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Volume 3

Metaphor and Gesture

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Why study metaphor and gesture?

Alan Cienki

There are numerous ways to research gestures which represent abstract notions, and this paper begins with an overview of some of them which are represented in the current volume – from various semiotic approaches to experimental psychological studies. Then particular attention is given to metaphoric gestures studied as expressions of conceptual metaphors. This line of research has shown some of the similarities and differences between verbal and gestural metaphoric expression. The paper surveys some of the evidence provided from gesture studies which supports the view of metaphor as a cognitive phenomenon, and the notion that thought, even for abstract topics, is grounded in embodied experience. However, the study of gesture also raises some questions for research on conceptual metaphors and how it is conducted. Topics discussed include how one identifies metaphoric expressions, what counts as evidence of conceptual metaphors, how one labels them, and how gesture highlights the graded nature of metaphoricality.

1. Introduction

If we consider the study of metaphor in the tradition of works such as Lakoff and Johnson (1980, 1999) and Lakoff (1993), one of the basic principles is that metaphor stems from (at least potential) conceptual mappings between domains. If metaphor has as its basis cross-domain mappings in the conceptual system, then words should offer just one form in which they may appear. One should be able to find metaphoric expressions in various forms of human behavior, and not exclusively in language. And indeed, there has been some research on conceptual metaphor and its expression in visual media, music, and various forms of cultural practices and rituals (as examples see Fernandez, 1991; Forceville, 1996; Zbikowski, 2002). Since the 1980s, there has been an increasing amount of research which shows that spontaneous gestures during language production, especially gestures of the hands and forearms, can also constitute metaphoric expressions.

This paper offers an overview of some of the findings to date of work published in this area, as well as an introduction to some pertinent questions raised by this

research. A recurring theme involves the challenges one confronts in the application of conceptual metaphor theory to non-verbal or paralinguistic data. Ultimately, the study of gesture raises concerns for some aspects of the theory itself in its current form.

2. Background

2.1 What is a gesture?

In the broad sense, “gesture” can refer to any willful bodily movement, however the focus in this paper, as in this volume, is on gestures of the hands. While a prototypical gesture passes through three phases – the preparation, stroke, and retraction – it is the stroke phase which is considered to minimally constitute a gesture (Kendon, 1980, 2004). Rudolf Laban, the analyst and transcriber of dance movements, notes, “Since it is absolutely impossible to take account of each infinitesimal part of movement we are obliged to express the multitude of situations by some selected ‘peaks’ within the trace-form which have a special quality” (Laban, 1966, p. 28). Following in his metaphorical footsteps, McNeill (1992, p. 376) characterizes the gesture stroke as “the phase carried out with the quality of ‘effort,’ a concept developed for dance notation.” The stroke phase is thus the kernel of a gesture in kinesic terms. It is also the part of the gesture which is of primary interest for determining the function of the gesture as a whole. McNeill (1992, p. 375) adds, “Semantically, it is the content-bearing part of the gesture.” Therefore the stroke phase is of central interest in this and the other papers in this volume. Also note that the papers in this volume are concerned with voluntary movements other than those that function as “adaptors” (Eckman & Friesen, 1969), such as the self-adaptor of adjusting the position of one’s eyeglasses with one’s hand.

Gestures differ in the degree of conventionality of their forms and their functions. We can speak of a gradient of gestures: from those which have developed fixed meanings in the culture in which they are used to gestures which are produced spontaneously and often unwittingly, and the meaning of the latter (if we can even talk about them having meanings) is highly dependent on the context. The former type, the formulaic, quotable gestures, are sometimes called *emblems*, a term first proposed by Efron (1941) and developed into its currently accepted sense in Ekman and Friesen (1969). Examples include the American “OK” gesture, made with thumb and forefinger forming a ring shape by touching the fingertips together (a gesture discussed by Parrill, this volume); or the “thumbs up” gesture, indicating a positive evaluation with the thumb extended upward vertically and the remaining fingers curled closed. In contrast to emblems, spontaneous gestures

which are often produced unwittingly while speaking (ones Kendon, 1988 classifies as *gesticulation*) do not have pre-determined meanings, and so they can provide important insight into the processes of formulating thoughts while producing language which are normally beyond conscious awareness. (See, for example, McNeill & Duncan, 2000. See also McNeill, 2005, pp. 5–12 for distinctions of other gesture continua.)

2.2 What is a metaphoric gesture?

While research from various theoretical backgrounds has touched on the possibility that gestures could be metaphoric (such as Calbris, 1990), among the first works to specifically apply Lakoff and Johnson’s (1980) notion of metaphor to the study of gesture are McNeill and Levy (1982) and McNeill (1992). Later work (e.g., Cienki, 1998a) has explicated the interaction between, and independent production of, metaphoric language and metaphoric gestures, to be considered further below. Webb (1996) discusses the possible bases for components of metaphoric gestures. Sweetser (1998) considers some metaphors for speech and thought as expressed gesturally. But what constitutes a metaphoric gesture?

In McNeill and Levy (1982) and McNeill (1992), metaphorics are included as one of four types of spontaneous gesture with speech. These four types, which are not intended as a mutually exclusive classification system, are:

- beats (rhythmic gestures which mark words or phrases as significant for their discourse/pragmatic content),
- deictics (point at concrete entities or at particular spaces),
- iconics (depictive of the form or movement of physical entities, or the physical relation between them), and
- metaphorics (whose pictorial content presents an abstract idea).

However, the metaphoric gestures which received the most attention in this work were ones in which the hands were shaped in the air as if holding or loosely supporting an object (often palm up, with a loosely open hand), and were used in contexts to simply refer to an abstract notion, such as the narrative genre under discussion by participants in the experiments. McNeill argues that these gestures constitute expressions of the CONDUIT metaphoric model, first discussed by Reddy (1979). This model characterizes the common practice of thinking and talking about ideas as if they were objects, and about communication as if it were a simple transfer of the ideas via a container (of words or texts) from one person to another. Furthermore, because McNeill’s (1992) book was the first widely disseminated book in English which included a discussion of metaphoric gesture, many came to

consider CONDUIT gestures as the prime examples of metaphoric gestures. However, as the papers in this volume show, it is just one category among many.

Another classification, which presents an account of metaphoric gestures from a different perspective, is that of Müller (1998). This classification focuses on the function of various types of gestures, namely on the following categories.

- discourse gestures, which structure an utterance (such as making beats for emphasis, or counting out the logical points one is making on the fingers of one hand),
- performative gestures, which enact speech acts (such as dismissing an offer or idea with a motion sweeping away, or requesting something with a hand held out open, palm up), and
- referential gestures, which can refer to something concrete or to the abstract.

In the case of concrete referential gestures, they can indicate their referent iconically in several ways. For example, one's hand(s) can draw, model, or represent entities. Thus two hands with thumb and forefingers extended at right angles, the other fingers folded, can represent two corners of a square picture frame. However, if we take abstract referential gestures, they cannot represent the abstract referent itself iconically, since what is being referred to usually lacks a structure which can inherently be depicted with the hands. Müller (1998) shows that McNeill's (1992) iconic and metaphoric gestures are in fact both equally iconic signs, but what distinguishes them is whether they are depicting the referent itself – concrete reference to an entity, action, or relation – or whether the referent is another entity, action, or relation in terms of which the topic is being characterized (in which case we have abstract reference). We can think of the hands making the same framing gesture, described above, but used when the speaker is talking about the organization of a theory. In this case, the speaker is making abstract, gestural reference to the theory's organization as a physical structure, namely, a framework. Note that "emblem" gestures are not excluded from this system. So the "thumbs up" gesture points upward for a reason: it invokes reference to the abstract idea of good things as being up, versus the bad as being down.

The distinction between concrete or abstract reference entails a description of gestures in terms of their function. However, as Fricke (2004) makes clear, there is not a necessary connection between abstract referential gestures and metaphoricity. Indeed, she points out that some abstract referential gestures are not metaphoric, while some concrete referential gestures are. One can be talking about a triangle in the context of a geometry lesson and represent it with the fingers of two hands. But this abstract referential gesture is not functioning as a metaphor in this context. It is a representation of a mathematical construct. (It may be seen as metonymic, however, by showing a particular form of triangle to stand for the general

class of such shapes.) By contrast, we might find the expression of a metaphor in a concrete referential gesture. Fricke (2004, p. 180) notes that one could be talking about another person derogatorily and refer to him as "This ass!" (in the sense of "donkey," in German: "*Dieser Esel!*") while holding one's hands up at the sides of one's head, imitating a donkey's ears. Here we have concrete reference with the gesture serving the metaphoric function of characterizing a person as an ass. The key point here is that the description of a gesture as metaphoric involves the interpretation of a mapping between two domains. (Of course ascertaining whether we are dealing with one or two domains is itself a matter of interpretation in context, as Croft [1993] makes clear.) Nevertheless, while it seems intuitively correct that most abstract referential gestures can be further classified as metaphoric, and concrete referential gesture as non-metaphoric, it remains to be seen through empirical study whether this is in fact the case, and to what degree this may differ across cultures and situations of use.

2.3 On metaphoricity in words and in gesture

Building on Müller (2004/in press), we can note three parameters that are useful to bear in mind when considering conceptual metaphors and metaphoric expressions:

- the degree of conventionality of a conceptual metaphor in the given culture (from conventional to novel);
- the degree of conventionality of a metaphoric expression in the given culture (from conventional to novel);
- the degree to which a metaphoric expression is highlighted in a given instance of use (making it cognitively less or more salient).

The interrelations between these parameters as they relate to the process(es) of speaking can be considered as follows.

In the study of language, we can question what it means to say that a verbal expression is metaphoric. First we can note that conceptual metaphors fall along a scale of conventionality to creativity. For example, from existing research on the dominant languages in Europe and America, one can conclude that in these cultural spheres it is much more conventional to conceptualize LIFE AS A JOURNEY rather than to think of LIFE AS A BANANA. (I will follow the convention used in the literature of writing posited conceptual metaphors in the form "TARGET IS [OR AS] SOURCE DOMAIN" in small capital letters.) Innovative conceptual metaphors necessarily require novel means of expression (in this case, perhaps it could be: "Life is a banana: you should peel it carefully and enjoy every bite"). For more conventional conceptual mappings, there is a scale from more conventional to more novel forms of expression. "I feel like my life is going nowhere" strikes this native

speaker of English as a more conventional way of expressing LIFE IS A JOURNEY than "He skateboarded his way through life." Some (like Kyratzis, 1997 and Müller, 2004/in press) argue that the potential for activation of metaphoricity is scalar, such that the underlying conceptual metaphors can be more or less frozen or defrosted, or more or less asleep or awake (depending on the metaphor one wants to use for metaphoricity itself). Contextual factors influence the degree of salience of an expression, and so the potential for realization of its metaphoricity. The salience of words being spoken can be increased by the use of marked prosody (Pierrehumbert & Hirschberg, 1990), the use of lexical tuning devices (such as "so to speak" before or after a metaphoric expression, which draws attention to it) (Cameron & Deignan, 2003; Goatly, 1997; Goddard, 2004), and also through co-verbal gesturing that is more expansive than normal for the speaker (Müller, 2003). Some combination of these behaviors would likely make the metaphoricity of the co-occurring verbal expression even more salient.

The same scale of conventionality for metaphoric expression applies to spontaneous gesture with speech. This ranges from the use of a conventional metaphor with a conventionalized form of expression (namely an emblem, like the "thumbs up" gesture) to novel expressions used once in a given context and maybe never again. And just as the use of a metaphoric expressions in words (conventional or novel) can be highlighted in context, making its metaphoricity more salient, the same process of highlighting can happen with a metaphoric expression in gesture. While this salience might be expected with a creative use of gesture, it may also potentially occur with the use of a more conventional gestural form. As an example, think of the common CONDUIT type mentioned above, perhaps embodied in the form of a loosely cupped hand, held palm up, and used when the speaker is presenting a new idea to the listener. Even this kind of gesture can be highlighted not only by more expansive use of the gesture space (perhaps through an exaggerated movement leading to presentation the hand shape in its final form and position), but also by the speaker directing his/her gaze at the gesture, or by the use of marked prosody (emphatic stress, lengthening, or extreme pitch contour) in the speech accompanying the gesture. Finally, expression of the same source domain for a given target domain in both words and gesture at the same time can highlight the metaphoric mapping between target and source, as discussed in section 3.1 on "commonalities" below.

The issue of frozen or sleeping metaphors relates to language in an historical perspective just as it relates to the historical dimension of the use of gesture within a culture. So when many speakers of English use the word *evolution* (let alone *revolution*), they are probably unaware of its historical connection to Latin *volvere* 'to roll' even though the related English word *revolve* clearly uses this physical meaning of rotation. However, the semantic connection could be made salient by

the speaker, especially for poetic or humorous effect. An example from a written text comes from a search of the LexisNexis Academic newspaper database, namely a letter to the editor of the *Tulsa World* newspaper (Nov. 24, 2005, p. A32). The author is contesting the teaching of Darwin's theory of evolution in schools because of her religious convictions. The letter contains the word "evolution" six times and "evolving" once in its 211-word text, but bears the title "Confusion *revolves*" (emphasis added – AC).

In terms of gesture, Calbris (1990, pp. 196–198) discusses gestures which reflect the etymologies of the words with which they are used, such as a rotating gesture being used with a word like *evolution*. The point is not that speakers know and are enacting these etymologies. Rather the pattern of thinking of that abstract domain in terms of the given physical manifestation is prevalent in the language and culture in other ways, and so reappears with the use of this word, even unwittingly to the speaker at that moment. So there may be a common metaphoric mapping in the culture from the notion of a moving object (such as a round object rolling) onto processes of various kinds, including abstract (complex) ones, like evolution. This prevalent pattern may appear in either verbal expressions or in gestures.

We can extend this point by noting that a speaker may simply be employing a cultural convention when enacting a gesture, and be quite unaware of its metaphoric connections. So a speaker may give the "thumbs up" to indicate something is good because that is the convention s/he is familiar with from the surrounding culture, not because the speaker was aware at the moment of the conceptual metaphor GOOD AS UP. Therefore one must be clear about what one is claiming when saying that a given gesture is metaphoric, just as one should consider this in relation to claims about the metaphoricity of verbal expressions.

In the following sections we consider in further detail what else is the same, and what is different, about the expression of metaphor in words and in gestures.

3. Metaphors expressed in words and gestures

3.1 Commonalities in the expression of metaphor in words and in gestures

Sometimes we can see the same conceptual metaphor expressed in gesture and in speech at the same time. The examples below are from conversations which were elicited from students on how they take exams at their university, and what they consider honest behavior to be in this context. All were native speakers of American English.

In (1), the speaker talks about dishonest behaviors using a blend of metaphorical notions. The transcription of speech in examples (1)–(3) follows many of the

conventions of DuBois et al. (1993), with adaptations here for the gesture transcription. Each line indicates an intonation unit, ^ = primary stress accent, ` = secondary stress accent, = an equal sign (=) represents = lengthening of the preceding vowel or consonant, a comma (,) indicates an intonation unit with a terminal pitch that signals continuation, a period/full stop (.) marks a final intonation unit falling to a low pitch at the end, and <A A> surrounds speech at a rapid pace (*allegro*). Speech accompanied by gesture is underlined, with square brackets [] placed around the words uttered during the main stroke phase of the gesture. In the gesture transcription in italics underneath, the description of the stroke phase also appears in square brackets, 2H = both hands, LH = left hand, RH = right hand, PU = palm up, PD = palm down, OH = open hand.

- (1) there's 'such different ^levels,

2H PUOH at the same level

<A an' that [goes all the way up to looking at someone's paper in] ^cla=ss. A>

G1: [LH PU moves downward while RH PD on top of it moves upward], leaving a large space between the open hands



Figure 1. Dishonest behaviors as different vertical levels

The mention of “levels” reifies the behaviors, possibly as horizontal layers. The quality of how serious the different behaviors are thought to be is mentioned as a vertical scale, according to which MORE SERIOUS IS HIGHER UP. Verbally, we see this in the expression “all the way up to.” Similarly, in her gesture (G1 = gesture 1, shown in Figure 1), the speaker uses her hands as flat surfaces, showing the reified behaviors, and holds them at different vertical heights, showing the different levels (rendering DEGREE AS DISTANCE).¹

1. I am grateful to Mathias Roloff for providing the drawings.

We can also find gestures expressing conceptual metaphors which are shared in the culture and are familiar from expressions in verbal form, even if they are not being used at the moment in the co-occurring speech. We see this in example (2). In the transcription of speech, short and long pauses are indicated by .. and ... respectively. In the gesture transcription, PC = palm facing the center space.

- (2) Like dis^honest suggests.. like...,

um,

not 'truthful,

like,

the [^truth] is what.. like,

G2: LH PCOH and flat moves up and then [downward] to just above left leg



Figure 2. Gesture used with “truth”

The speaker refers to “the truth” without any verbal metaphoric expressions, but while uttering this word he makes a small chopping gesture in the air with his left hand flat in the vertical plane, and then briefly holding this position (G2, shown in Figure 2). This corresponds to other expressions in English in which the TRUTH is characterized as STRAIGHT, and telling the truth is metaphorically having one's words (as if objects) move in a straight direction, as in the expression “tell it to me straight” (see Cienki, 1998b).

3.2 Differences in the expression of metaphor in words and in gestures

While example (2) points out something that words and gestures can have in common – that the same metaphoric mapping can appear in either form of expression – it also points out that words and gestures can serve different expressive functions at the same time. In this example, the words spoken make the target domain explicit

We can see with these examples that gestural data do not just replicate what we already know about conceptual metaphor based on verbal data. They provide additional possible evidence of cross-domain mappings which may be the source of the gestures. The following sections outline some other ways in which gestural

data illuminate the study of metaphor, and how research focussed on metaphor can benefit gesture studies.

4. Some solutions that the study of gesture brings to the study of metaphor

4.1 A solution to the criticism of circularity

One important contribution that the study of gesture can make to conceptual metaphor theory is that it provides a solution to one of the criticisms of it, that it relies on circular logic (Murphy, 1996). One concern is that many of us metaphor researchers are implicitly arguing "that verbal metaphoric expressions are evidence of conceptual metaphors, and then saying that we know that because we see conceptual metaphors expressed in language" (Cienki, 1998a, p. 190). Gestural data provide an independent source of evidence with which to argue for the psychological reality of conceptual metaphors. However one needs to bear in mind whether one is making claims about the individual at the moment of speaking, or about the larger cultural group of which s/he is a member – the "supraindividual," the level at which the claims of conceptual metaphor theory make more sense, as some have argued (Gibbs, 1999; Steen, 1994).

4.2 Gesture and embodied cognition

Gesture provides evidence for the embodied basis of thought. Gesture can provide an important locus for cognitive linguistic research on metaphor because it physically manifests the tenet that (many) metaphors are grounded in embodied action. Gestures can depict in space elements from the source domain of a metaphor, something which is not possible for metaphoric expressions in spoken languages. (See Gibbs & Berg, 2002, and the responses to their article, on the broader issue of mental imagery and embodied activity.) Of course this physical depiction of metaphoric source domains is already known to play an important role in signed languages (Taub, 2001; Wilcox, 2000).

4.3 Ontological metaphors

On a certain level, one can make an argument that any time a gesture is made when there is not a concrete referent in the given context, the gesture is metaphoric simply by virtue of representing an ontological metaphor, showing something abstract as concrete. Here we can draw on Fauconnier's (1985, 1994) theory of mental spaces. Mental spaces have been described as "small conceptual packets constructed as we

think and talk, for purposes of local understanding and action" (Fauconnier & Turner, 2002, p. 40). As Lakoff (1987, p. 281) adds, "any fixed or ongoing state of affairs as we conceptualize it is represented by a mental space." Discourse-structuring gestures which highlight different parts of a logical argument can be seen as representing the speaker's mental spaces (about the organization of the argument) in the form of physical spaces (see Sweetser, 2007). It can be seen as expressing a form of ontological metaphoric mapping of ABSTRACT AS CONCRETE in which the source domain is no more specific than that of a DISTINCT SPACE.

It also represents a gesture that is metaphoric not on the level of the semantic referents, but on the pragmatic or metanarrative level in that the target domain is the discourse structure (such as the distinction between two different ideas, or between what is known information and some new information). (Compare McNeill, Cassell, & Levy's [1993] discussion of abstract deixis.). This "setting up" of different parts of one's argument by locating them in different spaces gesturally is reflected in the verbal formula that sometimes accompanies it, namely "on the one hand,... on the other hand." We thus find that some of the different ways in which metaphoricity functions in thought (making reference to something or someone within a narrative, or referring on the pragmatic level to the narrative structure itself) can appear as metaphoric gestures which serve different functions.

4.4 The function of metaphoric gestures for the speaker, and the addressee

With any gesture, we can consider the role that it plays from the perspective of the gesturer or from that of the observer. Many in gesture studies have shown the important function that gestures can have for speakers/gesturers as they formulate their ideas "on the fly." Because of the huge potential range of forms they can take, spontaneous gestures can provide insight into thinking for speaking (McNeill & Duncan, 2000; Slobin, 1987). Metaphoric gestures can help us understand more about the specific roles of metaphor in this process.

However, as the speaker lays out the ideas and/or discourse structures of his/her turn at talk, this can also serve a communicative function and benefit the addressee in that it can make the logical organization of the ideas in the argument physically clear. In an extended example in Cienki (1998a, pp. 197–198), one student contrasts the process of preparing for a test with the act of taking a test, and keeps track of which process he is referring to in his narrative by pointing back and forth to spaces on his left and right sides, with test-preparation on the left, and test-taking on the right (which is also consistent with the left/right distinction for past and future times, discussed above). While the speaker may be doing this to help himself track his referents as he is formulating his argument, his gestures apparently help his addressee as well, as she can be seen looking at his hand while

he is doing this gesturing. Thus the addressee's gaze at the speaker's gestures can serve as one indicator for the researcher of when gestures, metaphoric or otherwise, are serving a communicative function.

5. Some questions that the study of gesture raises for conceptual metaphor theory

Several problematic issues in research in the framework of conceptual metaphor theory come to the fore once we move beyond lexical data.

5.1 Evidence of conceptual metaphors

Particularly in the early research on conceptual metaphors, the evidence cited consisted mostly of verbal expressions that were intuitively plausible, but which were often made-up sentences. They usually followed prescriptive grammar rules for syntactic completeness (having at least a noun phrase and a verb phrase). Constructed examples, such as "He has a *lofty* position" and "She has *high* standards" would be cited as evidence of metaphoric expressions which involve the source domain UP. In some ways, this is a holdover from the Chomskyan tradition in American linguistics in which such sentences, conforming to the native-speaker/author's intuitions for well-formedness, provided the only legitimate object of study.

However, research on metaphor in spontaneous gesture by and large has not followed that path. It has looked at naturally-produced data. This is partly a result of the ease with which interactional data can be captured today with video technology. (Indeed, as video technology keeps changing, so will the kinds of research which we can do.) But the bottom line is that if we are testing the hypothesis that conceptual metaphors are instantiated in human behaviors, we need to look at human behavior not just selectively, piecemeal, but as it occurs in various natural contexts, *in situ*.

5.2 Identifying metaphoric expressions

Another issue raised by research on metaphor and gesture has to do with how metaphoric expressions are coded. This is an issue which still is often not discussed explicitly in metaphor research, on any kind of data. One group of researchers which has devised a reliable procedure for the identification of metaphorically used words in texts is the Pragglejaz group, named after the first initials of the ten group members (Pragglejaz Group, 2007). One of the most useful parts of such a project is simply the documentation of the methodological difficulties which must

be overcome to achieve reasonable agreement among analysts when working on a given text. Perhaps a similar research group should be formed to develop reliable procedures or guidelines for the identification of the metaphoric use of gestures.

One thing that is important to bear in mind in any research on metaphoric expressions is that what is coded as metaphoric will depend on the goals of one's project. Is the goal to find anything that is potentially metaphoric in nature? Or to find instances of expressions (be they verbal, gestural, or other forms) which may represent conscious awareness of metaphoric mappings? Or... something else?

5.3 Labelling of conceptual metaphors

A further question concerns how we traditionally describe conceptual metaphors, that is: in terms of verbal statements, like GOOD IS UP. This descriptive device, even if we just consider it a heuristic, carries a lot of theoretical assumptions with it which are usually not acknowledged, but which become more salient when studying non-verbal data. One problem is that describing the source domain of a metaphor with words affects the nature of how one (as a metaphor researcher) understands the source domain. For example, we can roughly describe the "conduit" metaphor for communication as it appears in gestures by talking about one of the relevant source domains as CONTAINER (an "expected metaphor" which McNeill discusses in this volume). But the gesture shows us more than that: we often see it expressed with a palm up, and with a loosely cupped hand. How do we incorporate those qualitative elements into our description of the source domain? Source domains of metaphors often draw on the embodied nature of our experience, but some of this experience can only be captured partially or inadequately in words. Much of our physical experience is better described in terms of an image or a movement. Given the saying in English that "a picture is worth a thousand words," perhaps we should follow the route of cognitive grammar (e.g. Langacker, 1987, 1991) and rely on diagrams as a heuristic when appropriate for describing image-based source domains of conceptual metaphors.

One additional complication in labelling of metaphors can be found in groups of gestures that share commonalities of form and/or motion in a family-resemblance way, and which have the potential to be used with related metaphoric meanings. So in studying gestural expressions of Russians relating to the notion of *chestnost'* ('honesty'), we see different forms related to straightness reported in Cienki (1999) such as *flat hand shape* and *loose hand moving straight out from face*. How should one pick out which aspect of the source domain is significantly represented: the flatness of the hand shape, the straight manner of motion, or the "solid" nature of both the hand shape and the manner of motion? Is just calling it STRAIGHT

(as I did at the time) adequate? This is, therefore, a further complication which work with gestural data makes us aware of.

5.4 Highlighting of metaphoricality

As discussed earlier, several works on metaphor in language have tackled the issue that metaphoricality is better characterized as a property which can be in the background or the foreground to varying degrees, rather than being a black and white matter of whether certain words uttered were metaphorical or not. My impression is that this issue is even more readily apparent with the study of gesture because of the salience (or not) of gesture as used in a contextual scene. We are left with the question: How can we best handle this issue in our analyses of conceptual metaphors? Müller (2004/in press, and this volume) suggests some points to be taken into consideration, including simultaneous reinforcement of the same metaphor in words and gesture, the size of the gesture in the speaker's gesture space, and the speaker's gaze at the gesture.

5.5 The time course of metaphor use

Though the production and reception of both written and spoken language are inherently tied to the temporal dimension, as Chafe (1994) makes clear, each involves a different kind of flow of experience. We know from research on spoken language that verbal metaphors cluster according to certain patterns in dialogs (Cameron & Stelma, 2004), a consequence of the interactional nature of this context of language use. The study of metaphor in gesture with speech can complement such research on the use of metaphorical expressions over time during speaking (see, for example, the dynamic approach to metaphor advocated in Müller, 2004/in press, and this volume). As of yet, little is known about the organization, timing, and different possible functions of metaphorical gestures over the course of conversations.

5.6 The relation of metaphor to the modality in which it is expressed

One of the fundamental claims of Lakoff and Johnson (1980) is that metaphor is a general cognitive phenomenon, not limited to language; the fact that metaphor can be manifested in various modalities supports this notion (see discussion in Cienki & Müller, in press; Müller 2004/in press; Müller & Cienki, in press). But saying that a general cognitive principle is involved in the creation of metaphors does not necessarily mean that all metaphors are generally of the same nature. To what degree is the nature of the metaphors we use structured by the media we have

at our disposal to express them? For example, there is a lot of variability across individuals in terms of both the quality and quantity of their gestures when they talk, as one can quickly see from looking at video recordings of a number of different speakers. Different metaphors are likely expressed by those who employ discourse-structuring gestures more frequently than by those who make greater use of referential gestures. The research on thinking for speaking (Slobin, 1987) and thinking for speaking and gesturing (McNeill & Duncan, 2000; Cienki & Müller, 2006) would lead us to believe that this is the case. However, the question of whether different types of metaphor are being expressed more in gesture than in words, and whether different categories of metaphor are being expressed more in certain types of gestures than in others, are topics which await empirical study.

6. What the study of metaphor can bring to gesture studies

6.1 Complement to research on concrete referential gestures (often called "iconic")

There is a substantial amount of research on gestures of the concrete, that is, gestures for which one can say with some certainty (based on context) that they have referents which are physical objects, their actions, or the relations between them. In McNeill's system these are called iconic gestures (although as mentioned above, this terminology can be confusing, since metaphorical gestures also represent the source domain of a metaphor iconically to some degree). One reason they have been studied so extensively has to do with a tradition in gesture studies of videorecording participants as they retell the plot of a movie they have seen, often a cartoon which involves elaborate motion events. This research method facilitates the production of concrete referential gestures, but reduces the amount of thought and talk on abstract topics, which might be accompanied by metaphorical gestures. More research on talk about abstract topics will likely provide more data with metaphorical gestures.

6.2 The CONDUIT is not the only metaphorical gesture

A type of gesture of the abstract which the research on film narration does lend itself to is one which simply represents the fact of an idea itself, or the film or story genre, as an object in the air which the speaker is holding in his or her hands. This is largely an artefact of the method of this research – retelling a narrative. McNeill (1992, p. 189) states that "Metaphorics appear at the metanarrative level, where the content consists of the story structure itself viewed as an object or space." But this

is a factor of focussing on the CONDUITS as the only kind of metaphoric gestures. As the papers in this volume show, other situations of talk afford the production of other types of metaphoric gestures, many (or even most) of which function on the narrative level. There is still much that remains to be known about the variety of forms of metaphoric gestures, and about how and when they are used.

6.3 Metaphor is hidden in some existing gesture research

There is a growing body of research about the "meanings" of various gestures, yet the metaphoric nature of these gestures is often not acknowledged. For example, Brookes (2001) describes a gesture (an emblem) in South Africa which is used to express various nuances of the meaning "clever." It is made by pointing up to one's eyes with the index and pinkie fingers, with the other fingers curled to the palm, as the palm faces oneself. She contrasts this with a gesture made to indicate "stupid," in which the right hand is held flat, palm towards the face, and drawn to the right across one's eyes. Though it is not part of that author's argument, one can see possible metaphoric motivations behind the forms of these gestures, whereby KNOWING/UNDERSTANDING IS SEEING and NOT KNOWING IS NOT SEEING. It is possible that pursuing the role of metaphor here could provide insight to connections with broader cultural/metaphoric models which help motivate the use of these gestures.

7. Conclusion

Overall, the interrelation of the topics of metaphor and gesture can prove fruitful from several perspectives. From the point of view of gesture studies, we know far more about gestures which make concrete reference than we do about those which refer to the abstract. The study of such gestures which are metaphoric on the semantic or pragmatic level not only confirms what we know about how gestures function in general, it also raises new issues for the field of gesture studies. From another perspective, the study of gesture has ramifications for research on metaphor, providing confirmation of some previous theoretical claims, but also raising some new concerns on the levels of theory and method.

The study of metaphor in gesture is in line with the increasing attention in cognitive linguistics to metaphor as a multimodal phenomenon (e.g., Forceville, 2005; Forceville & Urios-Parisi, in press). In contrast to a view of metaphor as a disembodied property of written words on a page, research on gesture adds to what we know about how metaphor is expressed and used through multiple modalities at the same time, not only orally/aurally via the words of speech, but also spatio-motorically and visually. Once one is aware of the fact that there can be

metaphors in gesture and other media of expression, one cannot help but notice their frequency and the varied contexts of their occurrence.

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