

- Mayer, Mercer (1969). *Frog, where are you?* New York: Dial Press.
- McDonald, Betsy (1982). *Aspects of the American Sign Language predicate system*. Unpublished doctoral dissertation, University of Buffalo, New York.
- Schick, Brenda S. (1990). The effects of morphosyntactic structure on the acquisition of classifier predicates in ASL. In Ceil Lucas (Ed.), *Sign language research: Theoretical issues* (pp. 358–374). Washington, DC: Gallaudet University Press.
- Supalla, Ted (1982). *Structure and acquisition of verbs of motion and location in American Sign Language*. Unpublished doctoral dissertation, University of California, San Diego.
- Supalla, Ted (1986). The classifier system in American Sign Language. In Colette Craig (Ed.), *Noun classes and categorization: Typological studies in language*, 7 (pp. 181–214). Philadelphia: John Benjamins.



Sotaro Kita (Ed.) (2003). *Pointing. Where language, culture, and cognition meet*. Mahwah, NJ: Erlbaum.

Reviewed by Marianne Gullberg

In everyday communication speakers constantly point to things in the world, to places, directions, and to seemingly empty space. They use their hands, their eyes, their heads, as well as other body parts to do so. Pointing is frequent and widespread and appears to be universally simple to produce and understand. The volume *Pointing. Where language, culture, and cognition meet* clearly illustrates, however, that pointing is anything but simple. This cross-disciplinary collection offers readers a unique opportunity to explore the complexities of pointing, “a foundational building block of human communication” (p. 1), for it brings together findings from disciplines such as linguistics, semiotics, psychology, anthropology, and primatology. The studies draw on naturalistic as well as experimental data, and a variety of methods and analyses. Different disciplines have focused on different aspects of pointing and the chapters consequently cover a wide set of topics, from universal versus culture- and language-specific pointing, to interactional and situated practices, cognitive, psycholinguistic and communicative aspects of pointing in primates, in human adults and in child language development, pointing in Sign Language, and the semiotic and pragmatic processes which make pointing meaningful. In the following, I will briefly outline the contents of the chapters, and then proceed to discuss a few of the issues they raise in more detail.

After the introductory chapter, the volume opens with four chapters on ontogeny and phylogeny (chapters two to five). Four chapters that deal with

pointing from an ethnographic perspective (chapters six to nine) follow these. Thereafter come four chapters, each one dealing with a separate topic, namely a theoretical framework of indicating (chapter ten), an account of the linguistic functions of pointing in Danish Sign Language (Chapter 11), an outline of gestural abstract deixis (Chapter 12), and a final paper on how pointing and some related bodily behaviours may facilitate speech production (Chapter 13).

The first two chapters consider data from human children and non-human primates, and the emphasis is on the cognitive complexity of pointing. Both analyses conclude that pointing is a uniquely human activity. Butterworth's chapter, the first in this group, aims to establish a link between the development of pointing and the development of spoken language. He reviews the literature on the development of pointing and joint attention in human infants, taking both production and comprehension into account. He also compares the human data to pointing data from non-human primates. Based on these comparisons, Butterworth provides an evolutionary account of how language and pointing might have co-evolved in humans. He assumes that pointing and language evolution are based on the same underlying processes and structures that govern focused attention, i.e. social cognition. The account relies heavily on a structural definition of pointing based on the presence of the extended index finger. Butterworth compares human infants' tendency towards index prominence to the open hand indications found in other primates, and concludes that index-finger pointing is a uniquely human phenomenon. He also considers function to some extent, such that only the declarative use of index-finger extension qualifies as pointing, i.e. the function to share attention towards a third entity with conspecifics. The overview offered in this chapter is impressive, but the link to actual language development is not very well developed. Butterworth mainly discusses the cognitive prerequisites for language, such as joint attention and a theory of mind, and how these are related to or reflected in pointing. However, the actual transition to language and the relationship between pointing behaviours and language per se is unfortunately never really addressed.

In a companion chapter, Povinelli et al. also argue for pointing as uniquely human. In contrast to Butterworth, they are explicitly concerned with the social psychological prerequisites for human-like pointing behaviours rather than with the development of language per se. They define pointing as an action intended to influence mental and attentional states of conspecifics (or of other primates). Reviewing the literature on primate pointing behaviours in light of this definition, they conclude that primates do not point but indicate.

The core of the argument is that surface structural similarities in behaviour do not necessarily imply psychological similarities governing those same behaviours, a fallacy the authors refer to as the 'argument by analogy'. While primates may orient or extend limbs towards targets and engage in visual checking, the underlying function governing these behaviours, viz. to manipulate attentional states of others, is not found in primates. Such use of pointing is considered a uniquely human phenomenon. The authors also offer a model for how human pointing came to evolve out of the structurally similar behaviours found in primates. Like Butterworth, they suggest that the social and psychological complexity found in human pointing evolved independently of the motor actions, and that the psychological aspects came to exploit motor behaviours already in place such as visually guided prehension and begging.

Chapters four and five deal with the development of pointing in childhood, and consider both formal and functional issues. Masataka focuses on the origin of pointing, looking for precursors to pointing in infants. Drawing both on experimental and longitudinal data, he argues that there is a continuous development from undirected finger extension in infants to functional index-finger pointing. Masataka shows that index-finger extension and index-finger pointing are in complementary distribution at around 12–13 months, and similarly that reaching rates are not affected by the development of index-finger pointing. He further demonstrates that index-finger extension is associated with speech-like vocalisations, and discusses data suggesting that mothers selectively reinforce such index-finger extension. Finally, he presents evidence suggesting that the initial function of pointing is not to gain contact with an object (the popular reaching or failed grasping hypotheses) or to influence adults to achieve contact with it. Instead, pointing appears to be related to infants' attempts to orient their own attention to unfamiliar objects for exploration. The data show that infants reach towards familiar objects but extend their index fingers towards unfamiliar objects calling for exploration. Again, the account relies heavily on a structural definition of pointing. Masataka distinguishes index-finger extension from 'true' pointing based on the presence of an extended arm. The reasons for selecting the arm criterion are never addressed. This is unfortunate since its status becomes ambiguous in the discussion of functions related to the orientation of attention versus reaching. These issues could fruitfully have been discussed. A small final point concerns the organisation of the chapter. The studies pre-supposing index-extension to be the precursor are presented before the studies setting out to corroborate this assumption. This backward arrangement is unnecessarily confusing for the reader.

In chapter five, Goldin-Meadow and Butcher consider the role of pointing for child language development. They explore the notion that combinations of speech and pointing gestures form a transition between one- and two-word speech. The logic of the study is that children need to be able to express two chunks of information in one package (one proposition) for two-word speech to take place. In a longitudinal study of six children followed from 12 to 27 months, the authors investigate the temporal and semantic relationship between speech and gesture. They find that before children can express two chunks of information in one speech unit, they express them in different modalities: they first package information in one word and one gesture. For instance, children will say “open” and point at a drawer, expressing the opening action in speech and the object affected by the activity, the drawer, in gesture. Only when they can do this will they proceed to package that same information into two words, “open drawer”. Crucially, the information distributed over speech and gesture should be different but semantically related. Such speech-gesture utterances appear to be good predictors for the onset of two-word utterances in speech. The authors conclude that the observed patterns are indicative of a more general phenomenon, namely states of transitional knowledge and readiness for cognitive growth, a stance developed in a number of other papers by Goldin-Meadow (for an overview, see Goldin-Meadow, 2003).

The four chapters on the development of pointing complement each other in important ways. It is most useful for the reader to find discussions of the social cognitive prerequisites for joint attention and pointing in primates and human children immediately adjacent to analyses of the earliest development of language and pointing. These issues are typically not discussed in the same publications, although they partially cover the same domain and inform each other in important ways.

The following group of chapters are concerned with what is called the ethnography of pointing, that is, studies of naturally occurring pointing gestures and their contexts of use. These chapters all challenge received wisdom about the supposed simplicity and universality of pointing by focusing on different form-meaning relationships and the culture-specificity of these relationships.

In chapter six, Kendon & Versante offer a study examining six different forms of pointing observed among Neapolitan speakers and their distribution across discursive contexts. In a careful analysis of a set of examples they illustrate how each form of pointing — two forms of index pointing, thumb pointing and three forms of open hand pointing — is systematically related to what the authors call semantic or discourse distinctions, i.e. to the way in which an

object is introduced in discourse. They identify two broad types of functions: the indication of singularity and concreteness, and the indication of generality and abstractness. Index-finger forms are typically used for individuating or singling out a concrete referent ('that man'). Open hand points, in contrast, refer to objects in their status as symbolic, conceptual or exemplary ('he is an excellent sailor'). Palm orientation further modulates these general meanings. The methodology followed by these authors highlights the importance of form variation. The detailed study of contexts of use of these forms also reveals that the variation is not random but is systematically related to pragmatic functions that have hitherto been overlooked in studies of pointing. The analysis of the thumb point is a good example. It is often assumed that this form is used when speakers point to things behind them. The analysis offered by Kendon and Versante instead suggests that thumb pointing is used when the precise location of an object talked about is not important or has already been established.

The next two chapters, by Haviland and Wilkins, respectively, both argue for multiple levels of complexity of pointing. Drawing on data from one very young and one mature Tzotzil speaker of Mexico, Haviland discusses the conceptual, morphological, linguistic, and socio-cultural complexity of pointing. He illustrates how Tzotzil lacks a term for pointing and how Tzotzil speakers instead appear to treat pointing gestures as spoken linguistic acts, translated into something like 's/he says'. Like Kendon & Versante, Haviland notes systematic relationships between pointing form and linguistic function in different semantic domains such as the expression of direction, shape, proximity, individuation, etc. He extends the discussion, however, to suggest that pointing is an integral part of the linguistic system, particularly of the system of pronouns and determiners. This is in line with the observation that linguistic demonstrative expressions like "Look at that" generally cannot be interpreted without the presence of a concomitant gesture. Pointing is typically not considered as 'part of the language' in linguistic analyses of languages like English. However, the relationship between gesture and speech outlined by Haviland for Tzotzil is fundamentally the same in other languages in this domain (cf. Levinson, 1997). Haviland also shows that there is not only simultaneity of pointing and referential or demonstrative expressions in speech ('that way'), but that the modalities also operate in a functionally complementary or even autonomous fashion ('lots' + gesture). This state of affairs is not unlike that described by Goldin-Meadow and Butcher for child language development. In Tzotzil, however, the phenomenon is present in both child and adult language and is shown to be communicatively effective. Haviland's paper thus

emphasises many aspects of pointing specific to Tzotzil, but also highlights aspects of pointing that generalise to more languages.

In chapter eight Wilkins also examines the cross-cultural differences in form-meaning pairs. His paper draws on pointing data from speakers of Arrernte, a language spoken in Central Australia. Wilkins makes a strong case against the assumption that index-finger pointing is a socio-cultural and semi-otic universal. He argues that while the pointing function may be universal, the index-finger form as a basic form of reference is not. There is no absolute universal alignment of form and function. Instead, pointing is socially transmitted and learned. In support of this position, Wilkins reviews data on pointing from a range of cultures. His detailed analysis of the Arrernte data goes beyond the preceding form-meaning analyses and identifies finer distinctions. Relying on a linguistic analytical tool, he distinguishes (emic) form variations in contrastive opposition from (etic) variations that are in complementary distribution. Emic forms are different signs whereas etic forms are variants of the same sign whose actual realisation depends on context. Three basic types of orienting behaviour are outlined, involving gaze, lips, or hands. The choice of articulator is determined by factors such as visibility of the referent, formality, and level of secrecy. The forms of manual pointing are further broken down into signs (emic units) whose shapes are determined by factors like individuation, non-individuation, and type of path, etc. Finally, the (etic) variations of individual signs are determined by even finer distinctions, such as that between object individuation and individuation between alternatives. This fine-grained analysis reveals a structured and highly complex sign system with formal and functional-pragmatic considerations. In support of the view that this complex system is learned, Wilkins also discusses the acquisition of pointing among Arrernte children. The notion that pointing is acquired is obviously provocative given that pointing appears to be among the first communicative behaviours in infants. As in many other domains of gesture practices, we know remarkably little about how children come to use gestures in a language- and culture-appropriate fashion and about possible developmental trajectories. Unfortunately, many studies of gesture usage in children stop roughly at the onset of speech. One would hope that Wilkins's study will inspire future in-depth studies of pointing in later childhood, investigating the transition from potentially uniform pointing in infants to varied and culture-appropriate pointing.

The three chapters on pointing practices in different cultures effectively highlight the necessity for detailed studies of pointing cross-culturally as well as across different contexts. They show the importance of attending to the

different forms of action that are used in pointing, since difference in form comes with difference in function. Not all acts of pointing serve to do the same thing. These chapters illustrate that pointing inhabits a much richer ecological niche in communication than is generally assumed, and that pointing is integrated in socio-culturally and semiotically very complex structures.

Chapter nine, by Goodwin, is grouped by the editor with the three preceding papers because of the type of data discussed, but it seems more thematically related to the subsequent chapter by Clark. Both Clark and Goodwin focus on the semiotic networks within which pointing becomes meaningful and on pointing as situated action. Both address the question of how we come to know what is actually “meant” or referred to by a pointing gesture, i.e. the problem of referential indeterminacy (cf. Quine, 1960). How do we determine whether the intended target of a point is a rabbit or the white fluff on the rabbit’s tail? Using talk about archaeological diggings and conversations with an aphasic man as examples, Goodwin shows that pointing gestures do not indicate a simple place or space, but rather what he calls “a complex semiotic object” (p. 237). A pointing gesture becomes meaningful by the larger context in which it occurs, and that context consists of the bodies engaged, the talk that elaborates on the visible act of pointing, the orientation of the participants, the larger activity within which the pointing is embedded, etc. All of these features constitute internally structured meaning-producing systems that are parts of a complex semiotic object. The meaning of such an object is thus established through the mutual contextualisation and juxtaposition of semiotic systems. The interaction of these systems become evident when one of them is missing, as in conversations with an aphasic participant where speech is lacking. In such settings, the other semiotic parts of the complex object have to be relied on to convey meaning. Participants must rely more on information about the larger activity, knowledge about the other participants, etc. In contrast to all preceding chapters, the analysis also stresses the social complexity of pointing. The meaning of pointing is shown to be co-constructed by participants, sometimes involving extensive negotiation. Again, the aphasic data provide poignant evidence for the highly collaborative and interactive nature of meaning building by pointing.

Clark, in chapter ten, outlines a theoretical framework for how communication is anchored to the material world through indexicality or indicating. He distinguishes two types of indicating: pointing or “directing(-attention)-to” versus placing or “placing(-within-attention)-for”. Placing-for is an interesting addition to the indicating category that has hitherto received little attention in

the domain of deixis. Examples of placing-for include putting an object on the counter in a shop, thereby identifying it as the object to be purchased. Clark specifies the semiotic prerequisites and the devices by which these two types of signalling method are achieved. He shows how pointing and placing depend on different types of interaction with the world, each with different temporal properties. In pointing, speakers direct attention to objects, thereby indexing the site occupied by the object as relevant. Descriptions of relevance come from outside the object and site, usually from spoken language. The relevance of the site is transitory. In placing, on the other hand, speakers place objects within the attention of an interlocutor and exploit the presupposed and often continuing relevance, the 'indexing value', of a site such as a counter in a shop.

The referential and semiotic processes of pointing outlined in these two chapters contribute in important ways to our understanding of the basis for the psychological complexity of the uniquely human way of pointing described in earlier chapters. They help contextualise the role of social cognition and joint attention by adding the layer of the semiotic processes involved.

The preceding chapters have largely dealt with pointing as an act indicating objects in the real world. The next two chapters instead focus on linguistic or discursive practices whereby pointing gestures are used to refer to abstract entities, such as referents in discourse, or objects in virtual spaces. Engberg-Pedersen, in Chapter 11, examines pointing in Danish Sign Language. In addition to manual pointing, she considers articulators such as gaze, head and body orientation. The analysis outlines how meanings are created by the use of pointing signs or expressions in space, in particular through the establishment of so called loci, or directions in signing space that represent a referent in signed discourse. Engberg-Pedersen discusses how pointing expressions are employed as linguistic markers of reference and predication, roughly translated as 'X is at Y'. Pointing signs that refer as pronouns and determiners are distinguished from pointing signs that predicate as verbs (e.g. BE-AT, GO-TO, and some of the controversial classifier predicates). She also discusses cases of pointing where the status of an expression as linguistic and conventionalised is ambiguous and where it could be seen as gestural and non-conventional. In this respect, the sophisticated analysis of multi-functional deictic gaze is especially illuminating. Engberg-Pedersen illustrates highly linguistic functions of gaze like the marking of nouns and syntactic boundaries, but also more ambiguous (gestural) cases of imitative gaze where gaze can be used to shift attribution of expressive elements to show how a referent reacts, for instance, or to set up a spatial configuration. The discussion of how to characterise pointing as sign

or gesture obviously reflects the recent interest in these issues in Sign research. It echoes the debate regarding the role of space and loci. Engberg-Pedersen (1993) and Liddell (e.g. 2003) have both proposed that space should be seen as a gestural component of sign language, a topographically rather than grammatically organised element. The difficulties in distinguishing that which is linguistic, conventional, and grammaticised, from that which is gestural, non-conventionalised, yet systematic, are the same for Sign and gesture research. The view of how pointing or indexical movements fit into this perspective is of course of interest to both Sign and gesture research.

In Chapter 12, McNeill shows how pointing can map non-spatial entities onto space in co-speech gesture. The juxtaposition of these two chapters emphasises the close correspondence between practices in spontaneous co-speech gestures and fully grammaticised practices in Sign Language. In a two-participant conversation, McNeill shows how 'abstract' pointing instantiates referents and suggested topics of conversations as locations in space (or loci, in Sign Language terms) such that shared space acquires discourse meaning. The speakers point to locations in space while speaking, associating them with particular topics. Speakers then refer back to these locations when the topics are next mentioned. The example illustrates the pragmatic and interactional force of such discourse space. It shows how space can become confrontational when opposed meanings are attached to shared parts of space, pushing one of the participants to own up to a particular position. The analysis reveals how individual mental operations on space and interactional aspects of space both contribute to create meaning in deictic systems. The chapter thus provides further evidence for the conceptual, semiotic, and interactional complexity of pointing.

In the last chapter of the volume, Kita attempts to straddle the divide between communicatively and cognitively oriented studies of pointing. The paper aims to show that pointing gestures, torso orientation, gaze, and speech are used in an orchestrated fashion which is related to underlying cognitive processes. The study is based on video recordings of Japanese speakers giving route directions in Tokyo, and the analysis focuses on their choice between the concepts 'left' or 'right'. Pointing gestures and gaze are claimed to facilitate conceptual planning of speech, i.e. the decision of what to say, rather than lexical planning of speech, i.e. the decision of how to say it. This distinction is a matter of current theoretical debate in the psycholinguistic literature. The core of the argument is that the gestural movement heightens the "awareness" of the relevant part of the body, thereby facilitating the conceptual choice of left or right.

Gaze is used as a strategy to estimate the direction of pointing. Although the data do not allow the author to distinguish conceptual from lexical facilitation (as he himself notes), the study makes two interesting contributions. First, it shows how non-manual pointing behaviours are temporally aligned with each other in meaningful ways, and how they can be integrated into psycholinguistic and cognitive accounts of speech production. This has not been done before. Second, by bridging the gap between analytic traditions, the study is an important first step towards locating the study of speech production within an ecologically valid, communicative, and multi-modal context.

As is abundantly clear from the above summary, this volume charts many approaches to pointing. A possible criticism is that despite the rich variety of perspectives represented, there is a bias towards procedural and systemic aspects of pointing. The studies of the use of pointing in actual face-to-face interaction are in clear minority (Goodwin, McNeill). Having said that, the overview of areas of convergence and divergence that is provided here evokes a wealth of theoretical and methodological questions. One such issue concerns how pointing should be defined and the nature of the relationship between pointing and general deictic or indicating gestures. There is substantial diversity in the views on what constitutes 'true' pointing in the volume, with both formal and functional approaches represented. Some studies emphasise the defining role of (structural or articulatory) form and focus on a specific hand shape. The defining criteria range from the presence of an extended index finger (Butterworth), to an extended arm (Masataka). This approach limits the scope of phenomena to be studied considerably, usually to one single hand shape. In contrast, the ethnographic and discourse-related studies rely on a more functional if not always explicitly stated definition of pointing. Instead of focusing on a single form, these studies emphasise the variation in pointing forms, articulators, and movement patterns. Any body part that can establish a vector is considered to 'point', e.g. eyes, heads, body orientation. This approach brings a range of gestures into play and crucially allows systematic links between form variations and meanings to be uncovered. The establishment of such systematicity in turn enables the cultural diversity of pointing to be identified. A question arising from this focus on variation is whether there is a boundary between pointing and other types of 'deictically inflected' gestures. Put differently, are all cases of gestures with deictic elements to be considered as examples of 'pointing'? Goodwin, for instance, introduces tracing and inscribing as varieties of pointing by considering iconic properties to be superimposed on pointing gestures, what might be called 'iconically inflected' pointing. Kendon & Versante

discuss deictically inflected iconics or “descriptive [...] gestures [that] are combined with an inflection for direction, which carries with it a deictic reference” (p. 114). Whether the deictic element is seen as the core component or as the inflection in these mixed cases appears to hinge on the underlying definition of pointing. Kendon & Versante in fact exclude deictically inflected iconics from the domain of pointing. They explicitly define pointing as a gesture in which the deictic component is the *only action* of the gesture, i.e. a gesture that is specialised for deixis. Not only are such explicit functional criteria for pointing rare, but the relationship between pointing and general gestural deixis or indicating is rarely specified. Most authors seem tacitly to assume that pointing is a subset of general gestural deixis, but we know little about how these notions are thought to relate to each other. In Clark’s framework, pointing and placing are sub-types of the superordinate notion of indicating. Clark discusses the semi-otic processes that distinguish the sister categories of pointing and placing, but does not say much about the hierarchical relationship between indicating and its sub-types. Povinelli et al. also distinguish pointing and indicating and they label indicating as the more general phenomenon. They deem pointing to be psychologically, if not morphologically, more complex than indicating. Recall that the authors claim that chimpanzees do not point but indicate. Povinelli et al. define pointing as an act intended to influence the mental and attentional states of others. A technical social cognitive definition of pointing is thus behaviour that is triadic, distal, and declarative (cf. Tomasello & Camaioni, 1997). That is, pointing means sharing attention with someone over a third entity (triadic) out of reach (distal) in order to comment on it (declarative). Indicating, in contrast, would mean directing attention to someone or something (dyadic) within reach (proximal) to request a direct action (imperative). While these technical distinctions are relevant in the primate research, it seems unlikely that they would be acceptable to all contributors. A chapter summarising and discussing these various definitions would have been useful in contextualising the approaches to how indicating and pointing are best characterised with respect to each other. For gesture research, such an overview could be methodologically extremely important, contributing to establish a uniform meta-language, which in turn would promote comparability across studies.

Another question raised by the discussions in this volume concerns the status of pointing as a conventionalised, culture-dependent sign or as a spontaneous co-speech gesture. Haviland, Wilkins, and Engberg-Pedersen all discuss this issue explicitly. Kendon (1988) observed that gestural phenomena can be grouped depending on their language-like properties, their relationship to

co-occurring speech, and their degree of conventionalisation. This organisation is often referred to as Kendon's continuum (McNeill, 1992). Roughly, primary Sign Language is placed at one end of the continuum (+language-like, +conventional, -co-occurring speech) and spontaneous co-speech gestures at the other (-language-like, -conventional, +co-occurring speech), with things like emblems/quotable gestures in the middle. All studies in this volume suggest that pointing shows characteristics of both ends of the continuum. Haviland observes that pointing displays gesture-like and non-language-like qualities in its characteristic appearance together with speech. At the same time, pointing is sign- or language-like. There are systematic form-meaning relationships in pointing that are culture-specific and have to be learned. Haviland further notes that pointing, like signs or language, can be segmented, glossed and potentially temporally autonomous from speech. Also, pointing is responded to as spoken acts (Haviland), is given propositional meaning (Wilkins), and is even seen as an integral part of the linguistic system (Haviland). So, is pointing gesture or sign? The answer to the question cannot be dichotomous since the sign-gesture scale involves multiple dimensions. It is probably not possible to determine whether pointing is sign or gesture generically. Pointing may have to be qualified as more sign- or gesture-like along one separate dimension at a time — especially if we want to make cross-linguistic comparisons. However, the task is difficult even when individual dimensions are considered. The 'language-likeness' dimension is problematic as evidenced by the long-standing debate regarding defining criteria or 'design features' of language (cf. Hockett & Altmann, 1968). Recently arbitrariness has given way to convention as a favourite determinant. In the case of pointing and gestures in general, the question arises as to how to distinguish the spontaneous but systematic from the conventionalised. Interestingly enough, even in Sign Language research — much ahead of gesture research on issues of how to differentiate linguistic signs from ad hoc gestures — this distinction is not often discussed. In the gesture literature, it is often stressed that the observed gestural behaviour is systematic, e.g. in terms of temporal and semantic alignment (McNeill, 1985). Systematic spontaneous behaviour is further distinguished from 'conventional' gestures such as emblems/quotable gestures. Very few authors have discussed what the distinction between systematicity and convention is. Clark says that a convention is a regular, partly arbitrary co-ordination device for a recurrent co-ordination problem common to a given community (Clark, 1996). Pointing certainly seems to fit the bill as a general phenomenon. The question is whether the recurring form-meaning relationships observed in the studies presented

here (Kendon and Versante, Haviland, and Wilkins) individually qualify as conventional. Even as neat a definition as Clark's leaves room for interpretation as to how frequent a behaviour must be in order to be considered 'regular' or how wide-spread in order to be 'common to a given community'. Another question is whether the properties of a convention are internally ordered. These issues are more than semiotic terminological concerns. Clarifications in this domain could have both theoretical and methodological implications for the study of pointing and of other gestures and signs.

To conclude, this volume provides a more sophisticated and complex view of pointing than anything hitherto available. It is likely to become a milestone. One of its foremost merits is its interdisciplinary nature and the diversity of empirical and theoretical questions it addresses. It is a tribute to the way in which the field of gesture research has developed and to the diversity of methods and analytical tools employed in its study. The multiple perspectives help contextualise different views and interpretations that are normally represented in very different types of publications. For instance, the studies on the linguistic and semiotic complexity of pointing help explain the claims about its psychological and cognitive complexity pertinent for the studies of primates, and of language evolution in the species and language development in children. Similarly, the findings on conventionalisation and culture-specificity of pointing further refine our understanding of how pointing is integrated in communication and in structured linguistic systems. One would hope that this volume will stimulate more descriptive groundwork across languages, cultures, (linguistic) developmental stages, and species. More studies of contexts of use would also be welcome as well as studies of children's and adult second language learners' acquisition of language- and culture-appropriate pointing.

References

- Clark, Herbert H. (1996). *Using language*. Cambridge: Cambridge University Press.
- Engberg-Pedersen, Elisabeth (1993). *Space in Danish Sign Language*. Hamburg: Signum.
- Goldin-Meadow, Susan (2003). *Hearing gesture: How our hands help us think*. Cambridge, MA: The Belknap Press.
- Hockett, Charles F. & Stuart A. Altmann (1968). A note on design features. In Thomas A. Sebeok (Ed.), *Animal communication* (pp.61–72). Bloomington: Indiana University Press.
- Kendon, Adam (1988). How gestures can become like words. In Fernando Poyatos (Ed.), *Crosscultural perspectives in nonverbal communication* (pp.131–141). Toronto: Hogrefe.

- Levinson, Stephen C. (1997). Deixis. In Peter V. Lamarque (Ed.), *Concise encyclopedia of philosophy of language* (pp. 214–219). Oxford: Elsevier.
- Liddell, Scott K. (2003). *Grammar, gesture, and meaning in American Sign Language*. Cambridge: Cambridge University Press.
- McNeill, David (1985). So you think gestures are nonverbal? *Psychological Review*, 92 (3), 271–295.
- McNeill, David (1992). *Hand and mind. What the hands reveal about thought*. Chicago: Chicago University Press.
- Quine, Willard V.O. (1960). *Word and object*. Cambridge, MA: MIT Press.
- Tomasello, Michael & Luigia Camaioni (1997). A comparison of the gestural communication of apes and human infants. *Human Development*, 40, 7–24.