* L-L% and L-H%) indicates that the topic is about to convert and reflect the speaker's hope for the listener to preguess the content of the speech in advance or imply the close relationship between two adjacent sentences. Meanwhile, the word "home" in the sentence (the tone is L- and H*L-) emphasizes the separation of the intermediate phrases and establishes the independence of the emphasized objects, which is convenient for the listener to understand the meaning of the sentence through a short pause. Considering Motor Theory, it is of great importance for EFL learners to understand and imitate English and intonation contours used by native speakers at first. Then repeatedly practicing of intonation used in different positions of sentences helps EFL learners have a better understanding of speech perception.

References

- [1]Ballesteros Panizo, M., & Font-Rotchés, D. (2019). Acoustic analysis of intonation: Comparison between two dialects of Spanish from the north of the peninsula. *Lingua*.
- [2]Baltazani, M. (2006). Intonation and pragmatic interpretation of negation in Greek. *Journal of Pragmatics*, 38(10), 1658–1676.
- [3]Belisle, J., Paliliunas, D., Dixon, M. R., & Tarbox, J. (2018). Feasibility of contextual behavioral speech analyses of US presidents: Inaugural addresses of Bill Clinton, George W. Bush, Barack Obama, and Donald Trump, 1993-2017. *Journal of Contextual Behavioral Science*(10), 14-18.
- [4]Burdin, R. S. (2018). Rises inform, and plateaus remind: Exploring the epistemic meanings of “list intonation” in American English. *Journal of Pragmatics*(136), 97-114.
- [5]Burdin, R. S., & Tyler, J. (2018). Rises inform, and plateaus remind: Exploring the epistemic meanings of “list intonation” in American English. *Journal of Pragmatics*(136), 97-114.
- [6]Cai, C. (2018). Effects of Explicit/Implicit Instruction and Frequency on Pronunciation Accuracy of Chinese EFL Learners. *Modern Foreign Languages*, 41(04), 517-528.
- [7]Chang, L. (2015). Speech Perception and Speech Production: A Study of Second Language Speech Acquisition. *Journal of Language and Literature Studies*(04), 47-49.
- [8]Chang, X., & Zhou, P. (2018). A Review of the Relationship Between Musical Pitch Perception and Lexical Tone Perception. *Journal of Northwest Normal University(Social Sciences)*, 55(03), 133-144.

- [9]Chen, H. (2006). Tonicity and Information Focus. *Journal of PLA University of Foreign Languages*(06), 33.
- [10]Chen, H. (2008). *Study On Chinese EFL Learner's English Intonation Patterns*. Shanghai, China: Shanghai Foreign Language Education Press.
- [11]Chen, H. (2011). Theories, Methods and Research Topics in L2 Phonological Acquisition. *Foreign Languages and Their Teaching*(06), 12-15.
- [12]Chen, Y. (2013). Theoretical Models and Pedagogical Implications of Second Language Speech Perception. *Journal of Foreign Languages*, 36(03), 68-76.
- [13]Chen, Z. (2015). Motor Theory and Language Cognition. *Journal of Foreign Languages*, 38(02), 15-24.
- [14]Cheng, B., Zhang, Y., & Zhang, X. (2017). Brain Mechanisms in Phonetic Learning and Their Practical Applications in Foreign Accent Reduction. *Foreign Language Education*, 38(04), 62-66.
- [15]Crystal, D., & Sheng. (2004). *A Dictionary of Linguistics and Phonetics (Forth Edition)*. Beijing: The Commercial Press.
- [16]David, W. (2008). *Psychology of Language (Fifth Edition)*. Thomson Higher Education.
- [17]Du, X. (2016). Critical Linguistic Analysis of the Queen's Christmas Speech in 2015. *Journal of Kaifeng Institute of Education*, 36(04), 71-72.
- [18]Edelson. (2017). Intonation. In V. F., *Encyclopedia of Autism Spectrum Disorders*. New York: Springer.
- [19]Ficcadenti, V., Cerqueti, R., & Ausloos, M. (2019). A joint text mining-rank size investigation of the rhetoric structures of the US Presidents' speeches. *Expert Systems with Applications*(123), 127-142.
- [20]Grice, M., Ritter, Niemann, H., & B. Roettger, T. (2017). Integrating the discreteness and continuity of intonational categories. *Jornal of Phonetics*, 64, 90-107.
- [21]Guo, J. (2015). *The Experimental Analysis of English Intonation -- Intonation-Pattern-Based Research*. Tianjin: Nankai University Press.
- [22]Hu, Y., & Chen, X. (2018). A Corpus-Based Study of Shell Nouns in American President's Speeches Exemplified by Trump's Speeches before and after Inauguration. *Foreign Language and Literature*, 34(04), 81-86.

- [23]Huo, Y., & Liu, W. (2018). A Metaphorical Framing Analysis of American Political Discourses on Climate Change——Exemplification with Two Presidential Speeches on Paris Climate Accord. *Journal of Northeastern University(Social Science)*, 20(03), 317-324.
- [24]Ji, X., Zhang, H., Li, A., & Gong, J. (2018). The effect of language proficiency on intonation perception:Evidence from Chinese English learners. *Foreign Language Teaching and Research*, 50(03), 393-406, 480-481.
- [25]Jiang, D. (2018). ransitivity Analysis of the Queen's Christmas Speech 2017 from the Perspective of Functional Grammar. *Overseas English*(18), 103-106.
- [26]Kreiner, H., & Eviatar, Z. (2014). The missing link in the embodiment of syntax: Prosody. *Brain & Language*(137), 91-102.
- [27]Ladd, D. (1996). *Intonational Phonology*. Cambridge: Cambridge University Press.
- [28]Liberman, A., & Cooper, F. (1967). Perception of the speech code. *PsychologicalReview*(74).
- [29]Liu, S. (2016). A practical study on the English pronunciation and intonation contest in college English pronunciation teaching. *Foreign Language Learning Theory and Practice*(03), 49-54, 98.
- [30]Ma, Q., & Jia, Y. (2009). Overview of Intonation Phonology. *Nankai Linguistics*(02), 195-201.
- [31]MacDonald, J., & McGurk, H. (1978). Visual influences on speech perception processes. *Perception & Psy- chophysics*(24), 253-257.
- [32]Martin, J. (1972). Rhythmic (hierarchical) versus serial structure in speech and other behavior. *Psychological Review*(79), 487-257.
- [33]Pierrehumbert, J. (1980). *The Phonology and Phonetics of English Intonation*. MIT.
- [34]Pierrehumbert, J., & Hirschberg, J. (1990). The meaning of intonational contours in the interpretation of discourse. In P. Cohen, J. Morgan, M. Pollack, R. Cohen, J. Morgan, & M. Pollack (Eds.), *Intentions in Communication*. Cambridge: The MIT Press.
- [35]Rodero, E. (2011). Intonation and emotion: Influence of pitch levels and contour type on creating emotions. *Journal of Voice*(01).
- [36]Romero-Trillo, J. (2019). Prosodic pragmatics and feedback in intercultural communication. *Journal of Pragmatics*.
- [37]Sperber, D., & Wilson, D. (1995). *Relevance: Communication and Cognition*. Oxford: Blackwell.

- [38]Sreenivasa, K., & Yegnanarayana, B. (2009). Intonation modeling for Indian languages. *Computer Speech and Language*, 23(2), 240-256.
- [39]Steffman, J. (2019). Intonational structure mediates speech rate normalization in the perception of segmental categories. *Journal of Phonetics*(74), 114-129.
- [40]Wang, H. (2008). The Development of Intonation Phonology. *Foreign Languages and Their Teaching*, 09, 15-18.
- [41]Wang, R. (2016). Discussion About Intonation Characteristics, Social Distribution and Pragmatic Functions of HRT. *Seeker*, 2, 188-192.
- [42]Wu, S., & Yang, F. (2016). Category Conflation in Chinese EFL Learners' Perceiving English Vowels. *Foreign Languages and Their Teaching*(03), 75-84, 146-147.
- [43]Yao, Y. (2019). Effects of Recasts and Prompts on Perception of Lexical Stress in English Compounds. *Theory and Practice of Contemporary Education*, 11(02), 136-141.
- [44]Yin, Y., & Hui, Z. (2017). The Study of the Relativity Between Suprasegmental Phoneme and English Listening Comprehension. *College English Teaching and Research*(04), 38-43.
- [45]Zellers, M., Post, B., Imperio, M. D., Parole, L., Provence, U. D., & Cnrs, U. M. (2009). *Modeling the Intonation of Topic Structure : Two Approaches Research Centre for English & Applied Linguistics*. United Kingdom: University of Cambridge.
- [46]Zhang, Y. (2015). The Influence of Prosody on Polite Communication: Evidence from Chinese EFL Learners' Gratitude. *Foreign Languages and Their Teaching*(3), 10-24.

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