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Pointing and Reference in Sign Language and Spoken Language: Anchoring vs. Identifying

Abstract

In both signed and spoken languages, pointing serves to direct an addressee's attention to a particular entity. This entity may be either present or absent in the physical context of the conversation. In this article we focus on pointing directed to nonspeaker/nonaddressee referents in Sign Language of the Netherlands (Nederlandse Gebarentaal, NGT) and spoken Dutch. Our main goal is to show that the semantic-pragmatic function of pointing signs and pointing gestures might be very different. The distinction is characterized in terms of *anchoring* and *identifying*. Whereas pointing signs can serve both functions, pointing gestures appear to lack the anchoring option.

MANUAL MOVEMENTS that co-occur with spoken language are called gestures, which are supposedly unconventionalized and not language-like. Manual movements of signers are called signs, which in most cases are conventionalized and language-like (McNeill 1992, 37). This seems to be a very clear and straightforward distinction. However, in the case of pointing, the matter is complicated. Pointing occurs in both spoken language (co-speech) and sign language and shows a high degree of similarity in form. The aforementioned distinction leads us

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to believe that pointing that co-occurs with spoken language is *gesture* and that pointing in sign language is *sign*. However, this distinction is too restrictive. In this article we argue that pointing signs in NGT and co-speech pointing gestures in Dutch do not fulfill the same discourse functions.

Several researchers (Cormier 2012; Liddell 2003; Pfau 2011) have compared pointing gestures and pointing signs. Utilizing a variety of possible articulators, pointing gestures that co-occur with speech have been consistently analyzed as a separate category in the gesture literature (Kendon 2004; McNeill 1992). They seem to constitute an innate human strategy for indicating that extends across cultures. Pointing gestures rely heavily on the location (of an entity) that occurs in the direct physical environment of speech participants (Kendon 2004). Many researchers have studied both the kind of information that is contained in a co-speech pointing gesture and its discourse function (Clark 2003; Goodwin 2003; Lascarides and Stone 2009). The general starting point has been both to look at speech and the pointing gesture and to derive the intended interpretation of the pointing gesture. Pointing can occur with all kinds of verbal material (e.g., verbs, nouns, pronouns, hesitations, adjectives, interjections), and it appears to be more obligatory in some contexts than in others. In summary, the informational status of a pointing gesture is not yet clear.

As for pointing signs, it has been shown that they do not form a homogeneous syntactico-semantic category in sign language, and this has led to many different analyses of pointing signs. Wilbur (1979) is one of the first sign language researchers to hypothesize that the definite/indefinite distinction in American Sign Language (ASL) may be due to the contrast between the absence or presence of an overt determiner, which is perceived as a pointing sign. Other authors (MacLaughlin 1997; Neidle et al. 2000) observe systematic differences between the syntactic positions that pointing signs occupy. Prenominal pointing signs correlate with definiteness and can express plurality, while postnominal pointing signs may be used both for definite and indefinite referents, but they are not marked for plural. Postnominals should be better analyzed, according to these authors, as adverbials. Another analysis is that sign languages have a right dislocation with a pronoun copy at the end of the sentence (Bos 1995, but see Crasborn

et al. 2009). Furthermore, pronominal pointing signs are said to mark a first/nonfirst distinction (e.g., Engberg-Pedersen 1993; Meier 1990) or a distinction between first, second, and third person in sign language, just as in spoken languages (Alibašić and Wilbur 2006; Berenz 2000), or even no person distinctions at all (McBurney 2002; Liddell 1990, 2003). Moreover, the complexities of the use of pointing signs are evident when we look at their use and the location established in signing space. In fact, two locations may be associated with a single referent (Johnston 1991; van Hoek 1992), and a single location may be associated with multiple absent referents (Nilsson 2010).

Thus, many different accounts have been proposed for a seemingly similar phenomenon. The problem for comparing pointing signs and pointing gestures is that these analyses work on different levels: for co-speech gestures, research focuses mainly on semantics and pragmatics (Clark 2003; Kendon 2004), whereas for pointing signs the focus has been more on phonology and morphosyntax (Crasborn et al. 2009; Pfau 2011). In this article we propose a qualitative analysis for comparing pointing signs that are directed to nonsender/nonaddressee¹ referents in Sign Language of the Netherlands (hereafter, NGT) and pointing gestures that co-occur with spoken Dutch by analyzing them in discourse. The examples from the corpus NGT (Crasborn, Zwitserlood, and Ros 2008) are taken from both the discussion task and the “find the difference” task (in which two participants were each given a drawing and were asked to find and describe the differences on the drawings). The examples from the Radboud Corpus of Dutch Gestures are taken from several tasks, including tasks with and without salient physical objects available. Thus, in both corpora, some tasks included objects that were important for the ongoing discourse and other tasks in which no objects were present.

We begin by defining the distinction between concrete and abstract pointing reference, a differentiation that heavily relies on the difference between the presence and absence of the referent. While both types of language (i.e., spoken and signed) use the visual-gestural modality in pointing, we address the degree of dominance of this modality and consequently its use for each language (see the section on modality and use). These differences in modality prompt us to differentiate between two functions of pointing signs and gestures in

discourse, namely *anchoring* and *identifying*. This is defined and discussed in the section on anchoring versus identifying. The functions are illustrated by examples of pointing gestures in Dutch and pointing signs in NGT.²

Concrete and Abstract Reference

Whenever a discourse referent has been introduced, speakers and signers refer back to this referent in the most efficient manner. This depends, among other things, on the accessibility and uniqueness of the referent, the amount of linguistic material that occurs between the first mention and further mentions, and coreference (Ariel 1990).

Deictic and Anaphoric Reference: A Baseline

The common function of all pronouns is reference, that is, linking an entity to an earlier established or (saliently) present object. The literature has traditionally distinguished between two main types of pronoun reference: to entities within the linguistic context (anaphoric reference) and to entities outside the linguistic context that are prominent in the physical environment (deictic reference) (Lyons 1977). Example 1 exemplifies deictic reference:

1. Two people are talking on the street. A boy rides by on his bike. The two people look at him, and one of them says, “He rides by every day.”

The pronoun “he” refers deictically to the boy. That is, the boy is present in the physical context and is perceptually visible to both the speaker and the addressee. Therefore an introduction to the linguistic context with a pronominal form is felicitous. Now consider example 2, in which the boy is not present in the physical context:

2. A boy_i rides by every day, but I don’t know where *he*_i comes from.

Since the boy is not present, he first has to be linguistically introduced with an indefinite noun phrase (NP) before the speaker can refer to the boy with an anaphoric pronoun.

Clearly, spoken language distinguishes between entities within the relevant physical context, to which a speaker can refer without further introduction, and entities outside the relevant physical context, which have to be introduced in the linguistic context first. In both

the anaphoric and the deictic reference case the referent's accessibility is an important factor in determining whether pronoun reference is possible at all. In fact, a correlation exists between different kinds of anaphoric expressions and the level of accessibility (i.e., prominence) of their referent (Ariel 1990). Whenever the referent is prominently present in either the physical or the linguistic context, referring with the reduced form in a given language is permitted (in fact, in English, for example, a pronoun is usually preferred). On the other hand, when a referent is hard to retrieve, the addressee may require more information in order to discern which referent is intended. In a linguistic context, factors that play a role in determining which form of reference is best from a speaker's perspective are distance (in number of sentences) between the linguistic antecedent and the referential expression, prominence of the referent in the discourse, and other referents that are competing with the intended one (Ariel 1990).

Pointing and Reference

Manual pointing occurs in both spoken and signed languages. In spoken language its interpretation depends on speech, whereas in sign language it occurs within a stretch of signs. Pointing signs can therefore undergo assimilation. The hand configuration can vary due to cliticization, which causes it to assimilate to the handshape of neighboring signs (Fenlon et al. in press; Sandler 1999). However, the use of an open hand versus an index finger or the use of a certain rotation of the forearm can be syntactically and semantically driven as well (Kendon 2004; Kooij, Crasborn, and Ros 2006; Pfau 2011). While handshape configuration, forearm rotation, and location in pointing vary, we follow Kendon (2004) in stating that the most basic feature of all pointing signs and gestures is the projection of a line into space. We leave the issue of index fingers versus open hands and certain forearm rotations in relation to our following analysis for future research.

In both spoken and signed language, a pointing hand can be directed toward objects or persons that are present. An example of such an instance in spoken Dutch is shown in figure 1.³

3. [die] denk ik dan
 “[that one] I think”



FIGURE 1. Pointing toward a present object (T1_final, 00:16:44).

In this example three girls are talking about the cameras in the room. The girl in the middle in figure 1 says that she does not think that the girl in/on the right has a camera directed at her. She utters the sentence in example 3 while pointing at the camera. That is, the intended target of the pointing gesture is found in the direct surroundings of the speaker and her addressees. The demonstrative *die*, “that,” is used deictically and is emphasized by a pointing that is directed at the here-and-now of the discourse situation.

With anaphoric reference the antecedent, as mentioned before, is found in the linguistic context. If a sender wants to refer to a referent that is not present by using a pointing gesture or sign, a location in space can be established in order to serve as an anchor for the nonpresent referent. Pointing to this location in space is then considered to be anaphoric reference. Imagine a context such as that in example 4, where the signer is talking about a person who is not physically present in the immediate surrounding context. Therefore, the signer has to create an anchor in the signing space:⁴

4. MAN IX3 WORKS UNIVERSITY . . .
 EVERY-DAY IX3, IX1 MEET TRAIN
 “There is this man who works at the university . . .
 I meet him on the train every day.”⁵

First, MAN is signed, and then a location is established by a pointing sign directed toward the signing space. If the signer then wants to

continue with information about the referent, “man,” the signer points toward the location in the signing space where the referent has been localized and adds the follow-up information.

As we indicate in the section on anchoring vs. identifying, this type of construction rarely occurs with pointing gestures that co-occur with spoken Dutch. However, in theory both spoken and signed languages can point toward an area in the gesture/signing space when the referent is not physically present and use the area for coreference. In pointing, the distinction between deictic and anaphoric reference does not clearly fit our analysis because the two types of reference are not mutually exclusive and can sometimes overlap. In certain contexts the difference between a deictic and an anaphoric element is blurred. For instance, in example 5, the use of “she” is deictic since it refers to someone who was present in the immediate physical context, but it is also anaphoric since it picks up a referent, although it is one that was not previously introduced. In fact, some authors propose that deixis and anaphora are two parts of the same referential phenomenon (Recanati 2005).

5. *After someone left the room:*
I am glad she finally left.

A gesture or sign that points toward a present object can also be an anaphoric reference when the pointing is giving further information about that referent and is part of a coreferential chain. Pointing can thus occur in two types of construction: indicating physically present objects or locations to refer to an object or location or indicating a location to refer to an absent referent. The former type we call *concrete reference* (example 6).

6. Concrete reference

Reference by the pointing hand with an orientation toward an object or a person that is salient in the physical discourse setting because it is physically present, it was physically present, or it usually occupies the location indicated by the pointing. The object itself is interpreted as the focus of the reference and does not *stand for* something else.

In contrast to concrete reference, with *abstract reference* the location that is pointed at is not to be interpreted as the referent. A signer can

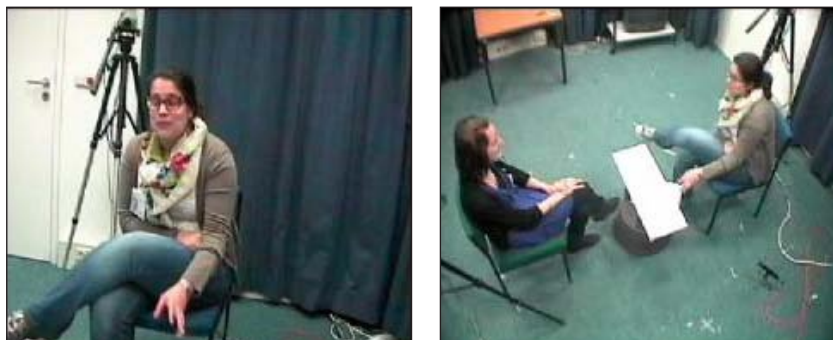


FIGURE 2. Indirect reference: pointing toward a piece of paper (D2_final, 00:21:40).

point at it, but the site is not the actual referent. We define *abstract reference* in example 7:

7. Abstract reference

Reference by the pointing hand with an orientation toward a location that is perceptible in the actual discourse setting and is not occupied by another salient object that can be interpreted as the focus of reference. The location is not to be interpreted as the focus of the reference but as a placeholder for a concept or an absent entity.

We present the type of reference with pointing here as a dichotomy: concrete versus abstract reference. However, in our Dutch gesture data, we have encountered instances of pointing at concrete entities to represent absent entities. Figure 2 is an example of what we call *indirect* reference.

8. Er is een [man]

“There is a [man].”

In example 8 the speaker mentions “a man.” However, there is no man present in the surroundings of the speaker and her addressee. Instead, the speaker is pointing at a piece of paper on a table; on the paper is a description of a man. Thus, to refer to this man, the speaker is pointing at the description on the paper. In this case, the entity that is being pointed at is closely linked to the idea that the speaker is actually referring to, namely, a particular man in the world. The addressee can make the link between the entity that is being talked about and the entity that is being pointed at even though they are not identical.

Although in abstract reference the orientation of the pointing hand is random, in indirect reference the pointing hand is *always* directed toward an entity that has a strong contextual link with the actual referent (Clark and Marshall 1981). The link is thus motivated. Exactly how this bridging connection is established between the pointing gesture directed at an object and the concept uttered is an aspect that we need to account for. Also, whether these connections exhibit certain differences warrants additional study. For now, we take the dichotomy of abstract and concrete reference as the main distinction for this article and leave the matter of indirect reference for future research.

Modality and Use

In this section we focus on the division between the visual-gestural and the audio-vocal modalities.

Modality

Spoken language makes use of both the audio-vocal and the visual-gestural modality, whereas sign language utilizes only the latter. However, it is important to note that in spoken language the audio-vocal modality is the dominant modality on which the visual-gestural modality depends (Clark 1996; Gershkoff-Stowe and Goldin-Meadow 2002; Kendon 2004; Lascarides and Stone 2009). Lascarides and Stone's (2009) formal semantic analysis of gesture leaves the meaning of a gesture by itself (looking only at the form) to be highly underspecified. According to Lascarides and Stone, the highly underspecified representation of a gesture can be filled in by taking into account the co-occurring speech, the rhetorical relations within the discourse and commonsense reasoning. Their model holds that anaphoric pronouns and other anaphoric reference material can be picked up by gesture and that gesture can be linked to preceding gestural material but maintains that spoken elements can never pick up referential material that has been introduced in gesture only. To illustrate this latter point, consider example 9, taken from Lascarides and Stone (2009, 407):

9. [These things] push up the pins.
The speaker points to the frontmost wedge of a line of jagged wedges that runs along the top of a key as it enters the cylinder of a lock.

The phrase “these things” refers to an abstract set of wedges that is exemplified by pointing to the frontmost wedge of an actual key. This results in a discrepancy between the referent of the speech (i.e., a whole [abstract] set of possible frontmost wedges) and the referent of the pointing gesture (i.e., a specific frontmost wedge of a real key in physical space). The latter referent is introduced only in gesture and can therefore not be picked up by speech. That is, a continuation of the utterance in example 9 by “It has the right height” would be infelicitous because “it” refers to the specific frontmost wedge on the real key, which is introduced into the discourse by gesture only.

This, however, does not mean that a pointing gesture and the referential expression in speech need to be aligned in time. Enfield (2009) refers to this as *semiotic unity*: When multiple signs are presented together, take them as one. This leaves open the possibility for pointing gestures to occur earlier or later than the referential expression—but not independently. This is not to say that the communicative value of a pointing gesture is inferior to that of speech. In fact, “some utterances simply cannot be interpreted without taking into account the accompanying pointing gestures” (Pfau 2011, 144). For instance, consider example 10:

10. I've read [that book] and [that book]
(while pointing first at one book and then at another)

The distinguishable elements in example 10 are the pointing gestures (indicated by square brackets) and not the speech (“that book”), which is the same for both referents. In this case the pointing gestures provide a significant source of information for the interpretation of example 10 as a whole (Enfield et al. 2007; De Ruiter and Wilkins 1998).

Deictic gestures do not merely accompany the referring expressions but can even replace them (Haviland 2000). Cormier et al. (under review) give some nice examples of how pointing gestures can sometimes be used to fill the same slots as pronouns (examples 11 and 12 come from Cormier et al. under review):

11. Pointing gesture substitutes for a noun or pronoun in order to be more specific:
Question: Who are you looking for?
Answer: <pointing gesture directed at a person>

12. Pointing gesture substitutes for a noun or a pronoun in order to be more appropriate:
 Question: Are you looking for <points head in direction of person>?

However, Cormier et al. (under review) state that instances like this are rare and also note that the act of pointing is still introduced by speech.

Thus, a listener gets the cues for interpreting the pointing gesture from the dominant modality that co-occurs with it, in combination with the physical environment surrounding the speech participants. In contrast, in sign language the addressee interprets the pointing sign expressed solely in the visual-gestural modality by considering both the surrounding and simultaneously occurring signs and the physical environment.

Use

As a result of the dependency of the visual-gestural modality on the audio-vocal modality of spoken language, we expect the grammatical use of the former to differ in the two types of languages. With abstract reference, a pointing is directed at a random location in the gesture/signing space in order to refer to something that is not physically present in the actual discourse situation. In sign language this type of reference is common. It is used in constructions like those in example 4, where *MAN* is signed and established by the pointing sign at a random location in the signing space. After this establishment the signer can refer back to this referent by pointing at the location that was assigned to it. In theory, it would be possible for speakers to produce such constructions. However, in the Dutch gesture data we did not find an example of this type of coreference by pointing. This is not surprising given the fact that the visual-gestural modality is not the dominant modality in spoken language and is therefore less likely to carry coreferential information. Since language users prefer not to say the same thing twice, the coreferential encoding in speech is sufficient. Moreover, we found no examples of coreferential sequences of pointing gestures in concrete reference. This is even more telling since speakers can easily point to a physical entity in the maintenance of reference. That is, the absence of a physical entity does not block coreference with pointing gestures since it is also not done consistently in concrete reference.

Anchoring vs. Identifying

In this section we further discuss the differences between pointing signs and gestures by formalizing the observed discrepancy in file card theory (Heim 1982). For this purpose we first discuss the notion of file cards.

File Cards

With the first mention of a referent, a sender creates an *anchor* for further reference. *Anchoring* is a term inspired by formal discourse approaches (Heim 1982; Kamp and Reyle 1993; Reinhart 1981; Vallduví 1992; Webber 1979), which employ the idea of a “file card” (Heim 1982), which stands for a linguistic construction that registers all of the information about entities introduced in discourse. In this view, discourse is the management of files. Each file card in a file corresponds to a referent. With every first mention of a referent a new file card is added to the file. Discourse referents that are picked up from prior discourse correspond to file cards that are then updated. Heim illustrates the file-card theory with the following example (Heim 1982, 275). “A” utters the statements shown in example 13:

13. A woman was bitten by a dog.
 She hit him with a paddle.
 It broke in half.
 The dog ran away.

By listening to A, B’s task is to construct a file with a specific file card for each referent. In this case, B creates a new file card for “woman” and adds the new information related to this referent. B also creates a different file card for “dog,” one that contains all of its attributes. Finally, a third file card for “paddle” is also added to the file. The simplified representation for the file cards of these three referents in this fragment of discourse is as follows in example 14:

- 14.
- | | | |
|--|---|---|
| <p>woman (x)
 x is bitten by y
 x hits y with z</p> | <p>dog (y)
 y bites x
 y is hit by x with z
 y runs away</p> | <p>paddle (z)
 z is used by x to hit y
 z breaks in half</p> |
|--|---|---|

The creation and update of these files takes place as the discourse progresses. The content of each file card contributes to the creation

of discourse context that the interlocutors share. The context is then constantly being enhanced by the information that interlocutors keep adding to the conversation. As we will see, the difference in the use and informational value of pointing signs and gestures is accounted for in terms of creating a file card and adding information to it.

Anchoring and Identifying

Anchoring. Referential expressions are crucial for the creation and updating of file cards. NGT provides different ways to create or update a file card. One is to use pointing signs. When the referent is mentioned for the first time, pointing signs (either with or without a nominal sign) create a file card. When the referent is picked up from previous discourse, pointing signs guide the addressee to the corresponding file card. In this case, an already existing file card is reactivated.

A pointing sign, which may be followed or preceded by a nominal, indicates that, from that moment on, the area indicated by the pointing will be associated with that nominal as long as there is no major shift in the discourse topic. NGT uses other localization mechanisms as well, such as agreement verbs and nonmanuals, but here we focus only on pointing signs. Figure 3 shows a sequence of three pointing signs that appear in a discourse fragment. In figure 3a the signer introduces the referent “couple” with a nominal sign followed by a pointing sign directed toward the signing space. After this first mention, the signer adds information about this couple, namely, that they started a climbing club (figure 3b). Instead of repeating the nominal, the signer simply points in the direction of the earlier localization.



a. COUPLE AMSTERDAM DEAF IX3
“A couple of deaf people from Amsterdam”



b. START CLIMBING IX3
“They started a climbing club”

FIGURE 3. Anchoring in NGT (CNGT0259, s013, 00:04:21).

Importantly, the area the signer chose to associate with the couple is seemingly arbitrary. That is, there is no external motivation for establishing the anchor for further reference on the left-hand side. Actually, there might not even be a reason to establish the referent in space at all other than to create an anchor for further reference. Therefore, we propose that the pointing sign in figure 3a functions as an anchor creator. The anchor is pointed at again in further mentions (figure 3b), which the addressee understands as being coreferential with the anchored referent. That is, NGT pointing signs can be used for the *creation* of file cards to keep track of discourse referents during a conversation or discussion.

As we discussed in the section on modality, the anchoring function in spoken language is achieved through the spoken element. When nominals (e.g., nouns, proper names, pronouns) are uttered in speech, an anchor is established and can be referred to with an anaphoric expression. The anchor is established in speech, and the pointing gesture adds complementary information to the speech anchor, namely spatial coordinates of the object in question. We call this the *identifying* function of pointing, which is discussed in more detail in the section on identifying.

Example 15 illustrates this point by providing an instance of co-speech pointing in a conversation in spoken Dutch. Here, the two interlocutors are talking about the family tree of one of the young women in figure 4. While one of the young women is talking about



FIGURE 4. Pointing in spoken language (D4_final, S1, 16:13:470).

the genealogy, the other is drawing the tree. At one point she makes a mistake and crosses out the name of a family member. When they are finished, the addressee places the drawing on the table so that the speaker can check it. When she looks at it, she notices the cross mark and says the following:

15. Echt [zo'n kruisje] door Jean-Marie
 “Really [such a little cross] through Jean-Marie”

The little cross mark on the drawing has not yet been mentioned; thus the NP *zo'n kruisje* (“such a little cross”) establishes the anchor for this referent. While uttering this, the speaker points at the little cross mark on the drawing. Since the pointing gesture and the verbal element occur in different modalities, they can occur simultaneously. However, because the audio-vocal modality is dominant, it is therefore the appropriate modality for creating the anchor, as we pointed out in the section on modality. The pointing gesture that co-occurs with it is a single use. However, since the pointing gesture adds information about the physical position of the little cross mark on the drawing, it is not redundant. Without the pointing gesture the speaker would have to say something like “a little cross mark that is on your drawing, which is lying on the table.” However, if the speaker did not point, the propositional content would not be affected, and the anchor would still be created. The co-speech gesture adds additional spatial information to the anchor created by speech.

We hypothesize that co-speech pointing gestures cannot function as anchor creators. However, in certain situations a pointing gesture might appear to be almost obligatory, giving the impression that we are dealing with an anchor in those cases. For instance, consider the utterance in example 16, where two books are on a table in front of the speaker:

16. This book is better than that one.

In order to distinguish “this book” from “that one” the addressee needs additional information, which can be given by elaborating or by pointing. Either way, the addressee must be able to link the referent “this book” and “that one” to additional information. Importantly, even when this additional information is not given and the addressee

is left in the dark about the exact interpretation of the utterance, the addressee creates file cards for the referents “this book” and “that book,” as does the speaker.

Thus, in spoken language anchoring takes place in the dominant (i.e., the audio-vocal) modality. In contrast, in sign language it can be established via pointing signs, which are expressed in the visual modality.

Anchoring at Work. By anchoring, the sender establishes a referent and thereby enables the discourse participants to keep track of different entities in a conversation or discussion. When a new referent is introduced, a new file card is created. As the discourse continues and the sender refers back to an already introduced referent, the corresponding file card is reactivated. The task of participants in a discourse is to keep creating and reactivating file cards as referents come and go, regardless of whether actually physically present.

Pointing in NGT is a way of anchoring by an addressee’s attention to various locations in signing space. When objects are not present in the immediate vicinity, a random abstract location is chosen for the establishment of an anchor, which is then associated with a referent. In concrete reference, the location for the anchor and the actual position of the object coincide.

In figure 5 the signer is addressing the issue of cochlear implants. In figure 5a she establishes the referent DEAF (person) by performing the nominal sign and then points at a specific (but randomly chosen) location in space. The person she is talking about is not present. This location is then used in coreferential mentions to denote this referent (figures 5b and 5c). The location is randomly chosen for tracking purposes, and the second and third mentions pick up the already established referent later on in the discourse.

Since the only modality is the visual one, NGT pointing signs have developed structural properties for using space for abstract reference. The anchoring function as shown in figure 5 is an example of the localization potential of abstract references in signing space used mainly for coreferential purposes. The corresponding simplified file card for the semantic representation of CHILD appears in example 17:

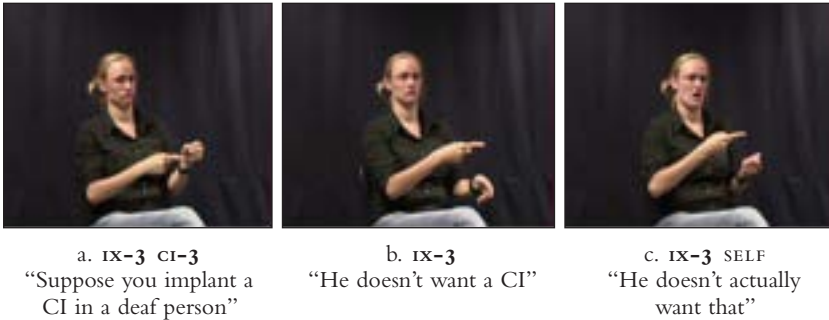


FIGURE 5. Anchoring of nonpresent referents in NGT.

17. **child (x)**
implant x
x not-choose y

Even though referring to absent entities by pointing gestures is perhaps a less useful strategy—since pointing at an empty location in space might confuse the addressee—this is not to say that abstract pointing, which is directed at an empty location in space, in spoken language does not occur. Example 18 is an excerpt of a Dutch conversation between three young women. The woman in figure 6 is telling the other two about the time that she was almost hit by a car when she was on her bicycle. She was returning from her music lesson, carrying her cello. She is telling her interlocutors that whenever she rides her bicycle and carries her cello on her back, she always attaches a little light to a compartment on the backpack or cello case. While mentioning the compartment in example 18, she performs the pointing gesture shown in figure 6. However, the girl in figure 6 is not pointing toward a completely random location. Instead, she is pointing at a location that both she and her addressees can easily envision.

18. Dan doe ik mijn lampje altijd aan [dat vakje]
“Then I always attach my light to [that little compartment].”

Figure 6 is not an instance of anchoring. The file card in example 18 is created by uttering *dat vakje* (“that little compartment”); in addition, the pointing gesture gives information about the physical location of the absent referent. Thus, the information provided by the



FIGURE 6. Abstract reference in spoken language (TI_final, S1, 22:06:500).

pointing gesture is *added* to the file card created by *dat vakje* (“that little compartment”).

- | | |
|-----|---|
| 19. | <p>compartment (x)
 light (y)
 y attached to x</p> |
|-----|---|

We refer to this function of pointing as the *identifying* function, which we define in the next section.

Identifying. So far we have hypothesized that pointing gestures cannot create an anchor. Then what is their function? We propose the term *identifying* here. When identifying, a sender does not create a file card but rather provides spatial information about an object being pointed at, which is added to an already existing file card. In concrete reference, both pointing gestures and pointing signs serve to identify. Consequently, when an addressee perceives a referent and its location, the addressee may become aware of even more information about the referent, such as size and color. However, it is important to note that identifying is a linguistic codification that provides information, not a strategy to locate an object or a person. That is, the referent has already been located, and the pointing gestures provide additional information to aid in the interpretation of the entire discourse.

We exemplify this point with example 20. The young woman in figure 7 is explaining to her addressee how a label maker works. While she is doing so, the actual label maker is lying on a table between



FIGURE 7. Identifying in spoken Dutch (D2_final, S1, 00:45:140).

them. When uttering the statement in example 20, the speaker is referring to a gray button with the NP *die grijze knop* (“that gray button”) and thereby creates a file card for the referent “button.” At the same time the speaker is pointing at the actual button on the label maker.

20. En als je dan op die knop # [die grijze knop] op de zijkant drukt
 “And when you press that button [that gray button] on the side”

The information given by this pointing gesture, which identifies the location of the physical button, is added to the file card, as in example 21. The last condition marked in italics includes spatial information about the object. Besides this pointing gesture, no other pointing gestures are directed to the gray button.

21. **button (x)**
 x is pushedx is
located on table

According to what we have just said, by identifying a referent, information is *added* to an already existing file card. We propose that identifying functions as an appositive (i.e., as a unit that supplies additional information about a referent). To see how this works, consider the following examples:

22. My friend Alexandra is also a linguist.

In example 22 *my friend* and *Alexandra* are in an appositive relation and have an identical referent: “Alexandra.” Such relationships occur

when two adjacent elements denote the same referent; the appositive (here, “Alexandra”) supplies additional information.

In the case of pointing gestures, appositions are presented not linearly but in parallel. When verbal elements and pointing gestures co-occur, they are expressed simultaneously, and these expressions, presented in the two modalities, denote identical referents. The statement in example 23 can be felicitously asserted without any co-speech gesture:

23. That picture, the one that you can see on the desk in the living room, is my favorite.

However, we can also easily think of a context in which the sentence is uttered together with a pointing gesture, as in example 24:

24. [That picture] is my favorite.

In example 24 the appositive information is not expressed by spoken words but by a pointing gesture. The pointing gesture does not actually stand for the referent, but the directionality of the pointing gives us the spatial position of the object we are talking about. In example 24 both the spoken component and the pointing gesture refer to the same object (i.e., the picture). However, where the words “that picture” establish a file card, the pointing gesture provides spatial information about the referent, thereby enabling the addressee to identify the physical object; this extra information is added to the existing file card.

In concrete reference, the intended target coincides with the actual position of the object. Because the object is already present in the context of signing, it would be confusing and uneconomical to create an abstract anchor to localize it. In fact, the same goes for pronominal reference in spoken languages like English and Danish. Engberg-Pedersen (1993) argues that indirect speech is preferred over direct speech if the person that is mentioned in the original utterance is physically present. For instance, a speaker is more likely to say “She told me that you would be late” than “She said, ‘He will be late’” when *he* is the addressee (example taken from Engberg-Pedersen 1993, 105). Hence it is more felicitous to use the second-person pronoun since it refers directly to a local discourse participant. Similarly, sign-



a. **ix3a** DAD ORANGE CLOTHING “The dad has orange clothing”
 b. SAY **ix3b** BLUE “She says the clothing is blue”
 c. **ix3a** “His clothing”

FIGURE 8. Identifying in NGT (CNGT0089, 0005, 01:29:215).

ers tend to establish the anchor in the same location occupied by the object.

Figure 8 is an instance of identifying in NGT. The signer is describing a picture that is lying on her lap. Her addressee has almost the same picture, with some minor differences. Together, but without showing each other their own picture, they try to figure out what the differences are. In figure 8a the signer points to her picture and then signs the nominal *DAD*. This is not a random localization of the referent. Since the referent can be seen in the picture, the signer uses that location to establish the anchor. Importantly, her addressee cannot see that location (although she might have some idea of it), but the signer still prefers to use the physical location. In the continuation of the discourse, the signer uses the anchor for further mention (figure 8c). At the same time, the signer is identifying the referent, thereby adding information to the file card (example 25), apparently assuming that the same referent also appears in her addressee’s picture.

25. **dad (x)**
 x orange clothing
x is present in picture on signer’s lap

This is the main difference between pointing signs and gestures: Whereas the former function as anchor creators and as identifiers, the latter act only as identifiers. Moreover, the identifying function of pointing signs is a result of concrete reference. Pointing gestures,

although providing spatial information, clearly lack the ability to establish an anchor for a nonpresent referent.

Conclusions

In this article we have compared pointing signs in NGT and pointing gestures that co-occur with spoken Dutch in discourse. Our analysis distinguishes two functions of pointing: anchoring and identifying. *Anchoring* is a strategy by which a referent becomes associated with a spatial location to function as an anchor for further references. With the establishment of an anchor, a “file card” is created. With every further mention, information is added to this file card. In *identifying*, on the other hand, a file card is not created; rather, spatial information is added to an already existing file card and thus allows the addressee to identify the referent. While pointing signs can both anchor and identify, pointing gestures can only add information to a file card already created by the speech element and thus identify the referent. The description in this article constitutes a first step toward the characterization of pointing beyond the sentence level, which should be contrasted with larger datasets and also with other signed and spoken languages in order to expand our cross-linguistic knowledge of discourse.

Acknowledgments

We are grateful to Onno Crasborn, Helen de Hoop, Els van der Kooij, Josep Quer, an anonymous reviewer, and the audiences at TIN-dag 2010 and TISLR10 for comments on earlier versions of this work. We assume all responsibility for any remaining mistakes. The research in this article was partly made possible by the Spanish Ministry of Science and Innovation (FFI2009-10492), Generalitat de Catalunya (URLING-2009SGR00763 and BE-DGR, AGAUR), and the Netherlands Organization for Scientific Research (NWO).

Notes

1. We have opted to utilize more generic terms in order to include both spoken and signed conversations. In doing so, and when referring to both modalities, we use “sender” to mean “speaker” and “signer” and “addressee” to refer to “hearer” both in signed and spoken language.

2. Examples that are taken from the NGT corpus or the Radboud Corpus of Dutch Gestures are indicated by the corresponding time code.

When not indicated, the sentences are made up examples for the sake of clarity.

3. In the transcription of spoken sentences, the square brackets indicate the stroke (i.e., the most significant part) of the pointing gesture.

4. We follow the usual glossing conventions in the sign language literature, according to which manual signs are represented by the capitalized word corresponding to the translation of the sign. The relevant abbreviations for the purposes of this article are the following: IX 3 (nonspeaker/nonaddressee); #-VERB-# (verb agreeing with subject and object: the numbers refer to the grammatical person).

5. Examples 4, 20, and 21 are made-up examples to illustrate the use of pointing.

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