Chapter 3   Methodology

3.0. Introduction

As set out in Chaper one (1.3) the questions this study aimed to answer are as follows:

1. What are the sentence-final Intonation patterns in Cantonese Interrogatives?

2. What is the relationship between type of interrogatives and particular sentence-final intonation patterns?

3. What are the possible variables that affect the sentence-final intonation patterns?

In relation to these questions, this chapter will explore the method used to collect, transcribe and analyse the data.

3.1. Materials

The choice of language as the material of this study is the modern Cantonese variety of Hong Kong. The reason for this is because the variety of Cantonese spoken in Hong Kong is similar to that of Canton, and hence, socially prestigious "Standard Cantonese" can refer to the Cantonese spoken in Hong Kong as well as in Canton (Wong, Chan & Beckman 2005:4).

The data was obtained from a Hong Kong movie called "Six Strong Guys" (六壯

士) which was produced in Hong Kong in 2004. The study uses the original VCD

distributed in Malaysia by Audio One Entertainment Sdn Bhd. It has original Mandarin and

English subtitles and is 63 minutes in length. The movie is a comedy set in modern times,

with eight main characters from different socio-economic backgrounds and with differing

personalities. Characters with different social status, for example, the boss and the clerk,

speak differently to each other: the boss speaks rudely to the clerk but the clerk always

speaks politely to the boss. Relationships are played out among the roles, for example, the

boss and the clerk, potray language appropriate to the different characters which mirror

social reality and various speaking situations, for example, outdor scene and indoor scene,

which mirror more natural in conversations. This study focuses on interrogatives used in

the movie. These interrogatives were collected from a wide range of speaking contexts and

provides a less self conscious sample of data for an acoustic study of speech patterns than

the data used in the pure tone studies obtained under laboratory conditions where the

subjects are possibly affected by the more controlled methodologies and less likely to

produce examples that approximate authentic everyday speech.

Intonation has an inseprabale relation to human emotion (Bolinger 1978:233;

Pierrehumbert 1983:87). It is believed that any wide range of speaking contexts will

always have an even wider range of intonation varieties driven by different emotions

which can be abstracted from authentic recordings of real life situation. If, for example,

we want a Rhetorical Interrogative used with a sense of irony it is a claim of this study

that a more authentic example is likely to be forthcoming from an unscripted film

dialogue than from a situation where a subject is required to provide and example in a

sound studio. Rhetorical Interrogatives can express more than one kind of emotion and

purpose, and different emotion can affect the F0 cntours of sentence-final intontion. This is an important factor because the quality of the data has a direct impact upon the results of the study. In the movie all the leading and supporting roles (except for one actress in a supporting role) are played by native Cantonese speakers, they are all well known artists in Hong Kong, with an age range of 25 to 65 years old. The eight leading roles previously mentioned cover a range of social backgrounds and personalitie such as a boss, a cowardly office clerk, an unemployed husband, a playboy, a single father, a career oriented modern wife and a submissive girlfriend. Typical relationships are played out among the characters, as they assume conventional roles as lovers, husband and wife, boss and employee among them. The dialog accommodates utterances appropriate to the situation of the different characters and the interaction between them is naturalistic.

3.2. Procedure

There follows a description of the procedures of how the data were extracted and analyzed.

3.2.1. Data Conversion

As mentioned in the earlier section 3.1.1. the Hong Kong variety of the Cantonese language is used in this movie. Prior to instrumental analysis, interrogatives were first identified auditorily. Following this, the interrogatives were extracted from the movie which was in MPEG2 format using TMPEGnc2.5. and converted into MP2 audio files. No interrogative was more than five seconds long. Next, using dBpowerAMP Music Converter, the MP2 files were converted into WAV files in order for them to be analysed by Praat software program (Boersma & Weenink, 2003).

3.2.1.1. Transcription Procedures

An Electronic Repository (粤语音韵集成) Transcription of the Cantonese data was done by referring to (粤语音韵集成) A Chinese Talking Syllabary of the Cantonese Dialect, an Electronic Repository, as a first reference of transcription. This transcription is based on two sources: the Cantonese Romanisation Scheme (1993), also known as "Jyutping" by the Linguistic Society of Hong Kong (LSHK 1999). The second reference used, is "Cantonese Final Particle", created by Law (2005). It was used for supplementary purposes only and used for some SFP and explanations which could not be found in the first reference.

For translations from Cantonese to English, the original VCD English and Chinese subtitles were used. In some instances, however, these subtitles did not provide an accurate rendering of the spoken dialogue. All subtitles were checked for accuracy of rendition to make sure they matched with the context. If there was a poor match with the context, pragmatic alterations were made. As a consequence, some of the English subtitles from the original VCD may be found to be different from those used in this study.

3.2.1.2. Data Analysis

Using Praat (Boersma & Weenink 2003) the F0 contour was displayed on pitch graphs and spectrograms such as shown in Figure 3.1.

Once the contours were generated, both initial and the final pitch point of any given F0 were measured giving an accurate height measurement in terms of hertz. The gradient or inclination of the pitch was then be calculated by obtaining the difference between two points in time: final pitch (R, L, F) point and initial pitch point (I).
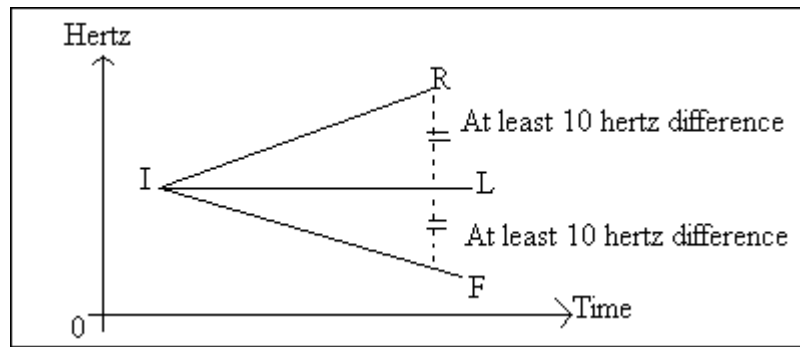
Figure 3.1
Schematic Annotation of Rising, Level and Falling Final Intonations

As can be seen in Figure 3.1, if the inclination "I-R" or difference is 10 hertz or above from "I-L", which indicates a Level Final Intonation, then the pitch can be considered to be rising. On the other hand, similar hertz difference of 10 or above for "I-F" indicates a falling pitch.

The focus of this study is on the sentence-final syllable. However, the fact of Tone-Spreading phenomenon inherent in the nature of Cantonese (see Section 2.5) causes the voice of the syllable to be extended in terms of time. Therefore this study takes the syllable as well as the extended part of the syllable to be one syllable for analyzing.

This study refers to Pierrehumbert's (1980), British nuclear tone descriptions and the ToBI Annotation Convention (Beckman & Hirschberg 1994:4) to label the F0 contours. Each of these references has its advantage to be referred to, see explanation of Figure 3.2. By defining the contours, some modification of descriptions are made accordingly based on the findings in this study. Figure 3.2 shows the difference between two HLH% F0 contours.
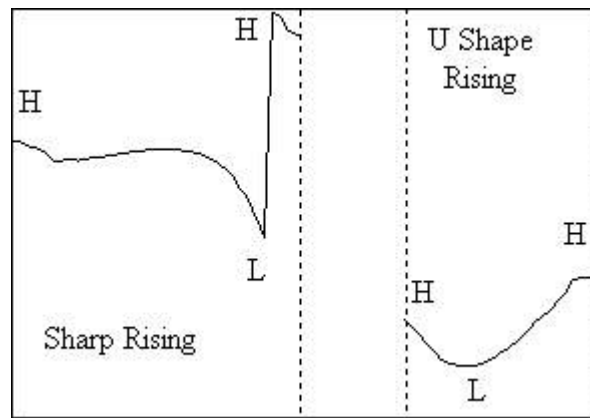
Figure 3.2
Comparison of Sharp Rising and "U" Shape Rising F0 contour

If the single H or L tone is used to describe the patterns above, no distinction is made between the 'Sharp Rising' and 'Low-Rise' patterns. Both would be described as HLH%. Their differences are not merely in the F0 forms, surely there are acoustic differences too, for example differences in the pitch range. This aside, the attitudinal meanings from two speakers using these tones are believed to be different. In order to overcome this difficulty, the starred tone (*) is needed in order to show the difference between two patterns. Thus, the H tone of the Sharp Rising is starred, its representation becomes L+H*H%. According to Beckman & Hirschberg (1994:4), The ToBI Annotation Conventions the L+H* is defined as 'a high peak target on the accented syllable, which is immediately preceded by relatively sharp rise from a valley in the lowest part of the speaker's pitch range'. The modification is that, the used of the (*) is merely for the sake of describing the contour pattern, it does not indicate the (*) section being accented. While under the British description, the L+H*H% pattern is named Fall-rise. Nevertheles, the 'sharp rise' part of a Sharp Rising Intonation pattern should be seen as its distinctive feature. Thus, the Fall-rise is changed to Sharp Rising; whilst, the HLH% is named Fall-rise too according to the British description. In order to avoid confusion with another fall-

rise pattern in the falling intonation section, this HLH% is named "U" Shape Pattern, because of its similarity with the letter u in Roman script. The British representations cover a range of divergent analyses of prenuclear accents for example: **high**-fall, **low**-fall (Ladd 1998:82-3). In this study, however, no effort is made to locate the prenuclear accent, because there is no definition for high or low to be based on according to the British representation.

A series of schematic annotations together with descriptions of criteria are used to show the features all the kinds of F0 contours found in the study. The original pitch graphs together with the assistance of a spectrogram are used to explain certain phonological processes, for example, Invisible Final intonations. Each interrogative analysed through Praat program, graphic images of pitch graph, spectrogram and wave files were captured by using the Microsoft Paint as BMP files, and then stored in a database file. Data extracted from the movie with poor sound quality were excluded from the data.

Some utterances could be categorized into more than one interrogative type, for example, those utterances that could be both Yes/No Interrogative as well as Rhetorical Interrogative in terms of syntax. In each case, the sentence-final intonation and context in the movie of such interrogatives were taken into consideration in deciding the most suitable category. For example, "唔走啊-m4 zau2 aa4"?- "Not going+SFP"?.

3.1.3.3. Cantonese Interrogatives

This study refers to four types of Cantonese Interrogatives as outlined by Tsang (1999) as below (refer to Chapter 2, Section 2.6):

a. Yes/No Interrogatives

b. Wh-Interrogatives

c. Disjunctive Interrogatives

d. A-not-A Interrogatives

The main focus of Tsang's study is the structure of declarative and interrogative sentences, covering both Phonological and Logical forms of syntatic structures. As a result, the four major interrogatives that are outlined by Tsang show some distinctive features in their structures; most notably: Yes/No and Wh-Interrogatives which could be identified by keywords (examples: SFP "aa4", Wh-key word: "bin1") while Disjuctive and A-not-A Interrogatives were identified by their counterparts (examples: key word: "ding", A-negator(m4)-A). The present study focuses on features, such as the keywords in interrogatives and also covered the pragmatic meanings of utterances. Sentence-final intonations of Interrogatives were examined because they can resolve ambiguities in utterances; for example, a Yes/No Interrogative and a Rhetorical Interrogative can share the same syntactic structure, but the sentence-final intonation within a particular context distinguishes them. As a result, three additional types of interrogatives were identified, namely:

e. Rhetorical Interrogatives

f. Tag Interrogatives

g. Elliptical Interrogatives

Frequency counts for each type of intonation pattern were done and the factors affecting sentence-final intonation patterns were discussed and analysed using the observations of the pitch graphs, and the findings of previous researches as well as existing theories such as those concerned with Tone Sandhi and vowels deletion.

Figure 3.3 shows two examples of how data is displayed in this study. Example 3.1 shows a Cantonese interrogative extracted from 2103-2. In this particular case, the object segment is optionally omitted and replaced by "aa1", which happens to be a SFP.

"2103-2" and is shown in the upper left corner. "2103" means 21 minutes and 3 seconds which is the point of time when this interrogative was utterered in the movie. As has been previously mentioned no interrogative in the data is more than five seconds in length. In some cases, two interrogatives are uttered in a row within five seconds, in which case, the former one is labeled "1" and the latter one "2".

Example 3.1

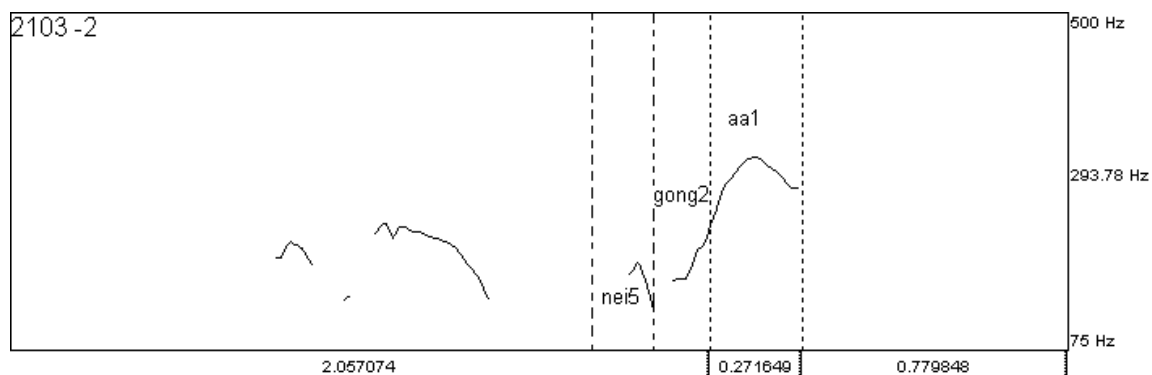| 2103-2			
nei5	gong2	Ø	aa1 - say it out (how dare you)?
You	*say*		*SFP*
(Subject)	(Verb)	(Object)	

Figure 3.3
An Example of a Pitch Graph

Example 3.1 shows the pitch graph of the interrogative 2103-2. In which "aa1" is the sentence-final intonation. Pitch graphs such as Figure 3.3 shown in the Appendix C have only the sentence-final intonation of the F0 shown in between two cutting lines.

3.3. Summary

This chapter presented the methodology of data conversion and analysis used in this study. Three F0 representation reference sources were referred to and modified for the