

# Topicality and Gesture in Chinese Conversational Discourse<sup>\*</sup>

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This paper investigates the relationship between topicality of utterances and gestural use in Chinese conversation. First, it is found that gestural types *per se* do not distinguish topical and non-topical clauses, since their respective occurrences across these two types of clause are similar. However, when the information state of the associated referents is considered, the use of iconic gestures is found to be related to topicality, in that they are mainly produced for new information in topical clauses. The patterning of given and new information accompanying metaphoric, deictic, spatial, and beat gestures is similar across the two types of clauses. Finally, speakers rarely gesture for referents conveying given information, be it topical or not. Based on the finding that the information state of referents is relevant to the use of gestures, the temporal patterning of iconic hand shapes and new referents also evidences the distinction between topical and non-topical information: Either onsets tend to occur in topical clauses or strokes would come before the associated words. Both function to signal that the upcoming new information is noteworthy and deserves attention.

Key words: topicality of utterances, gestural types, information state

## 1. Introduction

When people talk face-to-face, they often produce idiosyncratic, spontaneous gestures through use of hands and arms with context-dependent meaning and use. Past research has shown that people use this kind of manual action in different ways to distinguish various aspects of information conveyed by the utterances. Based on storytelling data, McNeill (1992:93) finds that “iconics occur overwhelmingly in narrative clauses, while beats can occur in both narrative and extranarrative clauses [storytelling act not on the plot line;] ... [A]bstract pointing occurs chiefly with narrative clauses, whereas metaphors appear chiefly with extranarrative clauses.” Bavelas et al. (1992:

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473) rather distinguished *topic gestures* and *interactive gestures* in conversation to characterize, respectively, the information directly related to the topic of discourse, and the information referring “to some aspect of the process of conversing with another person.” They further suggest that interactive gestures may function to cite the other’s previous contribution, to seek agreement, understanding, or help, to deliver new versus shared information, and to present events around the speaker turn. With respect to *communicative dynamism*, Levy & McNeill (1992) and McNeill & Levy (1993) show that the quantity and complexity of gestures would increase along with complex linguistic expressions as the information conveyed by the utterances functions to push the communication forward. Concerning given and new information, McNeill & Levy (1993:365) suggest that “gestures tend to occur at points of topic shift, such as new narrative episodes or new conversational themes... highly presupposed linguistic elements would either lack gestures entirely, or would be accompanied by gestures that are specialized for their cohesive function or form.” Finally, Kendon (1995:247) differentiated *substantive gesturing* from *pragmatic gesturing*, in that “[the former] contributes to various aspects of the content of the utterance of which it is a part, whether literally or metaphorically... [whereas the latter] expresses aspects of utterance structure, including the status of discourse segments with respect to one another, and the character of the ‘speech act’ or interactional move of the utterance.”

This study focuses on the semantic and pragmatic aspects of information on the part of the speaker’s verbalization, rather than on the interaction between the speaker and the addressee. The relationship between topicality of utterances and gestural use in Chinese conversation will be investigated. Note that Bavelas et al. (1992) regard presenting shared and new information as an interactive act, but the given and new information to be discussed here is a textual distinction, an aspect of information flow. The questions to be addressed are: Do the speakers gesture for topical and non-topical information? (I.e., is there a distinction between *topical gestures* and *non-topical gestures*?) Does the initiation of topical and non-topical gestures relate to the information state of referents? How does the timing of gesturing coordinate with speech production in topical and non-topical contexts?

The next section introduces the database and the preliminaries concerning gestural types, temporal phases of gesturing, and topicality of utterances. Section 3 presents the findings. The last section provides a general discussion.

## 2. Database and preliminaries

The database for this study consists of five casual, unpremeditated, multi-party conversations that took place in 1994 and 1995 among college students who knew each

other. They were free to find topics of common interest without knowing our particular research interests. Subjects were filmed for approximately an hour with a visible camera for full-body shot. One section from each conversation, about twenty minutes of talk, in which students were more comfortable in front of the camera, was then extracted. Gestures were analyzed on computer using MediaStudio Pro, which has frame-by-frame advance and varying slow-motion capabilities with no muting of sound, so that sound could be heard as the images were advanced. Thus, movement at a given moment in time can be matched with the simultaneously uttered syllable or with silence.

## 2.1 Temporal phases of gesturing

According to McNeill (1992:83), there are mainly three phases of gesticulation: *preparation*, *stroke*, and *retraction*. The preparation phase, also known as *onset*, refers to “the limbs mov[ing] away from their rest position to a position in gesture space where stroke begins.” In the stroke phase, “the meaning of the gesture is expressed.” Finally, the retraction phase is the “return of the hand to a rest position.” Both the preparation and the retraction are optional; the stroke is obligatory. Gestural strokes can further be distinguished as three types, based on their temporal realization vis-à-vis the associated words, namely *synchronizing gestures* being simultaneous with related words, *preceding gestures* coming before related words, and *following gestures* coming after related words. See Chui (2005) for a detailed discussion of the temporal issue in Chinese conversation.

Since the preparation and the stroke phase are relevant to unfolding information in speaking, both will be analyzed in this study. Whether the hands return to the rest position, i.e. the retraction phase, right after the stroke is not the main concern here.

## 2.2 Types of gestures

The obligatory stroke phase determines the interpretation and categorization of hand movements. I have distinguished five types of gestures: *iconic gestures* whose meanings correspond to the semantic content of the related speech, *metaphoric gestures* for abstract ideas, *deictic gestures* pointing at referents in the immediate speech environment, *spatial gestures* manipulating the gesture space to depict a spatial relation between the linguistic constituents, or between the speaker and the linguistic constituent, and *beats* indicating the rhythm of speech. A detailed discussion of categorizing gestures in conversation can be found in Chui (2003).

The five stretches of conversation yielded 1,475 instances of gesture associated

with single words.<sup>1</sup> Their frequency distribution across the five gestural types is presented in Table 1. Compared to the statistics in Chui (2003:123), which were based on three conversations, the data in the present study maintains the same tendencies: Beats always constitute the majority (52.9%) because they are less constrained by the meaning of the associated speech. Of the two types closely related to the semantic content of the affiliated referents, iconics outnumber metaphorics to a large extent, by thirteen times here.

**Table 1: Gestural types**

Iconic gestures	343	23.3%
Metaphoric gestures	27	1.8%
Deictic gestures	158	10.7%
Spatial gestures	167	11.3%
Beats	780	52.9%
Total:	1475	100%

### 2.3 Topicality of utterances

Chui (2001) has proposed *topic chain* to characterize the structuring of spontaneous conversational topics.

Topic chain as a discourse category characterizes text organization based on the semantic relationship between utterances. A sequence of clauses about the same subject matter introduces a topic; a topic, or more commonly, a number of semantically-connected topics then form a topic chain; the topic chains sharing the identical theme further constitute a larger topic chain. (Chui 2001:27)

Topicality of utterances is thus identified within a topic chain. Within a (sub-)topic chain domain, *topical clauses* function to introduce new topics and move the discourse forward; *non-topical clauses* are orientations, descriptions, and digressions concerning a particular topic.

Identifying topical and non-topical clauses is the first indispensable step to study the role gesture plays in conveying different types of information. Gestures taking place

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<sup>1</sup> In the present corpus, thirty-six gestures are related to idea-sized speech units, rather than to single words. Because of rarity, they were excluded from this study. Moreover, to investigate the relationship between a single gestural type and topicality, this study also excluded the 126 instances found to belong to two gestural types, such as the co-occurrence of beats and iconics.

when the speaker unfolds topical information are separated from those that occur as the speaker conveys non-topical information. In example (1), the subject for talk is how hard speaker A's part-time job was at the library, as expressed by the topical clauses from IU1 to IU6 (see Appendix B for the definition of IU), indicating that the speaker had to send a document to different places, from library to Administration Building, then back to the library, and then to the Social Sciences Information Center. The manual forms that accompany these topical clauses include two spatial gestures and two iconic hand shapes for the verbs *na* 'hold' and *song* 'send'. First, at the moment of uttering the verb *na* (IU2), both A's hands rise from the thighs and the arms cross at belly level as if holding a document. In gesturing *song* in IU3, both of the speaker's hands move to the upper right periphery, conveying the idea of sending a document to Administration Building. They move back a bit for the second mention of the same verb in IU5, depicting the action of sending the document back to the library. Finally, the speaker also produces two spatial gestures, locating *xingzhengdalou* 'Administration Building' in the right periphery (IU4) by moving both hands downward once on her right side, and *shezizhongxin* 'Social Sciences Information Center' in the left periphery (IU6) as both hands move in the same way on her left side.

- (1) 1      A: ...Ranhou      wo      jiu%,\_  
                          then      1SG      thus  
      2 →      ...(.7) **na**      yi      ge      gongwen,\_  
                          hold      one      CL      document  
      3 →      ...(.6) **song**      dao%,\  
                          send      to  
      4 →      ...(.7) **xingzhengdalou**,\_  
                          Administration Building  
      5 →      ...(.6) **song**      huilai,\  
                          send      back  
      6 →      ...**song      qu      shezizhongxin**,\_  
                          send      to      Social Sciences Information Center

A: 'Then I took a document, sent (it) to Administration Building. (After that I) sent (it) back (to the library). (Then I) sent (it) to Social Sciences Information Center.'

The following excerpt (2) exemplifies a metaphoric gesture. The talk centers on the power struggle between the teacher and students in class. It has two major events moving the topics from the classroom being an arena of power (IU1-2) to the need to have the power balanced (IU4, 5, 7). For speaker A to move her left hand level to the

left periphery during the 0.7-second pause (IU7), with the palm facing down and fingers extended, for the verb-to-be-uttered *pingheng* ‘balance’, illustrates a metaphorical extension from the domain of making something level, as literally represented by *ping* of *pingheng*, to the domain of making something equal.

- (2) 1 A: ... Nanguai renjia dou gen wo shuo, \_  
no wonder people all with me say  
2 ..jiaoshi shi yi ge quanlichangyu,\  
classroom COP one CL arena of power  
3 D: (0)<P m= P>, \_  
Mm  
4 A: (0) Ni%,\  
2SG  
5 .. jiu[shi%],\  
that is  
6 D: (0)[hm],\  
Hm  
7 → A: ...(.7)[[yao qu]] **pingheng** ta, \_  
have to go balance 3SG  
8 D: [dui],\  
right  
9 ..dui,\  
right  
A: ‘No wonder people say to me (that the) classroom is an arena of power,’  
D: ‘Mm.’  
A: ‘You, that is,’  
D: ‘Hm.’  
A: ‘have to balance it.’  
D: ‘Right, right.’

Different from the topical gestures just mentioned, those in the following examples are produced when the speakers are conveying non-topical information. First, the participants in (3) are discussing how to organize the departmental gathering to be held at the end of the semester, and finding a good place is a major subject matter. The clause about Qixian Building, which allows students to cook (IU4-6), is non-topical, since it functions as a reason, being marked by the conjunctive *yinwei* ‘because’, for the previous topical statement (IU1-3) about changing the place to Qixian Building. There

are two hand shapes for the co-expressive verb *jian* ‘fry’ in the causal clause: Every time the speaker produces *jian*, her right hand at shoulder level sweeps downward to the left side one time with the fingers closed in, as if to fry something with a cooking utensil. These ‘frying’ gestures are iconic, but unlike the ones for *na* ‘hold’ and *song* ‘send’ in (1), they were counted as non-topical gestures.

- (3) 1 C: ...Ni <A zhidao A>,\_  
2 2SG know  
3 ..women xianzai xiang yao huandao,\  
4 1PL now think want change  
5 3 ..^qixianlou,\_  
6 Qixian Building  
7 4 ...**Yinwei** qixianlou,\_  
8 because Qixian Building  
9 5 → ..keyi **jian** dan%,\  
10 can fry egg  
11 6 → ...**jian** huotui,\  
12 fry ham
- C: ‘You know, we now want to change (the place) to Qixian Building, because (we) can fry eggs and ham at Qixian Building.’

In the following stretch of speech (4), the participants are talking about Chinese with mixed blood. For speaker A to recall how people reacted when she went out with such a person (IU1-4) is a topical event in this subject of conversation. The next rhetorical question (IU6-8) functions to elaborate on people's reactions, explaining that people usually felt strange toward Chinese kids going out with a foreign kid. As the speaker elucidates, two co-occurring hand movements are performed to depict a spatial relationship between *yi qun zhongguo xiaohaizi* 'a group of Chinese kids' and *ge waiguo xiaohaizi* 'a foreign kid': The speaker splits the gesture space with her hands rising from the thighs to chest level. She first locates the Chinese kids by moving the hands to the space on her right side while uttering the first syllable *zhong* of the nominal *zhongguo xiaohaizi*. Then she locates the foreign child by moving the hands to the space on her left side at the time she produces the verbal *dai* 'take'. These two spatial gestures are also non-topical.

- (4) 1     A: ...(.5) Women   xiaoshihou   a,\_  
                                  1PL       be.little     PRT
- 2           .. mei       ci       guangjie,\_  
                  every    time    go window-shopping
- 3           .. ranhou   gen    ta       chuqu    wan    a,\  
                  then    with   3SG    go out   play   PRT
- 4           ..[bieren]   dou    hui       juede    hen    qiguai.\  
                  others   all    will    feel    very   be.strange
- 5           B: [hm],\  
                  Hm
- 6 →     A: .. Wei<A shenme   yi       qun    zhongguo   xiaohaizi,\  
                  why                   one   CL    Chinese    kid
- 7 →     .. dai       ge       waiguo    xiaohaizi,\  
                  take   CL    foreign    kid
- 8           .. ni       zhidao    ma?/  
                  2SG    know     QST
- A: ‘(When) we were little, every time (we) went window-shopping...  
 (we) went out with her for fun, people (would) feel very strange  
 (about it).’
- B: ‘Hm.’
- A: ‘(They would think) why a group of Chinese kids took a foreign  
 kid, you know.’

The last example (5) illustrates two occurrences of beats in a topical clause, as well as one metaphoric gesture in a non-topical clause. The conversational topic here is on nationalism. While the speaker talks about the topical information that the future is very important for realizing nationalism in Taiwan (IU1-2), two *topical* beats are performed by flicking the speaker’s left hand down from chest level for the pronominal *wo* ‘I’ (IU1), and then to the right for the adverbial *ye* ‘also’ (IU2). Non-topical information can be found in the next clauses (IU3-10) which, as a whole, function as a reason, also marked by *yinwei* ‘because’, to account for the previous main idea. The reason is that Taiwan should have a prospect of a new culture, despite the fact that people also want to find their roots. The *non-topical* hand movement for the nominal *genyuan* ‘root; origin’ (IU6) conveys a metaphorical extension from the domain of plant to the domain of human origin. While speaker A verbalizes the first syllable of *genyuan*, the fingers of her left hand are wide open downward to represent the roots of a plant growing into the soil, just like the human origin forming the base of a person.



- (5) 1 → A: ...<sup>^</sup>Wo juede%,\_  
           1SG feel
- 2 → ...(.7)wanghou kan ye shi hen zhongyao,\  
           future see also COP very important
- 3 → .. Yinwei ni yao,\  
           because 2SG want
- 4 ...(.6)ni shi yao% --  
           2SG EMP want
- 5 ...<sup>^</sup>qu,|  
           go
- 6 → .. xunhui ni de genyuan meicuo,\  
           find. finish 2SG POSS root be.NEG.wrong
- 7 .. Keshi ni,\  
           but 2SG
- 8 .. ye%,\  
           also
- 9 .. tongshi ni ye yao,\  
           at the same time 2SG also should
- 10 .. qu zhanwang xin wenhua,\  
           go have a prospect new culture

A: ‘I think (it is) also very important to face the future, because you want...you want to find your root, (which) is not wrong, but you also... also, at the same time, should have a prospect of a new culture.’

The examples provided in this section show clearly that the five types of gestures can take place in both topical and non-topical contexts. Whether they exhibit a preference for a certain kind of information will be pursued in the next section.

### 3. Findings

#### 3.1 Gesture and topicality

How do Chinese speakers gesture while presenting topical and non-topical information? The frequency distribution of the five types of speech-accompanying hand shapes vis-à-vis topicality is given in Table 2. The statistics show that the speaker gestures more while uttering non-topical information, regardless of gestural types. The average predominance of non-topical gestures, at 63.4%, may be due to the fact that

backgrounded, non-topical clauses are usually the majority in daily chats. In Chui's (2001:87) study, she finds that this kind of clause constitutes 71.4% in four stretches of conversation. Despite the quantitative difference, this paper rather pursues the qualitative difference between gesturing in topical and non-topical contexts.

**Table 2: Topicality and gestural types**

	Topical		Non-topical		Total	
Iconic gestures	140	40.8%	203	59.2%	343	100.0%
Metaphoric gestures	5	18.5%	22	81.5%	27	100.0%
Deictic gestures	52	32.9%	106	67.1%	158	100.0%
Spatial gestures	77	46.1%	90	53.9%	167	100.0%
Beats	266	34.1%	514	65.9%	780	100.0%
Total:	540	36.6%	935	63.4%	1,475	100.0%

The statistics in Table 2 also do not support McNeill's (1992) finding that iconic gestures in his narrative data occur overwhelmingly in narrative clauses, as iconics produced for topical referents in Chinese conversation are just a minority (40.8%). Concerning the idea of *communicative dynamism* proposed by Levy & McNeill (1992) and McNeill & Levy (1993), utterances that function to push the communication forward can be equivalent to topical clauses in the present study, while gestural complexity can refer to iconic and metaphoric gestures in particular. But contrary to what they claim, these two types of hand movements, together with the other three types, do not predominate in topical contexts in Chinese; most of them co-occur with utterances that do not "push the communication forward." In short, initiating which type of gesture to use is not related to the topicality of clauses.

### 3.2 Information state, gesture, and topicality

McNeill & Levy (1993) have proposed that gesturing can be affected by the information state of associated referents. This section thus investigates the relationship among information state, gesture, and topicality. The information state of nominal and verbal referents in the main clause will be considered. The flow of information throughout a discourse is a dynamic process, in that the varied aspects of information might change in the course of communication. A referent was analyzed as *new*, if it had never been brought up in the previous context at the moment of speaking; a referent was analyzed as *given*, if it had already previously been brought up at the moment of utterance. In this study, nouns and verbs were analyzed and combined for tabulation.

Does the given/new distinction differentiate gesturing for topical and non-topical

information? Table 3 presents the frequency distribution of given and new referents across the five types of gestures vis-à-vis topicality. The data were analyzed using chi-square tests.

**Table 3: Gesture, topicality, and information state**

Topical clauses					
	Given		New		Total
Iconic gestures	29	22.7%	99	77.3%	128 100%
Metaphoric gestures	1	20.0%	4	80.0%	5 100%
Deictic gestures	42	84.0%	8	16.0%	50 100%
Spatial gestures	34	50.7%	33	49.3%	67 100%
Beats	74	46.0%	87	54.0%	161 100%
Total:	180	43.8%	231	56.2%	411 100%

  

Non-topical clauses					
	Given		New		Total
Iconic gestures	78	40.4%	115	59.6%	193 100%
Metaphoric gestures	7	38.9%	11	61.1%	18 100%
Deictic gestures	86	81.9%	19	18.1%	105 100%
Spatial gestures	42	49.4%	43	50.6%	85 100%
Beats	141	50.0%	141	50.0%	282 100%
Total:	354	51.8%	329	48.2%	683 100%

The correlation between information state and topicality is not statistically significant for metaphoric, deictic, spatial, and beat gestures.<sup>2</sup> In fact, regardless of topicality, metaphoric gestures mainly accompany new referents (65.2%, 15 out of a total 23); the overwhelming majority of deictic gestures co-occur with given referents (82.6%, 128 out of 155); spatial and beat gestures do not show a distinct preference, since the proportion of given to new referents is about equal. The  $\chi^2$  value for iconic gestures, on the other hand, is highly significant.<sup>3</sup> 77.3% of all gestured referents in topical utterances convey new information; the percentage is reduced to 59.6% in non-topical utterances.

Moreover, according to McNeill & Levy (1993), speakers would not produce gestures for highly presupposed linguistic elements, i.e. referents carrying given

<sup>2</sup> The Chi-square tests for the distribution of four types of gestures accompanying given and new referents in topical and non-topical clauses are: metaphoric gestures,  $\chi^2_{.95(1)}=0.615$ ; deictic gestures,  $\chi^2_{.95(1)}=0.103$ ; spatial gestures,  $\chi^2_{.95(1)}=0.027$ ; beats,  $\chi^2_{.95(1)}=0.669$ .

<sup>3</sup> The Chi-square test for the distribution of iconic gestures accompanying given and new referents in topical and non-topical clauses is:  $\chi^2_{.95(1)}=10.92$ .

information, or the gestures would perform a cohesive function. To verify their claim, this study further analyzed the information state of all the nominal and verbal referents in both topical and non-topical clauses for two stretches of conversation. See the frequency distribution in Table 4.

**Table 4: All referents, referents with iconic gestures, topicality, and information state in two stretches of conversation**

All referents							
	Given		New		Total		
Topical referents	336	66.3%	171	33.7%	507	100%	
Non-topical referents	1,050	76.1%	330	23.9%	1,380	100%	

  

Referents accompanied by iconic gestures							
	Given		New		Total		
Topical referents	14	18.9%	60	81.1%	74	100%	
Non-topical referents	55	43.3%	72	56.7%	127	100%	

Among all 336 topical referents conveying given information in Table 4, only 14 instances (4.2%) co-occur with iconic hand shapes. The non-topical counterparts also share the same tendency, in that merely 5.2% (55 instances) out of a total of 1,050 non-topical referents are accompanied by iconic gestures. Thus, McNeill & Levy's (1993) finding is borne out: Chinese speakers also tend not to gesture for old information, be it topical or not. It remains to be seen whether the iconic gestures function to cohere information.

As to the 171 new referents in topical clauses, 35.1% (60 instances) co-occur with iconic gestures, outnumbering the gestured given referents by more than eight times. In non-topical clauses, 21.8% (72 instances) out of a total of 330 new referents are gestured, four times as many as those conveying old information. In short, speakers are inclined to initiate manual actions while presenting new information. What kind of new information they would gesture for depends on topicality, since speakers are even more likely to produce gestures for new topical information.

### 3.3 Temporal synchrony, gesture, and topicality

Based on the finding that the information state of referents is relevant to the use of iconic gestures in topical clauses, this section focuses on new information and iconic hand shapes only, investigating how gestures are patterned temporally with the affiliated words vis-à-vis the preparation and the stroke phase in both topical and non-topical

contexts. While new topical referents are more noteworthy, the questions are: Do gestural strokes and the affiliated topical speech tend to be produced at the same time to increase expressivity? Or do they often come before speech to signal that the upcoming referents deserve attention? For the same reason, are onsets more likely to occur in topical clauses?

First of all, not every hand shape includes the preparation phase because of its optionality. Of a total of 99 iconics accompanying new topical referents, 29.3% (29 instances) have onsets. In non-topical clauses, the percentage is reduced to 20.9% (24 instances) among all 115 new referents. These statistics seem to suggest that whether the gestures would include onsets is not related to topicality. This will be taken up again when the issue of stroke synchrony is discussed.

At the obligatory stroke phase, gestural strokes can further be distinguished as three types, based on their temporal realization vis-à-vis the accompanying words (see §2.1). Of a total of 214 iconics, the frequency distribution of *synchronizing gestures*, *preceding gestures*, and *following gestures* across topical and non-topical information is shown in Table 5. When the statistics in topical utterances and those in non-topical utterances are compared, the  $\chi^2$  values are found insignificant.<sup>4</sup> The simultaneous realization of speech and gesture comprises a major number of instances of gesture, irrespective of topicality.

**Table 5: Synchronization of iconic gestures and new referents**

	Topical clauses		Non-topical clauses	
Synchronizing gestures	61	61.6%	67	58.3%
Preceding gestures	34	34.3%	44	38.3%
Following gestures	4	4.0%	4	3.5%
Total	99	100.0%	115	100.0%

In fact, topicality does play a role in timing speech and gesture by considering the preparation and the stroke phase together. Table 6 shows the occurrence of onsets that synchronizing, preceding, and following gestures have in the two types of clause. While the new topical information is noteworthy, onsets or strokes prior to speech should be more common in topical utterances to signal that the upcoming information deserves attention. This is evidenced by the statistics in Table 6. First, there are a lot more onsets for synchronizing gestures in topical clauses (29.5% vs. 17.9%). Second, despite the fact that more onsets for preceding gestures occur in non-topical clauses (25% vs. 17.6%), for the strokes to be produced before the referents already fulfils the function.

<sup>4</sup> The Chi-square test for the distribution of *synchronizing*, *preceding*, and *following* gestures accompanying new referents in topical and non-topical clauses is:  $\chi^2_{.95(2)} = 0.369$ .

Finally, when the strokes come after speech, most of them have onsets in topical clauses (75% vs. 25%). In short, the timing of iconic gestures and new referents distinguishes topical and non-topical information.

**Table 6: Synchronization of iconic gestures, new referents, and onsets**

Topical clauses			
	Total	With onset	
Synchronizing gestures	61	18	29.5%
Preceding gestures	34	6	17.6%
Following gestures	4	3	75.0%
Non-topical clauses			
	Total	With onset	
Synchronizing gestures	67	12	17.9%
Preceding gestures	44	11	25.0%
Following gestures	4	1	25.0%

#### 4. General discussion

Topicality is a fundamental universal property of text organization. This paper has examined the relationship between topicality of utterances and gestural use in Chinese conversation. It is found that gestural types *per se* do not distinguish topical and non-topical information, since their respective occurrences in topical and non-topical contexts are similar. However, when the information state of the associated referents is considered, the use of iconic gestures is found to be related to this textual notion: Chinese speakers mainly gesture iconically for new information in topical clauses. The patterning of given and new information accompanying metaphoric, deictic, spatial, and beat gestures, however, is similar across the two types of clauses. Finally, speakers rarely produce manual movements while conveying given information, be it topical or not. Based on the finding that the information state of referents is relevant to the use of gesture, the temporal patterning of iconic hand shapes and the associated new referents further distinguished topical and non-topical information: Either onsets tend to occur in topical clauses or strokes would come before topical referents. Both function to signal that the upcoming new information is noteworthy and deserves attention. In short, do we have topical gestures? The answer is positive. Topical gestures in Chinese conversation refer to iconic hand movements that accompany new referents in topical clauses.

The results suggest a close relationship between speech and gesture. Chui (2001) has shown that foregrounded topical clauses are structured differently from backgrounded

non-topical clauses. In other words, while speech structures in various ways in accordance with different types of textual information, it is no coincidence that the use of speech-associated iconic gestures also varies in topical and non-topical contexts. Speaking and gesturing must be different manifestations of a single underlying process of utterance production: They are in close association in terms of phonemic clauses, tone units, breath groups, or syntagmata (Kendon 1983), or based upon the very close temporal, semantic, pragmatic, pathological, and developmental parallels between speech and gesture (McNeill 1985, 1992).

Furthermore, many studies have shown that discourse plays a role in the unified system of gesture-utterance formation. As mentioned in §1, the functions of interactive gestures go beyond the semantic content of speech, and lie mainly in the interaction between speaker and addressee (Bavelas et al. 1992). Gestures can also signal topic shift and information state (McNeill & Levy 1993), or facilitate lexical retrieval (Butterworth & Hadar 1989, Hadar & Butterworth 1997, Morrel-Samuels & Krauss 1992). Pragmatic gestures in Kendon's (1995) study are concerned with utterance structure or speech acts. Examining gesture and speech together "can track the changes in a speaker's ongoing contextual thinking throughout a discourse" (Dray & McNeill 1990:477). Streeck (1995:87) claims that 'moment by moment, the speaker's gestures prefigure the next moment, allowing the participants to negotiate joint courses of action until, finally, a communication problem is solved collaboratively.' The findings of the present study also suggest a pragmatic dimension for the imagistic-linguistic conceptual framework in determining what gestural type would be used and how it coordinates with speech in communication. While iconic gestures exhibit images that are semantically parallel to the associated speech, providing conceptual imagery for the content of the utterance-in-progress, their use in Chinese conversation has to take into account whether the speaker is uttering topical or non-topical information, whether the related referent carries new or old information, and whether the information is newsworthy or not. These various aspects of information for verbalization are bound to context, and they have to be incorporated in the process of producing speech-associated gestures along with speech.

Gestures are part of the discourse (McNeill 1992). Studying gesture in spontaneous conversation is thus crucial to understanding the intricate relationship among gesturing, linguistic expressions, and language use, through which we can know more about the face-to-face communication and the cognitive unity of speech and gesture.

## **Appendix A: Abbreviations of linguistic terms**

1PL	first person plural
1SG	first person singular
2PL	second person plural
2SG	second person singular
3PL	third person plural
3SG	third person singular
ACMPL	accomplishment aspect
ASSC	associative morpheme
BA	the morpheme BA
BC	backchannel
CL	classifier
COMPARE	compare morpheme
COMPL	complementizer
COP	copula verb
DLM	delimitative aspect
EMP	emphatic adverbial
EXP	experiential aspect
NEG	negative morpheme
PF	pause filler
POSS	possessive
PRF	perfective aspect
PROG	progressive aspect
PRT	discourse particle
QST	question particle
REPAIR	repair phoneme(s)
SELF	reflexive morpheme



## Appendix B: Transcription conventions

‘Intonation unit’ is defined as a stretch of speech uttered under a single coherent intonation contour, which tends to be marked by a pause, a change of pitch, and a lengthening of the final syllable (Du Bois et al. 1993).

Relevant expressions in examples are in boldface; the lines where the relevant expressions in question appear are marked by the arrow sign ‘→’.

<u>Units</u>	{carriage return}	intonation unit
	--	truncated intonation unit
	{space}	word
	-	truncated word
<u>Speakers</u>	:	speaker identity/turn start
	[]	speech overlap
<u>Transitional continuity</u>	.	final
	,	continuing
	?	appeal
<u>Terminal pitch direction</u>	\	fall
	/	rise
	—	level
<u>Accent and lengthening</u>	^	primary accent
	=	lengthening
<u>Pause</u>	...(N)	long
	...	medium
	..	short
	(0)	latching
<u>Vocal noises</u>	(H)	inhalation
	%	glottal stop
	@	laughter
<u>Quality</u>	<@ @>	laugh quality
	<A A>	allegro: rapid speech
	<P P>	piano: soft
	<DIM DIM>	diminuendo: gradually softer

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## 中文會話中的主題性與手勢的使用

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本研究探討在中文會話中「語句主題性」與「手勢使用」的關係。研究發現每一類的手勢出現在「主題子句」和「非主題子句」的比例是差不多的，所以手勢類型跟語句主題性沒有關係。此外，分析了手勢所對應的語詞，發現當說話者傳達舊訊息，無論是主題性還是非主題性，都很少做手勢。但是，在傳達主題性的新訊息時，說話者較常使用那種跟語詞有直接語意關係的手勢，而且這類手勢大多包括準備階段，或者手勢會出現在對應語詞之前，以提示聽話者注意即將傳達的新訊息。

關鍵詞：語句的主題性，手勢類型，新/舊訊息