

5. References

- Posner, Roland 1993. Believing, Causing, Intending: The Basis for a Hierarchy of Sign Concepts in the Reconstruction of Communication, in: J. Jorna René, Barend van Heusden and Roland Posner (eds.), *Signs, Search and Communication. Semiotic Aspects of Artificial Intelligence*, 215–270. Berlin u.a.: de Gruyter.
- Posner, Roland 2000. The Reagan Effect: Self-Presentation in Humans and Computers. *Semiotica* 128, 3–4: 445–486.
- Searle, John R. 1979. A Taxonomy of Illocutionary Acts, in: John R. Searle, *Expression and Meaning. Studies in the Theory of Speech Acts*, 1–29. Cambridge GB: Cambridge University Press.

Ulrike Lynn, Chemnitz (Germany)

130. Gestures and iconicity

1. Introduction: The human body as icon and icon creator
2. Semiotic foundations of iconicity in gesture
3. Different kinds and degrees of iconicity in gesture
4. Concluding remarks
5. References

Abstract

Iconicity has been shown to play a central role in both gestural sign formation and the interpretation of multimodal communicative acts. In bodily signs, iconic structures may, no matter how abstract, partial and sketchy they might be, constitute the semiotic material on the basis of which rich inferences are drawn and meaning is made, and often co-constructed, in multimodal interaction. Focusing on communicative kinetic action spontaneously performed with speech, this chapter presents various embodied semiotic practices in which the speaker's body serves as an icon of someone or something else, or the speaker's hands create furtive gestural gestalts in the air. After laying out the relevant premises of Peirce's theory, special attention is paid to the kinds of semiotic objects gestures may be iconic of, as well as to the pragmatic forces and conceptual structures that may jointly motivate gestural forms and functions. Issues of how iconicity and abstraction may be brought about and interact with indexicality and conventionality are also addressed. Along the way, gestural examples exhibiting different degrees and kinds of iconicity (e.g., image, diagrammatic, and metaphor) are discussed.

1. Introduction: The human body as icon and icon creator

Iconic aspects of communicative body postures and movements are a central issue in gesture studies. The human body clearly has a natural potential for pictorial portrayal, that is, to be a living image, or *icon* (Peirce 1955), of someone or something else, or to

manually trace or sculpt fictive images in the air. Yet, questions of what exactly manual gestures may be iconic of and how iconicity is brought about in such *ad hoc* produced bodily signs are not trivial (e.g., Müller 1998a, b; Sweetser 2009). Mediating between our imagination and the physical and social world, gestures may generally fulfill a broad range of cognitive, communicative and interactive functions. In most cases, they assume several functions at the same time. What has come to be commonly known as *iconic gestures* are bodily postures and movements representing concrete objects and actions (McNeill 1992). When considering a broad range of discourse genres, however, their semiotic functions seem to cover a wider spectrum of kinds and degrees of iconicity. It is true that pantomiming the use of a familiar tool, imitating the physical actions we remember a character perform in a film, or portraying the size of a fish we watched someone catch on the seashore are intuitive iconic practices (Arnheim 1969: 117). Nonetheless, hand shapes and movements may also readily create from scratch images of things, spaces, scenarios, ideas, and connections that we imagine for the first time and that may come into a tangible existence by being further developed through the gestures we make while speaking. By sketching the floor plan of our dream house into the space in front of us, for instance, virtual spatial structures attain a certain semiotic reality sharable with interlocutors. The question here is whether what they denote is understood as something concrete or abstract. If the main criterion is the content of the associated spoken discourse, a gesture accompanying a verbal description of a house, i.e. a concrete object, usually counts as iconic. A dream house and other products of one's imagination seem not to fit the understanding of iconic gestures in the narrow sense. And although they are mental objects, they may feel real for the individuals designing them in their mind. If the gesture were laying out a theoretical framework, i.e. something abstract denoted in speech, it would be read as a metaphoric expression. In any event, for a short moment, the gesture constitutes a furtive and minimal material sign carrier on the basis of which the interpreter can imagine certain aspects of what is being talked about, thus making meaning of a multimodally achieved semiotic act.

These initial observations have taken us from practices of gesture production to the interpreting mind, which is the perspective of semiotic analysis *par excellence* (e.g., Peirce 1960). As will be shown in this chapter, each perspective implies differently anchored facets of complex semiotic processes and contributes valuable insights into the forms and functions of iconicity in gesture. Semiotic and conceptual aspects of iconicity in gesture will be the focus of this chapter. (For an overview of research on the production and comprehension of iconic, representational and referential gestures see Mittelberg and Evola this volume.)

1.1. Points of departure and scope of article

Gesture researchers from different disciplines, including semiotics, linguistics, psychology, biology, and anthropology, have presented theoretical accounts and detailed descriptions of the ways in which gestures as the ones described above share iconic structure and other properties with the objects, events or human actions they depict, and how they semantically relate to the propositional content of an unfolding utterance (e.g., Kendon 2004; McNeill 2000, 2005). Some approaches focus on the individual speaker (e.g., Calbris 1990), others make a point in showing how such gestures contribute meaningful components to dynamically evolving “contextures of action” often co-constructed by co-participants (Goodwin 2011: 182; see also e.g., Clark 1996; Enfield 2009; Kendon

2004; McNeill 2005; Murphy 2005). The various accounts have illuminated the semiotic and polyfunctional nature of what are typically rather schematic and evanescent gestural *gestalts*. Although many accounts seem to be based on Peircean (1955, 1960) semiotics, the terms *iconicity* and *iconic gestures* are not used uniformly (see Mittelberg and Evola this volume). According to Peirce (1960: 157; 2.276), “icons have qualities which resemble those of the objects they represent, and they excite analogous sensations in the mind”; they rely on a perceived similarity between the sign carrier and what they represent. Attempts to establish broader theoretical foundations of iconicity in gesture have only recently been undertaken (e.g., Andr n 2010; Enfield 2009; Fricke 2012; Mittelberg 2006, volume 1; Mittelberg and Waugh this volume). Related issues of similarity, analogy, reference, and representation are still a matter of debate (e.g., Fricke 2007, 2012; L cking 2013); some gesture scholars are hesitant to apply the notion of iconicity to gesture (e.g., Streeck 2009).

As for spoken language, the arbitrary versus motivated nature has been an issue of continued controversy. Drawing on Peirce’s notions of image and diagrammatic iconicity, Jakobson (1966) provided cross-linguistic evidence that iconicity operates at all levels of linguistic structure, not only in phonology (such as in onomapoetic expressions) but also in the lexicon, morphology, and syntax (Jakobson and Waugh [1979] 2002). Indeed, a large body of research has confirmed that language as well as discourses may be motivated in more direct or more abstract ways, e.g. by isomorphism (e.g., Giv n 1985; Haiman 1980; Hiraga 1994; Simone 1995; Waugh 1992, 1993).

Compared to fully coded sign systems such as spoken and signed languages, spontaneous gestures do not constitute an independent symbolic sign system. When producing gestures, speaker-gesturers do not select from a given form inventory of a system, in which some forms are more iconic than others, but they create semiotic material each time anew. Questions at the heart of the matter concern, for instance, the conceptual, physical, material, and social principles that motivate gestural sign formation and use. One might further ask in what ways co-speech gestures exploit and create iconic structures differently than language, and how iconic modes interact with processes of conventionalization and grammaticalization (e.g., Calbris 1990; Kendon 2004; M ller 1998a; Sweetser 2009).

Since co-speech gestures and signed languages share the same articulators and the same articulatory space, considering the semiotic work done by iconic principles in signed language is extremely insightful for students of gesture. In sign languages research, the treatment of iconicity has gone through several stages (e.g., Mandel 1977; Wilcox in press), and after emphasizing the conventional and symbolic nature of signs (e.g., Frishberg 1975), the role of iconic properties in sign formation, semantic structure and discourse pragmatics has been attested across diverse signed languages (e.g., Bouvet 1997; Grote and Linz 2003; Kendon 1986; Perniss, Thompson, and Vigliocco 2010; Pizuto and Volterra 2000; Taub 2001; Wilcox 2004).

Focusing on spontaneous speech-accompanying gestures, the aim of this chapter is to present some of the theoretical concepts central to understanding and analyzing iconic modes in gesture. The interaction of iconicity with metonymy, metaphor and conventionality will also be addressed. In what follows, Peirce’s (1960) view of semiotic relations as well as the notions of *object*, *representamen*, *ground*, and *interpretant* are laid out in section 2; they will serve as the theoretical backbone against which the discussion of iconicity in gesture will evolve. Different kinds and degrees of iconicity in bodily signs

and their relation to the concurrent speech are discussed and exemplified in section 3. Throughout the chapter, special attention will be paid to the specific affordances of coverbal gestures as a dynamic visuo-spatial medium. Concepts from cognitive semantics are also brought in to highlight the role of embodied schemata in gestural abstraction and predominantly iconic expression. Section 4 provides a summary and sketches possible avenues for further research.

1.2. A first example of iconicity in gesture

For a first example of iconicity in gesture, consider Fig. 130.1 below (taken from ArchRecord TV, January 5, 2011; Mittelberg 2012). In the sequence of interest here, the British architect Norman Foster describes an art gallery he recently designed: the Sperone Westwater Gallery in Manhattan. Its characteristic feature is a comparably narrow and high, that is, vertical gestalt. While describing its spatial dimensions, Foster brings this enormous building down to human scale by employing his hands to demarcate three differently oriented chunks of space: a) on *it's a twenty-five foot wide slot* (Fig. 130.1a), the hands are held a little more than shoulder-wide apart with the open vertical palms not completely facing each other but slightly opening up and the finger tips turned towards the interviewer and slightly outward, indicating the width of the building slot. Then on *so it's very tight* (Fig. 130.1b) the fingertips point upward and the hands are brought in a little. Finally, on *that means that it's a vertical gallery* (Fig. 130.1c) the hands change into a new configuration: the gallery's height is conveyed by the distance spanning between the right hand with its open palm turned downward at hip level, thus representing the foundation of the gallery, and the left hand also with the open palm facing down but located a little above head level, imitating the top of the building. In each panel below, the hands not only iconically represent the borders of this particular architectural space, but each gesture also exhibits incorporated indices evoking different orientations (e.g., Haviland 1993; Mittelberg and Waugh this volume).



Fig. 130.1a
"It's a twenty-five foot wide slot..."



Fig. 130.1b
... so it's very tight ...



Fig. 130.1c
... that means that it's a vertical gallery."

Two aspects of these measurement gestures are striking. First, when looking at the distance between hands, the second gesture (Fig. 130.1b) seems incongruent with the attribute *very tight*, probably in part because his body could still fit in between the hands representing the outer limits of the building. Second, compared to the first two gestures

indicating the gallery's width (Fig. 130.1a,b), the distance between hands is not much bigger in the last gesture evoking its height (Fig. 130.1c). This sequence thus illustrates the subjective, approximate, and relative nature of gestural portrayals of this sort: relative not only with respect to the speaker's body and personal gesture space, but in this case also in respect to much wider museum buildings Foster has previously experienced as well as designed. In view of both the stimulus and the accompanying discourse, these gestures do not simply "represent" the geometry of the tower-like gallery (Fig. 130.2), but are the result of a subjective "take" on it, reflecting pragmatic forces of experience and sign formation.

While gesture form annotation is not a central issue in this chapter, it is important to note that to be able to analyze the functions of iconic gestures, their form features first need to be described in a systematic fashion, e.g., accounting for the involved postures, hand shapes, kinetic action, movement trajectories, the alignment with the synchronously produced speech segments, and, if possible, also with their prosodic contours (see e.g., Bresse volume 1; Calbris 1990; Hassemer et al. 2011; Kendon 2004; McNeill 2005; Mittelberg 2010; Müller 1998a).



Fig. 130.2: Sperone Westwater Gallery, Manhattan, NYC ('stimulus' of gestures shown in Fig. 130.1)

2. Semiotic foundations of iconicity in gesture

Revisiting Peirce's notions of similarity and iconicity, the goal of this section is to highlight the facets of gestural sign formation and interpretation they may account for. Adopting a wider semiotic perspective allows us to account for the interaction of a highly symbolic sign system, such as language, and visuo-spatial modalities, such as body posture and kinetic action. Gestures are differently iconic than spoken language, and in other ways also differently iconic than signed languages (e.g., Kendon 1988; Sweetser 2009; Wilcox in press). One needs to bear in mind that spontaneous co-speech gestures do not need to adhere to well-formedness conditions or to a symbolic code with given form-meaning mappings (e.g., McNeill 1992: 38). When produced with speech, kinetic actions do not need to be fully transparent and self-explanatory: schematic, polyvalent gestural forms usually do not carry the full load of communication but receive parts of their meaning from the concurrent speech content. By recreating something existing outside a given discourse context, or by creating something new within it, gestures contribute dynamic physical qualities to complex unfolding multimodal sign proc-

esses (see also Andrén 2010; Enfield 2009; Fricke 2007, volume 1; Mittelberg 2006, volume 1; Mittelberg and Waugh this volume; Müller 2010; *inter alia*).

It is exactly the lacking status of an independent symbolic sign system that has prompted gesture researchers to search for patterns of communicative behavior recurring within and across speakers, discourses, and communities, thus striving to find underlying core elements in terms of similar form features as well as shared cognitive and semantic structures and pragmatic functions (e.g., Kendon 2004 on *gesture families*; Müller 2004, 2010 and Ladewig this volume on *recurrent gestures*; Streeck 2009 on *gesture ecologies*; and Cienki 2005; Ladewig 2011; Mittelberg 2006, 2013, volume 1 on image and force schemata). This section is primarily concerned with Peirce's sign model; different kinds of iconicity are discussed in section 3.

2.1. Similarity and other semiotic relations interacting in gestural sign processes

Peirce (1955, 1960) proposed a triad of semiotic relations between a sign carrier and the object it represents: *similarity* (iconicity), *contiguity* (indexicality) and *conventionality* or *habit* (symbolicity). While in principle all of these modes interact in a given gestural sign, we will focus here on similarity and iconicity. Peirce's definition of the dynamic triadic sign process involves three elements:

A sign [in the form of a *representamen*] is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its object. (Peirce's 1960: 135, 2.228; italics in the original)

A central premise of this model is that meaning does not reside in a given *representamen*, such as a word or a gesture, but arises in the form of *interpretants*, that is, cognitive representations evoked in the mind of the sign receiver. Interpretants link the representamen with an *Object* in the moment of perception and interpretation (when understood in the Peircean sense, the term object will henceforth be capitalized). So without an embodied interpreting mind there is no similarity (or any of the other fundamental relations), no semiosis, and no meaning (see Danaher 1998 and Mittelberg 2008, volume 1 on parallels with cognitive semantics). For example, when observing and listening to Norman Foster describing the dimensions of the Sperone Westwater Gallery (Fig. 130.1) in words and gestures (i.e. *representamina*), the addressee creates based on this multimodal semiotic material a composite mental image (i.e. *interpretants*) of the building (i.e., the *Object*). The cognitive representation and sensorial associations triggered in the process will differ depending on whether or not s/he has actually seen and experienced this particular space.

As mentioned in the introduction, according to Peirce (1960: 157; 2.276), “icons have qualities which resemble those of the objects they represent, and they excite analogous sensations in the mind”. The term icon rests on a multimodal understanding of similarity, including sensations in the interpreter's mind that to her/him make something look, feel, taste, smell, sound, or move like something else. Recognizing qualities, shapes, rhythmic patterns, and larger structures is assumed to be driven by our quest for familiarity and meaning when exposed to both habitual and new perceptual data and social experiences (Arnheim 1969; Johnson 2007). Detecting sensory similarities and cross-sensory corre-

spondences are physical and cognitive processes at the root of embodied categories which have also been shown to motivate gestural expression (e.g. Cieniki and Müller 2008; Mittelberg volume 1).

In gesture, as in any other kinds of signs, the understanding that the interpretation of a sign carrier as being iconic of something else relies on a perceived similarity with its Object may play out differently depending on whether it pertains to processes of sign production or sign interpretation. First, when giving a multimodal description of one's dream house, the gestural sketch one draws in the air can be assumed to exhibit some perceived – and felt – qualities in common with the multisensorial imagery in one's mind (see Gibbs 2006; Johnson 2007). Gestures take part in the cross-modal encoding of structure and meaning, thus driving associations and reflecting the speaker-gesturer's subjective conceptualization of, e.g., previous experiences or new visions (e.g., Cienki 2012; Sweetser 2012). So while entrenched categorical and image-schematic structures may motivate such construal operations to some degree, in imaginative processes they may also trigger inferences allowing the speaker to move into unexpected directions and see new connections (e.g., Cienki and Mittelberg 2013). Second, on the basis of the multimodal description a mental representation arises in the mind of the listener-observer, invoking, among other dimensions, similarity relations with respect to floor plans and houses s/he previously encountered. Prototypical members of the category house may serve as a cultural model against which a particular (sketchy) gestural image may get matched. We can say then that similarity may be perceived and construed on both sides of the sign process.

Although the similarity between the bodily actions we observe in others and our own perceptual and physical habits may influence how we cognitively, physically and emotionally align with our interlocutors, similarity is only one way to understand the intentions and meaning behind the communicative behavior of others. Contiguity relations between the communicating body and its material and social habitat also play an important role in sensing and interpreting the meaning of bodily signs (see Mittelberg and Waugh this volume on contiguity and metonymy in gesture). And while gestures are not fully coded signs, conventionality and habit come into play in the form of movement patterns, actions schemas, conceptual categories, and socio-culturally shaped behaviors. These may account for certain iconic patterns in gesture and the ways in which they are recognized, imitated and learned during development (for work on language acquisition see, e.g., Zlatev 2005 on *mimetic schemas* and Andrén 2010 on *action gestalts*). A number of gesture researchers have suggested extensions or alternative accounts to the Peircean notion of similarity, drawing on, for instance, Goodman's ([1968] 1976) notion of *exemplification* and Wittgenstein's (1953) notion of *family resemblance* (see Jäger, Fehrman, and Adam 2012; Fricke 2007, 2012; Lücking 2013; Streeck 2008, 2009).

2.2. Semiotic Objects: Concrete entities, physical actions, and beyond

Before teasing apart the distinct ways in which gestures may be said to be iconic, we will first look more closely at what they might be iconic of. Peirce's understanding of what a semiotic Object can be is extremely wide and ranges from existing to non-existing things: it encompasses both concrete and abstract entities, including possibilities, goals, qualities, feelings, relations, concepts, mental states, and ideas (Kockelman 2005). Essentially, anything can be an Object, as long as it is represented by a sign (Shapiro 1983: 25). The nature and properties of the Object further determine, according to Peirce, the sign, which may account for the fact that certain kinds of gestures can be expected to

occur more frequently in certain discourses about certain topics and of a certain genre (e.g., iconic gestures representing motion events in retellings of animated cartoons; see, e.g., McNeill 2005; Mittelberg and Evola this volume).

To account for the multifaceted meaning-making processes in gesture production and interpretation, Peirce's distinction between the *dynamic object* and the *immediate object* is particularly insightful: "the dynamic object is the object that determines the existence of the sign; and the immediate object is the object represented by the sign. Immediate objects only exist by virtue of the signs that represent them; whereas dynamic objects exist independently of the signs that stand for them" (Kockelman 2005: 246). Coming back to the art gallery example, we can say that the dynamic Object, i.e. the particular building talked about, exists in New York City irrespectively of any act of semiotic representation, be it a multimodal description (as in Fig. 1) or a photograph (as in Fig. 2). In the addressee's mind the interpretant links the gestural and linguistic sign carriers to the immediate Object which only resides inside of the sign relation (Peirce 1960, 8.314; see also Sonesson 2007, 2008). Even if the addressee has experienced the Object, i.e. the gallery, before, this particular description may evoke first of all those aspects of it that are made salient by this measurement gesture. In any event, the dynamic Object remains unattainable for the interpreter. In each multimodal communicative process, the original dynamic Object thus differs from the immediate Object established by the interpreter (see also Fricke 2007). Misunderstandings may arise due to too large a gap between the two. This leads us to conclude that in the process of sign constitution, perceived similarity relates the evolving sign carriers to the dynamic Object. By contrast, in interpretative processes, perceived similarity can only pertain to the relation between the representamen and its immediate Object, not between the representamen and the dynamic Object.

It seems obvious that a gestural sign does not necessarily seize an Object that exists in the real world or the way an Object exists in the real world. A gesture might evoke certain aspects of, for example, the speaker's furtive memory of a room, person, or color, or her understanding of an abstract category. Gesture research done within the framework of cognitive linguistics has evidenced ways in which gestures seem to be motivated by embodied conceptual structures, such as prototypes (Rosch 1977), image schemas (Johnson 1987), frames (Fillmore 1982), mental simulation (Gibbs and Matlock 2008); and metaphors (Lakoff and Johnson 1980). Indeed, some of the nonphysical Objects listed above remind us of common target domains of conceptual metaphors (e.g., Cienki 2012; Cienki and Müller 2008; Mittelberg volume 1; Parrill and Sweetser 2004; Sweetser 1998).

Some gesture scholars distinguish gestures that carefully describe a specific, existing space or object, such as the house one lives in or a tool one has used many times, from those gestures that seem to reflect a thought processes or an understanding evolving as one speaks (see Fricke 2007; McNeill 1992; Müller 2010). Streeck (2009: 151), for instance, introduced two gestural modes: *depicting* (e.g. via an iconic gesture portraying a physical object) and *ceiving* (i.e. via a gesture conceptualizing a thematic object). He attributes the latter mode to a more self-absorbed way of finding a gestural image for an emerging idea (e.g. on the basis of an image schema): "When 'they think with their hands', speakers rely on their bodies to provide conceptual structure" (Streeck 2009: 152). We will now narrow in on Peirce's concept of the *ground* of a sign carrier.

2.3. Grounded abstraction and mediality effects in co-speech gestures

Peirce's concept of the *ground* of a sign carrier, i.e. of the representamen, accounts for the fact that sign vehicles do not represent Objects with respect to all of their properties, but

only with regard to some salient qualities. These foregrounded, signifying features function as the ground of the representamen. Principles of abstraction already operate at this level of the semiotic process. In Peirce's own words (1960: 135, 2.228; italics in the original):

The sign stands for something, its object. It stands for that object, not in all respects, but in reference to some sort of idea, which I sometimes called the *ground* of the representamen. "Idea" is here to be understood in a sort of Platonic sense, very familiar in everyday talk; I mean in that sense in which we say that one man catches another man's idea.

The ground may thus be understood as a metonymically profiled quality of an Object (e.g., the width of a building, see Fig. 130.2) portrayed by a representamen (e.g., open hands facing each other, see Fig. 130.1b). As Sonesson (2007: 47) notes, "Peirce himself identifies 'ground' with 'abstraction' exemplifying it with the blackness of two things." While the partiality of representation is commonly assumed, distinct semiotic grounding mechanisms may elucidate different ways in which abstraction may be brought about in co-speech gestures (Sonesson 2007: 40; see also Ahler and Zlatev 2010). We will focus here on gestures with a predominantly iconic ground (see Mittelberg and Waugh this volume for gestures with either predominantly iconic or indexical ground as well as transient cases).

A sign with a highly iconic ground gives a partial, that is, a metonymically abstracted image of its Object based on a perceived or construed similarity. For an illustration, consider the following multimodal description of a childhood memory (adapted from Mittelberg, Schmitz, and Groninger in press). The speaker describes, in German, how every morning on her way to kindergarten she would run down the endless winding stairs in her house. In her gestural portrayal, her left index finger pointing downward draws a spiral-like gestural trace starting at eye level and winding down and around six times until reaching hip level (Fig. 130.3). While she seems to be watching the event from the top flight of the house, her index finger becomes an abstract image icon of her body imitating the action of walking down the stairs in circles. She then uses both her hands to draw two vertical lines from the imagined ground level to the top, indicating the shape of what to her felt like a tower-shaped building.

To create visible and lasting gestalts of gestural motion, the normally invisible traces created by the movement of the speaker's left hand were tracked with the help of an

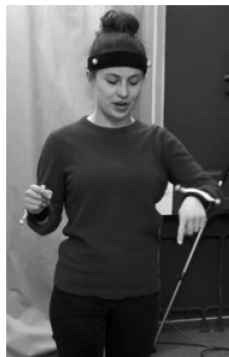


Fig. 130.3: Index finger enacts speaker walking down a spiral staircase

optical tracking system and then processed and plotted, which resulted in the motion event sculpture shown in Fig. 130.4. Hence, an immaterial memory became a visible and tangible object (produced by a 3-D printer). From the perspective of the sign producer, the dynamic object is a frequently undergone motion event consisting of running down a spiral staircase. It manifests itself in the form of a dynamic, evanescent representamen (i.e. a spiral-like gestural gestalt) distilling schematic core features of a rich experience, bringing to light both the path and manner of this particular kinetic action routine. The spiral foregrounds those qualities of the Object that function as the Ground of the representamen, abstracting away a host of contextual aspects.



Fig. 130.4: Motion event sculpture: Childhood memory of running down the stairs, © Natural Media Lab & Dept. of Visual Design, RWTH Aachen University

In this gesture the ground can also be qualified as iconic in that it evokes the idealized image-schematic structure underlying the motion event as a whole (see also, e.g., Cienki 2005 and Mittelberg 2010, 2013 on image schemas in gesture and Freyd and Jones 1994 on the spiral image schema). As addressees, who have neither seen the speaker's action of rushing down the stairs nor the staircase in question, we can imagine, based on the schematic gestural depiction, the essential traits of the circular motion event and the type of architecture lending the material structure along which it unfolded many times. In this subjective, multimodal performance act, the message, or idea in the Peircean (1960: 135) sense, that to the speaker the stairs seemed endless and the house enormously high, comes across quite effectively (in fact, this gestural gestalt expresses the idea of a tower-like building more vividly than the architect's gestures shown in Fig. 130.1).

In light of the assumed partiality of perception and depiction, perspective appears to be a decisive factor in these processes. Whether a sign producer adopts, for instance, character or observer viewpoint will influence which aspects of the Object get profiled and thus constitute the ground of the representamen. In the moment captured in Fig. 130.3, the portrayal simultaneously reflects observer viewpoint (the speaker seems to be looking down the staircase) and character viewpoint (the index finger represents her walking down the stairs); it is thus an example of dual viewpoint (see McNeill 1992; Parrill 2009; Sweetser 2012).

Iconicity and salience in gesture may further be brought about by different kinds of gestural practices. Drawing on the tools, media and mimetic techniques visual artists employ, Müller (1998a: 114–126; 1998b: 323–327) introduced four modes of representation in ges-

ture: *drawing* (e.g., tracing the outlines of a picture frame), *molding* (e.g., sculpting the form of a crown); *acting* (e.g., pretending to open a window), and *representing* (e.g., a flat open hand stands for a piece of paper). If one applied these modes to the same Object, each of them would establish a different kind of iconic ground and hence highlight different features of the Object. Put differently, each portrayal would convey a different idea of the Object (Peirce 1960: 135; 2.228). These observations suggest that mediality effects may be rooted in the fact that linguistic and gestural modalities have different potentials to create certain types of grounds; they may portray, or abstract, certain kinds of qualities or ideas more readily and effectively than others.

2.4. The Interpretant in gesture interpretation and production

According to Peirce, the perspective of the sign interpreter weighs more than the one of the sign producer: “In terms of the dynamics of signification, the concept of the ‘interpretant’ remains uppermost” (Corrington 1993: 159). Peirce distinguishes between the immediate, the dynamic and the final interpretant (for details see Enfield 2009; Fricke 2007; Mittelberg 2006). His conception of the interpretant may account for the idiosyncrasy of individual minds with different semiotic histories, e.g., for specific stages in life or areas of expertise, which influence the recognition and interpretation of signs. Importantly in view of co-speech gestures, interpretants have a tendency for semiotic augmentation, that is, to develop into a more developed sign, for instance through multimodal integration (e.g., Fricke 2012; Mittelberg 2006).

We must remember that the interpretant is the mature sign that has already been augmented (and hence has greater semiotic density than the representamen). The interpretant is always underway toward further interpretants and seems to ‘hunger’ to link up with larger units of meaning. (Corrington 1993: 159).

Fricke (2007: 193ff., 2012) calls *interpretant gestures* those kinds of gestural signs that, for instance, based on a previous act of interpretation in an ongoing discourse, reflect prototypical members of a given category rather than specific exemplars. Whereas the discussion of iconicity in gesture often focuses on sign-object relations, the concept of the interpretant may illuminate mechanisms of both gesture reception and production. This insight further reinforces the importance of embodied conceptual structures for bodily communication (see also Cienki and Müller 2008; Evola 2010; Gibbs 2006; Mittelberg volume 1).

3. Different kinds and degrees of iconicity in gesture

Peirce distinguishes three subtypes of icons, which may interact to varying degrees in dynamic semiotic gestalts:

Those [icons] which partake of simple qualities [...] are images; those which represent the relations, mainly dyadic, or so regarded, of the parts of one thing by analogous relations in their parts, are diagrams; those which represent the representative character of a representamen by representing a parallelism in something else, are metaphors. (Peirce 1960: 157; 2.277)

Regardless of which of these iconic modes may be predominant, iconic gestural portrayals tend to be inherently metonymic (Bouvet 2001; Mittelberg 2006; Mittelberg and

Waugh this volume; Müller 1998a). Gestural imagery often consists only of schematic figures, minimal motion onsets or sketchy articulations with a short temporal permanence. In unfolding discourses there is just enough time to offer quick gestural glimpses at essential aspects and qualities of what is being talked about and perhaps not easily conveyable in speech. As is generally the case with icons, to fulfill their functions, bodily icons need to be anchored in a semiotic and physical context through various kinds of indices (e.g. Haviland 1993; Mittelberg and Waugh this volume; Sweetser 2012) and rely on different kinds of conventionality. In his work on children's gestures, Andr  n (2010: 219) makes a distinction between "natural transparency and convention-based transparency in iconic gestures," thus accounting for socio-cultural practices and processes of conventionalization (see also Sonesson 2008 on primary and secondary iconicity and Zlatev 2005).

Bodily icons further exhibit different degrees of iconicity and semiotic substance. In a first approach, we can broadly distinguish between several kinds of physical representamina with predominantly iconic ground: first, those in which the speaker's entire body functions as an icon by imitating a particular posture or kinetic action (of her/himself or someone else); second, those in which body parts, such as the speaker's arms and hands, iconically represent an object or action; third, invisible figurations such as lines and volumes taking shape in gesture space as a result of manual actions. The latter are icons in their own right and may, as such, represent a person, object, concept, and so forth. As soon as gesturing hands seem to be manipulating contiguous objects, tools, or surfaces (not iconically represented), contiguity relations, and thus indices, come to the fore (see Mittelberg and Waugh this volume for sub-types of icons and indices correlating with distinct contiguity relations and metonymic principles). In principle, these different kinds of physical semiotic material may partake in the three sub-types of iconicity devised by Peirce, of which gestural examples will be discussed next.

3.1. Image iconicity

As a large body of research has shown, image iconicity may take shape in various forms and degrees in bodily signs (e.g., Duncan, Cassell, and Levy 2007; Kendon 2004; McNeill 1992, 2000, 2005; Mittelberg and Evola this volume). Bouvet (1997: 17), for instance, describes a full-body image icon produced by a little boy who pretends to be a helicopter in action by rotating his arms around the axis of his body. M  ller (1998a: 123) describes



Fig. 130.5a: Image iconicity (light beams)



Fig. 130.5b: Hallway in Cultural Institute of Stockholm

a flat palm-up open hand representing a piece of paper; and in Fig. 3 we saw an index finger reenacting the speaker's action of walking down the stairs. In the following example (Fig. 5a, adapted from Mittelberg, Schmitz, and Groninger in press), an architecture student employs his arms and hands (i.e. "body segments" according to Calbris 1990: 44) to evoke the lighting in a hallway of the Cultural Institute of Stockholm (designed by Giò Ponti; see Fig. 5b). Exploring the epistemic and creative potential of gestures, the student decided not to use speech in his description.

When comparing the gestural portrayal to the scene captured in the photograph, we see that the student's hands become the window openings in the sealing of the hallway and his arms (the reflections of) the light beams falling in from above. Through the physical presence of the arms and hands, this gesture has an increased degree of iconicity, reflecting the tranquil quality of the light entering the building. Due to the way in which Norman Foster uses his hands to demarcate the spatial dimensions of the Sperone Westwater Gallery, the three gestures shown in Fig. 1a–c also qualify as image icons. Though compared to the gestures shown in Fig. 5a, Foster's portrayal exhibits a lesser degree of iconicity.

Gestural representamina consisting of manually traced virtual lines, figurations, or otherwise created planes or volumes that emerge from the gesturing hands obviously do not have much material substance. Once they are completed, they constitute, no matter how sketchy and evanescent they might be, independent iconic signs. Hands or fingertips are often observed to draw an entity's shape in the air, for instance the panels of a rectangular picture frame as described by Müller (1998a: 119). As discussed earlier, in the gesture portraying a childhood memory (Fig. 130.4), the speaker's hand traces the structural core of a motion event. It is thus an example of kinetic action evoking an underlying abstract event, image or force schema (e.g., Cienki 2005; Mittelberg 2006, 2010, 2013, volume 1; Sweetser 1998).

3.2. Diagrammatic iconicity

Body diagrams may also manifest themselves in various forms. To begin with, the body in and of itself may be regarded as a diagrammatic structure consisting of parts that may get profiled against the whole. Gestural graphs and diagrams drawn into the air are schematic representations that bring out the internal structure of a gestalt by highlighting the junctures between its parts or how the elements are related to one another. In Peirce's own words icons, "which represent the relations, mainly dyadic, (...) of the parts of one thing by analogous relations in their own parts, are diagrams" (Peirce 1960:



Fig. 130.6: Diagrammatic iconicity (*teach-er*)

157; 2.277; see also Stjernfelt 2007). For a relatively solid example of a gesture manifesting a dyadic relation, consider Fig. 130.6 (adapted from Mittelberg and Waugh 2009).

In this multimodal teaching performance, a linguistics professor explains the basics of noun morphology. He complements the verbal part of his utterance, *as speakers of English you know that ... teacher consists of teach- and -er*, with a composite gesture, whose internal structure is of particular relevance. Both of his hands show the palms turned upwards and the fingertips curled in. On the mention of *teach-* he brings up his left hand and right thereafter, on the mention of *-er*, his right hand (see Fig. 130.6). This cross-modally achieved process of meaning construction is complex in that it not only involves a diagrammatic structure, but also a metaphorical projection. It thus qualifies as a diagrammatic metaphor icon. If we take the left hand to represent the morpheme *teach-* and the right hand the morpheme *-er*, each sign itself involves a reification of an abstract linguistic unit, or a speech sound, which through a metaphorical projection gets construed as a physical object (IDEAS ARE OBJECTS; Lakoff and Johnson 1980). We could also assume the hands to be enclosing small imaginary items, in which case the invisible items would need to be metonymically inferred from the perceptible containers. In both interpretations, this bimanually evoked diagram puts into relief the boundary between the two components, while also accentuating the fact that the linguistic units mentioned in speech are connected on a conceptual level. Neither is the idea of a diagram mentioned in speech, nor is the speech figurative. Yet, the body evidences conceptual structures and processes (for diagrammatic iconicity in gesture see also Enfield 2003, 2009; Fricke 2012; Mittelberg 2006, 2008, volume 1). This gestural diagram is also an instantiation of isomorphism (e.g., Calbris 1990; Fricke 2012; Givón 1985; Lücking 2013; Mittelberg 2006; Waugh 1992).

3.3. Metaphor iconicity

With the help of Peirce's iconic modes, one may differentiate gestural *image icons* of metaphoric linguistic expressions from gestural *metaphor icons* which manifest a metaphorical construal not expressed in speech. The former case is also referred to as a multimodal metaphor and the latter as a monomodal metaphor (e.g., Cienki and Müller 2008; Müller and Cienki 2009). Mittelberg and Waugh (this volume) describe the following example of a gestural metaphor cued by a linguistic metaphoric expression (i.e. a multimodal metaphor). A linguistics professor, lecturing about sentence structure, refers to *a sentence as a string of words*. On the mention of *a string or words*, she traces an invisible horizontal line in the air that evokes the idea of a string. In cognitive linguistic terms, *the sentence* is the target domain and *the string* the source domain of the underlying metaphorical mapping; the source meaning is taken literally in the gesture modality. Hence, conceptual structure is mediated in the form of a sketchy physical structure (e.g., McNeill 1992; Sweetser 1998).

We will now consider a metaphor icon that corresponds to a monomodal metaphor. In the following sequence (Fig. 130.7), the linguistics professor explains the difference between main verbs and auxiliaries. When saying *there is ... what's called the main verb*, he points with his right hand to the verb form 'taught' written on the blackboard behind him, thus contextualizing the deictic expression *there is*. While holding the deictic gesture and saying *the main verb*, he makes with his left hand a cupped palm-up open hand imitating the form of a small round container. The strongly iconic ground of this repre-



Fig. 130.7: Metaphor iconicity (*the main verb*; left hand)

sentamen portrays some of the prototypical structural characteristics of a small bowl-like container.

This iconic form does not directly represent the idea of a *main verb* mentioned in speech. According to Peirce, the cupped hand represents “a parallelism” (1960: 157; 2.277) between a category and a cup-like container; for a moment the hand actually becomes a container. The point here is that the container-like gesture adds a metaphoric dimension to this multimodally performed explanation, thus manifesting the speaker’s understanding of the *main verb* as a physical entity. The manual container serves as the source domain of the conceptual metaphor CATEGORIES ARE CONTAINERS (Lakoff and Johnson 1980). In such metaphor icons, metaphorical understandings of basic linguistic units and categories are expressed monomodally: whereas the speech is technical and non-metaphorical, the gesture modality evidences a metaphorical construal. Speech-independent metaphor icons like this one and the diagram of morphological structure discussed above (Fig. 130.6) thus reveal, or “exbody” (Mittelberg volume 1: 750), the speakers’ embodied conceptualization of *abstracta* in physical terms (see also Cienki and Müller 2008; Evola 2010; McNeill 1992; Müller and Cienki 2009; Parrill and Sweetser 2004). Iconic and metaphoric modes further tend to interact with indexical and metonymic principles. In the interpretation of metaphoric gestures, metonymy may, according to Mittelberg and Waugh (2009, this volume), lead the way into metaphor (see also Taub 2001; Wilcox in press).

4. Concluding remarks

The observations made throughout this chapter have confirmed that getting at the meaning of predominantly iconic gestures is not simply a matter of reference. To express their ideas and inclinations or solve communicative challenges, speakers may through their gestures relive experiences or create new meaningful semiotic material which in an evolving discourse may take on a life of its own. Instead of referring to something in the outside world, gestures may in certain moments actually *be* the world:

It is through my body that I understand other people, just as it is through my body that I perceive ‘things’. The meaning of a gesture thus ‘understood’ is not behind it, it is intermingled with the structure of the world outlined by the gesture. (Merleau-Ponty 1962: 216)

It seems that the structure of the world metonymically outlined, or profiled, by a given gesture may be shaped by at least these different, interrelated kinds of iconic structure:

physical, semiotic, and conceptual. All of these exhibit conventionality to lesser or greater degrees and rely on indices to unfold their meaning. Kinetic posture and action may put into relief the morphology of the human body and its movements and/or the spatial structures and physical objects humans interact with in their daily lives. Gestures and full-body enactments may also evoke essential qualities of experience brought to bear via, for instance, event and image-schematic structures and metaphor. Embodied action and image schemata have been shown to feed into gestural conceptualization on the side of the gesturer and to also guide the recognition and interpretation of furtive and schematic iconicity in gestures on the side of the addressee. They may also be the basis of metonymic inferences and metaphoric projections necessary to make meaning out of dynamically emerging semiotic gestalts (e.g., Cienki 2012; Mittelberg and Waugh this volume; Müller and Tag 2010).

Given the multifaceted forms and functions gestures may assume in various communicative situations and socio-cultural contexts, there remains a lot to be said about the different kinds of cognitive-semiotic and pragmatic principles that drive cross-modal processes of meaning-making in the here and now of the speech event as well as in gradual processes of conventionalization and grammaticalization. It seems worthwhile to bring into the picture additional theoretical approaches that might account for certain properties and functions of gestures more effectively than similarity and iconicity can (see Fricke 2012; Lücking 2013; Streeck 2009). It also seems crucial to further examine how gestural icons are indexically grounded in their semiotic, material and social environment (e.g. Streeck, Goodwin, and LeBaron 2011; Sweetser 2012).

Gestures, as any other medium, do not simply imitate or reproduce the speaker's inner or outer world; they participate in the encoding and structuring of experience as well as in associative and creative processes. One particularly promising avenue for future research is to further investigate what kinds of mediality effects result from what kinds of motivating and constraining forces in both co-speech gestures and signed languages.

Acknowledgements

The author wishes to thank Jacques Coursil, Vito Evola and Daniel Schüller for valuable input, as well as Viktor Gatys, Hannah Groninger, Anna Kielbassa, Marlon Meuters, Patrick Pack, and Thomas Schmitz (RWTH Aachen Department of Visual Design) for their collaboration on the motion capture study in the Natural Media Lab. Special thanks to Yoriko Dixon for providing the gesture drawings. The preparation of the article was supported by the Excellence Initiative of the German State and Federal Governments.

5. References

- Ahler, Felix and Jordan Zlatev 2010. Cross-modal iconicity: A cognitive semiotic approach to sound symbolism. *Sign Systems Studies* 38 (1/4): 298–348.
- Arnheim, Rudolf 1969. *Visual Thinking*. Berkeley: University of California Press.
- Andrén, Mats 2010. *Children's Gestures from 18 to 30 Months*. Lund: Centre for Languages and Literatures, Lund University.
- Bouvet, Danielle 1997. *Le Corps et la Métaphore dans les Langues Gestuelles: A la Recherche des Modes de Production des Signes*. Paris: L'Harmattan.

- Bouvet, Danielle 2001. *La Dimension Corporelle de la Parole. Les Marques Posturo-Mimo-Gestuelles de la Parole, leurs Aspects Métonymiques et Métaphoriques, et leur Rôle au Cours d'un Récit*. Paris: Peeters.
- Bressem, Jana Volume 1. A linguistic perspective on the notation of form features in gestures. In: Cornelia Müller, Alan Cienki, Ellen Fricke, Silva Ladewig, David McNeill and Sedinha Tessendorf (eds.), *Body – Language – Communication. An International Handbook on Multimodality in Human Interaction*. (Handbooks of Linguistics and Communication Science 38.1.), 1079–1098. Berlin/Boston: De Gruyter Mouton.
- Calbris, Geneviève 1990. *The Semiotics of French Gesture: Advances in Semiotics*. Bloomington: Indiana University Press.
- Cienki, Alan 2005. Image schemas and gesture. In: Beate Hampe (ed.), *From Perception to Meaning: Image Schemas in Cognitive Linguistics*, 421–442. Berlin: Mouton de Gruyter.
- Cienki, Alan 2012. Gesture and (cognitive) linguistic theory. In: Rosario Cabellero Rodriguez and M. J. P. Sanz (eds.), *Ways and Forms of Human Communication*, 45–56. Cuenca: Ediciones de la Universidad de Castilla-La Mancha.
- Cienki, Alan and Irene Mittelberg 2013. Creativity in the forms and functions of gestures with speech. In: Tony Veale, Kurt Feyaerts and Charles Forceville (eds.), *Creativity and the Agile Mind: A Multi-Disciplinary Study of a Multi-Faceted Phenomenon*, 231–252. Berlin: Mouton de Gruyter.
- Cienki, Alan and Cornelia Müller (eds.) 2008. *Metaphor and Gesture*. Amsterdam, Philadelphia: John Benjamins.
- Clark, Herbert H. 1996. *Using Language*. Cambridge: Cambridge University Press.
- Corrington, Robert S. 1993. *An Introduction to C.S. Peirce: Philosopher, Semiotician, and Ecstatic Naturalist*. Lanham, MD: Rowman and Littlefield.
- Danaher, David S. 1998. Peirce's semiotic and cognitive metaphor theory. *Semiotica* 119(1/2): 171–207.
- Duncan, Susan, Cassell, Justine and Elena T. Levy (eds.) 2007. *Gesture and the Dynamic Dimension of Language*. Amsterdam: John Benjamins.
- Enfield, N.J. 2003. Producing and editing diagrams using co-speech gesture: Spatializing non-spatial relations in explanations of kinship in Laos. *Journal of Linguistic Anthropology* 13: 7–50.
- Enfield, N.J. 2009. *The Anatomy of Meaning. Speech, Gestures, and Composite Utterances*. Cambridge: Cambridge University Press.
- Evola, Vito 2010. Multimodal cognitive semiotics of spiritual experiences: Beliefs and metaphors in words, gestures, and drawings. In: Fey Parrill, Vera Tobin and Mark Turner (eds.), *Form, Meaning, and Body*, 41–60. Stanford: CSLI Publications.
- Fillmore, Charles J. 1982. Frame semantics. In: Linguistic Society of Korea (ed.), *Linguistics in the Morning Calm*, 111–137. Seoul: Hanshin.
- Freyd, Jennifer and Kristine Jones 1994. Representational momentum for a spiral path. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 16: 1107–1117.
- Fricke, Ellen 2007. *Origo, Geste und Raum – Lokaldeixis im Deutschen*. Berlin, New York: de Gruyter.
- Fricke, Ellen 2012. *Grammatik multimodal: Wie Wörter und Gesten zusammenwirken*. Berlin: Mouton de Gruyter
- Fricke, Ellen Volume 1. Towards a unified grammar of gesture and speech: A multimodal approach. In: Cornelia Müller, Alan Cienki, Ellen Fricke, Silva Ladewig, David McNeill and Sedinha Tessendorf (eds.), *Body – Language – Communication. An International Handbook on Multimodality in Human Interaction*. (Handbooks of Linguistics and Communication Science 38.1.), 733–754. Berlin: De Gruyter Mouton.
- Frishberg, Nancy 1975. Arbitrariness and iconicity: Historical change in American Sign Language. *Language* 5(1): 676–710.
- Gibbs, Raymond W., Jr. 2006. *Embodiment and Cognitive Science*. New York: Cambridge University Press.

- Gibbs, Raymond W., Jr. and Teenie Matlock 2008. Metaphor, imagination, and simulation: Psycholinguistic evidence. In: Raymond W. Gibbs (ed.), *The Cambridge Handbook of Metaphor and Thought*, 161–176. Cambridge: Cambridge University Press
- Givón, Talmy 1985. Iconicity, isomorphism, and non-arbitrary coding in syntax. In: John Haiman (ed.), *Iconicity in Syntax*, 187–219. Amsterdam: John Benjamins.
- Goodman, Nelson 1976. *Languages of Art: An Approach to a Theory of Symbols*. 2nd ed. Indianapolis: Hackett. First published [1968].
- Goodwin, Charles 2011. Contextures of action. In: Jürgen Streeck, Charles Goodwin and Curtis LeBaron (eds.), *Embodied Interaction: Language and the Body in the Material World*, 182–193. Cambridge: Cambridge University Press.
- Grote, Klaudia and Erika Linz 2003. The influence of sign language iconicity on semantic conceptualization. In: Wolfgang G. Müller and Olga Fischer (eds.), *From Sign to Signing: Iconicity in Language and Literature* 3, 23–40. Amsterdam: John Benjamins.
- Haiman, John (ed.) 1985. *Iconicity in Syntax*. Amsterdam: John Benjamins.
- Hassemer, Julius, Gina Joue, Klaus Willmes and Irene Mittelberg 2011. Dimensions and mechanisms of form constitution: Towards a formal description of gestures. *Proceedings of the GES-PIN 2011 Gesture in Interaction Conference*, Bielefeld: ZiF.
- Haviland, John 1993. Anchoring, iconicity and orientation in Guugu Yimithirr pointing gestures. *Journal of Linguistic Anthropology* 3: 3–45.
- Hiraga, Masako 1994. Diagrams and metaphors: Iconic aspects in language. *Journal of Pragmatics* 22(1): 5–21.
- Jakobson, Roman 1966. Quest for the essence of language. In: Linda R. Waugh and Monique Monville-Burston (eds.), *Roman Jakobson: On Language*, 407–421. Cambridge, MA: Harvard University Press.
- Jakobson, Roman and Linda R. Waugh 2002. *The Sound Shape of Language*, Berlin, New York: Mouton de Gruyter, 3rd. ed. First published [1979].
- Jäger, Ludwig, Gisela Fehrmann and Meike Adam (eds.) 2012. *Medienbewegungen: Praktiken der Bezugnahme*. München: Fink.
- Johnson, Mark 1987. *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: Chicago University Press.
- Johnson, Mark 2007. *The Meaning of the Body: Aesthetics of Human Understanding*. Chicago: University of Chicago Press.
- Kendon, Adam 1986. Iconicity in Warlpiri sign language. In: Paul Bouissac, Michael Herzfeld and Roland Posner (eds.), *Iconicity: Essays on the Nature of Culture. Festschrift für Thomas Sebeok zu seinem fünfundsiebzigsten Geburtstag*, 437–446. Tübingen: Stauffenburg Verlag.
- Kendon, Adam 1988. *Sign Languages of Aboriginal Australia: Cultural, Semiotic, and Communicative Perspectives*. Cambridge: Cambridge University Press.
- Kendon, Adam 2004. *Gesture: Visible Action as Utterance*. Cambridge: Cambridge University Press.
- Kockelman, Paul 2005. The semiotic stance. *Semiotica* 157(1/4): 233–304.
- Ladewig, Silva 2011. Putting the Cyclic Gesture on a Cognitive Basis. *CogniTextes* 6.
- Ladewig, Silva H. this volume. Recurrent gestures. In: Cornelia Müller, Ellen Fricke, Alan Cienki, Silva H. Ladewig, David McNeill and Jana Bressem (eds.), *Body – Language – Communication. An International Handbook on Multimodality in Human Interaction* (Handbooks of Linguistics and Communication Science 38.2.). Berlin: De Gruyter Mouton.
- Lakoff, George and Mark Johnson 1980. *Metaphors We Live By*. Chicago: Chicago University Press.
- Lücking, Andy 2013. *Ikonische Gesten. Grundzüge einer linguistischen Theorie*. Berlin: Mouton de Gruyter.
- Mandel, Mark 1977. Iconic devices in American Sign Language. In: Lynn Friedman (ed.), *On the Other Hand. New Perspectives on American Sign Language*, 57–107. New York: Academic Press.
- McNeill, David 1992. *Hand and Mind: What Gestures Reveal about Thought*. Chicago: Chicago University Press.

- McNeill, David 2005. *Gesture and Thought*. Chicago: Chicago University Press.
- McNeill, David (ed.) 2000. *Language and Gesture*. Cambridge: Cambridge University Press.
- Merleau-Ponty, Maurice 1962. *Phenomenology of Perception*. New York: Humanities Press.
- Mittelberg, Irene 2006. *Metaphor and Metonymy in Language and Gesture: Discourse Evidence for Multimodal Models of Grammar* (Ph.D. Dissertation, Cornell University). Ann Arbor, MI: UMI.
- Mittelberg, Irene 2008. Peircean semiotics meets conceptual metaphor: Iconic modes in gestural representations of grammar. In: Alan Cienki and Cornelia Müller (eds.), *Metaphor and Gesture*, 115–154. Amsterdam: John Benjamins.
- Mittelberg, Irene 2010. Geometric and image-schematic patterns in gesture space. In: Vyvyan Evans and Paul Chilton (eds.), *Language, Cognition, and Space: The State of the Art and New Directions*, 351–385. London: Equinox.
- Mittelberg, Irene 2012. Ars memorativa, Architektur und Grammatik. Denkfiguren und Raumstrukturen in Merkbildern und spontanen Gesten. In: Thomas Schmitz and Hannah Groninger (eds.), *Werkzeug/Denkzeug. Manuelle Intelligenz und Transmedialität kreativer Prozesse*, 191–221. Bielefeld: Transcript Verlag.
- Mittelberg, Irene 2013. Balancing acts: Image schemas and force dynamics as experiential essence in pictures by Paul Klee and their gestural enactments. In: Barbara Dancygier, Mike Bokrent and Jennifer Hinnell (eds.), *Language and the Creative Mind*. Stanford: Center for the Study of Language and Information.
- Mittelberg, Irene Volume 1. The embodied mind: Cognitive-semiotic principles as motivating forces in gesture. In: Cornelia Müller, Alan Cienki, Ellen Fricke, Silva Ladewig, David McNeill and Sedinha Tessendorf (eds.), *Body – Language – Communication: An International Handbook on Multimodality in Human Interaction* (Handbooks of Linguistics and Communication Science 38.1.), 750–779. Berlin/Boston: De Gruyter Mouton.
- Mittelberg, Irene and Vito Evola this volume. Iconic and representational gestures. In: Cornelia Müller, Alan Cienki, Ellen Fricke, Silva H. Ladewig, David McNeill and Jana Bressemer (eds.), *Body – Language – Communication. An International Handbook on Multimodality in Human Interaction* (Handbooks of Linguistics and Communication Science 38.2.). Berlin: De Gruyter Mouton.
- Mittelberg, Irene, Schmitz, Thomas H. and Hannah Groninger in press. Operative Manufakte. Gesten als real-räumliche Skizzen in frühen Stadien des Entwurfsprozesses. In: Inge Hinterwaldner and Sabine Ammon (eds.), *Bildlichkeit im Zeitalter der Modellierung. Operative Artefakte in Entwurfsprozessen der Architektur und des Ingenieurwesens*. München: Fink.
- Mittelberg, Irene and Linda R. Waugh 2009. Metonymy first, metaphor second: A cognitive-semiotic approach to multimodal figures of thought in co-speech gesture. In: Charles Forceville and Eduardo Urios-Aparisi (eds.), *Multimodal Metaphor*, 329–356. Berlin: Mouton de Gruyter.
- Mittelberg, Irene and Linda R. Waugh this volume. Gesture and metonymy. In: Cornelia Müller, Alan Cienki, Ellen Fricke, Silva H. Ladewig, David McNeill and Jana Bressemer (eds.), *Body – Language – Communication. An International Handbook on Multimodality in Human Interaction* (Handbooks of Linguistics and Communication Science 38.2.). Berlin: De Gruyter Mouton.
- Murphy, Keith M. 2005. Collaborative imagining: The interactive use of gestures, talk, and graphic representation in architectural practice. *Semiotica* 156: 113–145.
- Müller, Cornelia 1998a. *Redebegleitende Gesten. Kulturgeschichte – Theorie – Sprachvergleich*. Berlin: Berlin Verlag.
- Müller, Cornelia 1998b. Iconicity and gesture. In: Serge Santi et al. (eds.), *Oralité et gestualité: Communication multimodale et interaction*, 321–328. Montréal/Paris: L'Harmattan.
- Müller, Cornelia 2004. Forms and uses of the palm up open hand: A case of a gesture family? In: Cornelia Müller and Roland Posner (eds.), *The Semantics and Pragmatics of Everyday Gesture*, 233–256. Berlin: Weidler Verlag.
- Müller, Cornelia 2010. Wie Gesten bedeuten. Eine kognitiv-linguistische und sequenzanalytische Perspektive. *Sprache und Literatur* 41(1): 37–68.

- Müller, Cornelia and Alan Cienki 2009. Words, gestures and beyond: Forms of multimodal metaphor in the use of spoken language. In: Charles Forceville and Eduardo Urios-Aparisi (eds.), *Multimodal Metaphor*, 297–328. Berlin: Mouton de Gruyter.
- Müller, Cornelia and Susanne Tag 2012. The dynamics of metaphor: Foregrounding and activating metaphoricity in conversational interaction. *Cognitive Semiotics* 10(6): 85–120.
- Parrill, Fey 2009. Dual viewpoint in gesture *Gesture* 9(3): 271–289.
- Parrill, Fey and Eve E. Sweetser 2004. What we mean by meaning: Conceptual integration in gesture analysis and transcription. *Gesture* 4(2): 197–219.
- Peirce, Charles Sanders 1955. Logic as semiotic: The theory of signs (1893–1920). In: Justus Bucher (ed.), *Philosophical Writings of Peirce*, 98–119. New York: Dover.
- Peirce, Charles Sanders 1960. *Collected Papers of Charles Sanders Peirce (1931–1958). Vol. I.: Principles of Philosophy, Vol. II: Elements of Logic*. Charles Hartshorne und Paul Weiss (eds.). Cambridge: The Belknap of Harvard University Press.
- Perniss, Pamela, Thompson, Robin and Gabriella Vigliocco 2010. Iconicity as a general property of language: evidence from spoken and signed languages. *Frontiers in Psychology* 1: 1–15.
- Pizzuto, Elena and Virginia Volterra 2000. Iconicity and transparency in sign language: a cross-linguistic cross-cultural view. In: Karen Emmorey and Harlan Lane (eds.), *Signs of Language Revisited: An Anthology to Honor Ursula Bellugi and Edward Klima*, 261–286. Mahwah, N.J.: Lawrence Erlbaum Associates.
- Rosch, Eleanor 1977. Human categorization. In: Neil Warren (ed.), *Advances in Cross-Cultural Psychology*. London: Academic Press.
- Shapiro, Michael 1983. *The Sense of Grammar: Language as Semeiotic*. Indiana: Indiana University Press.
- Simone, Rafaele (ed.) 1995. *Iconicity in Language*. Amsterdam: John Benjamins.
- Sonesson, Göran 2007. The extensions of man revisited: From primary to tertiary embodiment, In: John M. Krois, Mats Rosengren, Angela Steidele and Dirk Westerkamp (eds.), *Embodiment in Cognition and Culture*, 27–53. Amsterdam: John Benjamins.
- Sonesson, Göran 2008. Prolegoma to a general theory of iconicity: Considerations of language, gesture, and pictures. In Klaas Willems and Ludovic De Cuyper (eds.), *Naturalness and Iconicity in Language*, 47–72. Amsterdam: John Benjamins.
- Stjernfelt, Frederic 2007. *Diagrammatology: An Investigation on the Borderlines of Phenomenology, Ontology and Semiotics*. Dordrecht: Springer.
- Streeck, Jürgen 2008. Depicting by gesture. *Gesture* 8 (3): 285–301.
- Streeck, Jürgen 2009. *Gesturecraft: The Manu-Facture of Meaning*. Amsterdam: John Benjamins.
- Streeck, Jürgen, Charles Goodwin and Curtis D. LeBaron (eds.) 2011. *Embodied Interaction: Language and Body in the Material World: Learning in Doing: Social, Cognitive and Computational Perspectives*. New York: Cambridge University Press.
- Sweetser, Eve E. 1998. Regular metaphoricity in gesture: Bodily-based models of speech interaction. *Actes du 16e Congrès International des Linguistes (CD-ROM)*, Elsevier.
- Sweetser, Eve E. 2009. What does it mean to compare language and gesture? Modalities and contrasts. In: Jiansheng Guo, Elena Lieven, Nancy Budwig, Susan Ervin-Tripp, Keiko Nakamura, Seyda Özcaliskan (eds.), *Crosslinguistic Approaches to the Psychology of Language: Studies in the Tradition of Dan Isaac Slobin*, 357–366. New York: Psychology Press.
- Sweetser, Eve E. 2012. Viewpoint and perspective in language and gesture. Introduction to Barbara Dancygier and Eve Sweetser (eds.), *Viewpoint in Language: A Multimodal Perspective*, 1–22. Cambridge: Cambridge University Press.
- Taub, Sarah 2001. *Language from the Body: Iconicity and Metaphor in American Sign Language*. Cambridge: Cambridge University Press.
- Waugh, Linda R. 1992. Presidential address: Let's take the con out of iconicity: Constraints on iconicity in the Lexicon. *American Journal of Semiotics* 9: 7–48.
- Waugh, Linda R. 1993. Against arbitrariness: Imitation and motivation revived, with consequences for textual meaning. *Diacritics* 23(2): 71–87.

- Wilcox, Sherman 2004. Conceptual spaces and embodied actions: Cognitive iconicity and signed languages. *Cognitive Linguistics* 15(2): 119–147.
- Wilcox, Sherman in press. Signed languages. In: Dagmar Divjak and Ewa Dabrowska (eds.), *Handbook of Cognitive Linguistics*. Berlin: Mouton de Gruyter.
- Wittgenstein, Ludwig 1953. *Philosophical Investigations*. Oxford: Blackwell.
- Zlatev, Jordan 2005. What's in a schema? Bodily mimesis and the grounding of language. In: Beate Hampe (ed.), *From Perception to Meaning: Images Schemas in Cognitive Linguistics*, 313–342. Berlin: Mouton de Gruyter.

Irene Mittelberg, Aachen (Germany)

131. Iconic and representational gestures

1. Introduction
2. Iconic gestures, dimensions, and patterns
3. Mimicry: Intersubjective alignment and understanding
4. Representational and referential gestures
5. Concluding remarks
6. References

Abstract

The construct of iconic gestures, those gestures understood as sharing certain form features with the object, action or scene they represent, has traditionally proven to be a useful tool for scholars to classify this subset of gestures, distinguishing them from other types such as indexical or emblematic gestures. More recent approaches prefer to avoid discrete categories and rather speak in terms of dimensions or principles, such as iconicity or indexicality, in order to highlight the fact that gestures tend to perform multiple functions at once. Iconic co-speech gestures are semiotically conditioned not only by the particular language spoken, but also by the pragmatics of situated, multimodal language use, thus being cognitively, intersubjectively and socio-culturally motivated. Iconic patterns of gesture production identified within individual as well as across various languages and language families have provided valuable insights into the intimate interrelation of thought, gesture and speech in face-to-face interaction as well as other kinds of multimodal communication. This chapter reviews both production- and comprehension-oriented research on iconic gestures, including examples from cross-cultural, clinical, and forensic studies. Ways in which iconic gestures pertain to related terms, such as representational and referential gestures, are also addressed.

1. Introduction

Iconicity, in broader terms, is understood as the relationship between a sign and an object in which the form the sign takes is perceived and interpreted to be similar in some