Conceptual metaphors in gesture*

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Abstract

This study investigates metaphoric gestures in face-to-face conversation. It is found that gestures of this kind are mainly performed in the central gesture space with noticeable and discernable configurations, providing visible evidence for cross-domain cognitive mappings and the grounding of conceptual metaphors in people’s recurrent bodily experiences and in what people habitually do in social and cultural practices. Moreover, whether metaphorical thinking is conveyed by gesture exclusively or along with metaphoric speech, the manual enactment of even conventional metaphors manifests dynamism in communicating metaphors. Metaphoric gestures can provide salient, additional information about the aspect of the conceptualization which is the speaker’s focus of attention in real-time multimodal communication.

Keywords: Conceptual metaphor, gesture, embodiment, conversational discourse.

1. Introduction

In Lakoff and Johnson’s (1980, 1999) theory of metaphor, “[c]onceptual metaphor is a natural part of human thought . . . [and] which metaphors we have and what they mean depend on the nature of our bodies, our interactions in the physical environment, and our social and cultural practices” (Lakoff and Johnson 1980: 247). Such embodied view of conceptual metaphors has been supported by a large amount of evidence from linguistic expressions in different

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languages. Despite the fact that metaphors in language are ubiquitous, Murphy (1996, 1997) and Glucksberg (2001) remain skeptical about the psychological reality of conceptual metaphors. They argued that using linguistic metaphors does not necessarily mean people do think metaphorically. Conventional metaphors in particular may have already been lexicalized without requiring the use of cross-domain cognitive mappings when people use them. Different sources of evidence were then proposed to refute the criticisms of circularity and lexicalization, among which evidence from psychological and neurobiological research was found to show that people do use sensorimotor experiences to understand metaphorical language and abstract concepts (Gibbs 2006, 2008). That linguistic metaphors shape thoughts can also be substantiated by Boroditsky’s (2000, 2001) priming experiments which found that since Mandarin speakers talk about time in terms of a vertical spatial orientation and English speakers do so in terms of a horizontal spatial orientation, they also think differently about time. Not only did Mandarin speakers perform faster after vertical spatial primes than after horizontal spatial primes, but English speakers’ performance was similar to that of Mandarin subjects after English subjects had been trained to use vertical metaphors. To the English subjects, the novel vertical metaphors influenced their conventional thought. Nonetheless, whether this new way of thinking about time will become the subjects’ habitual conceptualization rests upon whether people repeatedly think about time vertically. In neuroscience, connections between the relevant sensorimotor areas of the brain and abstract conceptualization were also observed (Boroditsky 2000, 2001; Boroditsky and Ramscar 2002; Gallese and Lakoff 2005).

In gesture studies, “[e]xamination of real-time gestural production . . . is particularly useful in cases where the data are ethnographic rather than experimental; gesture is always there, and visibly present in the videotaped data” (Núñez and Sweetser 2006: 3). The specific manifestation of a metaphor in the use of the hands thus provides independent visible evidence of metaphorical thinking, and supports the embodied nature of this pervasive cognitive phenomenon in communication (Cienki 1998; Cienki and Müller 2008; Gibbs 2008). In Example (1) below, the conversational topic is tea processing, and M1 is saying that the procedure is important. The word *guocheng* ‘procedure’ (Line 3) is conceptualized as an object by use of the hands: M1 first has the left leg placed across the right leg. After uttering the quantifier *henduo* ‘a lot’ (Line 1), just prior to the clause in which he will utter *guocheng*, he moves his right hand away from his left ankle to chest level. The left hand follows after the production of the copula *shi* (Line 3), rising to chest level from the thigh. During the 0.5-second pause between the copular *shi* and *guocheng*, both hands are held apart with the palms facing one another and the fingers are slightly curled, as if holding onto an object. This gesture with noticeable and discernable con-
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figuration iconically plays out the object concept in the source domain; what it represents is the tea-processing procedure in the target domain. Moreover, the whole manual configuration reveals people’s understanding of a non-physical event in terms of an object with boundaries. It is a gestural instantiation of the Object Schema, in that “[w]e experience ourselves as entities, separate from the rest of the world. . . . And when things have no distinct boundaries, we often project boundaries upon them—conceptualizing them as entities” (Lakoff and Johnson 1981: 313).

(1) M1: . . . danshi wo shuo zhende. . wo cha. . bushi
     but 1SG tell real 1SG tea NEG
dongde henduo
understand a lot

2 after henduo, right hand rises from left ankle to chest level ([a]–[b] in Figure 1)

3 . . .wo zui zhuyao shi. . (0.5) guocheng la
     1SG most important COP procedure PRT
guocheng ‘procedure’: after shi, left hand starts rising from thigh to chest level ([c] in Figure 1)

5 during the 0.5-second pause, both hands are held apart with palms facing one another ([d] in Figure 1)

M1: ‘But to tell the truth, I don’t really know a lot about tea. I . . . the most important thing is the procedure.’

Figure 1.  Gestural depiction of the tea-processing procedure (See video clips online for Figure 1–8. http://dx.doi.org/10.1515/COGL.2011.017_suppl_1)
Forceville (2009) investigated non-verbal metaphors in various modes of communication, such as pictures, music, sounds, and gestures. The present study rather focuses on metaphors as conveyed by hands and arms. Metaphoric gestures have been classified as ‘ideographs’ (Efron 1972 [1941]), ‘ideo-graphics’ (Ekman and Friesen 1969; Rimé and Schiaratura 1991), a type of ‘characterizing gestures’ (Kendon 1989) or ‘substantive gesturing’ (Kendon 1995), a type of ‘ideational gestures’ (Hadar et al. 1998), or ‘metaphorics’ (McNeill 1992). The hold-an-object gesture in Example (1) also appeared at the metanarrative level in McNeill’s (1992: 14) narrative data, in that the speaker metaphorically presented the abstract cartoon genre in form of a bounded object while uttering ‘It was a Sylvester and Tweety cartoon’. Cienki (1998) investigated American college students’ metaphoric gestures for honesty and dishonesty. Núñez and Sweetser (2006) examined how Aymara speakers gesture the time-is-space metaphor. More studies can be seen in Metaphor and Gesture (2008), examining the gestural representations of metaphorical concepts in English narratives (McNeill 2008), conversation-interviews (Cienki 2008; Müller 2008), French television interviews (Calbris 2008; Montredon et al. 2008), English class instructions in elementary schools (Williams 2008), English lectures in college (Mittelberg 2008; Núñez 2008), and in an experiment (Parrill 2008). The aim of the present research is to investigate metaphorical gestures in the natural spontaneous face-to-face interactions in Chinese conversation to gain more insights into how people conceptualize concepts in a metaphorical way in their daily communication. Metaphors in gesture also provide empirical and visible evidence for the underlying embodiment of metaphorical thoughts. They further bear out the dynamic nature of metaphorical cognition, in that their real-time manifestations indicate which aspect of the conceptualization is the speaker’s focus of attention at the moment of speaking.

The next section introduces the data used in this study. Section 3 presents the empirical analysis of the imagistic representations of conceptual metaphors in gesture. Based on the findings, Section 4 provides a general discussion on the relationship between language and gesture in communicating conceptual metaphors.

2. Data

The NCCU Corpus of Spoken Chinese is a project of language documentation which collects and archives spoken forms of Mandarin, Taiwanese, and Hakka in Taiwan (Chui and Lai 2008). The sub-corpus of spoken Mandarin contains short oral narratives and daily face-to-face conversations. The cartoon narrations were recorded in 2002 and ranged from about two to ten minutes in length. With regard to conversations, some data were collected during 1994
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1. The participants were college students who knew each other. Further casual conversations among family members, friends, and colleagues have been videotaped since 2006, and this portion of data can be accessed online. All the participants were paid, and they were not told the particular focus of the research. The participants were free to find and develop topics of common interest; they were filmed for approximately an hour with a visible camera. One stretch from each talk, of about twenty to forty minutes, in which the participants were comfortable in front of the camera, was then selected for transcription. A further project related to the NCCU Corpus of Spoken Mandarin is a gestural analysis of the transcribed narratives and conversations. The data used in this study come from two of the conversations: one is about tea processing and military service; the other is about love affairs in high school.

Besides hands and arms, other body parts can also be involved in conveying metaphorical thoughts. For instance, in a discussion of the publication of departmental address books, when one participant realizes that their address books merely have fifty pages whereas those of another department contain one hundred pages, she expresses the abstract idea of her shock and surprise by the linguistic metaphor *tu-xie* ‘vomit-blood’ and performs simultaneously a whole-body physical action by falling down to the ground from her chair, as if becoming unconscious. “Metaphoric gestures like these are parodies of well known body routines and convey a rich set of meanings that would be impossible to communicate via words” (Gibbs 2008: 299). The present study, nevertheless, focuses on the hand and arm movements only. Future research is needed to study the *tu-xie* type of metaphoric gesture.

The speech and the gesture data relevant for the present study were separately coded by two trained coders. Data were re-analyzed and discussed in the case of disagreement. Data without consensus were not used.

3. Gestural representations of conceptual metaphors

In multimodal communication, metaphorical thoughts can be expressed by speech and by hands. Of particular interest here are metaphors in gesture, and there are two ways to manifest metaphors, namely (a) metaphoric gestures with metaphorical speech and, (b) metaphoric gestures with literal speech. They will be discussed accordingly in this section.

3.1. Metaphoric gestures with metaphorical speech

Cienki (1998) discussed metaphors in a study of gestural representations of honesty and dishonesty, including *truth-is-straight, considering-the-
importance-of-different-factors-is-weighing-different-objects, situational-factors-are-objects, and an-event-in-time-is-movement-through-space. The subjects also used two gesture spaces to stand for good and bad moral behavior symbolically. Gestures of this kind are ‘metaphors utilizing space’ (McNeill 1992) or abstract pointing (Kendon 2004). These types of gestures are not considered here, since they do not bear a direct semantic relationship with the lexical constituents or the speech events at issue.

This section presents empirical data in our corpus showing that people not only perform metaphoric gestures while they talk metaphorically, but that manual configurations can also reveal the speaker’s real-time focus of attention, “indicat[ing] which facets of an overall conception are active at a given moment, thus providing clues to the shifting of attention in online processing” (Langacker 2008: 249).

object gesture

Example (1) has provided gestural evidence to represent the concept of ‘procedure’ as a referring entity. The object gesture in the following Example (2) further depicts the quantifying aspect of the abstract referent under discussion: As F3 produces the conjunction fanzheng ‘anyway’ in Line 1, she raises the left hand and forms a cupped shape with slightly curled fingers at waist level, as if holding a small object in her hand. Then, at the moment of uttering the two syllables in gao-zhong ‘high school’, all the digits are drawn together and their tips come in contact with one another two times. These movements as a whole manifest the conceptualization of high-school love affairs, being linguistically expressed by the demonstrative naxie ‘those’ in the first clause (Line 1), as a discrete object, and, at the same time, the gesture also serves to indicate that F3 did not have a lot of romances at that time. What is significant in this example is that the manifestations of the same metaphor across the two modalities highlight different aspects of conceptualization. The high-school-love-affairs-as-objects metaphor in speech is used to characterize the romances as bushi hen mingxian ‘not very obvious’ and aiaimeimei ‘vague’ in Line 4, whereas the same metaphor in gesture focuses on the frequency of the occurrences.

(2) 1 F3: . . fanzheng jiushi ni. . gaozhong jiushi naxie

   anyway that is 2SG high school that is those

   ma. . ye

   PRT also

2 naxie ‘those’: at fanzheng, left hand rises and forms cupped shape at waist level ([a]–[b] in Figure 2)

3 small quantity: at gaozhong, tips of all digits come together two times ([c]–[e] in Figure 2)
Personification is another kind of metaphor used “to comprehend a wide variety of experiences with nonhuman entities in terms of human motivations, characteristics, and activities” (Lakoff and Johnson 1980: 33). M1 in Example (3) first mentions that the tea leaves have to be placed on a piece of silk which is then tied up to make a bundle before fermentation in a machine (Line 1). The piece of silk used in this way is known as tekin ‘tea towel’ (Line 2). The design of the machine is such that the bundle will be subject to hard handling as it is raised up inside the machine and then falls down again. To conceptualize the idea that the tea towel can endure the incessant rotation in the tea-processing machine without being damaged, the speaker personifies the action to which the tea towel is subjected. And, in addition to using the two verbs zhemo ‘to torture’ (Line 8) and lingnüe ‘abuse’ in speech (Line 10), what the speaker imagines real-time about such ‘bad behavior’ is only enacted physically by manual actions: M1 explains in Line 5 that the tea towel is rotated in the machine by performing a rotating gesture in front of the chest two times ([a] in
Figure 3). Then while *zhemo* is uttered, his right hand in a fist rises to shoulder level and then his arm thrusts down, as if hitting somebody. The same punching action is performed even more forcefully during the production of *lingnüe* to depict the infliction of great physical pain on a person.

(3) 1 M1: \ldots (0.6) ranhou jiu fang zai cha qiú limian then then put at tea ball inside a.\ldots (0.7) jiu fang zai.. PRT then put at

2 \<L3 tekin L3> la.. nage dou shi si tea towel PRT that all COP silk zuo de a. hen make PRT PRT very

3 nai.\ldots (0.7) hen nai.\ldots (1.6) \<L3 tsiok nai endure very endure very endure phun L3> a @ @ rotate PRT

4 M3: \ldots (1.0) \<L3 phun L3> rotate

5 M1: \ldots jiushi rang ta *zhuan* that is let 3SG rotate

6 *zhuan* ‘rotate’: left open palm faces up at waist level; right hand in a fist, facing down at chest level, moves clockwise two times ([a] in Figure 3)

7 M3: \ldots huh BC

8 M1: \ldots ni. zenmede. *zhemo* ta 2SG whatever torture 3SG

9 *zhemo* ‘torture’: right hand in a fist rises to shoulder level and thrusts down ([b]–[c] in Figure 3)

10 \ldots *lingnüe* ta. ta dou hen.\ldots hen.\ldots bu hui.\ldots abuse 3SG 3SG all very very NEG will dou bu hui po all NEG will break

11 *lingnüe* ‘abuse’: right hand in a fist rises to shoulder level and then thrusts down ([d]–[e] in Figure 3)

12 jiu dui le then right PRT
M1: ‘Then put the dried leaves into a tea ball . . . wrap them up with a tea towel. That is made of silk. That can endure . . . endure . . . endure the rotation to a great extent.’
M3: ‘Rotate.’
M1: ‘That is, let the tea towel rotate.’
M3: ‘Huh.’
M1: ‘No matter how you torture it and how you abuse it, it . . . it . . . very . . . very . . . will not . . . will not break at all.’

orientation gesture

Orientational metaphors are commonly used to convey metaphorical thoughts. Gestures readily provide spatial orientations for abstract concepts like ‘being bogged down in a love relationship’ in Example (4). The container metaphor with boundaries and an in-out orientation (Lakoff and Johnson 1980: 29), as well as the bad-is-down metaphor are linguistically represented by the verb xianru ‘fall into/be bogged down in a mess’ (Line 4) to stand for getting into a hypothetical, difficult situation if F2 had formed a connection with a male friend. At the same time, the speaker’s right hand, which is already in a full stretch to the front in the upper right periphery (see the division of the gesture space in McNeill 1992), comes straight down to waist level. The orientation of the hand offers visible evidence for the action of going down into a receptacle; what it metaphorizes is the idea of lapsing into a complicated love affair.

(4) 1 F1: . . .jiaru shuo. . . ni gen na nande. . you qu if say 2SG with that man PRF go
lianluo zheyang
contact like this

2 F2: (0) dui a
right PRT

3 F1: (0) ranhou ni zai qu. . zhao ta haishi
then 2SG again go find 3SG or
ganme.. . jiushi shuo...
do what that is say

4 ni hen rongyi hui xianru
2SG very easy will fall into

5 at rongyi, right arm is extended to front at head level ([a]–[b] in
Figure 4)

6 xianru ‘fall into’: right hand comes straight down to waist level ([c]
in Figure 4)

F1: ‘If you still had had contact with the guy,’
F2: ‘Right.’
F1: ‘then, you had seen him again or whatever, that is, it would have
been easy for you to be bogged down in a mess.’

![Figure 4](image-url)

**Figure 4. Gestural depiction of ‘be-bogged-down in a mess’**

**spatialization gesture**

TIME-IS-SPACE is a universal spatialization metaphor which has social and cul-
tural bases. “Our physical and cultural experience provides many possible
bases for spatialization metaphors. Which ones are chosen, and which ones
are major, may vary from culture to culture” (Lakoff and Johnson 1980: 19).
Aymara speakers, for instance, gesture a culture-specific cognitive pattern that
future-is-behind-ego and past-is-in-front-of-ego (Núñez and Sweetser 2006).
In the Chinese culture, both the horizontal front-back and the vertical up-down
orientation are found in the metaphorical conceptualization of time. The front-
back orientation further suggests two different types of temporal thinking, depending on the speaker’s choice between the time-moving and the ego-moving perspective. The front-back orientation with the time-moving perspective can be seen in Example (5). The others will be discussed in the next section. The subject of the talk in the excerpt in (5) has to do with growing different kinds of agricultural products between two rows of tea plants. M1 employs the time-moving perspective and tells his interlocutors that the time when crops were grown between the two rows of tea plants is earlier than the time when sweet potatoes were grown. The temporal expression *zhiqian* ‘before’ in M1’s second turn (Line 3) is accompanied by a gesture: To locate the time at which sweet potatoes were grown, M1 first extends his left index finger at chest level and points down while producing the first-person pronominal *women* in Line 3. When *zhiqian* is produced, the time of the growing of crops, which is prior to that of the growing of sweet potatoes, is then depicted by moving the left index finger to the front of the sweet-potato location.

(5)  1 M1: . . women liang hang cha zhongjian . hai yao
     1PL two row tea middle still have to
     zhong fanshu
     grow sweet potato

2 M3: (0) wo zhidao . . ni gen women jiang [ guo ]
     1SG know 2SG with 1PL tell EXP

3 M1: [ dui a ]. . wo gen ni jiang guo ma . .
     right PRT 1SG with 2SG tell EXP PRT
     hai . . women zhiqian
     still 1PL before

4 at *hai*, left hand rises to chest level and index finger extends ([a]–[b] in Figure 5)

5 at *women*, left index finger points down ((c) in Figure 5)

6 *zhiqian* ‘before’: left index finger turns to front and points down
     ([d]–[e] in Figure 5)

7 hai you zhong dao
     still PRF grow crops

M1: ‘Between two rows of tea plants, we still had to grow sweet
     potatoes.’
M3: ‘I know. You told us already.’
M1: ‘Right, I told you already. Still . . . before that, we also grew
     crops.’
The linguistic metaphors discussed in this section are largely conventional, yet their respective imagistic representations bear out the underlying embodied conceptualization grounded in what people habitually do in their bodily interactions and social-cultural practices. Moreover, “metaphor gestures with speech are likely not just communicating redundant information, but . . . express something different” (Gibbs 2008: 296). The different information can be about the force-dynamic properties of the source domain (Cienki 1998: 191) such as the strength of hitting in Example (3), the quantifying aspect of the target concept in Example (2), or the speaker’s perspective in Example (5).

3.2. Metaphoric gestures with literal speech

Metaphoric gestures do not always co-occur with metaphoric speech. For those which are produced without concomitant linguistic representations, metaphorical thoughts cannot be interpreted without perceiving the manual configurations.

Spatialization gestures

In Example (6) the temporal adverbial zuotian ‘yesterday’ in Line 4 carries the literal meaning. Its underlying metaphorical conceptualization is rather expressed by the manual modality. But different from understanding time moving past the speaker horizontally in Example (5), the TIME-IS-SPACE metaphor gestured by the same speaker takes the ego-moving perspective instead. As a result, the spatial orientation of the past time zuotian differs from that of zhiqian: During the pause before zuotian, M1’s both hands are already kept
apart in front of the chest, with both palms slightly facing up, as if holding the dried tea. At the moment the temporal adverbial is uttered, M1’s left hand moves up to shoulder level and then points back with an open-palm. The gesture depicts the conceptualization that the speaker is moving through time horizontally.

(6) 1 M1: . . women nage jiaozuo <L3 tesoo L3> a 1PL that call as dried tea PRT

2 M4: . .(0.6) <L3 tesoo L3> dried tea

3 M3: . .[ ha ] what

4 M1: [<L3 te ] soo L3>. . zuotian. . ai. . wanshang dried tea yesterday PRT night zuoqilai jiao <L3 tesoo L3> do:RESULT call dried tea

5 during the pause before zuotian, both hands are already apart with palms facing slightly up in front of chest ([a] in Figure 6)

6 zuotian ‘yesterday’: left hand moves up to shoulder level and points back with open-palm ([b] in Figure 6)

M1: ‘We called it ‘dried tea’.’
M4: ‘Dried tea.’
M3: ‘What?’
M1: ‘Dried tea. Yesterday . . . it was called ‘dried tea’ . . . when the processing was finished at night.’

Figure 6. Gestural depiction of ‘time-is-space’ with the ego-moving perspective

Besides representing time as in front and in back of ego, Chinese has a third type of orientation in understanding of time in terms of space—verticality. The conceptualization of time as moving up and down is illustrated in Example (7) which is about military-service terms. The period of time which is being
described by M1 in Line 5 is the gap of thirty-two terms of service, periods of sixteen months, between his unit leader and himself when he was doing his military service. This time he makes a gesture for the \textit{time-is-space} metaphor with vertical orientation: After gesturing the action \textit{jinqu} ‘enter (the army)’ by moving the right open palm from the shoulder level down to the chest level ([a] and [b] in Figure 7), M1’s right hand stays in front of the chest with the palm hanging loosely. When the first occurrence of \textit{wo} ‘I’ (Line 5) is produced, the right palm moves toward the speaker’s own body to designate a space for himself and also for his own term of service. Then, the right hand rises up to shoulder level and the index finger is extended. At the time of verbalizing \textit{shifu} ‘unit leader’, M1 points to the front with the index finger to locate the leader and his term. Since each term refers to half a month (Line 10), the lower space in the vertical orientation metaphorically represents the time M1 joined the military unit; the upper space indicates sixteen months back in the past. In Boroditsky’s (2000, 2001) studies of the use of linguistic metaphors of time in Mandarin and English, she found that Mandarin speakers talk about and think about time in terms of up and down more frequently. Since the database used in the present study does not contain many occurrences of spatial metaphors in gesture, whether Chinese speakers prefer gesturing the time metaphor vertically needs future research. Moreover, as mentioned in Section 1, Boroditsky’s experiments found that after the English speakers had learned to use the new vertical metaphors, they performed faster after vertical spatial primes, suggesting the influence of language on thought. On the other hand, it is also common for people to have new metaphorical ideas before they communicate them via language and gesture. More relevant to the present study is the manual manifestation of new metaphors, which deserves further study.

The same speaker in Examples (5), (6), and (7) talks about time in terms of space, but each gestural occurrence reveals a different way to think about time. The forward, backward, and upward gestures bear out the fact that the communication of metaphorical thoughts is a dynamic manifestation in real time.

(7) 1 M1: . . na shihou yinwei women. . .(1.0) xianjie a. . .
      that time because 1PL connect PRT
      nage. . .(0.7) luocha hen
      PF gap very

2 yan[zhong ]. . . wo jin
     serious 1SG enter

3 \textit{jinqu} ‘enter (the army)’: at \textit{wo}, right hand in front of chest
descends from shoulder level to chest level ([a]–[b] in Figure 7)

4 M3: [ huh ]
BC
5 M1: ... wo gen wo shifu cha le...
   1SG with 1SG unit leader differ PRF
   sanshi... (0.6) er qi
   thirty two term

6 at the first wo, right palm moves toward body in front of chest ([c] in Figure 7)

7 at shifu, right hand rises to shoulder level and extended index finger points to front ([d] in Figure 7)

8 M3: ... (0.5) hm
   BC

9 M2: ... oh
   BC

10 M1: ... yi qi shi jiushi ban ge yue
      one term COP that is half CL month

M1: ‘At that time, because we . . . connection . . . there was a big gap. When I entered the army,’
M3: ‘Huh.’
M1: ‘my unit leader and I were thirty-two terms apart.’
M3: ‘Hm.’
M2: ‘Oh.’
M1: ‘Each term of service was, that is, half of a month.’

Figure 7. Gestural depiction of ‘time-is-space’ with vertical orientation
The last metaphor in gesture is concerned with the concept of weighing. Lakoff (2008b: 283) mentions McNeill’s example in which the speaker moves one hand up and the other down several times while deciding between a choice of alternatives in the utterance ‘I couldn’t decide whether to stay at home or go to the movies’. The gesture enacts the metaphor CHOOSING-IS-WEIGHING. In Cienki (1998: 193), the weighing gesture represents the consideration of the importance of different factors along with the utterance ‘It’s like balancing all these things’. In our data, weighing is rather used in comparing the shapes of tea leaves. In the following Example (8), M1 states that the lightly fermented tea is formed after withering (Lines 1 and 2), but before that the leaves can be used to brew tea which is then put in the refrigerator to make a cold drink (Lines 5 and 6). What he says in his last turn (Line 11) is that the leaves of the lightly fermented tea and those of the cold tea have different shapes. The idea of comparison is not expressed in words, but conveyed by a metaphoric gesture grounded in the social practice of weighing objects in daily life. The metaphor is depicted at the time the particle ho ‘okay’ is uttered (Line 11): The right hand first rises from the thigh to the chest level, followed by the left hand. Totally, the speaker moves one hand up and the other down four times while saying that the leaves of the two types of tea are different in shape.

(8) 1 M1: . . .(0.7)zai rang ta ganzao. . jiushi women. .
again let 3PL wither COP 1PL
he de cha le
drink REL tea PRT

2 . . .zhege. .shi. . suoweide. . jiushi
this COP so-called that is
<L3 tshennte L3> a
lightly fermented tea PRT

3 M3: . . .m
BC

4 M2: (0) m
BC

5 M1: . . .wanshang zuoqi lai deshihou. . nage
night do:RESULT when that
<L3 tesoo L3> a . . qishi
dried tea PRT in fact

6 jiu keyi bingqilai. . dang lengdongcha
then can refrigerate:INCHO as cold tea
7 M3: (0) uh
   BC

8 M1: . . . a zhege . . . dier tian . . jingguo zhege
     PRT PF second day go through this
     qingxing ne . . zai
     condition PRT again

9 . . . bingqilai . . ye keyi dang lengdongcha
     refrigerate:INCHO also can as cold tea

10 M3: . . . m
    BC

11 M1: . . ho . . zhishi bu yiyang . . chaxing
      PRT only NEG same tea shape
      bu yiyang
      NEG same

12 at ho, right hand rises from thigh to chest level, followed by left
   hand ([a]–[b] in Figure 8)

13 after ho, both hands move up and down ([c]–[d] in Figure 8); then
   fingers of both hands move up and down ([e]–[f] in Figure 8)

M1: ‘Let the leaves wither again, and then, they are used to brew the
   kind of tea we drink. It is so-called lightly fermented tea.’
M3: ‘Mm.’
M2: ‘Mm.’
M1: ‘When the withering is finished at night, in fact, the dried leaves
   can be used to brew tea which is then put in the refrigerator to
   make a cold drink.’
M3: ‘Uh.’
M1: ‘The next day, after going through such condition . . . again . . .
   refrigerate the tea . . . it can also become cold tea.’
M3: ‘Mm.’
M1: ‘OK, just the shapes of the tea leaves are not the same.’

4. General discussion and conclusion

The empirical research in the present paper provided evidence that metaphorical
thought is readily conveyed by gesture exclusively or along with meta-
phoric speech in daily face-to-face communication. Thus, “[m]etaphors are
mental structures that are independent of language” (Lakoff 2008a: 82).
Nevertheless, many of the linguistic metaphors were substantiated by the
metaphoric gestures in Chinese conversational discourse, including the-
processing-procedure-is-an-object, high-school-love-affairs-are-objects, the-tea-towel-is-a-person, getting-bogged-down-in-a-mess-is-going-down, bad-is-down, and time-is-space. Together with the comparing-is-weighing metaphor, all the metaphoric gestures bear out the grounding of conceptual metaphors in the habitual perceptual and bodily experiences of people in dealing with discrete entities and containers, orientating the bodies, recognizing human traits, and weighing objects.

The iconic manifestations of metaphorical thoughts in the use of the hands provide evidence that the metaphorical expressions are not lexicalized. Psycholinguistic studies of linguistic metaphors have already found that people’s bodily experiences in action affect their performance in the imagination and understanding of metaphorical actions (Gibbs 2006), and that “even highly conventional kinds of metaphors are analyzable to varying extents . . . [and] even the most clichéd metaphoric phrases are not understood through simple retrieval of their meanings stored in a phrasal, mental lexicon” (Gibbs 2008: 295). Gestures also substantiate cross-domain cognitive mappings. The gestural forms are iconic for the source-domain concepts, and they evidence the presence and the real-time activation of the source domain in the mind of the speaker.

Furthermore, the enactment of even conventional metaphors in gesture supports “the dynamic creation, and recreation, of metaphorical thought in the bodily act of online communication” (Gibbs 2008: 292). While they were mainly performed in the central gesture space with noticeable and discernable configurations, metaphoric gestures provide salient, additional information about the aspect of the conceptualization that is the speaker’s focus of attention. In our analysis, time is conceived of metaphorically as space, but choosing
different spatial orientations to express different viewpoints at different moments of speaking is a dynamic online depiction of metaphorical thoughts. The gesture in Example (3) manifests that it is the hitting and punching aspect of treating someone badly that is activated and salient. The hold-an-object gesture in Example (1) is frequently produced, but the OBJECT concept can be realized in another imagistic form—the cupped palm-up open hand gesture in Example (2)—to highlight the quantifying aspect of the concept, while the same linguistic metaphor is used for another purpose—characterizing the target referent.

Finally, the parallel metaphorical mappings of gesture and language bring us to the discussion about the relationship between gesture and language. This issue has been studied in different lines of research. Armstrong and Wilcox (2007) and Wilcox (2008) proposed an evolutionary link between them, in that the origins of human language can be traced to visible gestures. The neural integration of gesture and speech is supported by many neurolinguistic studies using neuroimaging techniques, among which Özyürek et al. (2007a) fMRI study showed that action and language processing share a high-level neural integration system: Broca’s area can be modulated by action processing, and the premotor cortex can be modulated by the language context including physical actions. Gallese and Lakoff (2005) found that observing a metaphoric gesture may activate certain motor regions of the brain that could be linked to the embodied source domains of many metaphoric concepts. Lakoff (2008a, 2008b) also interpreted how metaphoric language and metaphoric gesture work in the brain with respect to the recent findings in neuroscience, such as mirror neurons, neural binding, and convergence zones. The evidence for cognitive linkage is based on various areas of research including gesture (see the editorial by Özyürek and Kelly 2007b, and the discussion in Núñez 2008: 94–95 and Núñez and Sweetser 2006: 19–20). The findings of the present study support such a cognitive connection between the linguistic and imagistic representations of metaphors. The question then arises as to whether co-occurring gestures are best considered part of language structure. There is no consensus, but the findings here support the general view among the studies in Metaphor and Gesture (2008) that gesture and language are parts of the same system; “gesture is an inherent part of language—gestures work as signs communicating thought” (Lakoff 2008a: 284).

In the future, novel metaphoric gestures and metonymic gestures are worth investigating, since they can also reveal people’s creativity and dynamism in conceptualization, and the speaker’s focus of attention in real-time multimodal communication.
Appendix

Gesture and speech transcription conventions

Transcription of speech

[ ] speech overlap
. . .(N) long pause
. . . medium pause
. . short pause
(0) latching
@ laughter
<L3 L3> code-switch to Taiwanese

Transcription of gesture

For the representation of gesture in examples, the lexical affiliate(s), if there is/are any, is/are in boldface. The description of the gesture(s) is given under the line of accompanying speech. In each gestural description, if there is a colon, the word(s) before it represent(s) the linguistic referent a gesture is associated with; the description of the manual movement comes after the colon.

The time code shown at the bottom of each panel in the figures is expressed in hours:minutes:seconds.milliseconds.

Abbreviations of linguistic terms

1PL first person plural
1SG first person singular
2SG second person singular
3SG third person singular
3PL third person plural
BC backchannel
CL classifier
COP copula verb
EXP experiential aspect
INCHO inchoative aspect
NEG negative morpheme
PF pause filler
PRF perfective aspect
PRT discourse particle
REL relativizer
RESULT resultative morpheme
Conceptual metaphors in gesture

References


