CHAPTER 4 RESPONSE

A Point Well Taken

On the Typology and Diachrony of Pointing

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INTRODUCTION

For attentive observers, the claim that pointing is ubiquitous in everyday inter-action will not come as a surprise. A brief lecture on the distribution and form of pointing gestures will probably also convince them that pointing can be considered a foundational building block of human communication (Kita 2003b). First, pointing appears to be species specific; chimpanzees, for instance, do not point—at least not with their index finger (Povinelli and Davis 1994; but cf. also Leavens, Hopkins, and Bard 1996). Based on a wealth of cross-cultural studies, it has been suggested that pointing is a universal human behavior attested in cultures around the world. Second, in babies, point-ing to nearby objects emerges early on at an average age of eleven months (Butterworth and Morissette 1996). Moreover, research indicates that the com-bination of single-word utterances and pointing gestures may function as a transitional bridge between one- and two-word speech (Goldin-Meadow and Butcher 2003). Third, to a certain extent, the use of pointing gestures seems to be rule based and tightly linked to the accompanying speech (Kendon 2004). What is more, some utterances simply cannot be interpreted without taking into account the accompanying pointing gestures.

In their original and insightful study, Senghas and Coppola (chapter 4, this volume; hereafter S&C) investigate the use and distribution of pointing signs in Nicaraguan Sign Language (NSL), a sign language that emerged—under the advertent eye of linguists—at a Deaf school in Managua in the past thirty years (Kegl, Senghas, and Coppola 1999; Polich 2005). In their chapter S&C focus on locative points (i.e., adverbials such as 'there') and nominal points (i.e., demonstratives/determiners and personal pronouns) and analyze data from homesigners and from three distinct cohorts of NSL users, where cohort membership is determined by the period in which an individual entered the

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school. Every group included four subjects. In a nutshell, they find that the use of locative points does not differ significantly across the groups, while the use of nominal points clearly increases. They conclude that in the course of only thirty years a shift in the use of pointing signs has occurred. From a gestural input, the second- and third-cohort signers developed linguistic elements that have "a more categorical, languagelike, less context-bound flavor than the co-speech forms that are their origin."

This chapter is meant as a commentary—albeit a somewhat loosely related one—on S&C's intriguing findings. I add to the picture some cross-linguistic observations on the development and use of pointing gestures/signs in both spoken and signed languages, and I point out possible implications for their study. In the next section I start by looking at variation in pointing gestures as described for spoken languages. Phonological variation in the use of indexical signs in sign languages is the topic of the subsequent section. In the context of variation I point out some further potential complexities in the articulation of pointing signs that were outside the scope of the S&C study but which open up potential avenues for future research. Finally, in the section titled "On the Grammaticalization of Pointing: Speculations and Some Evidence," I address the issue of grammaticalization and show how the S&C study adds to our understanding of diachronic change in sign languages.

POINTING AS COSPEECH GESTURE

Kita (2003b, 1) defines the prototypical pointing gesture as "a communicative body movement that projects a vector from a body part. This vector indicates a certain direction, location, or object." Hence, even when used as a cospeech gesture, pointing can fulfill (at least) a locative function ('there') and a nominal function ('that,' 'she/he')—that is, the two functions that are also the center of attention in the S&C study. Often the pointing sign is necessary to disambiguate the meaning expressed by a vocal utterance. Consider, for instance, the utterance in (1). Clearly, the statement could not be interpreted without paying attention to the simultaneous cospeech gestures, both of which are articulated with an extended index finger.

(1) This   is my friend Mark, and over there   is his wife.
[point forward left]   [point forward right, arm extended]

In (1), pointing gestures accompany first a demonstrative pronoun, then a locative (distal) adverb. The description of these gestures is simplified, but their execution clearly differs with respect to height and movement trajectory.

Pointing gestures are commonly articulated with the hand(s). Across cultures, the handshape that is most frequently used is most certainly the 1-handshape (i.e., a handshape with extended index finger). For the reader's

convenience, the handshapes referred to throughout this chapter are provided in figure 4R.1 together with their labels.

Povinelli and Davis (1994) claim that the predominance of this gesture results from morphological features (in the biological sense) of the human hand since the index finger is extended relative to the other digits in the resting state of the hand (the same is not true for chimpanzees, and, therefore, index finger pointing does not typically emerge in chimpanzees; also see Povinelli, Bering, and Giambrone [2003]). However, other handshapes may also be used for pointing—for instance, the extended thumb handshape (A-hand) and the flat hand with all fingers extended (B-hand). Analyzing data from England (Northamptonshire) and Italy (Campania), Kendon (2004) and Kendon and Versante (2003) find that different handshapes tend to be used in different contexts. They observe, for instance, that the 1-handshape is most likely to be used when "a speaker singles out an object which is to be attended to as a particular individual object" (Kendon 2004, 205). Typically, this handshape is accompanied by a deictic word. In contrast, in all cases in which the B-handshape is used, "the object being indicated is not itself the primary focus or topic of the discourse but is something that is linked to the topic" (Kendon 2004, 208). Interestingly, deictic words are less frequently observed in the accompanying speech when the B-handshape is used. In addition to handshape, the palm orientation also seems to play a role; for the 1-handshape and the B-handshape, relevant distinctions are palm vertical and palm down (see the studies mentioned earlier for details). Finally, use of the A-handshape can be explained at least partially by anatomical factors. Generally, the objects pointed to with this handshape are either to the side or to the rear of the speaker. Moreover, the thumb seems to be used when the exact location or identity of the object is not important.

Wilkins (2003) challenges the common view that the index finger is universally privileged in pointing by showing that in some cultures (e.g., the Barai of Papua New Guinea), index finger pointing is not used at all (instead, lip pointing is used; see later discussion), while in others, pointing with the index finger appears not to be the most dominant form. Based on an analysis of data from speakers of Arrernte, a central Australian (Pama-Nyungan) language, he
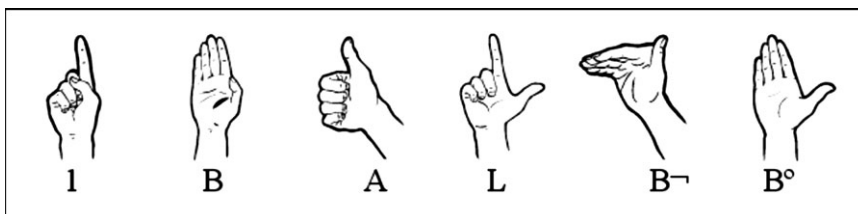

Figure 4R.1. Pointing handshapes and handshape labels

proposes a hierarchical system of pointing ("orienting behaviors") that distinguishes six different handshapes that are used for different purposes. Within this system, the canonical index point (palm down) is treated as an allomorph of the one-finger point. Note that besides the 1-handshape and the B-handshape, the pointing handshapes distinguished by Wilkins include the "middle finger point" and the "wide hand point."

Finally, besides manual pointing gestures, nonmanual pointing is also attested. Lip pointing, for instance, is a fairly widespread form of deictic gesture that is attested in Southeast Asia (Enfield 2001), Australia (Wilkins 2003), Latin America (Sherzer 1973), and Africa. Actually, as Enfield (2001, 186) points out, " 'lip-pointing' is not an ideal label" since protrusion of the lip(s) is almost always accompanied by a "quick raising of the head and chin, and orientation of gaze towards the referent." Focusing on speakers of Lao (Laos and Thailand), Enfield shows that lip pointing exhibits consistent conventions of both form and function. It is important to note that the use of lip pointing does not exclude the use of manual pointing. Rather, lip pointing may be complemented by and coordinated with manual gestures. Unlike manual pointing, however, lip pointing "only occurs when the identity or location of the referent is the focus of the speaker's utterance" (Enfield 2001, 195), for instance, as answers to "Where?" and "Which one?" questions. In the data from Arrernte speakers, Wilkins (2003) observed not only lip pointing but also eye pointing. Before pointing with the eye, the speaker first has to be sure of the interlocutor's attention. The speaker then shifts the eye "noticeably within the socket toward a particular referent. There is typically no accompanying head movement" (Wilkins 2003, 187). It is probably the latter feature that distinguishes eye pointing from eye gaze toward a location. The use of eye pointing reflects a conspiratorial mood; it is used to exclude third parties from being privy to what or who is being talked about (see Kita 2009 for further discussion of cross-cultural variation in cospeech gestures).

POINTING SIGNS: PATTERNS OF VARIATION

Just like spoken discourse, signed discourse abounds with pointing signs. Based on the analysis of Danish Sign Language discourse from four signers, Engberg-Pedersen (2003, 271), for instance, estimates that "on the average, almost every fourth sign in signed discourse is a pointing sign." For Kata Kolok, a village sign language of Bali, de Vos (2008) reports that one out of six signs is a pointing sign.

In the literature, various functions of pointing signs have been identified. Assigning an unambiguous function to a given pointing sign, however, is not always straightforward and may at times even be impossible. First of all, pointing signs may indicate the location of an object or event. Locative points

may combine with nouns ('the house over there') or may be used predicatively ('the house is over there'). Second, within a noun phrase (NP), pointing may also function as a definite determiner ('the house') or a demonstrative pronoun ('this/that house') (Zimmer and Patschke 1990; MacLaughlin 1997). What complicates matters is the fact that NP internally, a point may also be used to associate a nonpresent referent with an arbitrary location in the signing space. For some sign languages, it has been suggested that within the NP (or determiner phrase, DP), the position of the pointing sign vis-à-vis the head noun may distinguish between various functions (MacLaughlin 1997), while for others it has been argued that at least demonstratives may occur pre- or postnominally (Zhang 2007). Third, pointing—be it to present referents or to loci that have previously been established in the discourse—may also be used anaphorically. That is, points may function as personal pronouns, thereby indicating the participants of events and their roles in the event (Lillo-Martin and Klima 1990; Meier 1990; Engberg-Pedersen 1993, 2003; McBurney 2002; also see Sandler and Lillo-Martin 2006).

For the purpose of their study, S&C distinguish between locative points and nominal points. In order to determine the meaning and function of pointing signs within the elicited narratives, they look at the context of a particular pointing sign to see what the point referred to. Points "that referred to locations (such as 'overhead' or 'to the left')" were classified as locative; those "that referred to persons or objects (such as Tweety Bird or the cage)" were considered nominal points. Importantly, S&C's notion of a nominal point covers NP-internal, as well as pronominal, uses of pointing signs (see the next section, "On the Grammaticalization of Pointing: Speculations and Some Evidence," for further discussion).

In the present section I discuss cross-linguistic evidence suggesting that subtle changes in the phonological makeup of pointing signs might help us distinguish different functions. To that end I consider manual (movement, handshape, and orientation) and nonmanual (eye gaze) properties of pointing signs. However, before addressing the issue of phonological variation, I want to briefly point out further uses of indexical signs that are not considered in the present context. These include indexicals with plural meaning (multiple locations or referents) that are marked by the addition of an arc-shaped movement on the horizontal plane; specialized grammatical functions such as the reflexive and the possessive, which may be marked by a change in handshape (Sandler and Lillo-Martin 2006); and pointing signs that refer to time (e.g., a B-handshape pointing directly overhead for NOON in Kata Kolok) (Marsaja 2008).

Movement

The first phonological parameter that may distinguish between different uses of pointing signs is the parameter of movement. Among the features that play

a role are the length and shape of the movement trajectory and the tenseness of movement. In the following, all of the pointing signs are glossed as INDEX with further specification of function.

Within the group of locative adverbials, movement may distinguish between proximal ('here') and distal ('(over) there') meanings. Consider the German Sign Language [Deutsche Gebärdensprache, DGS] examples in (2). In (2a), the pointing sign is articulated in front of the signer's body with the fingertip pointing down. A short downward movement is executed either by the lower arm or by the wrist joint. The proximal adverbial is illustrated in figure 4R.2a. Note that, due to articulatory constraints, the index finger is not fully extended but bent (Van der Kooij 2002).

(2) a.
$$\overline{\text{top}} \qquad\qquad \overline{\text{neg}}$$

INDEX-PROX_{front-of-body} ZUVOR   INDEX₁   NIE   ANWESEND
here   before   I   never   be.present
'I have never been here before.'

b. ZUVOR   POSS₁   BRUDER   WOHN   **INDEX-DIST_{far-right}**
before   my   brother   live   (over) there
'My brother used to live (over) there.'

c. INDEX₁   ENTSCHEID   BUCH   **INDEX-DEM_{forward-right}**   KAUF
I   decide   book   that   buy
'I decided to buy that book.'

Example (2b) exemplifies the use of the distal adverbial. As figure 4R.2b shows, this pointing sign is articulated higher in the signing space (at shoulder height) and with a long, arc-shaped movement. Figures 4R.2a and 4R.2b illustrate two extremes; intermediate realizations are also possible. Finally, the demonstrative in example (2c) also shows a forward movement, but this movement is short, tense, and often repeated; see figure 4R.2c (here I neglect the distinction between proximal ('this') and distal ('that') demonstratives). In both the distal adverbial and the demonstrative, palm orientation is usually down. The bold curved line represents the torso of the signer. Obviously, the illustrations in figure 4R.2 are rough sketches. They are meant only to illustrate movement and handshape characteristics, while the orientation features are not accurately represented—at least not for a right-handed signer. As far as direction and length of movement are concerned, pronominal pointing signs pattern with demonstratives. In contrast to demonstratives, however, the movement is less tense and not repeated (except when used contrastively). Except for the first-person singular pronoun, the palm is usually oriented downward. For Danish Sign Language (DSL), Engberg-Pedersen (2003) describes the use of verb forms that are related to pointing signs and can be modified for loci in signing space (e.g., the verb GO-TO). Just like the distal adverbial (figure 4R.2b), GO-TO is made with an arclike (or straight) movement toward a previously established locus, the palm facing downward (see the later subsection on orientation).
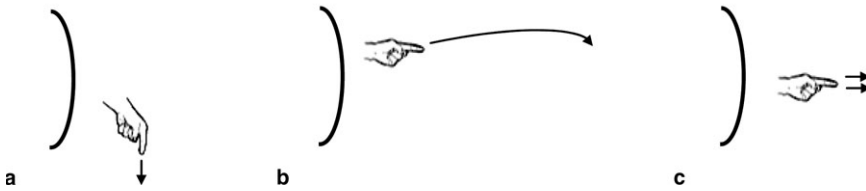
Figure 4R.2. Movement characteristics of proximal adverbial (a), distal adverbial (b), and demonstrative (c)

According to S&C, differences with respect to movement are also attested in the NSL pointing signs they found. Based on their observations, they conclude that nominal points contrast with locative points in that the former "are signed more quickly and with a smaller movement or no movement at all." However, their label "nominal point" collapses NP- and VP-internal uses of pointing signs, that is, signs that function as determiners or demonstratives and signs that function as pronouns. In future analysis, it would be interesting to address the question of whether different nominal uses can be distinguished on the basis of manner of movement.

When analyzing movement patterns, one has to keep in mind the fact that the number of movements may be influenced by prosodic factors. For Israeli Sign Language, Sandler (1999) observes that repetitions may be added in prosodically strong positions (e.g., the end of an intonational phrase) or deleted in prosodically weak positions. In other words, repetition of movement in pointing signs—which often occupy a phrase-final position—is not necessarily always indicative of a specific function.

Handshape

As mentioned previously, in the present context I do not focus on the handshape modulations commonly observed in possessive pronouns (e.g., use of B-handshape) and reflexive pronouns (e.g., use of A-handshape). From the available descriptions, it can be concluded that the 1-handshape is by far the most frequently used handshape in pointing signs across sign languages. However, similar to the cospeech pointing gestures introduced in the section "Pointing as Cospeech Gesture," the B-handshape and the A-handshape are also attested. Unfortunately, only little is known about potential specialized functions associated with these two forms.

In her discussion of person deixis in Brazilian Sign Language [Língua de Sinais Brasileira, LSB or LIBRAS], Berenz (2002) points out that, in pronominalization, the B-handshape is used as a polite form. She even speculates that the extension of all fingers might convey a plural meaning, similar to the use of honorific pronouns in spoken languages, where they are often homonymous

with plural pronouns (e.g., French *vous,* which is also the second-person plural pronoun, and German *Sie,* which is homonymous with the third-person plural pronoun). In Kata Kolok, the first-person singular pronoun (ICANG) has two variants, the 1-handshape and the B-handshape. Marsaja (2008, 177) observes that "[t]he former is used more frequently than the latter, even though they have the same function and meaning." In contrast, the second- and third-person pronouns have only the index finger configuration. Similarly, Woodward (1978) suggests that. in Providence Island Sign Language, flat hand pointing occurs when the location pointed to is on the signer's body.

From informal observations of Sign Language of the Netherlands [Nederlandse Gebarentaal, NGT] and DGS, it seems that factors similar to those described earlier for cospeech gesture motivate the use of the A-handshape, that is, articulatory factors. This handshape may be used, for instance, when a right-handed signer points to a discourse participant located directly to the signer's right. Further research is needed to verify this claim. Note that in both NGT and DGS, the A-handshape is attested in lexicalized temporal deixis, for instance, in the signs YESTERDAY and TOMORROW.

Besides the previously mentioned handshapes, Alibašić Ciciliani and Wilbur (2006) describe the use of the L-handshape in Croatian Sign Language [Hrvatski Znakovni Jezik, HZJ], which they consider a variant of index finger pointing. They also investigate the possibility that different handshapes are used for case marking (i.e., to mark the case that would be used in the equivalent Croatian sentence). It turned out, however, that there was no systematic correlation between handshape and case. The 1- and the L-handshapes were attested in all case environments; variants of the flat hand (B, B°, and B¬) were observed mostly, but not exclusively, in accusative environments.

Although S&C remark that "points are generally made with an extended finger or an open hand directed away from the body," in their analysis of the NSL data, they do not distinguish between different handshapes. However, given the nature of their data elicitation (i.e., the retelling of an animated cartoon), it seems unlikely that a non-1-handshape would be used for one of the reasons mentioned earlier. First, with the possible exception of role shift, there would be no need to use a first-person pronoun (see Pyers and Senghas [2007] for the use of indexical points to self in NSL role shift). Second, the use of honorific forms seems highly unlikely in the elicitation setting. Third, for the most part, there was no discourse participant sitting on the dominant-hand side of the signer, that is, in a position that might trigger use of the L-hand. Still, in principle, one cannot exclude the possibility that different handshapes signal other functions that have yet to be determined.

As with the movement characteristics discussed in the previous subsection, it has to be noted that additional factors may influence the handshape of pointing signs in certain environments. As noted by Corina (1990) and Sandler (1999), among others, the handshape of a pronoun may assimilate to that of a

preceding or following content sign. Corina, for example, describes an instance in which a first-person pronoun is signed with a B¬-handshape, thereby anticipating the handshape of the following verb, KNOW. Sandler (1999) claims that, from a prosodic point of view, handshape assimilation may be indicative of cliticization.

Orientation

In the following discussion of the role of orientation in pointing signs, I distinguish two palm orientation values: palm vertical and palm down. In the literature (e.g., Engberg-Pedersen 2003; Van der Kooij, Crasborn, and Ros 2006), these orientations are sometimes also referred to as "palm neutral" and "palm prone," respectively.

Marsaja (2008) and de Vos (2008) observe that, in Kata Kolok, all pointing signs (including lip pointing) are directed to real-world locations, such as locations in the village or referents present in the discourse. That is, pointing in Kata Kolok employs an absolute frame of reference (Levinson 2003). However, different functions of pointing signs are consistently distinguished by the parameter of palm orientation. According to de Vos (2008), vertical palm orientation is characteristic of nominal points, that is, pointing for reference to persons and objects. In contrast, locative points (predication: 'located at x') are typically signed with the palm oriented down. This distinction is illustrated in figure 4R.3. Similarly, Marsaja (2008, 163) observes palm down (or up) in locative pointing signs. For pronominal pointing, however, he reports that the palm is also facing down. While this statement is made in the text (177), the accompanying pictures on the same page indicate that the palm is indeed oriented vertically, in line with what is reported by de Vos (2008).

Interestingly, Engberg-Pedersen (2003, 278) reaches the same conclusion for DSL. In her data, "the pronoun, determiner and proform are normally made with a neutral hand orientation [i.e., palm vertical] and the verb with the

Figure 4R.3. Nominal point (reference) and locative point (predication) in Kata Kolok

hand pronated [i.e., palm down]." Consequently, "neutral hand orientation seems to indicate the referential aspect of the pointing signs, whereas pronation indicates the locational aspect."

Orientation variation in pointing signs is also reported in a study on NGT conducted by Van der Kooij, Crasborn, and Ros (2006). It appears, however, that all of the pointing signs they consider are nominal points. The authors stress the fact that the attested variation cannot be predicted on the basis of articulatory factors (phonetic simplicity), as it can, for instance, in the first-person singular pronoun INDEX$_1$, which is never realized with palm down. They distinguish two types of indexicals, INDEX(prone), that is, a palm-down pointing sign, and INDEX(var), which has a variable palm orientation. Their data indicate that the former is always used for specific referents and that it may be repeated (cf. figure 4R.2c). It might therefore be interpreted as a determiner or demonstrative. In addition, referents may be localized by means of INDEX(prone). In contrast, INDEX(var) is used to refer to locations that have previously been established in discourse, but not for the introduction of new locations in signing space. INDEX(var) is never repeated. Hence, in the hypothetical NGT example in (3), the nonpresent referent JONGEN ('boy') would be localized by INDEX(prone). Subsequently, when referring to location 3a, INDEX(var) would be used. Based on the interpretation of facts by Van der Kooij, Crasborn, and Ros, it seems tempting to explain the attested orientation variation in information structure terms (e.g., new/old information, specificity).

(3) JONGEN INDEX(prone)$_{3a}$ BLIJ   OMDAT INDEX(var)$_{3a}$ TIEN EURO VIND
    boy   index   happy because he   ten   Euro find
  'The boy is happy because he found ten Euro.'

In their analysis S&C do not include the parameter of palm orientation. Clearly, a reconsideration of the NSL pointing signs in light of these findings might yield interesting results. Is palm orientation in NSL variable to the extent that it cannot be linked to a specific function, or are different types of points consistently distinguished by means of orientation? Furthermore, if the latter is the case, does NSL follow the pattern previously described for Kata Kolok and Danish Sign Language?

Nonmanuals: Eye Gaze

The role of eye gaze in the context of pointing signs has been investigated in a number of studies involving different sign languages (Meier 1990; Bahan and Supalla 1995; Berenz 2002; Engberg-Pedersen 2003; Alibašić Ciciliani and Wilbur 2006). According to S&C, eye gaze may distinguish between nominal and locative points in NSL. In particular, they observe that the "use of eye gaze with a locative is highly typical for all four groups and may even be obligatory." In contrast, in nominal points, the eye gaze does not follow the point (see their

figures 4.1 and 4.2). It may be a coincidence, but it is still worth pointing out that the opposite eye gaze pattern can be seen in the Kata Kolok examples in figure 4R.3 in this chapter: Eye gaze follows the nominal point (reference) but does not align with the locative point (predication).

While S&C find that locative and nominal points in NSL are distinguished by means of eye gaze, other authors report that eye gaze may also play a distinctive role in the realm of pronominalization, that is, within the group of nominal pointing signs. Based on an analysis of eye gaze accompanying pronominal signs in LSB, Berenz (2002) challenges Meier's (1990) claim that sign languages distinguish between only first- and non-first-person within their pronominal systems (thereby violating a proposed universal). She finds that, at least in LSB, eye gaze consistently aligns with second-person pronouns but not with third-person pronouns. Along similar lines, Alibašić Ciciliani and Wilbur (2006) argue for a distinction between grammatical second- and third-person pronouns in HZJ. They observe that in indicating a "nonpresent or present second person referent, the hand, gaze and head line up," while "for pronominal reference to the nonpresent or present third person, disjunction of head, gaze and hand occurs" (Alibašić Ciciliani and Wilbur 2006, 130). It is possible that, in S&C's data, all of the nominal points have third-person referents (animate participants or objects from the cartoon). Further research on NSL pointing should reveal whether eye gaze not only distinguishes locative from nominal points but, within the latter group, also marks the distinction between second- and third-person pronouns (see Kita [2003a] for the alignment of the hand with torso rotation and eye gaze in cospeech pointing gestures and Engberg-Pederson [2003] for eye gaze behavior and head/body rotation in DSL discourse).

ON THE GRAMMATICALIZATION OF POINTING: SPECULATIONS AND SOME EVIDENCE

Sign languages, just like spoken languages, are subject to diachronic change. On the one hand, changes at the lexical and syntactic level may be caused by external factors, such as language contact (Fischer 1975; Brentari 2001) and standardization (Schermer 2003). On the other hand, changes at the phonological and lexical level may also be triggered by internal factors, such as ease of articulation and perception (Frishberg 1975) and grammaticalization.

It is the last of these phenomena, grammaticalization, that is the center of attention in this section. Simplifying somewhat, grammaticalization can be defined as the development of functional (grammatical) elements from lexical elements, such as the development of prepositions from nouns (e.g., 'face > front') and of tense (or time) markers from verbs (e.g., 'go > future'). It has been shown that common grammaticalization pathways that have been

described for spoken languages (Hopper and Traugott 1993; Heine and Kuteva 2002) are also attested in sign languages (Sexton 1999; Pfau and Steinbach 2006). In addition, however, sign languages have the unique possibility of developing functional elements from manual (Janzen and Shaffer 2002; Wilcox 2004, 2007) and nonmanual gestures (Janzen 1999; McClave 2001).

The following discussion of the grammaticalization of pointing builds on facts and hypotheses first reported in Pfau and Steinbach (2006). This study provides an overview of modality-independent and modality-specific aspects of grammaticalization in sign languages. As for the grammaticalization of manual gestures, it is argued that these gestures may skip the lexical stage; that is, they may enter the linguistic system as functional elements. However, once they are integrated into the grammar of a given sign language, their further development generally follows well-known, modality-independent paths. For indexicals in sign languages, Pfau and Steinbach (2006, 61) suggest the grammaticalization pathway in figure 4R.4. Pfau and Steinbach propose that pointing entered the grammar of sign languages as a marker of location (step ① in figure 4R.4). Remember that the locative function, that is, pointing to nearby objects, also appears very early in the cospeech gesture of hearing children. Pointing to locations is concrete in that a location does not represent anything other than itself, and therefore the act of pointing appears closest to its gestural root. From that stage onward, the use of locations may become more and more abstract. As S&C assert, "a crucial step in the transformation of pointing gestures into forms that can be used as abstract, recombinable linguistic elements seems to be the loss of their locative content."

In the subsections to follow I focus on steps ②, ③, and ⑤ in the pathway in figure 4R.4. Due to the scarcity or even nonavailability of historical data, it is notoriously difficult to make statements about the diachronic development of sign languages. Essentially, the claims made by Pfau and Steinbach (2006) are speculations based on comparative spoken language data that take into
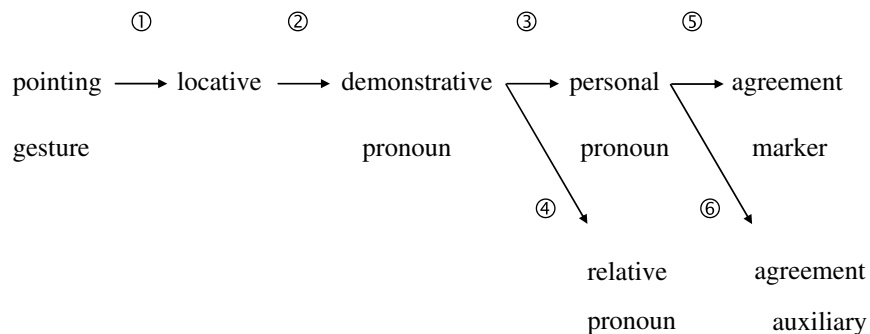

Figure 4R.4. Suggested grammaticalization path for sign language indexicals

account two important points: In most cases, the source and the target of the grammaticalization process are coexistent, and grammaticalization is usually hypothesized to be a unidirectional process. Crucially, the developments we observe in the NSL data analyzed by S&C constitute the first direct supporting evidence for at least some of the assumptions concerning the grammaticalization of pointing made in figure 4R.4. Hence, the value of their results cannot be overestimated.

From Locative Adverbial to Demonstrative Pronoun

In his thorough study on the form, function, and grammaticalization of demonstratives, Diessel (1999) subsumes under the term "demonstrative" not only demonstrative pronouns but also locational adverbs. Here I keep these two notions separate due to the observation that, cross-linguistically, locational adverbs are a common source of demonstrative pronouns. Not surprisingly, proximal demonstratives ('this') are derived from proximal locatives ('here'), while distal demonstratives ('that') are based on distal locatives ('there'); see Heine and Kuteva (2002) for examples. Based on these observations, Pfau and Steinbach (2006) tentatively claim that, in sign languages, the demonstrative use of the pointing sign also developed from its locative use. In principle, however, an alternative scenario might be suggested according to which both the demonstrative and the locative developed from the pointing gesture (i.e., the leftmost arrow in figure 4R.4 would be branching).

Let us now consider the extent to which the data collected by S&C might turn out to be informative in this respect. First, the NSL data from different cohorts clearly show that all of the signers, irrespective of cohort, make frequent use of locative points (approximately 6.0–7.5 per 100 signs; see their table 4.4a). Second, a comparable number of locative points is attested in the gesture systems used by the homesigners (ca. 6.7 percent). From this we may conclude that pointing gestures, once they enter a language system, do indeed start out as locative points, as indicated in figure 4R.4. In contrast, the use of nominal points increases dramatically across cohorts, from approximately 1.4 percent (cohort 1) to 3.2 percent (cohort 2) to 6.7 percent (cohort 3). Cohort 3 signers even use nominal points more frequently than locative points. As for the development of demonstratives from locatives, we have to keep in mind that S&C subsume demonstrative and personal pronouns under the label "nominal point." Therefore, the figures in their table 4.4a are not informative in this respect. In a further analysis, however, they distinguish between nominal points that combine with nouns (e.g., POINT BIRD) and nominal points that combine with verbs (e.g., POINT CLIMB), where the former would likely fulfill a demonstrative function and the latter a pronominal function. It turned out that only the combination of nominal points with verbs increased across

cohorts (see their table 4.4b). It therefore appears that the demonstrative use of nominal points, which remained constant across cohorts, is the more basic one and is available to signers at an earlier stage in the development of the language. Taken together, the data from homesigners and from NSL signers of different cohorts support the claim that the locative use of pointing signs intermediates between the gestural source and the demonstrative use of pointing signs.

From Demonstrative Pronoun to Personal Pronoun

Having established that the NSL data provide evidence of the grammaticalization of demonstrative pronouns from locatives, I now turn to step ③ on the grammaticalization pathway in figure 4R.4, the grammaticalization of personal pronouns from demonstratives. This diachronic process is fairly common in spoken languages. English *he,* for instance, originates from the Proto-Indo-European demonstrative *ei-s,* and the French third-person singular (masculine) pronoun *il* is derived from the Latin demonstrative *ille.* However, in spoken languages, first- and second-person singular pronouns are not grammaticalized from demonstratives. Rather, they usually originate from nouns denoting social relations. The Indonesian first-person singular pronoun *saya,* for instance, is derived from the noun *sahaya* 'servant,' while the Spanish honorific pronoun *usted* is a contracted form of *vuestra merced* 'your grace.' In contrast to that, all sign language pronouns have a common source, that is, a pointing gesture.

In the previous section I pointed out that a very clear pattern emerged when S&C considered how often nominal points were combined with verbs. The frequency of this combination increases only slightly from cohort 1 to cohort 2, from a mean of 4 to a mean of 5 combinations per signer. Comparing cohort 2 and 3, however, S&C observe a significant increase in the number of combinations: The four signers of cohort 3 produced a mean of more than fourteen combinations of nominal points with verbs. I agree with S&C in their note that this striking pattern appears to reflect a change in the function of nominal points, which "are increasingly being used in a pronounlike way to indicate the subjects and objects that need to be associated with verbs." In contrast, the homesigners, as well as the signers from cohorts 1 and 2, combine nouns with verbs to form basic sentences. The fact that nominal points frequently replace nouns suggests that we witness the grammaticalization of personal pronouns from demonstratives. In other words, the NSL data provide evidence for step ③ in the grammaticalization chain in figure 4R.4. The NSL pointing signs have taken on a more symbolic, abstract function and have lost much of the concrete spatial meaning associated with typical pointing gestures.

From Pronoun to Agreement Marker

Before concluding this chapter, I want to add a few comments on step ⑤ in the grammaticalization pathway in figure 4R.4, the development of bound agreement markers from pronouns (see Steinbach and Pfau [2007] for discussion of step ⑥). Evidence from spoken languages suggests that pronouns are indeed the most common source of verbal subject agreement markers. For the most part, the source pronouns are third-person singular pronouns.

As is well known, the locations in signing space that pointing signs target also play a crucial role in sign language verb agreement by defining the beginning and the endpoint of the movement (Padden 1988; Meir 2002). We may therefore speculate that agreement markers in sign languages developed from pronouns. Applying this admittedly somewhat speculative scenario to NSL, one would expect that the use of personal pronouns precedes the spatial modulation of verb signs for the expression of agreement. While S&C do not address this issue, the development of spatial grammar is the topic of previous studies conducted by Senghas and Coppola. In a production study (retelling of a cartoon) with first- and second-cohort signers, Senghas and Coppola (2001) found that cohort membership, as well as age of first exposure to NSL, had an influence on the frequency of spatially modulated verb forms. First, within both groups, early exposed signers produced more spatial modulations than late-exposed signers. Second, early-exposed signers of the second cohort produced such modulations significantly more often than early-exposed signers of the first cohort. Third, the higher prevalence of spatial modulations in the second cohort resulted from indications of shared reference, that is, from establishing a grammatical link between two signs (e.g., a verb-object combination) by using a common location (see Senghas [2003] for supporting evidence from a perception study). Senghas and Coppola (2001, 327) conclude "that the youngest members of the second cohort, as children, surpassed their input, taking a partially developed language and systematizing it in a specific way."

While this intriguing result suggests that in NSL a system of grammatical agreement (shared reference) emerged in the group of second-cohort signers (who entered the community between 1985 and 1990), it is not informative with respect to a possible grammaticalization pathway from pronouns to agreement. Recall from the subsection "From Demonstrative Pronoun to Personal Pronoun" that frequent use of nominal points in combination with verbs was attested only in the third cohort, which did not participate in the study discussed earlier. However, it might still turn out that the use of nominal points with verbs (i.e., pronouns) is a prerequisite for the use of spatially modified verbs. In other words, all NSL signers who

use spatially modulated verbs are also expected to use pronominal forms, whereas the opposite is not true. Reconsideration of the available data seems necessary to verify this claim.

CONCLUSION

The evidence discussed in this chapter indicates that pointing is a multifarious task, the complexity of which is easily overlooked. Vocal utterances are commonly accompanied by manual and nonmanual pointing gestures to real-world locations that, for the most part, the speaker produces unconsciously. In a similar fashion, homesigners employ pointing in their self-styled gestural communication systems. The NSL data presented by S&C show that these gestural points may be integrated into a developing language system; that is, a gesture may transform itself into a linguistic element. As S&C point out, "There are likely to be several steps in the process, with every step taking a form further from its gestural roots." In this response I have investigated possible diachronic shifts in the use of pointing signs along a largely modality-independent grammaticalization chain. Some of the shifts proposed for the pointing sign are supported by the NSL data because we observe "an increase in its use to identify the participants in events rather than locations or real-world objects." Also, I have explored the possibility that some of the function shifts are marked by subtle phonological changes.

Earlier I suggested that the crucial first step, that is, the transition from gesture to language, may be modality-specific. This characterization may not be fully accurate, however. In fact, there is an ongoing debate on whether spoken language originated in gesture alone or in gesture and vocalization together (see Corballis [2003] for an overview; also see Napoli and Sutton-Spence, this volume, and the response by Kendon). Hewes (1981) makes specific reference to pointing and suggests that pointing gestures were a critical stepping-stone in the evolution of language.

Whatever position one takes concerning the role of gestures in the evolution of spoken languages, it is the merit of S&C's study to have shown that, in NSL, a humble pointing gesture has been integrated into the linguistic system of the language. I conclude that this is indeed a point well taken.

Note

Figure 4R.3 is copyrighted by Connie de Vos and reprinted here with her permission, for which I am grateful.

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