

Phonetic Foreignization of Mandarin for Dubbing in Imported Western Movies

Luying Hou^{1,2}, Yuan Jia¹, Aijun Li¹

¹Institute of Linguistics, Chinese Academy of Social Sciences, Beijing, China

²Institute of Linguistic Studies, Shanghai International Studies University, Shanghai, China

alinafox007@gmail.com, summeryuan2003@126.com, liaj@cass.org.cn

Abstract

Through a multi-discipline approach, the present study conducts a pioneering exploration of an artistic Mandarin, namely, the Mandarin for Dubbing in imported western movies. Two hypotheses were made based on explicit phonetic cues: (1) Mandarin for dubbing has developed as a particular variety of Mandarin. (2) The main distinctive features come from the original language of imported movies. A perceptual experiment was first carried out to establish the “variety” status of the Mandarin for Dubbing. Then the supra-segmental acoustic features were compared among Mandarin for dubbing, Mandarin and English. In this session, a case study to a matched set and comparisons in F_0 and rhythm were carried out. The results shows: (1) a high percentage in which native Chinese speakers distinguish the Mandarin for Dubbing from Mandarin; (2) an overall tendency of the parameters representing pitch and rhythm of Mandarin for dubbing towards the source language. All the results support the two hypotheses. On the basis of these results, a genetic, historical explanation was given in the perspective of language contact and language transfer.

Index Terms: artistic speech, foreignization, F_0 , rhythm, variety, language transfer

1. Introduction

Nowadays importing foreign screen programs is a prominent approach to meet the growing demands of Chinese people to know more about other cultures. To suit the vast audience, dubbing has been an essential norm in the re-editing process. The Mandarin for dubbing (DC) has a saturated “foreign” color in contrast with Mandarin (Standard Chinese, SC). Thus, DC is often referred to have a “dubbing or foreign accent”.

In a history of over 60 years, dubbing imported movies has experienced three periods in China [1]. 1949-1966 was the initial stage; 1966-1976 was the developing stage; after 1977 it experienced its most flourishing period. During the long history, dubbing has developed as a skill as well as an art. Meanwhile, the style of DC was gradually changing. In the initial stage, there were two main accents as the dubbing studios differed. Movies re-edited by Changchun Film Studio bore an obvious northeast accent, while movies from Shanghai Dubbing Studio had its own accent, which we believe was the prototype of the DC today. In the 1980s Shanghai Dubbing Studio created the Golden Age of the art of dubbing and its style of DC became predominant. Many dubbing artists became so famous around China that many Chinese having experienced that period can recognize their voices. In the 1990s and the new century, it seems DC has accomplished the formation process and tends towards stability. Moreover, as the diversity of imported programs increases, a more peculiar and interesting phenomenon arises: the dubbing

style does not follow one fixed pattern. DC for programs from different regions (such as western countries and North Korea) also has its own feature, and a considerably large number of native Chinese speakers can perceive the distinction easily.

However, this kind of stylistic and artistic Mandarin has not drawn much attention in the linguistics realm. Most research on dubbing focused on the translation of scripts but few from the phonetic point of view. In a case study of the translation of CCTV dub for ‘The Taming of The Desperate Housewives’ [2], the author points out the DC sounds fluctuating and too poetic. In spite of the rare literature on this topic, there are a number of related studies on accented Mandarin in dialectal regions [3] and on foreign accent [4]. These phenomena are alike in the way that they are both accented speech. The difference among them is also obvious: previous research concern the accent when a speaker acquires a second language, while this study is not about a foreigner’s speaking of Mandarin sounds foreign, but a native Chinese speaks skillfully with a foreign style. Also, it is not in a language acquisition process, but in an artistic reproduction process. It is an artistic assumption that the characters in imported movies speak fluent Mandarin in a foreign background. It is a strategy that can serve two objectives: the fluent Mandarin accomplishes the understandability by the Chinese audience, while the foreign style permits the foreign flavor coming through the re-edited movies and exhibits the foreign background.

This study will exclusively focus on DC for imported western movies, while the regional difference of DC is not in the scope of the present study. There is an obvious feature that the pronunciation of names, model particles and expressions for daily communication resembles their counterparts in the original movies closely, especially in the articulation of foreign names: the tones are lost and a stress pattern is applied. It is not simply code-switching because the pronunciation has been changed into translated Chinese counterparts. Based on these explicit cues in DC, we raise two hypotheses:

Hypothesis 1: Mandarin for Dubbing has developed as a particular variety of Mandarin.

Hypothesis 2: The main distinctive features of DC come from the original language of imported movies.

Hypothesis 1 will be examined via a perceptual experiment. Then the supra-segmental acoustic features will be compared among DC, SC and English to test Hypothesis 2. Following a contrastive case study, investigations to F_0 and rhythm are carried out.

2. Perceptual Experiment

In this experiment participants were asked to distinguish between DC and SC and then answer three subjective questions. Hypothesis 1 predicts a high percentage of correct answers and highly unanimous answers to the three questions. The judgments

were to test whether the participants' intuitions matched this prediction.

2.1. Method

2.1.1. Participants

80 native Chinese speakers (40 Male and 40 Female; M age = 24.4 years; age range = 20-30 years) participated in the experiment. All had no history of hearing problems.

2.1.2. Materials

The material consisted of 32 experimental and 8 filler dialogues lasting within 8 seconds. Half were extracted from dubbed versions of imported western movies and the other half from Chinese movies. Each dialogue consisted of a pair of sentences uttered by a male and a female respectively. To make sure the materials are consistent in style, the major constraint was that all the movies selected were screened by the movie channel of China Central Television (CCTV6) and were produced or re-edited in the first decade of this century. The experimental items covered 16 movies that had relatively low publicity. Six imported movies' original language is English and two is France. There are 23 dubbing artists involved in the imported movies and 24 involved in Chinese movies so that participants would not rely on talker-specific cues. To test whether the participants really paid attention in the task, for the filler items there were clear cues indicating their origins. The lines were evaluated by two native speakers to assure that there existed no translation effect. All the items were pseudo-randomized to avoid strategies. Moreover, to give participants an impression of DC and SC, two movie trailers were prepared: one for the dubbed version of the American movie *Forrest Gump*, and the other is for the Chinese movie *Qian Xuesen*. The durations were both around one minute.

2.1.3. Procedure

The materials were presented visually and audibly in the center of a computer screen. Participants were first shown the two movie trailers. Then they were instructed to take the audible test. Following the presentation of each dialogue, participants were required to judge its origin, namely, Chinese movie or Western movie. After the experiment, they were asked two questions in the questionnaire:

Question 1: Do you think there are obvious differences between DC and SC?"

Question 2: If there are differences, what are the main aspects do you think?

To avoid inducing biased answers to the above questions, the third question was orally asked among randomly selected participants.

Question 3: Do you think the dubbing actors are imitating the way in which westerners speak?

The entire session lasted within 15 minutes.

2.2. Results

The percentage of correct answers is 97%. Mean performance on the filler items is 91.7%, so all the participants gave answers seriously. For Question 1, 100% participants gave positive answers. 33 participants answered Question 2 in the questionnaire. 11 aspects were mentioned: intonation (18 participants), manner of speaking (10 participants), articulation

(6 participants), emotion (5 participants), accent (4 participants), exaggeration (2 participants), overall impression (2 participants), speaking rate (2 participants), pauses (1 participant), naturalness (1 participant) and semantic expression (1 participant). All the participants being asked gave positive answers to question 3. Some pointed out that the dubbing actors imitated the westerners "in the manner of speaking and intonation".

We noticed the difference of performances between the experimental and filler items. According to the design of the materials, a higher percentage of correct answers was expected for the filler items. After further investigation, we found that for the most misjudged filler item, the foreign accent was not so distinct that some participants still decided to judge it as SC in spite of the obvious contextual cue, which shows participants made judgments based on phonetic features other than other cues, that is to say, the phonetic features of DC are more prominent than other features on other levels. Thus, the relatively low performance for fillers supports Hypothesis 1 all the better. So we can conclude that all the results in this perceptual experiment support Hypothesis 1 remarkably, thus establishing the "variety" status of DC.

3. Contrastive Study on Acoustic Features

In this part Hypothesis 2 was concerned. According to the answers to Question 2 in the perceptual experiment, we mainly investigated the supra-segmental features of SC, DC and the source language. Because most imported movies were from English-speaking countries in the first two periods of dubbing history, we choose English (EN) as the source language. For the diversity of the source languages of the imported western movies, we will discuss later in a historical perspective. According to Hypothesis 2, a deviation of DC from SC and a tendency towards EN in acoustic parameters were expected.

3.1. Materials

Four dubbing artists' (two male and two female) materials were selected for contrastive study. We collected their natural voices (SC) from a series of interview programs, their dubbing voices (DC) from re-edited imported movies, as well as the corresponding English voices (EN) in the original movies. One thing should be mentioned here is that for the voices of the four dubbing artists in interviews we can not guarantee complete naturalness because of the interview environment, but they are the most natural voices we could find.

3.2. A Case Study of F_0 Contour

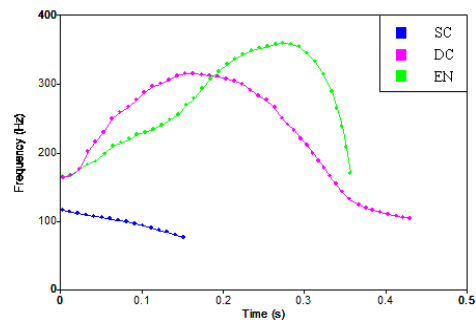


Figure 1: F_0 contours of "dui4" in Standard Chinese, Chinese for Dubbing and "yes" in English. (X: s; Y: Hz)

We found a set of one-syllable matched voices which can perfectly illustrate Hypothesis 2. Figure 1 is the F_0 curves (in Hz) for “dui4” in SC, DC articulated by the same male speaker and “yes” in the corresponding EN respectively. It shows clearly that both the F_0 contour and the duration of “dui4” in DC differ from SC significantly and have a strong tendency towards EN. Due to the limited materials, we didn’t capture more matched examples. Although this example is a satisfactory reflection of the point, it alone is not sufficient to demonstrate Hypothesis 2 and more statistic data is needed.

3.3. F_0 Distribution

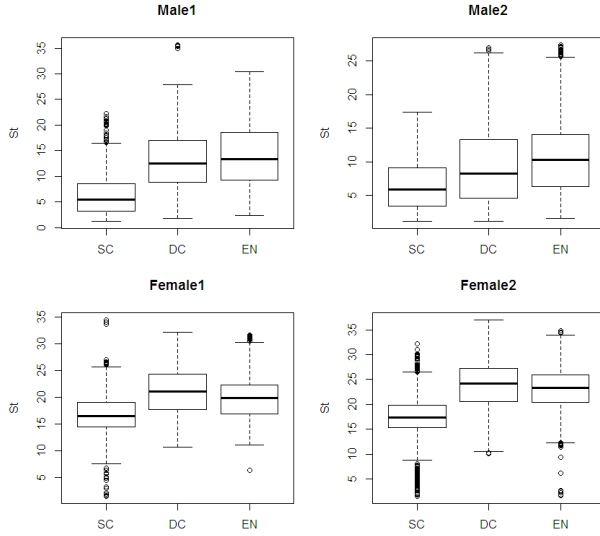


Figure 2: Distribution of F_0 for Standard Chinese, Chinese for Dubbing and English. (X: SC, DC, EN; Y: St)

	Mean			Var		
	SC	DC	EN	SC	DC	EN
Male1	6.39	13.10	14.03	16.35	35.17	34.83
Male2	6.42	9.37	10.68	12.56	33.34	26.61
Female1	16.72	21.23	19.69	12.98	20.33	15.33
Female2	17.43	24.02	23.09	17.27	22.13	18.08

Table 1. Means and Variances of F_0 for Standard Chinese, Chinese for Dubbing and English.

	Cov	
	SC-EN	DC-EN
Male1	41.47	59.70
Male2	39.58	61.38
Female1	22.46	28.26
Female2	22.47	32.36

Table 2. Covariances of F_0 for Standard Chinese, Chinese for Dubbing and English.

Figure 2 shows the contrastive distribution of F_0 (in Semitone) for SC, DC and EN [5]. The values are normalized according to the speakers’ pitch range, with 70 Hz as the reference F_0 . The means and Variances (Var) are presented in Table 1. Covariance

and Pearson correlation analyses were made within SC and EN, DC and EN respectively for the five values in the box plots plus the value of Mean. The Covariances (Cov) and Correlation Coefficients (Cor) are shown in Table 2.

From the statistic analysis, the following observations were obtained:

- Figure 2 and Table 1 show that compared with SC, the Vars of DC are greater; the F_0 ranges and IQRs of DC are expanded, tall towards the direction of EN, reflecting a greater volatility of F_0 of DC than SC, which can account for the perceived “fluctuation” and “exaggeration”.
- Figure 2 also shows the Means and Medians of DC were raised, also towards the direction of EN, reflecting the pitch of DC was raised.
- The overall Covs of the four speakers shown in Table 2 reflect DC is more related to EN than SC to EN.

The pattern of the results we obtained in F_0 analysis back up Hypothesis 2 prominently.

3.4. Rhythm

VarcoC and %V [6, 7] were measured for rhythm analysis. Since Chinese and English belong to different phonological systems, the segmentation of C and V was adjusted to our objective to increase the comparability between Chinese and English. We believe for Chinese speakers, they perceive other language based on their own established phonological system, so we mapped the English system into Chinese system: post-vocalic nasal [n] and approximants [j] and [w] were treated as vowels, as for pre-vocalic consonant clusters we only reserve the last one, and post-vocalic consonant clusters were omitted for there are no consonant clusters in Chinese.

The values *VarcoC* and %V were derived from equations (1), (2), and (3) [6, 7]:

$$\Delta C = \sqrt{\sum_{i=1}^m (d_{Con_i} - \overline{d_{Con}})^2 / (m-1)} \quad (1)$$

$$VarcoC = 100 \left[\Delta C / \overline{d_{Con}} \right] \quad (2)$$

$$\%V = \sum_{i=1}^m d_{Vow} / \sum_{i=1}^m d_{Syl} \quad (3)$$

where d_{Con} , d_{Vow} and d_{Syl} represent the durations of consonants, vowels and syllables respectively, and $\overline{d_{Con}}$ represents the mean duration of consonants.

Figure 3 is the contrastive demonstration of *VarcoC* s and %V s. Except for Female1 and *VarcoC* of Female2, the overall data supports Hypothesis 2 distinctively. The raising of %V indicates a higher proportion of the vowels in DC, which can account for the “dragging” feeling mentioned in the perceptual experiment. The exception shows there are also other factors involved. We believe the individual characteristics of dubbing actors play a major role, and the context effect may also account for the inconsistency. As we mentioned in the Materials of this section, the interview environment is not completely natural, so they may be well conscious of it and altered their manners of speaking, such as slowing speaking rate and lengthening the vowels.

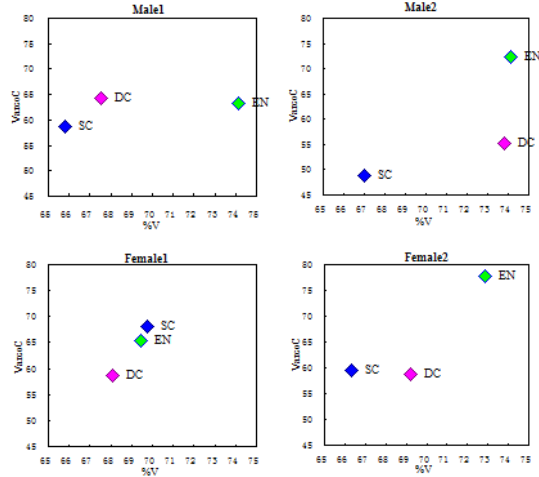


Figure 3: *VarcoCs and %V s for Standard Chinese, Chinese for Dubbing and English. (X: %V ; Y: VarcoC)*

4. Discussion

The results showed that the distinctions between Mandarin for dubbing and standard Chinese is remarkable. For the parameters representing F_0 and rhythm, there is an overall deviation for DC from SC and a tendency towards EN. Thus, the two hypotheses we made in the introduction part are well supported.

First, DC has developed as a special variety of Mandarin which does not exist in the real world, but only on screen. So we find that there are not only regional and social varieties of a language [7, 8], but also artistic and artificial varieties.

Second, the acoustic parameters demonstrated the distinctive style of DC comes from the source language to a great extent. The dubbing artists surely perceived the differences between the source language and the target language and transplanted the perceived features into Mandarin. But the features of DC did not come from the matched movies directly. As mentioned in the introduction, the formation of DC is a historical process and it is a very complex phenomenon with many subjective factors. We can conclude from the results that the most distinctive feature come from the original language. The dubbing actors in the initial stage perceived the features and differences in the source language and applied to DC, and then the distinctive style formed and became a rule in dubbing industry. The accent was acquired and inherited by successor dubbing artists, thus becoming a variety of Mandarin.

The forming of the variety could be explained by theories of language contact [7, 8] and language transfer [9]. It is though a special type of language contact which is not for communication, but only for artistic usage. May the dubbing artists know or not know the source language, the phonetic features were perceived, grasped, and transferred. Odlin [9] mentioned "An awareness of language transfer is also evident in the mimicking of foreigners." He defines language transfer as the influence caused by the differences between the target language and any other acquired or not fully required language. The literature of the language transfer theory mainly distributed in the second language acquisition area. However, the transfer appeared in the shaping of DC is not in language acquisition, but in artistic application. Moreover, it is not a negative influence of a native language to a newly acquired language; instead, it is a voluntary, positive, backward transfer.

The inconsistency in the results shows that other aspects such as lip-synchronization, speech rate, energy, context, individual characteristics and constraints of the original movies, all could be factors in the forming of the dubbing accent, which needs further research. We also found not all the contrastive data distributed in a staircase pattern, the value of several parameters of DC can surpass their counterparts in EN, which we believe is due to the flexibility within the control of dubbing artists.

5. Conclusions

This study conducts a pioneering research on the phonetic foreignization phenomenon in DC for imported western movies via a perceptual experiment and contrastive analysis of the supra-segmental acoustic feature of SC, DC and EN. Based on the results, the following conclusions can be drawn: 1) DC has developed a particular variety of Mandarin. 2) There exist artistic and artificial varieties of a language. 3) The main distinctive features of DC for imported western movies come from the original language of imported movies. 4) There are particular types of language contact and language transfer. We hope this research could shed a light on further researches on artistic speech, speech and style and the synthesis of stylish speech.

6. Acknowledgements

Many thanks to Dr. Lei Zhu, Prof. Fuyun Wu and Dr. Zhigang Yin for the discussions and suggestions, to Guohui Zhang, Xiaoming Huang and Wenyong Hu for their help in questionnaire collecting and data processing. The research was supported by the Youth Project "Research on the prosodic features and phonological expression of Chinese text" (Project No: 10CYY036) of National Social Science Foundation, China and the Innovation Project "ERP analysis for the interface of phonetics, phonology and syntax" of Chinese Academy of Social Science, to which we express our thanks.

7. References

- [1] Ma, Z. Q., "Yingshi Yizhi Gailun [Scenario Translation and Dubbing]", Beijing: Communication University of China Press, 2005 (in Chinese).
- [2] Zhong, Y., "A stylistic analysis of CCTV's dub of the serial The taming of the desperate housewives", *Across Language and Cultures*, 9(2):235-259, 2008.
- [3] Li, A. J. and Xia, W., "A contrastive investigation of standard Mandarin and Accented Mandarin", *Report of Phonetic Research*, 113-117, 2003.
- [4] Scotta, S. K., Cleggc, F., Rudgec, P., and Burgess, P., "Foreign accent syndrome, speech rhythm and the functional neuronatomy of speech production", *Journal of Neurolinguistics*, 19: 370-384, 2006.
- [5] Li, A. J., "The Psycho-acoustic Uints for Intonation Study", *Technical Acoustics*, 3, 2005 (in Chinese).
- [6] Ramus, F., Nespor, M. and Mehler, J., "Correlates of linguistic rhythm in speech signal", *Cognition*, 73(3): 265-292, 1999.
- [7] Dellwo, V., "Rhythm and Speech Rate: A Variation Coefficient for ΔC ", *Language and Language Processing: Proc.*, 38th Linguistic Colloquium Piliscsaba, 231-241, 2006.
- [8] Wardhaugh, R., "An Introduction to Sociolinguistics", London: Blackwell, 2000.
- [9] Coulmas, F., "The handbook of Sociolinguistics", London: Blackwell, 1997.
- [10] Odlin, T., "Language transfer: cross-linguistic influence in language learning", Cambridge: Cambridge University Press, 1989.

[This paper was published in Interspeech 2012]