

Multimodal Metaphor

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Chapter 1

Introduction

Charles Forceville and Eduardo Urios-Aparisi

All discourse is persuasive in the sense of aiming for some sort of cognitive, emotional or aesthetic effect, or all three together, in its envisaged audience. But purely verbal messages and texts in (mass) communication are nowadays often complemented, or even superseded, by information in other signifying systems. Printed material (advertisements, manuals, instruction books, maps, graphics, cartoons, etc.) usually combine, and establish interactions between, verbal and pictorial information, while most films and TV programs in addition draw on music and non-verbal sound. Internet sites combine text with pictures and sound, and pay attention to graphic lay-out. Spoken language is often accompanied by gestures, while modern product design involves not only what products *look like*, but also how they *sound* (e.g., cars' motors, their closing doors) or even *smell*.

Such developments reverberate in scholarly research. Classic language and literature faculties in the humanities are on the wane or get transformed and relabelled as media or cultural studies departments. Academic research in the humanities is beginning to shift from a focus on exclusively verbal text to discourses in which language is but one – albeit still highly important – communicative mode. This inescapable trend toward multimodality, whether applauded or bemoaned, clearly transpires from the rapidly growing number of papers, books, and conference panels with “multimodal” or one of its cognates in the title.

In the current volume this important development in humanities research is studied from the perspective of another, somewhat older paradigm shift: the claim that metaphor is not primarily a matter of language, but structures thought and action. This view was first systematically presented, at least in the English-speaking world, by two book-length studies: Andrew Ortony's (1979) edited volume *Metaphor and Thought*, which had its second life in a revised and expanded edition in 1993, and George Lakoff and Mark Johnson's monograph *Metaphors We Live By* (1980; see also Lakoff and Johnson 2003).

We believe that the book you have in your hands is pertinent to scholars in both metaphorology and multimodality. Clearly, metaphorists considering themselves adherents of the Conceptual Metaphor Theory (CMT) initiated by Lakoff and Johnson need to take seriously at least one crucial consequence of the tenet that “metaphor [is] not a figure of speech, but a mode of thought” (Lakoff 1993: 210): that metaphor can occur in other modes than language alone. Indeed they *must* do so, for if researching non-verbal and not-purely-verbal metaphor does not yield robust findings, this jeopardizes the Lakoff-and-Johnsonian presupposition that we think metaphorically. After all, in that case the supposedly metaphorical nature of human thinking would turn out to be a misconception: what has been presented as the CONCEPTUAL level of metaphor would then simply be verbal metaphor under a different name, disguised in SMALL CAPITALS. Mark Johnson appears to agree, arguing that lurking behind an exclusive focus on language is the prejudice that meaning is only to be found in words. He emphasizes that “the processes of embodied meaning in the arts are the very same ones that make linguistic meaning possible” (2007: 209). Of course work to correct the one-sided emphasis on verbal manifestations has already been done, notably on gesture and pictures, both by authors represented in this book and by others. What is new in this book is that it focuses not so much on non-verbal metaphor *per se*, but on multimodal metaphor, that is, on metaphors whose target and source are rendered exclusively or predominantly in two different modes/modalities (the terms “mode” and “modality” are currently both in use; it is unclear at present which one will catch on) – and in many cases the verbal is one of these. The definition of a mode is an extremely thorny one (for more discussion, see Forceville 2006>this volume). For present purposes, the modes to be taken into account are two or more of the following: (1) written language; (2) spoken language; (3) static and moving images; (4) music; (5) non-verbal sound; (6) gestures. Since what can be conveyed in terms of facts, emotions, and aesthetic pleasure differs from one mode to another, the choices for (one) particular mode(s) over (an)other(s) that the producer of a multimodal metaphor has to make is/are bound to affect its overall meaning. One mode’s potential to render “meaning” can never be completely “translated” into that of another mode – and sometimes translation is downright impossible. For this reason alone, a healthy theory of (cognitive) metaphor must systematically study non-verbal and multimodal metaphor. It may well be – indeed it is very probable – that the excessive emphasis on the verbal manifestations of metaphorical thought has blinded researchers to dimensions of the latter that quite simply cannot be cued by the verbal mode.

But researchers in the field of multimodal discourse can in their turn benefit from the work done by interdiscipline-oriented (but often linguistically trained) metaphor scholars. It is true that “semiotics,” rooted in the structuralism of the 1960s and 1970s, deserves credit for being the first discipline to have conducted sustained research into non-verbal communication, at least if we discount art history, which has necessarily always had a more restricted focus. It is therefore also no coincidence that some of the contributors in this volume propose to marry insights from semiotics to those of cognitivist linguistics – and neither is the recent foundation of a journal called *Cognitive Semiotics*. However, multimodal discourse is a vast territory, comprising a multitude of material carriers (paper, celluloid, videotape, bits and bytes, stone, cloth ...), modes (written language, spoken language, visuals, sound, music, gesture, smell, touch), and genres (art, advertising, instruction manual; or at a more detailed level, say, “comedy,” “film noir,” “Western,” “science fiction”), many of these being further categorizable. It seems at this moment in time impossible, therefore, to provide anything approaching a holistic blueprint of multimodal discourse – although attempts have been made (Kress and Van Leeuwen 1996/2006, 2001; Baldry and Thibault 2006; O’Halloran 2004; but see Ventola et al. 2004 for more focused approaches). By contrast, systematically tracing the possible manifestations of a specific concept such as “metaphor” across various material carriers, modes, and genres, will signpost promising scholarly avenues, we trust, for how to analyze yet other aspects of multimodal discourse.

One way to date the conception of this book is to say that its seed was planted at “The pragmatics of multimodal representations” panel that we, the editors, organized at the 9th International Pragmatics Conference (Riva del Garda, Italy, 10–15 July 2005). In the call for papers we had emphasized we were particularly interested in multimodal metaphor, and in the end the majority of the submissions focused specifically on this topic. Along with these, other scholars we knew to have the expertise to bridge cognitive linguistics and the budding discipline of multimodal discourse were approached with the request to submit an abstract. They were given detailed guidelines about the book’s concept, and about how we envisaged each contribution fitting in. In order to ensure internal coherence, it was suggested that all prospective contributors take their cue for the definition of multimodal metaphor from the position paper by Forceville (2006/this volume) or else that they make clear why and how they deviated from it. Moreover, we requested that prospective contributors apply theoretical concepts systematically to one or more real-life case studies, the idea being that this procedure would fruitfully force them to face problems that mere introspective reasoning often circum-

events (cf. Haser 2005: 50). In addition, each chapter is thereby expected to spawn ideas how the proposed procedure can be deployed to analyze *other* multimodal representations than those examined there. Contributors were also encouraged to present (some of) their conclusions in a form that allows for empirical testing. Most of those we approached responded positively, and of the latter, the majority of the delivered chapters displayed the quality we had in mind. Early drafts of the chapters were extensively commented upon both by the editors and by one other contributing author.

The guiding principle running through the chapters is a consideration of which modes play a role in the identification and interpretation of the metaphors studied. Almost invariably, this entails taking into account the genre to which the discourse featuring a multimodal metaphor belongs: advertisements, political cartoons, comics, animation, musical compositions, oral conversations and lectures, feature films. A third recurring dimension is the extent to which a metaphor is not only embodied but also governed by the cultural or professional community in which it functions. We will now briefly introduce each of the chapters in the book.

Chapter 2 is a slightly updated version of the position paper on pictorial and multimodal metaphor by Forceville (2006). This paper provides and discusses the definition of multimodal metaphor that contributors to the current volume were asked to use – or else explain why they opted for an alternative definition.

The first cluster of chapters pertains to multimodal metaphor in advertising. It makes sense to begin with this topic, since advertising has been the subject of a number of studies pertaining to pictorial metaphor – the variety of non-verbal metaphor that hitherto has attracted most scholarly attention. This is not surprising, for advertising constitutes a body of texts and practices that is *persuasive par excellence*. It allows bringing into play the modes of language, visuals, and sound/music. The first contribution in this cluster, “Brand images: Verbal and visual metaphor in corporate branding messages,” by Veronika Koller (chapter 3), charts how the logos, visuals, and layouts that are used to create companies’ corporate identities often require or invite the construal of metaphors. Tying in with the pervasive BRANDS ARE LIVING ORGANISMS metaphor, visual elements often subtly encourage the inference of positive corporate qualities that are not necessarily verbalized. Identifying the metaphorical mechanisms deployed to achieve this goal points the way to how the inevitably biased nature of companies’ self-portraits can be critically examined.

Chapter 4 is Rosario Caballero’s “Cutting across the senses: Imagery in winespeak and audiovisual promotion.” The chapter is part of an ongoing

research project which is partly based on an impressive corpus of 12,000 wine tasting notes in professional journals, and here takes into account Spanish and French wine advertisements as well. Clearly, since taste and smell – wines’ most important characteristics – cannot be directly represented, their verbal and visual descriptions must rely on synaesthesia and metaphor. An important issue in the chapter is the difficulty of the “translation” of these hardly theorized modes of taste and smell into a shared “vocabulary” of pictures and words. Another pertinent issue is the role of the cultural background governing both the choice of source domain in purely verbal metaphors describing wines and the choice of visuals in the advertisements.

Eduardo Urios-Aparisi’s “Interaction of multimodal metaphor and metonymy in TV commercials: Four case studies” (chapter 5) discusses instances of Spanish television commercials. He addresses how Forceville’s (2006/this volume) multimodal metaphor interacts with metonymical mappings, and applies the taxonomy found in Ruiz de Mendoza and Díez Velasco (2002) to multimodal advertising texts, identifying their cognitive value and communicative strategies within this genre. He shows how metaphor and metonymy fulfil different cognitive and discursive roles, serving to identify the target of a metaphor, to limit the correspondences between the domains, or to expand and create new meanings.

In “Nonverbal and multimodal manifestations of metaphors and metonymies: A case study” (chapter 6), Ning Yu provides an in-depth analysis of a single educational message (a non-commercial commercial, if you like) broadcast on Chinese national TV in terms of two conceptual metaphors whose purely verbal varieties have often been discussed: LIFE IS A JOURNEY and LIFE IS A STAGE. He shows how aspects of these metaphors, which in some passages are “blended” (Fauconnier and Turner 1998, 2002), surface in various modes. In several scenes, moreover, other conceptual metaphors such as UNDERSTANDING IS SEEING and SUCCESSFUL IS UP are shown to play a role, as well as a range of metonymies. The analysis makes clear that whereas thanks to the visuals, the “embodied” aspects of the metaphors are presumably universally comprehensible, many details can only be fully appreciated by viewers aware of specific Chinese myths and beliefs (cf. Forceville et al. 2006).

The second cluster of chapters pertains to a different textual genre: political cartoons. While a crucial presupposition in advertising is that, one way or another, a positive claim is made about the product, service, or idea advertised, political cartoons, by contrast, are characterized by the convention that something critical or negative is conveyed about one or more persons, or a state of affairs, in the world. Chapter 7, “Visual metaphor versus verbal

metaphor: A unified account,” by Francisco Yus, mounts the argument that verbal and visual metaphors are rooted in the same cognitive mechanism. Drawing on Sperber and Wilson’s (1995) relevance theory and Fodor’s (1983) “modularity of mind” theory, he takes the CMT claim that textual surface manifestations of metaphors can be traced back to conceptual metaphors to imply that there is no substantial difference between how verbal, pictorial, and multimodal metaphors are processed. Analyzing a number of cartoons by the Spanish artist El Roto, Yus demonstrates that the interpretation of each creative metaphor, irrespective of the mode(s) in which it is presented, depends on the formation of *ad hoc* concepts and on “emergent properties” (Gineste et al. 2000; Fauconnier and Turner 2002).

Elizabeth El Refaei’s “Metaphor in political cartoons: Exploring audience responses” (chapter 8) further illuminates the reader about the cartoon genre by investigating two British specimens. As in Yu’s case study, the source-path-goal schema, with its LIFE IS A JOURNEY manifestation, is emphatically present. Since in both Yu’s educational commercial and El Refaei’s cartoons purposiveness as well as temporal development needs to be conveyed, this is hardly unexpected. After providing her own interpretation of the cartoons – which turns out to be consonant with their creators’ intentions – El Refaei reports part of a larger research project in which these two cartoons were presented to, mainly non-native, British youngsters. She finds that these adolescents are often seriously deluded about what is happening in the cartoons, with consequences for their interpretations that are as alarming as they are humorous.

Norman Teng’s “Image alignment in multimodal metaphor” (chapter 9) addresses the role of patterned visual entities in cartoons. One way of creating similarities between different visual elements is by presenting them as featuring the same orientation, color, size – or any other saliently shared aspect of design. Teng discusses how such alignments can play a role in multimodal metaphors. Examining six cartoons by Clay Bennett, he moreover suggests that “alignment” may be the preferred design choice to convey the abstract concept of similarity between two or more items. Teng’s chapter, finally, suggests avenues for research into other multimodal tropes besides metaphor.

Joost Schilperoord and Alfons Maes discuss a variety of Dutch cartoons in chapter 10, “Visual metaphoric conceptualization in editorial cartoons,” arguing that for an appropriate understanding of the metaphors in cartoons image schema-based reasoning needs to be complemented by taxonomic reasoning, since the latter “is often the crucial trigger in interpreting the critical stance expressed in editorial cartoons.” The authors thus focus not so

much on the pragmatic knowledge a viewer brings to a cartoon, but on the text-inherent information that guides metaphor interpretation, which they believe will permit the identification of textual genre-patterns. Examples of three subtypes of pictorial metaphor are examined in detail, and a number of source domains that appear to be particularly popular in cartoon metaphors are identified, such as “hospitals,” “marriage,” “funerals,” and “boxing.”

Based on work by Kővérsses (1986, 2000) and Forceville (2005), the next two chapters examine how emotions, specifically the paradigm case of “anger,” are visualized in comics, and to what extent there is cultural variation in such renderings. This cluster shifts the focus from advertising and political cartoons to comics and animation, retains the cross-cultural dimension, and addresses the notion of structural (in contrast to creative) metaphors. In chapter 11, “Anger in Asterix: The metaphorical representation of anger in comics and animated films,” Bart Eerden compares Forceville’s findings not only to those surfacing from the analysis of another Asterix album, but also to the data elicited from two animation films based on Asterix albums. After all, since the medium is the message, it is likely that the visual signs communicating an emotion in animated film are not completely identical to those found in comics. Kazuko Shinohara and Yoshihiro Matsunaka pursue the investigations of the EMOTIONS ARE FORCES metaphor in chapter 12, “Pictorial metaphors of emotion in Japanese comics,” but they provide a novel perspective by analyzing Japanese manga rather than Western comics. As a consequence, they are able to shed light on which visual signs reflect presumably universal aspects of the metaphor, and which are manifestations of knowledge that is tied to a specific culture. Both chapters in this cluster strongly suggest that conceptual metaphors find expression in visual signs in ways that are not always translatable into language, and therefore may be “direct” manifestations of these conceptual metaphors, unmediated by language.

Spoken language and gestures are so closely interdependent that they really should be studied together (McNeill 1992, 2005; Cienki 1998). It is thus to be expected that multimodal metaphor frequently and naturally occurs in face-to-face communication. In the next cluster, two chapters discuss metaphors drawing on the gestural and spoken language modes. In chapter 13, “Words, gestures and beyond: Forms of multimodal metaphor in the use of spoken language,” Cornelia Müller and Alan Cienki distinguish between various types of monomodal and multimodal metaphor that are possible in spoken language accompanied by gestures, giving examples of each. In addition, they argue that intonation is an under-researched area of conceptual metaphor. Their work supports the central CMT idea that metaphor is a

conceptual phenomenon, but also demonstrates that specific modes each have their own affordances and limitations for conveying dimensions of such conceptual metaphors. Irene Mittelberg and Linda Waugh show in chapter 14, “Metonymy first, metaphor second: A cognitive-semiotic approach to multimodal figures of thought in co-speech gesture,” that gestures may manifest dimensions of conceptual metaphors that are not found in the co-occurring speech and that, moreover, in gesture awareness of metonymy should be considered as an indispensable stage in the process of accessing metaphor.

The chapters in the next cluster are specifically devoted to the musical and sonic contributions to multimodal metaphors. Lawrence Zbikowski discusses in “Music, language, and multimodal metaphor” (chapter 15) how significant aspects of conceptual metaphors in a number of classical and popular music fragments depend exclusively on the musical, as opposed to the verbal, mode. Zbikowski is careful to point out, however, that for these musical elements to be experienced as metaphorical, they need to be considered in conjunction with the theme of the piece. Moreover, not only mappings from language to music are possible, but also *vice versa*. Zbikowski concludes that to do full justice to the respective contributions of text and music to the various musical pieces scrutinized, in a number of cases a multimodal blending approach (Fauconnier and Turner 2002) provides a better model than a multimodal metaphor construal. In both, he maintains, music appears particularly suitable in supplying “sonic analogs” to dynamic processes. In chapter 16 in the cluster, “The role of non-verbal sound and music in multimodal metaphor,” Charles Forceville considers what sonic and musical sources contribute to the identification and interpretation of multimodal metaphors in two genres, commercials and fiction films. Whereas Zbikowski sometimes considers the combinations of text and music best theorizable in terms of blends, Forceville’s cases, drawing on visuals and music – often in conjunction with texts – appear all to impose a clear directionality for mappings from a source to a target, and hence can typically be considered multimodal metaphors. He ends the chapter with a series of preliminary claims, to be tested in further research in this field.

The chapters in the final cluster have been written by scholars with a cognitivist film theory rather than a cognitivist linguistics background. Mats Rohdin, in “Multimodal metaphor in classical film theory from the 1920s to the 1950s” (chapter 17), reminds us that reflection on non-verbal metaphor has a long tradition in film studies. He examines a series of classic texts that discuss cinematic metaphor, and considers to what extent the various approaches are consonant with the multimodal metaphor model adhered to in

this volume. Rohdin thus is the only contributor to present a diachronic perspective on the issue of multimodal metaphor. Moreover, he draws attention to the fact that cinematic metaphors may acquire extra meanings because through visual styling they can create intertextual references to other films and phenomena familiar from everyday life. Finally, Rohdin finds that, contrary to expectation, the silent cinema was particularly rich in multimodal metaphors of the verbo-pictorial variety, due to the creative use of intertitles. The final chapter, co-authored by Gunnar Eggertsson and Charles Forceville, is titled “Multimodal expressions of the HUMAN VICTIM IS ANIMAL metaphor in horror films” (chapter 18). Its key argument is that human victims in extreme horror films are typically abused as if they were animals. The findings shed light on metaphor theory, the genre of horror films, but they also encourage reflection on the issue of animal rights for, in the spirit of Köveses (2005) we can adapt a famous dictum and say: “show me your metaphors and I will tell you who you are.”

The division in clusters and chapters chosen – loosely on the basis of genres and modes – could have been made in different ways, since many other thematic patterns can be detected across the chapters of the book. Without elaborate discussion, we will briefly list some of these patterns, presenting them as something with a status that hovers between hypothesis and research program. Some of the issues have been discussed in relation with verbal metaphors, but often their importance has been underestimated in that realm; others appear to reveal themselves precisely thanks to the multimodal nature of the metaphors that are the specific focus of attention here.

Many metaphors are mini-narratives. The paradigmatic NOUN A IS NOUN B formula disguises the dynamic nature of metaphor. Human beings move literally through space and figuratively through time, and it is within these parameters that they need to make sense of their lives. This sense-making happens through real or imagined metaphor *actions*; it would perhaps be better to conceive of metaphor as A-ING IS B-ING, since metaphor is always metaphor in action. The A IS B format – which maybe became popular also because CMT long discussed only decontextualized metaphors that already came in a ready-made verbal “A is B” form – is no more than a convenient short-hand for what Andreas Musolff calls a “metaphor scenario” (Musolff 2006). And of course we should not forget that Paul Ricoeur (1977) already strongly emphasized the discursive character of metaphor. Though not always explicitly, all chapters in the volume tie in with this notion of a scenario or a narrative.

Target and source in multimodal metaphor may both be concrete entities. Classic CMT has always stressed that human beings can only come to

grips (sic) with the abstract by metaphorically coupling it with the concrete – i.e., with that which is perceptible. But the chapters in this volume are reminders that only a target that is *concrete* is, for instance, *depictable*, which is important in advertising a product, satirizing a politician in a cartoon, or conveying information about a character in a film. The focus on verbal manifestations of conceptual metaphors, that is, has had as an unfortunate side effect that for instance the stylistic dimensions of metaphors and other tropes have been somewhat ignored by cognitivist scholars (but cf. Semino and Culpeper 2002). Many illuminating (aesthetic as well as persuasive) multimodal metaphors convey something about *this* specifically styled target in terms of *this* specifically styled source. Moreover, while the “embodied” nature of conceptual metaphors is one of the basic tenets of CMT, Caballero (this volume) correctly points out that the embodied domains of smell and taste *need* rather than *provide* metaphorical sources. The strong focus on a bottom-up approach (from attested “textual” manifestations to formulations of the conceptual metaphors which supposedly underlie them rather than the other way round) may also be the reason why in several of the chapters there is some interference of the terminology associated with Max Black’s (1979) interaction theory. Black – whose early contributions to cognitive theories of metaphor have insufficiently been acknowledged by most CMT theorists – anticipated that metaphor could be a matter of thought rather than language, but discussed specific, creative metaphors in terms of “features” that were projected or transferred from source to target. CMT favors referring to this process as the partial mapping of entities and knowledge structures from source to target, resulting in a (temporary) understanding of the target *in terms of* the source – but the occasional lapse into Black’s terminology is a healthy reminder that sometimes no more than a single aspect (“feature”) of the source is mapped.

It is impossible to study metaphor without addressing metonymy. Metonymy has over the past decade begun to receive sustained attention from cognitive linguists (Barcelona 2000; Dirven and Pörings 2002; Kristiansen et al. 2006). Clearly, each property or feature that is mapped from a source to a target must first have been metonymically related to that source. Of course, a metonym can be an *ad hoc* one, created by a particular context or shared by a specific community of users (cf. Yus, this volume). In addition, a metonym may have a strong emotional or evaluative relation to its source – and it may well be this latter that is the rationale for the metaphor in the first place. Secondly, a given phenomenon may double as the source domain in a metaphor and as metonymically related to the target. If this is the case, the consequence may be that a construal of the relation between two things as

metaphor is invited rather than forced; after all there may be a realistic, metonymic motivation for the source’s presence on the grounds of expected contiguity in the domain of the target. The interaction between metaphor and metonymy is explicitly addressed in the chapters by Urios-Aparisi, Yu, and Mittelberg and Waugh.

Non-verbal and multimodal metaphors may make salient certain aspects of conceptual metaphors that are not, or not as clearly, expressible in their verbal manifestations. The role of for instance size and spatial dimensions in source domains (e.g., in POWERFUL IS BIG, HONEST IS STRAIGHT) is more noticeable in visual discourses than in verbal ones. Music, in turn, affords for example scalarity and loudness in ways that can be made productive in source-to-target mappings, and the same holds for a voice’s timbre or an intonational pattern. Arm-and-hand gestures, both in face-to-face interaction and in the stylized varieties characterizing protagonists’ behaviors in comics, manga, and animation are embodied actions whose metaphorical exploitation communicates perspectives and emotions not (readily) available in verbal metaphors. A consequence of this is that any “translation” of these non-verbal and multimodal metaphors into verbal ones – necessary for instance to enable scholarly discussion as in this book – inevitably is an approximation at best. Metaphor scholars should be acutely aware of this, and reflect on what the choice for one verbalization of a multimodal metaphor over another may entail. The verbal “short-hands” of multimodal metaphors suggest an explicitness and precision that may well be absent in their originally non-verbal or multimodal, forms. Aspects of this issue are addressed in the chapters by Eerden, Shinohara and Matsunaka, Yu, Yus, El Refaei, Mittelberg and Waugh, Müller and Cienki, Teng, Rohdin, Zbikowski, and Forceville.

Personification is a crucial variety of multimodal metaphor no less than of verbal metaphor. Living organisms and animals are attractive choices as source domains both for human target domains and for phenomena such as organizations and cars. This makes sense for a variety of reasons: as humans, we find fellow humans as well as animals provide rich opportunities for the mapping both of idiosyncratic features (snails are typically slow, peacocks proud and beautiful) and for what Black called “implicative complexes” (Black 1979) and Gentner and Loewenstein (2002) “aligned structures.” To a considerable extent, the place of humans and animals in the medieval hierarchy of the Great Chain of Being (see Tilley 1976 [1943], Lakoff and Turner 1989) is still pertinent today, but creatures’ status can also be strongly influenced by cultural myths (think of the connotations of

the “dragon” in Western versus Chinese culture). Finally, it is attractive that people and animals *move*, which allows for numerous ways in which a metaphor producer can focus attention on mappable features – particularly in film. Chapters in which this issue of the animal realm, and of living organisms more generally, as source domain, receives attention are those by Koller, Caballero, Urios-Aparisi, Schilperoord and Maes, Forceville, Rohdin, and Eggertsson and Forceville.

Under what circumstances can or must a multimodal metaphor be construed? This is a difficult but crucial issue, particularly where a conceptual metaphor is assumed to be present. This can be rephrased as the following question: is the phenomenon under consideration necessarily to be interpreted as a metaphor, i.e., as one thing presented in terms of something that, given the context, belongs to a different category, or are other, non-metaphorical construals of their co-occurrence possible or even likely? This is a critical question for metaphor scholars. If the central tenet of CMT that in essence we *think metaphorically* is correct, metaphor scholars, working on verbal, non-verbal and multimodal specimens alike, should be able to demonstrate its truth, or at least probability, by showing that the phenomena under consideration can be best explained by postulating that human beings make sense of them by consciously or automatically construing metaphors. But even identifying *verbal* metaphors as such is no simple affair, although the Pragglejaz Group (2007) has started to develop a procedure for this. To make further progress on this issue it is necessary that alternative hypotheses are specified that might account for the phenomena under discussion (Gibbs and Perlman 2006: 217; for an alternative proposal see Haser 2005: 149 *et passim*), so that metaphorical and alternative explanations may be coolly juxtaposed and critically debated. This task, no easy matter to start with, is further complicated in the case of metaphors occurring in artistic discourses. Often, in such discourses, coupling two “things” metaphorically is not necessary to make the segment of discourse in which they occur meaningful, since alternative explanations for their co-occurrence are available. That is, a discourse producer may have reasons not to emphasize that a metaphor is to be construed. Evading censorship, avoiding litigation, or simply wanting to create a polyvalent discourse for aesthetic pleasure can motivate a maker not to produce a strongly signaled metaphor (cf. Forceville 1999: 191–96).

We are fully aware that many problems still have to be solved in the realm of multimodal metaphor, but we are confident that the present volume will give a substantial boost to its further theorization.

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Chapter 13

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

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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

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, 2004; 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; (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/gesture 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 multimodal 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, con-

sider 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. Kerndt 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.

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 nekaiia absoliutnaiia kategorii.
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 test' situatsiya,
When there's this situation,
G1 stroke
bh move straight
downward slightly
seichas postupit' chesno tak.

then [you need] to act honestly like this.

3. Monomodal metaphors: source and target within one modality

The student begins seated, hands at rest in his lap, and starting when he says "*situatsiya*" [= 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 “*yak*” [= “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 (“*cheato*”). 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 metaphorical 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 metaphor 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 constituting 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 precariousness 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 ver 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	In points straight
G2	yo quiero ver lo otro,
G3	yo quiero ver aquello,
G4	I want to see that one
	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 clinging,

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

Here “clinginess” 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 clinginess 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 “clinginess” 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 foreground 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 ist nicht so,
 no this is not the case,

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

das ist das Problem.
 this is the problem.

G1, 2 joined flat hand point towards left

es ist 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 expression

sion “Weiche” (“tracks”). Words and gestures share source and target of a metaphorical expression, and these cases are what Müller (2008) terms “verbo-gestural metaphors” (cf. Forceville’s 1996, 2002 concept of verbopictorial 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 metaphorical expression with a target that is verbalized in a non-metaphorical fashion, and another one in which a gestural metaphorical expression goes along with a verbal metaphorical 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 metaphorical 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:
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,

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 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 “verb-gestural metaphoric compounds.” They differ from verb-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 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 palms 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 multimodal 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 ist nich so,
no this is not the case,

aber es stellt naturlich 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.
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, agriculturally situated in a different direction: 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 reformulation 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 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-confirmation 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 metaphority 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 metaphoricity 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 metaphoritic, 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 unravelling 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.

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Notes

- 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 individuals, 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 aborigines 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).

- For a more detailed account of this and other similar examples, see Müller (2008).
- 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).
- For further discussion and more examples of dynamic metaphoricity in gesture and speech see Müller (2003, 2007, 2008) and Cienki and Müller (2008a).

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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 metaphorical 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,

just as they motivate, to various degrees, all processes of signification [Jakobson 1990 [1956]]. Thus, we agree with many other scholars that more attention should be paid to metonymy: it is equal in importance to metaphor but crucially different from it in its contribution to communication (e.g., Barcelona 2000; Croft 1993; Dirven and Pörings 2002; Gibbs 1994; Goossens et al. 1995; Lakoff 1987; Panther and Radden 1999; Panther and Thornburg 2003; Turner and Fauconnier 2002; Wilcox 2004).

We will show this by focusing on a multimodal combination of verbal and bodily communication – namely, spoken academic discourse and accompanying manual gestures (see also Müller and Cienki, this volume). The discourse here is classroom lectures by linguists about grammar and syntactic theory and, as we will demonstrate, both metaphor and metonymy play a crucial role in presenting these abstract phenomena. Multimodal representations of knowledge domains such as grammar have a long-standing tradition and visual metaphor, in particular, has widely been used to illustrate linguistic explanations (see Mittelberg 2002 on Early Modern printed images of grammar). Besides figurative language, pictorial metaphor has been studied as a way of expressing an analogy between two entities (e.g., Carroll 1994; Forceville 1994, 1996, 2002, 2005; Kennedy 1982). However, if we compare gesture to solid sculptures or pictorial signs, we realize that, just as speech in the auditory domain is inherently dynamic and fleeting, so with gestures the interplay of time, space, and motion typically engenders transient rather than lasting images that have to be understood quickly in time. This difference is crucial for an understanding of gesture.

In the gestural representations of grammar we will investigate here, the hands and arms serve as a resource for making meaning as they correlate with the on-going speech through co-speech gestures (McNeill 2005). Cognitive linguists have provided a detailed picture of the different ways in which the human body serves as a (re)source for a large array of metaphors (e.g., Kövecses 2002; Lakoff and Johnson 1980, 1999). We are primarily interested here in the ways in which the gesture modality generally can provide insights into situated cognition because it helps to externalize concepts – thereby creating an “ex-bodiment” of these concepts and structures through motor actions and other forms of interaction with the physical and social environment (Mittelberg 2006). Thus, this work rests on the premise that concepts (and other aspects of conceptual structure such as image schemata) are embodied and are themselves multimodal, including kinesthetic features (Hampe 2005; Johnson 1987; Lakoff 1987; Lakoff and Johnson 1980, 1999, 1998). One of our aims here is to present ways in which co-

speech gesture provides additional evidence for conceptual metaphor and metonymy by revealing in a dynamic fashion dimensions of schemata not necessarily expressed in the concurrent speech (Calbris 2003; Cienki 1998, 2005; Cienki and Müller 2008; McNeill 1992, 2005; Mittelberg 2008; Müller 1998, 2008; Sweetser 1998, 2007; Taub 2001). Another is to show that some of the claims about the relationship between source and target domains made on the basis of multimodal representations without gestures fail to account for gestures satisfactorily, since the metaphorical meaning-making processes cannot be elucidated without taking into consideration how they interact with metonymic modes. We will also show that metonymy assumes distinct functions regarding, for instance, gestural sign constitution through synecdoche and indirect reference, as others have suggested (see Bouvet 2001; Gibbs 1994; Müller 1998; Wilcox 2004; Wilcox and Morford 2007).

Building on these considerations, we present an approach to multimodal communication, and in particular to multimodal metaphor and metonymy, that has been shaped by both theoretical motivations and by the nature of our data. Our approach combines contemporary cognitivist theories (Gibbs 1994, 1999; Johnson 1987, 1993; Lakoff and Johnson 1980, 1999; Sweetser 1990) with the older but still relevant work of C. S. Peirce (1960, 1991, 1992, 1998) and Roman Jakobson (1956, 1987a, b, 1990; Jakobson and Pomorska 1983). The Jakobsonian and Peircean semiotic approaches continue to provide rich perspectives for multimodal research and lend themselves to being applied to gesture, for they are broader in scope than linguistic theories and have been used to analyze a wide variety of dynamic, discursive phenomena such as theatre, cinema, myths, rituals, music, poetry, etc. Since we have treated in detail elsewhere Peirce’s theory (Waugh 1992, 1998; Waugh et al. 2004) and Peircean perspectives on the gestural sign (Mittelberg 2006, 2008; see also Fricke 2007; McNeill 1992), our focus here will be on Jakobson’s approach and its relevance for gesture research from a cognitivist perspective.

Our rationale for combining these theoretical perspectives rests on the fact, firstly, that Cognitive Metaphor Theory (CMT) and Peirce’s semiotic share central assumptions about the link between image-schematic structures and metaphorical (and diagrammatic) projections, as well as about habitual patterns of experience and interpretation (Danaher 1998; Hiraga 1994, 2005; Mittelberg 2006, 2008). Second, Jakobson emphasized the importance of metaphor and metonymy as different semiotic and cognitive strategies that structure both verbal and non-verbal signs and messages (Jakobson 1956, 1987a, b; Lodge 1977; Waugh 1998, 2000; Waugh and Monville-Burston 1998).

1990; Waugh et al. 2004). Thirdly, both Jakobson and Peirce stress the point of view of the interpreter of a given message: in similar fashion, our aim will be to explicate how gestures are interpreted by the viewer (e.g., the student, the gesture analyst) through both metaphor and metonymy.

2. Characterizing the data: Semiotic idiosyncrasies of metalinguistic discourse and its accompanying gestures

Connecting the body, language, cognition, society and culture, gestures can provide a window into thought processes and their pragmatic and ecological anchorage (Goodwin 2003; Ochs et al. 1996; Streeck 2002). From a cognitivist viewpoint, i.e., taking the perspective of the speaker, research has shown how hands (and arms) may reveal, consciously or unconsciously, thoughts and attitudes that speech might conceal (McNeill 1992: 246). We, on the other hand, are trying to see how the gestures help the viewer to understand the conceptualization of abstract ideas that the speaker/gesturer is communicating.

The spontaneous gestures we will be analyzing here are not part of an elaborated sign system but are created by the speaker as he/she speaks, and thus gesture and speech can produce very different effects, including juncture or disjunction, redundancy, complementation, or mismatch (Goldin-Meadow 2003; McNeill 2000, 2005). A gesture may disambiguate linguistic information and thus make meaning more precise (for instance, by pointing at a concrete referent that is linguistically only referred to via an unspecified pronoun), or it may add components of meaning not expressed in the speech it accompanies (Kendon 2000).¹ Often, however, spontaneous gestural signs tend to be polysemous and need a contextual support to be correctly interpreted; thus, discourse-pragmatic factors and concurrent speech help to disambiguate them (Calbris 1990; Kendon 2004; McNeill 2005; Müller 1998). As Jakobson noted, a pointing gesture at a package of cigarettes could be interpreted to mean "this package in particular, or a package in general, one cigarette or many, a certain brand or cigarettes in general, or, still more generally, something to smoke." The viewer does not know if the pointer is "simply showing, giving, selling, or prohibiting the cigarettes." The only way to know is through the accompanying speech (Jakobson 1953: 567). A single gesture could also fulfill several functions at once: e.g., from representational to deictic, or from accentuating the rhythm of the speech to attracting attention and managing interaction between the interlocutors. Gestures are thus visuo-spatial "motor signs" (Jakobson 1987a: 474) that derive their

locally-situated meaning from the very human body that articulates them, the speech they accompany, and the socio-cultural and material environment the person interacts with. Consequently, a gestural sign does not exist, and cannot be analyzed, detached from either the human body or the here and now of the speech event (the *origo* in Bühler's terms, see Fricke 2007). This means that in order to understand the gestures under discussion here, we first need to characterize the speech they accompany in terms of its genre and functions.

As indicated above, our data come from one specific spoken genre: metalinguistic academic discourse in lecture format, from a corpus of such lectures by four professors (three women and one man), all native speakers of American English, while they were teaching introductory linguistics to undergraduate and graduate students at two major American universities. The lectures were videotaped in a naturalistic setting, that is, regularly scheduled classes where neither the teacher nor the students knew about the purpose of the taping (in particular, they did not know that the analysis was to focus on gesture). Thus, the assumption is that the gestures used by the professors were not affected by the videotaping (for a detailed description of methods of collecting, editing and transcribing the data, including the coding and annotation systems used, see Mittelberg 2006, 2007). Now, in the typical classroom setting there are other visual modalities: e.g., black/green/white boards with writing and other visuals on them, handouts, slides and power point projections. However important these are for the communication of information in the classroom, what is unique to gestures is that they are conveyed by the body of the lecturer and correlated with the speech that is emanating from that same body.²

The speech that is at issue here is highly complex. It has multiple functions: it conveys information about language that reflects the beliefs of the speaker and is directed at the audience (the students in the class) with the aim that the students will gain at least an understanding of, and perhaps also a belief in, the concepts being discussed. The gestures have the same complex multifunctionality as they contribute to the communication and understanding of the lectures. Our focus will be on what Müller (1998: 110–113) calls "referential gestures," that is, gestures that depict objects, attributes of objects and people, actions, or behaviors, whether concrete or abstract (Müller 1998; see also Cienki 2005). More specifically, the gestures analyzed here are all attempts at making fairly abstract grammatical concepts and aspects of the syntactic structure of sentences more understandable for the listener/viewer, by turning them into (partial) visuo-spatial and embodied manifestations of these concepts.

3. Jakobson: Metaphor and metonymy (internal and external), similarity and contiguity, selection and combination

Roman Jakobson's view of metaphor and metonymy has been successfully utilized in the analysis of a wide variety of monomodal and multimodal texts (Bradford 1994; Jakobson 1956; Jakobson and Pomorska 1983; Shapiro 1983; Whittock 1990) and is particularly valuable and compatible with contemporary, cognitively-oriented accounts of metaphor and metonymy since it is in fact one of their predecessors. In recent publications (e.g., Dirven and Pörings 2002), cognitive linguists revisit and offer a great deal of evidence for Jakobson's theory. This chapter attempts to show that adopting his balanced approach and exploring the interplay of these "two different mental strategies of conceptualization" (Dirven 2002: 75) has the potential to illuminate the semiotics of gesture and of multimodal communication more generally.³

Jakobson (1956) contends that metaphor and metonymy are two different modes of association that structure both linguistic and non-linguistic signs. While until not too long ago metaphor consistently received much more scholarly attention than metonymy, Jakobson paid equal attention to both tropes. In his view, metonymy is not a sub-type of metaphor, but the two are in opposition with each other and thus create a fundamental polarity that is at the root of all symbolic processes, cultural manifestations, and human thought in general. Thus, studies concerned with metaphor ought to pay (more) attention to its interaction with metonymy, a view that is also present in the work of quite a large number of cognitive linguists.

In defining the difference between metaphor and metonymy, Jakobson was particularly inspired by Peirce's famous trichotomy of signs: icon, index and symbol. According to Peirce, *similarity* is at the root of iconic relationships between the sign and the object it represents – and he includes metaphor as a specific sub-type of icon (Peirce 1960, 1992, 1998). *Contiguity*, on the other hand, is inherent to the index, deictic categories, and, as Jakobson (1956, 1966) also emphasized, metonymy. For Jakobson, similarity and contiguity are bipolar opposites, representing the two essential structural relations between signs that permeate all of language (Shapiro 1983: 194). Thus, similarity is the basis for metaphor, as well as synonymy, paraphrase, antonymy, analogy, etc., and contiguity underlies metonymy, as well as spatial and temporal neighborhood (both proximity and remoteness), causal-effect relations, etc. In addition, Jakobson differentiated between two major subtypes of metonymy: (1) "external metonymy" ("metonymy proper"), in which "the name of an object is replaced by the name of an attribute, or of

an entity related in some semantic way (e.g., cause and effect; instrument; source)" (Wales 2001: 252), e.g., the term "the White House" when referring to the President of the U.S. (place for person); and (2) "internal metonymy" (synecdoche), in which "the name of the referent is replaced strictly by the name of an actual part of it" (Wales 2001: 252) or by the name of the whole of which it is a part, e.g., part stands for whole and whole for part (e.g., "all hands on deck," in which "hands" stands for the whole body). That is, Jakobson integrated synecdoche as an important sub-type of metonymy, and as we will see, these two types of metonymy are crucial to the study of gesture. Most importantly, Jakobson insisted that similarity and contiguity – and metaphor and metonymy – are not mutually exclusive: just as signs can exhibit both similarity and contiguity in differing hierarchies (Jakobson 1966: 411), so the nature of a given sign is dependent on the preponderance of one of the two modes over the other (see Jakobson 1956: 130).

According to Jakobson (1956: 117, see also Waugh and Monville-Burston 1990), the similarity/contiguity relations between signs are different from the basic types of operations by which any linguistic utterance is constructed by the speaker. Any act of utterance formation involves the *selection* of certain linguistic entities from the code (e.g., words) and their *combination* into linguistic units of a higher degree of complexity (e.g., phrases and sentences). Understanding by the addressee implies the reverse order of operations: the *combination* of units of greater complexity has to be dissolved into the individual linguistic entities *selected*. Both "modes of arrangement" (Jakobson 1956: 119) reflect the structural reality of language: selection relies on the organization of the linguistic system, while combination is evidenced in the fact that every sign is made up of constituent signs (sentences, words, morphemes, phonemes, features) and serves as the context for other signs. Jakobson (1956: 119) referred to this kind of semiotic contextualization as "contexture," e.g., the process by which "any linguistic unit at one and the same time serves as a context for simpler units and/or finds its own context in a more complex linguistic unit. [...] and contexture are two faces of the same operation." In the case of multimodal messages, signs from more than one mode are selected and combined to constitute the contexture for one another: for example, gesture combined with speech. Such combinations may be concurrent and/or sequential: so, a given gesture is concurrent with the simultaneously occurring words, and the way in which gestures unfold in time (with or without speech) is an example of sequential combination.

4. Conceptual metaphor and metonymy in gestural representations of grammar

Offering new insights into multimodal instantiations of conceptual metaphor, previous work on metaphoric gestures has shown that they are not random, unsystematic hand movements, but exhibit recurrent forms and form-meaning mappings (Bouvet 2001; Calbris 1990, 2003; Cienki 1998, 2005; Cienki and Müller 2008; McNeill 1992, 2005; Mittelberg 2006, 2008; Müller 1998, 2008; Nuñez and Sweetser 2006; Parrill and Sweetser 2004; Sweetser 1998; Webb 1996). For each metaphorical meaning construal, it is necessary to determine locally whether the underlying metaphor is materialized in the speech and/or in the manual modality and how the relationship of source and target domains can be defined. For example, language and gesture do not necessarily exhibit the same metaphorical understanding, and gesture and speech may be motivated by different but compatible metaphors (see also Cienki and Müller 2008; Müller and Cienki this volume). Moreover, gesture may reveal metaphorical understandings even if the concurrent discourse is non-metaphorical (Mittelberg 2008; Müller 2003, 2008). These observations attest to the importance of gesture as a rich data source in cognitive linguistics in general (Sweetser 2007) and for embodiment theory in particular (Gibbs 1994, 2003, 2006; Lakoff and Johnson 1999; Taub 2001). Much less work has been done on metonymy in gesture. The objective of this section is two-fold. First, we will show that the interpretation of the gestures in our corpus is anchored in metonymy. In referring to an abstract notion, for instance, a metaphorical gesture relies on metonymic principles of sign formation: for example, via synecdoche, the hands may depict only the locally essential elements (parts) of the object or action (whole) in question (cf. Bouvet 2001; Mittelberg 2006; Müller 1998). Secondly, we suggest that due to its spontaneous and ephemeral nature co-speech gesture allows insights into the dynamics of figurative thought, and our analysis contributes to existing views of the definition of multimodal metaphor and the relationship between, e.g., source and target domain (for implications regarding static versus moving images, see Forceville 2003, 2005, 2006/this volume).

4.1 Non-metaphorical discourse and *ad-hoc* metaphorical visualizations in gesture

As indicated earlier, spontaneous referential gestures tend to be polysemous and often need contextual support to be correctly interpreted; for example,

one and the same gestural form may potentially refer to either a concrete or an abstract entity. Depicting via metonymy contextually pertinent features of objects or actions, referential gestures may either portray predominantly iconic sign-object relationships (representing concrete objects or movements), or they may rely on metaphorical sign-object relationships (involving abstract entities) and thus call forth a metaphorical interpretation. For example, a gesture with two hands may trace the frame of a painting or the frame of a theory. In both interpretations, the gesture is synecdochic since it provides only some aspects of the frame by rendering the parts that are pragmatically salient in the given discourse context. When used non-metaphorically, the synecdochic gesture can be interpreted as referring to a spatial, physical structure (e.g., the essential panels of the frame itself, not the other elements that hold the painting in place). In the case of a metaphorical interpretation, the synecdochic gesture further represents, in Peirce's (1960: 157) terms, some sort of *parallelism* – or similarity – between the form and function of a physical frame and the form and function of an abstract frame structure (Köller 1975). Adopting a cognitivist perspective, we can say that the gesture is interpreted with respect to the metaphorical concepts IDEAS ARE OBJECTS and CONCEPTUAL STRUCTURE IS GEOMETRIC PHYSICAL STRUCTURE (Lakoff and Johnson 1980; Sweetser 1998). Stated in McNeill's (1992) terms, such images of abstract ideas (originally called *metaphors*) represent both source and target domain information (in this example, the gesture would be regarded as representing both the conceptual frame and the physical frame). However, as we will see, the metaphorical gestures we will be discussing here are not directly iconic of the concrete source domain they involve. In fact, what is common to all of the metaphorical interpretations is that they rest on a first interpretation of the gesture through metonymy: e.g., the traces in the air have to be interpreted as meaninging a frame of some sort; only then can the metaphorically-motivated object be accessed.

Let us look at some examples from the data to determine how metaphor and metonymy are manifested in gesture and how source and target domains play out in the two modalities. The gesture represented in figure 1 is an example of a frequently occurring form that has several potential interpretations. Looking simply at the morphology of the gesture, we see that it consists of two, relatively relaxed, open hands held fairly far apart with palms facing each other (the right hand is partly closed because it contains a piece of chalk). If the speaker was referring linguistically to the length of a physical object such as a large box, the gesture would receive a concrete interpretation through metonymy, as if the speaker were holding an elongated object

like a box between his hands. However, in this case, the speaker is referring to a sentence and represents the sentence metonymically by the hands, which are assumed to be marking the beginning and end of its projection in space. The sentence is conceptualized metaphorically as bounded space or a large, elongated object. Thus, the gesture may be said to reflect some basic metaphorical concepts proposed in the cognitive linguistic literature: e.g., IDEAS ARE OBJECTS; CONTENTS ARE CONTAINERS; CATEGORIES ARE CONTAINERS; CONCEPTUAL STRUCTURE IS GEOMETRIC PHYSICAL STRUCTURE (Lakoff and Johnson 1980; Sweetser 1998). To get to the idea of a sentence, however, the viewer first has to take a metonymical path from the hands to the space or the imaginary object. This is a case of external metonymy, because the speaker is holding the imaginary object between his hands, which are external (i.e., adjacent) to the object. And then to get from the object (or the space extending between the hands) to the sentence, the viewer has to take a metaphorical path from the imaginary concrete entity (or space) to the abstract entity (the sentence).⁴

- (1)
- (sentences)
 - ... Sentences, \
 - G1
 - Pwok-bh far apart*
 - (..) [while they're made up of words, -

G1 *being held*
(...) aren't made up of words, \]

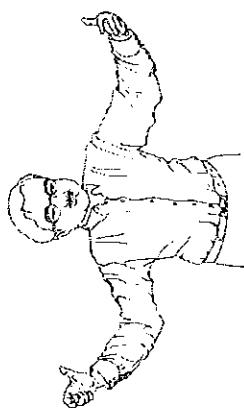


Figure 1. A sentence as an elongated object held (or space extending) between two hands

ymy, the object held between them; (2) the object is a metaphorical representation of a "sentence" (which is a non-metaphorical linguistic expression). The imaginary object being held is metonymically inferred through the gesture itself (ACTION FOR OBJECT INVOLVED IN ACTION, Panther and Thornburg 2004). But the underlying metaphorical mapping, involving the target domains CONCEPTUAL STRUCTURE, IDEA, or CATEGORY and the source domains PHYSICAL STRUCTURE, OBJECT, or CONTAINER respectively, can only be inferred by a metaphorical interpretation of the metonymically conveyed object. Forceville suggests that "[b]y contrast to monomodal metaphors, multimodal metaphors are metaphors whose target and source are each represented exclusively or predominantly in different modes" (Forceville 2006: 384). For this example, this definition holds: the target domain ("sentence") is expressed linguistically and the source domain (object) is conveyed manually.

The gesture above recurs in the data in slight variations referring to linguistic units of different degrees of complexity (words, phrases, constituents, sentences, etc.). By contrast, single words, units below the word level, and grammatical categories such as noun and verb are often represented by a single hand, for example by an open hand with the flat palm turned upward, thus forming a surface on which to present something to the addressee (see Müller 2004 for a detailed discussion of this gesture type). According to our analysis, the gesture is interpreted metonymically to mean that there is an object on the hand, and then, through metaphor, that object is interpreted as a word, a morpheme, a noun, or a verb. In example 2 (figure 2), this open hand is combined with a closed fist. The speaker, who is talking about morphological structure, illustrates the fact that the English noun "teacher" consists of two morphemes by forming two closed fists held next to each other. His left fist seemingly contains the lexical morpheme "teach," and his right fist, which opens up into a relaxed palm-up open hand during the demonstration, contains the grammatical morpheme "-er." Although the interpretation of the linguistic expressions relies on neither metaphor nor metonymy, the two figures of thought again are involved in a two-step process in this semantically complex instance of indirect gestural reference. Here, however, there is no direct similarity (i.e., image iconicity) between the form of the gesture and the objects it refers to (as in the frame example discussed above). Instead, the enclosed fist is interpreted metonymically as containing, and the open hand as holding, small physical objects, e.g., LOCATION FOR OBJECT; ACTION FOR OBJECT INVOLVED IN ACTION; REPRESENTATION FOR REPRESENTED (Panther and Thornburg 2004; Wilcox 2004). Thus, the left hand serves as a CONTAINER and the right hand as a SUPPORT

It should be noted here that while the term "sentence" is non-metaphorical, its gestural portrayal is first metonymical in nature and then interpreted metaphorically. In other words, there are two *interpretative moves* needed to get to the imaginary object: (1) the hands represent, via (external) meton-

structure for the imagined objects; they evoke, independently of the speech content, these two basic image schemas (cf. Johnson 1987; Mandler 1996).⁵ And in both cases, these imagined objects are metaphorically construed as being the two morphemes (IDEAS ARE OBJECTS, Lakoff and Johnson 1980).

- (2) (the teach-er)
 “... our understanding of this is as speakers of English you know

G1.1	1.2	1.11	1.3
[that the teacher] consists [of the] [and teacher (...)]			
1.4	1.5	1.6	
1.4			
and [teacher] [consists of ‘teach’] [and ‘er’]			1.7
			1.8
			1.9
[the teacher consists [of the] [and teach] [and er].]			1.10
			1.11
[not]			1.7

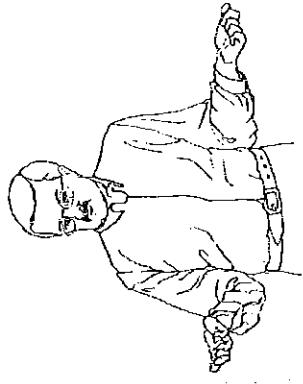


Figure 2. Morphemes as small objects on open hand or in closed fist

We are now in a position to define the relationship between source and target domains more clearly. The perceivable, manual modality triggers cognitive access to the abstract target via *two interrelated mappings* in which chunks of space extended between two hands or the imagined physical objects serve as a juncture between metonymy and metaphor. In figure 2, the *imaginary object*, presented on the right hand of the speaker, serves as *both* the *target of the metonymic mapping* (the hand stands for the object resting on it) and the *source of the metaphoric mapping* (a morpheme is a small object). The same holds for the gesture shown in figure 1, in which the speaker seems to be holding a large object between his two hands. Again, the hands (metonymic source) point to the object or the space (metonymic target) extending between them; or, put differently, the action of holding an object (metonymic source) stands for the object (metonymic target) itself. Thereby, the metonymically accessed imaginary object – or, the chunk of space extending between the two hands – is both the metonymic target and the metaphoric source, since it stands for the “sentence” (metaphoric target).

The assumption that some metaphors are grounded in metonymy (Barceló 2000a: 33; Geeraerts 2002; Goossens 1995: 171; Jakobson 1956, 1960; Lodge 1977: 111; Radden 2000: 93) holds in all the examples in our corpus. Whereas in these cases the speech itself is for the most part non-figurative (i.e., consists of technical grammatical terminology), figurative principles guide the interpretation of these dynamic multimodal representations: first metonymy and then metaphor contribute to the meaning-making processes abstract notions are metaphorically construed as imaginary objects. Meton-

5. Without going into the theoretical views regarding the differences between metaphor and metonymy currently debated in the cognitive linguistics literature, it should be noted that one of the received understandings holds that whereas metaphor is based on cross-domain mappings, metonymy consists of mappings within the same experiential domain (cf. Barcelona 2000a; see also Croft 1993; Radden 2000).⁶ In light of this domain-based definition of metonymy, we can say that both manual actions constitute common experiential domains of holding objects, and thus the gesturer can expect the viewers to easily relate to the action from their own experience and to build the basis for accessing the metaphorically construed objects. According to the two interpretative moves we introduced above, metonymy again comes first: the gestural vehicles (e.g., the hand configurations) serve as visible metonymic sources, that is, “reference points” (Langacker 1993); they point to the invisible target concepts (“teach-” and “-er,” sitting in/on the hands) that are mentioned in the concurrent discourse. These are instances of external metonymy, since the imagined objects are adjacent to (contained in or sitting on), but external to, the hands. The gestural form embodies the source, thus making it perceivable and present in the immediate context and pointing to the unperceivable target. So while the associative relation between visible source and associated invisible target is based on conceptual contiguity, the abstract notions are metaphorically construed as imaginary objects. Meton-

linking the manual modality to cognitive processes of association and imagination via contiguity and similarity.

As we hope has become clear in our discussion, in order to interpret these spontaneous expressions conveyed through the manual modality, we rely on our embodied cognitive and sensory-motor abilities and schemata to see and feel the contiguity between the hands and the objects they seem to manipulate (or the hands and different amounts of space extending between them), which stand metaphorically for the ideas currently mentioned in the discourse. In other words, in order to arrive at the meaning of these gestures, the viewer can be assumed to perform an act of “pragmatic inferencing” (see work on metonymy in language by Panther and Thornburg 2003, 2004). To conclude this section, what is important to note here is that although, in the examples discussed so far, the concurrent speech is non-metaphorical (“sentence,” “teach-”, “er”), the gesture depicts the image schema (OBJECT) underlying the metaphorical projection (IDEAS ARE OBJECTS). The bodily modality thus spontaneously and dynamically expresses a metaphorical understanding of abstract entities as imaginary graspable objects. In the next section, we will examine multimodal representations of more elaborate theoretical constructs based on a well-defined set of conventionalized metaphors.

4.2. Metaphorical discourse and theory-based metaphorical visualizations

Having discussed some of the most basic gestural forms that recur in the data, we will now turn to more complex multimodal representations of syntactic structure that are based on a specific model of linguistic structure, namely generative grammar. In these cases, there are ready-made metaphorical visualizations provided by the theory (tree structure diagrams to depict syntactic structure) that can then be referred to by the gestures. For example, when explaining dependent clauses in English, a speaker employing this framework used the right hand to sketch a branch of a tree structure diagram extending toward the lower right of her body. Figure 3 shows such a diagonally descending movement that is meant to represent an embedded clause. The speaker illustrates the idea of subordination (G1) by repeatedly moving her right hand first up to eye-level and then downward to her right side, thereby making a wave-like movement by tilting the hand from side to side. This can be assumed to roughly sketch out, through synecdoche, an elaborated tree structure, which is a grammatical metaphor used in generative grammar for the structure of complex sentences with subordinate clauses. More importantly, such tree structures are used in linguistic textbooks for

learners and in research articles by scholars – and in the case discussed here, there is a tree diagram behind the speaker on the white board. The fact that the speaker (who is left-handed) is talking about English, a right-branching language, may motivate the use of her right hand for the gesture even further.

- (3) (wavy embedded clauses)
- G1 (G1 repeated) (G1 repeated)
rh diagonal wavy line from head downward to the right
- ... [but this is gonna be another one with embedded sentences]
- (G1 repeated) G2
rh extended arm and index finger point toward ground coming in verb phrases] [all the way down].



Figure 3. An embedded clause as a wavy diagonal line

The gesture is synecdochic (i.e., an instance of internal metonymy), but its proper interpretation entails a metaphorical interpretation of the metonymically given object, which is then inferred to be the same as the metaphors in the textbook or on the board. In the next gesture in the same utterance (G2) the speaker uses in her speech the metaphor (also tied to the tree diagram) “all the way down” to indicate the fact that in certain cases embedded sentences may continue almost without stopping. At this point the speaker extends her right arm towards the floor and points with her index finger straight to the ground in a deictic gesture (for a Peircean approach to deictic gestures see Fricke 2007). Without the background knowledge of the theory

and its canonical metaphors and diagrams, the gestures could not be interpreted correctly. This is different from the more intuitive examples in section 4.1, in which the speech was non-metaphorical (sentence, morphemes) and the gesture rendered a metaphorical understanding of abstract entities as objects or chunks of space without any ready-made visualization to fall back on.

Since linguistic theories are often built on many specific metaphors, interactions of more than one metaphorical understanding can also be observed in the data. The subordination gesture (G1) in example (3) represents, as we just saw, the notion of “embedded sentence” (mentioned in the concurrent speech) as a wavy line descending in a diagonal toward the floor. Subordinated (embedded) entities are thought of in generative grammar as below the ones that dominate them. This indicates that the theory the speaker has in mind when talking about sentence structure motivates the form the gestures take. Moreover, the theory of syntactic structure proposed within generative grammar rests on a combination of spatial metaphors (i.e., the tree diagram) and power relations (i.e., dominance, control, etc.). The question that arises is whether, and if so, how, these two different source domains are made manifest in the verbal and/or manual modalities.

In the example above, relations of dominance are not alluded to linguistically, but let us look at another sequence where the same speaker makes reference to the idea of dominance in the speech modality. Just as in figure 3, the gesture derives its meaning from the movement and the virtual traces left in the air. As shown in figure 4, the speaker draws a tree chunk in the form of a triangle in the air, with both hands starting out at the center top (the node) and then tracing diagonals outward and downward to either side of the body. The gesture is a synecdochic depiction that is metaphorically interpreted as meaning several technical terms (nodes alpha and delta, domination, and branching). Outside of this theoretical model, these terms do not necessarily entail spatial relationships, or if they do, then they might not be represented in exactly the same way (e.g., “branching” does not necessarily have a downward orientation). An interesting moment occurs when the speaker realizes that she was talking about a node dominating elements without actually having introduced the idea of “dominance.” In the speech modality, she quickly changes from the hierarchical understanding of dominance back to the spatial tree metaphor involving a node being “on top of two things.” Thus, the speech here is metaphorical in two compatible ways; compatible because spatial and social hierarchies both draw on spatial relations such as UP and DOWN, with certain values attached to each location in the corresponding system (e.g., POWER IS UP, see Lakoff and Johnson

1980). Although in the speech modality there is, for a moment, a slight hesitation about which metaphor to use, the gesture modality consistently and repeatedly represents the spatial features of the tree model and thus is motivated by the corresponding spatial metaphor, which is a conventional part of the theory.

- (4) (branching, domination)
 - ...No=des, /
 - alpha and delta, /
 - G1 bh, branch triangle, branching movement x2
 - [branch, \
 - okay? /
 - so that's a technical term, –
 - G2 bh, branch triangle, branching movement x2
 - (..) [when the nodes]--, /
 - G3 rh branch G4 bh triangle, branching movement x2
 - [a node] [dominates--], /
 - (..) woops I said a technical term too soon,
 - G5 rh draws triangle G6 bh triangle branching
 - (..) when [the node is on top] [of two things] or more, /
 - (..) it branches. \

Figure 4 represents (1) the very beginning of the branching gesture (hands are joined at the top, the node, of the triangle) and (2) the repeated downward movement that reinforces the idea of an active branching process.

As for the underlying conceptual metaphors, these gestural diagrams all reflect the metaphor SYNTACTIC STRUCTURES ARE GEOMETRIC PHYSICAL STRUCTURES, based on CONCEPTUAL STRUCTURE IS GEOMETRIC PHYSICAL STRUCTURE (Sweetser 1998) discussed above. Given its specific semiotic affordances, gesture, a semiotic system exploiting space, provides a spatial projection of compatible metaphors stemming from the domains of physical structures and social hierarchies with a built in up-down orientation (POWER/HIGH STATUS IS UP; HAVING CONTROL IS UP; BEING SUBJECT TO CONTROL IS DOWN; LOW STATUS IS DOWN; Lakoff and Johnson 1980; Sweetser 1998). Following canonical tree diagrams, these gestures depict

logical relations between entities (which is one of the central functions of diagrams; see Peirce 1960; Mittelberg 2008; Waugh et al. 2004). While within the domain of meta-grammatical discourse “dominance” is indeed used metaphorically, in the manual modality the theory-driven spatial conceptualization of linguistic structure seems to be the predominant, overriding metaphysical understanding that motivates the representation of the behavior and relationship of elements in a sentence. As in the examples discussed in section 4.1, we can also discern a double mapping here: (1) there is external metonymy between the hand (metonymical source) and the trace left in the air (metonymical target), whereby the hand and the line drawn are part of the same experiential domain of drawing a tree structure (whether it is on paper, on a blackboard, or in the air); and (2) through metaphorical projection these spatial tree structures depicted by the gesture (metaphorical source) simultaneously represent the abstract conceptual structure (metaphorical target). The difference between the examples discussed in this section and section 4.1 is that whereas in 4.1 the speech is non-metaphorical, here it is metaphorical and the metaphors referred to are associated with theory-based canonical visualizations of abstract structure that can be easily mimicked by gesture. Also, the speaker had probably drawn many such tree diagrams on blackboards or paper before depicting them gesturally.

of a given linguistic theory (e.g., a tree structure, branching, dominance), they still adhere to the general principle of metonymy first, metaphor second, or to say it in another way, metonymy, whether external (adjacency/contact) or internal (synecdoche), leads the way into metaphor. Due to the abstract nature of the subject matter in linguistics courses, the objects in question are conceptualized via metaphor. But metonymy is needed to access the metaphor: e.g., external metonymy (contiguity through adjacency/contact) between, for example, the fist and the small object it seems to enclose, or between the hand drawing a line in the air and the imaginary trace that this movement leaves behind. In the latter case, there is also synecdoche between the diagram on the blackboard, for instance, and the sketchy hand movement representing it. Using the terms of contemporary metonymy theory, we have also claimed that the hands and the actions they perform constitute a common experiential domain and that the imaginary objects or traces are pragmatically inferred from the performed actions.

Taking the material side of gestures as a point of departure, we thus identified associative processes involving two intertwined mappings leading from the form of the gesture to the metaphorically construed entity it stands for. The metonymic mapping functions as follows: in the case of the closed fist that co-occurs with the mention of the morpheme “teach,” the perceivable fist serves as a metonymic source triggering cognitive access to the imaginary object inside of it, that is, the metonymic target. In the ensuing metonymic process, the metonymic target, i.e., the object, becomes the metaphorical source that is mapped onto the metaphoric target, that is, the linguistic unit “teach.” Both of these figurative, multimodally achieved efforts are needed to make abstract entities and conceptual structures visible (e.g., when the teacher is unable to point to words or diagrams written on the board), thus grounding them in the immediate teaching context and making them graspable for the student audience. In order to arrive at what is referred to, the addressee of these dynamic multimodal representations needs to interpret a combination of not only speech and gesture, but also metonymy and metaphor, in that order.

We also saw that metaphorically motivated gestural forms do not always coincide with metaphorical speech. Whereas in the examples of the “sentence” or the morpheme “teach,” discussed in section 4.1, the speech is technical rather than metaphorical, the gestural illustrations are metaphorically motivated, featuring imaginary physical objects or assigning meaning to chunks of space extending between the manual articulators. These *ad-hoc* gestural metaphors stand in contrast to the sequences discussed in section 4.2, in which the speech is metaphorical; however, the metaphors used in the

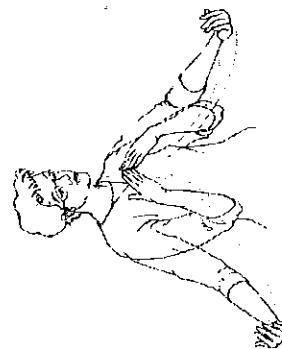


Figure 4. Sentence structure as a laterally branching tree chunk

5. Concluding remarks: Cross-modally achieved, intertwined figures of thought

What all the examples in this paper show is that whether the metaphorical interpretation of the metonymic gesture is simple and easily accessible (e.g., a sentence, morphemes) or complex and only understandable in the context

speech are given by the theory of generative grammar, which also provides conventional ways of diagramming syntactic structure in the form of inverse tree diagrams. Accordingly, the gestures that depict aspects of “embedded sentences” or “dominance” are more or less sketchy (i.e., synecdochic) renditions of those ready-made visualizations.

In the light of the importance that those who work on multimodal manifestations of figurative thought place on the specific materiality and logic of each modality (e.g., Cienki and Müller 2008; Müller and Cienki, this volume; Forceville 2006; Kress and van Leeuwen 2006; Kress et al. 2001; Mittelberg 2002, 2006), it is interesting to realize that making sense out of what a speaker-gesturer is trying to convey involves our imaginative abilities as much as our visual and auditory senses. Interpreting gestures entails combining perceivable visual and verbal materialized information; but the manual configurations and movements also appeal to our capacity during the process of interpretation to assign meaning to empty space and to fill in missing information, for example, when inferring objects and actions from gestures involving closed fists, open hands, or lines drawn in the air.

In the multimodal manifestations of metaphor and metonymy examined above, source and target meanings are not always neatly distributed across the two modalities (see Forceville 2006), and gesture may be the only modality in which the metaphor is expressed (especially when it is spatial metonymy). Of course, there are also instances in the data in which the speech is metaphorical but there is no gesture. As we saw, source and target domains of a mapping are not necessarily co-present in a given instance of multimodal representation: they may need to be inferred by interpretive hypotheses (Peirce 1991, 1992, 1998) from the discourse and/or physical context (neighborhood/contexture; Jakobson 1956), or the knowledge of the linguistic theory talked about.

Since gesture is a largely unconscious, spontaneous means of expression, the multimodal metaphors discussed here can hardly be compared with the elaborated and consciously chosen metaphorical messages in cartoons or advertisements (see Forceville 1996, 2002, 2005; El Refaei 2003, this volume; Yus, this volume; Schilperoord and Maes, this volume). And the question of whether the linguistic explanations and the linguistically expressed metaphors could be recognized and understood by the audience without the gestural support is not answerable on the basis of our data. However, the interplay between metaphor and metonymy deserves, as has been shown already (e.g., Bouvet 2001; Forceville 2005; Gibbs 1994; Gibbs 1990), a more detailed scrutiny in other forms of multimodal communication. The Jakobsonian (and Peircean) notions, combined with contemporary cognitivist

approaches, are a way to account for not only the materialized dimensions of figures of thought motivating multimodal discourse, but also for their cognitive and imaginative dimensions.

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Notes

1. This is very similar to Barthes' concept of “anchoring” (see for discussion Forceville 1996: 71).
2. For reasons of space, the functions fulfilled by the additional modalities and artifacts in the class environment and by the teachers' facial expressions or gaze cannot be included in the analysis here (see Kress et al. [2001] and Ochs et al. [1996] for work on multimodality in the science classroom).
3. See Furuyama (2001) regarding Jakobson's concept of the poetic function in gesture.
4. The abbreviations used in the transcript are to be read as follows: “puoh” stands for “palm-up open hand,” “pvoh” stands for “palms vertical open hand,” “bh” stands for “both hands.” As for gesture-speech synchrony, the speech segments that coincide with a gesture are set off by square brackets, speech segments highlighted in bold face represent the gesture stroke (the peak of a gestural expression), and underlined speech segments indicate a post-stroke gesture hold. G1 in example 1 stands for “Gesture 1.” For more details see Mittelberg (2006, 2007).
5. According to Johnson (1987: xiv), an image schema is defined as “a recurring, dynamic, pattern of our perceptual interactions and motor programs that gives coherence and structure to our experience.” See Mittelberg (2006, forthcoming) for a complete list of the image-schematic and geometric schemes that emerged from the data.
6. Barcelona (2000a: 4) gives the following definition: “Metonymy is a conceptual projection whereby one experiential domain (the target) is partially understood in terms of another experiential domain (the source) included in the same common experiential domain” (italics in original).

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VI

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