

CHAPTER 5

CONCLUSION: INTERACTION BETWEEN PRAGMATIC AND ACOUSTIC PATTERNING OF BEAT GESTURES

There are three sections in this chapter. Section 5.1 will further discuss the interaction between pragmatic level and acoustic level accompanying gestural beats discussed in the previous chapters. Then, the major findings of the present study are summarized and concluding remarks are given in Section 5.2. Finally, suggestions for further research are given in Section 5.3.

5.1 Interaction between Pragmatic Level and Acoustic Level for Gestural Beats

In Chapters 3 and 4, the interactions between gestural beats and pragmatic issues, i.e., grounding and information state, and between gestural beats and acoustic level, i.e., pitch and intensity, were discussed, respectively. However, the interaction between these two different levels accompanying gestural beats should be also taken into account and discussed.

First, I will discuss the correlation among intensity, grounding and information

state. Does the intensity of the speech differentiate the distinctions of grounding and information state for gestural beats? Table 21 presents the frequency distribution of the degree of intensity and grounding. The amount of gestural beats in the thesis is 291; however, as mentioned in Chapter 4, for the issues of the relationship between pitch and intensity of speech accompanying with gestural beats, the amount of gestural beats is 288, excluding three beats produced during pauses.

Table 21. Frequency Distribution of Intensity and Grounding in Beat Gestures

	Foreground		Background		Total	
	n	%	n	%	n	%
Greater intensity	137	87.8	19	12.2	156	100.0
Lower intensity	113	85.6	19	14.4	132	100.0
Total	250	86.8	38	13.2	288	100.0

The relationship between intensity and grounding is not statistically significant.¹³ Regardless of the acoustic factor of intensity, speakers mainly gesture for foregrounded clauses (86.8%, 250 instances out of 288), as shown in Table 21. In addition, according to the statistics, it is found that speakers utter speech with greater intensity in foregrounded clauses (47.6%, 137 instances out of 288).

As for the interaction between intensity and information state in gestural beats, Table 22 shows the frequency distribution. As mentioned in Chapter 3, the total

¹³ The Chi-square test for the distribution of intensity and grounding in beat gestures is: $\chi^2_{1, 0.05} = 0.306$.

amount of gestural beats is 220 in discussing this gestural type and the issue of information state because the statistics are shown by considering both nouns and verbs only for the information state. In the data of the present study, 130 nouns and 90 verbs accompany the use of beat gestures as shown in Table 4 (p. 19).

Table 22. Frequency Distribution of Intensity and Information State in Beat Gestures

	Given		New		Total	
	n	%	n	%	n	%
Greater intensity	40	32.3	84	67.7	124	100.0
Lower intensity	33	34.4	63	65.6	96	100.0
Total	73	33.2	147	66.8	220	100.0

The insignificant χ^2 value¹⁴ for Table 22 reveals that the intensity of an utterance does not relate to the information state in beat gestures. Regardless of the distinction of intensity, gestural beats are mainly produced for new information. For new information, it is noted that speakers produce utterances with greater intensity as shown in Table 22 (38.2%, 84 instances out of 220).

The factor of pitch is focused in what follows. However, in this study, the relationship between the directions of pitch and beat gestures was examined in Chapter 4, with the acoustic patterns and beats as the focus. Such a relationship is not concerned with pragmatic issues. Thus, this lack of information about the relationship

¹⁴ The Chi-square test for the distribution of stress and information state in beat gestures is: $\chi^2_{1,0.05}=0.109$.

between pitch and discourse structures, i.e., grounding and information state, means that it has not been possible to have a full discussion of the relationship so far.

In combination with the findings of Tables 21 and 22 and the results of the analysis of pitch directions and beat movements discussed in Chapter 4, it is suggested that there is no relationship between pragmatic level and acoustic level in gestural beats according to the statistics. In other words, grounding or information state is not affected and distinguished by the pitch and intensity of an utterance for beat gestures. However, if only the number of distribution is considered, it is found that gestural beats are produced in both foregrounded clauses and new information with greater intensity.

Although there is no relationship between pragmatic findings and acoustic findings for producing a gestural beat, it is found that there is a rhythmic pattern for continuous gestural beats in Chapter 4. Therefore, the interaction between pragmatic findings and rhythmic patterns for beat gestures is investigated here. First, the issue of grounding and rhythmic patterns for gestural beats is investigated. As mentioned in Chapter 4, there are 69 rhythmic groups in the present study. Table 23 presents the frequency distribution of grounding and regularity of rhythmic patterns in beats.

Table 23. Frequency Distribution of Grounding and Regularity of Rhythmic Patterns in Gestural Beats

	Regularity		Irregularity		Total	
	n	%	n	%	n	%
Foreground	39	63.9	22	36.1	61	100.0
Background	7	87.5	1	12.5	8	100.0
Total	46	66.7	23	33.3	69	100.0

As Table 23 shows, the relationship between the grounding and regularity of rhythmic patterns for gestural beats is not statistically significant.¹⁵ In other words, whether the rhythmic patterns for gestural beats are regular or not, they can not be distinguished by being associated with either foregrounded or backgrounded clauses. Therefore, the grounding status can not affect the regularity of continuous gestural beats in one rhythmic group.

As for the issue of information state and rhythmic patterns for beat gestures, it was impossible to investigate their interaction for further discussion. As mentioned in Chapter 4, 69 rhythmic groups include 180 continuous gestural beats in this study. However, it is not possible for the continuous beats in a rhythmic group, whether a group contains two, three, four, or five beat gestures, to be produced with all new or given information. According to Givón (1990), it is impossible that the information in

¹⁵ The Chi-square test for the distribution of grounding and regularity of rhythmic patterns in beat gestures is: $\chi^2_{1,0.05}=1.767$.

a clause is totally new or totally old. This phenomenon is also found in this study. In other words, it is not possible to analyze and discuss the interaction between information state and continuous beats of 69 rhythmic groups.

5.2 Summary and Implications of the Thesis

The aim of this thesis is to investigate gestural beats in Chinese narrative discourse from an examination of the event structures of narratives, through their pragmatic information and functions and their acoustic patterns. I annotated four videos of subjects re-telling the story of a cartoon for gestures, using the guidelines proposed by McNeill (1992), for acoustic analysis, namely pitch and intensity, using Praat and Kay's Computerized Speech Lab, Model 4100. Moreover, all the gestures were analyzed on computer by using the program, MediaStudio Pro 6.5, and continuous gestural beats were further analyzed using two other programs, Anvil and Ulead VideoStudio 10. I analyzed both the annotations and narrative data statistically and explored five phenomena for beat gestures.

First, the relationship between beats and grounding shows that this gestural type can appear anywhere. In other words, gestural beats can occur in both foregrounded (narrative) and backgrounded (extranarrative) clauses. The finding does not support McNeill's (1992) claim that only iconics can appear in the narrative level as gestural

beats can also appear in this level in the present study.

Second, beats can shift between levels of the narrative structure, i.e., foreground (narrative) and background (metanarrative and paranarrative) levels.

Third, in an examination of Chinese narrative discourse, speakers usually incline to utter new information in foregrounded clauses in combination with the occurrence of beats. Compared to Chui's (2005b) study where she proposes that iconic gestures are mainly produced for new information in topical clauses by analyzing Chinese conversation, the result remains the same, though different gestural types and spoken data were investigated. The result of the present study, likewise, suggests a relationship between speech and gesture. The two are in a close association based on the very close temporal, semantic and pragmatic parallels between speech and gesture (McNeill 1985, 1992).

Fourth, in regard to the relationship between beats and intonation, two factors, pitch and intensity, of the associated speech were analyzed. The findings of the study show that the directions of the pitch changes do not necessarily coordinate with the movements of the beat gestures. As for the relationship between the intensity of the speech and beat gestures, gestural beats can appear with either greater or lower intensity of associated speech. In other words, in this study, neither intensity nor pitch changes can affect, predict or correlate with the occurrence of gestural beats.

Furthermore, the interactions between grounding and the intensity of the associated speech and between information state and the intensity of the associated speech accompanying gestural beats were examined. Statistically, the results suggest they can not be mutually affected. However, when only the number of distribution is considered, it is found that speakers tend to produce utterances with greater intensity for new information in foregrounded clauses. Therefore, beat gestures were analyzed based on the concept proposed in previous studies, for example, McClave's research on a rhythm hypothesis for gestural beats in 1994.

Fifth, most of the continuous beats in a rhythmic group, either within an IU or across different IUs, occur almost at even intervals or intervals with a certain regularity. These continuous gestural beats of a group form a rhythmic pattern. In addition, the findings suggest that the regularity of the production of a pattern correlates with the clause boundary. Moreover, as mentioned earlier, it is observed in the present data that gestural beats can appear anywhere, such as with syllables with greater or lower intensity or with pauses. Although the intensity of the associated speech accompanying the occurrence of a gestural beat is analyzed in this thesis because of the language type, the factor of intensity has a close correlation with the stress of a syllable. Therefore, the results can be compared to the findings proposed by previous studies. The findings in this study support McClave's (1994) study where

she examines English conversation with the occurrence of beats and claims that gestural beats are organized in rhythmic patterns and do not necessarily co-occur with stressed syllables. So far, this is attested in the study. Although I examined Chinese narratives, the results remain the same, i.e., there is a rhythmic pattern for gestural beats and this gestural type does not necessarily co-occur with greater intensity of the associated speech. Moreover, the interaction between pragmatic findings and the rhythmic patterns of beat gestures was investigated. The results suggest that grounding can not distinguish whether a rhythmic pattern for gestural beats is regular or not.

In brief, gestures which are synchronized with linguistic units and are parallel in semantic and pragmatic function to the synchronized linguistic units perform text functions, like speech (Kendon 1972, McNeill 1985). When talking face-to-face, people usually use gestures and speech to convey sufficient information to listeners and to help the communication go on smoothly. In this thesis, the focus is on gestural beats. This gestural type, unlike other gestures, does not carry the content of meanings, but it is pragmatic-oriented. The use of gestural beats in Chinese narratives which are produced for discourse functions to signal the upcoming and/or associated speech has to be taken into account. A close relationship is revealed between speech and gestures studied in this research whether speakers utter foreground or background information,

or whether referents related to the use of this gestural type convey given or new information. These various parts of information have to be combined with each other for both speakers and listeners in the process of communication. The findings presented in the study have provided some linguistic details that may help explore the performance of gestural beats and speech in Chinese narrative discourse.

5.3 Suggestions for Further Research

The findings, however, in the present study are preliminary. They need to be testified with the investigation of data from a larger corpus. It is suggested that the quantity of the narratives should be increased for further studies, i.e., an increase in the number of subjects recorded, to prove the results revealed so far. In addition, this thesis mainly focuses on and investigates the functions of beat gestures at the pragmatic level as the speaker narrates the story to the listener. However, as mentioned in Chapter 1, gestural beats have three directions of movements, namely up-down, in-out, and left-right, but the directions of gestural beats are not particularly distinguished in the discussions in this study. Thus, for future research, it is also suggested that there be investigation as to whether the three different directions show different results. Moreover, the present study has proposed that there is a rhythmic pattern for gestural beats in Chinese narrative discourse and has also suggested that

the regularity of rhythmic patterns correlates with the clause boundary. However, a larger amount of continuous beats needs to be examined; this is also a direction for further research.

In addition, the data for this thesis are narratives. Thus, further research is suggested to analyze and examine data from daily conversation, in comparison with narrative discourse, to investigate different or similar performances of gestural beats in the two different genres of spoken data. Moreover, as the purpose of this study is to investigate the use of gestural beats in narrative discourse, the variations of subjects' and listeners' genders and the conditions of the storytelling were not considered or distinguished in the study. Therefore, gender differences can be a factor for examining the issue of beat gestures in the future.

For further studies, it is also suggested that researchers examine and distinguish other propositional gestures, such as iconics, metaphors, and deictics, from both pragmatic and acoustic levels because more research for the correlation between gestures and speech in Chinese discourse is needed to examine how Chinese speakers use gestures with language in communication. This thesis may be an initial exploration of gestural beats in Chinese discourse.