Chapter 13

Words, gestures, and beyond: Forms of multimodal metaphor in the use of spoken language

Cornelia Müller and Alan Cienki

Abstract

This chapter offers a systematic account of the forms that mono- and multimodal metaphors may take in face-to-face communication. The account is based on the relation of source and target domains expressed either in one modality only (thus forming a monomodal metaphor) or in two modalities (forming a multimodal metaphor). We will then illustrate the inherent dynamic nature of metaphors when used in spoken interaction, pointing out more specifically how metaphors are being elaborated within and across modalities. We will focus particularly on metaphors that are realized in speech and/or gesture, but point out the relevance of studying metaphors in other articulatory forms such as stress and intonation. The different forms of multimodal metaphors are systematically based on different relations between metaphoric and gestural expressions. Finally, implications for metaphor theory and for the dynamic aspects of "thinking for speaking" are discussed, suggesting that multimodal metaphors in spoken language are products of the process of creating metaphoricity (by a speaker/gesturer and ideally also by a listener/perceiver), which is essentially independent of modality and expressive form.

Keywords: Activation of metaphoricity, gestures, gestural metaphors, thinking for speaking and gesturing, multimodal metaphor, monomodal metaphors, verbal metaphors, verbo-gestural metaphors

1. Introduction

The situation which has been most influential for the form that spoken languages have is arguably the face-to-face encounter. We take it as a scenario that has been described by sociologists, social psychologists, anthropologists and linguists, and which rather unanimously has been characterized as a communicative situation that is inherently multimodal.

Adam Kendon, inspired by Goffman (1967), was interested in the interactional aspects of this situation and he has devoted many of his early studies to finding "responses to Erving Goffman's (1967) call for a study of the 'ultimate behavioral materials' of interaction. [...] That is, [...] 'the glances, gestures, positions and verbal statements' that constitute the stuff of face-to-face encounters" (Kendon 1990: ix). David Efron, one of the pioneers of gesture studies, directed attention to the fact that the hand gestures people seem to use unwittingly and very regularly when they converse with each other are so deeply intertwined with spoken language that in his empirical investigation of cross-cultural differences between Jewish and Italian immigrants to New York City he distinguishes "*spatio-temporal aspects*, i.e., gesture simply considered as 'movement,' from "their *referential* aspects, i.e., gesture envisaged as 'language'" (Efron 1972: 67, emphasis in original). Herb Clark, in turn, has described the face-to-face situation of communication as the "canonical encounter" of human beings:

> From the social psychologist's viewpoint, man is a social animal, who enjoys, perhaps even needs, to interact socially with other people. What are the characteristics of the most usual interaction between two people, John and Mary? For our purposes, the most important property is that they will be facing each other a short distance apart. It is in this position that John and Mary are situated for the optimal perception of messages – both verbal and nonverbal – from the other person. John is in Mary's positive perceptual field, and Mary is in John's. If John and Mary were side by side, or back to back, or back to front, or in any other position, these conditions would no longer be optimal. It is no accident that normal conversations are carried out face-to-face. This face-to-face situation is what I would like to refer to, for convenience, as the canonical encounter (Clark 1973: 34–35).

Granting that the canonical encounter as described above does not imply that co-participants literally face each other,[1] it is a form of interaction which is extremely common in the cultures of many areas of the world and which does imply reciprocal audibility and visibility (although to varying degrees). This face-to-face encounter between two people will be the context in which we will treat the use of spoken language in this chapter. As Clark indicates, the use of spoken language in this context is inherently a process of multimodal communication, involving not only the oral production of sound and its aural reception, but also the production of various kinds of bodily motion in space, which the addressee can perceive visually. The multimodal nature of spoken communication has been especially emphasized in recent years by those researching spontaneous gesture with speech, suggesting that gesture and speech are visible and audible actions that form one single utterance (e.g., Kendon 2004) or proposing that gesture and speech are dynamically based in different forms of thought but constitute one integrated system (e.g., McNeill 1992, 2005). Given that spoken language involves multiple modalities, it makes sense that metaphor should have the potential for multimodality when used in this form of communication; and indeed over the past years quite a substantial body of research on metaphor in gesture, speech, and sign language has been carried out (cf. Bouvet 1997, 2001; Calbris 1998, 2000, 2003; Cienki 1998, 2005b; Cienki and Müller 2008a, 2008b; McNeill 1992; Mittelberg 2006; Mittelberg and Waugh, this volume; Müller 1998, 2008; Núñez 2004; Núñez and Sweetser 2006; Webb 1996; Wilcox 2000, 2004).

The topic we want to explore here in particular is the different forms that multimodal metaphors may take in face-to-face communication. We will specifically concentrate on the kinds of relations between metaphors that are realized in speech and/or gesture. It is not by accident that the study of metaphor is increasingly taking data from gesture studies into account (e.g., Cienki and Müller 2008a, 2008b; Müller 2008) and this chapter offers a systematic account of the forms of metaphors that occur either in speech or in gesture or in both modalities at the same time. However, we would also like to point out that beyond gesture, there are additional properties of spoken communication which have received much less or no attention in terms of their implications for the expression of metaphor, including prosodic features, such as stress and intonation, and the time course in which all of these expressive forms are used during acts of speaking (for the latter point see Müller 2007, 2008).

In order to clarify what we are discussing, we will restrict the term "modality" to two dimensions of face-to-face communication: one will refer to what is expressed orally and perceived primarily aurally as sound (the oral/aural modality), and the other will refer to bodily forms and movements in space which are primarily perceived visually (the spatial/visual modality). In this sense, we will see that gesture/word combinations can constitute multimodal metaphors. Within each modality, there are various forms which can be used for expressive purposes. In the oral/aural modality, intonation and stress can be discussed separately from each other and separately from the words being articulated. We will refer to these as different articulatory forms within this modality. Similarly within the spatial/visual modality, eye gaze, body shifts, manual gestures, etc., can all be considered different expressive forms. Our understanding of articulatory form partially overlaps with Forceville's use of the term mode. In his critical stance towards giving "a satisfactory definition of 'mode'" or of compiling "an exhaustive list of modes,"

Forceville argues that this fundamental difficulty "is no obstacle for postulating that there are different modes and that these include, at least, the following: (1) pictorial signs; (2) written signs; (3) spoken signs; (4) gestures; (5) sounds; (6) music; (7) smells; (8) tastes; (9) touch" (Forceville 2006: 382–3/this volume). In short, spoken words and gestures are articulatory forms or modes, which are realized in an aural/oral or spatial/visual modality.

After presenting an overview of what appear to be the most common ways in which the use of metaphor can play out in the oral/aural and spatial/visual modalities and articulatory forms, we will point out the inherent dynamic nature of metaphors when used in spoken interaction. Eventually we will suggest that these observations indicate that multimodal metaphors are products of the process of creating metaphoricity (by a speaker/gesturer and ideally also by a listener/perceiver), which is essentially independent of modality and articulatory form, if metaphoricity is a matter of *understanding one idea* (or domain) *in terms of another*. However, we will also argue that the different modalities and forms that are involved in spoken interaction afford the use of different expressions for metaphors. What one *can* express via a given modality and expressive form will have an effect on what one *will* express using that modality. We will conclude by considering the implications this has for how we can think with metaphors while we are speaking, or attending to someone who is speaking.

2. Monomodal and multimodal metaphors in words and gestures

To begin with we need to clarify our understanding of mono- and multimodal metaphors. Following Forceville (2006: 383), we will consider as monomodal those metaphors "whose target and source are exclusively or predominantly rendered in one mode." This means we will distinguish monomodal verbal metaphors from monomodal gestural metaphors. We will consider as multimodal those metaphors "whose target and source are each represented exclusively or predominantly in different modes" (Forceville 2006: 384), and for the present chapter this means that we will document and discuss verbo-gestural metaphors. In fact, and even more precisely, this means that we are actually talking about verbal and gestural, or verbo-gestural metaphoric expressions, since the phenomenological level we are concerned with in our analysis is that of verbal, gestural, or verbo-gestural utterances. If, and if so how, these expressions relate to a general level of conceptual metaphors (such as LOVE IS A JOURNEY) remains unaddressed. We do, however, consider the meaning of those metaphoric expressions – be they verbal, gestural, or a combination of both – to be conceptual (adhering to the cognitive linguistic assumption that meaning in general is "conceptual"). Thus for the sake of brevity only we will henceforth use the terms *metaphor* and *metaphoric expressions* as synonyms in this chapter, unless otherwise indicated.

Second it is central to illustrate what we mean by "gesture." Here we will be focusing on visible, effortful movements of parts of the body whose primary purpose is apparently not that of self-adjustment (for example, as with grooming behavior) or object manipulation (such as lifting a cup to take a drink). One could focus on many different parts of the body, such as head gestures, eye movements, foot gestures, body shifts, shoulder shrugs, and so on. Here we will focus on positions, orientations, and movements of the hands and forearms; these are what we will mean henceforth with the term "gesture," unless specified otherwise.

Which gestures will be considered metaphoric? Here we will restrict the discussion to gestures whose primary function can be identified as abstract reference. Müller (1998: 110–1) notes that referential gestures can refer either to physical objects, properties, actions, or relations, or to abstract notions in terms of such physical means. Thus the same two-handed gesture with thumb and index finger on each hand forming a 90 degree angle could be used when talking about a picture frame or when describing the "framework" of a theory. Abstract referential gestures are inherently metaphoric by virtue of rendering a non-physical idea in terms of a physical, spatio-temporal representation. We can note that a concrete referential gesture can also be metaphoric in certain contexts (e.g., when someone imitates an animal referring to a person in a derogatory way), but we will not focus on such usage here, as we have found it extremely rare in our research to date.

We should also mention our criteria for identifying verbal expressions as metaphoric. For this we rely on the procedure developed by the Pragglejaz Group (2007), with language-specific adaptations, as appropriate. To put it briefly, the procedure has been designed for the identification of (a) when a word is being used in a given context with a meaning which is different from another physically more basic meaning that it may have, *and* (b) when the contextual meaning is interpreted via comparison with the more basic meaning. It is a maximally inclusive procedure, intended to identify words which may even *potentially* be understood metaphorically in the given context of use. For a detailed account of the procedure see Pragglejaz Group (2007). In the examples that follow, we will indicate words so identified via this procedure with underlining. The examples below are from our qualitative analyses of videorecorded conversations from four different languages: American

English, German, Cuban Spanish, and Russian. The conversations in each language were elicited from pairs of native speakers, and were on abstract topics so as to increase the likelihood of use of metaphoric expressions. The English and Russian conversations were between pairs of university students who were talking about how they take exams at their universities (in the United States and Russia, respectively). The German data come from middle-aged German women who were talking with the researcher (the first author) about their first love relationship. The Cuban data were all recorded in Havana. Participants were asked to give accounts of important events in their lives (a wedding) or to talk about life in Cuba in general. They were roughly of the same age (in their thirties, with one exception of a speaker who was 54 years old), and mixed with regard to gender.

Each example cited here comes from a different conversation, unless noted otherwise. Each line in the transcript indicates a new intonation unit (see Chafe 1994 on intonation units as units of analysis for spoken discourse). 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 double dash (--) shows that the intonation unit was truncated. A longer pause by the given speaker is indicated with three dots (...), and a shorter one with two (..). In the transcription of the examples, each separate gesture is indicated by a number (G1, G2, etc.); hands involved in gesturing are noted as rh, lh, bh, indicating right, left or both hands; the onset of gesture notation is synchronized in the transcript with the beginning of the gestural movement and bold face indicates the entire duration of gestural movement (preparation, stroke, retraction, cf. Kendon 2004; McNeill 1992).

Building on the possible relations that Cienki (1998) has found between metaphors expressed in words and in gestures and on Müller's (2008) discussion of different realms of metaphor, we will now give an overview of what is known about the manners in which metaphor may be expressed in speech in real time, that is: in one modality (spoken words or gestures) or in a combination of the two. Put differently, we will offer a sketch of what appear to be common forms of mono- and multimodal metaphors in words and/or gestures.

3. Monomodal metaphors: source and target within one modality

First, we can confirm that we often find the use of metaphoric verbal expressions without co-occurring metaphoric gestures. For example, one American

student talks about how people may verbalize certain beliefs about honesty, but sometimes might not behave in accordance with them. At this point she says (Example 1):

Example 1:

Just because of the pressure,
the peer pressure,

The word "pressure" was coded as metaphoric in this context because "peer pressure" normally involves behaviors other than physical pressing – the more basic physical meaning of the word. Even if peer pressure involved physical contact, the word still can be understood with the abstract sense of coercive behavior (it has potential metaphoricity). Although the word was coded as metaphorically used, the speaker made no gestures while saying it either time, keeping her hands resting on her leg as she was sitting. We might refer to such a use of metaphor purely on the verbal level as monomodal metaphor or as verbal metaphoric expression.

We also find the converse monomodal pattern of metaphor use: metaphors expressed in gestures without metaphors in the co-occurring speech, that is, gestural metaphoric expressions that are used concurrently with speech. Example 2 comes from one of the Russian students talking about how they take exams at their university. An English translation is provided below the transliterated transcript of the Russian. The student is trying to characterize the Russian concept of "*chestnost'*," which may be translated as "honesty."

Example 2 (from Russian):

Dlia menia chestnost' eto nekaia absoliutnaia kategoriia.
For me *chestnost'* is a kind of absolute category.
G1 preparation
bh raised in front of torso, flat in vertical plane, fingers pointing out
Kogda vot iest' ***situatsiia,***
When there's this situation,
G1 stroke
bh move straight downward slightly
seichas postupit' chestno ***tak.***
then [you need] to act honestly like this.

The student begins seated, hands at rest in his lap, and starting when he says "*situatsiia*" [= situation], he lifts his two hands in front of his torso, the right

hand somewhat higher than the left, palms and fingers flat in the vertical plane, fingers pointing forward. He holds his hands there until he gets to the word "*tak*" [= "like this"], at which point he moves them both slightly downward in unison, maintaining their position relative to each other and flat in the vertical plane. Here the speaker explicitly uses the gesture to make reference – if you don't see the gesture, you don't know what he thinks it means to act honestly ("*chestno*"). The speaker uses a verbal deictic particle to direct the attention of his co-participant to the gesture: "like this" points to the gesture, and his hands move in temporal coordination with the verbal deictic. Thus verbally he makes clear that the gesture contains relevant information, but there is no verbal mention of a metaphoric source. In this instance, manner of behavior (honest) is expressed gesturally as a physical form (flat/straight) with a certain motion (brief and straight). (See Cienki 1999 for further discussion of this and related examples.)

Note that this is a particularly interesting case, since not only are the gesture's source and target independent from any verbal metaphoric expression (in fact there is none in the concurrent speech), but the gestural metaphoric expression is used in place of words. Thus we might speculate whether this is an instance of a multimodal utterance consisting of a monomodal gestural metaphoric expression which is being inserted into a verbal utterance.

Another type of gestural metaphoric expression that is very common among different cultures involves gestures which perform a speech-act or more generally a communicative activity. These are gestures that recur in form and function over a large amount of contexts and therefore we term them recurrent gestures (cf. Bressem and Ladewig in prep.; Ladewig in prep.; Teßendorf in prep. a, b). Examples are the palm-up-open-hand gesture (cf. Kendon 2004; Müller 2004; Streeck 1994), the ring gesture (Fatfouta in prep.; Kendon 2004; Morris 1977; Neumann 2004), or the brushing aside gesture (Müller and Speckmann 2002; Speckmann 1999; Teßendorf in prep. a, b). These gestures all share a common origin, in that they are all metonymic derivations of everyday actions (cf. Mittelberg 2006; Mittelberg and Waugh, this volume; Mittelberg and Müller in prep.; Müller 1998, in prep. a, b; Müller and Haferland 1997; Streeck 1994): presenting, offering or receiving something (the palm-up-open-hand gesture); picking up small objects with the index finger and thumb (the ring gesture); or brushing aside small objects. What we observe in these gestures is a two-step semiotic process as identified and described by Mittelberg and Waugh (this volume), in which the metonymic target of the sign-formation process turns into the source of the metaphoric gesture (see also Mittelberg 2007). The targets of the metonymic process in our cases are the modulated actions: i.e., part of

the action stands for the action as a whole, thus consituting a "classical" instance of a synecdochic relation (Müller in prep. a, b). This modulated action is used now as a metaphoric source for symbolizing abstract issues such as presenting a discourse object on the palm-up-open-hand, indicating the preciseness of arguments, or brushing aside unpleasant topics. For instance the brushing aside gesture is widely used to express negative assessments, and this is what we will see in the next example. Example 3 comes from free conversations recorded in Cuba (Müller and Speckmann 2002; Speckmann 1999). (For a detailed analysis of the brushing aside gesture used by speakers of the Iberian Peninsula, see Teßendorf in prep. a, b).

In Example 3 the speaker thinks out loud about the possible consequences of what it would be like to have four instead of two TV-channels in Cuba. He is convinced that this would disturb family life by causing endless discussions about which program to watch. He describes the big arguments this would raise in a very lively way, and in doing this becomes himself part of such an imaginary situation: he imagines himself standing in the living room, and he indicates three different places, each of them relating to a different person voting emphatically for another program: "Yo quiero vel aquello yo quiero ver lo otro yo quiero ver esto" ("I want to see this one, I want to see that one, I want to see the other one"). The more programs to choose from, the more arguments you have in your family – this is the moral of the speaker's imagined scenario. It is clearly not desirable to have four channels on Cuban TV and correspondingly he concludes his discussion with a negative assessment performed gesturally as a brushing aside gesture.

Example 3 (from Cuban Spanish):

G1
rh point to the right
yo quiero vel aquello,
I want to see that one

G2
lh points straight
yo quiero ver lo otro,
I want to see the other

G3 G4
rh points straight rh brushes aside
yo quiero ver esto (.)
I want to see this one (.)

The first three gestures the speaker uses relate to the propositional content of the utterance; G1, G2, and G3 point to three different places in the imagined apartment, localizing three different persons with three different wishes. The brushing aside gesture (G4) is located in a micro-pause at the end of this utterance – and clearly assesses this imagined situation as an undesirable one. There is no verbalization of a negative assessment; the gesture takes over the entire communicative burden. It is noteworthy that the gesture is placed at the end of the phrasal unit, precisely where a verbal evaluative particle could have been placed. Instead the speaker pauses and produces a gesture with similar content. It seems as if the brushing aside gesture would do the "same job" as a verbal particle would (which is why Müller and Speckmann, suggested the term "gestural particle"). It gives a negative evaluation of a situation being described, and the gestural meaning is derived from the negative connotation of the practical action. (For a detailed cognitive semiotic analysis of this process, see Teßendorf in prep. a, b.)

What the brushing aside gesture shares with the other recurrent gestures mentioned before is that it has a performative or (more general pragmatic) function rather than a referential one, and it is obvious that metaphor plays a different role here than in example 2. In the second example the communicative function is metaphorical reference, whereas in example 3 the gestures' function is the performance of a communicative action. Hence the first use of the metaphoric gestures belongs to the realm of semantics while the other one belongs to pragmatics. The difference is not a simple matter, but for the sake of brevity it might be characterized as a difference between gestures contributing information to the propositional content of the utterance and gestures contributing meta-communicative information. While in the second example the metaphoric gestures expressed aspects of the propositional content (honesty as a physical form and movement) in the third example the metaphoric gestures are used for meta-communicative purposes (they qualify the propositional content), telling us how the propositional content (the choice of various programs) is being assessed by the speaker. Thus while metaphor as well as metonymy are clearly involved in these gestures, they come in at the level of the semiotic process of sign formation rather than on the level of communicative function.

We may conclude that monomodal metaphors are frequent in words but they also can be found in gestures. As for gestural metaphoric expressions we have found two different kinds: on the one hand there seem to be gestures that are more likely to be created on the spot (such as example 2, "honesty" with a "straight" gesture), and others that appear to recur with a relatively stable form and function (the "brushing aside" case, example 3). These two kinds of gestural metaphors furthermore seem to fall into two different functional groups: one of them expressing parts of the propositional content, the other one performing meta-communicative acts in the widest sense. It seems that the latter ones show a tendency for conventionalization, which is why we are able to put together repertoires of those forms but not of the spontaneous referential gestures, created ad hoc.

4. Multimodal metaphors: source and target in two modalities

Turning to multimodal metaphor, it is not only interesting to note that once again we encounter quite some variation with regard to which articulatory mode expresses which aspects of the metaphor. The kind of variation and distribution of "duties" over the two modalities involved tell us something about the nature of the collaboration of words and gestures in spoken language, and it offers insights into the cognitive activation of metaphoricity during speaking. Of the three theoretically possible variations, two are common, whereas one is extremely rare. We find that the same source and target in two modalities, as well as different source and same target in two modalities, are very common forms of multimodal metaphors in words and gestures, whereas same source and different target appears to be rare.

4.1 Same source and same target in two modalities

A very common form of gesture word collaboration in expressing metaphor is, as one might expect, when the source domain of a conceptual metaphor appears simultaneously in both verbal and gestural form. Consider example 4, in which a young woman is describing how her teenage love became more and more clingy ("*klebrig*") and intense ("*heftig*"):

Example 4:

G1
open palms touching each other repeatedly
also da hab ich schon gemerkt naja'
So there I had already realized, well,

G1 continued
des is ganz schön klebrig.
this is pretty clingy,

G1 continued
*(..) **oder heftig.***
(..) or intense.

Here "clingyness" is being expressed verbally and gesturally. The speaker's flat hands repeatedly touch each other, moving apart and then back to "sticking" together. It is as if the palms were sticky and it was hard to separate them. The gesture enacts the source domain of the verbal metaphoric expression, indicating that metaphoricity of this expression was activated or in the foreground of the speaker's attention. However, the semantic co-expressiveness that we observe in this example does not imply that the gestural and the verbal parts of such a multimodal metaphor must also be expressed simultaneously in real time. As is widely known from gesture studies, gestures often precede words they are co-expressive with; sometimes they are held up and "wait" for speech, and sometimes they continue past the expression. This is precisely what happens here. The gestural metaphor enacting clingyness begins with the first line in the transcript. "Well I already realized" and it is held through the pause in the third line and recycled while she offers another metaphoric qualification of the relation ("strong, intense"). Put differently, even before the speaker actually verbalizes the metaphoric expression "clingy" she begins to enact "clingyness" gesturally. This is a case of a verbo-gestural metaphor in which the gesture enacts the source domain of the verbal metaphoric expression, but it does so significantly before the verbal part of the metaphor is uttered. In fact the temporal overlap of the verbo-gestural metaphor is surrounded by an ongoing gestural enactment of the metaphor. Put differently, gestures may dynamically foreshadow and maintain verbal metaphors over longer stretches of discourse. Moreover, they indicate activation of metaphoricity of conventional and transparent metaphors (Müller 2003, 2007, 2008). Gestures expressing the source domain of a verbal metaphoric expression therefore indicate that at this very moment in the production of a verbo-gestural metaphor, the speaker had activated metaphoricity, and we may therefore characterize this metaphor as "waking" for that very speaker at this moment in time. These cases appear to be widespread and to occur frequently, and we will consider another, similar example below.[2]

In Example 5 a young man challenges his co-participant's opinion on the future implications of one's first job after graduating from university. He thinks that the first job one takes on determines the path of one's future career, and in order to make his point he uses a German idiomatic expression "*die Weichen stellen*," literally "setting the tracks." Note that when he is

using this idiom for the first time, he does not gesture. Gesturing begins with his elaboration and illustration of this metaphoric argument.

Example 5:
nein es is nich so,
no this is not the case,

aber es stellt natürlich Weichen.
but it obviously sets tracks.

das is das Problem.
this is the problem.

G1, 2 joined flat hand point towards left
*es is schon **ne Weiche**—*
it does set tracks

The speaker begins to develop his alternative viewpoint with a very common rhetorical pattern in German conversations, the "*nein aber*" ("no but") pattern, in which a preceding suggestion is first confirmed and then challenged. The confirmation in our example is verbalized in the first line: "no, this is not the case," hereby confirming his interlocutor's point of view, which is then followed by the counterargument in line two, beginning with "but": "but it obviously sets tracks." He verbally formulates his alternative viewpoint, and he does this metaphorically: "it obviously sets the tracks." No gesture is produced along with this first formulation of his counterargument; he only begins to gesture with his first reformulation of the verbal metaphoric expression. Having had no ratifying reaction from his co-participant he begins to elaborate his argument. And with this elaboration he performs a pointing gesture towards his left. Note that the pointing gesture is one in which the extended palms, held vertically, are used to indicate a certain direction. Note that there is a systematic variation of form and function in pointing gestures. Kendon and Versante (2003) show that in Neapolitan conversations speakers use the index finger to point out objects, whereas the flat hand is used to indicate directions. In our case the vertical open palms of the two hands are joined to indicate one direction of a future career. In short, we see here another example of a source being expressed in words and in gestures; the goal of a track is to lead the train into a certain direction, and the gesture visualizes and spatializes this aspect of directionality of the source: gesturally the future career is located to the left hand side of the speaker. That this pointing gesture is a metaphoric one only becomes clear when considering the words with which it is co-expressive, and these entail a verbal metaphoric expres-

sion "Weiche" ("tracks"). Words and gestures share source and target of a metaphoric expression, and these cases are what Müller (2008) terms "verbo-gestural metaphors" (cf. Forceville's 1996, 2002 concept of verbo-pictorial metaphors).

4.2 Different source and same target in two modalities

Here we encounter two different types of multimodal metaphor: one in which there is a gestural metaphoric expression with a target that is verbalized in a non-metaphorical fashion, and another one in which a gestural metaphoric expression goes along with a verbal metaphoric expression. Thus in both cases the target is shared, but only in one case is it metaphorically conceptualized in both modalities. We begin with an example in which the target of the gestural metaphoric expression is verbalized non-metaphorically. The example comes from conversations between American students in which they discussed honesty as a moral value in the context of taking exams, and the student describes honesty as a kind of "abstract thought."

Example 6:

y'know,

G1
bh in front of chest, palms facing self, fingers curled
***a- as far as an** abstract thought of honesty is,*

As soon as the speaker says "far" she lifts her two hands up and places them next to each other with the palms of her hands basically facing herself, and turned slightly towards each other. Both hands are cupped, with the fingers tense and curled inward halfway towards the palms. The shape is as if her hands were surrounding a medium-sized ball that she were squeezing. Given that she holds her hands in this position for the entire phrase "abstract thought of honesty is" (making rhythmic beats on the syllables "far," "-stract," and 'hon-") we argue that this is a way in which she physically characterizes this "abstract thought" in gesture. We therefore find the metaphoric target domain in her words and the source domain (a solid form like that of a round object) in the gesture. Note that there is no metaphoric expression on the verbal level.

We sometimes see verbal and gestural metaphoric expressions being uttered at the same time, each using a different source to express the same target. In example 7 there is a color metaphor expressed verbally with a

spatial metaphor expressed gesturally (see also the discussion of this example in Cienki 2008, and Cienki and Müller 2008b). Here the speaker from Example 6 above continues the thought which was begun there describing honesty as something that does not have "gradations": instead it is characterized by clear oppositions: right or wrong, black or white.

Example 7:

I mean--
y'know,
...
y'know,
G1
bh in front of chest, palms facing self, fingers curled
***a- as far as an** abstract thought of honesty is,*
y'know,

G2
bh palms together, flat in horizontal plane, lh palm up,
rh sweeps left to right across palm of lh
***ther- there is no** gradations.*

G3
lh flat and palm up, rh flat,
outer edge taps palm of lh ('v' marks tap),
alternating slightly to the left (L) and to the right (R)
v L v R v L v R
*Either you're **right you're wrong y'r black 'r white** y'know.*

While verbally describing these oppositions (G3), she moves her left hand out in front of her, palm up and open. She holds her right hand above it, flat, with the palm held vertically, and taps the right edge of her palm against her open left hand in time with the speech as she says each of the words "right," "wrong," "black," and "white." Her right hand taps the left hand first slightly on the left side of her palm (while saying "right"), then slightly to the right side (while saying "wrong"), and repeats these left and right taps when saying "black" and "white," respectively. In one sense the gesture appears to be the dividing line, separating the space on the palm of her left hand into two parts (left and right spaces); but at the same time it indicates those very spaces, the left and right sides of the palm of her hand, by tapping them. Whereas the gesture indicates each member of the two sets of opposing categories as two spaces, the words invoke an opposition between black and white. While colors (or the lack of them) would be difficult to represent in an

iconic way with gestures, spatial concepts are easily rendered, and consequently the metaphor used in gesture (different spaces) is different than the one used in words (different colors). We see here how the specific characteristics of the expressive modality may inform the type of metaphors expressed, leading in this case to multimodal metaphoric expressions that have different sources but share the same metaphoric target (different categories of behavior). These expressions might be tentatively termed "verbo-gestural metaphoric compounds." They differ from verbo-gestural metaphors (source and target are shared) in that they work together in expressing the same target metaphorically but do so with different means, i.e., by using different sources.

4.3 Same source and different target in two modalities

It is interesting to note that, although theoretically possible, this variant does not appear to be used at all – at least insofar as our sets of data are concerned. One could picture a situation where somebody talks about brushing off crumbs of potato chips (crisps) from one's sweater while doing a dismissive brushing aside gesture, characterizing this as a negative aspect of eating potato chips.[3] Cases like these seem to be extremely rare. What we do find instead is that the gestures appear to have a tendency to "follow" the semantics and pragmatics of the verbal utterance, if they can (i.e., if the verbalized content is "gesturable," recall the color metaphor example). It seems, therefore, that when the source is shared the target is also shared. This is theoretically interesting because it puts the source information rendered gesturally into a specific light. We will return to this highlighting of source information through gestures later.

4.4 Discussion

If we consider the examples of metaphoric expression in gesture, described above, we find certain aspects which are qualitatively different than what we see in metaphoric expression in words. First, words are part of the symbolic system of a language. We generally accept that individual words and the phrases they comprise have ascertainable meanings motivating their use. While within a given culture there may be recurring forms which many gestures take, or certain parameters that they share, most gestures do not have highly codified symbolic form-meaning pairings. (The well-known exceptions are the "emblem" gestures which can substitute for words, such as the thumbs-up gesture used as a positive response to something, at least in many European cultures.) In this way they contrast with the manually produced signs of a signed language. Because of the spontaneously determined form, placement, and duration of their use, and obviously because they consist of physical forms and movements in space, we find they have properties when serving as expressions of metaphor source domains which are different from those of words expressing metaphoric source domains.

In addition, it is well known that many gestures present abstract ideas, which are being mentioned in the speech, as concrete entities in front of the speaker: the gestures indicate particular spaces and locations for the idea, or the hands appear to hold an idea, as if it were an object. But this reification is not a simple reification of ABSTRACT AS CONCRETE (what Lakoff and Johnson 1980 called ontological metaphors). The gestures also show us certain properties of the objectified ideas or topics – their size, relative location as imagined by the speaker in the space before him/her, perhaps even their metaphorical evaluation as good or bad by their placement in a high or low space (respectively). For example, in Example 6 when the speaker says "abstract thought of honesty," she holds her two hands out in front of her, the pinkie-finger sides next to each other with her pahns facing herself, the hands half curled in a tense position, as if the hands were cupping and holding an object about the size of a grapefruit. Here the "abstract thought" is shown to be something quite concrete, discrete, and of a size comparable to that of objects we manipulate with our hands every day. As this description shows, tidy characterization of these metaphors for research purposes is problematic, particularly when using a theory like Conceptual Metaphor Theory, in which the formula X IS Y (e.g., GOOD IS UP) is the standard way of analyzing metaphoric mappings. We will return to this dilemma towards the end of the chapter. In addition, we find that metaphors do not necessarily occur as single units, but they can also extend over time, and can add up to complex structures, and as this volume demonstrates they may appear in a broad range of media and modes among them film, photography, painting, and sculpture (Forceville 2006; Gilot and Lake 1964; Mittelberg 2002; Müller 2007).

5. The dynamic nature of metaphoric expressions in the flow of discourse

Metaphors can be successively elaborated and specified. This holds for monomodal verbal metaphors as well as for multimodal metaphors realized

in spoken language as well as for those instantiated in other media, such as for instance film or cartoons (Forceville 1999, 2005, 2006; Müller 2007, 2008).

Example 8 is a continuation of Example 5 and it shows such a successive multimodal elaboration of a verbal metaphoric expression. In this example the co-participants are discussing their differing viewpoints regarding the future implications of one's first job after graduating from university. The current speaker rejects his co-participant's position and argues for the important consequences that the first job may have for the path of one's future career. Recall that he uses a German idiomatic expression "*die Weichen stellen*," literally, "setting the tracks," when expressing his point verbally. He only begins to gesture as he offers a succession of examples which illustrate and elaborate his understanding of "setting the tracks" by choosing a specific job after graduation.

Example 8:

nein es is nich so,
no this is not the case,

aber es stellt natürlich Weichen.
but it obviously sets tracks.

das is das Problem.
this is the problem.

G1
2 joined flat hand point towards left
es is schon ***ne Weiche—***
it does set tracks

G2
flat hands point forward
es is wieder ***ne Weiche–***
it sets another track

G3
flat hands point upward
wenn de sachst ich studiere ***Medizin–***
when you say I will study medicine

G4
2 flat hands point towards left
oder ***Germanistik--***
or German studies

G5
2 flat hands point towards right
oder ***Landwirtschaft–***
or agriculture

G6
2 flat hands point upwards and clap during pause
oder ***(..)*** *werde Tennislehrer.*
or become a tennis coach

des is schon ne Weichenstellung.
this is a kind of setting the tracks

G7
1 flat hand points forward twice, held through pause
nachm Studium ***mußte dir wirklich überlegen welche–(...)***
after graduating [from university] you really have to think carefully which...

In the first part of his response he expresses his alternative viewpoint with a verbal metaphoric expression: "it does set tracks." We see no gesture going with this first formulation; rather this counterargument is highlighted verbally through a meta-comment: "this is the problem." These first verbal moves set the stage for a sequence of verbal illustrations and gestural enactments of the verbal metaphoric expression. Subsequently the verbally expressed metaphoric concept of "setting the tracks" is illustrated by listing three job alternatives – medicine, agriculture, tennis – each one being gesturally situated in a different direction: medicine is the path to the left, agriculture to the right, and tennis is located in the upward direction. The gestures visualize the source of the metaphoric expression "setting the tracks," they embody directionality, and they locate the different future career paths in three alternative directions in the gesture space (left, right, up). But this is not the end of the speaker's argument. After verbalizing three alternatives and enacting three different directions for three different jobs, he summarizes and comes back to the verbal metaphoric expression that he had used initially: "this is a kind of setting the tracks"; once again this verbal metaphoric is not accompanied by a gesture. By returning to his initial expression he retrospectively frames his verbo-gestural elaborations as examples for the metaphoric expression he had used to challenge his co-participant's argument while at the same time preparing his last and now fully explicit re-formulation of his counter-argument: "after graduating you really have to think carefully which-- (...)." This last re-formulation ends with a gestural expression of the idiom that replaces the words and is inserted into the

speech-pause. He uses yet another pointing gesture, but this one is performed with one hand only and it is directed forward – a direction which has not yet been "occupied" by any of his preceding examples. Moreover the gesture is highly articulated in shape: it is supported by the left hand, directed towards the recipient, repeated twice, and held through the speech pause at the end of the turn; and with this gesture the counter-argument and the turn end.

To sum up, in this segment of talk we find a verbal metaphoric expression at the onset which is further verbally illustrated with concrete examples, enacted and elaborated in gestural metaphoric expressions, and completed with a final gestural metaphoric expression at the end of this counterargument. This example nicely illustrates that metaphoricity is a dynamic feature which may trigger metaphoric elaborations in multiple modalities successively in time, and which may provide grounds for the ad hoc creation of new metaphoric gestures, doing "different jobs." We may argue that when the verbal metaphoric expression was uttered first, metaphoricity was not in the foreground of the speaker's attention; we find no indication that metaphoricity was particularly active for the speaker at that point in time. Put differently, at this moment the metaphor was sleeping; only as the speaker is moving on is he building his elaborations in words and gestures on this sleeping metaphoric expression, thus using it as source. Doing this makes clear that metaphoricity becomes successively more active, as he moves along with his argument, such that we may now speak of waking metaphors. Formulated in McNeill's terms, what we may find here is a metaphorical growth point that structures a whole unit of discourse (McNeill 1992; McNeill and Duncan 2000).[4] For conceptual metaphor theory this raises questions about how to account for metaphoricity as a dynamic property, which can be more or less highlighted (Müller 2008). Again, the formula of TARGET IS SOURCE problematically reifies the two domains as static entities.

6. Metaphors beyond words and gestures

But there is more to multimodal metaphor in spoken language use than words and gestures. Let us return to the various expressive forms involved in the oral/aural modality. The metaphoric possibilities of prosodic expression have received less attention in the literature. However, some of the existing research on prosody (e.g., Pierrehumbert and Hirschberg 1990) may be reinterpreted in terms of revealing the potential of intonation for metaphoric significance. As an example, we can take Pierrehumbert and Hirschberg's

discussion of a well-known role played by intonation in speech, that of expression on the metanarrative level. Thus the speaker's belief about whether or not s/he shares information mutually with the hearer may be expressed metaphorically via low or high pitch accents, respectively. Looking at these findings from the perspective of metaphor studies, might they ultimately be grounded in the metaphorical patterns of reasoning (known since Lakoff and Johnson 1980) concerning what is KNOWN AS DOWN and what is UNKNOWN AS UP? (In fact these themselves are secondary metaphors based on our Western metaphorical understanding of pitch along a vertical scale, but we will not dwell on that here.)

Other research shows a connection between the lexical semantics of words rated as positive or negative, and the relative pitch with which they were produced in experimental settings, correlating with the metaphors GOOD IS UP and BAD IS DOWN. For example, Herold (2006) found in her study that words with positively rated meanings (like *happy* and *yummy* ["tasty"]) were produced with a higher fundamental frequency (pitch) than words with negatively rated meanings (like *sad* and *weak*).

In terms of metaphoric expression in speech which is independent of metaphoric verbal semantics, think of vocalizations that are not lexical words and how their interpretation can differ by the intonation with which they are uttered. In response to a question about whether someone likes something or not, one (at least an American English speaker) can utter "Mmm" starting with a high pitch accent, and then letting the pitch fall, to indicate a positive reply. But one could also say "Mmm" with a level low tone, which could indicate a negative reaction, or at least non-confirmational uncertainty. Thus perhaps metaphorical mappings such as POSITIVE IS UP and NEGATIVE IS DOWN may appear in the use of intonation, even without accompanying words that have corresponding lexical meanings.

One study (Cienki in prep.) provides some evidence about the degree to which individuals interpret the quality of prosodic features (stress and intonation contours) in metaphoric terms. The study involved having 20 participants categorize a series of phrases which they simultaneously heard and read using a set of "image schemas" as descriptors. The term "image schemas" is being used here in the sense of Johnson (1987) to refer to simple patterns which frequently recur in various aspects of people's everyday experience (especially visual, tactile, and force-dynamic experience). The set of image-schema names from which participants could choose was limited to the following: container, cycle, force, object, and path, plus the alternative of "other." For comparison in this study, another 20 participants performed the same task of having to characterize the same phrases using the given set of

image schema names, but this second group only read the phrases and did not hear the recordings of the speakers' voices uttering them. The experiments were actually conducted as controls for another experimental setting in which the participants saw and heard the video clips in which the speakers uttered these phrases and made co-verbal gestures (Cienki 2005a). Since the utterances were chosen because they were ones which occurred with gestures of various kinds, the words and phrases themselves were rather random, ranging from more substantive ones, such as "their tests are difficult" and "it's like you're performing," to comments and interjections, such as "no, not really" and "like."

After completing the categorization task, the participants in the first group were asked to write a sentence or two explaining how they used the image schemas to categorize the phrases they heard. The results revealed that they sometimes categorized some of the phrases according to their acoustic properties, rather than referring to the meanings of the lexical items. Consider the following response as an example: "a phrase where the tone rose and fell back again seemed cyclical, whereas when the tone steadily rose it seemed like a path." We see how metaphor may play a role in interpreting *how* an utterance was spoken. As a side note, this could be important for metaphor researchers in terms of setting up stimuli for experiments on metaphor interpretation. The findings underscore the importance of considering the mode of presentation of experimental stimuli (in oral versus written form) because of the effect it may have on the interpretation of the "same" linguistic expressions.

It is worth noting with these examples of metaphor in intonation that we are not dealing with verbal semantics, but with metaphor on the pragmatic level – what the speaker meant with the use of a given intonation contour. Interestingly, we find a parallel phenomenon of metaphor on the pragmatic level in gesture. The primary function of some gestures appears to be to highlight interactive or interpersonal relations, to parse the discourse, or to accomplish a performative act (Kendon 2004: ch. 9). Müller, referring to unpublished observations by Jürgen Streeck, discusses the pragmatic functions of the palm-up open-hand (PUOH) gesture, which can serve to "present an abstract, discursive object as a concrete, manipulable entity" (2004: 233). The gesture can indicate that what the speaker is saying is to be interpreted as an idea to be discussed, a proposal, or a question (Kendon 2004: 159). In terms of conceptual metaphor theory, we might say that this gesture uses the pragmatic metaphor of INTRODUCING AN IDEA IS PRESENTING AN OBJECT. Here as in the other recurrent gestures discussed above, the metaphor does not simply work on the level of what the speaker's words express semantically. Rather, it works on the pragmatic level, in that the source is expressed in the gesture, and the target is what the speaker is doing with his/her words as well as with his/her gestures.

7. Implications for metaphor theory

A major conclusion we can draw from the fact that metaphors can be realized in multiple modalities is that metaphoricity is modality-independent. It documents that the establishment and creation of metaphoricity is a cognitive process with products in various modalities, thus offering strong support for Lakoff and Johnson's initial idea of moving metaphor(icity) out of the realm of literary discourse into the mundane world of everyday thought (Müller 2003, 2007, 2008). However, this also has critical implications for metaphor theory in that it calls for refined empirical methodology as well as for a new theoretical understanding of the different forms of multimodal metaphors and their constitutive semantic relations. It also directs our attention to the necessity of including a cognitive-semiotic analysis of metaphoric, as well as of metonymic, processes (see Mittelberg 2006, 2007; Mittelberg and Müller in prep. a; Mittelberg and Waugh this volume). A major implication of the insights gained through the analysis of multimodal metaphors in the use of spoken language is the fact that as spoken language is inherently dynamic, so is multimodal metaphor.

As already indicated above, the study of metaphors as expressed in the dynamic processes of speaking presents us with metaphoric source domains which are themselves contingent on time for their realization. This raises a problem, given the traditional means of conceptual metaphor analysis, namely that it involves the static verbal formula of TARGET IS SOURCE (an issue raised long ago by the anthropologist Bradd Shore, personal communication). Various authors in recent research have suggested alternatives to try to overcome the limitations of this analytic device.

For some types of source domains, one solution is to characterize them by using schematic images. An example described in Cienki (2005b) is that when Al Gore was a candidate for U.S. president in 2000 he used the same gesture at several points during the televised debates: a gesture with one or both hands palm up and cupped slightly with the fingers slightly curved, as if he were holding a small ball. This gesture occurred with phrases such as "enable us to project the power for good," "shepherds that economic strength," "the power of example is America's [greatest power] in the world" (with square brackets indicating the timing of the gesture in the last

example). We would argue that in the examples from Gore, the gesture serves basically the same purpose as the PUOH gesture discussed by Müller (2004), but that there is an added element here indicated by the cupped shape of the hand. In a physical situation, such a hand shape would be used not only to support a small object in the hand, but also to prevent it from falling off the extended hand, thus protecting it in a way. Thus the gesture not only suggests that the speaker is treating AN IDEA AS AN OBJECT, which he is presenting to the addressee (the moderator of the debate and, by extension, the television audience), but that he is also showing something about his attitude toward the idea he is presenting, perhaps that it is something good which he wants to support (all three utterances expressed positive ideas which Gore espoused). In light of the meaning added by the cupped hand shape, the manner of presenting is significant, and (as argued in Cienki 2005b) could be indicated by a diagram or schematic image – see the ones Efron (1972) used in his analysis of the linguistic properties of the gestures used by Italians as compared to Eastern-European Jewish immigrants to New York City. See also Calbris' (2003) schematizations of gesture hand shapes and motions in diagrammatic form. Finally, the increasing use of digital publishing (online or on CDs or DVDs) allows for video characterization of source domains which are dynamic in nature, in that they can be presented as moving schematic images, for example as small animations.

8. Implications for thinking for speaking and gesturing

Slobin (1987, 1996) argues that there is a special form of thought which is mobilized in the process of talking, which he calls thinking-for-speaking. As he describes it, "'Thinking for speaking' involves picking those characteristics [of a perceived event, CM and AC] that (a) fit some conceptualization of the event, and (b) are readily encodable in the language" which the speaker is using at the moment (Slobin 1987: 435). Thus the lexical and grammatical means of expression available in a language are used by speakers already as they are anticipating how to utter what they want to utter. McNeill and Duncan (2000) suggest that gesture needs to be taken into account in this process as well. They discuss how the idea units which we are continually developing and unraveling for expression while we talk, what McNeill (1992) has called *growth points*, combine both imagery and linguistic-categorical content. In the process of thinking while speaking, which McNeill and Duncan (2000: 157) note is perhaps a more accurate way to refer to the phenomenon, the imagistic content receives partial expression in the gestures that the speaker produces. Indeed, *which* imagery is expressible in gesture is a factor in *how* the verbo-gestural utterance is produced. Consequently we (Müller and Cienki 2006) have discussed the process as "thinking-for-speaking-and-gesturing". Both the nature of the available linguistic forms as well as the expressive potential of hand-gestures which one can use in the expression of one's thoughts while speaking are significant for what thoughts ultimately get expressed. This means that there are important connections between which single or multiple modality/ies are at one's disposal for expression and the kind(s) of metaphoric ideas which one ultimately conceptualizes and expresses – either monomodally or multimodally.

9. Conclusion

The insights gained through the analyses of multimodal metaphors in language use have rather far-reaching consequences for a theory of metaphor. Not only do they underline the stance of Conceptual Metaphor Theory with regard to the principally modality-independent nature of metaphoricity (this means metaphor as a cognitive mechanism); they uncover that the hitherto static view on metaphor in thought and language must be supplemented by a dynamic view on metaphor in thinking, speaking and gesturing (cf. Müller 2003, 2007, 2008; Müller and Cienki 2006;). Such a dynamic view takes into consideration the procedural nature of meaning creation in situations of face-to-face communication, including the elaboration of metaphoric expressions in the discourse as well as the dynamic activation of metaphoricity, which for a specific and often short moment in time may turn sleeping metaphors into waking ones (Müller 2003, 2007, 2008). Put differently, these observations indicate that we need a theory that distinguishes between products and processes (Gibbs 1992, 1998, 1999; cf. also Cameron and Low 1999), and also between system and use (Müller 2008; Steen 2006; Steen and Gibbs 1999) or one that cross-cuts these dichotomies as Steen (2007) has recently proposed; that one distinguishes metaphors in grammar and usage, be they approached as symbolic structure or as forms of behavior.

Further consequences of realizing the multimodal nature of metaphoric expression in the use of spoken language include that in co-speech gesturing as well as in prosodic features of speech we may see manifestations of the imagistic or, more generally, the embodied nature of many metaphoric source domains. We also see that the metaphoric process is not a unidirectional one, one in which a preconfigured thought is being "translated" into gesture, word, or sound; rather we must conceive of it as an interactional

process which takes into consideration the nature and the expressive potential of the respective modalities (colors do not lend themselves to expression in gesture, but for spatial relations the opposite holds true). Compare for instance what is known about metaphoric expression in another use of the manual modality, namely in sign language. In both cases, gesture and sign language, the iconic nature of visual/manual expression affords different potentials than aural/oral expression does (Müller in prep.; Taub 2001), although gestures with speech are normally co-verbal, as opposed to constituting linguistic signs in and of themselves. However, in the process of communication – or to put it in Wallace Chafe's (1994) terms, in the flow of discourse – these modality-specific properties can be exploited to varying extents in any given event of speaking.

A dynamic approach to linguistic theory (such as that proposed by McNeill 2005) or to metaphor theory (as in Müller 2008) which can accommodate the multimodal potential of language production and reception can provide a more complete picture of the complexity of this form of human behavior than the static views of language, metaphor, and thought which currently dominate the field of cognitive linguistics and beyond. In conclusion, for researchers of spoken language, moving beyond the level of the words can uncover many facets of metaphoricity that had previously lain hidden.

Acknowledgements

We are grateful to Charles Forceville, Irene Mittelberg, and Linda Waugh for insightful comments on an early draft of this chapter.

Notes

1. In his work on 'F-Formations' (facing formations) Kendon (1990) indicates that facing formations may actually show different forms, varying with the amount of participants involved but also within dyadic encounters: "In F-formations of two indidviduals, for example, we may see arrangements that vary from a direct face-to-face pattern, to an L-shaped pattern, or even a side-by-side pattern" (Kendon 1990: 250). Kendon (personal communication) has also observed that Australian aboriginals conduct conversations in certain situations all facing the same direction, i.e., in a side-by-side configuration. Tzeltal speakers appear to quite commonly choose a side-by-side configuration in dyadic situations (Stephen Levinson, personal communication). For the interactive structure of establishing such F-formations, see Müller and Bohle (2007).
2. For a more detailed account of this and other similar examples, see Müller (2008).
3. This example is inspired by a case reported by Teßendorf, in which the brushing aside movement is used to brush aside crumbs of potato chips, functioning here as an object manipulation. For the metonymic and metaphoric links necessary to transform this action into a pragmatic gesture see Teßendorf (in prep. a, b).
4. For further discussion and more examples of dynamic metaphoricity in gesture and speech see Müller (2003, 2007, 2008) and Cienki and Müller (2008a).

References

Bouvet, Danielle
1997 *Le corps et la métaphore dans les langues gestuelles: A la recherche des modes de production des signes.* Paris: L'Harmattan.
2001 *La dimension corporelle de la parole: Les marques posturo-mimo-gestuelles de la parole, leurs aspects métonymiques et métaphoriques, et leur rôle au cours d'un récit.* Paris: Peeters.

Bressem, Jana, and Silva Ladewig (eds.)
in prep. *Handmade patterns: Recurrent Forms and Functions of Gestures.* Amsterdam/Philadelphia: Benjamins.

Calbris, Geneviève
1990 *The Semiotics of French Gestures.* Bloomington, IN: Indiana University Press.
1998 Geste et images. *Semiotica* 118 (1-2): 105–120.
2003 From cutting an object to a clear cut analysis: Gesture as the representation of a preconceptual schema linking concrete actions to abstract notions. *Gesture* 3: 19–46.

Cameron, Lynne, and Graham Low (eds.)
1999 *Researching and Applying Metaphor.* Cambridge: Cambridge University Press

Chafe, Wallace
1994 *Discourse, Consciousness, and Time: The Flow and Displacement of Conscious Experience in Speaking and Writing.* Chicago: University of Chicago Press.

Cienki, Alan
1998 Metaphoric gestures and some of their relations to verbal metaphorical expressions. In *Discourse and Cognition: Bridging the*

Gap, Jean-Pierre Koenig (ed.), 189–204. Stanford, CA: Center for the Study of Language and Information.

1999 Metaphors and cultural models as profiles and bases. In *Metaphor in Cognitive Linguistics*, Raymond. W. Gibbs, Jr. and Gerard J. Steen (eds.), 189–203. Amsterdam/Philadelphia: Benjamins.

2005a Image schemas and gesture. In *From Perception to Meaning: Image Schemas in Cognitive Linguistics*, Beate Hampe (ed.), 421–441. Berlin/New York: Mouton de Gruyter.

2005b Metaphor in the "Strict Father" and "Nurturant Parent" cognitive models: Theoretical issues raised in an empirical study. *Cognitive Linguistics* 16: 279–312.

2008 Why study metaphor and gesture? In *Metaphor and Gesture*, Alan Cienki and Cornelia Müller (eds.), 5–25. Amsterdam/Philadelphia: Benjamins.

in prep. The (image) schematicity of concrete versus abstract referential gestures and their accompanying words.

Cienki, Alan, and Cornelia Müller (eds.)

2008a *Metaphor and Gesture*. Amsterdam/Philadelphia: Benjamins.

Cienki, Alan, and Cornelia Müller

2008b Metaphor, gesture, and thought. In *The Cambridge Handbook of Metaphor and Thought*, Raymond W. Gibbs, Jr. (ed.), 483–501. Cambridge: Cambridge University Press.

Clark, Herbert

1973 Space, time, semantics, and the child. In *Cognitive Development and the Acquisition of Language*, Timothy E. Moore (ed.), 27–63. New York: Academic Press.

Efron, David

1972 *Gesture, Race, and Culture*. (First published (1941) as *Gesture and Environment*). Berlin/New York: Mouton de Gruyter.

Forceville, Charles

1996 *Pictorial Metaphor in Advertising*. London/New York: Routledge

1999 The metaphor COLIN IS A CHILD in Ian McEwan's Harold Pinter's, and Paul Schrader's *The Comfort of Strangers*. *Metaphor and Symbol* 14: 179–98.

2002 The identification of target and source in pictorial metaphors. *Journal of Pragmatics* 34: 1–14.

2005 Visual representations of the Idealized Cognitive Model of anger in the Asterix album *La Zizanie*. *Journal of Pragmatics* 37: 69–88

2006 Non-verbal and multimodal metaphor in a cognitivist framework: Agendas for research. In *Cognitive Linguistics: Current Applications and Future Perspectives*, Gitte Kristiansen, Michel Achard, René Dirven, and Francisco J. Ruiz de Mendoza Ibáñez (eds.), 379–402. Berlin/New York: Mouton de Gruyter.

Gibbs, Raymond W., Jr.

1993a Process and products in making sense of tropes. In *Metaphor and Thought* (2nd ed.), Andrew Ortony (ed.), 252–276. Cambridge: Cambridge University Press.

1998 The fight over metaphor in thought and language. In *Figurative Language and Thought*, Albert N. Katz, Cristina Cacciari, Raymond W. Gibbs, Jr., and Mark Turner (eds.), 119–157. New York/Oxford: Oxford University Press.

1999 Researching metaphor. In *Researching and Applying Metaphor*, Lynne Cameron and Graham Low (eds.), 29–47. Cambridge: Cambridge University Press.

Gilot, Francoise, and Carlton Lake

1964 *Life with Picasso*. New York: McGraw-Hill.

Herold, Debora

2006 Acoustic correlates to word meaning in infant directed speech. Ph.D. diss., Emory University.

Johnson, Mark

1987 *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: University of Chicago Press.

Kendon, Adam

1990 *Conducting Interaction: Patterns of Behavior in Focused Encounters*. Cambridge: Cambridge University Press.

2004 *Gesture: Visible Action as Utterance*. Cambridge: Cambridge University Press.

Kendon, Adam, and Laura Versante

2003 Pointing by hand in "Neapolitan." In *Pointing: Where Language, Culture and Cognition Meet*, Sotaro Kita (ed.), 109–137. Hillsdale, NJ: Lawrence Erlbaum.

Ladewig, Silva

in prep. Metonymic relations in a recurrent polysemous gesture. In *Metonymy in Gesture and Signed Languages*, Irene Mittelberg and Cornelia Müller (eds.), special Issue of *CogniTextes*.

Lakoff, George, and Mark Johnson

1980 *Metaphors We Live By*. Chicago: University of Chicago Press.

McNeill, David

1992 *Hand and Mind: What Gestures Reveal about Thought*. Chicago: University of Chicago Press.

2005 *Gesture and Thought*. Chicago: University of Chicago Press.

McNeill, David, and Susan Duncan

2000 Growth points in thinking-for-speaking. In *Language and Gesture*, David McNeill (ed.), 141–161. Cambridge: Cambridge University Press.

Mittelberg, Irene
2002 The visual memory of grammar: Iconographical and metaphorical insights. *Metaphorik.de* 2/2002: 69–89.
2006 Metaphor and Metonymy in Language and Gesture: Discourse Evidence for Multimodal Models of Grammar. Ph.D. diss., Cornell University.
2007 Internal and external metonymy in co-verbal gesture: Jakobsonian and cognitivist views on contiguity relations within and across modalities. Paper presented at the 10th ICLC, Krakow, July 2007.
Mittelberg, Irene, and Linda Waugh
this vol. Metonymy first, metaphor second: A cognitive-semiotic approach to multimodal figures of thought in co-speech gesture.
Mittelberg, Irene, and Cornelia Müller (eds.)
in prep. *Metaphor and Metonymy in Gesture and Sign Languages.* Special Issue. *CogniTextes.*
Morris, Desmond
1977 *Manwatching.* London: Jonathan Cape.
Müller, Cornelia
1998 *Redebegleitende Gesten. Kulturgeschichte – Theorie – Sprachvergleich.* Berlin: Berlin Verlag Arno Spitz.
2003 Gestik als Lebenszeichen "toter Metaphern." Tote, schlafende und wache Metaphern. *Zeitschrift für Semiotik* 1-2: 61–72.
2004 Forms and uses of the Palm Up Open Hand: A case of a gesture family? In *The Semantics and Pragmatics of Everyday Gestures,* Cornelia Müller and Roland Posner (eds.), 233–56. Berlin: Weidler.
2007 A dynamic view of metaphor, gesture and thought. In *Gesture and the Dynamic Dimension of Language,* Susan Duncan, Justine Cassell, and Elena Levy (eds.), 109–116. Amsterdam/Philadelphia: Benjamins.
2008 *Metaphors – Dead and Alive, Sleeping and Waking: A Dynamic View.* Chicago: University of Chicago Press.
in prep. a Creative devices in gestures and sign languages. In Cornelia Müller, Ellen Fricke, Silva Ladewig, Irene Mittelberg, Sedinha Teßendorf (in prep.) Gestural Modes of Representation as Mimetic Devices – Revisited. *Gesture.*
in prep. b How hand movements turn into gesture: Gestural modes of representation as metonymic resources of gesture creation. In *Metaphor and Metonymy in Gesture and Sign Languages.* Special Issue of *CogniTextes,* Irene Mittelberg and Cornelia Müller (eds.).
Müller, Cornelia, and Ulrike Bohle
2007 Das Fundament der Interaktion: Zur Vorbereitung und Herstellung von Interaktionsräumen durch körperliche Koordination. In *Koordination: Analysen zur multimodalen Interaktion,* Reinhold Schmitt (ed.), 129–165. Tübingen: Narr.

Müller, Cornelia, and Alan Cienki
2006 Verbal to gestural, and gestural to verbal, metaphoric expression: Activation and development of metaphoricity. Paper presented at the sixth conference on Researching and Applying Metaphor (RaAM 6), Leeds, UK, April 2006.
Müller, Cornelia, and Harald Haferland
1997 Gefesselte Hände. Zur Semiose performativer Gesten. *Mitteilungen des Germanistenverbandes* 3: 29–53.
Müller, Cornelia, and Gerald Speckmann
2002 Gestos con una valoración negativa en la conversación cubana. *De Signis* 3: 91–103.
Neumann, Ragnhild
2004 The conventionalization of the ring gesture in German discourse. In *The Semantics and Pragmatics of Everyday Gestures,* Cornelia Müller and Roland Posner (eds.), 217–224. Berlin: Weidler.
Núñez, Rafael
2004 Do real numbers really move? Language, thought and gesture: The embodied cognitive foundations of mathematics. In *Embodied Artificial Intelligence,* Fumiya Iida, Rolf Pfeifer, Luc Steels, and Yasuo Kuniyoshi (eds.), 54–73. Berlin: Springer.
Núñez, Rafael, and Eve Sweetser
2006 With the future behind them. Convergent evidence from Aymara language and gesture in the crosslinguistics comparison of spatial construals of time. *Cognitive Science* 20: 1–49.
Pierrehumbert, Janet, and Julia Hirschberg
1990 The meaning of intonational contours in the interpretation of discourse. In *Intentions in Communication,* Philip R. Cohen, Jerry Morgan, and Martha E. Pollack (eds.), 271–311. Boston, MA: MIT Press.
Pragglejaz Group
2007 MIP: A method for identifying metaphorically used words in discourse. *Metaphor and Symbol* 22: 1–39.
Slobin, Dan I.
1987 Thinking for speaking. *Proceedings of the 13th Annual Meeting of the Berkeley Linguistics Society,* 435–445.
1996 From "thought to language" to "thinking for speaking." In *Rethinking Linguistic Relativity,* Stephen C. Levinson and John Gumperz (eds.), 70–96. Cambridge: Cambridge University Press.
Speckmann, Gerald
1999 Sprachbezug und Konventionalität von Gesten am Beispiel kubanischer Äußerungen. MA diss., Freie Universität Berlin.

Steen, Gerard J.
2006 Metaphor in applied linguistics: Four cognitive approaches. *Documentação de Estudos em Lingüística Teórica e Aplicada – D.E.L.T.A.* 22 (1): 21–44.
2007 *Finding Metaphor in Grammar and Usage: A Methodological Analysis of Theory and Research.* Amsterdam/Philadelphia: Benjamins.
Steen, Gerard J. and Raymond W. Gibbs, Jr.
1999 Introduction. In *Metaphor in Cognitive Linguistics*, Raymond W. Gibbs, Jr. and Gerard J. Steen (eds.), 1–8. Amsterdam/Philadelphia: Benjamins.
Streeck, Jürgen
1994 "Speech-handling": The metaphorical representation of speech in gestures. A cross-cultural study. Ms. University of Texas at Austin.
Sweetser, Eve
1998 Regular metaphoricity in gesture: Bodily-based models of speech interaction. *Actes du 16e Congrès International des Linguistes* (CDRom). Amsterdam: Elsevier.
Teßendorf, Sedinha
in prep. a From everyday action to gestural performance: Metonymic motivations of a pragmatic gesture. In *Metaphor and Metonymy in Gesture and Sign Languages*. Special Issue of *CogniTextes*, Irene Mittelberg and Cornelia Müller (eds.).
in prep. b Pragmatic and recurrent: The case of the brushing aside gesture. In *Recurrence in Coverbal Gestures – Investigating Form and Function*, Jana Bressem and Silva Ladewig (eds.). Amsterdam/ Philadelphia: Benjamins.
Taub, Sarah
2001 *Language from the Body: Iconicity and Metaphor in American Sign Language*. Cambridge: Cambridge University Press.
Webb, Rebecca
1996 Linguistic Features of Metaphoric Gestures. Ph.D. diss., University of Rochester, NY.
Wilcox, Phyllis P.
2000 *Metaphor in American Sign Language.* Washington, DC: Gallaudet University Press.
2004 A cognitive key: Metonymic and metaphorical mappings in ASL. *Cognitive Linguistics* 15: 119–147.

Chapter 14

Metonymy first, metaphor second: A cognitive-semiotic approach to multimodal figures of thought in co-speech gesture

Irene Mittelberg and Linda R. Waugh

Abstract

Based on spoken academic discourse and its accompanying gestures, this chapter presents a cognitive-semiotic approach to multimodal communication that assigns equal importance to metaphor and metonymy. Combining traditional semiotics with contemporary cognitivist theories, we demonstrate how these two figures of thought jointly structure multimodal representations of grammatical concepts and structures. We discuss Jakobson's view of metaphor and metonymy, and particularly his distinction between internal and external metonymy, thus discerning various principles of sign constitution and indirect reference within metaphoric gestures (whether or not the concurrent speech is metaphorical). We then introduce a dynamic two-step interpretative model suggesting that metonymy leads the way into metaphor: in order to infer the imaginary objects or traces that gesturing hands seem to hold or draw in the air, a metonymic mapping between hand (source) and imaginary object (target) is a prerequisite for the metaphorical mapping between that very object (source) and the abstract idea (target) it represents.

Keywords: metaphor, metonymy, gesture, semiotics, cognitive theory

1. Introduction

Work done by scholars in many disciplines has shown that metaphor and metonymy rely on general cognitive processes of conceptualization and association that may materialize in modalities other than spoken and written words, e.g., in gesture. While the chapters in this volume contribute to a unified approach to the role of metaphor in multimodal representations, we will show here that it is both metaphor and metonymy that, by working together in multimodal communication, function to convey complex meanings,