ACQUISITION OF REFERENCE TO SELF AND OTHERS IN GREEK SIGN LANGUAGE

Marianna Hatzopoulou
Acquisition of reference to self and others in Greek Sign Language

From pointing gesture to pronominal pointing signs

Marianna Hatzopoulou
To Odysseus
This dissertation explores the transition from the early communicative use to the linguistic use of pointing as first- and non-first-person pronoun in Greek Sign Language. Whereas much has been published on the acquisition of personal pronouns in spoken languages, the number of studies of the acquisition of personal pronouns in signed languages is limited. Investigating ASL acquisition, Petitto (1984, 1987, 1994) concluded that the role of modality is restricted in the acquisition of pronouns. Despite the similarity in form between the pointing gesture and pronominal pointing signs, children acquiring sign language pass through the same stages and acquire personal pronouns at about the same age as children acquiring spoken language. Petitto’s most important findings were that the transition to pronominal pointing in ASL is characterised by: (a) a period of discontinuity in which children avoid using pointing directed towards persons, and (b) the occurrence of reversal errors before the acquisition of first- and second-person pronouns.

The present study offers additional evidence on the acquisition of personal pronouns in signed language through the investigation of: (a) the manner and the age at which pronominal pointing signs are acquired by a child exposed to Greek Sign Language, (b) the use of other signs for reference to persons and self, and (c) the existence of reversal errors in the child’s early use of pointing. Data consist of video recorded spontaneous interaction in Greek Sign Language between a deaf boy and his deaf parents and relatives in his home every fortnight from the age of 12 to 36 months. Thirty hours of the child’s communicative behaviour have been transcribed with a software tool for annotating multimedia video recordings (ELAN www.mpi.nl/tools), and all sequences that included pointing were analysed in detail in terms of reference and function.

The most important contribution of this study is the confirmation that language modality plays a restricted role in language acquisition, which, up to now, has been based mainly on data from studies on ASL. The time and the frequency of occurrence of pronominal pointing signs in the acquisition of Greek Sign Language correspond to the general developmental pattern observed in the acquisition of ASL by Petitto (1984, 1987, 1994). However, apart from the similarities observed, this study also highlights some important differences. These are: (a) common nouns and proper names referring to persons are used for reference to others before the acquisition of
pronominal pointing but to a limited extent, (b) the existence of only one erroneous pointing sign indicates that the deaf child, from the beginning, uses pronominal signs directed to persons and self correctly, and (c) there is no evidence of discontinuity in the transition from the early communicative pointing gesture to the pronominal pointing signs, INDEX-self and INDEX-non-self.

**Keywords:** deaf children, Greek Sign Language, personal pronouns, pointing, pointing signs, reference, sign language acquisition.
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CHAPTER 1

Aim of the Study

This thesis is a detailed case study that aims to expand the already existing knowledge on the acquisition of sign language by deaf children. Although most of the empirical studies on the topic of sign language acquisition have so far been conducted on American Sign Language (ASL), recent years have seen the emergence of a significant number of investigations concerning the acquisition of other signed languages, as shown below:


4) Italian Sign Language: Caselli et al. 1982; Caselli 1983; Caselli & Volterra 1994; Pizzuto 2002.


With respect to the acquisition of ASL, the most important conclusion drawn from the findings is that deaf children of deaf parents acquire signed language in the same manner and at the same pace as hearing children acquire spoken language. Both groups of children go through the same developmental stages at the same age and make almost the same kinds of errors (for a review, see Newport & Meier 1985; Lillo-Martin 1999; Emmorey 2002). Thus it has been concluded that the role of modality, gestural or vocal, in the process of language acquisition seems to be minor during the early developmental stages.¹ In particular, in a study on the

¹ However, the gestural-visual modality seems to pose some difficulties on development after the age of three years. According to Hoffmeister (1987, 1978) and Lillo-Martin (1999), spatial memory is required for the realisation of co-reference.
acquisition of personal pronouns in ASL, Petitto reports (first in 1984 and then in 1987 and 1994) that:

1) Personal pronouns in ASL are acquired at the same age as the corresponding terms are acquired in spoken language by hearing children and not earlier as might have been expected.

2) Deaf children make reversal errors in the use of pointing signs, as first- and second-person pronouns, similar to those errors observed in the language of hearing children.

Petitto’s findings were unexpected for two main reasons. Firstly, in most signed languages, first- and non-first-person pronouns have the same form as the pointing gesture made with extended index finger observed in children’s early communication. Secondly, pointing signs used as first- and non-first-person pronouns are considered to be transparent in meaning (Petitto 1984, 1987, 1994; Newport & Meier 1985; Haukioja 1993). Moreover, Petitto observed a gap in the use of pointing directed to persons before its systematic use as personal pronouns. Based on this observation, she claimed that:

1) Deaf children after the age of 18 months are able to differentiate between gestures and signs, overlooking the visually motivated properties, that is, the directionality of pronominal signs. This statement has been subjected to criticism by Haukioja (1993), who, however, provided no additional empirical data to support her argument.

2) The process of language acquisition is not a continuous one. However, as Emmorey (2002:183) points out, “this broad conclusion should be tempered by recent work on the acquisition of classifier constructions” (see Slobin et al. 2003).

Overall, Petitto’s findings on the acquisition of personal pronouns in ASL are a landmark in the study of sign language acquisition. In spite of the fact that the findings concern only one signed language, and the study included only a very limited number of children, Petitto’s work has been considered to be of special importance (Newport & Meier 1985; Lillo-Martin 1999; Emmorey 2002). Until today, there has been no corresponding empirical research on other signed languages confirming or refuting the findings on the acquisition of personal pronouns in ASL.

The present thesis aims to provide empirical evidence for how personal pronouns are acquired in Greek Sign Language and aspires to offer some

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2 The findings were from the study of two deaf children of deaf parents. (Children with two deaf parents are an extremely small population: for the American community of the deaf, see Mitchell & Karchmer 2004).
additional evidence on the issue of sign language acquisition. In particular, it aims to investigate the use of pointing for reference to persons and self and to answer similar questions as those posed in previous studies on ASL and Swedish Sign Language. The following issues will be addressed:

1) The age at which the pronominal pointing signs are acquired by the deaf child of deaf parents exposed to Greek Sign Language.
2) The transition from the early communicative use of pointing to its linguistic use.
3) The use of other signs, common nouns and/or proper names for reference to persons before the acquisition of pronominal pointing.
4) The existence of reversal errors in the use of pointing signs for reference to persons and self before their final manifestation as pronouns in the child’s language.

In the chapters that follow, the literature on the use of pointing and on the acquisition of personal pronouns in signed and spoken language is reviewed. In Chapter Two, the existing knowledge about Greek Sign Language is presented in brief. In Chapter Three, the phenomenon of deixis in languages and the deictic function of personal pronouns is outlined, and in Chapter Four, pointing signs used for reference to persons in signed languages are described. The next two chapters, focusing on issues of language acquisition, complete the literature review: Chapter Five describes the studies that have been conducted on pointing used by hearing children, as well as studies on the acquisition of personal pronouns in spoken languages; Chapter Six is a detailed description of investigations regarding pointing used by deaf children and the transition to the linguistic use of pointing for reference to persons and self. Chapter Seven, in which the reader is introduced to the current empirical study, includes a description of the methodology used, and the process of collection and analysis of the data. The terminology chosen for this study is also presented in this chapter.

In the next four chapters, the data are described and analysed in detail. Chapters Eight, Nine, Ten and Eleven describe the deaf child’s transition to the linguistic use of pointing for first- and non-first-person pronoun. In these chapters, all instances of pointing are described and analysed in terms of reference and function, illustrating step by step the subject’s acquisition of pronominal pointing signs. The results are compared with the existing findings about both deaf and hearing children. Finally, Chapter Twelve contains a further discussion about the findings of the study in relation to the results of earlier investigations, taking also into account the restrictions imposed by the chosen methodology, and outlines the new picture that emerges regarding the acquisition of pointing to persons by deaf children.
CHAPTER 2

Greek Sign Language

Greek Sign Language is a gestural-visual language\(^3\) used by most Greek deaf people and by many hard-of-hearing and hearing people living in Greece (Papaspyrou 1994; Lampropoulou 1997; Kourbetis 1999a; Kourbetis et al. 2001). The Hellenic Federation of the Deaf estimates that the number of deaf people in Greece is approximately 8,500 to 10,000 (Kourbetis & Hoffmeister 1987; Lampropoulou 1994). This number is not equal to the number of signers in Greece, however, since not all deaf people in Greece use Greek Sign Language, and an increasing number of hearing and hard-of-hearing people, especially in recent years, have been learning the language.

Greek Sign Language is considered to be one of the younger signed languages. It is estimated to have existed before 1948, when the first organisation for the deaf was established. The founding of the first school for the deaf in 1923 (Lampropoulou 1999), despite its being an oral school, gives some reason to believe that the language emerged during the ’20s. Before 1923, there is no evidence of any organised form of a community of deaf people in Greece (Kourbetis et al. 2005). In the year 2000, Greek Sign Language was officially recognised in law 2817/2000 as the first language of the deaf and hard-of-hearing people. Law 2817/2000 pertained to special education and while it was not especially concerned with the rights of deaf and hard-of-hearing people, its impact was enormous with regard to the acceptance and use of the language in many different areas of deaf people’s social life, such as education, politics, television and everyday activities. However in education, and particularly in the schools for the deaf, although official recognition of Greek Sign Language seemed to dissolve educator’s prejudices about the language’s true linguistic status, it is not yet used as an autonomous language but more or less is used under the umbrella of a total and simultaneous communication method.

The beginning of the linguistic study of signed languages has been attributed to William Stokoe’s (1960) study of ASL (Klima & Bellugi 1979; Baker & Battison 1980; Wilbur 1987; Bergman 1994; Lampropoulou 1997; Sutton-Spence & Woll 1999). Henceforth, many researchers have expanded

\(^3\) Another characterisation found in the literature about signed languages is spatial-visual languages (Emmorey & Lane 2000).
our knowledge about different signed languages (e.g. Klima & Bellugi 1979; Liddell 1980 on ASL; Bergman 1982 on Swedish Sign Language; Engberg-Pedersen 1993a on Danish Sign Language; Papaspyrou 1994, 1998; Lampropoulou 1997; Efthimiou et al. 2001; Kourbetis & Hoffmeister 2002 on Greek Sign Language; Brennan et al. 1984 on BSL).

Greek Sign Language research started in the 1980s, but still, after almost twenty years, we do not know a lot about it. In fact, there has been very little published on Greek Sign Language (for some references, see the following sections).

2.1 Sign Structure

Greek Sign Language has its own lexicon and grammar (Papaspyrou 1994) even if it has been influenced or is still being influenced by spoken Greek. In 2001, NOEMA, the first electronic dictionary of Greek Sign Language was published and included more than 3,000 signs (Efthimiou et al. 2001), while, before that, early lexicographical attempts were made in book form by Logiadi & Logiadi (1985) and by Triantaphilidis (1990).4

As in other signed languages, the signs of Greek Sign Language are articulated by one or two hands as well as with non-manual articulators, such as the head, eyebrows and mouth. In signs with two hands, both hands may be active or one hand may be active while the other is passive. In the case where one hand is active, it is the signer’s dominant hand. Signs are produced either on the signer’s body or in the space in front of the signer’s body, in the signing space extending between the top of the head and the waist, and between the right and left arm when they are half extended. There are no signs produced at the back of the body, or below the waist, or at the knees although, in formal situations such as in front of a big audience or in less formal circumstances, the signing space tends to be larger.

As in other signed languages, signs of Greek Sign Language can be characterised as a combination of four different parameters: those of handshape, orientation, movement and location (as has been shown, for instance, for ASL by Klima & Bellugi 1979; for Swedish Sign Language by Bergman 1982; for BSL by Brennan et al. 1984; and for Australian Sign Language (Auslan) by Johnston & Schembri 2007).

With regard to the number of handshapes existing in Greek Sign Language, Papaspyrou (1994) estimates that there seems to be 45 different handshapes. Lampropoulou (1997), in a preliminary study, describes 17 different handshapes, whereas in the Greek Sign Language electronic dictionary (Efthimiou et al. 2001) 45 handshapes are described. In

4 Includes 605 pictures of signs.
5 Including only drawings of a restricted number of signs.
Kourbetis & Hoffmeister’s recent work (2002, in press), 53 handshapes have been identified in Greek Sign Language. Among them, B, 5, S, and G (index finger) are reported to be the most frequently used handshapes in the language (see Table 1).

**Table 1. The most frequently used handshapes of the dominant hand in a corpus of 3,350 sign types (Kourbetis & Hoffmeister in press6).**

<table>
<thead>
<tr>
<th>Handshape</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>19.10%</td>
</tr>
<tr>
<td>5</td>
<td>9.04%</td>
</tr>
<tr>
<td>S</td>
<td>8.29%</td>
</tr>
<tr>
<td>G</td>
<td>7.51%</td>
</tr>
</tbody>
</table>

Kourbetis & Hoffmeister (in press) also demonstrate that the dominance and symmetry constraints described by Battison (1978) in a study on ASL apply to Greek Sign Language, too, adding that the handshapes used by both hands in signs with two active hands form a subset of 41 from the 53 identified handshapes.

Finally, in Greek Sign Language as in other signed languages, the use of space in front of the upper part of the signer’s body is fundamental, since changes of the location of the hands may be associated with changes in meaning.

### 2.2 Word Order

Different basic word orders have been described for different signed languages. For ASL (Hoffmeister 1978; Liddell 1980; Newport & Meier 1985; Baker-Shenk & Cokely 1981), Taiwan Sign Language (Smith 1990) and Swedish Sign Language (Bergman & Wallin 1985), the basic word order has been described as SVO (Subject, Verb, Object). For Russian Sign Language, Sign Language of the Indians of North America (Namir & Schlesinger 1978), German Sign Language (Namir & Schlesinger 1978; Papaspyrou 1998), and Sign Language of the Netherlands (Coerts 1994; Coerts & Mills 1994), the basic word order has been described as SOV, whereas BSL is described either as SVO or as SOV, depending on the type of verb used (Sutton-Spence & Woll 1999). The preferred word order in Greek Sign Language has been reported to be SOV (Papaspyrou 1994, 1998).

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6 Printed here with the permission of the authors.
2.3 Non-manual elements

The existence of non-manual elements has also been observed in many signed languages (for instance, in ASL: Liddell 1980; Swedish Sign Language: Bergman 1994; for Norwegian Sign Language: Vogt-Svendsen 1981, 1983). The non-manual components found in signed languages include movements of the head or the upper part of the body; they may include characteristic facial expressions basically produced by the upper part of the face, eyes and eyebrows; and/or they may be movements produced by the mouth. Non-manual components in signed languages fulfil different functions such as distinguishing between signs with identical manual forms, modifying the meaning of a sign and marking different syntactic constructions and different types of sentences, such as questions, conditionals, and relative clauses. In addition to their linguistically determined use, they can also be used for the expression of emotions (Klima & Bellugi 1979; Bergman 1994; Papaspyrou 1994, 1998; Baker-Shenk & Cokely 1981; Sutton-Spence & Woll 1999).

Similarly in Greek Sign Language, signed utterances may also comprise – in addition to the manual component – a simultaneously produced non-manual element consisting of: (a) the movement of the head or of the upper part of the body, and/or (b) different expressions of the face (Papaspyrou 1994, 1997, 1998). These non-manual elements seem to fulfil the same functions as described above for other signed languages. However, with the exception of one study examining the expression of negation in Greek Sign Language (Atzakas 2003, 2007), there is no research confirming this. According to Atzakas, head movement and facial expressions are used for marking negation, as observed in other signed languages. However, of particular interest is “the analysis of the backwards tilt of the head which is distinct for marking negation in GSL and which has not been reported in other sign languages until now” (Atzakas 2003:605).

As for non-manual elements produced by the mouth, two main types have been identified by many researchers. One type is derived from a spoken language, and the other “may have formed from within the sign languages and bear no relation at all to the mouth movement of a spoken language” (Boyes Braem & Sutton-Spence 2001:1). For the first type, the term “mouthings” has been proposed, although other terms such as “spoken components” and “word pictures” have also been used. For the second type, the term “mouth gestures” has been proposed, Whereas the terms “oral adverbials”, “mouth arrangements” and “oral components” have also been used (Boyes Braem & Sutton-Spence 2001:2-3).

Bergman & Wallin (2001) describe the form of a subgroup of mouth gestures in Swedish Sign Language that do not have a meaning of their own, and are a compositional part of specific signs. These “mouth components” are described by Bergman & Wallin (2001:51) as being formed by a
characteristic change between an opening and closing of the mouth and vice versa. They have identified three open and seven closed segments, each of which can be characterised by a set of distinctive features. In addition, in testing the hypothesis that “when mouth movements are borrowed from Swedish into Swedish Sign Language, they are reconstructed according to the native pattern”, Bergman & Wallin (2001) demonstrate that “the forms of mouthings tend to develop in the direction of the lexically determined mouth actions in the recipient language” (51).

A comparable group of non-manual mouth components seems to exist in Greek Sign Language too, as for example SAME (IDIOS); BE-FED-UP (VARETHIKA); NON-EXISTING (ANIPARKSI4) (Papaspyrou 1997); HARD (SKLIROS); COOL (DROSEROS); BE-BORED (VARIEME) (Efthimiou et al. 2001), BE-CRAZY-ABOUT (EIMAI-TRELOS-G14). The mouth component included in BE-CRAZY-ABOUT distinguishes the sign from COMMIT-SUICIDE, which has an identical manual form (for non-manual components, mouth gestures and mouthings, see also Papaspyrou 1997, Efthimiou et al. 2001).

Similar observations to those Bergman & Wallin (2001) make about borrowed mouth movements can also be made about Greek Sign Language, although this issue needs to be further investigated. Mouth movements borrowed from Greek have been identified in signs such as DADDY (‘father’ from the Greek word “babas”) and PAPA (‘grandfather’ from the Greek word “papous”). These mouth movements follow the native pattern of Greek Sign Language and distinguish the above signs from MALE and OLD-PERSON, respectively, with which they share an identical manual form.

The Bergman & Wallin (2001) model will be used in the present study for the description of the mouth movements appearing in the deaf child’s expressive language exposed to Greek Sign Language (see Appendix C).

2.4 Greek manual alphabet

Finally, with regard to the needs of the present study, it should be mentioned that in Greek Sign Language a manual alphabetic system is used for the representation of written Greek as has been reported for other signed languages. The Greek manual alphabet (Appendix A) is composed of 21 handshapes, each one representing one letter of the Greek alphabet, except for the letters Z, H, Π, Ξ and Ψ, which are represented by the same handshape, but in different orientations (Kourbetis & Hoffmeister 2002, in

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7 Bergman & Wallin (2001) have described eight distinctive features.
8 See Appendix B.
press). Although fingerspelling in Greek Sign Language is not as widespread as in ASL (Kourbetis & Hoffmeister 2002), proper names (names for persons, places, etc.) are sometimes fingerspelled using the Greek manual alphabet.

In summary, based on the crucial and constraining role that modality plays for the production of signed languages, it is reasonable to assume that conclusions drawn by studies on other signed languages may also apply for the description of Greek Sign Language. However, even though some general characteristics of Greek Sign Language have been described, there is still a lack of empirical research and detailed linguistic description concerning most aspects of the language.
CHAPTER 3

Deixis

3.1 The phenomenon of deixis

When using language, interlocutors (the persons taking part in a conversation) communicate about people, objects or other entities by using referring expressions. “A referring expression points out that element of the universe, real or imaginary, which forms the basis of the locutionary act” (Philippaki-Warburton 1992:296, author’s translation). A referring expression may refer to a category of things, i.e. generic reference, or refer to a specific entity, i.e. specific reference. For example, in “man differs from animals”, the reference of the nominal phrases “man” and “animals” is generic because they refer to the whole class of human beings and that of animals. In “Mike’s teacher broke his leg”, the reference of the nominal phrases “Mike’s teacher” and “his leg” are specific because they refer to a particular person and object in a communicative situation.

One way of making specific reference to an element in the environment of the interlocutors is by using deictic expressions (Lyons 1977, 1995; Philippaki-Warburton 1992; Mey 1993). According to Bühler (1982:10) “deictic expressions refer to a deictic field of language whose zero point—the Origo—is fixed by the person who is speaking (the ‘I’), the place of utterance (the ‘here’), and the time of utterance (the ‘now’)”. In the utterance “you and I are going to meet here tomorrow”, the personal pronouns “you” and “I” and the adverbs for time and place, “tomorrow” and “here,” are used for indicating the persons between whom communication is taking place and for defining the time and place the two interlocutors are going to meet. Still, the referents cannot be identified except by the two interlocutors or by another present person. In other words, in order for the referents of the above phrase to be identified, it is necessary to have additional information about the situational context. Lyons defines deixis as follows:
"By deixis [...] is meant the location and identification of persons, objects, events, processes and activities being talked about, or referred to, in relation to the spatiotemporal context created and sustained by the act of utterance and the participation in it, typically, of a single speaker and at least one addressee" (1977:637).

Lyons also mentions that in an expression like “it is raining”, the time and place associated with the state of raining is the time and place at which this phrase is produced, although this information is not expressed with specific deictic terms. The same meaning can be expressed by “it is raining here and now” (Lyons 1995:306).

The phenomenon of deixis is related to the use of deictic gestures in communication and especially with pointing, which, according to Kita (2003:1), constitutes “[a] foundational building block of human communication”. Pointing is the deictic gesture produced by the index finger directed towards persons, objects and/or locations and, like deictic terms, is used for referring to an element of the situation. In fact, pointing and deictic words or phrases are used in languages to the same end. According to Philippaki-Warburton (1992:298), the function of the deictic elements found in spoken languages is to replace pointing or other deictic gestures, usually used in combination with them. Ahlgren (1990) expresses the same idea, wording it in a different way: “[d]eictic elements can be described as pointing to something in the situation or context of the utterance” (1990:167). In other words, it could be argued that deictic reference, expressed with deictic gestures and mainly with the index finger, is lexicalised in spoken languages, resulting in lexical items such as pronouns and adverbs.

The different types of deictic information referred to as “time deixis”, “place (or spatial) deixis” and “person deixis” (e.g. Lyons 1977, 1995; Levinson 1983; Mey 1993; Fillmore 1997; Saeed 1997) indicate time in relation to the time that an utterance is produced or indicate place and persons in relation to the place and the persons participating in the communicative situation, respectively. By using different grammatical elements “we can deictically refer to time relative to the now of the utterance, to location relative to the here of the utterance, and to person relative to participation in the conversation as speaker and addressee” (Ahlgren 1990:167).

Another notion that has been described in respect to deixis is that of “social deixis” (Levinson 1983; Fillmore 1997; Saeed 1997). Social deixis is

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9 The term “deixis” comes from the Greek word δείχνω (deichno), which means the act of pointing with physical movements. The terms “index” and δείκτης (deiktis) in Latin and Greek, respectively, mean the index finger.

10 Based on the widespread use of the act of pointing, Lyons attributes a possible biological origin to it (1995:303).
the use of those elements in language by which the social relationships, or the social status of the participants in a communicative act, is expressed. For example, in Greek, the plural form of the second-person pronoun εσείς (esis) is used instead of the singular form εσύ (esi) when referring to a person of higher status in the hierarchy to indicate the different social status of the interlocutors or as a matter of politeness.

The terms “textual deixis” or “discourse deixis” (Fillmore 1997; Lyons 1977; Saeed 1997) refer to those deictic items used in language by which the speaker identifies and indicates to his interlocutor a part of his language (word, phrase, or a number of phrases or longer parts of discourse). For example, in “here we will stop, and will go on in detail on the issue after the break”, the speaker is not using the locative adverb “here” to refer to the location where he stands but to what he has said up until that point of time.

In conclusion, deixis in its various forms is a significant characteristic of human language. The existence of deictic categories in languages clearly indicates that the full meaning of a locution is bound to the speaker, as well as to the time and the place in which the utterance takes place (Philippaki-Warburton 1992:299).

3. 2 Person Deixis - Personal Pronouns

Deixis in relation to persons is lexicalised in the grammatical category of personal pronouns. Apart from the different kinds of information personal pronouns may encode, they are mainly used for deictic reference, which seems to be their most fundamental function (Lyons 1977, 1995; Mühlhäusler & Harre 1990; Saeed 1997), but they are also used for anaphoric reference.11

By the use of personal pronouns, reference to persons is made in relation to the spatiotemporal context of the utterance in which they are used. For example, the pronouns “I” and “you” are used in such a way in the following dialogue:

A: “I don’t believe in destiny, but you are a very lucky person.”
B: “I believe that you are luckier than me.”

As such, the respective roles of the persons, as speaker or addressee, are indicated in a straightforward manner, but their referents change depending on who the speaker is. The referents may be identified only if the

11 The term pronoun is not considered an adequate term because it implies that the anaphoric function is the primary one, and it fails to disambiguate between nouns and nominal phrases, which constitute syntactical equivalents of pronouns (Lyons 1977; Mühlhäusler & Harre 1990).
interlocutors, the place and the time of the specific communicative situation are known.

Overall, the main semantic information grammaticised in the pronominal systems of languages is the notion of the roles that persons, participants, or non-participants have (Lyons 1977, 1995; Ingram 1978; Ahlgren 1990; Meier 1990; Fillmore 1997; Saeed 1997), which means that personal pronouns signify a person as the speaker, the addressee or a non-participant in a speech event.

Based on a wide range of comparative data, a consensus seems to exist with regard to the most basic semantic contrast underlying most pronoun systems. As early as 1829, W. von Humboldt (cited in Mühlhäusler & Harre 1990:62) suggested that the simple “I” and “non-I” distinction is encoded in language. According to Greenberg, “[a]ll languages have pronominal categories involving at least three persons and two numbers” (1978:96) which is in alignment with Forchheimer’s major study from 1953, “The category of persons in language”. Lyons states that “[t]here is perhaps no language, […] in which there are no first-person and second-person pronouns” (1977:639). Expanding Greenberg’s universal to include the first-person plural, Ingram (1978) writes “that every language designates at least four persons” (227).

By reviewing the literature, Mühlhäusler & Harre (1990) have dealt with the diversity of the existing inventories of personal pronouns, although not exclusively, in Indo-European languages. They find that pronominal systems are determined by at least two developmental hierarchies, self-centred or other-centred: “In these the only necessary distinction appears to be the most basic contrast between either self and not-self or other and not-other” (1990:86), respectively. Still, the Mühlhäusler & Harre (1990) contrast seems to be fused in the basic “ego”/“non-ego” contrast if one goes beyond the perspective, self or other, expressed in different pronominal systems.

The existence of first- and second-person pronouns, therefore, seems to have been regarded as a universal characteristic, whereas the same has not been argued for the third-person pronoun (Lyons 1977, 1995; Greenberg 1978; Ingram 1978; Mühlhäusler & Harre 1990). However, even if the claim that the second-person pronoun exists in most spoken languages is true, this has not been confirmed by research in signed languages (see Chapter 4).

In many Indo-European languages, although the third-person pronoun refers to entities other than self, non-ego, as does the second-person pronoun, it differs from it. Firstly, it is defined by the element of non-participation (Lyons 1977; Charney 1980; Ahlgren 1990) in a speech act, which means that it does not refer to the conversational participants themselves. Secondly, its use is more stable than that of the first- and second-person pronouns since it does not follow the shifts of the participant’s role in a conversation. However, it still depends upon the specific discourse context in order to be interpreted. Thirdly, according to
Philippaki-Warburton (1992:298), the third-person pronoun does not always refer only to a person in the interlocutor’s environment. Finally, Lyons (1995) does not consider the third-person singular pronoun as “pure deixis”, since it combines deictic with additional non-deictic information (such as gender) not related to the time and place or the role of participants in a locutionary act.

12 In Greek, the third-person pronoun αυτό (afto) may refer not only to persons but also to objects or events.
13 Lyons (1995) distinguishes between “impure” and “pure deixis” (1995:307) according to whether or not additional information apart from the deictic information is encoded in an expression.
4.1 Pointing signs. The multi-functional use of the index hand configuration in signed languages

It has been claimed that pointing, used spontaneously by hearing people while they are speaking, is functionally integrated with speech (McNeill 1992, 2000, Singleton et al. 1995). In signed languages, many signs are formed by the index hand configuration (Engberg-Pedersen 1993b) and bear a close resemblance in form to the deictic gesture of pointing (Haukioja 1993), which probably constitutes their origin (Engberg-Pedersen 1993b). In signed languages, these pointing signs, rather than being paralinguistic elements, are true linguistic symbols used in a conventional and systematic manner (Newport & Meier 1985; Meier 1990; Engberg-Pedersen 1993a, b; McNeill 1992, 2000; Singleton et al. 1995; Liddell 2000, 2003).

The term “pointing sign” is used by Engberg-Pedersen (1993a:117) and is adopted in this thesis according to her definition. Engberg-Pedersen uses the term pointing sign to refer to those signs that are “made with the index hand pointing in some direction” (Engberg-Pedersen 1993a: 118). Taking into account the high frequency of pointing signs and the diversity they exhibit on the grammatical level, Engberg-Pedersen writes that “the pointing signs in sign languages are at the heart of some very important aspects of language in general, namely reference and the differences and similarities between nominal and verbal” (1993b:2).

The index hand configuration, pointing in different directions, participates in the formation of highly similar forms, the meaning of which are nearly transparent (Petitto 1984, 1987, 1994; Newport & Meier 1985; Haukioja 1993). The index hand configuration is used in signs that may be deictic or

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14 McNeill (1992, 2000) adopts the term “gesticulation”, first used by Kendon (1982), to describe these gestures used alongside speech, constituting an integrated system.
non-deictic,\textsuperscript{15} belong in different grammatical categories and are used with various syntactic functions (Hoffmeister 1978; Petitto 1984, 1987, 1994; Zimmer & Patschke 1990; Engberg-Pedersen 1993a, b, 2003; Liddell 2003; Nilsson 2004).

Engberg-Pedersen (1993a, b, 2003) argues that pointing signs in Danish Sign Language are not alike in many cases, \textsuperscript{16} but rather that they in fact exhibit formational differences in correspondence to the different functions they have on the syntactic level, i.e. whether they are used with referring or predicative function. Engberg-Pedersen categorises pointing signs as pronouns, determiners, (stative locative) verbs, particles, proforms and classifier predicates and mentions that there are still ambiguities, demonstrating the complexity of the analysis of the pointing signs. She also describes some variant types of pointing signs, in terms of form, that belong to the same word category but express semantic differences in relation to emphasis or proximity.

To sum up, in signed languages, pointing signs belong to several different grammatical categories:

1) Pronouns referring to persons, or other entities, as e.g. in ASL (Hoffmeister 1978; Klima & Bellugi 1979; Liddell 1980, 2003; Baker-Shenk & Cokely 1981; Petitto 1984, 1987, 1994; Newport & Meier 1985; Lillo-Martin & Klima 1990; Meier 1990; Zimmer & Patschke 1990), in Swedish Sign Language (Ahlgren 1990), and in Danish Sign Language (Engberg-Pedersen 1993a, b).

2) Locative adverbs or locative particles referring to locations, as e.g. in ASL (Hoffmeister 1978; Petitto 1984, 1987; Newport & Meier 1985), in Swedish Sign Language (Ahlgren 1990), and in Danish Sign Language (Engberg-Pedersen 1993a, b).

3) Time adverbs referring to points in time, as e.g. in ASL (Hoffmeister 1978).

4) Verbs denoting activities, events or states, as e.g. in ASL (Liddell 2000, 2003) and in Danish Sign Language (Engberg-Pedersen 1993a, b, 2003).

Apart from the above-mentioned cases where the deictic function is central in pointing signs (Hoffmeister 1978; Liddell 2000, 2003),\textsuperscript{17} emerging from the directionality inherent in the form of the signs (Liddell 2000, 2003), there are also signs that, although they include the index hand configuration,

\textsuperscript{15} In signed languages, the index hand configuration is also used independently from its deictic function (Ahlgren 1990), whereas other linguistic forms may also be used to encode deictic semantic information (Meier 1990; Sutton-Spence & Woll 1999).

\textsuperscript{16} See also Nilsson (2004) regarding Swedish Sign Language.

\textsuperscript{17} In addition, Engberg-Pedersen (2003) and Zimmer & Patschke (1990) mention some cases of the index hand configuration used in pointing signs as pronouns or determiners that are not directive variations of them and that have referential but not deictic function.
do not have a deictic function (ASL: Hoffmeister 1978; Petitto 1984, 1987; Swedish Sign Language: Bergman 1982; Ahlgren 1990). These are signs denoting body parts and, despite the fact that they are “deictically motivated”, do not refer to the specific parts of the body to which the signer points but instead denote those body parts as general concepts (Bergman 1982:13).

Additionally, in many signed languages, e.g. ASL (Suppalla 1986), Swedish Sign Language (Wallin 1994), and Danish Sign Language (Engberg-Pedersen 1993a), the index finger hand configuration may also participate in the formation of complex constructions denoting motion and location, referred to as “classifier predicates” (Liddell 1990), “depicting verbs” (Liddell 2003), “polymorphemic verbs” (Engberg-Pedersen 1993a), and “polysynthetic signs” (Wallin 1994). When used in such constructions, the index finger hand configuration represents specific entities based on some physical characteristic that these entities show and, combined with other elements such as movement and orientation, denotes the movement (path and motion) or the location of the entities, as e.g. in ASL, where “[t]he vertically oriented 1 [index finger] handshape is meaningful, signifying a person in a standing or walking posture” (Liddell 2003:266). The handshape unit in such constructions in signed languages has been compared with classifiers in spoken languages (Suppalla 1986), an analysis that has been criticised by Engberg-Pedersen (1993a).18

Finally, as in spoken languages, in sign-language communication the index hand configuration may also be used in a paralinguistic gesture, although to a limited degree (Petitto 1984; Meier 1990) and constituting a use that is not easy to identify.

4.2 Person deixis in signed languages

As mentioned in the previous section, pointing signs formed by the index hand configuration that point in different directions and refer to persons or other entities, may belong in the word category of pronouns. As has been argued in the literature that has compared ASL with English (Liddell 2003), BSL with English (Sutton-Spence & Woll 1999), Swedish Sign Language with Swedish (Ahlgren 1990), and as will be shown in the next section on pronouns in Greek Sign Language, pronominal systems in signed languages seem to be different from those found in many spoken languages.

However, at the beginning of sign language research, as Liddell (2000, 2003) points out, personal pronouns in ASL were described as consisting of three persons: first, second and third person. This description probably arose from the translation of pointing signs directed to persons and other entities

\[18\] See also Schembri (2003).
(present or absent), according to the three-person distinction, which has also been claimed to be universal in spoken languages (Greenberg 1978).

Distinguishing between the deictic and anaphoric function of pointing signs directed towards present and non-present entities, respectively, Newport and Meier (1985) write that pronouns are of two types in ASL: “deictic pronouns” and “anaphoric pronouns” (884). Moreover, they argue that “there is no formal distinction between personal and other deictic pronouns” (894), a position also taken by Engberg-Pedersen (1993a:131) with respect to Danish Sign Language.

In 1990, some new considerations concerning the existence of the category of person in signed languages were expressed, specifically regarding ASL (Lillo-Martin & Klima 1990; Meier 1990), Brazilian Cities Sign Language (Berenz & Ferreira Brito 1990), and Swedish Sign Language (Ahlgren 1990). Berenz & Ferreira Brito (1990), analysing pointing signs directed towards signer and addressee in ASL and Brazilian Cities Sign Language, argue that both types exist as conventional pronouns in these languages. Leaning on Fillmore’s (1982) analysis of the front/back axis in relation to locative expressions in spoken languages, they claim that pronouns in ASL and Brazilian Cities Sign Language “are locating expressions with the signer at the center of an axis” (1990:27), and that “[t]he structure of these two signs (first and second persons) follows an “ego-opposed” strategy” (1990:28), based on the anthropocentric front/back axis. But according to Engberg-Pedersen “this assumption is unfounded, since the index hand of pointing signs points in the direction of the entity referred to no matter its position in relation to the signer” (1993a:138).

Although using different theoretical frameworks for the analysis of pointing signs, Ahlgren (1990) and Lillo-Martin & Klima (1990) draw almost the same conclusions about pronouns in ASL and Swedish Sign Language respectively. Ahlgren (1990) argues that the semantic information encoded in pointing signs, translated as personal pronouns in Swedish, concerns the location of the referent and not its role in the signing act: “In Swedish Sign Language persons are deictically referred to by their location, not by their conversational roles” (1990:167). In a way Ahlgren identifies a person or entity with its location and concludes that Swedish Sign Language does not have the grammatical category of personal pronouns: “Swedish Sign Language instead employs a complex system of location deictic terms and their anaphoric extensions for reference to persons” (1990:174).

Working within the syntactic theory of Government and Binding, Lillo-Martin & Klima (1990) claim that in ASL there is only one pronoun which does not differentiate between persons and other entities. They explicitly state that “[a]t a more general level, we suggest that ASL has only one pronoun” (1990:199), basing their position on the following arguments: (a) ASL seems to have a “potentially infinite number of distinct pronominal forms” (196), since there is an infinite number of locations (“loci”) at which
pointing signs can be directed; (b) in ASL referents are always unambiguous; and (c) the signer has the possibility to change the reference by shifting his body position.

Meier’s (1990) analysis of personal pronouns of ASL is in opposition to both of the aforementioned analyses. Meier maintains that the category of person exists in ASL pronouns (1990:180-185). He presents an argument by which he clearly shows that what is encoded in the pointing sign directed to self is the meaning ‘animate being in the role of signer or sender’. In more detail, Meier refers to the use of the linguistic device called “role playing” used in narratives in signed languages in which the signer shifts between the roles of narrator and of the characters in the story. In this case, the same pointing sign, a pointing sign directed to self, is always directed in the same direction, namely at the chest of the narrator, and refers to distinct individuals, as in English and Greek, when the first-person pronoun is used in reported speech.

In Ahlgren’s (1990) analysis of Swedish Sign Language, the case of reported speech has not been considered at all (Engberg-Pedersen 1993b). Moreover, Ahlgren does not seem to take into account the idea that an entity, its location, and the time in the deictic context in which the referring expressions of personal pronouns are used cannot actually be differentiated (Lyons 1995; Engberg-Pedersen 1993b). As for Lillo-Martin & Klima’s (1990) analysis of ASL, they take into account neither the differences in form nor the differences in the semantic information encoded by pointing signs directed to self compared with those directed to other entities.

This last distinction concerning meaning has been mainly taken into account in Meier’s (1990) analysis. Meier proposes that the pronominal system in ASL follows the first/non-first-person basic distinction which is also considered as a universal semantic distinction in spoken languages (Von Humboldt 1829, cited in Mühlhäusler & Harre 1990; Bühler 1982; Mühlhäusler & Harre 1990).

Meier shows that there is no distinct second- and third-person pronoun form in ASL. Instead, there is one non-first-person pronominal form because: (a) there is an overlap between the pointing signs that can be translated as second and third-person pronouns, (b) the gaze direction cannot be considered as part of the pointing signs, (c) whereas for the first person there are exceptions in the morphological rule of the verb agreement with the subject or the object, exceptions are not observed for the second person and especially (as opposed to) the third person (1990:187-188), and (d) the form of the pointing signs translated as second or third-person pronoun is dependent on the location, real or hypothetical, of the referents, and therefore there is no way to distinguish the linguistic category of the third-

\[19\] Such differences in form are described by Engberg-Pedersen (1993a, 2003) with respect to Danish Sign Language.
person pronoun from that of the second among all the possible pronominal forms. Meier comments that what seems important is that “the deictic systems in ASL and in spoken languages share the same egocentric organization” (1990:190).

The same basic distinction of self/non-self is described with regard to Danish Sign Language: “The conclusion of the analysis of the pronominal "pointing" signs in Danish Sign Language [...] is that there is a two-way distinction between first person and non-first person in these signs” (Engberg-Pedersen 1993a:14). With regard to ASL, Liddell (2003) presents a list containing twenty-six distinct pronouns in ASL, all divided into the two categories of first and non-first person.

Engberg-Pedersen (1993a, b) distinguishes the two pronouns that exist in Danish Sign Language with regard to their form as well as to their meaning. In particular, she argues that the category of person is grammaticised only in the pointing sign directed at self (glossed as PRON+c ) and considers it as the only proper personal pronoun with rule-governed variations in form (or variants). She writes: “One pointing gesture differs from the rest, namely the pointing sign that makes contact with the signer’s body” (1993a:134), and that it is “an indexical symbol which means ‘the sender’ and refers to whoever uses it or to a quoted sender” (1993a:135), concluding that “Danish Sign Language does have a first person pronoun” (1993a:135).

Engberg-Pedersen (1993a, b) analyses all other pronominal pointing signs, except the one directed towards self, as constituting one distinct pronoun, the non-first-person singular pronoun (glossed as PRON). PRON does not specifically encode the semantic notion of human, and it may be used to refer to a location as well (1993a:133), implying a semantic proximity between the two notions of entity and location, “[y]et PRON can be used to refer to a location” (1993a:133). In particular, Engberg-Pederson claims that in Danish Sign Language, there is no distinction between the second and third-person pronoun, firstly because the gaze direction is not a constituent part of the sign per se, being in accord with Meier’s (1990) position, and secondly because even in reported speech the pointing sign directed to an actual/physical addressee cannot be used to refer to anyone else except if he or she happens to be the same person as the actual addressee (Engberg-Pedersen 1993a). In other words, Engberg-Pedersen considers all possible forms of the pointing sign directed to entities other than self and referring to them in regard to their location, real or hypothetical, as one symbol, since they share the same meaning and therefore cannot be perceived by the addressee as distinct symbols (1990a:134).

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20 Engberg-Pedersen (1993a) mentions that in Danish Sign Language, there are three variants of the non-first-person pronoun and that the use of the one or the other depends on differences in style, expression of emphasis, and in type – marked or unmarked – for locus (1993a:131).
The pronouns PRON+c and PRON in Danish Sign Language can also be used anaphorically (Engberg-Pedersen 1993a, b). The anaphoric function of pointing signs directed to specific locations in the signing space representing entities that have been earlier introduced in the signing discourse has also been observed in other signed languages (ASL: Newport & Meier 1985; Swedish Sign Language: Bergman 1982; Bergman & Wallin 1985).

As already mentioned, the same two-person division has been maintained by Liddell in his recent (2003) writings on the pronominal system in ASL: ASL pronouns “fall into two person categories: first person and not first-person (Meier 1990)” (2003:20). Liddell (2003) adopts and expands Meier’s argument, especially concerning eye gaze as a possible element for distinguishing between pointing signs as second and third-person pronouns. He compares ASL with spoken English and comments that:

“physical characteristics such as the direction of eye gaze and the orientation of the head and body of the speaker or signer generally make the identity of the addressee clear, regardless of whether the language being used is English or ASL” (2003:25).

Liddell (2003) describes 26 ASL pronouns based on the distinction first- and non-first-person, considering it as a central distinction and adding that ASL pronouns do not make case and gender distinctions. He describes the first-person singular pronoun (glossed as PRO-1) produced in its citation form “with the index finger extended but flexed at the base joint, directed toward the sternum where it makes a single contact” (2003:21), whereas the non-first-person singular pronoun (glossed as PRO) “is directed outward” (2003:21). The meaning encoded in these pronouns is ‘entity in the role of the signer’ (2003) for the first-person singular pronoun and “single entity (other than the signer)” (2003:25) for the non-first-person singular form.

Liddell’s (2000, 2003) main point, based on mental space theory, is the idea of directionality towards “the physical location of the entities being pointed at” (Liddell 2003:69), which, in opposition to the assumptions considered so far, he does not view as symbolic. According to Liddell no proper linguistic definition has been given to the directional aspect of the pointing signs, although there have been attempts to do so (Liddell & Johnson 1995). He considers directionality as a modality-specific characteristic of signed languages:

“I have argued that the directional aspect of pronouns is not symbolic, but rather, is an example of pointing. This does not imply that the pronoun itself is not symbolic. I am arguing that the symbolic pronoun can be directed in space in order to point at things. The symbolic pronoun encodes a meaning – just like a pronoun in any other language. The overlaid directionality points to a mental space entity to be associated with its semantic pole” (Liddell 2003:96).
In summary, a similar pattern seems to emerge with regard to the category of person encoded in pointing signs in signed languages:

1) Signed languages seem to have the grammatical category of personal pronouns since they have a stable sign that encodes the meaning ‘animate entity in the role of signer’, and its reference shifts depending on who uses it.

2) Signed languages seem to follow the same basic ego and non-ego distinction considered to underlie pronominal systems of most, if not all, spoken languages (Von Humboldt 1829 cited in Mühlhäuser & Harre 1990; Bühler 1982; Meier 1990; Mühlhäuser & Harre 1990).

3) The form of the pointing sign functioning as the first-person pronoun, produced by the index hand configuration directed towards the chest of the signer and making contact with it, seems to be a highly similar form in ASL, Danish Sign Language and Swedish Sign Language. The same is probably true for the forms of the pointing signs functioning as a non-first-person pronoun and produced by the index hand configuration directed outwards to an entity or location.

4.3 Pointing signs: The use of the index hand configuration in Greek Sign Language

In Greek Sign Language, as in other signed languages mentioned earlier, the index hand configuration constitutes an essential phonological element used in the formation of both deictic and non-deictic signs. All these signs, being conventional form-meaning combinations, are used in a systematic manner in Greek Sign Language. The only similarity that can be attributed to the pointing signs composed by the index hand configuration and paralinguistic, co-speech pointing gestures is the similarity in form. Pointing signs used in Greek Sign Language are true symbols, whereas pointing used with speech is not considered to have true linguistic status.

In Greek Sign Language, pointing signs may:

1) Refer to persons or other entities, belonging to the word category of pronouns or that of determiners combined with another nominal term. An example of such a sign is INDEX-self, which can be translated as “me” or “I” in English, or the sign INDEX-non-self, which can be translated as “he”, “she” and “it”.

2) Refer to locations, belonging to the word category of locative adverbs. An example of such a sign is INDEX-down, which in English can be translated as “here”.

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3) Refer to points in time being time adverbs. An example of such a sign is again the sign INDEX-down, which can be translated in English as “now”.

4) Denote activities, events or states belonging in the word category of verbs. An example of such a sign is the sign GO-THERE, which can be translated in English as “go to”.

The index hand configuration is also used for the formation of non-deictic signs: (a) in deictically motivated signs of body parts (e.g. EYE, LEG), denoting the part of the body indicated by the pointing sign, as a general concept, and (b) other (more or less motivated) signs such as LIE, DAY, THERMOMETER and many more.

Additionally, the index hand configuration is used in complex constructions, signs with verbal function denoting the movement or the location of an entity. In these cases, the index represents an entity and the movement represents the path that this entity follows or its location in space. For example an upward directed index finger is used to denote a person going away or coming close, or the location of a thin cylindrical object such as a telephone-pole.

Finally, in the communication that takes place in Greek Sign Language, the index hand configuration could probably, to a limited degree, be used as a paralinguistic gesture as it is also used in communication in spoken languages.

4.4 Person deixis in Greek Sign Language

The pronominal system of Greek Sign Language is characterised by the same egocentric organisation comprising a two-way distinction between first person and non-first person as found in other signed languages, e.g. ASL and Danish Sign Language (described in the previous section). Although pronouns in Greek Sign Language, unlike those of spoken Greek, do not make gender and case distinctions, they do encode a person distinction. The category of person is grammaticised because there is a sign with the meaning ‘animate entity in the role of signer’, and its reference changes according to the person who uses it or in respect to a quoted sender.

Focusing on the pointing signs that designate a singular number of referents, we observe two forms of pointing signs used to refer to people and other entities. In the present study, these two distinct pronominal signs are glossed as INDEX-self and INDEX-non-self in order to emphasise the central role that the index hand configuration has in their form, and their similarity in form with the pointing gesture.

The citation form of the sign INDEX-self is articulated by the index hand configuration directed towards the chest of the signer, making a single
contact at the chest (Logiadis-Logiadis 1985; Efthimiou et al. 2001). It is a true first-person singular pronoun because (a) it has a set form and a set meaning ‘animate entity in the role of signer’, and (b) its reference shifts, depending on who uses it. In other words, INDEX-self can only be used to refer to animate entities that have acquired the role of sender in a communicative act, and the reference changes depending on who the sender is. In addition, in reported speech, INDEX-self is used to refer either to the actual signer or to the quoted animate being. In that case, the same form may be used for two or more distinct animate beings interchangeably. Comparing the first-person pronoun with other pronouns in Danish Sign Language, Engberg-Pedersen writes: “No other form […] can be directed at one person and refer to somebody else” (1993a:135).

INDEX-self may occur with some variant forms, firstly in respect to the contact that the index finger may or may not have with the chest, and secondly in regard to the handshape where instead of the index finger, the signer may use a relaxed B-hand. Additionally, another form in which the extended thumb makes contact with the chest is used, although very rarely for first-person reference.

The pointing sign glossed as INDEX-non-self is a singular, pronominal form meaning ‘single entity other than the signer’. This entity may be animate or inanimate, and it may also be a location. INDEX-non-self is articulated by the index hand configuration directed outwards from the signer’s body, towards (the physical location of) a present entity or, in the case where the entity is not present, it may be directed towards a location in space that this entity may be associated with, for some reason. For example, a signer may refer to his father when he is present by pointing at him and, when he is not present, the signer may refer to him by pointing at his (father’s) chair, being a location in the physical space associated with him. The singular pronominal form INDEX-non-self can also be used anaphorically to pre-established directions in the signing space that represent non-present entities introduced earlier in the signing discourse, a process described also for other signed languages.

Adopting Engberg-Pedersen’s (1993a) argument about Danish Sign Language, the pronominal form INDEX-non-self, despite the different directions it may take, maintains the same meaning ‘entity other than self’ and therefore is not perceived as separate symbolic units by signers. Moreover, INDEX-non-self, even when referring to the addressee, does not encode the conversational role. The direction of eye gaze is not part of INDEX-non-self directed to addressees and, as in ASL and Danish Sign Language, it seems to be related to the entire signing event and is not specific to the pointing sign (Meier 1990; Engberg-Pedersen 1993a). In other words, in Greek Sign Language, as in ASL and in Danish Sign Language, the pointing sign translated as second-person pronoun cannot be distinguished from that translated as third-person pronoun.
In addition, being characterised by an “overlaid directionality” (Liddell, 2003:96), the pointing sign INDEX-non-self indicates without any ambiguity the entity: addressee or non-participant, or any other entity, as the referent of the pronoun (Lillo-Martin & Klima 1990; Liddell 2003). Indeed, the directionality seems to be basic, overlaid in the production of this pronominal pointing sign. It is a fundamental device that a visual-spatial language could not avoid exploiting, whether it is considered symbolic or not.

As for the form of the sign INDEX-non-self, the index finger normally does not touch the chest or any other body part of the referent, except occasionally in motherese signing, when signers address their own child, or for emphasis in informal signing among adults.

Finally, in Greek Sign Language there are other, honorific pronominal forms, all of which use a B handshape. These forms seem to be used in specific situations, for example, when in front of a large audience, when the referent is a person of high social status, when the signer aims to attribute high status to the person he is referring to, or when the referent is a metaphysical entity or in poetry. Additionally, in everyday communication, the use of the B handshape rather than the index hand configuration in referring to an addressee can be interpreted more as a gesture than as a true linguistic symbol.

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21 The directional aspect is overlaid in the production of other signs as well, belonging to different word categories (see Liddell 2000, 2003).
22 Petitto (1984, 1987) mentions some similar observations in ASL concerning the language used by mothers when addressing their children.
CHAPTER 5

The Use of Pointing by Hearing Children and the Acquisition of Personal Pronouns in Spoken Languages

5.1 The use of pointing by hearing children

Regarding hearing children’s language acquisition, it is evident that the communicative function of language first emerges in children’s early gestures long before the occurrence of the first words in their production (Bates et al. 1975; Bruner 1975a, b; Bates 1976; Acredolo & Goodwyn 1988; Laasko 1999; Laasko et al. 1999; Guidetti 2002). In particular, due to its special role in the indication of objects, the use of pointing during the early communicative period and the emergence of the referential function have been considered a fundamental accomplishment, a milestone in the process of language acquisition (e.g. Werner & Kaplan 1963; Bruner 1975a, b; Bates et al. 1979; Leung & Rheingold 1981; Goldfield 1990; Goodhart & Baron-Cohen 1993; Blake et al. 1994; Franco & Butterworth 1996; Rowe 2000; Franco & Gagliano 2001; Guidetti 2002; Butterworth 2003; Blake et al. 2003; Rodrigo et al. 2004). Butterworth expresses the importance of the pointing gesture in children’s communication nicely by stating that “pointing is the royal road to language for babies” (2003:9).

From 9 to 24 months of age, the pointing gesture i.e. the simultaneous extension or half-extension of the arm and the index towards a specific target, is one of the most frequently occurring deictic gestures in hearing children’s interaction with adults (Iverson et al. 1994; Capirci et al. 1996; Franco & Butterworth 1996; Guidetti 2002). Pointing appears spontaneously in hearing children’s communication at the end of the first year (Masur 1994; Butterworth & Morissette 1996), with some researchers claiming that it first appears between the ages of 9 and 12 months and others between the 12th and 14th months (Werner & Kaplan 1963; Bates et al. 1975; Bates et al. 1979; Blake et al. 1994; Masur 1994; Lock et al. 1994; Butterworth & Morissette 1996). Bruner (1983) mentions that one of the two children he studied started to use pointing at 10 months whereas the other began at 13 months. The number of pointing gestures produced by hearing children
increases with age, in particular between 14 and 24 months (Greenfield & Smith 1976; Murphy 1978; Lock et al. 1994; Guidetti 2002).

5.1.1 The origin of the pointing gesture

With regard to the origin of pointing, three different hypotheses have been put forth (Lock et al. 1994):

1) According to the first hypothesis, pointing initially appears as a non-communicative gesture for the investigation of objects in the child’s environment from which first reference will eventually emerge (Werner & Kaplan 1963).

2) According to the second hypothesis, pointing appears in communication as a result of the child’s unsuccessful attempts for reaching and taking an object (Vygotsky 1966; Murphy & Messer 1977; Leung & Rheingold 1981).

3) According to the third hypothesis, pointing first appears as an imitation of parents’ pointing gestures produced as a means of confirming children’s intentions during interaction (Leung & Rheingold 1981; Kaye 1982).

Considering the empirical findings regarding the origin of pointing, most of the studies support the first hypothesis (Bates et al. 1975; Bates 1976; Bates et al. 1979; Lock et al. 1994; Franco & Butterworth 1996), associating pointing with the declarative communicative function and dissociating it from the gestures that children use for reaching and taking objects. According to these researchers, early pointing is initially produced for the self and for the investigation of objects, gradually starting to be used as a new means with clear social intent by the toddler.

The second hypothesis seems to be only supported in Murphy & Messer’s (1977) study on the comprehension of pointing by hearing children, whereas Leung & Rheingold (1981) seem to maintain both the second and third hypotheses, mentioning that pointing substitutes the gesture that children produce for reaching an object but attribute its origin to the imitation of adult’s behaviour.

Bruner (1983) stresses the social aspect of pointing and the fundamental role it plays for the emergence of reference (Ninio & Bruner 1978; Bruner 1983). Studying the language acquired by two children, he writes “[i]t seems more likely that pointing is part of a primitive marking system for singling out the noteworthy” (1983:75). Pointing is a social act in which two or more interlocutors negotiate on a common topic.

Bruner does not relate the emergence of pointing with the gestures used for obtaining an object. He writes that reaching gestures appear in the repertoire of the children in his study at the age of eight months and are used
more or less as true actions by them. These gestures are initially produced with the arm extended toward an object as the rest of the body leans forward, and the child’s effort to obtain the object is obvious. Later on, the same gestures acquire a more arbitrary symbolic form, performed with an open hand without any indication of effort and combined with vocalizations that gradually become specific, indicating the desirable object as being the child’s target. Through the use of detailed descriptions, Bruner strongly argues that reaching gestures have nothing to do with the conventional gesture of pointing and that only much later will pointing be combined with other elements for making requests in the language of the child.

5.1.2 The relation of pointing with language

The role of pointing before the occurrence of true symbols has been considered to be of fundamental importance for children’s early communicative and symbolic development. Based on two classic diary studies, Werner & Kaplan (1963) were among the first researchers to relate the appearance of pointing in the toddler’s communication to the emergence of reference, considering it as a precursor to a child’s first words. Pointing is not correlated with the “grasping gesture” (1963:78) produced for obtaining an object which results in the integration of the objects to self, but on the contrary, pointing contributes to the cognitive process of differentiating, distancing self from objects in the child’s environment. The index finger directed outwards, indicates an object located somewhere in space, at a distance from self (1963:43, 79). Objects become “objects of contemplation” (1963:43-44, 67, 69). The act of reference with pointing emerges, as a social act in the context of sharing experience with others, acquiring a declarative function. The adult is called to take part in the consideration of the objects as objects of contemplation. According to Werner & Kaplan, pointing is a specialised means for the expression of reference.

Aligned with Werner & Kaplan (1963), and searching for continuities between non-verbal and verbal communication, Bates and her colleagues also maintain that the role of pointing is decisive for the emergence of reference (Bates et al. 1975; Bates 1976; Bates et al. 1979). According to the latter, the first occurrence of pointing is placed out of any communicative context. The children that took part in their study initially used pointing when they were alone in a room, not knowing about the presence of the adult watching them. This pointing gesture, which the authors have called “pointing-for-self” (Bates et al. 1975:217), functions as a means of attracting the child’s attention to the object and investigating it (Bates 1976). In Bates and her colleagues’ findings, non-communicative pointing is positively correlated with language acquisition, confirming its importance “for an

23 For which Bruner uses the term “pure point” (1983:93).
understanding of the concept of reference” (Bates et al. 1979:112). At the end of the first year, communicative pointing is used for referring to objects or events accompanied with some vocalizations, something also reported by Werner & Kaplan (1963).

Bates and her colleagues define the existence of communicative intention in toddlers’ primary gestures – and therefore in early pointing as well – with regard to the pre-established knowledge that toddlers have about the results that their gestures as signals may bring on their interlocutor’s behaviour (Bates et al. 1979:36). One behaviour that has been considered as a criterion for the attribution of communicative intention in toddlers’ early use of pointing is the alternation of the child’s gaze between target (object or event) and adult, as long as the pointing gesture is performed (Franco & Butterworth 1996). However, as Bates and her colleagues (1979:352) note, this does not mean that all intended communicative acts presuppose the occurrence of this specific behaviour. With regard to gaze behaviour, many researchers argue that the absence of checking the adult’s attention (by gaze alternation from the toddler’s side) cannot be considered as a reliable indication that the child’s production does not have communicative intention (Lock et al. 1994; Blake et al. 1994; Reddy 1999). For example, in many cases when toddlers are very close to adults, they do not check for the adult’s attention because they are sure that they have it (Reddy 1999). Nevertheless, Franco & Butterworth (1996) have observed a developmental change from checking adult’s attention after pointing, to checking adult’s attention before pointing. This behaviour indicates a more elaborate understanding of the social prerequisites that are demanded for pointing to be successful.

According to Bates and her colleagues, early communicative pointing is used with imperative and declarative function in children’s productions (Bates et al. 1975; Bates 1976; Bates et al. 1979). Based on the definition of the imperative function in language, they attribute to children’s utterances what they refer to as “proto-imperative” function, when the adult is used as a mediator or as a means for the accomplishment of the child’s aim. Likewise, according to the definition of declarative function in language and considering that, at this age, it is not possible to differentiate between offering information and asking for attention, they attribute “proto-declarative” function to children’s utterances when they try to attract the adult’s or the interlocutor’s attention, indicating an object or an event. They note that the reasons for which children initially are involved in declarative acts “[i]f [one] before [they] can understand the utilitarian value of sharing information” are mainly social (Bates et al. 1975:209). Toddlers’ early

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24 Bates and her colleagues describe other behaviours as well, that show communicative intention in children’s production, such as additions and substitutions of signals until the target is attained, or changes in the form of the signal itself in order for it to become more appropriate for the accomplishment of a specific aim.
interaction with adults generally has the character of sharing experience with others rather than transferring a message (Werner & Kaplan 1963:43).

According to Bruner (1983), the interrogative function in a child’s language evolves from imperative function (a similar correlation of these two functions is also found in Lyons 1977, 1995).

In the findings of Bates et al. (1975), the proto-imperative and proto-declarative functions of pointing emerge in children’s interaction during the same period with neither preceding the other. In their investigating material, Franco & Butterworth (1996) also mention the occurrence of pointing with proto-declarative function from early on, occurring at the age of 12 months.

Comparing these two functions of early pointing in children’s production, some researchers have argued that proto-declarative function in communication presupposes the acquisition of more complex cognitive capacities. These capacities are related to two basic concepts: (a) human beings are subjects with a “mind” – i.e. understanding of the mental processes of other people – and (b) objects are objects of contemplation (Baron-Cohen 1991; Camaioni 1993; Gomez et al. 1993; Franco & Butterworth 1996). In particular, Camaioni (1993:93) has claimed that the emergence of the declarative function in children’s language, apart from demanding: (a) an ability to coordinate person-object orientation by toddlers; (b) an ability to perceive others as agents (agency); and (c) an ability to use distal means of interaction by which children can influence adults’ behaviour even when they are not very close to them (signalling), requires the concept of subjectivity, or perceiving others as independent psychological subjects. Likewise, Franco & Butterworth (1996) observed that proto-declarative pointing is more closely related with checking an adult’s attention, and concluded that, for this particular function, a specific awareness or understanding of the other’s internal state is necessary, something that autistic children are not able to do (1996:333). Baron-Cohen (1991) has also argued on the same idea, based on her studies of the pointing gesture of autistic children, according to which pointing emerges only with proto-imperative function (Baron-Cohen 1989, 1991; Goodhart & Baron-Cohen 1993). Findings about apes can also be used for supporting the difference between proto-declarative and proto-imperative pointing, since proto-declarative gestures do not occur in the communication of chimpanzees (Gomez 1991; Gomez et al. 1993), although they use an almost equivalent gesture with imperative function to ask for something (Povinnelli et al. 1992; Gomez et al. 1993).25

A different view is presented by Perner (1991), who considers that proto-declarative function in toddlers’ communication can be seen as another form

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25 However, researchers estimate that even in the proto-imperative communicative acts of apes, one can find some element of understanding of mind-knowledge.
of proto-imperative function, which does not need anything more than the simple cognitive schema of means-ends knowledge to be acquired.

Regarding as problematic the view that proto-declarative function demands more complex cognitive skills to be acquired, Reddy (1999) proposed that children’s motives for producing proto-declarative pointing include surprise at unexpected events, immediate perception of an object or event as noteworthy, family routines concerning particular objects and events, and communicative acts that aim to “break the ice” with strangers.

Except for proto-declarative and proto-imperative function accomplished by communicative pointing, Bates and her colleagues found that pointing is correlated with language, constituting a very important precursor of children’s first lexicon, due to its use for indicating external objects and events, much more than any other gesture that children use in this early period of development (Bates et al. 1979). Based on their findings, they argue that communicative gestures and language, and especially pointing and language, are interrelated through a common underlying base in regard to communication and reference, both at the level of comprehension and production (Bates et al. 1979:112).

The findings of Bates and her colleagues led to a series of new studies concerning communicative pointing that showed that its relation with language seems to be special enough, although, in some cases, there is no obvious correlation between the two. In particular, no obvious link has been found between the production of pointing by hearing children and their linguistic development (Dobrich & Scarborough 1984; Butterworth & Morissette 1996; Blake et al. 2003). Comparing a group of children with high linguistic achievements and one with low linguistic achievements at the age of 24 months, Dobrich & Scarborough (1984) did not find differences in the frequency of occurrence of pointing between the two groups. Similarly in Blake et al.’s (2003) study of the development of communicative gestures in Japanese infants, the use of pointing did not seem to be related to the size of the early vocabulary of children. Additionally, Butterworth & Morissette (1996) found no relation between the age at which pointing emerges and that of the production and comprehension of first words.

However, most of the studies conducted in recent years have confirmed Bates and her colleagues’ hypothesis concerning the positive relation found between the use of pointing gesture and language. In more detail, Goldfield (1990) and Harris et al. (1995) found that pointing was related to the early lexicon of children in their study. Comparing a group of children with a high percentage of nouns in their vocabulary (high referential group) with a group of children with less nouns and more varied vocabulary (low referential group), Goldfield (1990) found that the first group’s referential behaviour showed a significant increase between 14 and 20 months of age, and that the children belonging in the high referential group produced many more pointing gestures than those in the low referential group.
Harris et al. (1995) have also shown a positive correlation between the first occurrence of pointing and the understanding of the first names for objects. A similar correlation is not evidenced between pointing and comprehension of vocabulary in general.

Comparing pointing with other gestures in an experimental study in which 47 children aged 12–18 months participated, Franco & Butterworth (1996) observed that proto-declarative pointing is related more with checking adult’s attention than proto-imperative pointing is, and they concluded that proto-declarative pointing “seems to imply consideration of somebody else’s internal state” (1996:333) and is therefore related to language development.

Studying the development of gestural and verbal deixis and the functions they serve in Spanish infants and toddlers’ communication, Rodrigo et al. (2004) also claim that pointing plays a fundamental role in the emergence of language, particularly in its referential function.

5.1.3 Comprehension of pointing by hearing children

Another issue related to the linguistic development of hearing children concerns their comprehension of pointing gestures. Most studies agree that the ability to comprehend pointing starts to develop one or two months before production (Bruner 1983:75), typically at 9 or 10 months (Murphy & Messer 1977). However, the extent that children identify the referents at which the adult’s index finger is directed is related to the distance and the location of the referents inside or outside of the children’s visual field. At the beginning, comprehension seems to be limited only to the pointing gestures directed towards locations or objects in the child’s visual field (Franco & Butterworth 1996). Murphy & Messer (1977) note that toddlers at 9 months are able to find the referent of pointing gestures only if it is in the same visual field as the adult’s index finger. At 14 months of age, children are able to detect the referent of a pointing gesture even if it is not in the same visual field as the adult’s index finger. Besides, in children’s production, pointing to proximal objects or locations seems to precede pointing to distal objects, the latter being considered as an extension of the former (Lock et al. 1994). Additionally, at 9 months, a toddler looking at his or her mother’s hands while she points constitutes a clear indication that infants have not yet understood the directive nature of pointing. However, they gradually start to comprehend the act (Murphy & Messer 1977). Even after the first year, toddlers seem to face some problems in finding specific targets that adults point at when the targets are at the boundaries of children’s visual fields or beyond (Butterworth & Grover 1988).

Conclusively, comprehension and production of pointing emerge together step by step, suggesting that the well-known schema “comprehension
precedes production” constitutes a developmental process that in fact has to do with the continuous reformation of first perceptions through experience.

5.1.4 The referents of children’s pointing gesture

In general, until today, pointing has not yet been investigated in relation to reference to persons and the emergence of personal pronouns in spoken language acquisition. The studies mentioned above have mainly investigated the functions of communicative pointing and its relation with language development. The issue concerning the specific entities – animate or inanimate – that can become referents of the pointing gesture has not yet attracted the interest of researchers. In most of these studies, the specific objects, events and – occasionally – locations that children point at are rarely discussed to any extent. The only specific information found in the literature about the entities hearing children refer to through the act of pointing comes from Caselli et al. (1983), who note that the emergence of pointing at self by hearing children takes place between the 20th and 24th month, when they have already started to produce the first-person pronoun, and not before that. Referring to personal communication with Elizabeth Bates, Petitto (1984:69-70) mentions that hearing children do not point at themselves at 12 months of age, but later, when they have already acquired personal pronouns.

An interesting observation about pointing gestures referring to non-present objects in children’s production is made in Bruner (1983). Bruner observed that children participating in his study referred to non-present objects, either to them specifically or to their location, by pointing at a location where that object normally was located (1983:76, 98).

5.1.5 Combination of pointing with other gestures or words

Two months after pointing has appeared in hearing children’s language, and while their early lexicon is expanding, pointing occurs in combination with:

1) Other gestures, deictic or symbolic (Goldin-Meadow & Morford 1985, 1994; Caselli & Volterra 1994; Capirci et al. 1996).
2) Deictic words (Werner & Kaplan 1963; Greenfield & Smith 1976; Clark 1978; Bruner 1983; Rodrigo et al. 2004).
3) Non-deictic words, mainly names of objects, and others (Greenfield & Smith 1976; Clark 1978;Caselli & Volterra 1994; Masur 1994; Goldin-Meadow & Morford 1985, 1994; Goldin-Meadow & Butcher 2003; Rodrigo et al. 2004). Masur (1994), confirming findings of previous studies, mentions that with respect to the categories of words combined with pointing, names of objects are the most frequent words, a fact that stresses the referential character of pointing.
In general, when pointing is combined with one word: (a) both may have the same reference conveying the same information as, for example, when a child points at her doll saying at the same time “baby”, or (b) they may have different reference/meaning, conveying different kinds of information as, for example, when a child points at her doll and says “out” (Goldin-Meadow & Morford 1994; Goldin-Meadow & Butcher 2003). According to Goldin-Meadow & Butcher the emergence of first gesture-word combinations where both elements convey almost the same information – and pointing is one of the most frequent gestures combined with words – constitutes the first step before the emergence of gesture-word combinations where each element conveys different information. The latter are, in turn, precursors of two-word utterances in children’s language. A similar observation has been made by Capirci et al. (1996), according to whom gesture-word combinations at 16 months have significant correlation with the emergence of two-word utterances and therefore with the development of children’s language at 20 months. In summary, the ability of children to combine two gestures, i.e. two concepts, seems to precede their ability to combine two true symbolic items (Masur 1994; Capirci et al. 1996). Gesture-word combinations appear to play a key role in the transition towards two-word utterances as a necessary intermediate state (Volterra & Iverson 1995).

5.2 The acquisition of personal pronouns in spoken languages

5.2.1 The emergence of personal pronouns

Reference to self and others by using common nouns, names or deictic terms, such as personal pronouns, constitutes an essential step in children’s language acquisition. Reference to others with proper names or common nouns comes before reference to self (Cooley 1908; Strayer 1977; Oshima-Takane 1988).

Personal pronouns used for reference to self first appear in the lexicon of hearing toddlers in the middle of the second year, after 18 months (Clark 1978; Fenson et al. 1994). Chronologically, the emergence of first-person pronouns in toddlers’ language coincides with the period in which they begin to produce longer utterances combining one gesture with one word or two words, one “deictic” and one “referential” word. Combinations of two words may also be accompanied with pointing (Clark 1978; Capirci et al. 1996; Rodrigo et al. 2004). For example in this period, toddlers produce utterances such as pointing + “shoe”, pointing + “da” (‘that’), and pointing + “da shoe” (‘that shoe’) (Clark 1978: 96-97)
Maratsos (1979:230) notes that when the Mean Length of Utterance (MLU)\textsuperscript{26} of toddlers’ language is almost 2.5, the pronominal expressions constitute 80% of the initial nominal phrases used for reference to persons and objects in the environment.

At the age of 18 to 20 months, hearing toddlers begin to use the first-person pronoun (Cooley 1908; Charney 1980; Oshima-Takane 1988; Girouard et al. 1997). However, pronominal reference to persons other than self, namely the production of the second-person pronoun, emerges two or three months later, after the emergence of reference to self with the first-person pronoun. This is despite the fact that reference to interlocutors by proper names or common nouns such as “mummy”, “daddy”, etc., have come before reference to self (Huxley 1970; Clark 1978; Chiat 1982; Rom & Dgani 1985; Girouard et al. 1997; Ricard et al. 1999). Finally, the use of the third-person pronoun for reference to persons not participating in the communicative act, present or not, comes last (Huxley 1970; Deutsch & Pechmann 1978; Charney 1980; Girouard et al. 1997).

Reference to self by the first-person pronoun does not emerge in toddlers’ language abruptly. The use of a toddler’s proper name, or the use of common nouns such as “baby”, “boy”, etc., before the emergence of the first-person pronoun, or at least at the beginning parallel to it, is mentioned in the literature as an alternative way for reference to self and is interpreted either as a transitional phase before the acquisition of personal pronouns or as an attempt to avoid errors when toddlers are referring to themselves (Cooley 1908; Huxley 1970; Strayer 1977; Clark 1978; Charney 1980; Chiat 1981, 1982; Schiff-Myers 1983; Rom & Dgani 1985; Oshima-Takane 1988). In cases where a proper name is used, it represents the person himself or herself as a physical entity. In contrast, the early use of the first-person pronoun seems to be more vague (Cooley 1908:341-342; Charney 1980:526).

With respect to English, many researchers consider that before the first-person pronoun becomes productive in hearing toddlers’ lexicon, it is integrated in formulaic, unanalysed utterances such as “I see”, “I do”, “gi’t to me” (Cooley 1908:347, 349). In these cases the lexical item “I” is not separated from the rest of the utterance but functions as a whole, and the referential function of “I” to self is not clear (Cooley 1908; Clark 1978; Charney 1980; Loveland 1984). In such unanalysed utterances, the pronominal term is used as part of the action in which the child is involved (Charney 1980). These formulaic forms arise in the toddlers’ language as imitations of adult utterances, which are commonly used when addressing the child (Cooley 1908; Clark 1978; Charney 1980). Personal pronouns are finally acquired by hearing children at the age of three, when toddlers

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\textsuperscript{26} MLU: “The average length of the utterances produced by a child, usually counted in morphemes, not in words, so that I dranked it would have a length of 4” (Trask 1997:139).
understand and produce all pronominal words correctly (Clark 1978; Charney 1980; Chiat 1982, 1986; Oshima-Takane et al. 1999).

5.2.2 Explanatory hypotheses

The order by which the first-, second- and third-person pronouns emerge in hearing toddlers’ language confirms the semantic complexity hypothesis (Deutsch & Pechmann 1978). Semantic complexity has to do with the number of persons referred to, a person’s role (speaker, addressee, non-participant), and the relations of proximity and distance between participants and non-participants. Nevertheless, this specific hypothesis is not adequate to account for the meaning with which personal pronouns are used by hearing toddlers.

The difficulty that hearing toddlers face in the acquisition, comprehension and production of personal pronouns, compared to the acquisition of common nouns and names, is due mainly to the continual shift of reference that pronominal terms undergo in accordance to the roles of participants in a communicative situation. Namely, the reference of first- and second-person pronouns shifts as speakers change in a communicative situation. In contrast, the referent of a proper name such as “John” or of a common noun such as “man” in a specific communicative situation usually does not change, being independent of the speaker.

In order to comprehend completely the correct use of personal pronouns, toddlers should be able to take information not only from language addressed to them, but also from language that adults use among themselves (Oshima-Takane 1988, 1992; Oshima-Takane et al. 1993; Oshima-Takane et al. 1999). Toddlers’ inability to comprehend personal pronouns in adults’ language during the initial period of their use is confirmed by the studies investigating the understanding of shifting reference (Oshima-Takane 1992; Girouard et al. 1997).

Research on the acquisition of personal pronouns has focused on the comprehension of the shifting reference of these forms. So, one can ask, what is the meaning of personal pronouns in hearing toddlers’ early lexicon? Are personal pronouns used by children in the same way as in adults’ language? In an effort to answer the questions above, researchers investigated the following:

1) The gradual acquisition of first-, second- and third-person pronoun in a toddler’s lexicon, the delay of the second- and third-person production in regard to first-person production, and the inconsistencies observed in timing between comprehension and production of pronominal terms (Charney 1980; Chiat 1981, 1982; Girouard et al. 1997; Ricard et al. 1999).
2) Reversal errors between first- and second-person pronoun “I” and “you” which are sometimes observed in toddlers’ language (Clark 1978; Charney 1980; Chiat 1981)

As shown in studies of children’s acquisition of English (Shipley & Shipley 1969; Strayer 1977; Clark 1978; Charney 1980; Bretherton et al. 1981; Chiat 1981), of French (Girouard et al. 1997; Ricard et al. 1999) and of Hebrew (Rom & Dgani 1985), the emergence of the first-person pronoun before the emergence of the second-person pronoun in hearing children’s language seems to be a common phenomenon. However, the fact that the second-person pronoun production is delayed compared to the first-person production, is not compatible with the coincidence observed in the time of comprehension of the above two terms by toddlers (Chiat 1982; Girouard et al. 1997).

An additional issue mentioned in most studies investigating the production of personal pronouns is the reversal of first- and second-person pronouns (Cooley 1908; Clark 1978; Charney 1980; Oshima-Takane 1992; Oshima-Takane et al. 1993; Girouard et al. 1997), and sometimes between first- and third-person pronouns (Cooley 1908; Charney 1980; Chiat 1982). However, besides the individual differences of toddlers’ pronominal production, the performance of pronominal reversal errors is non-systematic in children’s language (Cooley 1908; Bloom et al. 1975; Clark 1978; Maratsos 1979; Charney 1980; Macnamara 1982; Oshima-Takane 1992), even in those cases where these kinds of errors occur frequently (Chiat 1981, 1982; Oshima-Takane 1992; Oshima-Takane et al. 1993).

In order to interpret the above-mentioned empirical evidence, and to answer the questions concerning the meaning and reference of personal pronouns in hearing toddlers’ early lexicon, three hypotheses have been formulated. According to the “role-hypothesis”, toddlers correctly use the first- and second-person pronouns from the beginning to refer to persons in accordance with their role in a communicative situation as adults do (Shipley & Shipley 1969; Huxley 1970; Sharpless 1974; Nelson 1975; Macnamara 1982). The role-hypothesis, also referred to as the hypothesis of the correct use of personal pronouns, states that reversal errors made by toddlers are very few, because they acquire the semantic features of personal pronouns correctly from the beginning.

An alternative formulation of the first hypothesis (Girouard et al. 1997) is the hypothesis of the different pragmatic functions of personal pronouns in the toddler’s language (Chiat 1981, 1982, see also 1986). Chiat studied the errors made by 48 children in their spontaneous use of pronouns (1981) and the reversal errors made by one pronoun-reversing toddler (1982).

27 An alternative term is “speech-role-referring” hypothesis (Chiat 1981:81; Charney 1980:510).
Considering the non-systematic occurrence of reversal errors\(^{28}\) of the pronoun-reversing toddler, and also the inconsistencies with regard to production and comprehension of “I” and “you”, Chiat precluded the possibility that the use of personal pronouns is overextended at the beginning, and she pointed out that her data could neither permit a clear interpretation concerning a non-deictic use of pronominal terms nor exclude those hypotheses that attribute underextension in their use by children. She concluded that personal pronouns function in two ways in hearing toddlers’ language: in those cases where toddlers do not make reversal errors, personal pronouns are used by them, as they are used by adults, while in cases that reversal errors are observed, reversed pronouns express a change in the perspective of the speaker towards the perspective of addressee.

The next two hypotheses concerning the initial meaning and the use of personal pronouns in hearing toddlers’ early lexicon are the “name hypothesis” (Clark 1978:100) and the “person-role hypothesis” (Charney 1980).\(^{29}\) The common ground of these two assumptions is that, at the beginning, the deictic lexical items “I” and “you” are not used in the toddlers’ vocabulary in the same way as they are used in adults’ language, although in the case of person-role hypothesis their use is overtly correct (Charney 1980; Oshima-Takane 1988; Girouard et al. 1997).

Clark (1978) was the first to put forward the name hypothesis, proposing that it applies only in the case of children who perform pronominal reversal errors; for other children, she claimed that the hypothesis of the correct use of personal pronouns applied from the beginning. According to the name hypothesis, children who make reversal errors do not use personal pronouns as deictic lexical items but instead use them as proper names. In these cases “I” denotes the adult, usually the mother, and “you” constitutes a name for the child him- or herself.

The name hypothesis has also been adopted by Oshima-Takane (1988, 1992), Oshima-Takane et al. (1993) and Oshima-Takane et al. (1999) in a series of studies in which the researchers examined some cases of hearing and deaf toddlers by collecting naturalistic and experimental data in relation to comprehension and production of personal pronouns in English. The conclusion of these studies was that the non-systematic reversal errors observed in their subjects’ production can be attributed to the semantic confusion toddlers have in regard to personal pronoun reference. The deictic lexical items “I” and “you” become understandable by toddlers as a specific kind of name, due to the difficulty they face in reaching conclusions when following the language used among adults that is not addressed to them. The

\(^{28}\) Since these errors seem to differ with respect to the context in which they appear, Chiat in her first study characterises this phenomenon as “context-specificity of children’s [pronominal] errors” (1981:77).

\(^{29}\) An alternative term is “person-in-speech-role-referring” hypothesis (Charney 1980:510).
name hypothesis has also been partially confirmed by a comparative study on the acquisition of personal pronouns by French- and English-speaking children (Girouard et al. 1997).

However, the main argument against the name hypothesis is that, if toddlers use “I” and “you” as proper names for adult and self respectively, then the reversal errors made by them would have a systematic character, a fact which is not confirmed by most of the empirical findings (Charney 1980; Chiat 1982; Girouard et al. 1997).

The third hypothesis, the person-role hypothesis, suggests that at the beginning, toddlers use the personal pronoun correctly only in referring to themselves (Charney 1980; Girouard et al. 1997). In her study on comprehension and production of personal pronouns, Charney (1980) concluded that initially toddlers use personal pronouns in order to refer to those roles that they themselves take in a communicative situation, learning first the correct use of the first-person pronoun when they themselves have the role of the speaker and then the correct use of the second-person pronoun when they have the role of the addressee. In terms of this assumption, the shifting reference of “I” and “you” to persons according to their role in the communication has not been comprehended in the first phase of their use. In a comparative study on the acquisition of personal pronouns by hearing French and English speaking children, Girouard, et al. (1997) reported that their findings confirmed the person-role hypothesis in the case of the first-person pronoun.

What has to be noted regarding the name hypothesis and the person-role hypothesis is that at the beginning, the scope of reference and the meaning of personal pronouns in toddlers’ language are underextended, compared to these forms in the adult lexicon. According to both hypotheses, the meaning of personal pronouns in the early lexicon of toddlers is concrete. However, according to the name hypothesis, their use is reversed and incorrect, whereas, according to the person-role hypothesis, personal pronouns are used correctly but in a selective manner that holds the possibility for some sporadic, non-systematic errors.

Finally, according to the name hypothesis and the person-role hypothesis, the period of using personal pronouns with underextended reference is considered as a transitional stage before the correct use of the terms. The existence of this transitional stage of semantic confusion (Oshima-Takane et al. 1993; Girouard et al. 1997; Oshima-Takane et al. 1999) in the use of personal pronouns seems to be confirmed by most studies, independently of the interpretation which has been given in regard to it.

In addition to the hypotheses about the first reference and the meaning of personal pronouns in toddlers’ vocabulary presented above, some assumptions have been made in regard to those parameters that are prerequisites at the cognitive level for their emergence and correct use by toddlers.
Loveland (1984) was the first to examine the relationship between the gradual acquisition of first- and second-person pronouns and the emerging skills of toddlers to take into account the other’s perspective. Her conclusions were that understanding the different “visual/spatial relations among persons” (1984:555) constitutes a cognitive prerequisite for the understanding of the other’s perspective as speaker, which in turn is a prerequisite for the correct use of personal pronouns.

Recently, Ricard et al. (1999) reexamined the relation between the toddlers’ emergent capacity of understanding different visual perspectives and the comprehension and production of personal pronouns, extending Girouard and colleagues’ previous comparative study of French- and English-speaking children (Girouard et al. 1997) and that of Loveland (1984) as well. They showed that the ability of toddlers to comprehend the visual perspective of others and the acquisition of personal pronouns are positively correlated. In particular, they suggest the existence of a reciprocal relationship between cognitive ability and linguistic performance, according to which the capacity for taking perspective is not only a prerequisite for the early use of personal pronouns but is probably facilitated by it as well: “the link between perspective taking and pronoun acquisition should be seen as a reciprocal and continuous interaction, rather than a causal, unidirectional, or linear relation” (Ricard et al. 1999:694).

Oshima-Takane et al. (1999), in a study concerning learning of personal pronouns from a network model,30 reached the conclusion that what is pre-required for the comprehension and production of personal pronouns is the building of the concept of ‘man’, or in other words the recognition of persons, including self, as members of the kind called ‘man’.

Summing up, in the acquisition of personal pronouns by hearing toddlers the following similarities have been observed: (a) the order of production and acquisition of the first- and second-person personal pronoun, (b) the existence of non-systematic pronominal reversal errors, and (c) the existence of a transitional stage before the proper use of personal pronouns. The existence of significant individual differences, however, makes it difficult to generalise the conclusions drawn by the above studies in relation to the different hypotheses formulated. Nevertheless, in an overall evaluation of the findings, most of the studies seem to show that the initial meaning and reference of personal pronouns in the early lexicon of toddlers differ from those in the adult lexicon.

30 Computer-simulation models were used for investigating the prerequisite knowledge needed for learning first- and second-person pronouns and how non-addressed speech facilitates in the process of personal pronoun acquisition.
CHAPTER 6

The Use of Pointing by Deaf Children of Deaf Parents and the Acquisition of Pronominal Pointing Signs Referring to Persons and Self

6.1 Pointing used by deaf children exposed to signed languages

As shown in the previous chapter, pointing has been considered probably the most important gesture from which language gradually develops (Werner & Kaplan 1963). At the end of the first year, the emergence of pointing directed to entities constitutes a hallmark in the process of language acquisition. Research on the use of pointing in the early communicative period has mainly concerned the relation of the pointing gesture to spoken language acquisition and the emergence of first reference. In contrast, research on sign language acquisition has focused on pointing in relation to the acquisition of pronominal pointing used for reference to persons and self. The only findings reported in the literature about pointing and its relation to early lexical development in acquisition of signed language are from a study on ASL (Folven et al. 1984/85), according to which the communicative pointing gesture seems to be positively correlated with the size of deaf children’s early lexicon.

6.2 The acquisition of the index handshape – G handshape – by deaf children exposed to signed language

The index handshape (G handshape) is among the first handshapes acquired by children acquiring a signed language. This is to be expected taking into account the development of toddlers’ motor skills during the first year. In an
early study on the acquisition of handshapes in ASL, Boyes Braem (1994)\textsuperscript{31} formulated a hypothesis according to which the acquisition of handshapes by children acquiring ASL takes place in four stages. Boyes Braem considered as primary factors the anatomical and the cognitive factors of the positional order of fingers, as children gradually acquire physical control of their fingers after eight months. The anatomy of the hand plays a fundamental role because it controls the degree of independence of finger movement. Handshapes G and L,\textsuperscript{32} used for pointing in deaf children’s early communication, are two of the seven handshapes\textsuperscript{33} that emerge in the first stage in the acquisition of handshapes.

G constitutes the typical handshape for pointing and is one of the most frequent occurring handshapes both in children’s language as well as that of adults (Engberg-Petersen 1993a, b; Boyes Braem 1994; Conlin et al. 2000; Kourbetris & Hoffmeister in press). However, due to a factor called the “sympathetic thumb extension”\textsuperscript{34} (Boyes Braem 1994:118, 121), the G handshape may be substituted by an L handshape in children’s spontaneous expressive language suggesting that the L handshape comes before G handshape in the ontogenetic process. Boyes Braem comments that it would be interesting to observe children’s early pointing in order to find out if it is firstly formed with a loose L rather than with the G handshape that is considered the typical handshape of pointing signs. In the present study the form of pointing is closely observed in order to find out if there are changes correlated to its linguistic status as the child gradually moves from early communicative pointing to linguistic pointing.

Boyes Braem’s model of handshape acquisition is supported by McIntire’s (1977) findings about the acquisition of ASL hand configurations, and by those obtained in a study about early phonological development of deaf children exposed to ASL (Conlin et al. 2000). Additionally, Carter (1981, cited in Boyes Braem 1994) studying a deaf child of 25 months of age exposed to another sign language, BSL, found that the handshapes acquired by the child at that age were similar to those in the first stage, as proposed by Boyes Braem. However, findings on the acquisition of Norwegian Sign Language show that at earlier stages, the B handshape was used more

\textsuperscript{31} “This is a report of an unpublished pilot study (Boyes Braem 1973) in which hypotheses about stages of acquisition of the handshapes of American Sign Language (ASL) are proposed and are tested against data from one deaf child. The data come from a videotape made by Dr. Ursula Bellugi at Salk Institute (San Diego, Ca.) of a congenitally deaf daughter of deaf parents fluent in ASL. The child was 2; 7 years old at the time of this taping” (1994:107).

\textsuperscript{32} \( \hat{a} \), \( \hat{c} \) respectively.

\textsuperscript{33} The other five handshapes are A, S, B, O, and C (Boyes Braem 1994:111-112).

\textsuperscript{34} Being one of the six secondary factors that, according to Boyes Braem, affect the way that handshapes are articulated by deaf children in spontaneous signing.
frequently than the 5 handshape, contrary to Boyes Braem’s proposed model (Von Tetzchner 1984).

6.3 Acquisition of pronominal pointing signs referring to persons and self

The emergence of reference to persons and self by pointing in signed languages seems to offer an almost unique chance for investigating the changes that take place when a gesture obtains true linguistic status and becomes a sign: in other words, this phenomenon provides an excellent opportunity for studying children’s transition from the early communicative to the linguistic period. Although this is an extremely interesting issue, the only extensive studies that have been conducted on this have been on ASL. With respect to the acquisition of pointing, there are four studies on it in ASL (Hoffmeister 1978; Bellugi & Klima 1982a, b; Petitto 1984, 1987, 1994; Pizzuto 1994) and one on its acquisition in Swedish Sign Language (Ahlgren 1990). In addition, there are some studies that investigate the acquisition of possessive pronouns in ASL (Hoffmeister 1978; Pizzuto & Williams 1979) being correlated with the acquisition of pointing, whereas others investigate the anaphoric use of pronominal pointing signs (Hoffmeister 1978, 1987; Bellugi & Klima 1982a, b; Loew 1984; Bellugi et al. 1990). Finally, in a comparative study of deaf and hearing children’s language acquisition, there are some observations on the use of pointing by deaf children exposed to ASL (Caselli 1983).

6.3.1 Research on the acquisition of pronominal pointing signs in ASL

The first longitudinal study of the use of pointing in deaf children’s expressive language was published in 1978 (Hoffmeister 1978) and was about two deaf children of deaf parents, aged from 2;1 to 6;11. In that study the “pointing behaviour” (1978:1) was explored in an attempt to determine how it developed as part of the linguistic system of ASL. Hoffmeister (1978) investigated the semantic relations expressed by pointing and its various syntactic roles, and presented evidence according to which:

1) Deaf children use pointing to refer to self and others systematically from the age of 25 months.

"Agent-action constructions consisted of a POINT+VERB where the POINT was directed either towards the speaker (+speaker +dyad) the listener (−

35 B 5 or 5 5"
speaker +dyad) or towards an object under mention (–speaker –dyad)” (1978:26).

“The POINT is used in almost every utterance. It is used as a demonstrative (ostensive meaning), as an agent, as a patient, and as a locative (Prolocative)” (1978:30).

“The POINT is basic to all of Stage I grammar. Nouns indicating agents and patients do not emerge until late Stage I” (1978:41).

2) Reference to present objects and persons appears before reference to non-present objects and persons.

3) The anaphoric use of pointing is acquired by deaf children at the age of 5 years (Hoffmeister 1978, 1987; Loew 1984; Bellugi & Klima 1982a, b; Bellugi et al. 1990).

Bellugi & Klima (1982a, b) note that deaf children of deaf parents exposed to ASL follow exactly the same developmental process as hearing children, using common nouns and proper names to refer to persons before the use of pointing as pronominal sign, and make reversal errors in its usage before they finally acquire “pointing signs for first and second person which are part of the pronominal system in ASL” (1982a:11).

Working on the same data, Petitto (1984) conducted a detailed study of deaf children’s transition from the early communicative to the linguistic pointing to persons (see also two other publications from the same study, 1987 and 1994). At that early period of signed language research, Petitto, like Bellugi & Klima, assumed a personal-pronoun system with three persons: first (glossed as ME), second (glossed as YOU), and third person, all formed by the index hand configuration but differing in respect to the direction of the hand and the gaze direction.

By observing the communication of two deaf children, from the age of 6 months to the age of 2:3 years, with their deaf parents in their home environment, Petitto found four periods in the course of the development of pronominal pointing. During the first period, both of her subjects used pointing directed towards objects, persons and locations with communicative intention. In Petitto’s study, one child, Kate, starts using the pointing gesture directed to persons and self at the age of 10 months (1984:66-67, 1987:16-17) whereas the other child, Carla, uses pointing gesture directed to persons but not self at the age of 12 months (1984:114-115, 1987:16-17).

The second period, called the “middle period” by Petitto, extends for Kate from 12-18 months (1984:70-85; 1987:19) and for Carla\textsuperscript{36} from 15-18 months (1984:115-128, 1987:19). In this period after the early emergence of reference to persons, the researcher reports that for approximately six months – between the ages of 12 and 18 months – the use of pointing for

\textsuperscript{36} For Carla, during the period that pointing to persons has been interrupted, an exception is mentioned in a situation where the child imitates mother’s pronominal sign (1987:124).
reference to self and others (and only this) is completely disrupted. However, during the second period, pointing continues to occur as a “general deictic pointing” (1984:63, 85) directed towards objects and locations (1984:151). In other words, in the middle period, deaf children acquiring ASL avoid only “a particular semantic function of the pointing form” (1984:85) for a long period of time, while they continue to use the communicative, non-linguistic gesture different in form from the “YOU sign” (1984:85, 1987:27) emerging in the third period.

In the third period, referred to as the “error period” (Petitto, 1984:85-90, 128-139, 1987:27), pointing used for reference to persons re-emerges. It appears very frequently in the children’s expressive language but with many errors, despite its deictic character and the semantic transparency it seems to show. Petitto emphasises the formational differences observed between the general deictic pointing and the YOU sign (1984:85), which emerged in the third period (1984:85-87, 1987:41), by attributing a different status to the pointing sign directed to the addressee at this age.

“The first clue to the different status of her [Kate’s] YOU pointing form compared to her deictic pointing to objects and locations was in its formation [...] Kate’s YOU pointing was characteristically formed within the signing space with a bent elbow and eye gaze fixed on the addressee. Its restrained formational manner made it look much like the child’s other lexical signs. Conversely, Kate’s general deictic pointing at this time was signed mostly outside of her signing space with a straight elbow and eye gaze directed to the locus of the pointing form (or from the point’s locus to the addressee and back)” (1984:85-87).

In other words, Petitto claims that pointing directed towards persons used in the error period constitutes a true pronominal sign since it differs formationally from the general deictic pointing occurring before the error period used for reference to objects and self in the first period and only for reference to objects in the second period.

For a period of almost one month, at 22-23 months, as mentioned above, Kate often used YOU – the pointing directed to the addressee articulated inside her signing space differing from other pointing signs used before – for referring to herself, making a systematic reversal error. In contrast, Carla’s errors of first- and second-person pronoun are not systematic. From 21 to 23 months, she uses pointing directed to self and others correctly most of the time (1984:134-135; 1987:34-35). Finally, the period of correct usage of

37 Petitto mentions the existence of three ambiguous cases of pointing directed towards persons, from a total of 208 pointing gestures, without giving additional information (1987:79).
38 “Kate’s use of pointing to people was similar to her use of other communicative pointing gestures; she pointed to persons in motion around the room or to salient objects on their bodies (e.g., a person’s hat), and made eye contact with them” (1984:67).
pronominal pointing signs started at the age of 27 months for Kate and 25 months for Carla (Petitto, 1984:105-106, 139; 1987:38).

The gap observed in the use of pointing for reference to persons and self during the middle period is characterised as a phenomenon of “avoidance” (Petitto, 1984:85, 153) of this specific function of pointing, mainly attributed to:

1) The central role that pointing has in ASL.
3) Children’s ability to distinguish between linguistic and non-linguistic pointing from the beginning (1984:151): “[f]urthermore, the children also appear able to distinguish between linguistic and extra-linguistic pointing, permitting them to continue using deictic pointing without disruption” (1984:151, 1987: 41).
4) The developing ability of her subjects to refer to persons and self by using alternative means.

According to Petitto’s findings during the third period of pointing, deaf children refer to themselves and persons by using other lexical signs, e.g. full proper nouns, showing a behaviour similar to that observed in hearing children’s language before the acquisition of pronouns. In particular, for referring to their parents, Kate and Carla used MOTHER and FATHER (1984:79, 119, 1987:24) whereas for referring to themselves, Kate uses the sign GIRL (1984:79; 1987:24), and Carla sometimes fingerspells her English name39 (1984:119, 1987:24-26) before the emergence of pronominal pointing to self. These findings, however, are in opposition to Hoffmeister’s (1978:42) observations about deaf children acquiring pointing in ASL (mentioned at the beginning of Section 6.3.1). According to Hoffmeister, nouns used for reference to persons as agents and patients emerge at 30 months of age.

The period of incorrect use of pointing is considered by Petitto as a period when children’s knowledge of pronominal signs is still incomplete, although their occurrence in the language has become systematic. With regard to Kate’s reversal errors, Petitto adopts the name hypothesis (Petitto 1984, 1987, 1994) that has been put forward for the corresponding errors of hearing children when they use the second-person pronoun for referring to self (Clark 1978). She proposes that “Kate’s YOU sign is a non-reciprocal,  

39 Deaf children exposed to ASL appear to try to fingerspell, using a manual alphabet approximately at the age of 24 months (Akamatsu 1985; Padden 1991). Nevertheless, Petitto’s subject probably tries to copy her fingerspelled name at this early age, perceiving it as an unanalysed linguistic form since it exists in her input.
non-deictic, “frozen” lexical sign that stands for her, and her alone” (1984:157). This interpretation is based firstly on the form of the sign, which Petitto considers as a clear indication of the change that takes place in respect to the linguistic status of the pointing sign, and secondly on the systematisation that the error appears in the child’s language. According to the name hypothesis, Kate uses pointing directed to others as a sign referring to herself, as a proper name for self. However, unlike Clark (1978), who, in the case of hearing children, considers that reversal errors are due to children’s inability to perceive the shifted reference of personal pronouns and therefore fail to take the perspective of the adult, Petitto (1984, 1987, 1994) claims that the incorrect meaning that her subject attributes to the pointing sign directed to the addressee derives from the fact that the child “*is applying the sign-symbol schema that works for other nouns to the YOU point*” (1984:158). Thus she claims that “the incorrect meaning that the child has attached to the YOU form is a problem related to learning the structure of the linguistic system rather than the by-product of a general cognitive deficit” (1984:157), constituting an “*over-application of an abstract linguistic principle*” (1984:159).

Petitto’s findings that her subjects did not have any difficulty in understanding adults’ pointing, coming from her experimental data, seem to be incompatible with the fact that they (especially Kate) make systematic reversal errors in their own production of pointing. In addition she also comments that, in the third period just before the acquisition of pointing signs directed to persons, the “third person pronoun” and the “general deictic pointing forms” (1984:101) seem to be comprehended as an undifferentiated class of signs by one of her children, Kate⁴⁰ (1984:101). This last comment, however, is contradictory to her argument about children’s ability to distinguish between linguistic and non-linguistic pointing, in an earlier period before the emergence of systematic reference to persons by pointing (1984:151, 1987:41).

Finally, in the last period of the acquisition of pronominal pointing signs, Petitto records the first attempts of her subjects to refer to non-present persons, by pointing to locations at which these persons used to be when present. Kate referred to a non-present person by using pointing, after having first named the referent (1984:105, 1987:38), whereas Carla did not specify the referents of her pointing signs to non-present persons by other means before or after pointing (1984:129, 1987:35). From these early attempts, true anaphoric use of deixis will later emerge (Hoffmeister 1978, 1987; Bellugi & Klima 1982a, b; Loew 1984; Alghren 1990; Bellugi et al. 1990).

Summarizing her conclusions, Petitto writes:

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⁴⁰ The child was 23 months old (1984:54).
the deaf children’s performance was strikingly similar to that reported for hearing children acquiring pronouns” (1994:160)

despite differences between the modalities that might be relevant to acquisition, both deaf and hearing children showed remarkably similar performance” (1994:161)

“Such similarities between hearing and deaf children are strongly suggestive of the existence of universal processes in language acquisition” (1994:161)

“Further, the data from this study (including both the phenomenon of “avoidance” and the existence of pronoun-reversing errors) compel us to consider aspects of grammatical structure and its acquisition process to involve a relatively specific – linguistic – rather than general – cognitive – type of knowledge which the child brings to the language acquisition process, whose structure and organization may be biologically endowed” (1994:161)

Petitto’s interpretation has been criticised by Haukioja (1993) for its depiction of the phenomenon of “avoidance” in the use of pointing for reference to persons and self between the age of 12–18 months. Haukioja says that Petitto considers linguistic and non-linguistic pointing in children’s production as separate from the beginning, and contends that “if they were separate right from the beginning, there is no reason for the children to avoid non-linguistic first and second person pointing, while figuring out the function of the equivalent linguistic units” (Haukioja 1993:21). Since pointing at objects continues to occur in children’s language, it can be argued that the use of non-linguistic pointing gradually acquiring linguistic status is not interrupted, and therefore the continuity in the emergence of pronominal pointing signs from the early communicative pointing is evident. Furthermore, this consideration concurs with Petitto’s observation mentioned earlier with respect to the comprehension of the third-person pronoun and the general deictic pointing forms as an undifferentiated class of signs (1984:101).

In addition, and in regard to reversal errors appearing in the expressive language of deaf children acquiring ASL, Haukioja (1993) points out that the attribution of “stable referencing properties” (Petitto 1987:44) to the pointing sign directed to the addressee by Kate does not constitute adequate proof that this error is “genuinely linguistic” (Petitto 1987:44). The relation between form and meaning is not an exclusive linguistic phenomenon but is also characteristic of a number of semiotic, non-linguistic systems. So, the above-mentioned ability of children emerges from their general symbolic ability and not from their language specific knowledge. Overall, Haukioja’s (1993) position contradicts Petitto’s (1984, 1987) interpretation in that it maintains that children do not seem to distinguish between linguistic signs and non-linguistic gestures from the beginning; rather, it supports the idea that language and gesture share a common cognitive underlying base (McNeill, 1985, 1987a, b, 1992). Haukioja (1993) sums up her review of Petitto’s study by stating that: “Furthermore, the fact that ASL pronouns are
derived, ontogenetically and probably also phylogenetically [...] from pointing gestures does not have any bearing on their status as fully linguistic units” (1993:23).

Another study of the acquisition of pronominal signs in ASL, although with a different aim than Petitto’s study, claims that the use of pointing signs in deaf children’s language emerges at the 20th month and not before that age (Pizzuto 1994). Using part of Petitto’s data (the subject named Carla), Pizzuto’s investigation of the emergence of demonstrative and locative pronouns observes that, from 8 months until 20 months, there are no pointing gestures to persons.41 Rather, she reports that between 12 and 15 months, deaf children direct pointing only towards objects, whereas pointing directed to locations emerges after 18 months (Pizzuto, 1994:146). After 20 months and before 29 months, an increase in the frequency of occurrence of pointing signs directed towards persons is recorded. Pointing signs to persons in the 28th month of age constitutes 10% of the total number of pointing gestures that the child uses. Pizzuto also mentions that before 20 months, some erroneous references to persons occur and, although she avoids commenting on them in detail, she notes that they have a more demonstrative or locative character and that they do not indicate knowledge of “first” or “second person deictic signs” from the child’s part (1994:149).

The most important observation made by Pizzuto is probably that systematic reference to self by pointing comes at 20 months, before reference to others, and that pointing at self constitutes one of the most frequently produced “deictic signs”. Reference to others by pointing follows after 24 months.

In summary, Pizzuto (1994) confirms the main developmental pattern Petitto (1984, 1987, 1994) presented in respect to the timing of the acquisition of deictic signs for reference to self and others. Like Petitto, Pizzuto concludes that the acquisition of pronominal deictic terms (spoken or signed) at the same period of children’s linguistic development, is independent of language modality. Based on the similarities observed in the acquisition of deictic terms in spoken and signed languages, and relating these findings to the emergence of deictic gestures to self in hearing children’s communication at a relatively advanced age (20-24 months)42 when personal pronouns have already appeared in their language, she concludes that: “the similarities in the acquisition patterns seem to indicate the presence of a common perceptual and cognitive background” (1994:152). In contrast to Petitto’s conclusion, however, this conclusion

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41 Pizzuto (1994) also comments that these data are limited and cannot be considered to be enough for drawing general conclusions.

42 The occurrence of pointing to self by hearing children happens at 20-24 months, when they have already started to produce the first-person pronoun and not before that (Caselli et al. 1983).
seems to support the development of pronominal signs from a general cognitive ability.

In a comparative study regarding the gestures produced by deaf and hearing children between the age of 8 and 24 months, Caselli (1983) offers some confirmation with respect to the use of pointing at that early age. Using in part data gathered at the Salk Institute (probably some of which were later analysed by Petitto), she reports that deaf children, like hearing children, use pointing to ask for something or to attract adult attention in utterances with proto-imperative and proto-declarative function. Caselli reports that at the age of 12 months, one of her deaf subjects (named C) used pointing to herself (1983:137), and another (named K) produced a combination of two signs, one of which was ME (DOG ME 1983:125,124), at the age of 16 months.

From the picture illustrated above, it is evident that the researchers did not reach a full consensus, despite the fact that they analyse the same data. The incompatibility that seems to exist can be attributed to the different manner in which each researcher analysed and interpreted the pointing gestures occurring in deaf children’s expressive language before the age of 20 months, and the solutions they found for distinguishing between linguistic and non-linguistic pointing. Although all the studies used the contextual information for interpreting children’s pointing, their significant difference is due to the researcher’s different assumptions, which in turn influenced the way pointing was glossed.

Petitto solved the problem concerning the linguistic status of pointing mainly based on the form it had when produced by deaf children. According to her, children’s ability to produce a pointing gesture within the signing space, without physically contacting its referent, constitutes an important indication of children’s developed linguistic skills. Therefore, she coded if pointing was performed with or without physical contact and the direction of the child’s eye gaze while it was being performed. However, this solution regarding the form of pointing does not seem adequate because Petitto does not manage to specify the differences between general deictic pointing and linguistic pointing directed towards persons or other entities. This could in fact be taken as an indication that linguistic and non-linguistic pointing do not differ.

In order to separate linguistic from non-linguistic pointing before and after the age of 20 months, Pizzuto, on the other hand, considers children’s pointing as a true pointing sign only when it is combined with other lexical signs.

Overall, as has previously been mentioned, Petitto and Pizzuto eventually reached polar conclusions concerning the underlying knowledge on which the acquisition of pronominal pointing signs is based. Petitto attributes the emergence of pronominal pointing signs to persons after the 20th month in the development of children’s linguistic skills independently of their
cognitive abilities, whereas Pizzuto considers that “deictic signs” referring to persons are borne from the development of children’s general cognitive abilities. Finally, in reviewing Petitto’s findings, Haukioja (1993) seems to be in greater agreement with the theoretical interpretation of Pizzuto.

6.3.2 The acquisition of pronominal pointing signs in other signed languages

A review of the literature makes it clear that only limited evidence exists on the acquisition of pronominal pointing signs in other signed languages. The only study that can be compared with those of Petitto and Pizzuto concerns the acquisition of pronominal pointing to persons by a deaf child of deaf parents exposed to Swedish Sign Language (Ahlgren 1984 cited in Engberg-Pedersen 1993a; Ahlgren 1990). Observing one child’s expressive language from 17 to 28 months, Ahlgren found that in Swedish Sign Language acquisition, the transition to linguistic pointing for reference to self and others is continuous and without errors (1990:171-172). Ahlgren (1990) also reports that the parents of the child participating in her study used neither the child’s name sign to refer to him, nor other lexical signs to refer to themselves or other persons. On the contrary, reference to present persons was always accomplished with the use of pronominal pointing.

In relation to the use of proper names and common nouns in the linguistic input of deaf children of deaf parents, there is also one reference to Danish Sign Language, according to which the presence or absence of name signs or common nouns used for reference to persons and self in deaf children’s language is correlated with the presence or absence of these terms in the children’s linguistic input (Engberg-Pedersen, 1993a). Engberg-Pedersen refers to Ravnholt & Engberg-Pedersen (1986, cited in Engberg-Pedersen, 1993a:138), who, after interviewing the mothers of deaf children (all native signers of Danish Sign Language) reported that some of the mothers used name signs or common nouns to refer to persons who were present, including their children, when addressing them. However, others said that they used only pronominal pointing signs to refer to present persons.

In summary, if one examines the findings regarding ASL, Swedish Sign Language and Danish Sign Language concerning the use of name signs or common nouns used for reference to present persons during the early linguistic period of children, all evidence (although admittedly not enough) seems to align with Engberg-Pedersen’s (1993a) conclusion about the main role that the linguistic input plays in the use of such signs used in deaf children’s expressive language.
6.4 The use of pointing with possessive meaning

In the above studies concerning ASL, it is mentioned that when pointing for reference to self and others has started to be used more frequently in deaf children’s expressive language, it is occasionally used with or has possessive meaning.

In his dissertation on ASL acquisition, Hoffmeister (1978) describes how possessive signs emerge and concludes that they arise in deaf children’s language from pointing (1978:135). In particular, before the systematic use of possessive pronominal signs at the age of 25 to 28 months, children initially denote possessor and the object of possession by using two pointing signs, one directed to the person-possessor and the other to the (possessed) object of reference, without using the possessive signs found in adult language.

Petitto (1984, 1987), in regard to the acquisition of possessive signs, notes that her subject Kate used the possessive sign MINE erroneously with regard to its referent, whereas Carla seemed to be confused by having to choose between the pronominal pointing sign directed to persons and self and the form used for expressing possession. In Carla’s expressive language, pointing towards self and others was sometimes used instead of the possessive pronominal sign for denoting the person-possessor and vice versa (1987:34, 36-37). Petitto interprets the use of pointing towards persons with possessive meaning as erroneous on the child’s part, based firstly on the child’s hesitation when using these pointing signs and secondly on the existence of similar errors in hearing children’s acquisition of personal and possessive pronouns (Cooley 1908; Charney 1978 cited in Petitto 1987). In reaching an assumption such as the above, Petitto does not take into account Hoffmeister’s (1978) analysis of the use of pointing to persons with possessive meaning as a pre-stage in the acquisition of possessive signs. In addition, as far as Greek Sign Language is concerned, it has been observed by the researcher of the present study that in adult language and, in particular, in the language addressed to the deaf child participating in the study, pointing to self and others is sometimes used with possessive meaning. Thus, when the pronominal pointing signs INDEX-self or INDEX-non-self are used by the deaf child for referring to possessor, they cannot be considered errors.

Finally, in investigating comprehension of possessive pronouns by deaf children exposed to ASL, Pizzuto & Williams (1979) found that deaf toddlers comprehend the second person before the first person of the possessive pronoun. However, they concluded that “we also see that the child’s comprehension of the 3rdP proform seems to be greater than her
comprehension of the 1stP proform “MY”” (1979:107).\textsuperscript{43} These findings, like the findings concerning the acquisition of pronominal pointing to persons approximately at the age of 20 months, indicate that despite the ostensible and more direct representation of meaning that the possessive terms seem to exhibit in ASL, they are not acquired at an earlier stage compared with the acquisition of the possessive pronouns by hearing children. In other words, deaf children’s comprehension of the pronominal possessive signs follows the same developmental pattern as that found in hearing children’s comprehension of possessive pronouns, according to which pronominal possessive words are not used in the early lexicon of toddlers with the meaning they have in adult language (Charney 1980; Oshima-Takane 1988; Girouard et al. 1997). The conclusion drawn by Pizzuto & Williams (1979) was that comprehension of the pronominal possessive signs depends on the overall development of cognitive structures similar to those underlying the acquisition of personal pronouns by hearing children.

In this chapter, it has been illustrated that the acquisition, comprehension and production of pronominal pointing signs in signed languages by deaf children occurs at the same age as the acquisition of pronominal words by hearing children. These findings, frequently referred to in the literature, need additional evidence from more signed languages than just ASL. In addition, most researchers seem to assume that the emergence of pronominal pointing signs is related to the development of children’s general cognitive abilities, being aligned with conclusions regarding the acquisition of pronouns by hearing children. Petitto’s divergent position seems to come from a dichotomy about what is correct or erroneous, making a distinction between linguistic and non-linguistic pointing from the very beginning and approaching children’s developing language according to an adult language model.

In order to be able to argue about the generalisation of the conclusions presented above, it is obvious that more data is needed, firstly, with respect to the number of children observed which is very limited, and, secondly, with respect to signed languages other than ASL in order to develop a more complete picture of the phenomena that are present during the acquisition of pointing signs.

\textsuperscript{43} This finding seems to be in line with the fact that there is no difference between second and third-person possessive pronouns in ASL (see Liddell 2003).
7.1 The subject

The subject of the present study is a third-generation deaf child, who, in this text, is referred to simply as “M”. M’s parents are deaf, his grandparents, aunt and uncle on his mother’s side are deaf, and he also has two deaf aunts and several deaf cousins on his father’s side. M has no additional impairments. He has never worn a hearing aid.

With respect to the educational level of the parents, one of them has undertaken six years of schooling and the other 12 years. Both parents work and, during the period of data collection, M was looked after alternately by his mother and father and sometimes also by one of his deaf aunts, i.e. either his mother’s sister or his father’s sister. The parents are active members of the deaf community, and, during the term of the study, the child had ample opportunity to interact with other deaf children and adult signers, deaf or hearing, in their home or outside. Adults in the child’s environment use Greek Sign Language exclusively.

M’s case is very special because he belongs in a family where Greek Sign Language has already been used for two successive generations on the mother’s side. However, despite the uniqueness that M’s case presents for studying the transition to the linguistic use of pointing in Greek Sign Language, two additional factors motivate the choice of the methodological approach of case study used here: (a) the limited number of deaf children that have two deaf parents, and (b) the social obstacles that hearing researchers face in accessing the deaf community for collecting data.44

7.1.1 The limited number of deaf children with two deaf parents

Ideally, for studying sign language acquisition, the subjects should be children, hearing or deaf, acquiring sign language naturally via their signing parents. However, finding subjects who belong in this category is not an easy task because the number of deaf children whose parents are both deaf is extremely limited and constitutes only a very small percentage of the total number of deaf children, as evidenced by various studies regarding the deaf

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44 The same factors are also mentioned by Petitto (1984, 1987) with regard to the limited number of children (2) participating in her investigation.
population in the USA.\textsuperscript{45} For instance, the percentage of deaf children with two deaf parents between the years 1973 and 2000, varied from 2.74\% to 3.90\% (Schein & Delk 1974; Mitchell & Karchmer 2004, 2005). In a more recent investigation by Mitchell & Karchmer (2004), the percentage of deaf children having two deaf parents is 3.90\%; 4.39\% have one deaf parent, whereas 91.70\% of deaf children have hearing parents. By comparison, in Greece, where the total number of deaf people is estimated to be 8,500 to 10,000 (Kourbetis & Hoffmeister 1987; Lampropoulou 1994), the population of deaf children with two deaf parents can be expected to be equally small, making clear why the chance of finding such subjects is extremely small.\textsuperscript{46}

7.1.2 Access to the deaf community

The main characteristic of a deaf community is the common language and the common cultural identity that its members share (for the Greek community of the deaf, see Kourbetis 1999a, Kourbetis et al. 2001; for the American community of the deaf see Padden & Humphries 1988, Wilcox 1989; for the British community of the deaf see Kyle & Woll 1985). In the Greek deaf community, most of the members are deaf signers who have experienced negative attitudes directed toward their language. Due to these experiences, the members of the deaf community are suspicious of hearing people and in particular of hearing researchers who want to investigate their language. They consider hearing researchers as representatives of the dominant view existing in the hearing community that signed languages are not true languages; as a result, the access of hearing researchers to signing subjects is difficult because most of the members of the deaf community are not willing to cooperate with them. Although it seems that lately this problem is gradually lessening, full access to and involvement with the Greek deaf community by hearing researchers is not yet possible, especially not for a sustained period. Only researchers proficient in Greek Sign Language may have access to the community, or else native signers must be included on the research team.\textsuperscript{47}

From all the above, and apart from the fact that a case study is considered the most appropriate method for investigating in depth the process by which

\textsuperscript{45} No similar studies exist regarding the deaf population in Greece.

\textsuperscript{46} For example, in 1987, in a nationwide study, Kourbetis compared reading and writing ability, speech production and speech reading, and social and emotional development of deaf children of deaf parents and deaf children of hearing parents in Greece and identified only 17 deaf children of deaf parents between the ages of 8 and 17 years (Kourbetis 1987).

\textsuperscript{47} During the introductory meetings with the deaf child’s parents to explain the aims of the study, M’s mother commented that the family was only willing to accept the researcher participating in their everyday life because of the researcher’s lengthy personal involvement in the deaf community and her knowledge of Greek Sign Language.
a phenomenon takes place,\(^{48}\) it became obvious that this investigative method was the only feasible one for the accomplishment of this study, as a longitudinal study. This was mainly due to the fact that there was no chance of finding more subjects of the same characteristics, i.e. other children (deaf or hearing) of the same age, exposed to Greek Sign Language and having two deaf parents, during the period that the research was conducted.

In addition, it must be mentioned that since the purpose of the study was not to draw conclusions based on statistical data, the restrictions that emerge from the method used on the generalisation of the results do not, in fact, affect these results. The focus of this case study, which concerns the acquisition of pronominal pointing in Greek Sign Language, is to describe and analyse the general characteristics by which the developmental process takes place compared to the acquisition of personal pronouns in other languages. In general, the main developmental characteristics by which pronominal signs are acquired by the deaf child observed here are not expected to differ from those that would probably be found if there were the chance of conducting a similar study with another deaf child of deaf parents who was acquiring Greek Sign Language.

### 7.2 Methodological tools

The methodological tool used in the present study was the video recordings of the communicative and linguistic behaviour of the toddler when interacting with adult signers. Video recording was chosen for the following reasons:

1. Video recording is the most appropriate tool since signed languages are visual-gestural languages (Baker et al. 1999).
2. Compared with other methodological tools such as diaries, observation forms, etc., the use of video gives the opportunity to reexamine the material many times before reaching a final interpretation, a fact that provides greater validity in the findings of a piece of research.
3. By using video, the overall communicative situation is recorded, providing efficient contextual information for a study.

In the present study, the use of diary notes by parents as a supplementary methodological tool for obtaining additional information about the child’s

\(^{48}\) According to Yin (1994), case studies are preferred as a studying strategy in those cases where questions such as “how” and “why” are imposed, when the researcher has restricted control of the events that take place, and finally when the study is focused on contemporary, real-life phenomena.
linguistic behaviour was not considered appropriate because the language does not have a written form. Transcribing sign-language utterances is a time-consuming task, demanding specific knowledge that parents cannot be expected to have. Therefore, since the parents were not trained to keep written notes about the child’s production in Greek Sign Language, and because they had very limited personal free time – much of which had already been offered unsparingly – it was not reasonable to expect them to take on the responsibility of writing diary notes.

7.3 Collection of data

Before data collection started, the aim of the study had been explained to the parents, and issues relating to their role and the researcher’s role in the recording situations were discussed. After the parents had given their consent to begin videotaping interaction with their son, the researcher arranged two preparatory meetings. The aim of the first meeting was for the toddler to become acquainted with the researcher. The second meeting was a pilot video recording to evaluate whether technical conditions were appropriate for attaining a satisfying result, i.e. identifying problems related to lighting, space, positioning of the child/parent, etc., and for seeking solutions to the extent that this was possible.

Since the aim of this study was to observe the developmental transition from the communicative to the linguistic use of pointing, and in order to ensure that the amount of occurrence of the linguistic behaviour of pointing was sufficient enough during the spontaneous interaction of the child with his parents, it had been considered necessary to videotape the child’s communicative production regularly and over a lengthy period of time. Therefore, the child’s spontaneous communication was videotaped every fortnight from the age of 12 to 36 months (see the list of video recordings in Table 2).

<table>
<thead>
<tr>
<th>NO.</th>
<th>Duration</th>
<th>Age</th>
</tr>
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<tbody>
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<td>1;0,11</td>
</tr>
<tr>
<td>2nd record</td>
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<td>3rd record</td>
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<tr>
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<tr>
<td>6th record</td>
<td>00:57:13</td>
<td>1;2,25</td>
</tr>
</tbody>
</table>

Table 2. List of video recordings made from 12 to 36 months of age.
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<th>Approx. Age</th>
</tr>
</thead>
<tbody>
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<td>1;3,03</td>
</tr>
<tr>
<td>7th</td>
<td>00:22:55</td>
<td>≈ 1;4,00 &quot;n&quot;</td>
</tr>
<tr>
<td>8th</td>
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<td>1;5,10</td>
</tr>
<tr>
<td>9th</td>
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<td>1;5,23</td>
</tr>
<tr>
<td>10th</td>
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<td>1;6,12</td>
</tr>
<tr>
<td>11th</td>
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<td>1;6,26</td>
</tr>
<tr>
<td>12th</td>
<td>01:03:18</td>
<td>1;7,10</td>
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<tr>
<td>38th</td>
<td>01:25:50</td>
<td>2;7,28</td>
</tr>
<tr>
<td>39th</td>
<td>01:36:02</td>
<td>2;7,30</td>
</tr>
<tr>
<td>40th</td>
<td>01:53:48</td>
<td>2;8,18</td>
</tr>
<tr>
<td>41st</td>
<td>02:00:01</td>
<td>2;9,23</td>
</tr>
<tr>
<td>42nd</td>
<td>01:31:56</td>
<td>2;10,12</td>
</tr>
<tr>
<td>43rd</td>
<td>01:04:43</td>
<td>2;11,19</td>
</tr>
<tr>
<td>44th</td>
<td>01:03:00</td>
<td>2;11,29</td>
</tr>
</tbody>
</table>

49 This is an approximate age, since the date of the video recording by the boy’s mother was not recorded.
<table>
<thead>
<tr>
<th>Record</th>
<th>Time</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>45th</td>
<td>01:02:00</td>
<td>3:0,16</td>
</tr>
<tr>
<td>46th</td>
<td>01:05:00</td>
<td>3:1,23</td>
</tr>
<tr>
<td>47th</td>
<td>01:02:00</td>
<td>3:2,12</td>
</tr>
<tr>
<td>48th</td>
<td>01:02:00</td>
<td>3:3,08</td>
</tr>
<tr>
<td>49th</td>
<td>01:02:00</td>
<td>3:4,10</td>
</tr>
<tr>
<td>50th</td>
<td>00:50:00</td>
<td>3:7,24</td>
</tr>
<tr>
<td>51st</td>
<td>01:00:00</td>
<td>3:10,07</td>
</tr>
</tbody>
</table>

Except for one recording (Record 7a), for which the boy’s mother was responsible, the video recordings were made by the researcher herself in the child’s home, while he was freely interacting with his deaf parents and relatives. The duration of most recordings was approximately 60 minutes without interruptions, and in most cases, there were two adults present, the researcher and either the boy’s mother or father or one of his aunts.

The interaction between the child and adults was natural and, although the mother tried to engage the toddler as much as possible during the video recording, there were never organised, structured conditions of play. The influence that the researcher’s presence in the home had on the family members’ everyday activities, as well as on their communication, was minimised to every possible extent. For instance, whenever the child tried to involve the researcher in games, the latter responded naturally to the child’s initiatives, though she did not encourage such behaviour. There were some situations in which the child was videotaped while playing alone without the presence of another adult. When the child was tired, something that did not occur often, the videotaping usually stopped. The only intervention the researcher made concerned the materials used during interaction in order to enrich some communicative situations. For that purpose, the researcher occasionally brought new toys or books to the child, which were left for a period of time in the child’s home. Finally, three video recordings (Record 7, 11, 29) were made outside of the house (at the playground, on the street).

One camera was used for recording, at times being stationary and other times not. In general, the goal was to record the child and the adults together during their interaction, in such a way that the dialogue was fully visible on the screen. However, this was not always possible. The mother usually chose to sit near the child and slightly diagonally, so that both were able to see each other’s faces. In addition, when the child started to walk, moving independently around, there were many situations in which the camera had to follow him, causing difficulties in the video recording process. These difficulties had to do either with including both participants in the focus of the camera, or with the height of the camera, its distance from the subjects, their position or the objects’ location in the room, etc. As a whole, the practice described above proved to be successful in regard to the focus of the camera including all necessary information for understanding the child and adult’s communication, but sometimes the appropriate evidence for
interpreting the content of the communication did not exist. Occasionally, for events happening outside of the scope of the camera, the researcher made some spoken comments that could help later in the interpretation of child’s linguistic behaviour. In addition, at the end of each video recording, the researcher kept notes with information about the situations occurring, the content of communication, the toys used, etc.

7.4 Procedure of analysis

The whole videotaped material constituted 51 video recording sessions (52 hours, 51 minutes and 56 seconds) from the subject’s age of 1;0,11 to 3;10,07. After viewing all the material it was determined that the period up to 2;5,02 was sufficient for investigating the questions that had been put forward in the study. The reason for choosing such a relatively long period was to ensure the validity of the findings with regard to the existence of reversal errors in the child’s production of personal pronouns. Therefore, the overall duration of the videotaped material described and analysed was 30 hours (29 hours, 58 minutes and 13 seconds) between 1;0,11 and 2;5,02, consisting of 34 records.

7.4.1 Description

The first phase of the analysis of the material began with a detailed description of the content of all records that had been made until the age of 29 months (2;5,02). What was described was the overall communicative and linguistic behaviour of the participants with additional information about the communicative situations in which this behaviour occurred. The communicative and linguistic behaviour of the adults was only used as a supplement, in order to interpret the child’s utterances and get a general idea of the language addressed to the child.

7.4.2 Transcription

The description of the videotaped material was followed by the detailed transcription of the child’s communicative behaviour as well as those of adults with whom the toddler had interacted.

The description and transcription of all the communicative and linguistic material concerning both child and adult production have been made by the researcher herself. It was not possible to engage another person because of difficulties in regard to: (a) the availability of people who could accomplish this task, (b) the time it would take for those people to be trained in using the tools and conventions of the transcription practices, and (c) the lack of financial resources for compensating them for their work. However,
sequences in which the child’s communicative and linguistic behaviour was difficult to interpret were reexamined together with the supervisor of the study. When it was necessary, the mother’s opinion was solicited. In general, the mother cooperated closely with the researcher to explain the child’s communicative behaviour, knowing, as she did, the boy’s habits, and was willing to offer her time whenever it was necessary. Her help was always of fundamental importance in understanding and interpreting the child’s utterances.

7.4.2.1 A gloss based notational system

For the transcription of the communicative and linguistic material, it was necessary to create a notational system for representing signs in a “written” form that could facilitate the analysis of the data according to the questions posed. For studying signed languages, many different types of notational systems have been developed. Notational systems differ according to the aim of the study for which they have been designed (suggested references: Stokoe 1960; Baker-Shenk & Cokely 1981; Bergman 1982; Prillwitz et al. 1989; Miller 1994, 2001). Studies investigating signed languages at sentence level usually use gloss-based notational systems (Baker-Shenk & Cokely 1981; Baker et al. 1999) supplied with additional information, if necessary, to facilitate the aim for which they are developed. The main principle of a gloss-based notational system is that words from a spoken language represent signs.

In the present study, a gloss based notational system has been created using glosses in Greek and English for representing signs and gestures. Conventions similar to those employed in other gloss-based notational systems have been used according to the following:

1) Words written with capital letters represent signs of Greek Sign Language or symbolic gestures, e.g. the gloss BOOK represents the Greek sign meaning ‘book’.
2) The glosses used for pointing signs and gestures are INDEX and HAND (formed with the index hand configuration and the relaxed hand respectively).
3) When two or more words are used in a gloss, they are connected by a hyphen (-), e.g. TURN-OFF and BYE-BYE.
4) Small letters in glosses add some information about the referent of a sign, e.g. NAME-SIGN-researcher, INDEX-father, INDEX-mother’s-tongue.
5) Words in small capital letters between slashes (/ /) represent segments of mouth movements (as described by Bergman & Wallin 2001), e.g. /OPEN, BILABIAL, OPEN, LABIODENTAL / (see Appendix C, and Chapter 2).
Choosing glosses for representing signs is not an easy task, especially when it concerns the communicative or linguistic behaviour of very young children who have not yet acquired a proper linguistic system. In this study, a different gloss is given for each different sign or symbolic gesture in the child’s production.

There were two main criteria used for choosing glosses:

1) The meaning.
   A gloss should reflect, as closely as possible, the meaning of the sign it represents. For example, in Greek Sign Language there is a sign whose meaning can be given by the glosses SUCKLE, PACIFIER, FEEDING-BOTTLE, or even BABY. In order to capture the meaning of the sign used by the child as precisely as possible, the gloss FEEDING-BOTTLE has been chosen because the toddler uses the above sign mainly when he is looking for his bottle irrespective of its content: milk, orange juice, water, etc.

2) The grammatical category of the gloss.
   The grammatical category of each gloss chosen for representing a sign will be in accordance with the meaning, verbal or nominal, by which the sign is used by the child in most communicative situations, as in, for example, WATER rather than DRINK. However, when a sign used by the child does not have a clear verbal or nominal meaning, then the gloss chosen for it is a noun.

7.4.2.2 The tool for transcription

For transcribing the research material, a specialised electronic tool for annotating multimedia video recording has been used called EUDICO Linguistic Annotator (ELAN).50 ELAN turned out to be a most helpful tool because by using it:

1) It is possible to synchronise a gloss with a sign as well as to synchronise the video signal with numerous additional pieces of information of importance for the analysis.
2) Annotations can be sorted in different ways and can also be exported to other programmes (e.g., Excel).
3) It is easy to access and view every single part of the data, a facility which gives the opportunity to the researcher/observer to compare the child’s production in different time sequences.

Different tiers were used for facilitating the analysis that included aspects of the child’s and the adult’s communicative behaviour. Seven tiers were used

50 ELAN has been developed by the Max Planck Institute for Psycholinguistics in Nijmegen in The Netherlands and is available at www.mpi.nl/tools.
for the child: right hand, left hand, eyes, mouth, head and body movement, function and communicative intention. The same tiers were used for adults except for function and communicative intention. In Figure 1, a screen print from ELAN with annotations of Record 6 is shown.

Figure 1. A screen print from ELAN with annotations of Record 6.

7.4.3 Analysis of the videotaped material

After the description and transcription of the child and adult production from the subject’s age of 12 to 29 months, a detailed analysis was made of the child’s pointing behaviour and the alternative means – name signs, common nouns – by which he referred to persons. All utterances produced by the child in which there were pointing gestures/signs, or where there were references to persons by other means, were excerpted.

Additional information was incorporated in the transcription of the data, such as the hand configuration of the sign, the extension of the arm, whether the index finger touched the referent or not, the expression of the face, mouth movements, movement of the head or the body and gaze direction.
In addition to the transcription of the child’s pointing behaviour, the function of utterances, including pointing signs, was described as proto-declarative or proto-imperative (see Section 7.5.2), according to the context in which they occurred. The pointing behaviour was analysed in detail in terms of: (a) frequency of occurrence, (b) referents (objects, locations, persons), (c) communicative function, and (d) distribution of the communicative functions.

From the information collected concerning the form of pointing (hand configuration, extension of the arm, physical contact of the index finger with the referent of pointing, and gaze direction) being used each time, it became possible to very closely follow the changes occurring in its use with respect both to its form and function as the child made the transition to pointing as a linguistic element. Similarly, adults’ utterances, including pointing signs, were analysed in order to find out if the child’s observed divergent pointing behaviour could be attributed to the language addressed to him.

Except for when pointing was used by the child for referring to persons, the alternative means used by him for the same purpose were investigated and analysed. In particular, the child’s alternative ways of referring to persons were analysed with regard to: (a) category, i.e. proper names or common nouns, (b) the age they emerged compared to the stages of the acquisition of pointing signs, and (c) the frequency of their occurrence.

Finally, the possible existence of reversal errors in the use of pronominal pointing signs was exhaustively investigated by analysing all the child’s utterances in which pointing could be considered erroneous until the age of 29 months. Moreover, some supplementary aspects, such as the development of the toddler’s first lexicon and the extension of his utterances were informally evaluated for having a more complete picture of the child’s linguistic development.

7.5 Terminology

In this section, some of the terms that will be used in the next four chapters in the analysis of the deaf child’s communicative and linguistic behaviour are introduced.

7.5.1 Stages

From the analysis of the development of pointing in the deaf child’s production between 12 and 29 months of age, it was found that the use of pointing goes through four successive phases until the age of 27 months.
Due to the qualitative changes observed in the use of pointing, these developmental phases are going to be referred to as “stages in the acquisition of pointing”.

In developmental theories, the “qualitative” differences observed in children’s development at different ages are the core of the notion of ‘stage’ (Piaget 1960; Kohlberg 1969; Piaget & Inhelder 1969; Piaget 1971; Panopoulos-Maratos 1998). In Piaget’s theory, stages form an “invariant sequence” in an individual’s development that never changes, although it may speed up or slow down due to cultural factors. Modes of development in each stage form “structured wholes”, representing an underlying organisation. Developmental stages are “hierarchical integrations”, forming “an order of increasingly differentiated and integrated structures to fulfil a common function” (Kohlberg 1969:353). The structures found at lower stages are integrated in higher stages. Thus, the definition of stages is based on a hierarchy of qualitative differences, different structures and integration.

In the present study, the term “stage” has been chosen to highlight the view that the quantitative changes observed in the child’s pointing at different ages are in fact driven by the qualitative changes that take place in the course of the acquisition of linguistic pointing. Its use is more in alignment with the exploration of the qualitative unfolding of pointing for referring to persons and self in the deaf child’s communication. The term “period” (used by Petitto 1984, 1987, 1994) seems to focus less on the underlying structures and more on the quantitative changes occurring in precise intervals of time in an attempt to define a clear beginning and ending in the child’s pointing behaviour.

7.5.2 Proto-imperative and proto-declarative function

In order to describe the functions that are accomplished by the use of the early communicative pointing in the deaf child’s communication, the terms “proto-imperative function” and “proto-declarative function” have been adopted. These terms were first used by Bates and her colleagues (Bates et al. 1975; Bates 1976; Bates et al. 1979) for describing the functions of hearing children’s first gestures in the early communicative period. They define proto-imperative as: “the child’s intentional use of the listener as an agent or tool in achieving some end. In particular, [...] the child’s use of the adult as the means to a desired object” and proto-declarative: “as a preverbal effort to direct the adult’s attention to some event or object in the world” (1975:208).

In other words, when pointing is used with proto-imperative function, the child uses the adult for obtaining an object or for covering some of his/her needs, whereas, when pointing is used in utterances with proto-declarative function, the child uses the object for attracting the adult’s attention, as he aims to interact with him/her.
7.5.3 Symbolic gesture, pointing gesture, sign, pronominal pointing

In order to enable the comparison of deaf and hearing children’s communicative and linguistic production, Volterra & Casselli (1985) and Volterra & Erting (1994) suggest the use of common criteria and terms for their designation. For children’s first intentional communicative signals, they suggest “gesture” and “vocalisation”. For communicative signals used for symbolic reference, Volterra & Casselli suggest “sign” and “word”, and Volterra & Erting suggest “symbolic vocalization” and “symbolic gesture”. When children are able to combine two symbols, they suggest the term “language”, whether signed or spoken (Volterra & Casselli 1985:4; Volterra & Erting 1994:301).

With regard to the categorisation of communicative signals that children produce as words or signs, the same researchers argue that words differ from communicative vocalisations, and signs from gestures, to the extent that they can be interpreted independently of the communicative situation in which they are produced (Volterra & Casselli 1985; Volterra 1987; Volterra & Erting 1994). The process by which a signal gradually obtains distance from its referent acquiring progressively its symbolic status has been described as “decontextualization” (Werner & Kaplan 1963).

In more detail, Volterra and colleagues (Volterra & Casselli 1985:6-7; Volterra 1987:98; Volterra & Erting 1994:300-301; Volterra & Iverson 1995:373) have proposed that at least two of the following criteria have to be met for a signal to be considered as a true sign or word:

1. It must be used to refer to an object or event not present in the immediate environment.
2. It must be used with various communicative intentions to refer to the same referent in different contexts.
3. It must refer to a class of related referents and not be restricted to particular exemplars of the class” (Volterra & Iverson 1995:373).

They also add that:

“Two additional conditions must be met in order to determine whether children’s gestural or vocal communicative productions are linguistic […]
1. The signals must be symbolic.
2. They must be combined with other symbols produced in the same modality” (Volterra & Iverson 1995:374).

The above criteria proposed for defining children’s production as signs or words have been adopted for the analysis of the communicative and linguistic production of the deaf child acquiring Greek Sign Language. In the first and the second developmental stage in the acquisition of pointing, and before the systematic occurrence of two-sign utterances in the deaf child’s
communication, “pointing gesture” is used for communicative pointing, and “symbolic gesture” is used for other non-pointing gestures. In the third stage in the acquisition of pointing, in which the symbolic status of the child’s productions is not always clear, the terms “signs” and “symbolic gestures” are used alternatively, whereas “pointing gesture” is still used for the designation of pointing to persons and self, indicating that the linguistic status of the behaviour cannot yet be determined with certainty.

At the fourth stage in the acquisition of pointing, as the child’s utterances are extended and his lexicon is enlarged, the child approaches more and more the model of adult language, and the linguistic status of his signs is clear. At this stage, “sign” is used for the description of the different forms apart from pointing that the child produces and “pronominal pointing” for pointing used for reference to self and other entities.

Moreover, in this phase of the child’s development, the acquisition of the meaning of the pointing signs ‘self’ and ‘non-self’, which is evident by their correct use plays a fundamental role in determining that pointing is in fact linguistic. However, the attribution of linguistic status to a signal at this early age, and at these early stages of language acquisition, cannot be easily made. Keeping that in mind, it has to be emphasised once again that by choosing the above terms it is not intended to define clear borders between communication and language but instead to attempt to create a clear picture of the acquisition of Greek Sign Language by a deaf child of deaf parents.

7.6 The developmental stages in the transition to pronominal pointing in the acquisition of Greek Sign Language

Analysing the videotaped material of the present study between 12 and 29 months of age, it became obvious that after the age of 27 months pronominal pointing signs directed to self and other entities have finally been established in the child’s expressive language, being the principle means by which reference to self and others is made. In the child’s acquisition of Greek Sign Language, four developmental stages have been identified in the use of pointing for reference to persons and self until the age of 27 months. In the analysis presented in the next chapters, each developmental stage is described in regard to the special characteristics that pointing exhibits. As already mentioned, determining the precise time limits of each stage is out of the scope of the present study. Therefore, the duration of each stage of the acquisition of pointing is described by the age that the child had in the first and last video recordings.
1) FIRST STAGE IN THE ACQUISITION OF POINTING: Emergence of reference to objects (age: 1;0,11–1;1,19).

2) SECOND STAGE IN THE ACQUISITION OF POINTING: Emergence of reference to persons and self (age: 1;2,10–1;3,03).

3) THIRD STAGE IN THE ACQUISITION OF POINTING: Sporadic reference to persons and self (age: 1;4,00–1;8,00).

4) FOURTH STAGE IN THE ACQUISITION OF POINTING: Establishment of pronominal pointing for reference to persons and self (age: 1;8,07–2;3,01).
CHAPTER 8

First Stage in the Acquisition of Pointing: The Emergence of Reference to Objects (age: 1;0,11–1;1,19)

At the age of 12 months, the deaf toddler has already started using the index finger of his right or left hand, sometimes with and sometimes without communicative intention, which is comparable to the early pointing behaviour of his hearing (Bates et al. 1975; Bates 1976; Bates et al. 1979; Reddy 1999) and deaf peers (Petitto 1984, 1987, 1994; Pizzuto 1994). At this age, the child’s index finger is directed outward towards objects around him, a behaviour for investigating the world from which the first reference to objects gradually emerges.

The basic characteristics of the first stage in the acquisition of pointing are:

1) The index finger is directed outward towards objects, sometimes with and sometimes without communicative intention.

2) The investigative and manipulative functions of the index finger predominate in the child’s productions.

3) First reference to objects by pointing emerges.

4) The child directs his index finger towards objects in his environment but not towards other persons or himself.

5) Pointing is used with proto-imperative and proto-declarative function.

6) The toddler’s interest gradually moves from objects to communication with adults, attracting their attention by using proto-declarative pointing.

7) Other deictic gestures are used with communicative intention.
8.1 The use of pointing without communicative intention

At this developmental stage, the use of non-communicative pointing predominates. Non-communicative pointing gestures are almost twice as common as communicative ones. From 12 to 13½ months, the deaf toddler uses pointing without communicative intention on 33 occasions and with communicative intention on 17 occasions. The child touches objects in his environment with his index finger, directing his gaze towards them with no interest in the presence of adults. However, at this age, the attribution of communicative intention (or the lack thereof) to every pointing gesture found in the child’s interaction, and the assignment of a specific function to them, is not something that can be made with certainty in all contexts.

Non-communicative pointing is mainly used in those cases where the objects are close to the child, 51 accomplishing an investigative and a manipulative function. The child uses his index finger for investigating and manipulating objects, regarding them as “objects-of-contemplation”, according to Werner & Kaplan’s terminology (1963:44, 67, 69), and trying to find out how they are used. The investigative function of pointing is what Bates and her colleagues call “pointing-for-self” (Bates et al. 1975:217).

However, these two functions, although substantially different – the first one being more or less related to an internal consideration of the object, whereas the other with the object’s external use – are, in many cases, overlapping and thus not possible to be distinguished. Sometimes, when the child manipulates the object at the same time, it seems that he is investigating its operation or even the object itself.

In the present analysis, these two functions have been separated by attributing a manipulative function to the child’s pointing only in those cases where the nature of the object requires manipulation with the index finger. Out of the 33 non-communicative pointing gestures that have been recorded, 16 have investigative function and 17 manipulative function (see Table 3 below).

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51 Proximal pointing emerges first and is more frequent (Lock et al. 1994:48).
Table 3. Number of pointing gestures with and without communicative function in the first stage in the acquisition of pointing.

<table>
<thead>
<tr>
<th>AGE</th>
<th>NO. OF POINTINGS</th>
<th>NON-COMMUNICATIVE POINTING</th>
<th>COMMUNICATIVE POINTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1;0,11–1;1,19</td>
<td>6052</td>
<td>36 Investigative function</td>
<td>23 Communicative function</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16 Investigative function</td>
<td>16 Manipulative function</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17 Manipulative function</td>
<td>10 Proto-declarative function</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 Proto-imperative function</td>
<td></td>
</tr>
</tbody>
</table>

Using the index finger of his right or left hand alternately, the child investigates objects around him such as the nose of a stuffed bear, his father’s hand on the other side of a window, the camera by which he is being videotaped, the ants walking on the wall, the picture of an animal in his book, his book, and, although he cannot touch it, the light in the window of an elevator. Additionally, he alternately uses his right or left index finger for manipulating the wall clock, the peephole, the light switches in the house, the buttons of his walking toy, the buttons of the elevator and those of the telephone pad.

In all these cases of non-communicative pointing, as the toddler’s index finger touches the objects, the objects are close to his face and his gaze is on them. The concentration of his gaze on the objects and his engagement with them without being interested in the adult’s presence (an observation also reported in Bates et al. 1975), could be interpreted as an indication of the child’s internal contemplation of the objects. The child points at the objects as if he is talking to himself, posing them at a distance from himself and considering them as objects of contemplation and elaboration but not yet as objects of reference for communication with others (see also Werner & Kaplan 1963).

Example 8.1

The boy’s father has brought a fabric bear close to the child’s face. M looks at it very carefully and puts his tongue out repeatedly, while he continues to look at the bear. M’s father points at the nose of the bear by touching it: INDEX-nose. M takes the bear in his hands, brings it closer to his face and, with his right index finger, touches the nose of the bear to investigate it. (1/age: 1;0,11, duration: 00:01:59–00:02:06)

In the above episode, the child’s contemplation on the object is obvious. The pointing gesture is made without any communicative intention, having instead a definite investigative character. During the whole episode, the child

52 A number of pointing gestures that the boy performed remain unclassified because, as mentioned earlier, attributing communicative intention and a specific function to every pointing gesture observed in his interaction could not be achieved with certainty.
does not take his eyes off the object, neither looks for his mother’s or father’s gaze, nor exchanges anything with adults. The tongue coming out right in front of the face of the fabric bear, before the pointing gesture, shows that the child mentally elaborates the object.\textsuperscript{53} Finally, the investigative index finger of the toddler on the nose of the bear seems to complete the process of the internal elaboration of the object by offering a tangible experience, placing the object outside of him at a distance in the world.

Finally at this early stage, the emergence of the child’s first reference to objects existing in the outside world, as opposed to the child’s inner world, can be observed in the use of investigative pointing. According to Bruner, children initially use pointing only for themselves to signal “the noteworthy” as “part of a primitive marking system” (1983:75).

\section*{8.2 The use of pointing with communicative intention, the emergence of first reference to objects}

As has already been mentioned, first reference to objects by pointing emerges in this early developmental stage of the deaf toddler’s communication. The child uses his index finger for the accomplishment of reference with communicative intention, which, however, cannot always easily be detected with certainty.

What typically distinguishes communicative from non-communicative pointing is the alternation of the child’s gaze from the object of interest to the adult with whom the child interacts, although this criterion is still not an absolute requirement\textsuperscript{54} (see also Example 8. 3, and Chapter 5).

At the beginning of this developmental stage, the child’s communicative intention becomes evident with the shift observed in his gaze from object to adult immediately after pointing, whereas gradually until the end of his 14\textsuperscript{th} month, he alternates his gaze between object and adult while he is pointing.

Overall in the acquisition of Greek Sign Language, from the age of one year, the deaf child’s development in respect to the use of pointing is analogous with that of deaf children of deaf parents acquiring ASL (Bellugi & Klima 1982a, b; Petitto 1984, 1987, 1994; Pizzuto 1994), as well as with the route that hearing children’s use of pointing follows at the same age. The

\textsuperscript{53} Piaget has described a similar behaviour performed by his daughter Lousien at the beginning of the sixth stage of sensory motor intelligence at 16 months (Piaget 1936:293-94 cited in Panopoulos-Maratos 1998:61).

\textsuperscript{54} The context in which pointing is used is very significant for the attribution of communicative intention to the child’s early communicative productions of pointing. On the importance of context for the interpretation of child’s early language, see for instance Austin 1962; Bloom 1975; Dore 1974; Bruner 1975a, b, 1983; Halliday 1975; Greenfield & Smith 1976.
deaf child of the present study, parallel to the non-communicative use of pointing, points with communicative intention, alternating his gaze from object to adult, mainly after or during the performance of the gesture (see also Franco & Butterworth 1996).

However, the findings relating to Greek Sign Language acquisition concerning the referents of the child’s first pointing gestures differ slightly from findings about ASL acquisition. Until the middle of the 14th month, the deaf toddler exposed to Greek Sign Language does not use pointing for reference to persons; however, Bellugi and Klima (1982a, b) and Petitto (1984, 1987, 1994) mention that at that age, deaf children of deaf parents acquiring ASL use pointing directed to persons. In the present study, reference to persons by the use of pointing occurs in the deaf child’s communication at the second stage in the acquisition of pronominal pointing signs.

The child’s early utterances, which consist of a pointing gesture, are used for accomplishing two types of basic functions: (a) the proto-imperative function and (b) the proto-declarative function. Out of the 23 communicative pointing gestures that have been recorded from 12 to 13½ months for this case study, 7 occur in utterances with proto-imperative function and 10 in utterances with proto-declarative function (see Table 3). By using proto-imperative pointing, the toddler manipulates the adult in order that he might obtain an object or to fulfil one of his needs, whereas, by using proto-declarative pointing, he detects an object and uses it in order to gain the adult’s attention.

8.2.1 The use of pointing with proto-imperative function

During this period, the frequency of pointing with proto-imperative function in the child’s production seems to be lower (7 instances) compared to pointing with proto-declarative function (10 instances) (see Table 1).

According to the definition of Bates and her colleagues (Bates et al. 1975:209), what is important for the attribution of imperative function to the child’s pointing is the mediating role that the child assigns to the adult by asking him/her to be the agent for the accomplishment of his goal. The child uses the index finger of his right or left hand in order to indicate to the adult the direction in which he would like to go or the object he would like to obtain, which gives the adult the role of mediator in the fulfilment of the child’s aim. In this stage, the use of proto-imperative pointing is usually related to the goal of reaching and taking an object.

Out of the seven observed examples of proto-imperative pointing, only one does not relate to reaching, being more general in indicating the direction that the child demands to be followed by the adult.

Example 8.2
M is in his father’s arms at the front door. His father shows the peephole on the door to M and signs INDEX-peephole EYE. M looks at the peephole and, as long as his father uses his index finger to rotate the cap of the peephole, he extends his right hand to catch it. The index finger of his right hand is extended and touches the peephole while his father rotates the cap with his index finger again and again. The child’s gaze is focused on the peephole, but his index finger, not managing to remain on the object, falls below it, while still touching the door. The hand goes up and M, being more precise this time, points at the peephole, INDEX-peephole (arm extended, L handshape), and touches it. Keeping his hand on the object for a split second, he turns his gaze to his father. He then extends his right hand before him towards the centre of the room and produces one more pointing gesture INDEX-room (arm extended, L handshape) by which he asks to be moved towards the centre of the room. M’s father does not satisfy his demand and continues to play by pointing at the peephole. (1/age: 1;0,11, duration: 00:25:10–00:25:12)

In the above communicative occasion, the child produces three pointing gestures with different functions. The first pointing, directed to the peephole, is a non-communicative pointing produced with manipulative function by the child. The child’s attention is focused on the object. The boy tries intensely to manage what his father does, manipulating the cap of the peephole with his index finger without success. By the second pointing, bringing his finger back onto the peephole, the child’s intention becomes communicative as he turns and looks at his father and points toward the object. The index finger directed to the peephole is used to refer to the object with proto-declarative function. The situation with the peephole is completed by the performance of the third pointing gesture. The child changes topic by pointing at the centre of the room, using it with proto-imperative function. By using this last pointing gesture towards the centre of the room, the child’s aim is not to take or touch a specific object; rather, what he really intends to do is to move into the room with the mediation of his father, indicating to the latter the direction he would like to follow. Despite that, his father continues to play with the peephole, not satisfying his son’s demand.

The rest of the cases of pointing used with proto-imperative character are related to the goal of reaching an object, either for obtaining it or just for touching it. In these cases, the toddler uses pointing to ask to take the father’s string of beads, the researcher’s bag, and his own plastic car; he also asks to reach the wall clock and the handle of the door in order to manipulate them and make them move.

Among the above mentioned communicative uses of the index finger, the pointing gesture directed to the researcher’s bag is of special interest because its appearance is combined, somehow fused with the first occurrence of an interrogative element.
Example 8.3

M is in his father’s arms. He is standing in the middle of their living room. M tries to put his hands in his father’s mouth, but he is stopped. M sees the researcher’s bag on the table. He extends his left hand towards the table, while he pushes aside his father’s hands in front of him, and leans towards the bag. Father moves slightly closer to the table, almost accidentally because he is talking with the child’s mother. M is looking at the bag and makes a pointing gesture (L handshape, right hand) in which the fingers open into a relaxed hand as the hand rotates so that the palm faces upwards. As long as the child produces the gesture INDEX-bag-GQ – the arm is extended, directed towards the object – his gaze is directed to the object. The father has not seen the child’s behaviour, as he is not paying attention to him. He moves backwards in the opposite direction of the object indicated by the boy. M, still in his father’s arms, extends his hand open towards the object but, as his father walks away from the object, he drops his whole body backwards to express his displeasure. (4/age: 1;1,19, duration: 00:30:58–00:30:59)

In the above communicative episode, the child produces a proto-imperative pointing to ask his father to move so that he can take the researcher’s bag. Although the child’s gaze does not alternate between object and father, his behaviour – leaning towards the object – and his pointing are considered as communicative since the toddler, in his father’s arms, takes for granted that he has the latter’s attention (see also Reddy 1999). On this occasion, the form of pointing is fused with the form of the interrogative sign (GQ) found in adult language.55 The gesture INDEX-bag-GQ is a unified proto-imperative pointing gesture in which pointing and (GQ) are fused without clear boundaries between them. The child asks for the object by producing a unified form, which later on will be found again in the child’s communication.

8.2.2 The use of pointing with proto-declarative function

Pointing used for reference to objects has also been found with proto-declarative function (Bates et al. 1975; Bates et al. 1979; Camaioni 1993; Franco & Butterworth 1996) in the toddler’s early production in the present study. During this stage the frequency of occurrence of proto-declarative pointing seems to be higher (10 instances) than that of proto-imperative pointing (7 instances) but lower than that of non-communicative (investigative and manipulative) pointing (see Table 3).

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55 A sign with general interrogative function is also mentioned with regard to other signed languages (indicative reference in Jones 1976 and Sutton-Spence & Woll 1999, about ASL and BSL respectively). For a description of the sign, see Appendix B.
The parallel use of communicative pointing with imperative and declarative function by the deaf toddler acquiring Greek Sign Language at the age of 12 months does not confirm the statement according to which the imperative function of pointing comes one or two months before the declarative function because the emergence of the declarative function presupposes the development of new cognitive abilities (Camaioni 1993).

The deaf toddler detects an object and, by pointing at it, uses the object as a means to attract his interlocutor’s attention, that is, as a stimulus to start somehow interacting with adults (Bates et al. 1975:209). By proto-declarative pointing, the child’s interest expands from objects as entities to communication and interaction with adults through objects. In this stage, by using these proto-declarative pointing gestures, the toddler shows a developed social attitude, addressing the adult, not as a mediator who will give him an object, but as an interlocutor, that is, as a person with whom he can share information and with whom he can communicate.

At the age of 12 to 13½ months, the child’s proto-declarative utterances are only about the objects around him. In order to attract adult attention, the toddler points to (a) body parts of people close to him, as e.g. his aunt’s tongue and her hair, (b) objects in his environment, e.g. a flower on the balcony, the silhouette of an object on the wall, etc., (c) pictures of objects in his books, e.g., a picture of Mickey Mouse, a picture of a dog, of a turtle, of a carpet and other figures. In doing so, he finds objects with which communication with adults will be initiated, topics on which communication will be based.

Below some communicative episodes are described in which pointing gestures occur with proto-declarative character.

**Example 8.4**

* M is close to his aunt’s face. They are playing a game with his aunt’s tongue. M observes intensely as her tongue goes in and out, and he tries to imitate the same movement with his own tongue. His aunt bends her head forward making a grimace. M laughs. For a moment, her tongue comes out and M extends his hand to catch it. As his aunt’s tongue goes in, a small index finger emerges that is directed towards her mouth, INDEX-mouth (L handshape). Meanwhile M raises his gaze slightly to look at his aunt’s eyes and smiles. The hand and the index finger remain there for a split second while M smiles at his aunt. She tells the boy to put his tongue out (INDEX-child’s-tongue INDEX-tongue) and puts her tongue out again. M observes her carefully and touches his lips but does not put his tongue out. The game goes on until he loses interest. (1/age: 1;0,11, duration: 0:26:10–00:26:26)

The pointing directed towards his aunt’s mouth presented above is one of the first pointing gestures in the data of the present study to which proto-declarative function has been attributed. In fact it is a pointing gesture on the
borderline between the investigation of the object and reference to it. Initially, the child seems to speculate about the object imitating the sensory motor schema of tongue protrusion. Then he tries to catch the object, the tongue, and finally he refers to it by pointing and smiles. The attribution of communicative intention to this specific pointing gesture is based on the faint alternation of the child’s gaze from his aunt’s tongue to her eyes and on his smiling behaviour towards her. The index finger directed towards his aunt’s mouth seems to be used more in a proto-declarative manner than with proto-imperative function. The child’s aim appears to be mainly to communicate with the adult. He tries to keep his interlocutor’s attention and refers to the object as something peculiar and impressive. His aunt, realising that the boy is still interested both in the object and in their interaction, enriches their communication by asking him to repeat the activity in turn. The child, in spite of giving the impression that he investigates the movement of his tongue in his own mouth, does not follow his aunt’s order. At the end of the episode, she tries again to make the boy perform the same activity with his tongue; however, this attempt is in vain.

Example 8.5

*M* is looking at a book and taps his right hand on an open page. Without taking his gaze away from the page, he points at Mickey, INDEX-mickey-in-book (G handshape), who is canoeing. The whole hand touches the book and the pointing gesture seems well formed. With his finger still on Mickey, *M* turns left directing his gaze towards his mother. She immediately comments that Mickey wants to canoe, INDEX-mickey-in-book WANT CANOE. (3/age: 1;1,05, duration: 00:6:12–00: 6:15)

In the communicative episode above, the child indicates the object of his interest by pointing at it, and in so doing distinguishes it as significant. His communicative intention is obvious and clearly expressed by the alternation of his gaze towards the mother. The child refers to the object by using a pointing gesture. In doing so, he is addressing his mother and is probably waiting for a response, i.e. a comment from her. The above pointing functions as a proto-declarative gesture. In other words, Mickey becomes, by the use of pointing, a topic for which the mother immediately offers a comment upon realising the child’s communicative intention.

Example 8.6

*M* is standing in front of a small bench on the balcony of the family’s apartment. Behind him is his father. *M* raises his head upwards. He probably sees something. He turns back and looks at his father. His father asks him WHAT. *M* turns again towards the object (a flower) that has attracted his attention, and with his right hand points at the flower INDEX-
flower (L handshape). The hand and his whole body are extended towards the object, and while still pointing at the flower, he turns his gaze to his father who names the object, signing INDEX-flower FLOWER FLOWER FLOWER (‘it is a flower, a flower’). M watches his father very carefully. (4/age 1;1,19, duration: 00: 27:27–00:27:31)

The communicative interaction with the adult and the proto-declarative function of the above pointing gesture is very clear. In this particular example, the child’s father is very well tuned to his son’s communicative behaviour. The toddler checks his father’s gaze before and after the performance of the gesture, and although in this developmental stage in the acquisition of pointing, this is not yet a rule, it constitutes clear evidence that the child has just made his next step in respect to communication by checking an adult’s attention before the production of the pointing gesture. The deaf child has started to understand that the attention of his interlocutor – the other person – is a prerequisite for communication and for successful reference to an object by pointing.

The child’s attempt to avoid any ambiguity in regard to the referent of his pointing is obvious by the extension of his hand, as well as by his leaning towards the object. The flower is far from him and since he does not have another means to specify the referent yet, he resorts to alternative, less conventional ways such as leaning in the direction of the intended referent. Finally, as long as his father signs the name of the object, the toddler watches him, confirming his desire to have his comment in regard to the “topic” that he has pointed out.

Summarising, the use of pointing is considered as the very beginning of reference, and in the case of the deaf child acquiring Greek Sign Language – initially only to objects – constitutes a fundamental developmental step in the process towards the acquisition of language.

8.3 Deictic gestures other than pointing used with communicative intention

At the age of 12 to 13½ months, the deaf child not only uses pointing with communicative intention, but he also uses some other deictic gestures for the same purpose. These gestures are deictic because the arm is extended, always being directed towards the objects or the locations that are the intended targets, whereas the configuration of the hand may vary in the following ways: (a) the fingers may be extended, and the palm oriented upwards, downwards or towards the target object, (b) the fingers may be flexed (clenched hand), and (c) the hand may be relaxed without any specific configuration.
In this developmental stage of the boy’s early communication, the deictic gesture, which is performed with extended fingers, occurs more often, since it is the one that is formed with loose fingers and therefore does not require developed motor skills. The main function accomplished with these deictic gestures in their various forms is the imperative function. The child, being already in the adult’s arms, uses his whole hand for indicating the location and the direction he wants to be taken, and, more commonly, for indicating the object he wants to reach or take. Additionally, at the end of the first stage in the acquisition of pointing in some communicative contexts in which the child asks for something, the deictic gesture articulated with open fingers is performed in a special manner. The hand, open with extended fingers and palm oriented downwards, is directed towards a particular location or object and moves repetitively up and down in a restrained manner, expressing quite intense desire and impatience.

In summary, the semantic content of the aforementioned deictic gestures emerging in this early communicative phase of the deaf child’s development has not yet been specified. This is going to take place gradually in the next stage in the acquisition of pointing after 14 months of age.

In closing, the deictic gestures that are recorded in the child’s early communication can be related more to acting with objects, as, for example, reaching for an object, than referring to them. Reference to objects and locations accomplished with proto-declarative function takes place almost exclusively by pointing. In other words, the deaf child seems to prefer a more precise and conventional form, i.e. pointing, considering it more appropriate for the assignment of reference.
Second Stage in the Acquisition of Pointing: The Emergence of Reference to Persons and Self (age: 1; 2, 10–1; 3, 03)

The basic changes recorded in this developmental stage in pointing acquisition, between 14 and 15 months of age, concern the frequency of occurrence of the pointing gesture in the child’s communication and the use of the index finger, of the right or the left hand, directed not only towards objects or locations but also towards persons and self. It is in this stage that pointing for reference to persons and self emerges for the first time.

The basic characteristics of the second stage in the acquisition of pointing are:

1) The frequency with which the pointing gesture occurs is greater than the frequency recorded in the previous stage.

2) At the end of this developmental stage, pointing is almost exclusively used with communicative intention. The use of the index finger with investigative and manipulative function gradually disappears.

3) Pointing is used for reference to persons and self.

4) Some new symbolic gestures, first signs, emerge in the child’s production.

5) The first combinations of gestures (PG-PG, SG-PG, PG-SG) are observed in the child’s communication.

6) Communication has become richer.

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56 PG = Pointing Gesture, SG = Symbolic Gesture.
9.1 Pointing, the primary tool of expression

Although the duration of the videotaped material of the second stage is shorter (103 minutes) than the duration of the first stage (141 minutes), the deaf child’s pointing gestures in this developmental phase outnumber those found in the previous phase (60 pointing gestures from 12 to 13½ months; 115 pointing gestures from 14 to 15 months).

Table 4. Pointing gestures per minute in the first two developmental stages in the acquisition of pointing.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>MINUTES</th>
<th>NO. OF POINTING GESTURES</th>
<th>MEAN NO. OF POINTING GESTURES /MINUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>141</td>
<td>60</td>
<td>0.42</td>
</tr>
<tr>
<td>2nd</td>
<td>103</td>
<td>115</td>
<td>1.1</td>
</tr>
</tbody>
</table>

The peak observed in the frequency of occurrence of the deaf child’s pointing at 14 months is in accordance with the findings about hearing children in which an increased use of pointing from 14 months and onward until 24 months is reported (Greenfield & Smith 1976; Murphy 1978; Leung & Rheingold 1981; Guidetti 2002). During this early stage of language development, pointing behaviour lies at the boundary between action and language, being the primary expressive means that the deaf child has in order to manipulate his environment and to interact with it, parallel with the first symbolic gestures just beginning to emerge in his communication. Compared to them, however, pointing is the first conventional form used by the toddler and dominates in his interaction with adults.

In addition, pointing is better formed at this stage than before, being closer to the pointing signs found in adult communication in Greek Sign Language. The index finger directed towards a referent is extended and not loose. However, due to the child’s imperfect and incomplete motor development, the extension of the index finger often co-occurs with the extension of the thumb (an observation in accordance with Boyes Braem’s 1994:118 hypothesis). With regard to the distance – distant or proximal – that the object has from the child, the arm may or may not be extended, contributing to the specification of the target and to the avoidance of possible ambiguities concerning its reference. Both hands are still used alternately; the child has not yet shown a specific preference for one of them.

9.1.1 Readiness for the production of pointing

The most characteristic behaviour in the second stage in the acquisition of pronominal signs is the deaf child’s readiness to direct his index finger outwards, towards a target with clear communicative intention all the time. In other words the deaf child seems to be continually ready to point at
something, that is, to use his index finger for communication. This behaviour is probably similar to what Petitto (1984:67) calls the “resting state” of the index finger, adding that she does not know of similar observations concerning hearing children’s pointing gestures.

Example 9.1

*M is in his mother’s arms, sharing affection with her. He stops rubbing his face on his mother. He turns to the researcher and then to his left. His left index finger (L handshape) seems to extend but the child remains indecisive, and the hand disappears. The child’s gaze follows the direction of his finger but without being focused on something specific. His gaze turns back to his mother. She tickles and kisses M. M, looking forwards, tries to push his mother away from his belly by using his right hand. Meanwhile the index finger of his left hand (L handshape) extends, not being directed at any specific entity, and disappears. M’s mother stops tickling him. A new pointing emerges as INDEX-sink (L handshape, left hand). M’s arm is extended, and he leans forwards. The child looks in the direction he points. M’s mother stands up with the boy in her arms and goes in the direction he has indicated.*

(6/ age:1;2,25, duration: 00:40:00–00:40:10)

The first use of M’s index finger that occurs in this example is a pointing by which the child searches for an interesting target. Without having something specific in mind, as evidenced by his gaze, he moves around in the room without focusing on anything. The use of the index finger, more as an accidental configuration of the hand, constitutes an indication of the child’s readiness for the production of the pointing gesture, and the child’s inclination to use pointing all the time. Finally, after two attempts, the last pointing directed towards the sink is a pointing gesture used with proto-imperative function. It is a request by the child as he is being carried by his mother to the area near the kitchen sink.

In general, the non-communicative use of the index finger, which predominated in the child’s behaviour during the first stage in the acquisition of pointing, is vastly reduced at 14 months. The frequency of occurrence of the index finger used without communicative intention seems to diminish with age as the child matures. At the age of 14 months and 10 days, eight non-communicative pointing gestures are observed, directed towards objects with investigative or manipulative function, whereas at the age of 15 months and 3 days, there are only two pointing gestures accidentally displayed and, apart from showing the child’s predisposition for the production of the specific communicative behaviour, they do not seem to perform any other function.

During the second stage, the communicative pointing gesture predominates (101 communicative pointing gestures compared to 14 non-communicative pointing gestures) in the child’s interaction and continues to
be used with proto-imperative and proto-declarative function: 52 of the recorded pointing gestures have proto-imperative function and 49 have proto-declarative function.

In contrast to the previous developmental stage, pointing at this stage is not only directed towards objects around the deaf child, or towards specific locations he is interested in, but it is also directed towards persons, i.e. adults in the child’s environment and himself (see Table 5).

Of the 52 instances of pointing with proto-imperative function, 26 refer to objects, 8 to persons (one of which is self), and 8 to locations. From 49 instances of pointing with proto-declarative function, 31 refer to objects, 5 to persons (one of which is self), and 2 to locations.

Overall, from 14 to 15 months there are more pointing gestures directed to objects (57), fewer to persons in the child’s environment (13) including two to self, and even fewer to locations (10). Additionally, there are 21 pointing gestures directed either to persons, to objects, or to locations whose reference, however, is ambiguous.

Table 5. The distribution of communicative pointing gestures in terms of function and type of referent.

<table>
<thead>
<tr>
<th>2nd STAGE IN THE ACQUISITION OF POINTING</th>
<th>FUNCTION</th>
<th>OBJECT</th>
<th>PERSON</th>
<th>LOCATION</th>
<th>AMBIGUOUS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td>PROTO-IMPERATIVE</td>
<td>26</td>
<td>8</td>
<td>8</td>
<td>10</td>
<td>52</td>
</tr>
<tr>
<td>49</td>
<td>PROTO-DECLARATIVE</td>
<td>31</td>
<td>5</td>
<td>2</td>
<td>11</td>
<td>49</td>
</tr>
<tr>
<td>101</td>
<td>TOTAL</td>
<td>57</td>
<td>13</td>
<td>10</td>
<td>21</td>
<td>101</td>
</tr>
</tbody>
</table>

The above findings are in alignment with the findings of Bellugi & Klima (1982a, b) and Pettito (1984, 1987) regarding the early behaviour of pointing directed to persons, locations, and objects observed in deaf children acquiring ASL, but with a subtle difference in the age at which pointing to persons is recorded. In the present study, the first pointing gestures to persons occur at the age of 14 months and 10 days, whereas the first pointing to persons in Pettito’s data for Kate appears at 10 months (1984:66-67, 1987:16-17), and for Carla, at 12 months (1984:114-115, 1987:16-17) (see also Section 6.3.1).

In contrast, the pointing gestures directed to persons and locations found in the communication of the deaf child exposed to Greek Sign Language between 14 and 15 months differ from Pizzuto’s (1994:146) observations according to which, between the age of 12 and 15 months, deaf children
acquiring ASL direct pointing only towards objects (Pizutto studies the same children and describes the same data as those of Petitto and Bellugi & Klima). According to her, pointing directed to locations emerges after 18 months, whereas pointing is not directed towards persons in the children’s environment before the age of 20 months.57

What follows is a detailed description of the parallel occurrence of the pointing gesture directed to objects, locations, and persons recorded in the interaction of the deaf child acquiring Greek Sign Language between 14 and 15 months.

9.1.2 Objects
In the second developmental stage, pointing directed to objects shows the highest frequency of occurrence in the deaf child’s production (see Table 5).

9.1.2.1 Pointing directed to objects in utterances with proto-imperative function
From 14 to 15 months, pointing directed towards objects exhibits a qualitative variation in the child’s proto-imperative utterances. In addition to the instances of pointing to objects by which the child asks adults to mediate in order to obtain an object by indicating the object of desire (a function which has previously been reported), the child in this developmental stage uses pointing to objects to indicate them as a means to obtaining a goal. That is, the child asks an adult to do something by pointing at the object for which an action is required, the result of which is his desired goal. In these last cases of pointing directed to objects with proto-imperative function, the child adds a new element in the information that he conveys in his environment, a fact which reveals a progress in his cognitive development.

The objects that the child asks for while interacting with adults are his feeding bottle with water, a pen, the researcher’s notebook, some plastic grapes on the wall and a flower on his balcony. The objects he indicates for the accomplishment of a desired goal are the handle of the front door and his mother’s knee. The child, who wants to go out, addresses his father and points at the knob of the front door handle – the means – asking him to pull it downwards. Similarly, wishing to be placed into a fun-fair car by his mother, the child points to her as a person, but then he points at her knee – the means by which she can reach him and help him move to the car, which is the goal of his intention.

Example 9.2

However, Pizzuto creates a somewhat unclear picture for the period between 12 and 20 months by referring to a probably erroneous pointing gesture directed towards a person at the age of 15 months by one of the two children (Carla) participating in Petitto’s study (Pizzuto (1994:149).

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M is on the balcony. Although he still needs support to walk, he tries to follow his father, who comes back from the kitchen after getting him some water. The child moves from object to object, whining. He stands at the balcony door, looking at his father already holding his feeding bottle with water. M seems to point in front of him, up to his feeding bottle, or towards his father, or both: INDEX-feeding-bottle (right hand, arm extended and L handshape). The father holds out the bottle to M and then places it on the table so that he can come and take it. Looking towards the table, M signs GRASP, whines, repeats GRASP INDEX-feeding-bottle (right hand, arm extended and L handshape) and then taps his hand on his father’s leg, demanding the feeding bottle. M’s father extends his hand to help him to come closer towards the table, but he refuses and continues whining until his father gives him the feeding bottle. M takes it and tries to walk in the opposite direction. (5/ age: 1;2,10, duration: 00:05:15–00:05:28)

In this episode, two pointing gestures occur in proto-imperative utterances. The referent of the first pointing gesture – the feeding bottle, father or both – is not clear since both entities are in the same direction and at the same height. However, from what follows, it seems more likely that the pointing refers to the object and not to the father. The second pointing gesture directed to the object of the child’s desire, occurring in the utterance GRASP INDEX-feeding-bottle, is much more precise compared to the first pointing gesture. The height and the direction of the hand towards the table where the father places the bottle leave no doubt that its referent is the object. Additionally, the presence of the symbolic gesture GRASP before the last pointing gesture diminishes the possibility that it may refer to the father. By using the two pointing gestures, the child demands the bottle from his father, and his insistence is obvious in his overall behaviour. Apart from the fact that he continually whines – a clearly demanding attitude – until he finally takes the feeding bottle, the imperative function that his utterances have is also indicated by: (a) the child’s insistence of the father’s role as mediator, and (b) his walking behaviour. In particular, when the father extends his hand to help the boy come closer to the feeding bottle, he refuses, whereas, once he has the bottle in his hands, he tries to walk independently, moving in the opposite direction.

Beyond the use of the pointing gesture itself, a very significant development that takes place with regard to the child’s emerging communicative skills in this episode is the occurrence of the symbolic gesture GRASP and its combination with the pointing gesture. The child, demanding his feeding bottle, initially expresses his desire with two independent gestures in two independent utterances – INDEX-feeding-bottle and GRASP – and then he combines them to produce one utterance: GRASP

58 See Section 9.2.
INDEX-feeding-bottle. In this utterance, the gestures – being at the threshold of true lexical items – have a different semantic content. The first one is about the action that the child intends to perform and the second is about the object the child wants to obtain.

The deaf child’s ability to combine two ideas or two gestures seems to emerge in the cognitive level before the ability to combine two true lexical items at the linguistic level, as is evidenced below. In this developmental stage, the boy’s ability to combine two gestures is demonstrated in many communicative situations.59

Example 9.3

*M* is out on the street in his pushchair with his mother. They have stopped next to a fair-fun car in which he wants to sit. His mother stands at his left and encourages him to say bye-bye to the car. *M* extends his left hand towards his mother, and while looking at her produces INDEX-mother and then looks down to her knee and produces INDEX-mother’s-knee COME COME COME. The handshape of both pointing gestures is an L handshape. The first index is performed with the arm extended, while the second one is performed with a slight flexion in the elbow joint. *M* stops, turns his gaze to the car, and signs CAR using only his left hand. His mother signs BYE-BYE towards the car while looking at him in an attempt to encourage the boy to imitate. He does not respond. (7/ age: 1;3,3, duration: 00:03:37–00:03:43)

In the episode described above, the child uses two pointing gestures with proto-imperative function: one directed to a person – being one of the most important developments in the second stage in the acquisition of pointing (see Section 9.1.4 Persons) – and a second directed to an object functioning as a means for the accomplishment of the child’s goal. The child performing these two pointing gestures does not indicate the object of his desire to his mother, namely the car in which he would like to sit, as would be expected. Instead he first indicates his mother as the mediator and the agent of a particular act, and then he indicates the means (mother’s knee) by which she should perform the action and will eventually lead the child to his desired target. The second pointing gesture to his mother’s knee seems to be a clarification of the first pointing gesture. The boy points at his mother’s knees as a way of saying ‘move’, ‘use them’, ‘walk’, indicating precisely the part of the body (the object) that the mother has to move in order to carry out the action. Immediately afterwards, the symbolic gesture COME emerges. COME, which is made very close to the mother’s knee, has a specific meaning and probably relates to both mother’s knee and mother herself.

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59 Similar observations have also been made for hearing children (Capirci et al. 1996).
Whether the above sequence of gestures forms an utterance or not, it clearly expresses what the boy has in his mind, i.e. asking his mother to move closer to him and put him in the fun-fair car.

In this episode, the child’s mental processing seems to be quite complex. The progress of his cognitive and communicative skills is evident in the expression of the new information that he is able to transfer.

A pointing gesture directed to an object in an utterance with proto-imperative function that has special interest because it occurs in a unified form with an interrogative gesture, is found in the following example.

Example 9.4

M holds and chews a fabric cube with some figures of objects on it. He extends his right hand and offers the cube to the researcher, who is behind the camera, and looks at her. The researcher extends her hand to take the cube. M’s gaze is directed towards the researcher’s hand and places the cube in her palm. A pointing gesture is immediately formed. M points at a figure on one side of the cube INDEX-object-on-cube (right hand, L handshape), looking at it at the same time. The arm is slightly bent and the finger contacts the figure. Without stopping his hand movement, M’s gaze goes to the researcher. The hand is pulled backwards abruptly, still having the pointing configuration (L handshape) with the thumb extended. The palm is oriented towards the child’s body and touches his chest, where it remains for a split second, forming the gesture WHAT. M produces a unified form INDEX-object-on-cube-WHAT. His gaze remains directed towards the researcher and then, while the right hand is still in the same position, the gaze goes to the object. M makes a grimace and his gaze alternates between the researcher and the figure of the object, indicating that the child is waiting for a response. At the same time, the left hand takes the configuration of the right hand. The researcher answers M who is still looking at her very intensely. (6/ age: 1;2,25, duration: 00:42:08–00: 42:28)

In the above communicative situation, the proto-imperative function of the utterance, composed of a pointing gesture directed towards the picture of the object by which the boy asks for an answer, is obvious. Indicating the picture of the object on the cube, the child asks the adult its name, a behaviour also observed in the first stage in the acquisition of pointing, but not so clearly expressed.

In this particular episode, the gesture begins with pointing directed to the object on the cube and ends with an elliptic, but very recognisable, form of the sign WHAT, where the hand is rotated halfway around and then stopped. In the utterance INDEX-object-on-cube-WHAT, proto-imperative function

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60 In general, when the child gestures without pausing at this age, it is not clear if the action constitutes one utterance or if it is simply a sequence of gestures.
is related to the interrogative function. In this sentence-like construction, the pointing and the interrogative part do not constitute a combination of two gestures, but for two main reasons they are regarded as a frozen form, or a unified sign (as Newport & Meier 1985: 896 also mentioned with regard to children acquiring ASL): (a) in terms of their form both parts of the utterance seem to be conflated, and (b) the interrogative sign WHAT has not yet appeared as an independent item in the child’s production. Similar unified, unanalysed forms have also been described in hearing children’s language (indicative reference: Cooley 1908; Greenfield & Smith 1976; Clark 1978; Charney 1980; Chiat 1982; Capirci et al. 1996), and they also continue to appear in other communicative circumstances in the next stages in the acquisition of pointing.

The frozen form INDEX-figure-object-WHAT constitutes a characteristic example of integration of the interrogative function in the proto-imperative function of pointing. The association of the two functions in this example is noticeable, indicating that interrogative function developmentally seems to emerge in the child’s language from the imperative function of the use of the pointing gesture. A similar claim has also been made about the emergence of early questions in the acquisition of spoken languages (Bruner 1983; Lyons 1977, 1995).

9.1.2.2 Pointing directed to objects in utterances with proto-declarative function

In this developmental stage, the child uses pointing in utterances with proto-declarative function to indicate an object as a distinct noteworthy entity, waiting for adults to comment on it, and thereby initiating a communicative episode. By pointing, the toddler refers to pictures of objects or animals that exist in his books and refers to present objects around him, such as the plastic grapes on the balcony, the ropes of the tent, his lorry, some of his pencil marks on a paper, other toys and clothes in a shop window, the light of a lamp on the street. He refers to body parts such as his belly button, identifying this particular part on his own body with the corresponding one on an adult’s body.

What follows is a description of a special communicative episode in which the child, while addressing the researcher, points directly to an object in an utterance with proto-declarative function.

Example 9.5

M is in his aunt’s arms. He is looking at the researcher. M smiles, opens his eyes, opens his mouth and shakes his left hand with an open palm,
pretending that he is signing. A pointing gesture (L handshape) emerges. Pointing is directed to his left, then to the front, to the right, then again to the left, and finally once again to the left. The child’s gaze first follows the direction of the pointing behaviour, then goes back to the researcher, follows the pointing and goes back to the researcher again. The index finger is raised again, directed left downwards, close to M’s body and followed by his gaze. The aunt interferes and points at some plastic grapes hanging on the wall, at their left side. M raises his gaze towards them, whereas his left index finger appears again, although lower, near to his leg. The aunt pushes M’s hand upwards and clearly directs it towards the target object. M releases his hand, points at grapes (INDEX-grapes) and looks at the researcher. (6/age:1;2,25, duration: 00:00:45–00:00:58)

In the above situation, the child’s readiness to use pointing for communicating is obvious. The child plays by pretending to sign as hearing children pretend to speak by saying nonsense words. He points by directing his left index finger here and there and pretends to be referring to some non-existent objects. As the hand moves left and right, he looks at the researcher, and it seems that he is trying to involve her in an interaction by gesturing. His pointing does not have a specific target (object of reference) and, as a rather newly developed motor skill, it is used as a means of expressing the child’s communicative intention towards the adult. Communication seems to constitute a predisposed purpose here. The overall string of gestures produced by the child in which pointing is embedded is reminiscent of hearing children’s communicative vocalisations that sometimes include one or two true words from their first lexicon when they pretend to speak. The communicative episode is finally completed by a pointing gesture used in a proto-declarative manner as well as with the monitoring of the researcher’s gaze by the child. The boy, helped by his aunt, manages to find an object (the plastic grapes on the wall) by which he can keep the researcher’s interest, presenting them as something noteworthy.

9.1.3 Locations

In this stage of the child’s communication, from 14 to 15 months, pointing is directed to locations and is used sometimes with proto-imperative function (eight pointing gestures) and sometimes with proto-declarative function (two pointing gestures). In this category some pointing gestures have also been included that, although directed to objects, seem to have more or less locative meaning. By these pointing gestures, the child refers to the location defined by the objects and not to the objects themselves.
9.1.3.1 Pointing directed to locations in utterances with proto-imperative function

Pointing gestures directed to different locations are mainly used by the toddler for approaching areas he cannot reach by himself by asking for the mediation of an adult. Usually while in either his mother’s arms or in his carriage, the child points towards a specific location in order to declare the place, the area or the direction in which he wants to go. He asks, for example, to be taken closer to the high edge of the fence at one side of the balcony, to be moved to the sink in the kitchen, to be placed into a fun-fair car, and to get down from his mother’s arms.

Example 9.6

M’s mother has just come into the living room, where father is sitting, while holding M in her arms. When father sees them, he starts gesturing ‘jealousy, jealousy,’ a routine game they often play. M whines and with his left hand (his arm is bent) points to his father INDEX-father/father’s chest (L handshape). With his right hand, he almost simultaneously points down INDEX-down (loose hand configuration). The arm is extended to the floor and at the same time the whole body bends forwards. M’s gaze alternates from his father to floor, initially directed towards his father and then to the floor, to his father, to the floor and finally back to his father. Meanwhile, the boy also nods his head twice in a confirming manner. Father shakes his head “no” to the boy – the father’s head goes backwards, while raising his eyebrows, and he gestures again “jealousy, jealousy.” M produces a demanding gesture, DEMAND⁶²- all fingers are extended and spread (5 handshape), the orientation of the palm is towards the floor and the hand is moved up and down with a restrained repetitive movement. The child whines, insisting by this behaviour on leaving his mother’s arms. Boy’s mother does not satisfy his desire but instead takes M away, while he goes on whining. (6 /age: 1;2,25, duration: 00:08:01–00:08:10)

Both utterances, composed by the pointing gestures described in the above communicative episode, have an imperative character. With the first pointing gesture directed towards father, the child demands either his father as person or his embrace, or in general asks to go close to him. However, in this situation and in similar communicative situations, it is not possible to distinguish between the person and his arms as a desirable location for the child. Therefore, the pointing gesture above has been included in the category of ambiguous pointing (see also third stage, Example 10.8).

The second pointing gesture has a clear proto-imperative function referring to the area (down) where the child wants to be moved, i.e. to leave

⁶² DEMAND is not a true sign in Greek Sign Language. It is a gesture used by M that has been glossed as DEMAND according to its meaning (see Chapter 7).
his mother’s arms. The boy wants to walk to his father. He whines continually, begging and asking his father to mediate for the fulfilment of his desire, nodding his head and alternating his gaze from the father to the floor and back again.

Finally the gesture which has been transcribed here with the gloss DEMAND, occurring after the first two pointing gestures of the above communicative episode, is a gesture whose emergence has already been mentioned in the previous stage of the toddler’s early productions, found with deictic function (see Section 8.3). In the second stage in the acquisition of pointing, the form of DEMAND has changed, gradually losing its deictic character. In contrast to what happened earlier, the orientation of the palm is no longer directed towards the object that the child wants, but instead it is oriented downwards, and the hand is moved repetitively up and down. In this stage, DEMAND appears in communicative circumstances, most of the time following other utterances or gestures. In this way, the child defines first the object of his desire and then expresses a strong intent on obtaining his target.

9.1.3.2 Pointing directed to locations in utterances with proto-declarative function

The use of pointing directed to locations in utterances with proto-declarative function appears in the videotaped material of this developmental stage only in two communicative episodes, which, nevertheless, are very prominent examples of the child’s developing communicative and linguistic capacity.

In the first example, the child refers to the place that he intends and wishes to go, whereas in the second example, in answering his mother’s question, he refers to the place (indicating the location) at which a non-present person in the communicative situation (his father) probably is.

Example 9.7

*M is sitting on the floor between his mother and his aunt’s feet as they sit on the sofa in the living room. M looks at the front door and gestures BYE-BYE with both hands, repeatedly. At the same time he tries to stand up, holds onto the sofa with his right hand, and continues BYE-BYE with his left hand. Then he looks at the door and points INDEX-door with his left hand (L handshape) and while, still pointing, makes some unsteady steps in the direction in which he is pointing. His index finger is restrained and the gesture is performed with the arm bent. The duration of the gesture is prolonged. The mother asks M ‘What do you mean by BYE-BYE and this and this?’ signing GQ⁶³ BYE-BYE INDEX-object-up INDEX-object-down. M follows his mother’s pointing with his gaze and then looks at her with his index finger still extended. She continues by signing INDEX-door INDEX-

⁶³ GQ is the gloss for the general interrogative sign used in the language addressed to the child by adult signers.
In this episode, mother’s response either results from not understanding the child’s pointing or from intentionally avoiding discussing his wish to go out. For a moment this seems to disorientate the child from his own goal. Using his left index finger in a well formed manner, M points at the front door to express his intention to go out, declaring what he is going to do. The symbolic gesture BYE-BYE, which comes some seconds before the pointing gesture, contributes to the interpretation of the child’s pointing at the front door. The toddler, associating the symbolic gesture BYE-BYE (denoting the act of leaving) with INDEX-door (showing the direction he is going to follow), tries to convey the meaning ‘I want to go out’. This is also indicated with his overall behaviour standing up and facing towards the door. Surprisingly, although he has not yet the precise linguistic means to express his wish to go out, he manages to overcome this by pointing in the direction of the door. Moreover he tries to say something about what he wants in the immediate future going beyond pointing at “here” and “now”.

Example 9.8

*M and his mother are in the centre of their sitting room. M’s mother, holding him with her right hand, slightly pushes the boy to look at her, and asks repeatedly FATHER WHAT? FATHER (meaning ‘Where is daddy? Daddy?’). M looks at her intensely. Then he turns and, still supported by mother’s hand (from the right side), goes towards his parents’ bedroom. In the middle of their way to the bedroom, M raises his left hand and points towards the bedroom door: INDEX-door/bedroom (L handshape). At that moment, his father is sleeping in the room. The pointing hand configuration is restrained and is performed with the arm bent, whereas the duration of the gesture is prolonged. Finally, M reaches towards the door and touches it repeatedly with his index finger. Then he turns back, looks at the camera, looks at the door again and goes back to the living room. His mother is enthusiastic and comments to the researcher that the child has understood the question. (6/ age: 1;2,25, duration: 00:25:38–00:26:01)*

The child’s overall behaviour shows clearly that his pointing gesture is the answer to his mother’s question, which contained the interrogative sign WHAT. The pointing gesture directed to a specific location (the child points towards the door, points at the door and refers to the room) denotes the father’s position, although the latter is not visible. In this particular situation, the question that arises is what exactly the child understands of his mother’s signing. It is not possible to ascertain from the context of this communicative situation whether he understands the mother’s question because it is
associated with a communicative routine usually executed in the absence of his father, or whether he understands his mother’s reference to his father as a non-present person, or even whether he is able to understand in general questions having the type “entity + WHAT”. However, the understanding of the question, even as an utterance produced in the context of a particular routine, and the fact that it refers to a person who is not visible, is evidence of the progress of the child’s cognitive skills. In the above episode, the child functions in a more abstract way, mentally elaborating his mother’s utterance and the context in which it is used. Pointing proves, once again, to be effective enough and precise, used as an expressive means in a complicated and demanding communicative episode such as the above. In addition, in terms of its form, the arm is not extended, although the distance between the child and the referent of the pointing is long; the child’s pointing gesture seems to resemble an adults’ pronominal pointing. By approaching the door and touching it with his index finger repeatedly, the toddler makes the meaning even more unambiguous. In addition, since he does not make any effort to confirm the father’s presence in the room, he seems to be sure of what he expresses.

Finally, the boy’s understanding of the specific question expressed with the interrogative form WHAT has to be seen in relation to the emergence of the interrogative function in his own production at the same age, as described in Example 9.4, where the unified sentence-like form INDEX-object-on-cube-WHAT occurred. In summary, even if it is not possible to judge how general or concrete the toddler’s understanding of the question “entity+WHAT” is, his receptive and expressive skills seem to have developed in a parallel way, supporting each other.

9.1.4 Persons

The use of pointing directed to persons, sometimes with proto-imperative function (eight pointing gestures), and sometimes with proto-declarative function (five pointing gestures), constitutes one of the most important developmental steps of the second stage in the acquisition of pronominal signs. In contrast to the first stage in the acquisition of pointing, where no pointing gestures to persons are observed, and despite the duration of the videotaped material, which was longer (from 12 to 13½ months) compared to that of 14 to 15 months (see Table 4), many pointing gestures to person were recorded in the latter developmental stage. The child points at present persons and also points at himself. In total, 13 pointing gestures to persons have been recorded, constituting 11.30% of the total number of pointing gestures occurring between 14 and 15 months (see Table 5).

Findings similar to the above have been reported by some researchers (Bellugi & Klima 1982a, b; Petitto 1984, 1987, 1994) concerning deaf children acquiring ASL in which there is mention of the use of pointing to
persons during almost the same period of time. In particular, Petitto (1984:66-67; 1987:17) refers to one of her two subjects who uses pointing to persons at 10-12 months, whilst the other does the same later, at approximately 12-15 months (1984:114-115) (see also Chapter 6). Thus, the findings of the present study concerning the acquisition of Greek Sign Language, despite the slight differences observed in the ages at which the specific phenomenon takes place, seem to align with Petitto’s findings about early reference to persons.

9.1.4.1 Pointing directed to persons in utterances with proto-imperative function

At this stage of development, using proto-imperative pointing to persons, the child indicates adults, either because they are the goal of his desire as human beings or because he wants them to function as mediators for the fulfilment of a desirable goal. In other words, pointing directed towards persons is used for conveying new information, which was not earlier expressed – concerning adults as human beings and/or mediators for the accomplishment of an action. By using pointing in utterances with proto-imperative function, the toddler makes various requests of his father – requesting that his father be the one who will hold his hand and go around, who will play with him, or will push the car in which he sits. He also points towards his mother, requesting her to accomplish his wishes. He demands from her to intervene and bring his father back (Example 9.13), to do something to help him obtain an object, to carry him to the fun-fair car (Example 9.3).

Example 9.9

_M_ sits on a toy car on the family’s balcony. At his right is his father and at his left is his mother. The father points at the car and signs INDEX-car CAR (‘this is a car’). He holds the wheel and moves it. _M_ looks towards his mother. His father pushes the car. His mother does the same. The father steps back a little further. _M_ turns to the front and then towards his father. He looks at him and with his left hand points INDEX-father (arm extended, L handshape). _M_’s father takes two steps towards the child and asks WHAT. _M_ points again INDEX-father looking at him. The hand (left) is raised high, the arm bends and the index is directed towards his father’s face or chest. The handshape of the pointing gesture is a G handshape but is not very well formed. After pointing, all fingers are open and the hand remains at front, directed towards father as an attempt to reach him. The gesture REACH is formed, although not very well. The father comes closer and pushes the child’s car. _M_ turns back, looking at his father who pushes him. _M_ looks at his mother, who laughs as the father turns the boy towards her, pushing the car. The boy’s mother comes very close to the child and laughs. _M_ turns back pointing at his father with his left hand INDEX-father and immediately brings his gaze back to mother, laughing. The pointing gesture is very
restrained; the arm bends (L handshape) and the gesture is produced much closer to the boy’s body. The father pulls the car back and pushes it forward again. The game goes on. (6/ age: 1;2.25, duration: 00:11:51–00:12:17)

In this episode, the boy produces three pointing gestures directed to his father. By the first two, which have proto-imperative function, he addresses his father and, with the third one, which has proto-declarative function, he addresses his mother. With the first two pointing gestures M asks his father to push the toy car. In particular, M wants father to be the agent of the desired action – asking him to do something – even though the exact target of his desire, what he is waiting for by pointing towards father, is not clear. After the first pointing gesture, while the father tries to discover the boy’s intention, M repeats his request and produces again a second pointing gesture towards father. This second pointing is followed by REACH, another deictic gesture that, although not very well formed, shows that the child wants to be close to his father as he tries to reach him.

The third pointing emerges when the child’s initial target has been accomplished, and he is completely satisfied. By this the toddler addresses his mother and makes a statement about his father, denoting him and his action as something special and important.

At this stage, another development observed regarding pointing towards persons is that by using pointing with proto-imperative function, the child differentiates the agent from his interlocutor to whom he addresses a request. He asks his interlocutor to act as a mediator to another person for the accomplishment of a goal. In this case, the mediator and the agent of the action are different persons, as in Example 9.10 when M points at a woman, suggesting to his interlocutor (another person) to tell the indicated woman to carry out an action.

Example 9.10

M is in the park swinging. At his right there are two more swings in one of which a girl is sitting and being pushed by a woman, presumably the girl’s mother. At his left there is an empty swing in which his mother was sitting and swinging before the girl arrived. Next to the left swing stands a second woman who has accompanied the girl and her mother. M looks at the girl. He turns to the front and then back to the girl and then to his left. He looks at the woman standing at his left and smiles at her. The woman passes before him and smiles back at him, while moving to his right side and going closer to the girl’s mother. M goes on smiling at her, lowering his gaze down, but still following her with his eyes. She continues looking at him. M, looking up at her more courageously, turns right and backward towards the girl’s mother and points towards her INDEX-girl’s-mother (arm extended, L handshape). At that moment, the girl’s swing is up. His gaze goes back to the woman and without stopping he moves his hand to the left, before him and
left, almost pointing nowhere. As his gaze is delayed for a split second, he finds that his last pointing does not have a specific target, and so corrects the position of his hand, this time producing a clear pointing gesture to the left swing INDEX-swing (arm bent, L handshape). The utterance formed is INDEX-girl’s-mother INDEX-swing. For a moment, M stops as if he is thinking of something. Then he turns back and looks towards the two women. (7/ age: 1;3,3, duration: 00:20:16–00:20:38)

In the above episode, both of the pointing gestures, one towards the girl’s mother and the other towards the swing, constitute an utterance INDEX-girl’s-mother INDEX-swing with proto-imperative function.

From the location of the participants and the height of the child’s hand, the reference of the first pointing to the first woman as person is unquestionable. INDEX-swing, although directed to an object, seems to have a more locative meaning; still, the possibility to refer to the object or even to the action of swinging cannot be excluded with certainty.

In this communicative example, the child differentiates the interlocutor from the agent of the action, namely by referring to a third person almost outside of the communicative act. Each of the two unknown women has a different role in the situation. The second woman is the interlocutor, whereas the girl’s mother is the referent of the toddler’s pointing. The boy interacts only with the second woman initially in a non-verbal manner, exchanging glances and smiles, and then verbally, making a proposal, a suggestion about the girl’s mother.

In particular, with the utterance INDEX-girl’s-mother INDEX-swing, the child makes a proposition suggesting that the girl’s mother sit on the left swing, but he does so without addressing her. With his behaviour M addresses the second woman with whom he interacts and asks her to function as the mediator to convey his proposal to the girl’s mother, who will be the agent of the action (moving to the swing and swinging) that he proposes. The child’s idea seems to emerge from his previous experience, the fact that his own mother was sitting before in this specific swing.

The development of the child’s communicative and linguistic abilities is obvious in the above episode. The child’s role in the communication is much more active as he goes beyond dealing only with familiar people. In addition, he produces a combination of two pointing gestures, enhancing the content of the information he is able to convey. Pointing to the girl’s mother constitutes evidence that the boy first thinks about the woman’s relation with the girl, attributing her the role of mother and then correlates her with his mother.

In summary, pointing at the mediator-agent and the agent being the subject of an action not identified with the mediator (being only the child’s interlocutor in a communicative act) indicates that the toddler is able to
realise that others may have a perspective different from his own and also shows that he is able to express more precise information.

9.1.4.2 Pointing directed to persons in utterances with proto-declarative function

By using proto-declarative pointing directed towards present persons, the child refers to them as special beings who, for some reason, are important to him. M points at his father in connection with his presence or absence, points at his father when he pushes his car (see the third pointing gesture in Example 9.9), points at his mother who plays with the ropes of the tent, and at a young girl he saw on the street.

Example 9.11

The parents take M for a walk in his pushchair. They have just arrived out on the street when he sees a young girl, almost his age, at his left. As they approach her, M looks at the girl and points to her with his left hand INDX-girl (arm extended, L handshape). M’s gaze before and after pointing has not been recorded in the video. The girl looks at him. M's mother stops the pushchair for a few moments. (7/age: 1;3,3, duration: 00:00:35–00:00:37)

In the above communicative situation, the toddler’s reference to the girl is unambiguous. What makes the other child’s presence special to M probably has to do with the fact that it seems to be someone of the same kind. What exactly the boy has in his mind when indicating the girl’s presence is not possible to ascertain. Nevertheless, this pointing gesture constitutes an important developmental step in this stage in the acquisition of pronominal signs, showing that the child’s interest has moved from objects to persons and to communication with them.

9.1.4.3 Ambiguous cases of pointing directed to persons

As already mentioned, there are 21 pointing gestures (18.26%) whose reference is ambiguous (see Table 5). These pointing gestures may refer either to persons, to the objects these persons hold, to persons and the location at which they are standing, or to persons as locations to be moved. It is not possible to determine with precision each referent of the above pointing gestures because there is not enough information from the context in which they are used and, additionally, because it is not possible to consider a person and the object he/she holds, and the location he/she occupies, as different entities (as Lyons 1977, 1995 argues).

\[64\] This is an ambiguous pointing gesture because the boy may also refer to what mother is doing, i.e. mother’s activity, and not to her as person.
Below, two characteristic examples of ambiguous pointing gestures directed to persons are presented. These examples illustrate the difficulty that exists in regard to the assignment of the referent of a pointing gesture in this early stage in some communicative episodes.

Example 9.12

*M plays with his father and mother pushing and lightly kicking a lorry on the balcony. M’s father holds his left hand. M looks at the researcher and then, with his right hand, points to the lorry INDEX-lorry (L handshape) and looks at it. He turns to his father, who at that moment is kneeling, signing something about the toy. He keeps his balance by catching his father’s left hand and then with his right hand points at him INDEX-father (L handshape) very close to father’s face. Then he falls onto his father’s chest where an episode of affection follows. The duration of his pointing gesture is short, and the arm is not extended. (6/ age: 1;2 25, duration: 00:14:39–00:14:48)*

In the above episode, the boy’s desire to be in his father’s arms, expressed with a pointing gesture directed towards him, is obvious. After initially having his attention directed toward the lorry, the child addresses the researcher and performs a proto-declarative pointing gesture, the referent of which is the lorry. Then, as the father has attracted his attention by signing something about the lorry, his interest seems to move towards him as person. The toddler, by holding his father’s hands, demands him to stop signing, and although he could have fallen on his chest directly (they were very close to each other), he prefers first to express his desire by pointing and then to fall into father’s arms expressing affection. However, in this specific context, it is not possible to maintain with certainty that the pointing gesture directed towards father refers unquestionably to him and not to his arms as a place for the child to be moved. This distinction between person as human being and person as location that he (or she) occupies – constituting a location for a child to be moved to – cannot be made by using pointing (see also Lyon 1977, 1995).

Example 9.13

*M’s father has been in the kitchen filling his bottle with water, although he has already drunk enough.* *M stays on the balcony with his mother and whines in displeasure. He turns his gaze to her standing next to him at his left and points INDEX-mother (right hand, arm extended, L handshape) while whining. M’s mother tells him to wait, adding that she cannot take him*

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65 This example is part of a longer episode in which the child negotiates with his father about his feeding bottle filled with water without expressing clearly what he wants.
in her arms, and that he has to wait for his father who will get him water. While staring at his mother, M points again, this time in the direction of the kitchen INDEX-kitchen (right hand, arm extended, L handshape), keeping his gaze on her. His pointing has a short duration, disappearing instantly. M taps his right hand on his leg and goes on whining until his father appears at the door. (5-2/ age:1;2,10, duration: 07:36:50–07:47:50)

After trying to negotiate with his father, who asks him in an indirect way to move by himself in order to obtain the entity he wants (his father, the bottle, the water in the bottle), the child asks mother to negotiate for him for the accomplishment of his desire after his father goes inside.

The first pointing gesture that the toddler produces with proto-imperative function is directed with precision to his mother, and he refers to her as person. The child asks his mother to take the role of the mediator. In particular, he asks for her to do something in order to bring either his father or the bottle (or both), and refuses to move from the location at which he stands. Pointing to his mother is a very important developmental step because it defines explicitly the person-agent the child wants to act in order to accomplish his desire.

In contrast to the first pointing whose referent is precise, the boy’s last pointing gesture, INDEX-kitchen, has been included in the category of ambiguous pointing because it is not possible to specify its referent with precision. Although the pointing gesture (directed towards the kitchen) most likely refers to his father, the possibility that it may refer either to the location or to the object that the father holds, to the father’s act of bringing the feeding bottle, or even to the whole situation, cannot be excluded. In other words, in respect to this last pointing gesture, there is not enough information about what the toddler has in his mind at the very moment when he points towards the kitchen, making it ambiguous.

Finally, in Example 9.6, another case of an ambiguous pointing gesture to father – or to his arms – has already been presented. In general, pointing gestures such as the above occur many times in the linguistic material of the present study in the second, third and fourth stages and, although it probably would not have been unwarranted to include them in the category of pointing gestures referring to persons, they have been included in the category of ambiguous pointing.

66 “INDEX-self HUG DON’T. FATHER INDEX-down, WATER GIVE-child. WAIT”, meaning ‘to take you in my hands? No, father will come here and he will give you water. Wait.’ (Record 5-2/7:42:500–7:46:90).

67 At this age, M still walks supported on pieces of furniture or helped by an adult. In an indirect way, the father tries to make him walk independently without any support. The toddler understands his father’s intention, and, although he wants to follow him because he is very fond of him, he whines.
9.1.4.4 Self

Reference to self appears only in two cases in the videotaped material of this developmental stage from 14 to 15 months. The first reference to self has imperative character and the second has declarative character. Addressing his father, the child uses for the first time INDEX-self, a conventional form directed to himself in order to indicate explicitly a participant in a situation (as agent or recipient) without taking for granted this information as he did before. The perception of self, as well as others, as possible alternative agents of an action can be claimed to have its beginning at this primary stage of reference to persons by pointing.

Example 9.14

M is in his father’s arms. They are on the balcony to the side where there is a small wall, and they are facing it. M searches for something interesting. His right hand comes up and his index finger appears (L handshape) ready for pointing. The index finger is extended before him, indecisively searching for something to point at. M moves his gaze around. His father signs to him WHAT. Then M stares at an object and signs INDEX-self INDEX-flower. The pointing gesture directed towards self, INDEX-self (L handshape), is produced repeatedly three times. Firstly the index finger and then the rest of the fingers contact the child’s chest. Then the arm is extended in front, and M points at the flower in the corner of the wall INDEX-flower (L handshape). M’s father goes in the direction he indicates and gives him a small object that exists near to the flower. M, being indifferent to the object, continues to look at the flower. He points again INDEX-flower (arm extended, L handshape) shaking his index finger up and down repeatedly, insisting on his choice. His father bends and brings M closer to the flower as if he would smell it. M falls forward and then pulls himself back, turns to the camera and smiles. (6/age: 1;2,25, duration: 00:10:57–00:11:11)

The above incident probably occurs as an already pre-established game, a routine of smelling flowers in general. The child produces INDEX-self INDEX-flower composed of two pointing gestures with proto-imperative function. These two pointing gestures are considered one utterance and not a sequence of gestures because: (a) they are produced without any interruption, and (b) the child’s ability to combine two gestures has already appeared in other situations in this developmental stage. In addition, pointing at self cannot be considered as a unified gesture with pointing at the flower following immediately after, since: (a) pointing to persons and objects has already appeared with high frequency in the child’s communication, and (b) reference to self also exists as an independent utterance in another episode in the videotaped material between 14 to 15 months (see Example 9.15 below). The child, using a well-known communicative and conventional means
considers it important to define himself as the agent or the recipient of father’s action, probably realising that a different perspective to his own may exist, as he is able to think of other possible alternative agents as well. Therefore he adds a piece of information for his interlocutor ensuring the accomplishment of his desire. With regard to its form, the pointing gesture to self directed towards the child’s sternum is similar enough to the pointing sign INDEX-self (‘I’) used in Greek Sign Language by adults. The only variation which is observed in the form, compared to the sign INDEX-self, is the extension of the thumb, which is not yet in opposition to the rest of the fingers, revealing the child’s immature motor control.

The second reference to self, which has been recorded in the second stage, was observed at the same age (1;2,25) and is used with proto-declarative function. In a playing occasion where the persons involved could play alternatively, acting as different agents, the child defines himself as the one who would act in that very moment.

Example 9.15

*M plays with his mother and father on the balcony by pushing a small lorry. M’s mother pushes the lorry to him. With his right hand, M points at himself INDEX-self. The handshape of the pointing gesture is not well formed, as the index finger is slightly more extended than the other fingers and the whole hand configuration is loose. The hand touches the chest where it remains for a moment. Immediately afterwards, the child pushes the lorry with his leg towards his mother. (6/ age: 1;2,25, duration: 00:14:29–00:14:33)*

In this example, the child produces a pointing gesture with proto-declarative function, telling his mother that it is his turn to push the lorry. The pointing gesture referring to self touches the chest, and although it is not well formed, it is undoubtedly recognisable. The child uses this pointing gesture for designating himself as the agent of the action in a situation where the possibility of a different person acting is in accordance with the rule of the game. Therefore declaring who is next seems to be necessary.

Reference to self by using pointing directed to the chest during the early communicative period of language acquisition has also been observed in the production of children acquiring ASL. Petitto (1984:67; 1987:16-17) mentions that Kate, one of the two children participating in her research, used pointing to self at the age of 12 months in a variety of communicative situations and in combination with other pointing gestures to objects. In accordance with that and the findings of the present study, pointing to self probably constitutes a common gesture found in the communicative acts of

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68 Petitto’s second child did not point toward herself at the same age.
69 She reports 12 cases of pointing directed to self made by Kate (1984:67, 68).
deaf children growing up in a signed language environment\textsuperscript{70} during the early period of language acquisition.

However, a thorough comparison of the findings that have been presented shows a rather important difference concerning: (a) the frequency of occurrence of such pointing gestures, and (b) the age at which these pointing gestures emerge. With regard to the frequency of occurrence, the deaf child of the present study produces only two pointing gestures to refer to himself, while Kate in Petitto’s study produces 12 pointing gestures to self, and the other child none. With regard to the age that pointing gestures directed to self emerge, in the present study the deaf child produces pointing to self at 14 months and 25 days, whereas Petitto (1984:66-69; 1987:17) reports that Kate used pointing at self very early, at 10-12 months, and then it disappeared.

Finally, as far as comprehension of the pointing gestures directed to the child is concerned, one observation is of particular interest and deserves to be presented here.

Example 9.16

\textit{M is sitting with his mother on the floor playing with a piece of paper and a pencil. The mother writes her name and her son’s name on the paper. M watches her, alternating his gaze from mother to paper. He raises his head and looks at her. She turns the paper to M and signs INDEX-word-(1) INDEX-self INDEX-word-(2) INDEX-child.\textsuperscript{71} When mother’s index finger is on paper, word-(1), he looks at the paper, and when mother points towards herself, M looks at her. When mother points at word-(2) on the paper, M looks at the paper, and when mother points towards him, M looks at her index finger touching his chest. She points at the paper again. M extends his hand and moves the paper with his palm. (5-2/age: 1;2,10, duration: 00:22:25–00:22:42)}

In this episode, M does not seem to comprehend the meaning of the sign directed towards him. The fact that he looks at his mother index finger is clear evidence that he does not consider himself as the referent of the pointing sign. The boy does not seem to associate the sign with himself. Petitto (1984:69, 113; 1987:17, 18) mentions that the above behaviour is also demonstrated in a systematic way by the children participating in her research. She mentions that Kate looks at adults’ fingers even when the adults point towards themselves, using the sign INDEX-self, although in general Kate responds correctly to the rest of their pointing signs. Murphy &

\textsuperscript{70} Petitto mentions that hearing children do not point at themselves during this period, without however supporting this statement by specific references to the literature (1984:69-70).
\textsuperscript{71} Mother’s utterance means ‘this (the word, her name) is me and this (the word, boy’s name) is you’ or ‘this is mine and this is yours’.
Messer (1977) studying comprehension of pointing by hearing children, observed a similar behaviour of looking at mother’s hand while she is pointing at the age of nine months, and comment that this constitutes a clear indication that toddlers have not yet comprehended the deictic nature of pointing, although they are about to start doing so.

In the above communicative episode, when mother points towards herself, the child looks at her and not at her index finger, obviously exhibiting a different behaviour only concerning the comprehension of the pointing sign referring to him. The child does not seem to understand what mother signs and this is predictable, since she refers to something completely abstract, i.e. the written representation of names, which is incompatible with the toddler’s age.

9.2 First symbolic gestures

In this stage the child’s gradual progress towards language has become evident through his use of pointing. Between the age of 14 and 15 months, the first symbolic gestures occurring quite often in the child’s early communication are presented below in the order of their appearance: BYE-BYE, COME, REACH, GRASP and DEMAND. Apart from them, two more symbolic gestures, CAR and TV, have also been observed in the videotaped material of this developmental stage, but only once.

9.2.1 Symbolic gestures in the child’s communication in the second stage

Most of the symbolic gestures appearing in this developmental stage in the child’s interaction with adults have already been mentioned in some of the communicative episodes described earlier. These gestures are used spontaneously by the child either alone or in combination with pointing gestures, and their semantic content does not change according to the context of the communicative situation (similar observations have been reported by Caselli 1994). Additionally, they occur in routines or actions by which the child has an effect on his environment. They are recognisable, communicative items accompanying the child’s actions on the borderline of language that gradually become independent conventional signs (see also Greenfield & Smith 1976 about the early use of spoken words).

At this stage in the acquisition of pointing, some of the symbolic gestures appear for the first time in the child’s interaction with adults, whereas others, such as COME, REACH, GRASP, DEMAND, have emerged from the deictic gestures observed in the first stage in the acquisition of pointing,
gradually acquiring a set semantic content. As far as can be ascertained, this has not been described before in the literature.

(a) The symbolic gesture BYE-BYE
The symbolic gesture BYE-BYE is used by the child with a set meaning from the beginning of the second stage in the acquisition of pointing: (a) in the context of a communicative routine with adults declaring the toddler’s positive communicative intention towards them, and (b) by expressing his desire to go for a walk. In Example 9.7, the child uses BYE-BYE purposefully for specifying the meaning of his pointing towards the front door, being produced before the symbolic gesture, and denoting his intention to go for a walk, as he acts and signs at the same time.

(b) The symbolic gesture COME
Another symbolic gesture used either alone as an independent utterance or in combination with pointing following or preceding it, is the gesture COME which is directed to persons and objects in the child’s environment. The occurrence of COME is quite frequent in the child’s early communication. It is used by the child for approaching, going or bringing closer objects and persons, and is performed with an open (B handshape) hand configuration: the orientation of the palm is forward or downward, and the hand moves up and down (with repeated movements in the wrist). The arm is slightly bent at the elbow and is always directed towards the object or the person being the target of the child’s interest. An occasion in which COME has already been mentioned was in Example 9.3, where the child asked to be moved and transferred by his mother to the fun-fair car. In that situation the gesture produced was associated with the mother’s knee towards which it was directed, specifying the act that she had to do in order to transfer the toddler in the car.

(c) The symbolic gesture REACH
The gesture REACH is a symbolic gesture that, as mentioned above, gradually emerges from the deictic gestures of the previous developmental stage. It acquires a set meaning during the second stage and is often used in the child’s expressive language during the third stage in the acquisition of pointing. The gesture REACH is performed almost exclusively by the child when he wants to touch or even to obtain something and is formed with a 5-hand configuration (open loose fingers), palm oriented towards the object that the child wants. REACH, despite its own deictic character – always directed towards the objects of the child’s desire – is usually found in combination with pointing, with a set meaning which could be described as ‘I want to go closer and touch’.

(d) The symbolic gesture GRASP
Another symbolic gesture used by the child in the second stage in the acquisition of pointing is the symbolic gesture GRASP. This gesture gradually acquires a set form and meaning thus becoming a true lexical sign. GRASP, having a clear deictic character, is performed when the child wants
to catch or to grasp an object. It is formed with an open, almost loose hand configuration, closing to a fist once or twice. The arm is extended and the hand is directed towards the object or downwards. GRASP seems to emerge at this age (14–15 months) from a gesture used by deaf parents in their interaction with the child. Parents’ gesture differs from child’s GRASP, because it is performed with the palm always oriented upwards. This gesture is also used in the interaction of hearing adults with hearing children of the same age.

GRASP has already been described in two utterances in Example 9.2. The first one is a one-word utterance and the second is an utterance in which the child combines the symbolic gesture with a pointing gesture (GRASP INDEX-feeding-bottle) asking to be handed his feeding bottle. Although it is not possible to determine the linguistic status of GRASP, this specific example shows in a clear way how language unfolds gradually.

(e) The symbolic gesture DEMAND

The symbolic gesture DEMAND has already been described in the first stage in the acquisition of pointing as a deictic gesture showing insistence, impatience and demand from the child’s side. However, in this developmental stage, the gesture DEMAND has lost its deictic character since during its performance, the hands are not directed to the desired object any more. In particular, DEMAND is articulated with both hands taking an open 5-hand configuration in front of the child’s body, with or without extended arms, the palm oriented downwards, executing a repetitive and restrained movement, up and down. In this stage, DEMAND is usually produced after a proto-imperative pointing gesture mainly expressing the child’s strong demand and insistence on what he wants. However, in the period that follows, it gradually disappears, never becoming a true lexical sign combined with other symbolic items.

In Example 9.6, DEMAND has already been described as performed after two proto-imperative utterances of pointing by which the boy has defined his wish. By using DEMAND on that particular occasion, the toddler strongly requests to leave his mother’s arms and go to his father.

With respect to the emergence of first lexical signs in the deaf child’s language, it has to be mentioned that all the above symbolic gestures BYE-BYE, COME, REACH, GRASP, and DEMAND seem to have verbal meaning when they are used by the toddler in this early communicative period.
CHAPTER 10

Third Stage in the Acquisition of Pointing: Sporadic Reference to Persons and Self (age: ≈1;4,00 – 1;8,00).

The third stage in the acquisition of pointing seems to constitute a transitional stage through which the deaf child of the present study between 16 and 20 months of age gradually passes from the early communicative to the linguistic period. This stage appears to be an in-between stage in which fundamental developments in the child’s language acquisition take place step by step before finally becoming evident at the end of the stage, after 20 months of age. The most important characteristic of the third stage in the acquisition of pointing is the enhancement of the child’s early lexicon. Between 16–20 months, the deaf child seems to start observing carefully the different linguistic units and their function, discovering their symbolic character. His utterances become independent of the context in which the interaction takes place, gradually obtaining their symbolic status. In other words, they become decontextualised.

The basic characteristics of the third stage in the acquisition of pointing are:

1) Sporadic use of pointing for reference to persons and self.

2) Reference to self by using a relaxed B-hand configuration.

3) Emergence of proper names (name signs) and mouth movements for reference to persons and self.

4) Growth of the child’s lexicon as the milestone of 50 words is accomplished.

5) Expansion of the length of the deaf child’s utterances; combinations of two and three symbolic gestures.

72 This is an approximate age due to there being no date for this video recording, for which the child’s mother was responsible.
10.1 Sporadic use of pointing for reference to persons and self.

Comparing the second stage in the acquisition of pointing (14-15 months) with the third stage (16-20 months), a crucial difference is observed in the way that the deaf child acquiring Greek Sign Language uses pointing. From 16 to 20 months, he seems to use pointing for referring to persons to a limited extent, whereas he shows no hesitation in using it for reference to objects or locations. Nevertheless, this particular use of pointing does not totally disappear.

Table 6. Percentage of pointing gestures directed to persons in regard to their total number in the first three developmental stages in the acquisition of pointing.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>MINUTES</th>
<th>NO. OF POINTING GESTURES</th>
<th>MEAN NO. OF POINTING GESTURES /MINUTE</th>
<th>INDEX- person (including self)</th>
<th>PERCENTAGE OF INDEX- person</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>141</td>
<td>60</td>
<td>0.42</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>2nd</td>
<td>103</td>
<td>115</td>
<td>1.10</td>
<td>13</td>
<td>11.30%</td>
</tr>
<tr>
<td>3rd</td>
<td>354</td>
<td>391</td>
<td>1.10</td>
<td>4</td>
<td>1.02%</td>
</tr>
</tbody>
</table>

Even though the duration of the videotaped material collected between 16 and 20 months is much longer (354 minutes) than that collected between 14 and 15 months (103 minutes), and the frequency of the appearance of pointing in this developmental stage remains high compared to that of the previous one (see Table 6), the use of the index finger for reference to persons and self in this stage in the acquisition of pointing is very limited. From the 391 pointing gestures recorded in the child’s communication between 16 and 20 months, only four (1.02%) clearly refer to persons, whereas 23 (5.88%) pointing gestures, although directed towards persons, have been characterised as ambiguous\(^3\). However, the existence of these four pointing gestures used for reference to persons\(^4\) between 16 and 20 months constitutes an indication that the acquisition of pronominal pointing signs is accomplished by the deaf child exposed to Greek Sign Language in a smooth and continuous manner, despite the restraint that the toddler shows in respect to this specific function of pointing, after the peak observed during the second stage and mainly at the end of 14 months, where, out of the total number of 115 pointing gestures, 13 (11.30%) refer to persons.

For better illustrating the overall picture of the deaf child’s development in the use of pointing in his expressive language, it has to be mentioned that the four pointing gestures recorded for reference to persons in this

\(^3\) In the previous stage in the acquisition of pointing, there were 21 pointing gestures directed to persons whose reference was ambiguous (18.26%).

\(^4\) Despite the firm criteria used to exclude all the cases of pointing whose reference to persons could be doubted.
developmental stage, having either proto-imperative or proto-declarative 
function, are distributed in four different records rather than in one of them.

Table 7. Distribution of pointing in each record of the third stage in the acquisition 
of pointing.

<table>
<thead>
<tr>
<th>REC.</th>
<th>MIN. AGE</th>
<th>NO. OF POINTING GESTURES</th>
<th>INDEX-person (including self)</th>
<th>AMBIGUOUS POINTING GESTURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>7a</td>
<td>1;4,00</td>
<td>16</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>1;5,10</td>
<td>48</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>1;5,23</td>
<td>112</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>10</td>
<td>1;6,12</td>
<td>91</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>1;6,26</td>
<td>53</td>
<td>1(self)</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>1;7,10</td>
<td>35</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>1;8,00</td>
<td>36</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>TOT AL</td>
<td>354</td>
<td>391</td>
<td>4</td>
<td>23</td>
</tr>
</tbody>
</table>

In Records 7a, 10, and 13, among which the first marks the beginning and 
the last marks the end of this developmental stage in the acquisition of 
pointing, there are no pointing gestures that clearly refer to persons; 
however, there are ambiguous pointing gestures directed to persons. These 
ambiguous gestures are very likely referring to persons, although it is not 
possible to determine this with absolute certainty. In the following sections it 
becomes evident that the reference of the pointing gestures described as 
ambiguous is very difficult to specify in the communicative situations in 
which they occur because the person to whom they are directed cannot be 
differentiated from the location in which he/she stands or the object he/she 
holds. This leaves enough space for at least some of the 23 pointing gestures 
of the third stage to refer to persons, despite the ambiguity they seem to 
show.

10.1.1 Pointing directed to persons and referring to them

In this section, four communicative episodes are presented in which the 
child’s pointing is directed to persons and refers to them. The first pointing 
gesture, whose reference to person is unquestionable, appears when the 
toddler was 17 months and 10 days old (Record 8).

Example 10.1

M is with his mother on the balcony. She sits on a chair near the table and 
the young boy stands in front of the table looking at her while she signs 
COOL AIR GOOD (‘Nice, fresh air’). M turns his gaze towards the centre of 
the table and then goes closer while staring at it. He turns again towards his
mother, points at her with his right hand INDEX-mother (arm extended, L handshape) and immediately after that, although mother asks him WHAT, he turns his gaze to the centre of the table, pointing with his left hand at the plastic lid placed over an opening in the middle of the table, where one can place a sun umbrella, and signs INDEX-lid. His gaze turns back to his mother while, at the same time, he nods his head up and down in a confirming manner. The last pointing gesture is very well formed, having a G handshape. M's mother stands up, takes off the lid and gives it to the child. (8/ age: 1;5,10, duration: 00:31:17–00:31:31)

In the aforementioned example, M produces two pointing gestures with proto-imperative function. With his first pointing, the child asks his mother to mediate and fulfil his wish to acquire the desired object that he has discovered at the beginning of the episode. With the second pointing, he indicates precisely the object he wants, answering to his mother’s question about what exactly he wants from her. The pointing gesture directed to the adult in the role of the mediator is not something new in the child’s interaction at this age; on the contrary, it has already appeared, and has been described in detail, in the previous stage in the acquisition of pointing.

In this specific communicative situation, the reference of the pointing directed to mother cannot be attributed to any other entity but his mother, even though its configuration has not yet acquired the typical form of the index hand configuration directed to persons in Greek Sign Language. The handshape of this particular pointing is still the L handshape that substitutes the G handshape, despite the fact that the G handshape has already sporadically appeared in the boy’s pointing gestures at this period of time. In addition, the degree of the extension of the arm does not change the reference of the pointing to mother as person, irrespective of whether it is considered as linguistic or not. In the recorded material, some seconds before the described episode, the young boy was seen going around the balcony looking for something to do; when he finally found an object of interest, he addressed his mother and appointed her to the role of agent, she being the person who has to act in order to reach his target. Finally, what follows immediately after the two pointing gestures, namely mother’s response towards the child and his playing with the lid on the top of the table for long after he has acquired it, confirms the reference of the first pointing to his mother as person, and the reference of the second pointing to the object as well as the proto-imperative function that both have.

When the toddler is 17 months and 23 days old, the second pointing gesture, directed to a person in the child’s environment and referring to her, appears.

Example 10.2
M is sitting on the table on the balcony, with his mother sitting on a chair beside him. M takes the researcher’s sunglasses and puts them on and plays. Both mother and M look at the camera, smiling. M puts the sunglasses on his neck. His mother takes the sunglasses, points at them and asks M to tell her to whom they belong by signing INDEX-glasses WHO, which means, ‘Whose are those?’ M looks at the sunglasses, at his mother, at the sunglasses, at his mother and again down at the sunglasses, while he taps on and pushes his mother’s hand. She looks at him surprised by his reaction. He raises his head and looks forward towards the camera (the researcher is not visible in the screen), extends his right hand and points at the researcher INDEX-researcher (arm extended, L handshape). Then he turns his gaze down to the table and moves forward in order to take a glass of coffee, which has been his aim for a long time, taking advantage of the whole situation and avoiding his mother since she is absorbed, smiling and looking satisfied at the camera. She picks him up and takes the glass of coffee. M takes the sunglasses, looks at the researcher, smiles and throws them down. (9/ age: 1;5,23, duration: 00:31:10–00:31:27)

In the above incident, the boy answers his mother’s question by pointing at the researcher, who is the possessor of the object. Apart from the anger he expresses towards his mother by tapping and pushing her hand, either because he wants something different from the beginning, such as the glass of coffee, since his mother took the sunglasses from him, or even because he does not like all this adult-directed communication, the reference of the pointing to the researcher as a person cannot be interpreted in any other way. M observes his mother’s question, refuses for a moment to answer by pretending that he is angry, but then, looking straight to the front at the camera he points towards the researcher, thereby satisfying his mother. The child’s gaze, going back to the researcher at the moment he throws her sunglasses down, and his smile at her confirm the location of the researcher, who is not visible in the video. If the pointing gesture described above had been considered as a gesture without a specific target or as a pointing gesture directed to the camera (to an object), without taking into account the child’s game with the researcher’s sunglasses and the mother’s question about them – which both happened before the pointing – this would constitute a serious mistake in the interpretation of the pointing gesture. In the above episode, the direction of child’s gaze straight at the camera and the location of his hand performing the pointing gesture upwards, makes its reference to the researcher as a person precise and unambiguous. Finally, it has to be mentioned that this pointing gesture, apart from constituting a clear answer to the question imposed by the child’s interlocutor, has a possessive meaning defining the possessor of the object, a function that appears in the child’s expressive language for the first time at this age.
Almost one month later, at the age of 18 months and 26 days, one more pointing used for reference to person occurs in our data. The young boy produces a pointing gesture to himself that requests being moved by the mediation of an adult in order to obtain an object that is out of his reach.

Example 10.3

M and his mother are in a restaurant. She holds him in her arms while standing in the middle of the reception room. She looks at M while he is signing with his left hand WATER\(^5\) INDEX-tap INDEX-self, keeping his gaze straight forward in the direction in which he is pointing. As long as the child signs WATER, mother imitates the child’s sign unconsciously, taking some seconds to realise what M is signing.\(^6\) Then she looks in the direction of M’s first pointing gesture (made with an L handshape and an extended arm) and asks him if he wants water by signing WATER. M, without stopping, continues performing his last pointing gesture (L handshape) by touching his chest. M’s mother moves to the tap. M puts his hand under the tap and tries to play with the water. The boy’s mother permits this behaviour but not for long. (11/ age: 1;6,26, duration: 00:30:22–00:30:34)

In this specific example the child produces an utterance of three items. This utterance does not seem to be a simple sequence of gestures but appears to have the structure of a sentence, showing that, at the age of almost 19 months, the child’s combinatory ability has developed even further since he is able to combine more than two elements, as happened in the previous stage in the acquisition of pointing. The utterance that the child produced in the above episode is composed of three elements that can be considered either as a combination of one symbolic gesture with two communicative pointing gestures, or as a combination of three signs, although the status of INDEX-tap and INDEX-self as true signs is not possible to be determined with certainty. The index finger directed to self is an unquestionable reference to the child himself and only slightly differs (in regard only to the extension of the thumb) from the typical form of the sign as it is articulated by adults. Considering that there is no certain way to determine the linguistic status of the specific pointing gesture, and based on the fact that: (a) its form closely resembles the corresponding adult sign, and (b) the pointing occurs in combination with two more elements, one of which – WATER – is undoubtedly a sign, the above described pointing gesture to self can be regarded as a true pointing sign. The sign WATER in the above

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\(^5\) The choice of the gloss WATER instead of DRINK for the transcription of the above sign is due to the fact that it is not clear whether it is used with verbal or nominal meaning (see also the criteria of transcription in Chapter 7).

\(^6\) The handshape that the child uses for the articulation of the sign is more or less a B handshape instead of an A handshape, with an extended thumb used in the formal sign WATER.
communicative situation may be used for denoting the act (of drinking) and not the object (water) although, at the end of the episode, contrary to what was expected, the child plays with the water that comes out of the tap without drinking it. Finally, the above utterance constitutes a representative example of the course the boy’s linguistic ability undergoes in general, continually developing with age.

The fourth pointing gesture, clearly referring to persons in the third stage in the acquisition of pointing, occurs when the child is 19 months and 10 days old.

Example 10.4

*M’s mother plays with him by hiding in the house. She hides behind a corner formed by the sofa and the armchair of their sitting room, while M pretends that he is looking for her by going around the room. M puts his head at the other side of the corner behind which his mother is hiding. He stands up, goes away and runs in the room, laughing. M’s mother stands up and moves a little further from her corner. M comes back, stands before the sofa and turns his head slightly in the direction that his grandfather sits at his right. He turns again and looks at his mother, who now has moved a little further, almost behind the armchair, bending, but still visible to M. She watches M and laughs. M points at his mother with his left hand INDEX-mother (arm loose, not extended, L handshape) while he turns his gaze back to his grandfather to see if he is watching. He turns back towards his mother who has gone back to her corner and continues his game with her. (12/ age: 1;7,10, duration: 00:10:10–00:10:34)*

In the above episode, the child addresses his grandfather and indicates to him his mother as person. The pointing gesture described above has proto-declarative function. The child makes a statement about his finding, conveying the meaning ‘here she is’, indicating his mother to his grandfather. The referent of the child’s pointing is mother as person and not the location at which she is standing because: (a) at that very moment, the focus of the toddler’s interest is his mother and his interaction with her, (b) the mother’s location in the room is not remarkable, and (c) the height of the boy’s arm is at the same level with the mother’s face (she is crouching). This last fact is important enough for attributing the reference of the particular pointing to his mother and not to the location she is standing. Finally, the extension of the arm inside or slightly outside of the toddler’s signing space does not seem to alter the reference of the pointing gesture to mother as person. Considering pointing as a true sign or as a communicative gesture does not change its referent.

The existence of the four aforementioned examples of pointing recorded in the deaf child’s expressive language, at the ages of 1;5,10, 1;5,23, 1;6,26...
and 1;7,10, makes it obvious that in the present data there is no disruption in the use of pointing for reference to persons, but only a significant reduction.

10.1.2 Pointing gestures with ambiguous reference

Except for the four pointing gestures above, the relatively large number of communicative pointing gestures recorded between 16 and 20 months, although being directed to persons (23, 5.88%)\(^7\), have been characterised as ambiguous. The reference of those pointing gestures to persons is not clear from the context and therefore they have not been included in the category of person. More specifically, it is not clear if they refer to the adult they are directed to as person or to: (a) the object that is in the adult’s hands (nine pointing gestures), (b) the adult’s body part towards which the index finger is directed (four pointing gestures), or (c) the adult as location (eight pointing gestures). More precisely there are cases in which:

1) The child points at the camera while looking at it, and it is not possible to know for sure if what he has in his mind in the exact moment is the object (camera), the person who holds the camera, or the video recording situation itself.

2) The child points at an adult’s body-part, at his mother’s hand and at the researcher’s cheek, and refers either to that particular body-part or to the adult as an animate entity.

3) The child points at an adult and refers either to him/her as a person or to the location he/she is standing at, or refers to the adult as a location to which he wants to go.

Finally, in the last record of this stage, there are two more cases of pointing gestures that, although they differ from all the above, have been categorised as ambiguous. On these occasions, either the referent of the pointing gestures is not visible in the video, or the distance between the person and the object that the index finger is directed towards happens to be very close, making it impossible to distinguish with certainty the referent of the pointing gesture.

In this section, some characteristic examples of ambiguous pointing gestures that seem to be of special interest in each of the records of this stage in the acquisition of pointing – except for Record 8, where there is no ambiguous pointing – will be described. As will be evident, identifying the referent of a pointing gesture is a very difficult task due to the vagueness that characterises most of the child’s early communication and the methodological difficulties that emerge when communication has to be recorded.

\(^7\) In the second stage in the acquisition of pointing, there were 21 ambiguous pointing gestures (18.26%).
When the deaf child is 16 months old (Record 7a), two ambiguous pointing gestures were found, both directed to the camera or the person holding it, referring either to the person, the object or maybe even the recording situation. One of the gestures is described in the following example.

Example 10.5
M looks at the camera while he has his mouth full of yogurt. He signs FOOD and then he almost forgets his fingers in his mouth. For a moment he looks to his right and brings his gaze back to the front, looking again at the camera. His fingers remain in his mouth, and it seems that he is sucking them. He turns to his mother and points at the camera INDEX-camera/person (arm open but loose to the direction of the camera, L handshape). As he points, his gaze goes to the camera and then back to his mother. The index finger closes. The arm remains open in the empty space where the sign COME emerges, almost not separated from the pointing gesture. M’s mother does not respond to his pointing but signs almost simultaneously with the boy GOOD INDEX-spoon-yogurt GOOD, meaning ‘Good’ or ‘this is good’. (7a / age: 16 months approximately, duration: 00:07:18–00:07:34)

The pointing gesture exemplified above is one of the most difficult instances to interpret in the videotaped material of the third stage. The index finger directed towards the camera may refer either to the camera, to the person behind it, or to the whole situation of the video recording. The first interpretation could be supported, mainly because it is known that the camera is an object at the centre of the child’s interest as he grows older. The second interpretation, attributing the referent of the pointing gesture to the person who holds the camera, could be supported based on the information given by his mother that this person is a deaf friend of the family who sometimes visits them, and her presence always constitutes a special event. Unfortunately, the sign COME that the child seems to produce at the end of the pointing as an extension of it does not add any information for specifying the boy’s pointing. Performed by a 16-month-old child, COME could be associated either with persons or objects. If the boy associates COME with the reference of the pointing gesture to the person behind the camera, then he asks her to go closer. Alternatively, if he correlates it with the reference to the object, then he wants to acquire that object. Finally, the third possible interpretation, assigning the reference of the pointing gesture to the overall

78 The gloss FOOD is chosen for the transcription of the above sign, since it is not clear from the context of the above communicative episode if it has a verbal or a nominal meaning (see criteria in Chapter 7).

79 This specific video recording has not been taken by the researcher because the family was leaving for summer vacation.
situation and the recording process that takes place, arises from the fact that this specific activity accomplished by the mother’s friend is absolutely unusual as a situation for the child and his pointing may simply be a comment on that.

When the child was 17 months and 23 days of age (Record 9), apart from the pointing found to be directed to the researcher being an explicit reference to her as person (possessor of the object, see Example 10.2), 12 ambiguous pointing gestures were found. Four of them are directed either to the camera or the person behind it, and seven to an adult in the child’s surroundings. From these seven, three refer either to the adult him- or herself, or to a part of his/her body, and four refer either to the adult or to his arms as a location for the child to be moved to. What is of particular interest here is that three of the seven pointing gestures/signs just mentioned are performed in such a manner that their meaning seems to be verbal. These pointing gestures/signs occur in the following communicative episode.

Example 10.6

M pulls his mother to the front door. She stands close to the door and signs repeatedly INDEX-door WHAT\(^{80} \) (‘this what?’ or ‘this? What do you want?’) looking at M who also has his gaze on her. With his right hand, M produces a pointing initially directed to his mother and then moved to the door, ending in front of it: mother-INDEX-door (L handshape). Then he opens his hand (arm extended) as if he wants to catch something, to reach his mother, producing another gesture, REACH,\(^{81} \) and goes on in a more explicit and demanding manner, signing mother-INDEX-door (initially directed to his mother ending towards the door, L handshape). The sequence of gestures that seems to be produced is mother-INDEX-door, REACH, mother-INDEX-door. The gesture REACH is produced with a 5 handshape, all fingers extended, the orientation of the palm is towards mother and the arm is extended. The boy’s right hand stands indecisive in front of him, with a loose configuration, while he looks at his mother as she continues to pretend that she does not understand and asks M WHAT, meaning ‘what do you want?’ M repeats again mother-INDEX-door (initially directed to mother ending towards the door, L handshape). At the moment he points, mother’s hands are high, close to her chest, while she is still signing WHAT. M goes even closer to mother, touches her with his right hand and, with his left hand, points at the keys hanging on the door INDEX-key (the thumb seems to be in opposition to the fingers forming a G handshape). She shakes the keys, showing them to M, who repeats INDEX-keys (G handshape) with his left

\(^{80}\) Mother’s pointing has an L handshape being assimilated with the handshape of the sign WHAT that follows.

\(^{81}\) In this stage in the acquisition of pointing, REACH (open hand, 5 handshape, arm extended, directed to the object or the person the child wants to reach), which emerged at the previous stage (see Section 9.2.1), appears very often.
hand as he looks towards the mother. She takes the keys and gives them to M, who does not take them but points at the lock INDEX-lock (L handshape) with his right hand. She continues to pretend that she does not understand, trying indeed to force M to sign WALK, something that does not happen, and the whole episode ends with M crying. (9/ age: 1;5,23, duration: 00:41:27–00:41:43)

All pointing gestures that the child produces in the above episode have a proto-imperative character. M wants to go for a walk, and, as long as his mother pretends that she does not understand, he becomes more precise, indicating the keys and the lock for opening the door. What he expresses is very clear. However, it is not easy to specify the referent of the pointing gestures directed toward his mother, being either mother herself as a person or mother’s hand as the object and the means for the performance of the action. At the beginning, the height of the child’s hand and the direction that the first two pointing gestures have towards mother’s chest, give the impression that they refer to mother, from whom the child asks to act out opening the door. However, as regards the third pointing, mother-INDEX-door, which seems to be directed to mother’s hand and the continuation of the episode – i.e. the additional pointing gestures directed towards the keys hanging on the door and the door-lock – questions arise about the reference of the pointing gestures/signs directed to mother. Three different interpretations can be given for these first three pointing gestures/signs: (a) all of them may refer to mother herself (b) the first two may refer to mother herself and the third one may refer to mother’s hand, by which the child expresses a different idea in order to explain what he wants, and finally (c) the three of them may refer to mother’s hand, i.e. the specific part of her body that she has to use as an instrument in order to open the door. In fact, any of the above interpretations are feasible without it being possible to know if the child perceives mother’s hand independently of mother herself, since it is not known what young M has in mind. However, what makes this specific communicative episode special is the verbal meaning that the first three pointing gestures/signs seem to have. Contrary to all previous pointing gestures described in this stage, these three pointing gestures/signs are performed by a prolonged movement (see also Engberg-Pedersen 2003). Initially, the index finger is directed to mother. Then, without stopping anywhere, the child’s hand is directed to the door connecting the two points, the person – mother – or the part of her body – her hand – with the object – door. By these pointing gestures/signs, M either indicates the person or the object (mother’s hand) he is referring to and at the same time a desired action. Pointing used with verb-like meaning has also been observed once in the second stage and, in this stage, also occurs in other communicative situations. This specific use of pointing constitutes one more manifestation of the child’s developing linguistic ability, since the same symbolic form is
used for the accomplishment of more complicated functions. Finally, each of the three gestures/signs mother-INDEX-door, REACH, and mother-INDEX-door constitute independent utterances.

When the deaf child was 18 months and 12 days old, three ambiguous pointing gestures were found. Two of them are directed towards the camera or the person who holds it, and one is directed to the researcher, and refers either to her or to a part of her body.

Example 10.7

M sits on the sofa. Beside him, at his left, sits his mother. She asks M to kiss her on her cheek, pointing and touching it. M looks at her, looks at her cheek and smiles. She bends towards him. M kisses her on her cheek. M, looking at his mother’s cheek, points at it with his left hand INDEX-cheek (L handshape) and touches it repeatedly. The boy’s mother bends again for one more kiss. M smiles, but does not kiss her. He turns, looks straight at the researcher and, with his left hand points at her, INDEX-researcher/cheek (L handshape). Simultaneously, and while he smiles, he moves the upper part of his body forward and opens his eyes widely. There is a comment made by the researcher that the young boy wants to give her a kiss. M sits back on the sofa. The episode does not have any further development. (10/ age: 1;6,12, duration: 00:11:18–00:11:31)

As can be seen in the description of the episode, it is not possible to know whether the pointing gesture refers to the researcher as person or to her cheek. Everything that precedes the last pointing is important but not enough for identifying its referent with certainty. The young boy, by pointing towards his mother’s cheek, either refers to this particular part of his mother’s body as a location – meaning ‘cheek’ in general or ‘this specific cheek’ – or to the kiss and the act of kissing as something special to share. Unquestionably, the referent of the first pointing gesture is not mother as person. The way in which the pointing is articulated – the contact with the specific part of the mother’s body and the child’s gaze clearly directed towards her cheek – leaves no doubt about the boy’s intention. As the episode goes on, the child seems to associate the kiss to mother with the researcher, and the immediate interpretation heard in the video, as a comment made by the researcher, confirms this hypothesis. However, the reference of the second pointing gesture to the researcher herself or to her cheek cannot be disambiguated by the way that the pointing gesture is produced. The boy’s arm is not extended and the location of his hands is relatively low, probably at the same height as the researcher, whose exact location and posture are not visible. The researcher may be on her knees for better shooting or she may be standing, but even if this was known, the reference of INDEX-researcher/cheek would still have probably been ambiguous. Therefore, nothing can be added on the already developed
arguments, making this last pointing one of the most characteristic examples of ambiguous reference.

At the age of 18 months and 26 days, the deaf child produces one pointing gesture to himself (see Example 10.3) and three ambiguous pointing gestures. One of them is directed towards the camera and refers to the object or to the person who holds it. The other two are directed to an adult and may refer either to him/her or to his/her arms as a location for the toddler to be moved.

Example 10.8

*M* is out in the street with his mother and his aunt. The boy’s mother takes M in her arms but immediately gives him back to his aunt. M, being in his aunt’s arms, turns towards his mother, looks at her and extends his hand producing the gesture REACH (5 handshape, all fingers are extended, the orientation of the palm is towards mother and the arm is extended). The child’s whole body is extended towards mother, too. M’s mother, trying to avoid him, makes a game by pointing to herself, pointing towards M, pointing here and there, using both hands. M points at her with his right hand INDEX-mother/chest (arm extended, L handshape), insisting to be taken by her, combining again his pointing with a reaching gesture, REACH, and producing the utterance INDEX-mother/chest REACH. M’s mother avoids taking the child in her arms, pointing towards the street to indicate the route they are going to follow and, at the same time, walking in this particular direction. (11/ age: 1;6,26, duration:00:21:37–00:21:53)

In this communicative situation, it is not clear whether INDEX-mother/chest refers to mother as a person or to mother’s arms as a location to be moved. As mentioned before, the distinction between mother as physical person and mother’s arms as location cannot take place in general, and it probably does not take place in the mind of a 19-month-old child. In addition, considering that a physical entity is not possible to be perceived independently of the space and time she/he/it occupies, then apart from the artificial ambiguity that this pointing seems to have in regard to its referent, it could be interpreted perfectly well as referring to the mother as person. Using a proto-imperative pointing gesture/sign, the child asks his mother to be the one who is going to keep him in her arms, i.e. to become the location, the place towards which he wants to go. The reference of this pointing, – the information conveyed by it – is the same irrespective of the way it is produced and its description as a gesture or as a pointing sign.

At the age of 19 months and 10 days (Record 12), the deaf child produces one pointing gesture referring to his mother (see Example 10.4) and another one that, although directed towards her, is ambiguous and may refer either to her as a person, to her arms or to her embrace.
Example 10.9

M is in the sitting room, in his aunt’s arms. The aunt sits on the floor in front of a chair in which M’s mother is resting. M extends his right hand to the left to reach something on the table. M’s aunt gives M the book that was probably his target before he manages to take it. At the same moment, the mother interferes by pointing and signing INDEX-hare-in-book HARE (‘it’s a hare’). M turns his gaze to his mother and performs REACH. Looking at her, his body leans forward, and an index finger emerges from the reaching gesture INDEX-mother/chest (arm extended, L handshape), directed towards his mother’s face. The utterance formed is REACH INDEX-mother/chest. M’s mother explains to the young boy that she is very tired and points towards M’s aunt suggesting that he stays with the aunt. M leaves his aunt’s arms, goes closer to his mother and raises both hands upwards towards her producing another gesture, GET-UP (2 hands, 5 handshape, palm orientation to mother). M’s mother takes him in her lap, explaining again that she is very tired. (12/age: 01;07,10, duration: 01:02:38–01:02:55)

The above pointing is a proto-imperative gesture; the interpretation of its referent does not differ from that described about the pointing gesture in the previous example. However in this case, due to the location of the child’s hand, which is high and close to his mother’s face, it could easily be argued that the reference of the particular pointing is the boy’s mother as a physical person. M looks straight at his mother and is insistent, defining her as the person to whose arms he wants to go. The meaning of the pointing that he produces can be rendered with the personal pronoun ‘you’, even though, to a certain degree, the ambiguity of the gesture cannot be totally refuted. The young boy wants his mother as person as she has just returned home from work. By using the symbolic gesture GET-UP, he expresses explicitly what he wants his mother to do, i.e. to take him in her hands. Using the two utterances REACH INDEX-mother/chest and GET-UP successively, he probably refers firstly to the agent and secondly to the action he wishes to take place. Instead, it can also be claimed that the existence of the symbolic gesture GET-UP confirms more the hypothesis that the reference of the pointing is the mother as a location for M to be moved toward.

At the age of 20 months, there are three more ambiguous pointing gestures that may refer to persons. From those three, one is directed to an adult and may refer either to him/her as person or to his/her arms as the place where the child wants to go, whereas the ambiguity of the other two is basically due to the fact that their eventual referents are contiguous in space. In other words, in these two last cases of pointing, their possible referents (person or object) happen to be very close to each other, making it impossible to decide which one the index finger is directed towards.

Example 10.10
M is sitting on the floor in front of the sofa in the living room. Beside him at his right is his mother, who also sits on the floor. On his left is his mother’s aunt, a lady in her 70s who sits on the sofa at a position higher than the child. Before M is the TV. Near the TV, on the left, sits his mother’s uncle, the husband of the lady mentioned above. M looks at the aunt’s stocking on her leg beside him. His mother touches the aunt’s stocking with her index finger, investigating its texture. M raises his head towards the mother’s aunt and looks at her. Then he directs his gaze forward and a little further to the right and points at INDEX-tv/uncle (arm extended, L hand-shape). Simultaneously, as his gaze is directed to the left, he produces a mouth movement /OPEN, BILABIAL, OPEN, LABIODENTAL/ with vocalization. Then his gaze goes to the floor. The researcher’s voice is heard trying to repeat the child’s vocal production. (13/ age: 1;1,00, duration: 00:10:17–00:10:22)

In this episode, the information that exists in the videotaped material is not adequate for specifying the reference of the pointing gesture. The reason why the referent of pointing may be the mother’s uncle is basically the mouth movement and the simultaneous vocalization. If these two elements did not exist, then the reference of the pointing gesture would have been attributed either to the object or to the location to which it was directed. The mouth movement /OPEN, BILABIAL, OPEN, LABIODENTAL/ is similar to the one that accompanies the signs DADDY and GRANDPA\textsuperscript{82} in adult language. This fact suggests the hypothesis that the pointing gesture may refer to the mother’s uncle, who is perceived by the toddler as an old man, or as grandfather, although the referent towards which the pointing is directed is not visible in the video. Finally, this communicative episode is especially interesting due to the emergence of first mouth movements used by the deaf child with specific meaning in this developmental stage in the acquisition of pointing. The deaf child starts to use some mouth movements with specific meaning, although they are not accompanied by the corresponding manual part of the sign. In other words, the child produces a mouth movement that usually accompanies a sign without producing the manual component of the sign, using the mouth movement to convey the meaning of the sign (for more detail, see Section 10.2.3).

From all the above, it is evident that the interpretation of the pointing gestures directed to persons is a very difficult task, requiring careful observation. It is often impossible to exclude or to accept some of them in the category of pointing gestures referring to persons, according to where they are directed, since in the communicative context, there is not appropriate information for reaching specific conclusions. Finally, it has to be mentioned that some of the ambiguous pointing gestures have been excluded from the

\textsuperscript{82} For a description of DADDY and GRANDPA see Appendix B.
category of reference to person due to the strict way in which those gestures have been analysed.

In summary, in the third stage in the acquisition of pointing, the overall picture formed with regard to the specific use of pointing directed to persons shows a decrease in the frequency of its occurrence compared to the second and fourth stages. As a whole, the performance of pointing directed to persons and referring to them is limited. Between 16 and 20 months, pointing gestures referring to persons in the child’s environment do not appear very often in his expressive language, but they do exist. As is shown in the next sections, the boy in this stage of development seems to look for alternative manners and new means to refer to persons.

10.1.3 Reference to self by using the relaxed B-hand configuration

Apart from the use of pointing for reference to persons and self during this developmental stage, two instances of reference to self made by a relaxed B-hand configuration have been recorded. One appears in record 12, when the child is 1;7,10 years old, and the other in record 13, when the child is 1;8,00 years old, increasing the total number of cases of reference to self in the third stage in the acquisition of pointing between 16 and 20 months.

Example 10.11

M plays with his mother in their sitting room. Both of them are sitting on the floor pushing a toy motorbike to each other. M pushes the motorbike to his mother and opens his hands widely, waiting for her to send it back. M’s mother turns the motorbike back in boy’s direction and signs something about the non-existence of a driver on it. M, being impatient, moves his hands, which are still open, towards his mother and with his left hand signs HAND-self (the tips of his fingers touch his chest). During the episode, M looks straight at his mother. The boy’s mother ends her signing while M moves on his knees closer to her and then she pushes the motorbike to him. (12/ age: 1;7,10, duration: 00:44:45–00:44:52)

In this communicative episode, apart from the variation emerging in the form of the pointing gesture that the child uses (relaxed B-hand configuration instead of an index finger hand configuration), the reference to self is explicit. By using the gesture, or the sign, HAND-self, the child asks to take the motorbike, and this constitutes an utterance with proto-imperative function whose reference to self cannot be questioned. At that moment, the young boy is not interested in what his mother says. Instead, he obviously wants to continue the game, which has somehow been interrupted by the mother’s comment. Finally, in this specific communicative situation, the
possibility that HAND-self is used with possessive meaning is not very likely because of: (a) the context in which it is used, and (b) the form of the sign – the palm is not in contact with the chest.

Example 10.12

*M is sitting in his mother’s lap. The mother sits on the floor with her back resting on the legs of the sofa. At her left, not far from her, the mother’s aunt (a lady in her 70s) sits on the sofa holding a book that belongs to M. Looking towards his left at the book, M signs HAND-self (the tips of his fingers touch his chest) and extends his hand to take the book. The mother’s aunt reaches past the boy’s hand to give the book to M’s mother. The boy’s mother gives the book to M, and together they start to look at its pages. (13/ age: 1;8,00, duration: 00:08:22–00:08:25)*

In the above episode, the child asks for the book using the gesture or the sign HAND-self, clearly indicating that he wants to have it. His mother responds by satisfying the toddler’s demand. As in the previous example, both the form of the sign and the context do not allow a possessive meaning to be attributed to it. As already mentioned, reference to self by the use of other pointing signs as those formed with a relaxed B-hand instead of an index finger hand configuration is also encountered in adults’ language. This is something also observed in the language used by the deaf child’s parents when addressing him, explaining the emergence of the above-mentioned pointing forms used for reference to self by the toddler.

In summary, in the third stage in the acquisition of pointing, there are three instances of reference to self in total, one at the age of 1;6,26, which is performed with an index finger hand configuration (see Example 10.3), and two more performed with a relaxed B-hand configuration at the ages of 1;7,10 and 1;8,00. In the second stage, out of a total of 13 instances of reference to persons only two refer to the child himself (15.38%), whereas in the third stage, the instances of reference to self are half the total number of those referring to persons. More specifically, in the third stage, among the six unambiguous cases of reference to persons that appear between 16 and 20 months – four with an index finger hand configuration and two with a relaxed B-hand configuration – three refer to self (50%).

10.2 Emergence of proper names, common nouns and mouth movements for reference to persons and self

Between 16 and 20 months, in which the deaf child’s first lexicon has been enriched, the reference to persons by means other than pointing is of particular interest. The section that follows describes the first lexical signs
that the young boy starts using gradually in his expressive language in order to refer to adults around him.

10.2.1 Emergence of proper names – name signs – for reference to persons

In the video recorded material of this developmental stage in the acquisition of pointing, after the age of 17 months, nine cases have been recorded in which the child uses proper names for referring to persons.

At the age of 17 months and 23 days (Record 9), five instances of reference to researcher and two to mother were found, constituting the child’s first attempts to use name signs. At the age of 18 months and 12 days (Record 10), one more reference to the researcher with a proper name sign occurs, and a last one is found at the age of 19 months and 10 days (Record 12).

The most typical examples of the use of name signs are presented below, according to the chronological sequence of their emergence, for illustrating the full picture of the child’s developed expressive abilities for reference to persons at this developmental phase.

Example 10.13

M has just finished his bath. He is in his father’s arms. His mother brushes his hair. Video recording has just started. The young boy looks in front of him, smiles and, with his left hand, points INDEX-camera/researcher (arm half-extended, L handshape).83 Behind the camera, the researcher’s voice is heard interpreting what she is signing, asking the child ‘who am I?’ M continues to look at the researcher intensely as her voice is heard again in the videotape saying her name, responding to the boy. M laughs and turns to his father, tapping him on the face and playing. Then the boy, turning back to the researcher, signs with his left hand NAME-SIGN-researcher, performing the sign on the cheek instead of the ear with a B handshape instead of an F in a repetitive manner. His father, being enthusiastic, repeats the boy’s sign to the researcher, and then turns to his son and repeats the sign again, showing him the correct articulation of the sign. Looking at his father, M repeats many times NAME-SIGN-researcher,84 in the same way as before (performing the sign on the cheek instead of the ear with a B handshape instead of an F), turning his gaze to the researcher again. Then M’s gaze goes to his left towards an object on the floor at which he points

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83 This pointing has been included in the category of ambiguous pointing gestures and not in the category of person although it is more likely to refer to the researcher.
84 Name signs are often simultaneously articulated by parents with a mouth movement corresponding to the person’s spoken name. In this episode, NAME-SIGN-researcher are produced without any mouth movement by both child and father.
with his left hand with a relaxed B-hand configuration HAND-object GET-ME, and in doing so, he changes the topic. (9/ age: 1;5,23, duration: 00:00:43–00:01:06)

In the above communicative situation, the deaf child introduces the topic of the interaction that is going to follow by pointing at the camera. The reference of the pointing gesture directed to the camera is not clear and it may refer to the researcher or to the object she holds. However, in this specific situation, and as the communication goes on, the researcher interprets the child’s pointing as referring to herself, expanding the topic initially imposed by the child according to her understanding, responding spontaneously with her name sign. In what follows, the fact that the boy accepts the researcher’s interpretation, the repetition and imitation of her name sign by him – in other words, the substitution of the pointing gesture with NAME-SIGN-researcher – can be considered as an indication that the pointing directed to the camera refers to the researcher as a person and not to the object, although this cannot be confirmed. The form of NAME-SIGN-researcher that the child uses twice differs from the adults’ sign with regard to: (a) the location of its articulation: the boy performs the sign on his cheek a little further from the ear that happens to be the correct location of its articulation, (b) the handshape: the child substitutes handshape F with B handshape, and (c) the mouth movement: the child produces the sign without any mouth movement. In the above situation, both examples of NAME-SIGN-researcher are imitations of the signs father has produced, and they are not yet decontextualised.

Almost one minute after the young boy produces the two utterances described above, two spontaneous examples of NAME-SIGN-researcher follow, used in this case to refer to the researcher with proto-declarative function. A little later, there is still one more NAME-SIGN-researcher, being again an imitation of father’s sign. Finally, as has already been mentioned, the use of pointing gestures towards objects such as HAND-object is very restricted after the first stage in the acquisition of pointing. Its occurrence here can probably be explained with the occurrence of the symbolic gesture GET-ME that follows immediately after, since they have the same hand configuration.

In the same record, the name sign that the child uses to refer to his mother is of special interest.

Example 10.14

M is in the middle of the sitting room in his father’s arms looking at the camera, towards the researcher’s side. Then he turns towards the corridor, where mother is heard moving inside the house, opening and closing some
doors. M looks in the mother’s direction, catches his right ear, touching his cheek with his right hand, probably articulating NAME-SIGN-researcher. The handshape of the sign is not clear, and it seems to be held stationary, produced without movement, whereas no change is observed in M’s facial expression. The hand stays there for a split second. His father, watching what M does, points at the child’s mother INDEX-mother and adds MUMMY INDEX-mother (‘It’s mummy’) in addressing M, who has just turned to the camera signing something like CIGARETTE or KISS. M puts his hands down, puts one hand over the other and looks at the floor with shyness. His mother does not appear in the room yet. (9/age: 1;5,23, duration: 00:04:20–00:04:34)

In the above communicative situation, as the child watches his mother going in and out in the corridor, he spontaneously produces a symbolic gesture without being prompted by any adult, most likely talking to himself. In the child’s monologue, father gets involved, observing the boy’s behaviour and commenting on his signing and expanding on it. The symbolic gesture or the sign that the child produces seems to be NAME-SIGN-researcher, but this is confusing because on this specific occasion, one would have expected him to refer to mother. The child produces a sign that, according to its form, has been glossed as NAME-SIGN-researcher, whereas according to the context, it seems to refer not to the researcher but to the child’s mother. The most possible interpretation is that the young boy, by using the above name sign, indicates his mother’s presence (as she becomes visible to him), something which is supported also by his father’s comment about the mother. His confusion is probably due to the fact that the researcher’s name sign and mother’s name sign are similar in form; they have the same place of articulation (the ear) but differ in regard to their handshapes and the manner of their articulation. The alternative interpretation based on the form of the sign, according to which the boy refers to the researcher, probably addressing his mother and waiting until she comes so that he will see her, seems unlikely to be supported by any evidence in the communicative situation. Therefore, the use of NAME-SIGN-researcher here seems to be an overextension of the researcher’s name sign to another female. It also seems to be an utterance with proto-declarative function, probably replacing pointing directed to his mother. Finally the gesture CIGARETTE or KISS that follows definitely changes the topic of the interaction, being an invitation for playing from the child’s side, addressing the researcher, since this particular gesture is often used between mother and child in the context of a language game imitating and alternating between the two signs.

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85 The boy can see his mother in the corridor although she is not visible in the video.
86 See Appendix B.
In the example that follows, and which appears at the end of the same Record 9, the hypothesis of the overextended use of NAME-SIGN-researcher is confirmed because, in an absolutely different communicative episode, the child uses again NAME-SIGN-researcher to refer to his mother.

Example 10.15

M is with his mother on the balcony. She is sitting. M takes her hand and pulls her to stand up, whining. As M pulls her, he turns and points at his back to an object with his left hand INDEX-object (arm half-extended, G handshape). M goes on, pulling his mother so as to lead her to the object he has pointed at. Putting all his strength into raising mother, and with his face downwards to the floor, he is heard producing a vocalization, reminiscent of the Greek word “μαμά” (mama). At the moment he raises his head, the mouth movement /OPEN/ is formed on his lips. His mother stands up. M looks in the direction he intends to go, and walks before mother. The mother follows him. As he walks, he turns his gaze to his mother and starts signing with his left hand (he holds mother’s hand with his other hand) NAME-SIGN-researcher (no mouth movement), smiling satisfied. Immediately afterwards, he continues with INDEX-dustpan (left hand, arm-half extended, L handshape). His gaze goes to the object. The utterance that seems to be formed is NAME-SIGN-researcher INDEX-dustpan. M stops before the object, his mother walks closer, and M signs GET-ME (2h). He pauses for a moment to take the object and then goes closer. The episode goes on for many seconds because mother refuses to give him the dustpan. (9 / age: 1;5,23, duration: 00:49:54–00:50:11)

In this communicative situation the child refers to his mother in two alternative ways. The first one is NAME-SIGN-researcher that emerges in the utterance NAME-SIGN-researcher INDEX-dustpan. The second one is the child’s vocal production indicating mouth activity on behalf of the toddler. The existence of the vocal production shows that the child produces the non-manual part accompanying the sign MUMMY. The probable presence of a mouth movement such as /BILABIAL, OPEN, BILABIAL, OPEN/, although not visible in the video since the child’s face is downwards to the floor, is also confirmed by the mouth movement /OPEN/ formed on the child’s lips when he raised his head. The child’s mouth movement seems here to have the status of a true sign replacing the sign of which it constitutes an integral part, having the value of a symbolic gesture (see also Section 10.2.3). The young boy seems to produce the mouth movement /OPEN/ while signing to himself, without looking at his mother. In this way, he probably

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87 See Appendix B.
88 /OPEN/ is the last segment of the full mouth movement accompanying the adult sign MUMMY (see Appendix B).
thinks that his mother has to act in order to accomplish his target, using a symbolic gesture with a proto-declarative function. The NAME-SIGN-researcher that follows is produced with a repetitive grasping of the ear with B handshape. In terms of its form, it is similar to the previous instances that have been used at the beginning of Record 9, when the child referred once to the researcher and once to his mother. On this specific occasion the reference of the sign to his mother as person is clear and the utterance has a proto-imperative function. The child uses the same name sign once more, overextending its reference to the two women, the researcher and his mother, with whom he interacts. He addresses his mother, asking her to get the dustpan hanging on the wall by producing the utterance NAME-SIGN-researcher INDEX-dustpan. The NAME-SIGN-researcher seems to substitute a probable pointing gesture directed to the boy’s mother. The communicative episode is completed by the production of GET-ME by the child. The symbolic gesture GET-ME, articulated here with both hands, is one of the most common gestures found at this stage in the acquisition of pointing and by which the child expresses explicitly his desire for the object (see also Section 10.2.2). In summary, in this particular episode the child produces three successive utterances; the first one composed of the mouth movement, the second by the signs NAME-SIGN-researcher INDEX-dustpan and the last one by the symbolic gesture GET-ME.

Example 10.16

The young boy stands before the camera and looks towards it. His mother is working with something in the sink, so she is not engaged with M. He signs with his left hand, addressing the researcher and staring in the same direction (as the researcher or camera), STOP. Then he pauses for a moment and continues STOP NAME-SIGN-researcher (no mouth movement), INDEX-camera/researcher (arm extended, L handshape), NAME-SIGN-researcher (no mouth movement), INDEX-light-of-camera (arm extended, L handshape, touching the light) and, being closer to the camera to touch the light, goes on with both hands TURN-OFF STOP and, again with his left hand, INDEX-light-of-camera/camera. The third time he produces the sign STOP, he turns his gaze down and looks inside the camera and then, producing his last pointing, looks again upwards to the researcher and brings back his gaze to the camera. Finally, he goes even closer to the camera in order to push some buttons. The researcher explains to him that this is not permitted. (10/ age 1;6,12, duration: 00:57:31–00:58:13)

In this communicative episode, the young boy produces four successive utterances. Initially, he produces one utterance composed by the sign STOP, clearly denoting what he wants to happen with regard to the video recording process. Except for the ambiguity in regard to the reference of pointing, the second utterance STOP NAME-SIGN-researcher INDEX-camera/researcher
also constitutes an explicit expression of the child’s demand that she stop recording him. The reference to the researcher by her name sign rather than by a pointing gesture directed to her is clear in this utterance. Addressing the researcher, the toddler asks her to turn the camera off, to stop her activity. The choice of researcher’s name here is fundamental, ensuring that the meaning the child wants to convey will be unambiguous. By using the utterance STOP NAME-SIGN-researcher INDEX-camera/researcher, the child indicates first the action then the agent of the action, and probably – if it is considered that pointing refers to the camera – the object of the action in which the boy is especially interested.

In the third utterance, NAME-SIGN-researcher INDEX-light-of-camera (contact), the activity of the researcher is associated with the light of the camera, indicating that the child has realised its function. The third utterance is composed only of the agent and the object of the action. Finally, in the fourth utterance, TURN-OFF STOP INDEX-light-of-camera/camera, the child denotes the kind of action that has to be executed by using two different lexical signs, and the object which is going to be affected by this action. In this last utterance, by the repeated and redundant use of TURN-OFF and STOP, the child probably tries to emphasise what he wants, pursuing this in order to affect his environment more effectively by his signing, since the researcher does not seem to obey in the beginning. In general, in the episode described, except for the reference to the researcher with her name sign, what is most important is the expansion of the child’s utterances by adding more information and using more signs. In Record 12, the researcher’s name sign occurs one more time, now referring to the researcher.

In this developmental stage in the acquisition of pointing, the deaf boy seems to use one proper name, the researcher’s name (the sign NAME-SIGN-researcher), probably as an alternative means to pointing, referring to the researcher and his mother, the two female persons in his environment, obviously without understanding exactly the use of the sign as a proper name yet. In addition, the use of the researcher’s name by the child, and not his mother’s or father’s names, cannot be attributed to anything else but the frequent reference of parents to the researcher, which presumably occurs when she is not present in circumstances that have to do with the child. For example, this could be when addressing him, such as when preparing him for her visit at home or in general when they are talking about her.

10.2.2 A proper name – a name sign – used for reference to self

As known in deaf communities, deaf and hearing children of deaf parents, apart from the proper names that they have in spoken language, acquire a name sign in sign language given to them by their deaf parents with regard to a special characteristic or a habit they have (Kourbetis & Hoffmeister,
In the present study, a very thorough observation revealed that the emergence of the child’s name sign seems to be related to: (a) the interrogative sign, GQ, that appears in the toddler’s expressive language between 16 and 20 months, and (b) the use of the gesture GET-ME (see Example 10.15), showing that the child does not differentiate between them all the time.

Below, the confusion observed between GQ and GET-ME, and their relation to the boy’s name sign are presented with evidence from his early interactions. The symbolic gesture glossed as GET-ME appears in the third stage in the acquisition of pointing in many different communicative situations when the child wants something to be given to him, although it does not have any similarity in form with the sign GIVE\(^9\) used in Greek Sign Language. GET-ME is articulated by one or two hands in front of the body with a 5 handshape, palms orientated upwards or towards the object, and the hands moving slightly up and down or towards the object.

The sign GQ\(^{90}\) in Greek Sign Language is a sign with general interrogative meaning whose form, apart from the existence of the non-manual part that accompanies it, differs from the child’s symbolic gesture GET-ME, mainly in its movement. GQ is articulated by rotating the hands outwards, whereas GET-ME is performed by moving the hands upwards or towards an object.

However, in the child’s linguistic input, the language in which his parents address him, the sign GQ is usually used in a specific, idiosyncratic manner in both its form and function. The form of GQ used by adults when they address the child is characterised by a change in the movement of their hands just before the end of the sign, bringing the hands close to the chest and raising the shoulders. Regarding GQ function, adults change its interrogative character sometimes when playing a language game, not using the sign only for asking true questions but also for asking questions where the answer is known to them, in circumstances in which they pretend that they do not understand the toddler, playfully avoiding satisfying some of the child’s desires.

In this developmental stage, GQ appears in the boy’s communication initially in situations where he imitates the adult sign,\(^91\) but also spontaneously with proto-imperative function when he wants to take something, showing quite a high frequency of occurrence in his expressive language. In these circumstances, GQ performance diverges from the typical form found in Greek Sign Language, sometimes approaching the

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\(^9\) See Appendix B.

\(^{90}\) See Appendix B.

\(^{91}\) The first occurrence of GQ has been recorded in the first stage in the acquisition of pointing in a very elliptic form where it was unified with pointing in an utterance such as INDEX-object-GQ (see Example 8.3, in the first stage), whereas in the third stage it appears unified with other signs too, including the sign STOP.
idiosyncratic form that parents use when addressing the toddler, and sometimes approaching his symbolic gesture GET-ME, probably creating some confusion. In addition, in many situations, it is observed that the child repeats the sign GQ imitating adults, probably believing that this is what he has to do in order to obtain the desired object.

In general, the confusion that the child seems to have with regard to the form and the meaning of GQ constitutes an indication of the difficulties he faces in understanding the sign and its variables encountered through his input. The idiosyncratic use of GQ and its relation to GET-ME are presented in the examples that follow.

Example 10.17

M is in his mother’s arms in the middle of their living room facing in the direction of some shelves on the wall which have many small personal items on them, such as figurines and photos. The mother looks at her son. M extends his left hand and signs GQ (1h). His hand remains in front of him, half-extended, palm upwards, while mother signs INDEX-photograph/candle GQ (1h) (meaning something like ‘this?’, ‘What do you want?’). She produces GQ towards the object and then pulls her hand back close to her chest, almost touching it intensely, keeping the handshape of the sign (5 handshape) unchanged. The young boy repeats GQ (1h) articulating the sign exactly in the same manner as it was produced by his mother. The child’s sign is formed with 5 handshape. The orientation of the palm is upwards and the movement of the hand is from the neutral space to his sternum, with intensity and without rotation. The boy’s mother asks M again what he wants: GQ INDEX-photograph/candle (meaning something like ‘this?’ or ‘What about this?’). M extends his hand towards the object (photograph/candle) and produces GET-ME (1h). Kissing M, the boy’s mother tries to direct him to another activity. (10/ age: 1;6,12, duration: 00:58:54–00:59:04)

In the above communicative episode, the first sign that M produces has the form of the GQ sign as it is articulated by deaf adults. If his mother answered by naming an object, then the child’s sign would mainly have been interpreted as an interrogative sign, and its meaning probably could be rendered with the utterance ‘what is …?’ Instead, mother perceives the boy’s sign as a request, as showing desire for the object, and not as a question that demands a signed (verbal) response. The child’s hand remains extended towards the object (photograph/candle) and then a second sign follows. This sign: (a) can be considered as a repetition of the first sign, produced somehow in a unified manner with the former as the hand does not come back to its initial position before the second sign appears, and (b) is quite similar to GQ that his mother makes although she knows what the child asks. The young boy modifies his sign to be like his mother’s GQ, believing that
in this way, he will obtain the object he asks for, since she often asks him to repeat the sign that she performs before satisfying his desire. The repetition of the GQ sign and the production of GET-ME appearing at the end of the episode, confirm mother’s initial interpretation that the child’s target was to obtain the object on the shelf. In the child’s utterances, the imperative and interrogative functions seem to get fused. In addition, the manner that mother performs GQ reveals the reason for which the child associates the above interrogative sign with GET-ME with regard to their form and meaning, perceiving these two lexical items as one. The boy’s mother articulates GQ towards the object and then pulls her hand close to her chest, keeping her hand configuration unchanged (5 handshape, orientation of the palm upwards) probably to emphasise the question. The child, not understanding exactly the function of GQ that mother articulates, copies this idiosyncratic adult form, and performs the sign with the meaning ‘give me’. Thus, he uses GQ with a broader meaning, not always with an interrogative function, probably due to the instability that it presents, occurring with variable form and meaning, when used by adults.

In the middle of this developmental stage, although GQ exists as an independent interrogative sign in the child’s expressive language too, things become even more complicated when the parents choose the same sign (the sign GQ) as a name sign for the child. In particular, the mother in the 21st minute of Record 9 (age: 1;5,23) mentions that, finally, the sign GQ has been given to the boy as his name sign because he uses GQ continually, “asking all the time”. So after 17 months, the deaf child of the present study confronts an astonishing phenomenon of homonymy with regard to the sign GQ which, from that age and on, is additionally used for referring to him as a person. In other words, in the child’s input, GQ is used with many different meanings and functions: (a) for asking questions with the meanings ‘what’, ‘where’, ‘who’, ‘why’, (b) for the accomplishment of rhetorical questions having a known answer, and (c) as a name sign for referring to the child himself.

Due to the above homonymy, and to the overextended meaning it has in the child’s expressive language, in some cases, it is not possible to interpret the sign. Especially, when the child seems to use GQ with a proto-declarative function, its reference and meaning is absolutely ambiguous. In that case, it is not clear whether it concerns the act of giving or taking an object or whether it refers to the child himself. In this stage in the acquisition of pointing there are five uninterpretable instances of GQ, in which it may be considered that the sign is used by the child as his own name sign. These

92 In general, this emphatic use of GQ occurs quite often in the adults’ (not only mother’s) language when addressing the child.
93 The child in this stage in the acquisition of pointing also uses the sign WHAT to express question.
instances of GQ occur only in records 9 and 10, at ages 1;5,23 and 1;6,12 respectively. The most illustrative examples of GQ, probably used by the child for reference to himself, are the following.

Example 10.18

*M is in the kitchen, standing in front of the sink close to his mother, and opposite to her. M watches her take a child’s plastic tumbler, which is already filled with water, and put the lid on it in preparation for giving it to him. M looks at his mother and signs with his right hand GQ (5 handshape, orientation of the palm upwards, arm half extended, and location of the hand in front of him, slightly at his right and upwards in the child’s neutral space, repetitive rotation of the hand, without non-manual part). The other hand is resting on the sink. Then he extends both hands and waits for the glass. His mother gives it to M. (9/ age: 1;5,23, duration: 00:37:45–00:37:49)*

In the episode that has just been described, the child’s intention is to take the glass of water. Since mother puts the lid on the plastic tumbler, it is obvious that she is going to fulfil the child’s desire by giving it to him. The young boy watches mother’s activity with patience. The child’s GQ seems to be an additional comment on mother’s activity. His utterance, consisting of one symbolic gesture or sign, obviously seems to have a proto-declarative function. The child, being sure of what is going to follow, uses the sign independently of its interrogative function, as a statement, either with the meaning ‘give me’ or as a name sign that refers to himself. In other words, he may comment on the act of obtaining the object, or on the person himself, being the recipient of the object. However, based on the context in which the utterance takes place, none of the above possibilities can be confirmed or rejected.

Example 10.19

*M has just woken up. He is in his mother’s arms and looks towards the researcher. His gaze goes down to the left on a book that is on the dining room table. He extends his left hand in the direction of the book, signing GET-ME (5 handshape, orientation of the palm upwards, arm extended). Simultaneously he nods his head in an affirmative way, still looking at the book, and then he points INDEX-book (arm extended, L handshape) producing the utterance GET-ME INDEX-book. For a split second, he turns his gaze to the researcher and then back to the book. The hand slightly relaxes, but it does not take its initial position. The researcher is ready to give the book to M, who at that moment signs GQ64 with his left hand. The

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64 The sign is articulated with the 5 handshape, orientation of the palm slightly to the left and upwards, location of the hand in the neutral space before boy’s body, repetitive rotation of the hand, arm extended, absence of any non-manual element.
researcher gives the book to him. The boy takes it and raises his gaze to her with satisfaction. (10/ age: 1;6,12, duration: 00:00:52–00:01:06)

In the above communicative episode, the form of the sign that has been transcribed with the gloss GET-ME is absolutely different from the form of GQ. GQ, as has been mentioned earlier, is performed with a characteristic rotation of the hand although, in this particular situation, it does not seem to have interrogative function at all. Initially the boy performs the utterance GET-ME INDEX-book with proto-imperative function, asking to take the book. At that moment, the researcher is ready to satisfy his demand and, although the book seems to be almost in the middle of its route towards the child, he performs GQ either to repeat the order he has already given, or to make a statement describing the activity that takes place, used with the meaning ‘give-me’ or indicating the recipient of the book used as his name sign. Since the young boy stares intensely at the object, as long as he produces GQ, it is most likely used with the meaning ‘give me’, as it has also been observed to happen in other communicative situations such as a request or a statement. Based on the overall situation, the possibility that the child refers to himself by using the above sign as his name sign, as if he is talking to himself, does not seem to be especially strong, although it cannot be rejected.

In general, in the videotaped material of this stage, the reference of GQ to the child as person cannot be argued for with certainty in any of the cases in which it has been observed. On the contrary, the frequency by which it emerges in the boy’s expressive language from 16 to 20 months, having the meaning ‘give me’, constitutes a powerful argument supporting the possibility that in the five ambiguous cases mentioned earlier in Records 9 and 10, GQ is also used with the same meaning. In other words, these five GQs, whose use for reference to self remains a weak hypothesis, cannot be used for making a more general assertion about the existence of a proper name for reference to self in the child’s expressive language in the third developmental stage. Reference to self with a proper name (GQ) is going to appear later in the child’s language, almost at the end of the fourth stage, after the age of 23 months.

Completing this section concerning the use of child’s name-sign for reference to self, it has to be mentioned that, at the last record of the third developmental stage, GQ and GET-ME become distinct both in regard to their form and their function (see Examples 10.17 and 10.19 in which the symbolic gesture GET-ME occurs as an independent sign). At the end of this stage, as is evidenced by the examples that follow, the sign GQ stops having the meaning ‘give-me’, being used only with interrogative function.

Example 10.20
M is in the living room sharing a book about eggs with his mother. As M looks upwards at the researcher, the mother opens the book on a page with a drawing of a large ostrich egg. The boy looks at the picture and places his palm open on the lustrous page, investigating its texture and the figure in the picture as well. Then, still looking at the picture, he signs with his right hand GQ (1h) (5 handshape, orientation of the palm initially towards the page, rotation of the hand without a non-manual element) and continues by performing a sign that refers to the shape and the size of the egg BIG-EGG-SHAPE (1h). He raises his head, looks to the researcher and smiles again. The mother, pushing the boy slightly to look at her and as he has turned back to the book, signs INDEX-egg-in-book BIG-EGG-SHAPE (2h) (‘this is a big round egg’)5 and repeats INDEX-egg-in-book BIG-EGG-SHAPE (2h) INDEX-egg-in-book. M turns back to the researcher, looks again at the picture and repeats BIG-EGG-SHAPE (1h), using only his right hand. After that he stands up and goes away. (12/ age: 1;7,10, duration: 00:55:21–00:55:34)

The GQ that the child produces at the beginning of this communicative situation is used exclusively with interrogative function and refers to the egg in the book, as mother’s comment also shows. The child’s investigative behaviour indicates that he thinks about the object illustrated in the picture, probably because he is impressed by the shape and size of the figure. The child’s question seems to be a spoken out wonder, not addressed to anyone but himself, since he performs the sign GQ (1h) without looking either at his mother or the researcher. GQ is an independent sign clearly articulated. The boy goes on signing BIG-EGG-SHAPE (1h), giving the answer by himself. This sign belongs to the category of signs used for describing entities according to their salient visual geometric properties, and they are referred to in the literature as Shape and Size Specifiers (SASS), (Klima & Bellugi 1979; Supalla 1982, 1986; Schick 1990a, b, c). The presence of this particular sign in the child’s expressive language is special since it seems quite precocious (see also Supalla, 1982; Schick, 1990a, b), in spite of the fact that it is performed only with the right hand. The left hand that would have depicted the base of the object is not used. Mother repeats BIG-EGG-SHAPE in the complete form with two hands, giving positive feedback to the toddler in regard to what he expresses in the above utterances.

Example 10.21

M is in the living room pushing his pushchair. He abandons it, turns back, runs around the room, turns his head right and left looking for something, and stops before the camera. He looks at the researcher and then at his aunt who probably signs something to him that is not visible in the screen. M

5 That is, describing the shape and the size of the object that has impressed toddler.
watches her. Then, with his left hand, he signs GQ (1h),\textsuperscript{96} going towards the corridor that leads to the rest of the house. The aunt, almost simultaneously with the boy’s question, asks him GQ and then, watching M going towards the corridor and searching, she points to the door of the bathroom INDEX-bathroom/door, inside which is the mother. M takes his aunt’s hand, pulling her towards the door. Meanwhile, the researcher’s voice is heard saying that he is searching for his mother. M smiles and tries to open the door helped by his aunt, but in vain, because it is locked. He whines. The aunt puts him on her shoulders and he taps on the toilet window where he can see that the light inside is on. After a while, the mother comes out and the episode ends. (12/age: 1;7,10, duration: 00:46:45–00:47:24)

In the above example, the boy’s GQ is an independent interrogative sign meaning ‘where?’ or ‘where is she?’ Realising that his mother is absent from the living room, the child looks for her. Initially, the aunt does not understand what he is looking for and asks him what he wants using the same interrogative sign. However, watching him going towards the corridor and searching, she understands his question and points at the door of the bathroom where the mother is. The child’s overall behaviour and the continuation of the episode confirm that, from the beginning, he asks his aunt about his mother by using GQ. With regard to its form, GQ is well-formed with a clear rotation of the hand and a faint shaking of the head (leaning to the right), the non-manual part of the sign. Closing this section, Examples 10.20 and 10.21 show that at the end of the third stage in the acquisition of pointing, GQ acquires an independent interrogative function.

10.2.3 Mouth movements used instead of common nouns for reference to persons

The use of common nouns such as DADDY, MUMMY, etc., for reference to persons has not been found in the records of the third stage in the acquisition of pointing. What was observed in the child’s communication at this stage, being of special interest, is the emergence of some mouth movements that are used without the manual component of the common nouns of which they are part. The full forms of these signs finally appear in the deaf child’s language in the last developmental stage in the acquisition of pointing.

These mouth movements that constitute the non-manual part of particular signs seem to be used by the deaf child of the present study as independent and distinct symbolic gestures often accompanied with voice since, at this stage, the child also discovers the organs used for voice production and his

\textsuperscript{96}The sign is performed by a slight shaking and leaning of the head to the right, but the child’s face is not visible in the screen since he is already going towards the corridor, having his back to the camera.
general ability to produce sounds. This behaviour is something that gradually fades after the age of 20 months.

The mouth movements used by the deaf child for reference to persons are presented below, in the order of their appearance in the video recorded material of the study. In general, from 16 months, the deaf child performs some mouth movements intentionally, having specific meaning and reference in different contexts, in order to interact with his environment. The first mouth movements used purposefully for reference to persons are found when the deaf child is approximately 16 months.

Example 10.22

M is in his playpen, looking towards the camera, smiling and leaning his head to the right. He raises his head and signs PHONE and simultaneously performs the mouth movement /BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL/ without accompanying it with voice. His gaze goes downwards, where he sees a sea basket. He raises it with his right hand and nods his head in a confirming manner. (7/ age: 1;4,00, duration: 00:05:10–00:05:17)

In the episode just described, the mouth movement that the deaf child performs is similar to the mouth movement used for the articulation of the sign DADDY, /BILABIAL, OPEN, BILABIAL, OPEN/, although in this communicative situation it is composed of more than two repetitions of the first two segments. The young boy, by articulating the sign PHONE simultaneously with the mouth movement /BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL/ that accompanies the sign DADDY, reproduces a behaviour that he has seen many times conducted by his mother. When his father is out, M’s mother usually pretends that she calls him using the telephone; she puts the earphone on her ear and simultaneously performs the sign DADDY, accompanied it with its mouth movement. So the attribution of reference of the child’s mouth movement to his father is based on this familiar behaviour that the toddler partially reproduces without performing the manual part of the sign. On this specific occasion, the symbolic gesture PHONE and the mouth movement are used as a unified whole. The mouth movement seems to be performed as an integral part of the sign PHONE. Overall, it is not easy to maintain whether the boy’s behaviour can be considered as symbolic play, or as a true signing act looking more or less like a behaviour in between the two with regard to the situation. The child

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97 Between 16 and 20 months the deaf child usually plays with the sensors of sound that exist at his home, holding his throat, or his mother's throat to feel his or her vocal cords.

98 Before this age it has been observed that the deaf child tries to produce some mouth movements, sometimes imitating adults and sometimes spontaneously, mainly in the context of some interactive games without any specific meaning.

99 The person holding the camera during this video recording is the mother.
looks at the camera, addresses his mother behind it, expresses his desire and simultaneously represents the act of calling his father. Then he seems to think something about his basket, part of which is probably expressed by the nodding of his head, changing the topic.

Example 10.23

*M* holds the earphone with his left hand intending to play with it. His mother sits nearby him on the sofa and offers a bottle of water to him. *M* looks in front of him in the direction of the researcher. He takes the bottle from his mother and, probably absentmindedly, puts it on his right ear. Simultaneously he opens and closes his lips, creating the mouth movement /BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL/ accompanied with voice. At the same time he nods his head in a confirming manner. The boy’s mother laughs. *M* looks at his hands, holds the earphone better and puts it on his left ear. He pretends he is speaking into the telephone, performing again almost the same mouth movement /BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN/ with his gaze forward, towards the researcher. He stops for a second and again nods his head in a confirming manner. His mother looks at him, nods her head as well and asks ‘who is on the telephone? Daddy?’ (8/ age: 1;5,10, duration: 00:17:37–00:17:56)

In the above episode, as in the previous one, the child uses the mouth movement /BILABIAL, OPEN, BILABIAL, OPEN/ that accompanies the sign DADDY to refer to his father, who is absent, making symbolic play with the real object and without it. In this specific communicative situation, his mother recognises immediately the child’s reference to his father and, at the end of the episode, gives positive feedback to the child by asking him, and showing him, that she understands the reference of his mouth movement. Both utterances, namely the two mouth movements /BILABIAL, OPEN, BILABIAL, OPEN/ and /BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN/ that *M* performs, consist of more than two repetitions of the first two segments compared with the mouth movement that accompanies the sign DADDY. In his symbolic play, the boy seems to address his father, whereas mother and the researcher participate mainly by watching him. This idea can clearly be supported by the child’s gaze, which is very characteristic; although it is directed forwards, it does not seem to focus on anyone, whereas, at the moment he nods his head in a confirming manner, his gaze goes down to himself as if he were talking to someone at the other end of the telephone line. Finally, the mouth movements produced by the child are symbolic gestures, having similar status to those articulated with

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100 WHAT WHO INDEX-telephone TELEPHONE WHO TELEPHONE? WHO FATHER? WHAT WHO.

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hands in other communicative situations in this stage in the acquisition of pointing, used instead of the full sign DADDY.

In Record 9 (see Example 10.15), the deaf child at the age of 1;5,23 performs the same mouth movement, /BILABIAL, OPEN, BILABIAL, OPEN/ (despite the fact that, in that particular episode, only the last segment /OPEN/ is visible), simultaneously vocalising in order to refer to his mother. From the description of the signs DADDY and MUMMY (see Appendix B), it is evident that despite the difference these two signs have in respect to their manual part, they are articulated with the same mouth movement as they come from the labial phonemes /b/ and /m/, which are found in the Greek words daddy (“babas”) and mummy (“mama”). In the episode described in Example 10.15, the reference of the specific mouth movement to mother emerges from the context, being in addition specified by the appearance of the sign that the child uses as his mother’s name sign, immediately after the performance of the mouth movement /OPEN/ and the vocal production. The mouth movements described in Example 10.15, as well as the previous one found in Example 10.23, are all symbolic gestures independent of the communicative context in which they emerge.

Example 10.24

*The young boy is in front of the camera, close to the lens. He looks at the researcher and places his open palm on the lens. He smiles. He looks into the lens, raises his gaze to the researcher and signs SLEEP. The sign is performed simultaneously with a mouth movement /OPEN, BILABIAL/ without any vocalisation. Immediately after that, the child puts his palm on the lens again and tries to manipulate the camera somehow. He signs SLEEP again, but this time the sign is accompanied with the mouth movement /BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL/ and vocalisation, whereas his gaze goes to the researcher. He then points at the camera, looking at it and touching it INDEX-camera, and continues NAME-SIGN-researcher, FEEDING-BOTTLE, MY-GOD, MAKING-CROSS. Then he leaves. The sign INDEX-camera is articulated with a G handshape, the child’s finger touches the lens and the mouth movement /BILABIAL/ is formed. When he signs NAME-SIGN-researcher, his gaze has moved back to the researcher, and he produces the mouth movement /OPEN, BILABIAL/. When he signs FEEDING-BOTTLE, he looks to his left probably searching for his bottle on the table, whereas when he performs the signs MY-GOD and MAKING-CROSS, he has turned back again to the researcher looking at her seriously. MY-GOD is accompanied by the mouth movement /OPEN, BILABIAL/ and MAKING-CROSS by the mouth movement /BILABIAL/. Behind the child, the mother’s laughter is heard and she comments that M produces whatever comes into his mind. (12/ age: 1;5,23, duration: 00:02:38–00:03:03)
In the episode just described, the boy stands before the camera and performs a sequence of signs or a sequence of symbolic gestures, which do not seem to be related in a specific way. Therefore, although many different hypotheses can be made about their meaning, it is not possible to confirm or reject these hypotheses according to the specific situation. Due to this, only utterances that may relate to persons, such as SLEEP and NAME-SIGN-researcher, are commented upon below.

In the first utterance, the child performs SLEEP accompanied with the mouth movement /OPEN, BILABIAL/. This mouth movement is performed without any vocalisation, and it is just an opening and closing of the mouth, with tightened lips at the end. Then the sign SLEEP is performed again with a mouth movement consisting of many repeated segments, which are the same as those observed in DADDY and MUMMY.

With regard to the use of these mouth movements that accompany the two instances of SLEEP, two possible alternative hypotheses can be formulated:

1) They may be accidental. At this stage of development, the child starts to realise the existence of the non-manual parts of the signs and, probably overgeneralising their usage, accompanies some of them with mouth movements that are initially easy for him to articulate in a redundant, random and arbitrary way. This interpretation is supported by the fact that all the signs he produces in this specific episode are accompanied by mouth movement.

2) The mouth movement accompanying SLEEP is probably used by the child for referring to his father or to his mother, despite the fact that it consists of more than two repetitions of the first two segments. The child using SLEEP together with /BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL/ may intend to give two different pieces of information. One is about the person (given with the mouth movement), and the other about the condition, the state in which the person is in (given with the manual part, SLEEP). By using this combination, the boy may want to say that his father or his mother is sleeping. However, if this last hypothesis is correct, then it is more likely that the mouth movement refers to the father because the mother is present in the interaction, whereas the father usually sleeps during the afternoon since he works at night.

Finally, in the aforementioned communicative episode, the use of one proper name occurs – that of the researcher. This sign is one of the nine cases of proper names mentioned earlier (see Section 10.2.1), and here it is used in regard to the camera and the video recording process that the researcher’s presence is always related to. Using the signs INDEX-camera and NAME-SIGN-researcher, the young boy associates the use of the camera with the researcher describing what takes place at that specific moment, and then his thoughts seem to move to something else. NAME-SIGN-researcher is quite
well formed and therefore easily recognisable as the child’s interlocutor. The young boy performs the sign at its correct location of articulation, the ear, and initially uses the appropriate F handshape, while, at the end, his hand configuration changes to holding his ear with his whole hand. In addition, with respect to the movement of the sign, the repetitive grasping of the ear is left out. The reference of the sign to the researcher in the above occasion is unquestionable, and it may be considered that it is used instead of a pronominal pointing sign. The rest of the signs that the child performs in this particular situation are just a sequence of signs, each of which functions as an independent utterance.

When the child is 20 months old (Record 13), one more mouth movement has been found, used for reference to the mother’s uncle at whom the child is looking. This mouth movement, /OPEN, BILABIAL, OPEN, LABIODENTAL/, described in Example 10.10 at the age of 13 months, differs only in the last segment from the mouth movement of DADDY and MUMMY. Because of this similarity it was hypothesised that the child referred to the mother’s uncle in that episode.

According to all the above, it becomes evident that the child of the present study seems to perform the same mouth movement for referring to persons in his environment, such as mother, father and probably the mother’s uncle, who almost plays the role of a grandfather. On the semantic level, this can be interpreted as an overextension of this particular mouth movement used as a symbolic gesture by the child, which undoubtedly is also related to the fact that both signs, DADDY and MUMMY, are accompanied with the same mouth movement in Greek Sign Language.

Closing, the absence of full signs, i.e. common nouns, and the occurrence of just one proper name for reference to persons in this phase of the child’s development has to be attributed to the fact that deaf adults usually do not include those kinds of signs in the language they use to address the child, unless in exceptional cases. The deaf parents participating in the present study used signs like MUMMY, DADDY, their name signs, the child’s name sign or relatives’ names rarely, and that happened only for referring to them when they were absent. Calling a person by his name, or according to his/her kinship as mother, father, etc., and referring to persons and self with lexical signs, is not common in the communicative habits of the family and in the Greek community of the deaf in general (see also Ahlgren 1990 on Swedish Sign Language). Due to the communicative habits of the Greek deaf Community, and mainly because of the visual-gestural modality of signed languages, reference to present persons is usually made by pointing signs. For the establishment of eye-contact, deaf adults usually use “vocative”, deictic attention-getting gestures such as waving the hand.
10.3 Enhancement of the child’s first lexicon, the developmental milestone of 50 words

From 16 to 20 months, the first lexicon of the deaf child acquiring Greek Sign Language is expanded. By 20 months, the child has acquired a lexicon of more than 50 signs. In Table 8, which contains 59 different signs, the signs that the boy uses in each record of the third developmental stage in the acquisition of pointing are listed.

Table 8. The child’s symbolic gestures/signs in the video recordings of the third stage in the acquisition of pointing.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(7a)</td>
<td>(8)</td>
<td>(9)</td>
<td>(10)</td>
<td>(11)</td>
<td>(12)</td>
</tr>
<tr>
<td>1;4.00</td>
<td>1;5.10</td>
<td>1;5.23</td>
<td>1;6.12</td>
<td>1;6.26</td>
<td>1;7.10</td>
</tr>
<tr>
<td>BYE-BYE</td>
<td>CHEESE</td>
<td>COME</td>
<td>DIRTY</td>
<td>FOOD</td>
<td>GOOD</td>
</tr>
<tr>
<td>ARMY</td>
<td>BYE-BYE</td>
<td>CHEESE</td>
<td>CIGARETTE</td>
<td>KISS</td>
<td>DEMAND</td>
</tr>
<tr>
<td>ROUND</td>
<td>HOME</td>
<td>HEAD</td>
<td>LEAVE-IT</td>
<td>MAKING-CROSS</td>
<td>NAME-SIGN-researcher</td>
</tr>
<tr>
<td>HURRAH</td>
<td>REACH</td>
<td>SIT</td>
<td>TEETH</td>
<td>TREE</td>
<td>UP-GO</td>
</tr>
<tr>
<td>SLEEP</td>
<td>WALK</td>
<td>BYE-BYE</td>
<td>COME</td>
<td>DEMAND</td>
<td>DOG</td>
</tr>
<tr>
<td>DON-T</td>
<td>DOWN</td>
<td>FEEDING</td>
<td>-BOTTLE</td>
<td>FORBID</td>
<td>GET-ME</td>
</tr>
<tr>
<td>GRASP</td>
<td>GQ</td>
<td>HURRAH</td>
<td>LEAVE-IT</td>
<td>MILK</td>
<td>NAME-SIGN-researcher</td>
</tr>
<tr>
<td>PHONE</td>
<td>POO</td>
<td>PAIN</td>
<td>REACH</td>
<td>STOP</td>
<td>PENNY</td>
</tr>
<tr>
<td>WHAT</td>
<td>REACH</td>
<td>SPoon</td>
<td>WATER</td>
<td>WHAT</td>
<td>WRONG</td>
</tr>
</tbody>
</table>

The signs listed in Table 8 clearly indicate that, at the age of 20 months, the child has already developed a significant number of signs and is able to express many different meanings. However, it has to be mentioned once more that it is not an easy task to determine whether the child’s early signs are true signs, signs that the boy himself has invented, or simply gestures.

After the emergence of the first few signs in the previous developmental stage in the acquisition of pointing in this stage, a vocabulary spurt is
observed in the deaf child’s language similar to that described in hearing children’s language at the same age (Bloom et al. 1993; Fenson et al. 1994; Dromi 1999; Kauschke & Hoffmeister 2002). Additionally, with regard to the developmental milestone of the 50 words comprising children’s early vocabulary, the deaf child of the present study has achieved this accomplishment in the time range, between 14 and 24 months, suggested in the literature for spoken languages (e.g. Nelson 1973; Lieven et al. 1992; Bloom et al. 1993; Menyuk et al. 1995). At the age of 1;8,00, the boy acquiring Greek Sign Language already uses 59 different signs, a finding in accordance with Kauschke & Hoffmeister (2002:736), who mention that “around the age 1;6–1;7, the productive vocabulary of most children roughly contains 50 words”.

In general, the enhancement of a child’s first lexicon seems to be the most important attainment of the third stage in the acquisition of pointing. The process by which he acquires most of the signs in his expressive language is the following: Initially the child uses a sign as an imitation of an adult’s sign and gradually starts to perform this sign spontaneously by decontextualising it from the specific context in which it was first used, thereby generalising its usage. From 16 to 20 months, the signs that have been observed in the deaf child’s interaction with adults are about entities, locations, attributions, actions or states.

In addition, other important achievements of this developmental phase are: (a) the emergence of the interrogative function in the child’s language with the use of signs, such as GQ and WHAT, both having a general interrogative meaning, and (b) the emergence of the sign DON’T for the expression of negation, apart from all the other non-manual means that he uses for expressing negation and question at this age. Finally, as far as the development of the general communicative skills of the deaf child is concerned, it has to be mentioned that, from the beginning of this stage, except for the other non-linguistic means that he uses to attract the attention of adults, he also introduces and uses systematically the gesture that is met in deaf adult’s communication when they want to attract their interlocutor’s attention.101

10.4 Expansion of the length of the deaf child’s utterances, combinations of three gestures

In the third stage in the acquisition of pointing, the child’s ability to combine two lexical items constitutes a characteristic feature. Based on Volterra and

101 The attention-getting gesture is performed by using one hand, 5 handshape, the orientation of palm is downward, the arm is extended or half-extended in the interlocutor’s direction and the hand moves slightly up and down from the wrist (see Appendix B).
colleagues’ criteria (Volterra & Casselli 1985:6-7; Volterra 1987:98; Volterra & Iverson 1995:373; see also Volterra & Erting 1994:300-301), the terms pointing gesture (PG) and symbolic gesture (SG) have been adopted for characterising the boy’s early communicative behaviour since its linguistic status cannot be determined with certainty yet (see Chapter 7).

From the age of 16 to 20 months, combinations of two elements in the child’s expressive language are common enough. Either they are combinations of a pointing gesture with a symbolic gesture (PG+SG, SG+PG), combinations of two pointing gestures (PG+PG), or even combinations of two symbolic gestures (SG+SG). In this developmental stage in the acquisition of pointing, the child conducts small dialogues with adults and exchanges information, creating small pieces of discourse that contain more than one successive utterances, composed by one or two gestures, as shown in most of the examples presented above.

However, except for the combinations of two elements, i.e. gestures or signs found at this age between 16 and 20 months, early combinations of three elements occur in the child’s expressive language, too. These early utterances may consist of: (a) two pointing gestures and one symbolic gesture, or (b) one pointing gesture and two symbolic gestures, as presented in Table 9.

Table 9. Examples of combinations of three gestures.

<table>
<thead>
<tr>
<th>Utterance</th>
<th>Type of gesture</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>GET-UP INDX-mother REACH</td>
<td>SG + PG + SG</td>
<td>1;5,23</td>
</tr>
<tr>
<td>INDEX-toy REACH GQ102</td>
<td>PG + SG + SG</td>
<td>1;5,23</td>
</tr>
<tr>
<td>INDEX-inside-oven INDEX-handle-of-stove REACH</td>
<td>PG + PG + SG</td>
<td>1;6,26</td>
</tr>
<tr>
<td>STOP NAME-SIGN-researcher INDEX-camera/researcher (see Example 10.16)</td>
<td>SG + SG + PG</td>
<td>1;6,12</td>
</tr>
<tr>
<td>WATER INDEX-tap INDEX-self</td>
<td>SG + PG + PG</td>
<td>1;6,26</td>
</tr>
<tr>
<td>INDEX-object103FEEDING-BOTTLE INDEX-object</td>
<td>PG + SG + PG104</td>
<td>1;7,10</td>
</tr>
<tr>
<td>TONGUE INDEX-cat’s-tongue TONGUE</td>
<td>SG + PG + SG</td>
<td>1;8,00</td>
</tr>
</tbody>
</table>

In closing, the third stage in the acquisition of pointing seems to be an important phase in the child’s transition from early communication to

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102 The reference of this sign to the act of giving/taking or to the child himself being the boy’s name sign is ambiguous, despite the fact that its form is unquestionably that of the general interrogative sign, i.e. it contains a rotation of the hand.
103 The object is not visible but it is probably the boy’s bottle or his tumbler.
104 (See also Example 10.6, Record 9/ age: 1;05,23)
language. At the age of 16 to 20 months, the deaf child acquiring Greek Sign Language makes a big step towards language with the main achievements being the enhancement of his first lexicon, the development of his combinatorial ability and the emergence of new linguistic skills in regard to the use of specific signs.

As far as pointing is concerned, the deaf toddler seems to hesitate in regard to its use for reference to persons and self, still using it sporadically. He probably tries to understand the multi-functional use of the index hand configuration. The boy seems to be cautious about using it for reference to persons and self, since at this developmental stage pointing directed to persons and self only occurs here and there in a limited number of communicative situations.

In other words, the third stage in the acquisition of pointing, during which the deaf child acquires numerous new linguistic skills, seems indeed to function as an intermediate stage. It is a transitional phase before the acquisition and use of pronominal pointing signs, common nouns and proper names used for reference to persons and self, as well as for the acquisition of other lexical signs with respect to their meaning and reference, leading the child smoothly to adult language without discontinuities and clear cuts in his process of development.
CHAPTER 11

Fourth Stage in the Acquisition of Pointing: The Establishment of Pronominal Pointing for Reference to Persons and Self (age: 1;8,07–2;3,01)

At the age of 20 months, the deaf child starts again to use pointing for reference to persons and self on a regular basis. In the fourth stage in the acquisition of pointing, the progress that has gradually taken place in the child’s expressive language in the transitional phase of the third stage becomes now more obvious and occurs at a faster rate at all levels. During the fourth stage, the toddler gradually uses pointing directed to self and other entities systematically with the same meaning that the signs INDEX-self and INDEX-non-self have in adults’ language, justifying the attribution of linguistic status in his pointing after 20 months. By then, the deaf child has enriched his lexicon considerably, and he is in the position to express complex relations with regard to persons and self, using language in a more advanced way than in the previous stages.

The basic characteristics of the fourth stage in the acquisition of pointing are:

1) The overall frequency of pointing is higher compared to the previous stage.

2) Pointing for reference to persons and self is used more often than in the third stage.

3) The form of pointing the deaf child produces is very close to the adult form.

4) The relaxed B-hand is used for reference to self as an alternative form of the index finger hand configuration.

5) Pointing is used for reference to present and non-present persons.
6) Pointing for reference to persons and self is used without errors except for one possible erroneous pointing sign directed to self instead of being directed to an object.

7) Name signs and common nouns are used for reference to persons and self as well.

8) The index finger hand configuration is also used in lexical items such as NOSE, CLOCK and MIND.

9) The child’s productive lexicon is enhanced far beyond 50 signs.

10) The length of the deaf child’s utterances is expanded.

11.1 The frequency of pointing in the fourth developmental stage

In the case of the deaf child acquiring Greek Sign Language, the fourth stage in the acquisition of pointing, extending from the beginning of the 21st month (1;8,07) until 27 months of age (2;3,01), constitutes the last developmental phase in the acquisition of pronominal pointing for reference to self and others. In Table 10 below, the mean number of pointing gestures per minute is presented in all four stages showing the increase observed in regard to the frequency of occurrence of the pointing signs in the child’s expressive language.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>MINUTES</th>
<th>NO. OF POINTING GESTURES /SIGNS</th>
<th>MEAN NO. OF POINTING /MINUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>141</td>
<td>60</td>
<td>0.42</td>
</tr>
<tr>
<td>2nd</td>
<td>103</td>
<td>115</td>
<td>1.10</td>
</tr>
<tr>
<td>3rd</td>
<td>354</td>
<td>391</td>
<td>1.10</td>
</tr>
<tr>
<td>4th</td>
<td>964</td>
<td>1,256</td>
<td>1.30</td>
</tr>
</tbody>
</table>

The frequency of occurrence of pointing in the fourth stage is even higher than that of the third stage. In this developmental phase, pointing is used with various functions in the deaf child’s communication, which has now finally moved from early communication to language, enabling him to create small pieces of discourse and exchange information with adults in his environment.
11.2 Higher frequency of pointing for reference to persons and self compared to the previous stage

In this developmental stage, the deaf boy no longer uses pointing for reference to persons and self in a restrained manner. From 16 to 20 months, the number of pointing gestures to persons and self is very limited (1.02% compared to the total amount of pointing gestures performed by the toddler in that period of time), but from 20 to 27 months of age, the child produces a large number of pointing signs referring to persons and self (see Table 11). More specifically, during the fourth stage he produces 127 pointing signs for reference to persons and self out of a total number of 1,256 pointing signs. This constitutes a percentage of 10.11, which is similar to the percentage of pointing gestures used for reference to persons and self observed in the second developmental stage (11.30%).

Table 11. Percentage of pointing gestures/signs directed to persons relative to the total number in each developmental stage in the acquisition of pointing.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>MINUTES</th>
<th>NO. OF POINTING GESTURES/SIGNS</th>
<th>INDEX-person (including self)</th>
<th>PERCENTAGE OF INDEX-person</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>141</td>
<td>60</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>2nd</td>
<td>103</td>
<td>115</td>
<td>13</td>
<td>11.30%</td>
</tr>
<tr>
<td>3rd</td>
<td>354</td>
<td>391</td>
<td>4</td>
<td>1.02%</td>
</tr>
<tr>
<td>4th</td>
<td>964</td>
<td>1,256</td>
<td>127</td>
<td>10.11%</td>
</tr>
</tbody>
</table>

In addition, after the age of 24 months, 31 of a total number of 1,256 pointing signs (2.46%) were directed to the image of a person (photograph or movie) in the child’s environment, but they have not been included in the category of pointing signs directed to persons. Finally, as in the previous developmental stage, there is a great number of pointing signs, 69 pointing signs (5.49%), which are ambiguous. These pointing signs have been categorised as ambiguous due to the following reasons: (a) although they are directed to persons, their reference is not possible to be specified in terms of the person, the object he or she is holding, or the location he or she occupies, or (b) the referent towards which the pointing is directed is not visible in the video and therefore cannot be identified.

Records 14 and 15 mark the beginning of the fourth stage in the acquisition of pointing because, in these two records, a burst is observed in the use of pointing for reference to persons and self. In Record 14 (age:1;8,07) the child produces seven pointing signs referring to persons, five of which are directed to himself; and in Record 15 (age:1;8,19) the child produces 11 pointing signs to himself. In these records, except for the use of pointing for reference to persons and self, the use of the relaxed B-hand for reference to self, with or without possessive meaning, appears frequently (four references to self articulated with the relaxed B-hand configuration in
Record 14 and four references to self in Record 15). This is in contrast to the third stage in the acquisition of pointing in which there were only two references to self performed by the relaxed B-hand.

In Records 16 to 30, the number of pointing signs for reference to person continues to be high, although a relative variance is observed with some records showing higher frequency of occurrence of pointing for reference to persons and self compared to others (see Table 12 below). To a certain degree, this undoubtedly has to do with the topic of the interaction between the child and adults.

Table 12. Distribution of pointing in each record of the fourth stage in the acquisition of pointing.

<table>
<thead>
<tr>
<th>R. No.</th>
<th>MIN. AGE</th>
<th>NO. OF POINTING SIGNS</th>
<th>INDEX-person (including self)</th>
<th>INDEX-person-in-photo/video</th>
<th>AMBIGUOUS POINTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>62</td>
<td>1;8,07</td>
<td>58</td>
<td>7 (5 self)</td>
<td>6</td>
</tr>
<tr>
<td>15</td>
<td>62</td>
<td>1;8,19</td>
<td>62</td>
<td>11 (11 self)</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>62</td>
<td>1;9,03</td>
<td>43</td>
<td>4 (4 self)</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>63</td>
<td>1;9,18</td>
<td>47</td>
<td>4 (3 self)</td>
<td>-</td>
</tr>
<tr>
<td>18</td>
<td>63</td>
<td>1;10,02</td>
<td>74</td>
<td>1 (1 self)</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>33</td>
<td>1;10,16</td>
<td>52</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>20</td>
<td>55</td>
<td>1;11,04</td>
<td>72</td>
<td>18 (13 self)</td>
<td>3</td>
</tr>
<tr>
<td>21</td>
<td>53</td>
<td>1;11,18</td>
<td>43</td>
<td>4 (4 self)</td>
<td>-</td>
</tr>
<tr>
<td>22</td>
<td>58</td>
<td>2;0,04</td>
<td>65</td>
<td>3 (2 self)</td>
<td>2</td>
</tr>
<tr>
<td>23</td>
<td>41</td>
<td>2;0,15</td>
<td>57</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>24</td>
<td>62</td>
<td>2;0,21</td>
<td>73</td>
<td>11 (1 self)</td>
<td>-</td>
</tr>
<tr>
<td>25</td>
<td>63</td>
<td>2;1,01</td>
<td>89</td>
<td>2 (2 self)</td>
<td>26</td>
</tr>
<tr>
<td>26</td>
<td>55</td>
<td>2;1,12</td>
<td>69</td>
<td>6 (3 self)</td>
<td>2</td>
</tr>
<tr>
<td>27</td>
<td>58</td>
<td>2;1,21</td>
<td>67</td>
<td>7 (1 self)</td>
<td>6</td>
</tr>
<tr>
<td>28</td>
<td>63</td>
<td>2;1,27</td>
<td>98</td>
<td>5 (2 self)</td>
<td>5</td>
</tr>
<tr>
<td>29</td>
<td>49</td>
<td>2;2,24</td>
<td>108</td>
<td>7 (2 self)</td>
<td>10</td>
</tr>
<tr>
<td>30</td>
<td>62</td>
<td>2;3,01</td>
<td>178</td>
<td>31 (4 self)</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>964</td>
<td>1,256</td>
<td>127</td>
<td>31</td>
<td>69</td>
</tr>
</tbody>
</table>

In the fourth developmental stage, as the child grows, pointing approaches step by step the form of the adults’ sign, slowly acquiring the G-hand configuration found in pronominal pointing of adults’ language. The thumb, which has been extended in the previous stages, gradually comes in opposition to the other fingers. The degree of the extension of the arm is related to the communicative circumstances, such as the distance between the child and the object, the person, or the location towards which the pointing sign is directed and sometimes with its use for emphasis.

In the videotaped material of the present study after 21 months, and definitely towards the end of 24 months (in which reference to non-present
persons emerges), pointing has developed into two different pronominal signs corresponding to those used by adult signers for reference to person and self. One pointing sign is directed towards self, meaning ‘animate entity in the role of sender’ (translated as ‘I’ or ‘me’), and the other is directed outwards to other entities meaning ‘entity other than the signer’.

11.2.1 Pointing used for reference to others

In this stage, the child is able to express even more complex ideas by referring through pointing: (a) to the image of a person, (b) to present persons either addressing them or not, and (c) to non-present persons in relation to past or future situations.

Below, pointing signs directed to the image of a person are described first, followed by a description of signs directed to present and absent persons. Pointing to the image of a person is described before pointing to persons because it is considered as an earlier step in the linguistic development, related more to pointing to pictures of objects and less with pointing to persons and contrary to the fact that on the cognitive level it is an explicit indication of the child’s overall development.

11.2.1.1 Pointing directed to the image of a person

As has already been mentioned in the videotaped material of the fourth stage in the acquisition of pointing, 31 pointing signs directed to the image of a person known to the child (2.46% of a total number of 1,256 pointing signs) in photos or in TV (video) have been detected. These pointing signs, although concerning specific persons, have not been included in those referring to persons or self since, in all these cases, pointing is not directed to the person himself/herself but to an image representing the person. These pointing signs appear after 24 months and, although they differ slightly from those directed to objects or pictures of objects, they do show the child’s developmental ability to identify the image of a person with the actual person.105 Below are some representative examples where the child points at a person in a photo, either present or absent in the communicative episode, are the following.

Example 11.1

M sits on the sofa in the family’s living room looking at some photographs from his birthday party. In front of him on the floor sits his mother who

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105 The possible delay of the appearance of these pointing signs in the data of the present study may be attributed to the methodology followed. Thus, the time that they first appeared cannot be considered as a clear indication of the emergence of the child’s particular ability.
points at her photo INDEX-mother-in-photo and signs MUMMY\textsuperscript{106} NAME-SIGN-mother. M watches her carefully. Indeed, at the moment that she signs MUMMY repeatedly, he copies her mouth movement producing /BILABIAL, OPEN, BILABIAL, OPEN/. Then he observes the photograph with special interest and, with his right hand, signs INDEX-mother-in-photo MUMMY. The index finger touches the picture and the child’s gaze remains towards the photograph as long as he points. At the moment he articulates the sign MUMMY, he turns to her and, simultaneously with the manual part of the sign, performs an /OPEN, BILABIAL, OPEN, BILABIAL, OPEN/ mouth movement accompanied with vocalisation. The sign MUMMY is not articulated at its correct location next to the cheek but at a distance from it. However, the movement and the handshape of the boy’s sign are similar to the movement and the handshape of the adult sign. The boy’s mother probably does not understand what he says and goes on pointing towards another person’s photo, but it is not discernible in the video whether she is looking at the child or at the photo. (25/ age: 2;1,01, duration: 00:08:33–00:08:43)

In the example just described, the boy points at his mother’s picture in front of him, in spite of the fact that she is present, and then signs MUMMY, which emerges for the first time in his language in this record.\textsuperscript{107} The utterance INDEX-mother-in-photo MUMMY differs slightly, however, from an utterance such as “INDEX-object-in-book + name of object”, since it constitutes an indirect reference to a person through the boy’s representation on a paper. This is especially interesting as an indication of the child’s cognitive and linguistic development with regard to the comprehension of others’ reference. In the above utterance, the child’s MUMMY is stimulated by mother’s sign (MUMMY), and in spite of its mispronunciation, it was clearly recognisable when the boy’s utterances were transcribed by the researcher and mother in the reexamination of the video recorded material. The sign’s location away from the cheek is probably due to the complexity of its movement. However, what is of particular interest in regard to MUMMY, is that the child tries to coordinate the manual part of the sign with its mouth movement.

Example 11.2

The young boy sits on the sofa looking at some photographs and talking with his mother about the persons in the photos as he did before. She holds a photo in front of him, points at a person and asks INDEX-grandfather-in-photo WHAT (‘who’s that?’). M opens his eyes wide, moves closer to the photograph and points with his right hand INDEX-grandfather-in-photo

\textsuperscript{106} See Appendix B.

\textsuperscript{107} MUMMY appears again in this developmental stage in the acquisition of pointing, 26 days later (28/age: 2;01,01).
(arm is not extended, the index finger touches the photo). Then he moves even closer to it, and with his right hand signs INDEX-grandfather-in-photo GRANDPA\textsuperscript{108} (the index finger touches the photo, the sign GRANDPA is well articulated but without any mouth movement). His mother nods her head positively and repeats the child’s last sign, addressing a new question to him ‘who is grandfather?’, which M does not answer and instead changes the focus of his interest to other photographs. (25/age: 2;1.01, duration: 00:11:33–00:11:45)

This communicative situation is very similar to the previous one, but, this time, the child’s utterance INDEX-grandfather-in-photo GRANDPA constitutes an answer to mother’s question, and the person about whom they are talking is not physically present during the interaction. Grandfather, to whose picture the young boy points, is not present in the communicative act, but the child mentally recalls him, stimulated by his photo. The child refers to grandfather even more explicitly by using the sign GRANDPA, which is very well articulated.

Finally, a further comment should be made here about the mother’s signing, and in particular the interrogative sign that she uses to ask for the person of the photo. Despite what might have been expected, mother does not use WHO, even though she asks about persons, but instead she uses WHAT. The use of WHAT can be explained either by the fact that the question concerns a photo (an object) or that, in the language directed to the child, WHAT is used with a general interrogative meaning, justifying its use in the child’s expressive language as well.

Beyond the cases of pointing where the child points at the image of a person on a photo, there are some more pointing signs directed towards the TV to persons appearing on the screen. These cases do not differ from pointing to photographs described above since they both concern the image of a person, and they are excluded from the category of reference to persons.

11.2.1.2 Use of pointing for reference to present persons

Below, in an attempt to present the child’s linguistic development in his transition from communicative to linguistic pointing used for reference to persons and self, the most significant cases of pointing are presented. Despite the fact that they are quite complicated and difficult to interpret, they have been included because they illustrate the boy’s developmental process.

Example 11.3

\textit{M has just woken up. He is lying on the sofa in the living room. In front of him is his mother, sitting and watching him proudly. The boy, being in a good mood, claps his hands playing with them, looking at his mother. She}

\textsuperscript{108} See Appendix B.
looks at him too. With his right hand, M points at his mother INDEX-mother (arm extended, almost G handshape) and immediately after that INDEX-nappy (almost G handshape, the index finger touches his nappy) producing the utterance INDEX-mother INDEX-nappy. M’s mother responds to the child’s remark, making a comment about the nappy being indeed dirty. M turns his gaze to the researcher and with his right hand signs, addressing her, DIRTY INDEX-self (the thumb is slightly upwards, the index finger touches the chest). M’s mother laughs, while the child starts playing with his hands, smiling and sending kisses towards the camera. The boy’s mother starts to change his nappy. (17/age: 1;9,18, duration: 00:00:25–00:00:44)

In the communicative situation just described, the young boy accomplishes two different signing acts by using three pointing signs. The first signing act is an imperative one by which the child addresses his mother and indicates to her what she has to do, defining the agent and the object of the action that has to take place. The second signing act is a declarative one that is addressed to the researcher. The child describes the state he is in to the researcher, also referring to himself as the person being in this state. As far as the form of the three pointing signs is concerned, all of them are well formed; the thumb, probably in opposition to the middle finger, is not visible, except for the last pointing sign, where it is barely visible. In the first pointing sign, the movement of the hand towards mother and the extension of his arm towards her shows the child’s pragmatic knowledge on how to express an order, whereas, with the second pointing sign touching the nappy, he manages to make his reference to the object clear. 109 In the utterance that follows, DIRTY INDEX-self (‘I am dirty’), the first sign has a predicative function being a comment about him. Whilst lying on the sofa, he tries to find the correct location (his nose) to articulate DIRTY, not being aware of the exact picture of his body at the specific moment due to his position. 110 Then, feeling that he managed to perform the sign properly, he goes on producing INDEX-self with three repeated contacts of the index finger on his chest, emphasizing its referent. In general, at the age of 20 months and in the fourth stage in the acquisition of pointing, the child’s progress and maturity in respect to his language is obvious.

In the following example, the child refers to his mother who is present in the situation with a pointing sign without, however, addressing her. The form of the pointing sign is very close to the adults’ pronominal sign used for reference to other entities.

Example 11.4

109 If the index finger did not touch the object, its referent would have been ambiguous.
110 This is supported by the fact that he already uses the correct place of articulation of the sign in the third stage in the acquisition of pointing.
M has just accepted that his father has left. He goes out to the balcony where his mother has told him to come close to her. In his right hand, he holds his bottle full of orange juice and walks around. At the left side of the balcony, the mother is sitting on the floor. M comes towards the camera, looks upwards to the researcher and signs with his left hand NAME-SIGN-mother. Then he turns to the left and clearly points at his mother, slightly below her face, INDEX-mother (arm half-extended, G handshape). The utterance that he makes is NAME-SIGN-mother INDEX-mother. His mother smiles and nods. The boy goes close to her, takes away his bear that she was holding and sits on her lap. (27/age: 2;1, 21, duration: 07:58:00–08:11:00)

The child addresses the researcher and refers to his mother, who is present in the communicative situation that takes place between the two of them. The utterance NAME-SIGN-mother INDEX-mother meaning ‘this is …’ constitutes a statement, probably related to the boy’s decision to stay with his mother without complaining about his father’s absence. This is also confirmed by his behaviour, asking for affection at the end of the communicative episode and going and sitting in his mother’s lap. The pointing sign that the child uses to refer to his mother as person (although performed by the left hand, as in his right hand he has his bottle) is a typical pointing sign being articulated inside his signing space, clearly directed to his mother, who, at that very moment, is sitting on the floor while he is standing beside her. As the boy performs the pointing sign, the arm is not extended and the hand has acquired the G configuration, although the last joint of his thumb is not fully flexed. In general in this developmental stage, the child uses pointing in a quite mature manner, either referring to persons or to other entities (objects or locations). However, in natural communicative circumstances, due to pragmatic parameters that to a certain degree affect the way the sign is articulated, it differs from the form described in dictionaries (Logiadis & Logiadis 1985; Efthimiou et al. 2001) without losing its linguistic status.

The two examples that follow are cases of pointing signs referring to persons, in situations where the child signs to himself without addressing another person. In contrast to Example 11.4, they show the degree and the kind of differentiation that may happen in the form of a pointing sign compared to its typical form.

Example 11.5

M is watching one of the video recordings of him on the TV together with his mother. He goes closer and sits next to mother looking at the TV. Then he turns to mother, stands up and, staring straight at mother’s chest, points with his left hand INDEX-mother (the index finger touches mother’s chest) while simultaneously nodding his head. After that, he shakes his head in a funny way right and left to express joy and rubs his face in his mother’s arm.
Both continue watching the video. (28/age: 2;1,27, duration: 00:58:08–00:58:18)

The above incident is part of a longer communicative episode during which the child watches his video and comments on it. By pointing to his mother, the child signs to himself. He does not address mother; he does not have eye contact with her. He sees the image of his mother in the screen and refers to her by pointing, obviously recognising and identifying her with her image, impressed and surprised. The confirming nod of his head in relation to INDEX-mother probably means ‘she is actually her’. Touching mother’s chest, although this is not in accordance with the communicative and linguistic norms of adult signers when they refer to persons (apart from INDEX-self), is likely to be used here in an emphatic and confirmative manner by the child. The boy refers to his mother and expresses affection by his behaviour. His mother, being absorbed watching the video, does not respond.

Reference to person by using pointing and touching the person’s chest appears again in boy’s language of this developmental stage, at the age of 2;2,24, now with possessive meaning.

Example 11.6

M is sitting on the stairs of a building in his neighbourhood, next to an unknown boy who eats an ice cream. The boy is on his left. M’s mother is sitting on his right and between them there are some advertising brochures. M looks at the brochures, moves closer to them and, with his right hand, points INDEX-brochure (the index finger touches the brochures). Simultaneously, M shakes his head from right to left. He signs WHAT (L-hand – left hand still shaking his head and touching the brochure with his right index finger). Almost without pausing, he goes on with his left hand INDEX-boy (arm extended, index finger touches the boy’s chest). Before WHAT the child’s gaze had moved to his front but in the opposite direction from the researcher. In addition, the interrogative sign was produced in a prolonged way, while the boy was simultaneously shaking his head from right to left. At the moment he starts producing INDEX-boy, the pointing sign INDEX-brochure disappears, and M turns to the direction of the unknown boy looking at him from top to toe. When pointing directed to the unknown boy ends, M turns forward, this time looking at the researcher. The utterances being formed are INDEX-brochure WHAT and INDEX-boy. After that M pushes the boy’s arm by using his index finger to try to attract his attention, although the other boy continues eating his ice cream, appearing embarrassed but not reacting. M turns again to the researcher and then the unknown boy takes the opportunity and observes M. (29/age: 2;2,24, duration: 00:44:06–00:44:15)
On this occasion, the pointing sign directed to the unknown boy seems to be an answer to the question formed by the utterance INDEX-brochure WHAT probably meaning ‘whose is that?’ The boy seems to relate the existence of the brochures on the stairs with the unknown boy’s presence, since the latter and the brochures were there before him. He signs to himself without addressing the researcher, although he knows that she watches him. When he produces the utterance INDEX-brochure WHAT, he does not look at the researcher. In fact he phrases a question that he seems to answer by himself immediately after by referring to the possessor of the object, pointing to the unknown boy. The child’s question formed with the sign WHAT having a general interrogative meaning is very well articulated and accompanied by the non-manual element, the shaking of his head. The pointing sign towards the unknown boy, although violating the communicative rules, has clear reference. In other words, the manner in which the pointing sign is performed is fundamental for avoiding any confusion. Touching the unknown boy’s chest instead of any other part of his body ensures the clarity of the reference of the pointing, being an indication of the child’s progressive linguistic ability. If the child had used a pointing sign towards the unknown boy without touching him on his chest, it would have been very difficult to exclude the likelihood of its reference to the object, the ice cream that the unknown boy was holding. At the end of his utterance the child looks at the researcher, probably waiting for a response from her with regard to his own remarks, although such a thing does not happen. Therefore, not having any kind of feedback from adults, he tries to attract the unknown boy’s attention by pushing him with his index finger.

11.2.1.3 Use of pointing for reference to non-present persons

At the end of the fourth stage, pointing is gradually used for reference to non-present persons. The child sometimes refers to a non-present person by directing his index finger towards a specific physical location with which that person is for some reason associated. This use of pointing is also observed in adults’ signing. After 24 months, the first references of the child to non-present persons emerge by the use of the index finger directed towards physical locations associated with these persons. In most cases, the association between the physical location and the non-present person (the referent of pointing) cannot be determined with certainty. So, from 24 to 27 months, 22 probable cases of pointing signs referring to non-present persons were found. Half of them (11), although seeming to refer to non-present persons, have been characterised as ambiguous. The remaining 11 (all found in the videotaped material collected in 27 months) have been included in the category of person because their reference to non-present persons, according to the context, is considered as the most likely one.

Below, an instance of an ambiguous pointing sign towards a non-present person is first presented followed by some examples of pointing whose
reference to non-present persons has been considered as the most likely, according to the context.

Example 11.7

M is sitting on the sofa looking at some photos. His mother sits on the floor beside the sofa looking towards the child’s side, intervening in what M is doing. While she is pointing to a photo and asking about someone illustrated in it, the doorbell rings. M, who at that moment is watching his mother, raises his head and looks at the door. Then he turns to his mother, opens his eyes, raises his eyebrows and extends his right hand towards her, producing the typical attention-getting gesture that adult signers use in order to inform her. Although the mother’s position is opposite the light of the bell, she stands up and goes to the door, looking at the same time at what M says as he goes on signing: INDEX-door (right arm extended, almost G handshape, the articulation of pointing is prolonged) and then NAME-SIGN-mother’s-uncle. When signing INDEX-door, the child opens and closes his lips. He creates a mouth movement /BILABIAL, FORWARD/, BILABIAL, FORWARD/ without vocalisation. Additionally, his eyebrows are lowered. M’s mother corrects the boy saying that his father is coming. M opens his mouth and produces a new mouth movement /OPEN, STRETCHED/, opens his eyes and raises his eyebrows to feign surprise. His mother stands up to go to the door, and M turns back to the photos. (25/ age: 2;1,01, duration: 00:07:39–00:07:44)

In this communicative episode, apart from the non-manual elements that the child uses, what is of special interest is the possible use of pointing for reference to a non-present person. Although produced in continuous mode, the child’s signs described above seem to form two different utterances. The first utterance is composed by the typical attention-getting gesture and a pointing sign directed towards the door: INDEX-door, probably meaning ‘look there’ or ‘look at him’. The second consists of NAME-SIGN-mother’s-uncle, which is not perfectly articulated, but is definitely clearly recognisable. Despite the fact that the most likely referent of the pointing sign seems to be the location (the door) from which the mother’s uncle is going to come, the occurrence of the name sign in the child’s signing immediately after pointing introduces the likelihood that this pointing sign refers to the person the boy thinks has just arrived. The association of a pointing sign with a name sign or with a common noun referring to persons, both being an explicit manner of reference to persons, is the first condition for considering that this pointing sign refers to the non-present person

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111 This gesture has already appeared in the third stage in the acquisition of pointing (see also Appendix B).
112 See Appendix C.
associated with it (although if this constitutes the only evidence, it is not sufficient). In order to be certain that the referent of a pointing sign directed to a physical location is a non-present person, additional contextual evidence is needed.

Below, two pointing signs included in the category of persons are described, the referent of which can almost undoubtedly be considered a non-present person.

**Example 11.8**

M is on the balcony eating ice cream. A deaf friend of the family stands at his right. M is looking at him. The boy turns his head to the front and with his left hand points at the next apartment INDEX-next-balcony (arm flexed, close to the child’s body, G handshape). As his gaze goes back to the deaf friend of the family, he continues his utterance by signing SLEEP. Then, after a very short pause, leaving his ice cream on the table, he goes on by signing BABY MILK. The hands remain close together for some split seconds, while M still looks at the family friend. Then he brings his gaze to the front and, starting with a relaxed B-hand, points again at the next apartment HAND-next-balcony, whereas, immediately after, he uses an INDEX-next-balcony (arm flexed a little further from the body, L handshape). His gaze goes back to the visitor, and his hands close in front of him as if he were waiting for something. M’s father intervenes and explains to the friend that M is referring to the baby in the next apartment. The boy looks at his father and then at the visitor, continuing the conversation with the utterance CAR INDEX-street (right hand, arm half-extended, L handshape) CAR. During the last pointing towards the street, he looks in the direction he points at and then turns to his father who confirms his signing about the neighbours’ baby and car. Then his gaze falls on something on the floor and the conversation on the issue temporarily closes. (30/ age: 2;3,01, duration: 00:07:51–00:08:10)

In the above episode, the complexity of what the child says is striking. The child addresses the visitor, gives some information that he considers important and narrates an incident with four successive utterances, between which there are clear pauses: INDEX-next-balcony SLEEP (meaning ‘he sleeps’ or ‘there sleeps’), BABY MILK (‘baby drinks milk’), HAND-next-balcony INDEX-next-balcony (‘there there’ or ‘he he’ or ‘he there’), CAR INDEX-road CAR (‘at the car there at the car’).

From the context of the communicative situation, and more precisely, (a) the use of SLEEP, and (b) the use of the common noun BABY, the attribution of the reference of the first three pointing signs, i.e. those performed with an index hand configuration, as well as the one performed with a relaxed B-hand to the baby of the neighbouring apartment, is considered the most likely one. However, there is a small probability that
these signs may also refer to the location – the next balcony – that cannot definitely be excluded. In other words, the signs SLEEP and BABY contribute to make clear the reference of the three pointing signs directed to the physical location (the neighbour’s apartment) where the baby appears from time to time.

In the first utterance, the child says that the person to whom he refers is sleeping. The sign SLEEP denotes the condition (of the baby) with an obvious verbal meaning. In the next utterance, while understanding probably from his interlocutor’s facial expression that there is an ambiguity about the referent of his pointing, the child signs BABY MILK, specifying it and also adding information about the baby’s habits. BABY, a common noun here probably used instead of a pointing sign, is unambiguous and has the same referent as the previous pointing signs. In other words, in this specific communicative episode, what is at the centre of the boy’s interest is the baby living next door and not the location of the baby. Taking into account all the above, it becomes evident why both pointing signs directed to the neighbour’s balcony have been considered to refer to a non-present person and are therefore included in the category of pointing referring to persons.

After the father’s interference, the child, feeling secure that his interlocutor has comprehended him, goes on describing his first encounter with the baby, CAR INDEX-street CAR, which took place on the street outside his house some days ago as the neighbours came back home in their car. The referent of this last pointing sign, which is directed downward toward the street, since the child’s apartment is on the third floor, is more likely to be the location (car or street) where the child met the baby.

In terms of their form, the three pointing signs used in this communicative episode by the deaf child are quite distinct and well-formed. They are performed with a flexed arm, and only the second one is articulated with an extended thumb. These three pronominal signs are mature examples of pointing, showing the progress that has taken place in the deaf child’s linguistic development after 24 months.

An additional, very interesting example of reference to a non-present person is the following one.

Example 11.9

M is on the balcony in the arms of a family friend who is standing. Next to them is M’s mother. The friend places M on the floor as the latter leans downwards simultaneously signing FOOD with his left hand. His gaze inevitably is towards the ground due to his body movement. M does not stop but looks inside the house and goes on signing INDEX-room (the handshape is not clear in the screen) producing a sequence FOOD INDEX-room that seems to form one utterance. Then M turns back and points with his left hand at the chair on which, some seconds before, his father was sitting, INDEX-chair (arm not extended, G handshape), and after that turns and looks inside
the house. When his father appears at the door, M runs in and points at him again with his left hand INDEX-father (arm half extended, thumb downwards). The boy’s father holds a tissue and cleans M’s lips (the boy is covered in ice cream and is also drooling because he cut his bottom lip some hours ago). M goes back to his ice cream, which was on the table, as father sits back in his chair, watching him. (30/ age: 2;3,01, duration: 00:09:39–00:09:55)

In the communicative episode described above, the utterances FOOD, INDEX-room INDEX-chair and INDEX-father are produced by the child without addressing anyone. The child signs for himself with respect to his father’s absence. The meaning and reference of the first two signs, FOOD and INDEX-room, is ambiguous. It is not clear if they constitute one utterance or if they are two one-sign utterances. In fact, the latter is most likely, taking into account what has happened prior to this episode. FOOD probably has to do with the ice cream that the boy left on the table before being picked up by the visitor. INDEX-room directed towards the house may refer either to the location – to father’s location just going inside the house – or to father as person. The likelihood that INDEX-room refers to father as person comes mainly from the utterances that follow and the boy’s close relationship with his father. However, since this interpretation cannot be supported with additional arguments, it remains ambiguous.

As the episode goes on, the boy performs one more pointing sign, directed to the chair that father was sitting on before going into the house (INDEX-chair with his arm flexed), looking at the chair. Immediately after that, he turns his gaze to the right inside the house with his index finger still extended and runs inside signing INDEX-father, this time directing his index finger straight towards his father, who comes out to the balcony. In the video the pointing sign seems to be completed at the moment that the boy’s index finger touches his father’s leg. When his father’s presence is ensured, the child goes back to the table where he has left his ice cream. In general, the boy’s behaviour in looking for his father all the time is very common because the father spends a lot of hours away from home. In this situation, the child expresses his thinking about his father by using language. He starts to search for him, using a pointing sign that refers to him while he is not present by using INDEX-chair, continues by running into the house, and finally completes his signing by making a statement about his presence (referring to him as a present person) with a new pointing sign: INDEX-father. Overall, this behaviour makes the interpretation of the referent of INDEX-chair to the non-present father seem unquestionable, and therefore, this sign has been included in the category of pointing, referring to non-present persons.

Concluding, at this age, the attribution of reference to a non-present person with a pointing sign directed to a specific physical location is almost
impossible to make with certainty. The identification of such an association presupposes sufficient knowledge of the child’s everyday life, since pointing signs referring to non-present entities are motivated by locations where these referents are usually found (whereas, in adult signing this association may also be explicitly expressed). At this age, the only case by which the attribution of reference of a pointing sign (directed towards a physical location) to a non-present person, can be supported with certainty is when the pointing sign is followed by an interrogative sign such as WHERE\footnote{Inger Ahlgren, personal communication (2004).} or WHO.\footnote{The first time that the sign WHO appeared in the data of the present study was at the age of 24 months in a situation in which the child imitates his father’s sign when the father asks the child about a person in order to elicit his name sign (23/ age: 2;00, time: 00:09:13). The second time that WHO is used by the child is at the age of 25 months (28/ age: 2;01, time: 00:43:35), and then it comes again at the age of 27 months (30/ age: 2;03, time: 00:00:38). WHERE has not been found in the child’s expressive language before the age of 27 months.} In this study, the most frequent interrogative signs used by the deaf child are GQ and WHAT, both of which emerged in the third stage and have a general interrogative meaning. The attribution of reference of a pointing sign, followed by GQ or by WHAT, to a non-present person still remains uncertain, especially in those cases where there is no additional lexical items before or after pointing, such as a common noun or a proper name.

Finally, closing this section, the use of pointing directed to physical locations to refer to non-present persons is probably a crucial developmental step towards the acquisition of true anaphoric reference to non-present persons by pointing towards pre-established locations in the signing space. In other words, the anaphoric use of pointing, which has not yet appeared in the child’s language, will emerge out of early reference to non-present persons by pointing to physical locations associated with these persons.

In general, at the end of the fourth stage in the acquisition of pointing, it is considered that the existence of pointing signs referring to persons’ images, to present persons and to a certain degree to non-present persons definitively signals the use of pronominal pointing signs for reference to persons by the deaf child acquiring Greek Sign Language.

11.2.2 Pointing used for reference to self

In the first record of the fourth stage (Record 14), an increased number of pointing signs referring to self is observed, compared to the second stage (two instances) and the third stage (three instances) (see Tables 13 and 14).
Table 13. Distribution of pointing to self in all stages in the acquisition of pointing.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>MIN.</th>
<th>NO. OF POINTING GESTURES/ SIGNS</th>
<th>INDEX-person (including self)</th>
<th>INDEX-self</th>
<th>HAND-self</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>141</td>
<td>60</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2nd</td>
<td>103</td>
<td>113</td>
<td>13</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>3rd</td>
<td>354</td>
<td>391</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4th</td>
<td>964</td>
<td>1,256</td>
<td>127</td>
<td>58</td>
<td>26</td>
</tr>
</tbody>
</table>

Table 14 shows that reference to self by pointing outnumbers pointing to other persons at the beginning of this stage.

Table 14. Pointing to self in the fourth stage in the acquisition of pointing.

<table>
<thead>
<tr>
<th>FOURTH STAGE IN THE ACQUISITION OF POINTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>R.</td>
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<td>-----</td>
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<td>14</td>
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<td>15</td>
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<tr>
<td>30</td>
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<tr>
<td>TOT AL</td>
</tr>
</tbody>
</table>

The acquisition of pronominal pointing for reference to self seems to come before the acquisition of pronominal pointing for reference to others. Having primarily emerged at the end of 14 months (1;2,25) in the second stage in the acquisition of pointing, its use has finally been established in this developmental stage after the burst observed at the beginning of the 21st month. The child suddenly refers to himself very frequently by using pointing, asking for something, or stating something with respect to himself, sometimes with possessive meaning.
However, in contrast to the findings of the previous stage where pointing to self had been recorded as an independent pointing gesture, at the beginning of the fourth stage, pointing to self appears unified with the interrogative sign WHAT in most of the cases where it is used with imperative or interrogative function\textsuperscript{115}, and only in these.

With respect to the use of the sign WHAT, going back to the previous stages we observe that it first emerges in the child’s communication in the second stage, unified with the pointing gesture (see Example 9.4 in the second stage), whereas, from the third stage and on, it is found as an independent sign in the child’s expressive language with general interrogative meaning.\textsuperscript{116} However, at the beginning of the fourth stage, WHAT, apart from its use as an independent lexical item, also appears unified with INDEX-self glossed as INDEX-self-WHAT (see Appendix B), which will gradually disappear at the end of the 21\textsuperscript{st} month.

After 21 months, INDEX-self disassociates from WHAT and appears in the child’s expressive language only as an independent lexical item corresponding to the pointing sign used by adult signers for reference to self, meaning ‘I’ or ‘mine’.

In the examples that follow, the parallel use of the unified INDEX-self-WHAT and INDEX-self is described, with the intention of illustrating the precise picture of the child’s developmental process towards the acquisition of the pronominal use of pointing for reference to self. The examples are presented in the chronological order in which they appear in the videotaped material to show the gradual dominance of the independent sign INDEX-self in the child’s expressive language. Example 11.10 shows the occurrence of INDEX-self at the beginning of the fourth stage in the acquisition of pointing.

\textbf{Example 11.10}

\textit{M is sitting on a box in the corridor that connects the living room to the other rooms. His mother stands behind him while the researcher is holding the camera in front of him. M looks at the researcher and produces a lengthy pointing sign to himself, INDEX-self (L handshape, the tip of the index finger touches the chest), while leaning his body towards her. As long as the index finger remains in contact with his chest (this pointing lasts almost half a second), the child nods his head downwards. However, since there is no response from the researcher, M produces a second utterance, DOWN (2h), and continues with a third one, GQ. The researcher seems to remain neutral. M stands up and goes to her. The video recording is interrupted. Behind}

\textsuperscript{115} When the speaker asks his interlocutor to give an answer – to do something – questions can be considered as having an imperative function.

\textsuperscript{116} As well as in adults’ language addressed to the child (see also Example 11.2).
him, his mother’s laughter is heard. (14/age: 1;8,07, duration: 00:56:50–00:57:06)

In this episode, the pointing sign that the child directs to himself, INDEX-self, and the sign GQ are two separate signs used in different utterances. The duration of INDEX-self is long and constitutes an utterance with interrogative function. The questioning character that the one-sign utterance INDEX-self seems to have is expressed by the child’s nodding his head downwards, as well as by the leaning of his whole body towards the researcher. However, the child’s question becomes more explicitly expressed in his last utterance comprising the GQ. In this particular communicative situation, INDEX-self is clearly articulated. The index finger touches the chest and remains there without any rotation or outward movement. By signing DOWN, the child asks the researcher in vain for the camera to come down in order to be able to reach it. The child’s style of addressing the researcher, going closer to her, and the manner by which he produces DOWN, as well as his facial expression, makes it to look like an imperative utterance, a demand. Finally, by performing GQ, the use of the object (the camera) is associated with the child himself in the context of an explicitly expressed question, but the researcher does not seem to respond. The episode is interrupted at the moment the boy reaches the camera, forcing the researcher to give it to him for some seconds.

The example that follows shows the first occurrence of the unified sign INDEX-self-WHAT in a communicative situation that is basically the continuation of the previous episode described in Example 11.10.

Example 11.11

M is in the corridor standing on the box that he was sitting on earlier. Behind him is his mother who watches him, and before him is the researcher with the camera. The boy looks at the camera and signs COME INDEX-self-WHAT (right hand, L handshape, palmar side in contact with chest). He pauses, keeping the hand configuration of the last sign, and continues DOWN (2h), while addressing the researcher. Immediately after, he produces the utterance GQ (right hand) MINE117 (palm in contact with chest). Then he turns his gaze to his right, probably pretending that something has caught his attention. He looks back in the researcher’s direction and repeats INDEX-self-WHAT (L handshape, palmar side in contact with the chest). Then he moves forward, stops before the camera, looks inside, touches it and manipulates its lens with his index finger. (14/age: 1;8,07, duration: 00:58:16–00:58:45)

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117 It is an early form of the possessive sign MINE articulated with a relaxed B-hand configuration with the palm touching the chest. For more on the use and the occurrence of possessive pronouns, see Section 11.3 below.
In the above communicative situation, the young boy initially produces three consecutive utterances COME INDEX-self-WHAT, DOWN, and GQ MINE. Although for a moment it seems that he is going to get involved with something else, he then produces a fourth utterance: INDEX-self-WHAT. Addressing the researcher, he demands to have the object of his desire, namely the camera, as has been shown in the previous example. Clearly all utterances he produced have imperative function and the first, third and fourth utterances contain an interrogative element. The first sign of the utterance COME INDEX-self-WHAT is used imperatively. The pointing gesture, which is the first part of the second sign produced with the L-hand configuration and directed to the chest, remains for longer than usual and then moves outwards, before the boy’s body, producing WHAT. Both elements are blended together, without it being possible to define the moment that the first one finishes and the second one begins. The child uses this specific sentence-like structure as one sign, intending to express something like ‘me /I what?’ , ‘what about me?’ or simply ‘I?’ or ‘me?’ while asking to take the camera. What is also interesting here is the use of an L handshape in INDEX-self-WHAT, despite the fact that in most cases of pointing to objects and persons in this developmental stage, the thumb is in opposition with the flexed middle finger.

The second utterance that the child produces is composed of the sign DOWN (2h), and although its meaning is not clear from the context of this specific communicative situation, knowing that it constitutes the continuation of the previous episode described in Example 11.10, it becomes evident that the child is asking the researcher to bring down the camera and give it to him. Obviously, the function of the utterance is imperative, as it was in Example 11.10. In fact, in this episode, the child has already played with the camera a little bit after the episode described in Example 11.10, and before the beginning of Example 11.11, he asks for it again.

With the third utterance, GQ MINE, the child repeats what he said before, using an alternative means. This utterance differs from the unified form INDEX-self-WHAT in that (a) both signs seem to be independent, (b) the sequence of the signs is reversed with the interrogative sign coming first and reference to self following, and (c) both signs are made with the relaxed B-hand. Although GQ is lengthened at the end and the performance of MINE is very short, like the articulation of the part INDEX-self of the unified sign INDEX-self-WHAT, the beginning and the end of the two signs in the third

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118 The use of INDEX-self accompanied by non-manual elements such as raising of the eyebrows, leaning of the head forward, etc., for expressing a question, as it has already been observed in the previous example, could indeed have the same meaning as INDEX-self-WHAT.

119 This may happen for two reasons: (a) because the child uses old means to express new information, or (b) because the handshape of the first sign is assimilated with the handshape of the second sign, the L handshape of the sign WHAT.
utterance are clearly separate. In addition, MINE undoubtedly has possessive meaning used by the child for saying something like ‘what? This is mine’.

Finally, the fourth utterance, INDEX-self-WHAT, is nothing more than a repetition of the first one and is the boy’s final attempt to achieve his goal. In fact, once more the boy goes on insisting on asking about himself and the camera, making the researcher momentarily give in at the end of the episode and permit him to take the camera. Some seconds later, in the same record (Record 14), one more INDEX-self is used in the ongoing argument with the researcher about the camera.

Example 11.12

M is in the corridor, kneeling on the floor. At his right, there is a book. M looks at it and with his left hand produces the utterance INDEX-book (G handshape, index finger touches the book) INDEX-self (L handshape, palmar side in contact with chest) meaning something like ‘this is mine’. Simultaneously with the pointing sign directed to self, M raises his head and looks at the researcher. Then he stands up and goes towards the camera. (14/age: 1;8,07, duration: 01:02:39–01:02:44)

In the above episode, the child produces an utterance composed by two separate pointing signs whose referents are easily identified. The first pointing sign refers to the object and the second one to the child himself. When the child performs the first pointing sign, the thumb is not visible, whereas when he performs the second sign, as he points to himself, the thumb is extended and the palmar side of the hand – not only the tip of the index finger – is in contact with the chest, having possessive meaning.

The child, by the utterance INDEX-book INDEX-self, refers both to the possessor of the object and the object itself. But knowing what has happened in the preceding episodes with respect to his persistent demand for the camera, his purpose becomes clear. By signing that he is the possessor of the book, the boy’s apparent intention is to argue with the researcher, and by doing so, he tries to obtain the camera in an indirect way. This interpretation regarding the utterance INDEX-book INDEX-self is supported by another very similar utterance, HAND-book MINE,\textsuperscript{120} which was produced some minutes ago in an episode at the end of which the child asked the researcher to turn off the camera.

Below, one more example of INDEX-self-WHAT is described as it emerges in the child’s expressive language one month later.

Example 11.13

\textsuperscript{120} The child performed again two pointing signs using a relaxed B-hand configuration to refer both to the object and himself (14/ age: 1; 08, 07, duration: 01:01:14–01:1:19, see Example 11.20).
The young boy is in the living room looking for something to do. The adults talk to each other, leaving him alone. M holds his bottle full of water, crosses the living room, and goes and sits on the central sofa. M’s mother, impressed by his act, turns and looks at him. Then M, looking at his mother, signs with his left hand INDEX-self-WHAT (L handshape, palmar side in contact with chest). Mother’s laughter is heard. The boy smiles and stretches his body backwards. The episode does not go on, as the child starts to interact with his grandfather. (16/ age: 1;9,03, duration: 00:57:32–00:57:41)

What the child says using the above utterance, although it is difficult to tell, is probably something like ‘What are you looking at me for?’ or ‘me what?’ The interrogative meaning of the utterance – and therefore the reference to self – is apparent.

Finally, in respect to reference to self by the use of the independent sign INDEX-self, three very interesting examples are described below in which the abrupt development of the child’s linguistic competence becomes evident.

Example 11.14

M is in his father’s arms. His father stands near the table in the living room, looking towards the camera. M looks down at a book lying on the floor and, with his right hand, signs INDEX-book INDEX-self SEE(INDEX), INDEX-book. In the first and last pointing sign, the arm is extended; however, the thumb seems to be extended only when the child articulates the signs SEE(INDEX) and INDEX-book (L handshape) immediately after SEE(INDEX). Additionally, in the articulation of the sign INDEX-self, the finger touches the chest and, in the articulation of the sign SEE(INDEX), the index finger touches the eye just below it. M’s father, already turned towards him and watching his utterances, is impressed by the emergence of SEE(INDEX) and repeats it, indicating its existence to the researcher. M turns to his father, looks at him and then, turning back to the book, points at it again with his right hand INDEX-book. M’s father puts him down on the floor, and the child takes the book. (21/ age: 1;11,18, duration: 00:05:38–00:05:47)

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121 This specific sign has been transcribed with the gloss SEE(INDEX) and not with the gloss EYE because, in this particular utterance, it is used with verbal meaning (see also criteria of transcription in Chapter 7), despite the fact that in adults’ language it is more frequently used as a noun. The parenthesis (INDEX) immediately after the gloss SEE indicates the use of the index finger for the articulation of the sign, and it is used here to avoid confusion between SEE(INDEX) and SEE (see Appendix B), which is included in the dictionary of Greek Sign Language (Efthimiou et al. 2001), being the sign usually used by adults with the meaning ‘see’. 
The above episode illustrates the child’s progressing linguistic skills since, at
the age of 23 months, he is able to express with precision and completeness
what he wants to do, namely to see the book on the floor. The utterance
INDEX-book INDEX-self SEE(INDEX) INDEX-book, which means ‘The
book, I (want to) see the book, this (one)’, appears to have more of a
declarative rather than an imperative character. By the manner in which the
utterance is performed – the child’s gaze remains on the object for as long as
the utterance lasts – and by its content, the boy’s communicative intention
seems to be more to declare what he is going to do and less to demand or ask
his father to give the object to him.

What makes this specific communicative situation special is that the child
uses a sequence of signs made with the index hand configuration, which
constitutes a long utterance indicating: (a) the object that interests him, (b)
himself as the agent of the action, and (c) the action that is going to take
place. In terms of its duration, INDEX-self is short but clearly an
independent sign whose referent is the child himself. The boy first mentions
the object, which is the focus of his attention, and then comments on what he
is intending to do with that object, referring emphatically to it again at the
end of his utterance.

Furthermore, the use of the sign transcribed by the gloss SEE(INDEX) in the
above utterance is noteworthy. SEE(INDEX), although it is not the most
common sign meaning ‘see’ in adult language, functions here as predicate
and concerns the action that the agent is going to do, namely to see the book.
On this particular occasion SEE(INDEX) does not refer to an entity. The sign is
used with verbal meaning showing the progress that is observed in the boy’s
utterances at the end of this developmental stage in the acquisition of
pointing.

Example 11.15

M sits on the sofa looking at some photographs. Before him on the floor sits
his mother, who points at a photograph of a person and asks M about him or
her by signing INDEX-person-in-photo GQ. The child, looking very carefully
at the photo, answers INDEX-self (L handshape, index finger touches the
chest) INDEX-person-in-photo (index finger touches the photo). He then
extends his hand to his mother and, for a split second, turns his look to her,
waiting. She nods her head and comments RIGHT shaking the boy’s hand.
(25/ age: 2;1,01, duration: 00:09:12–00:09:25)

In this example, the child produces an utterance with two pointing signs. The
first pointing sign is directed to self and the second to the image of the child
in the photograph. The image of the child or, phrasing it in a different way,
the image of the person in the photo, is associated with the real person,
namely the child himself. By using the above utterance, the child gives a
complete answer to his mother’s question. The meaning of this utterance is
either ‘this is me’ or ‘I am there’, where the second pointing sign is used with locative meaning. Furthermore, as far as the form of the pointing sign directed to self is concerned, despite the fact that the thumb is still extended, it is a well formed pointing sign, clearly referring to the child himself. Finally, the episode is completed by the boy’s explicit demand for his mother’s appreciation, which she offers to him by commenting RIGHT, nodding her head and shaking his hand.

Example 11.16

M is on the balcony sharing a book with his mother. The book is about a caterpillar drinking orange juice. M’s mother takes the opportunity to ask him about his orange juice. The boy watches his mother. He turns back and looks at the table on the balcony. Then he looks towards the kitchen, goes in that direction and at the same time signs WATER. The sign the boy uses is the same sign as that his mother produced a second before in the utterance ‘Where is your drink?’ M is in the middle of the kitchen looking to his right where his father is sitting and, although it is not clear in the video, he signs again WATER ALL-GONE (a gesture made with two open hands, palms slightly up). He looks for a split second at his father and then his gaze goes around to the kitchen table. He goes to the sink and back to his father again. Looking at him, the boy signs INDEX-self (L handshape, the index finger touching the chest). The duration of the sign is quite long. The boy seems to hold the sign, and then he goes on to ALL-GONE (shakes his head right and left) while looking for his juice. His father goes close to M and asks him if what he wants is his orange juice, using the sign ORANGE-JUICE repeatedly. Then M repeats ORANGE-JUICE, nodding with his head positively, and follows his father who calls him to give him the juice. (27/age: 2;1,21, duration: 00:04:33–00:05:03)

In this communicative situation the child’s behaviour is motivated by his mother’s initial question. The boy, searching for his orange juice, produces five utterances, of which all but the second one consist of one sign. In the first utterance, by using the sign WATER and going towards the kitchen, he denotes what he is looking for, copying his mother’s sign. By WATER he may be referring either to the object – the bottle, the juice – or to the action he wants to perform. In other words, it is not clear if the sign is used with nominal or verbal meaning. With the second utterance, WATER ALL-GONE, the child addresses his father and makes a statement about the

122 Mother says ‘This is a caterpillar. This is orange juice. The caterpillar drinks juice. Where is your drink? Where is your orange juice?’
123 This is the reason for which the sign is transcribed here with the noun WATER and not with the verb DRINK (see criteria of transcription, Chapter 7).
124 With respect to its form, ALL-GONE could be considered as a variant of GQ that the child usually uses in our data.
non-existence of the object – the bottle, the orange juice. However, he does not refer to the object explicitly, probably taking for granted that his father knows the mother’s question. In the third utterance, the boy, realising his father’s confusion, produces INDEX-self most likely with possessive meaning in an effort to be more precise and refers to himself as the possessor of the object in order to specify it. The use of INDEX-self constitutes clear evidence that the boy understands what his mother is saying, especially the reference and the meaning of her pronominal pointing directed towards him.

By the utterance ALL-GONE that follows, M makes again a statement about the non-existence of the object. With the above utterances, but also with the utterance ORANGE-JUICE that follows immediately afterwards, the child calls for his father’s help to find his juice. Based on the additional information that the toddler gives with regard to himself, the father understands what the boy is searching for and, in order to confirm it, asks him (the boy) if he wants his juice. M repeats the father’s sign ORANGE-JUICE, nods his head in a confirmative manner and follows the father after he has taken his juice. The child seems to articulate ORANGE-JUICE with some difficulty. His difficulty is probably the reason for not being explicit until that moment about the object of his desire, initially using the sign WATER as an alternative sign for his juice, motivated by his mother’s signing. Nevertheless, the repetitive use of ORANGE-JUICE by the child’s father gives him the opportunity to imitate the sign and finally become more explicit about the object he wants.

Closing this section, all that has been described above shows that the child gradually steps forward to the acquisition of the pronominal sign for reference to self, sometimes using it with possessive meaning.

11.3 Use of the relaxed B-hand configuration for reference to self. Emergence of the possessive sign MINE

In the child’s expressive language recorded in the fourth stage in the acquisition of pointing, except for the use of the index finger for reference to self, the relaxed B-hand configuration (referring to self) occurs many times.

As shown in Table 15, as many instances as almost one-third of those referring to self are made with a relaxed B-hand configuration, some of which are also used with possessive meaning.
Table 15. Pointing to self articulated with index finger and relaxed B-hand configuration.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>AGE - MONTHS</th>
<th>NO. OF POINTING GESTURES/SIGNS</th>
<th>INDEX-self</th>
<th>HAND-self</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>12-13 ½</td>
<td>60</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2nd</td>
<td>14-15</td>
<td>115</td>
<td>2</td>
<td>---</td>
</tr>
<tr>
<td>3rd</td>
<td>16-20</td>
<td>391</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4th</td>
<td>20-27</td>
<td>1,256</td>
<td>58</td>
<td>26</td>
</tr>
</tbody>
</table>

In this stage, the child acquiring Greek Sign Language uses the relaxed B-hand quite often with reference to self, a tendency that has already been observed in the third stage in the acquisition of pointing. In contrast, the use of the relaxed B-hand in pointing signs for reference either to objects or locations is very sporadic in the videotaped material of the third and fourth stages, and it is never used in pointing signs for reference to other persons.

In particular, the deaf child’s choice of the pointing sign HAND-self, which is used for reference to self and is formed by a relaxed B-hand configuration with the tips of the fingers touching the chest (see Appendix B), seems to be of specific importance in this stage in the acquisition of pointing for two main reasons: (a) by using HAND-self, the deaf child acquires an alternative sign for reference to self,125 and (b) from this sign, the sign MINE seems to emerge gradually.

MINE emerges at the beginning of the fourth stage and is clearly related both in form and meaning to HAND-self, from which it gradually separates. MINE differs from HAND-self mainly by which part of the hand – the palm or the tips of the fingers – is in contact with the chest. In particular, whereas at the beginning of this stage the possessive sign MINE appears in an early form (performed with a relaxed B-hand configuration, palm slightly in contact with the chest), at the end of the fourth stage it is articulated in a clear and mature manner (B- or 5-hand configuration, palm in contact with the chest), as it is articulated by adult signers (Efthimiou et al.2001, see Appendix B).

With respect to their meaning, MINE and HAND-self differ because HAND-self (emerging first) is used by the deaf child with the same meaning as INDEX-self, though without precluding the possibility in some cases to have possessive meaning too.126 The sign MINE is used only with possessive meaning.

Furthermore, with regard to the use of HAND-self, what is of special interest is that as INDEX-self appears unified with WHAT at the beginning

125 Here it should be noted again that in the third stage in the acquisition of pointing, the deaf child does not use alternative means – name sign or common noun – to refer to himself.
126 The same also happens with INDEX-self, which, in some cases, apart from its reference to self, is also used by the child with possessive meaning.
of the fourth stage, similarly HAND-self appears unified with GQ which, as already mentioned, is also produced as an independent general interrogative sign at the end of the third stage in the acquisition of pointing.\textsuperscript{127} So in the fourth stage, there is the emergence of one more sentence-like structure HAND-self-GQ,\textsuperscript{128} which has not been observed earlier. The fact that the child does not perceive the signs HAND-self and GQ, or INDEX-self and WHAT, as independent signs when they have interrogative function may be related to (a) the language directed to him, and (b) the common configuration that these signs share, i.e. the first two formed with a relaxed B-hand configuration, and the other two with L-hand configuration.

Nevertheless, despite the correspondence observed in the use of the above mentioned forms, the frequency of appearance of HAND-self-GQ in the records of this stage is quite limited compared to the frequency of INDEX-self-WHAT. In addition, after 20 months, HAND-self-GQ ceases to occur in the child’s expressive language as also happened with INDEX-self-WHAT. Finally, parallel to the existence of the HAND-self-GQ, the pointing sign HAND-self is used by the deaf child as an independent sign in almost all records of the fourth-developmental stage.

In the examples below, the parallel use of the independent pointing sign HAND-self and that of MINE in its mature form are described according to the chronological order in which they occur in the videotaped material.

At the beginning of the fourth stage, when the child is 20 months and 7 days old, MINE appears in Example 11.17 in its early form, formed with a relaxed B-hand configuration and the palm slightly in contact with chest, coming from HAND-self, which has already been found in the third stage, although without possessive meaning (see Section 10.1.3).

In the third stage, INDEX-self occurs only once with possessive meaning (see Section 10.1.1, Example 10.2), whereas no other possessive signs are observed. In the fourth stage, the possessive sign MINE emerges and is often used by the child parallel to INDEX-self, which is also found with possessive meaning.

Example 11.17

\textit{The young boy is in the corridor holding a book in his hands. He stands near some books on the floor and then kneels. M opens the book that he holds, but then he looks at the books on the floor. With his left hand loose, he produces the utterance HAND-book (the hand touches a book) MINE (relaxed B-hand configuration, palm in contact with chest), while he continues to look at the books. His gaze goes back to the book he is holding. After a split second, he raises his head, looks straight at the researcher and signs MINE with his left hand (relaxed B-hand configuration, palm in contact with chest). The}

\textsuperscript{127} See also Example 10.20, 10.21 in the third stage in the acquisition of pointing.

\textsuperscript{128} See Appendix B.
researcher does not respond, and the boy turns again to his book. (14/ age: 1;8,07, duration: 01:01:14–01:01:28)

The continuation of this communicative situation is the episode described earlier, in Example 11.12, in which the child produces an absolutely similar utterance by using his index finger INDEX-book INDEX-self, declaring that the object (the book) belongs to him. As has already been commented on, these two utterances (INDEX-book INDEX-self and HAND-book MINE) that the child has produced are part of his argument with the researcher about what belongs to him, also related with his wish to take the camera. What is interesting here is that the child seems to use the pointing signs formed by the relaxed B-hand as independent signs alternatively with those formed with an index finger for expressing the same things. In Example 11.17, with the first utterance HAND-book MINE, the child indicates the object and the possessor signing to himself. With the second utterance MINE clearly addressing the researcher, he conveys his thought but declares only the possessor of the object. The attribution of possessive meaning to the signs the boy uses for referring to himself in the two utterances mentioned in this communicative episode and their transcription with the gloss MINE, and not with the gloss HAND-self, comes up both by the context of the situation in which they emerge and their form, since these signs are performed with the palm in contact with the chest. The child uses the signs directed to himself for making a comment with regard to the possession of the object.

In the communicative episode that follows, the fact that the child uses HAND-self-GQ with possessive meaning confirms the existence of this form as an unanalysed, unified sign in the child’s expressive language at the beginning of the fourth stage.

Example 11.18

The young boy is in the middle of the living room, and he has just put a small toy in a paper bag. The camera is directed at his back. He turns to the camera by looking towards the researcher. Then he looks in the bag and turns again to the researcher, signing HAND-self-GQ (palm in contact with chest). His gaze goes back to the bag. M goes to the pile of toys and puts some more in the bag. (15/age: 1;8,19, duration: 00:57:47–00:58:01)

In the above episode the child produces an utterance consisting of the unanalysed form HAND-self-GQ. However, despite the presence of the interrogative part at the end of the sign, the boy mainly performs a statement regarding the content of the bag, or just the bag, using HAND-self-GQ not only for referring to self, but also with possessive meaning. This becomes evident by the way he articulates the sign: the palm is in intense contact with the chest and remains there before the outward rotation of the lower arm. As in the case of the unified sign INDEX-self-WHAT, the boundaries between
the beginning of the second sign GQ and the end of the first one, HAND-self, are fused, despite the hold that is observed for some split second before the rotation. After placing the palm on the chest, the rotation of the hand outwards in this particular situation seems to be a slip of the hand, incorrectly produced in respect to the context, probably due to the child’s habit of using the two signs unified when he expresses a question.

So, although the child’s utterance could have meant ‘What? That’s mine’ and not just ‘mine’, the interpretation of the child’s utterance as a question does not seem to be supported by other elements or behaviours in the communicative situation, apart from the interrogative part of the sign itself.

In general, the child’s linguistic behaviour described here has to do with his relationship with the researcher. During the researcher’s visits to the child’s home, she brought things to him that, at the end of the visit or after a period of time, she took back, sometimes disappointing the boy. So, by using HAND-self-GQ, the child declares to the researcher that the bag (which, on that particular day, the researcher brought to the boy’s home with some new toys) and its contents belong to him, and therefore she cannot take it away.

Below, the use of HAND-self without possessive meaning at the age of 20 months and 19 days is described.

**Example 11.19**

The young boy is in a forbidden area of the living room on a folded carpet behind the sofa. He looks to his right where his mother stands and signs HAND-self MOTORCYCLE. As he articulates the sign HAND-self, the tips of his fingers slightly touch his chest. Then he turns his gaze to his left and downwards and tries to put his leg on the sofa, apparently pretending that he is riding a motorbike. M looks at the researcher, then at his mother, and stops trying. Nobody responds to what he is doing. (15/age: 1;8,19, duration: 00:47:19–00:47:27)

In the above incident, HAND-self constitutes one example of the independent use of the pointing sign, formed with a relaxed B-hand, for reference to self in the first records of this stage. With the utterance HAND-self MOTORBIKE, the young boy addresses his mother and produces a declarative utterance, making a statement that conveys information to her in regard to what he is going to do or is doing on the carpet at this specific moment; his position on the carpet is higher than the floor, with the boy reenacting what he is declaring. By the form of the sign (the palm is not in contact with the chest but only the tips of the fingers), the attribution of possessive meaning to the sign, which in the above situation is used for reference to the child’s self, is hardly likely although it cannot totally be excluded with certainty. With the manner that the child performs HAND-

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129 Similar observations have been made about adult’s language (Klima & Bellugi 1979).
self, and basically by the context in which this sign is used, the child’s utterance HAND-self MOTORBIKE can be interpreted either as ‘I ride a motorbike’ in which the sign MOTORBIKE is used for denoting the action of riding the motorbike, or it can be interpreted as ‘I (have) a motorbike’ for denoting the object (omitting the sign HAVE, which is grammatically correct in Greek Sign Language).

Finally, as has already been mentioned, after 21 months and towards the end of the fourth stage in the acquisition of pointing, MINE acquires the adult form emerging from reference to self by the use of the alternative sign HAND-self. In the communicative episode described below, an interesting example of the mature performance of MINE is described in which, apart from the use of the specific sign, the overall progress of deaf child’s linguistic abilities becomes apparent, at the end of the fourth stage in the acquisition of pointing when the boy was 27 months old.

**Example 11.20**

*M sits on the balcony table. His parents and a deaf friend of the family are sitting around the table. At M’s right, and almost in front of him, the family friend is sitting in an armchair. On the boy’s left is his father and next to him is the boy’s mother. M, being out of the focus of the adults’ attention as they talk to each other, takes the visitor’s cup of coffee.*130 He holds the cup with his right hand and looks at the family friend. The latter extends his hand to take his cup back, but M turns his gaze to his left and, addressing one or both of his parents, signs with his left hand INDEX-friend GIVE MINE or INDEX-coffee GIVE MINE (5 handshape whole palm is in contact with his chest), while still holding the cup of coffee. His pointing sign, directed either towards the visitor or to the cup that M holds (both being in the same direction), is a small, not well-formed pointing, not being clearly directed towards its target, whereas GIVE131 is the proper sign used in the adult’s language. M’s gaze moves further to his left to his mother. With his left hand he signs INDEX-coffee (the index finger touches the cup still in his right hand) and changes his sitting position, spreading his legs on the table. The episode ends after some seconds when the child withdraws, leaving the cup in the visitor’s hands. (30/ age: 2;3,01, duration: 00:43:45–00:43:50)

In the above communicative situation, M, by taking the cup in his hands, holds an object that he likes very much but which is forbidden to him. Early in this record he had tried to take the visitor’s coffee and now, having managed to obtain the cup, he tries to manipulate the adults to allow him to drink its contents. Ignoring the visitor, who extends his hand to take back his

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130 M likes tasting this specific type of coffee very much, but his parents always try to stop him.
131 See Appendix B.
cup, the boy turns to his father sitting next to the family friend and declares that the coffee belongs to him. The child’s MINE is easily recognisable and constitutes a mature sign not different from the adult signer’s form. M is satisfied with his accomplishment (of taking the cup of coffee) and refers to himself, denoting the new possessor of the object. By using the above utterance, he either denotes the visitor as the agent of the action, which has resulted in the boy becoming the possessor of the object, indicating that ‘he gave the cup to me, it is mine’\textsuperscript{132} (the object is clear by the context), or he denotes the object he holds in his hands, already possessed, saying something like ‘this has been given to me, it is mine’\textsuperscript{133} without referring to the person who executed the action.

Additionally, the GIVE that the child uses here is the sign used in Greek Sign Language (Efthimiou et al. 2001) with the meaning ‘give’. It is produced by the child with the correct orientation towards his own chest, indicating the recipient of the object. The above sign appears for the first time in our data in this record (age: 2;2,01) and differs from the symbolic gesture GET-ME which appeared in the child’s expressive language during the previous stage.\textsuperscript{134}

Finally, the child’s first utterance is followed by a second one, which consists of only one pointing sign. This pointing constitutes a clear reference to the object; still, the child keeps it in his possession. So, if the pointing sign of the first utterance refers to the visitor as the agent of the action, the second specifies the possessed object. If, however, the first pointing sign refers to the possessed object, the function of the second will be more or less emphatic and probably correlated with the negotiation that goes on with regard to drinking coffee.

In conclusion, all the examples described in this section clearly provide evidence that, in the fourth stage, except for the occurrence of INDEX-self sometimes having possessive meaning, HAND-self, articulated by a relaxed B-hand configuration and with the tips of the fingers in contact with the chest, is mainly used as an alternative way for reference to self, whereas MINE emerges from HAND-self and is exclusively used in the child’s expressive language to express possession.

11.4 Pointing is used for reference to persons without errors

One of the aims of the present study is the investigation of reversal errors in the use of pointing for reference to persons and self, before pointing signs

\textsuperscript{132} INDEX-friend GIVE MINE.
\textsuperscript{133} INDEX-coffee GIVE MINE.
\textsuperscript{134} See Appendix B and third stage in the acquisition of pointing, Section 10.2.2.
are established as pronouns in the deaf child’s language. Therefore, despite the fact that at the end of 24 months (24/2;0,21) pointing for reference to self is finally used by the deaf child in the same way as it is found in adult language, investigating the possible existence of errors in the use of pronominal pointing has been extended until 29 months of age. In this stage, as far as pointing for reference to persons is concerned, no reversal errors have been found in the deaf child’s expressive language except for one erroneous pointing whose presence may be accidental. On that occasion, described in Example 11.21, the pointing sign, instead of being directed to the object for which the signing is about, as would be expected, is directed to self.

Example 11.21

*M* and his mother are sitting on the floor reading a book open before them on the sofa. She has just turned a new page and, pointing to a picture, signs INDEX-picture-of-peacock WHAT (‘what is this?’) twice looking at M. The mother’s hands are in the child’s visual field from the right side while he is observing the picture in front of him very intensely. Immediately after that, M signs WHAT-INDEX-self. Then he pauses a little, and simultaneously with his mother, who asks him again “what is this?”, he continues signing INDEX-tail. The sign WHAT is produced by the child with two hands, and INDEX-self by the left hand which touches the child’s chest at the moment that the right hand remains still at the child’s side, holding the hand-configuration of WHAT. The last sign INDEX-tail is performed by the left hand, which touches the picture and outlines the tail of the peacock about which mother has asked. The boy’s mother nods her head positively and, at the same moment as M turns to her, she signs PEACOCK. She outlines with her index finger the tail of peacock and points at each spot of the tail one by one. M turns to the camera and signs PEACOCK. (15/ age: 1;8,19, duration: 00:12:25–00:12:53)

In this example, the appearance of INDEX-self immediately after WHAT is not expected, since mother asks for the peacock in the picture. WHAT produced in this specific content seems to be a repetition of mother’s last sign in which the child integrates pointing to self, expanding on his first sign. The signs seem to be performed more like a unified whole rather than two separate items. While the left hand produces INDEX-self, the right hand keeps the configuration of WHAT; the arm is not bent and the index finger does not touch the chest, giving the impression that the child continues to produce WHAT with his right hand. However, in the videotaped material the unanalysed forms that have been recorded up to this moment have a reversed order, namely INDEX-self-WHAT, and not the sign WHAT-INDEX-self.
that appears here. This fact complicates the interpretation of the above utterance simply as an unanalysed form\textsuperscript{135} and not as an error. From the manner in which the specific utterance is executed, and from the overall communicative context in which it is used, it seems more like a slip of the child’s hands, inevitably related to the routine of the mixed unanalysed forms from the boy’s side, although its structure is reversed. On the other hand, in the language that the parents use to direct to the child, it has been observed many times (see Chapter 10) that when they perform the interrogative sign, they pull their hands to their chests, raising their shoulders for emphasis. Although this is not the case in the mother’s specific utterance, the turning of the boy’s left index finger to his chest could most likely be considered as a practice of that kind.

Overall, it becomes apparent that in this particular situation it is not possible to further investigate whether INDEX-self is an erroneous item or part of an unanalysed form. However, the most possible and simple explanation seems to be that its appearance immediately after the performance of the sign WHAT was accidental.

In the paragraphs that follow, in order to evidence how the use of some pronominal signs can be easily misinterpreted as erroneous when they are considered out of the context in which they emerge, two examples of correct pointing signs directed to persons and self are presented that nevertheless could be easily interpreted as reversal errors.

\textbf{Example 11.22}

\begin{quote}
\textit{M makes a puzzle with his mother. His father has just arrived from his work. He is ready to go to bed. M plays with his toy. Suddenly he realises that the door of his parent’s bedroom, where the father went some seconds before, has closed, so he leans to his right looking towards the bedroom, searching intently for his father. He leaves a piece of the puzzle on the floor and signs WHAT using both hands, slightly shaking his head left and right. Then, he runs towards the bedroom. When he arrives at the closed door, he turns back, looks at his mother and the researcher and signs HAND-self (the tips of the fingers slightly touch his chest). Then he pauses briefly and signs WHAT INDEX-self WHAT, holding the last sign a little bit longer and continuing with INDEX-self. All the signs found in the above utterances are articulated by two hands, the sign WHAT in both cases is accompanied by a slight shaking of the head from right to left and INDEX-self is performed with an L handshape. Without having completed his last pointing, M runs to the front door, looks at the keys in the lock and turns back, absorbed in his thoughts. (21/ age: 1;11,18, duration: 00:25:56–00:26:20)}
\end{quote}

\textsuperscript{135} If WHAT-INDEX-self indeed constitutes an unanalysed form, then this instance is the last one found in our data.
In the episode just described, it could probably be argued that since the boy looks for his father, the signs HAND-self and INDEX-self directed to himself are pronominal reversal errors, and that the correct version should have instead been that the pointing signs were directed to the location where his father had stood before going into the bedroom\footnote{In this specific part of the video, the father was sitting on the sofa almost behind the child before going to his bedroom.} or had even been directed to the location of the bedroom. This interpretation surfaces mainly from the strict hypothesis that since the boy looks for his father, he will have to say something about him as person. Nevertheless, in this case, what the boy says seems to be absolutely different, referring to himself as person and not to his father. M, as soon as he realises his father’s absence from the room, as well as the fact that the door of the bedroom is closed (it was open initially), wonders where his father is and signs WHAT without actually addressing anybody. Then, when he reaches the closed door, he does not open it, either because he is afraid to go into the room alone (something like that has happened in the past), or because he believes that his father is not inside. Unexpectedly, the child turns back and asks his mother, and probably the researcher also, ‘me what?’ with the utterances HAND-self WHAT INDEX-self WHAT INDEX-self, which all indeed have the same meaning ‘What am I going to do now that father has left?’ since he is not present. The fact that WHAT is used by the child as a general interrogative sign makes it difficult to specify the exact meaning of his successive questions, but his insistence, which is indicated initially with HAND-self and then with INDEX-self, makes it clear that his questions refer to himself in relation to his father’s absence. The behaviour that follows (the child goes to the front door and observes the keys) denotes that what enters his mind is that his father left for a walk and left him at home with his mother, something which is not an unusual thing for his father to do.

In this particular situation, the recognition of the child’s ability to relate persons and circumstances, and therefore referring to himself when he is really looking for his father, excludes the consideration of the use of HAND-self and INDEX-self as incorrect.

The second example of pronominal pointing that might have been considered as a reversal error is the following:

Example 11.23

\textit{For a long time, M tries to take his mother’s cup of coffee, climbing up on the furniture while she tries to stop him by standing in front of him. At one moment, mother comments about his behaviour and, with all she says, she emphasises that “drinking coffee” is forbidden for children. As he lies on the floor, M looks at her, smiles, pretends he is indifferent, looks in the opposite direction to the camera and then again at his mother, who says that he}
cannot do whatever he likes and that she is the one who decides. Then he turns to the camera, looks straight at his front and signs with his right hand INDEX-camera/researcher FORBID. The pointing is formed with an L handshape, and the arm is half-extended. Both signs, INDEX-camera/researcher FORBID, are followed by the mouth movement /OPEN, BILABIAL, OPEN, BILABIAL/ with vocalisation. With regard to the articulation of the sign FORBID, the handshape of the right hand is not precise; M replaces the 2 handshape (extended index and middle finger) with the 5 handshape. Immediately after the end of his utterance, he turns to his mother and looks at her, while she goes on commenting on his behaviour with regard to coffee. (22/ age: 2:0,04, duration: 00:41:56–00:42:07)

As in Example 11.22, one could argue that the pointing sign directed to the camera or to the researcher constitutes an erroneous pointing, and that the young boy fails to refer to himself although he intends to do so. Instead, he points to the camera or researcher standing across from him and produces a reversal error. This interpretation would be valid only in a case in which it is certain that the child’s intention was to repeat exactly what his mother has said, i.e. that it is forbidden for him to drink coffee. Nevertheless, the child’s behaviour and his mood, which indeed seems to be especially humorous at that moment, does not show at all that his intention is just to repeat his mother’s signing. In fact, looking at his mother who is talking very seriously, he tries to change the atmosphere by laughing and addressing the researcher. He signs INDEX-camera FORBID or INDEX-researcher FORBID, probably trying to joke with the researcher. Like his mother, he tries to impose a rule, which is probably associated with his wish about the video recording process and the camera. Addressing the researcher, he says either that ‘the camera is forbidden’ or that ‘she, the researcher, is forbidden’, probably from drinking coffee, since this was the topic of the previous conversation. However, in this specific context, the reference of the pointing sign directed either to the object, the camera, or to the person behind it, cannot be specified with certainty, and therefore this pointing has not been included in the category of pointing to persons. The possibility that the child’s utterance refers to the camera, meaning that the young boy asks the researcher to stop videotaping him, is more likely because (a) the recording process was almost at its end and the boy was probably tired, and (b) he has often asked the researcher previously to stop recording him in order that the two of them can play together. Similarly, the hypothesis that the pointing sign refers to the researcher as person seems to be quite possible since, as the boy is trying to make a joke, or mischief, or even to avoid his mother’s scolding, he transfers the rule to the researcher on purpose, signing that she is forbidden, that mother’s prohibition is actually for her. The boy in this situation takes the adult role, playing with the issue of control that he would like to obtain for doing what he would like to do, such as drinking coffee.
Finally in this episode, what is of special interest is the mouth movement that the child clearly produces accompanying not only FORBID\textsuperscript{137} but also INDEX-camera/researcher, which is performed before FORBID. What seems to take place here is that the child extends the use of the mouth movement /OPEN, BILABIAL/, being part of the sign FORBID, to the previous sign. This reinforces the claim put forth in the third stage in the acquisition of pointing about the use of some mouth movements, instead of the entire sign of which they are a part.

In summary, in the data of the present study, apart from the existence of one erroneous pointing sign – for which it is not possible to produce a satisfactory interpretation based on the context of the specific communicative situation (see Example 11.21) – and contrary to what would have been expected, no other errors have been found in the use of pronominal pointing signs. The occurrence of only one possible erroneous pointing sign, which seems to be accidental, is not enough to support the existence of reversal errors in the deaf child’s expressive language just before the full accomplishment of pronominal pointing for reference to persons.

11.5 Use of proper names and common nouns for reference to persons and self

In the next sections the emergence of proper names is described, in addition to the emergence of common nouns such as MUMMY, DADDY, etc., that the child starts including in his lexicon for referring to adults.

11.5.1 Reference to persons with proper names

In the fourth stage in the acquisition of pointing, parallel to the use of pronominal pointing for reference to persons, name signs of adults in the child’s environment appear gradually in his expressive language, one after the other, covering almost all his personal relationships.

After 20 months of age, the names used by the child in his expressive language, sometimes successfully and sometimes not, are: NAME-SIGN-researcher, NAME-SIGN-father, NAME-SIGN-mother (see Appendix B), NAME-SIGN-mother’s-uncle, NAME-SIGN-grandfather, NAME-SIGN-uncle, NAME-SIGN-friend-a. During this stage, the child is in the process of acquiring their correct use. More specifically:

\textsuperscript{137} The sign FORBID is usually produced by the child’s mother accompanied by the mouth movement /OPEN, BILABIAL/.
1) With regard to the researcher’s name, which has already been used by the child in the third developmental stage in referring both to mother and researcher, its use has changed in this stage, but it is still not fully mastered as it will be later in the child’s development.

2) In respect to the father’s name, which appears twice in the fourth stage, its use by the child is still vague and incorrect. In a communicative situation, such as that presented in the Example 11.27, although the boy says he knows his father’s name, he signs his mother’s name.

3) With regard to the mother’s name, although most of the time it is used correctly by the child, its referent has not been specified absolutely.

4) Other names, such as NAME-SIGN-mother’s-uncle, NAME-SIGN-grandfather, NAME-SIGN-uncle, NAME-SIGN-friend-a, which refer, respectively, to his mother’s uncle, to grandfather, to the child’s uncle and to a friend of the family are used correctly in all cases where the child signs something about these persons.

In general, what has been observed is that in this stage, the deaf child starts using many name signs in his expressive language, investigating and discovering their true reference. Below, some communicative episodes follow, in which the name signs used by the child are presented in the chronological order they occur.

11.5.1.1 NAME-SIGN-researcher

The way that the researcher’s name sign is used in the fourth stage, occurring often in the videotaped material between 20 and 27 months, seems to have altered with regard to the previous stage. In this stage, the child has stopped using the sign to refer to his mother, something observed in the third stage, but he is still somehow investigating its proper use and reference.

Example 11.24

*M is in his mother’s arms as she stands in front of the camera. She taps the boy’s chest lightly for him to look at her and then signs NAME-SIGN-researcher INDEX-camera/researcher. M looks at his mother while whining, and as she points towards the researcher, he produces REACH with his right hand to the left, leaning in the same direction in order to reach something. As his mother finishes her pointing sign, the child’s gaze goes to the researcher standing in front of him. He produces the sign NAME-SIGN-researcher and continues REACH, turning his body again to the left. His mother laughs and nods her head, satisfied.* (16/age: 1;9,03, duration: 00:15:55–00:16:01)
The sign NAME-SIGN-researcher that the child produces in the above situation at the beginning of the fourth stage is a repetition of mother’s sign in her utterance NAME-SIGN-researcher INDEX-camera/researcher. The boy repeats NAME-SIGN-researcher in order to satisfy his mother, probably hoping that she will accomplish his wish afterwards. With respect to its form, NAME-SIGN-researcher is very well articulated. For the first time, the child uses the correct handshape (F handshape) in NAME-SIGN-researcher despite the fact that, in an earlier record of the same stage, it was made with a B handshape. Finally, with regard to the acquisition of the exact reference of NAME-SIGN-researcher produced by the boy, no conclusions can be drawn. Although the sign was well formed, the boy, prompted by his mother, performed it in a mechanical way without actually referring to the researcher.

Example 11.25
The child stands at the balcony door looking out. In his right hand he holds a pencil. Before him, and slightly to his right, is the researcher holding the camera. M suddenly turns to the researcher, looks at her, and signs with his left hand NAME-SIGN-researcher INDEX-camera/researcher (arm half-extended, L handshape) and runs in the direction in which he points. The articulation of NAME-SIGN-researcher is accompanied with the mouth movement /OPEN, BILABIAL/ simultaneously with vocalisation and the articulation of the pointing sign with /OPEN/. The recording stops, probably because the boy asks for the camera. (30/ age: 2;3,01, duration: 00:10:49–00:10:56)

In the above episode, the reference of NAME-SIGN-researcher to the researcher is unambiguous. Based on the context in which it is used, the sign could not refer to anyone else except for the researcher. What is special here is the mouth movement that appears simultaneously with NAME-SIGN-researcher. In its typical form, the sign is not accompanied with any particular mouth movement. Nevertheless, in the language addressed to the child, NAME-SIGN-researcher, – as well as other name signs – is sometimes articulated simultaneously with the spoken name of the person to whom the name sign refers. This practice is also observed in some circumstances followed by other users of Greek Sign Language. So, on this occasion, the use of the above mouth movement by the child is not considered accidental. On the contrary, the boy may articulate /OPEN, BILABIAL/ as part of NAME-SIGN-researcher, imitating the adults’ way of articulating the researcher’s name sign, or he may perform two different items simultaneously: one mouth movement and a manual sign. In this last case, the mouth movement may be used as an independent sign, instead of the sign FORBID, without the boy producing the sign’s manual part. This interpretation is based on two facts: (a) FORBID in the parents’ language addressed to the child is
accompanied by the same mouth movement described above,\textsuperscript{138} and (b) in the data of the present study, the performance of this specific mouth movement rather than the manual sign FORBID has been observed, being used on previous occasions as well.\textsuperscript{139}

Furthermore, the referent of the pointing sign directed to the researcher and the camera may be the person or the object. However, the child’s running in the direction in which he points, i.e. towards the object, followed by the interruption of the recording process (caused most probably by the fact that the camera has been given to him), indicates that the reference of the pointing sign is the camera and not the person who holds it. The child in the communicative situation described above asks the researcher to give him the camera. By using the utterance NAME-SIGN-researcher INDEX-camera/researcher, which may have the meaning ‘Marianna this’, he addresses the researcher and refers to the object he wants to obtain.

If the mouth movement /OPEN, BILABIAL/ is considered to be used as an independent sign instead of FORBID, despite the fact that the child’s intention about the camera does not change, he says something like ‘Marianna stop this’ or ‘Marianna, this is forbidden’. The child asks the researcher to stop recording him and refers to the object, demanding to take it, making it clear just by using a mouth movement.

In the situations described up until now, the referent of NAME-SIGN-researcher was the researcher as person. Below, the occurrence of NAME-SIGN-researcher found once at the end of the fourth stage without precise reference, is described in a communicative episode when the child was at the same age as in Example 11.25 (30/ age: 2;3,01). In this case, the use of the researcher’s name sign seems to be inexplicable.

\textbf{Example 11.26}

\textit{M is in the sitting room where both parents are standing because the doorbell has just rung and they are waiting for some visitors. The child runs to his father’s arms. The father raises him and goes to the door. M looks at the door, then to his father, and signs with his right hand NAME-SIGN-researcher. His mother, heading towards the door, sees the child’s sign and says to him that Marianna is already outside.\textsuperscript{140} As M observes his mother, he turns his gaze to the balcony, repeats NAME-SIGN-researcher (mouth movement /OPEN, BILABIAL, OPEN/, vocalisation) and immediately after that continues with NAME-SIGN-uncle INDEX-door, turning to the door and...}

\textsuperscript{138} See also Example 11.23 in which the child uses FORBID articulated with the same mouth movement.

\textsuperscript{139} The same phenomenon has also been observed in the third stage in the acquisition of pointing in other cases with other mouth movements used instead of their corresponding manual parts (Section 10.2.3).

\textsuperscript{140} NAME-SIGN-researcher HAND-balcony PA (this is a grammatical marker probably marking a perfective aspect, see Papaspyrou 1994, 1997).
looking at it. M’s mother explains to him that they are not waiting for his uncle but for some other friends, signing their name signs. M signs NAME-SIGN-uncle while, at the same time, he watches his mother signing the name of one friend and copies it, continuing with the utterance NAME-SIGN-friend-a INDEX-door. When he performs NAME-SIGN-friend-a, he watches his mother very carefully and repeats the sign many times. When he produces the pointing sign, his gaze goes towards the door. He also bends his whole body in that direction. All signs are performed with the right hand. Then he looks in the opposite direction. (30/ age: 2;3,01, duration: 00:55:34–00:56:02)

In this episode, the child initially produces the sign NAME-SIGN-researcher while addressing his father, referring to the person who is going to come. However, since the likelihood that the child had not noticed the presence of the researcher already in his home is excluded (the episode described here takes place almost at the end of the video recording procedure for that day), the appearance of the researcher’s name sign at the beginning of the above communicative situation evokes some questions with regard to the comprehension and the acquisition of its reference by the deaf child. In particular, its spontaneous use here can be interpreted in two ways: either, having already acquired the proper reference of the sign, the boy makes a mistake by using the sign in the context of a familiar situation (the researcher is the person constantly coming to the boy’s home), or he has not yet clarified the exact reference of NAME-SIGN-researcher, and he uses it to refer to other persons in addition to the researcher. The boy’s mother, coming towards the door, sees his mistake and comments ‘Marianna is already outside’, associating the name with the person who is present. The child watches his mother and repeats the researcher’s name, looking towards the balcony where the researcher and another family friend have been from the beginning of the video recording process, probably addressing them to confirm what mother says. With respect to the way that the sign is performed the second time, the child articulates the sign with the mouth movement /OPEN, BILABIAL, OPEN/ imitating exactly his mother’s linguistic example. From the interpretations phrased above regarding the use of the sign NAME-SIGN-researcher, it appears that the boy still investigates the sign’s reference, as well as its form.

Immediately after NAME-SIGN-researcher, the boy suggests an alternative idea about who is coming, signing his uncle’s name and pointing towards the door, still addressing the researcher and the family friend already in the child’s house. The pointing sign at the end of the utterance NAME-SIGN-uncle INDEX-door, and all the other pointing signs performed on this communicative situation, may refer either to the person arriving (the
non-present person) or to the location where he/she will appear.\footnote{Due to this ambiguity, these signs have not been included in the category of persons.} In the utterances that follow, the sign NAME-SIGN-uncle is very well articulated and is produced spontaneously by the child, whereas the sign NAME-SIGN-friend-a constitutes a simultaneous imitation of mother’s sign.

In summary, regarding the use of NAME-SIGN-researcher, the child uses it correctly most of the time, although occasionally he confuses it with the sign DADDY, as will become evident in the sections that follow.

\subsection*{11.5.1.2 NAME-SIGN-father}
NAME-SIGN-father appears only twice in this stage in the acquisition of pointing, in situations where the child repeats his interlocutor’s sign without yet using it spontaneously to refer to father. The first occurrence of father’s name takes place at the end of a long episode at the age of 24 months and 21 days, as described below.

Example 11.27
The boy’s mother changes M on her bed. While she changes the boy’s nappy, she asks him where father is, DADDY WHAT. The boy does not answer but plays rocking his head left and right. He stops, looks at his mother and signs many times with his right hand DADDY. He turns to the researcher and continues WHAT INDEX-camera/researcher (left hand, arm extended). For a split second M stops, yawns and, looking at the camera, signs with his left hand DADDY INDEX-camera/researcher. M’s mother comments to the researcher that the boy means that his father is in the camera. M looks at his mother and continues DADDY INDEX-camera/researcher (gaze to the researcher) DADDY (gaze back to mother). M’s mother responds that his father is at work and asks M where she is, probably waiting for a pointing sign to herself. The boy smiles and signs INDEX-camera/researcher DADDY (left hand, mouth movement /BILABIAL, OPEN, BILABIAL, OPEN/), looking at the camera and then looking at his mother, INDEX-camera/researcher DADDY (mouth movement /BILABIAL, OPEN, BILABIAL, OPEN/) WHAT (shaking his head). His mother responds to the child’s question saying that ‘that is Marianna’.\footnote{INDEX-camera/researcher NAME-SIGN-researcher.} The child, looking intensely at her, signs WRONG and then turns to the camera. M’s mother tries to attract the boy’s attention and asks him where his father is by signing DADDY NAME-SIGN-father DADDY NAME-SIGN-father, DADDY WHAT. M, looking at the camera, signs with his right hand NAME-SIGN-father and simultaneously with his left hand signs INDEX-camera/researcher (arm extended, thumb downwards). NAME-SIGN-father and INDEX-camera/researcher end at the same time. M stands up. NAME-SIGN-father is not very well articulated. The boy places
his palm on his cheek and then touches his cheek with his fingers.\textsuperscript{143} All instances of DADDY are produced with many repetitions accompanied also with repetitions of the mouth movement. The pointing signs are produced with an almost fully extended arm and with an L handshape. (24/age: 2;0,21, duration: 00:22:28–00:23:16)

In this episode, the signs INDEX-camera/researcher, DADDY, and NAME-SIGN-father do not have clear reference. The pointing signs directed to the camera may refer either to the researcher as person, or to the location where she is standing, or to the camera as location or to the camera as object. Concerning the child’s utterance DADDY INDEX-camera/researcher, mother’s first interpretation is that the pointing sign refers to the camera as location. Nevertheless, the boy’s persistence with the repeated utterances DADDY INDEX-camera/researcher and his denial expressed with WRONG, commenting on mother’s reference to the researcher by the latter’s name, gives rise to questions about the child’s intention regarding the reference of all pointing signs and that of the sign DADDY. In particular, according to the context, the reference of the common noun DADDY in the boy’s signing seems to be the researcher as person and on this he insists, repeating all the time the utterance DADDY INDEX-camera/researcher, either because he does not understand the meaning and the reference of the sign DADDY when it is used by his mother in the beginning of the episode, or because he does not want to admit his mistake, a possibility that also cannot be excluded. The child overextends the reference of the sign DADDY, something observed in other circumstances as well (see Section 11.5.3). With respect to its form, he seems to investigate the manner of articulation of DADDY, trying to accompany its non-manual part with its manual part, performing the sign with its mouth movement.

NAME-SIGN-father emerges as a repetition of the mother’s sign at the end of the episode, asking the boy where his father is, trying to specify the reference of the sign DADDY and associating it with the father’s name. The boy’s mother uses NAME-SIGN-father to help the child clarify as much as possible both what she says and what he means, but in vain. The child uses NAME-SIGN-father precisely as he uses the sign DADDY, as an alternative lexical item having the same referent with DADDY (researcher), not realising yet the difference between names and common nouns.

The second situation, in which NAME-SIGN-father occurs at the age of 25 months and 21 days without referring to father as person, is the following.

Example 11.28

The boy and his father are sitting in the living room. His mother is not present. She is in another room. M points at different spots on the carpet and

\textsuperscript{143} See Appendix B.
looks in the direction in which he points: INDEX-carpet’s-spot (L handshape, the index finger touches the carpet), INDEX-carpet’s-spot (L handshape, the index finger touches the carpet), INDEX-carpet’s-spot (L handshape, the index finger touches the carpet). He then watches his father, who signs the colours on the carpet. As father signs INDEX-carpet’s-spot WHITE and continues INDEX-carpet’s-spot, RED_2, RED_1, the young boy looks at him and repeats the father’s last sign with his left hand, signing NAME-SIGN-father (mouth movement /ROUND/), confusing RED_1 that father produced with NAME-SIGN-father (see Appendix B). Then, when he stands up, he goes on signing NAME-SIGN-mother (mouth movement /BILABIAL, OPEN) and DADDY (mouth movement /BILABIAL, OPEN, BILABIAL, OPEN, BILABIAL, OPEN/, with vocalisation) as he runs into the bedroom, looking for his mother. (27/ age: 2;1,21, duration: 00:00:35–00:00:48)

In this communicative episode, the reference of the sign NAME-SIGN-father is ambiguous and obviously refers to mother, for whom the boy is looking at the end of the episode as he runs into the bedroom. NAME-SIGN-father initially comes up in the child’s effort to repeat the sign RED_1 that the father produces. Due to the similarity of the signs, the boy seems to misapprehend what he has seen and, imitating father’s sign as he perceives it, produces a form that is familiar to him although it has no relation to the pointing signs that precede it. In other words, the child misinterprets his father’s last sign and associates this last sign with his mother’s name sign and DADDY. The boy signs to himself NAME-SIGN-father and continues signing NAME-SIGN-mother DADDY, running in the bedroom to find the person to whom he refers. Arrayed one after the other, these signs seem to be alternative signs with the same referent, making it impossible to find out if the young boy considers them as identical or related signs.

In general, knowing that (a) in the video recorded material during this stage, NAME-SIGN-mother is used correctly in many communicative situations (see Section 11.5.1.3); (b) NAME-SIGN-father has appeared only once in the child’s expressive language up until now; and (c) DADDY is mainly used for reference to the boy’s mother (see Section 11.5.3), it is considered that RED_1 constitutes a stimulus for the production of NAME-SIGN-father, NAME-SIGN-mother and DADDY that follows. These last signs refer to mother as person and, therefore, NAME-SIGN-father, NAME-SIGN-mother and DADDY are still not differentiated by the child.

144 Father first uses RED_2 before realising that it is probably not the correct sign for describing the colour of the carpet, and instead signs RED_1.
145 The only difference between RED_1 and NAME-SIGN-father is that, in RED_1, the palmar side of the fingers makes contact with the cheek, whereas in NAME-SIGN-father, the palm makes contact with the cheek.
In closing this section concerning the emergence of father’s name sign, it becomes evident that the boy has just started using the sign but still does not understand its proper use.

11.5.1.3 NAME-SIGN-mother
The child in this stage in the acquisition of pointing seems to realise gradually the reference of the sign NAME-SIGN-mother, using it correctly most of the time. Below, the first occurrence of the sign in the child’s expressive language is presented at the age of 25 months.

Example 11.29
M sits on the sofa holding some photographs. Before him, his mother sits on the floor. M looks at his mother, who, at that moment, signs BIRTHDAY, and then he turns his gaze to the photo and with his right hand signs INDEX-mother-in-photo (index finger touches the picture) NAME-SIGN-mother, repeatedly. At the moment he produces the last sign, he looks back at his mother, who gives him positive feedback by saying RIGHT. (25/ age: 2;1,01, duration: 00:07:31–00:07:36)

The above example is similar to Examples 11.1 and 11.2, which describe the use of pointing directed to the image of a person. The child in this example, by producing the utterance INDEX-mother-in-photo NAME-SIGN-mother, refers to his mother in an indirect way, pointing at her photo and then names her, using NAME-SIGN-mother. In this video recording (25), all the alternative means the child uses to refer to his mother, namely by pointing to the image of his mother or by using her name sign or a common noun (as happens in Example 11.1, in which the use of the sign MUMMY instead of a pointing sign directed towards his mother is described), constitute very compelling evidence for the child’s developing ability to refer to the same entity by different means.

One more occasion in which the mother’s name occurs in this stage at the age of 25 months and 21 days, is described in Example 11.4, where the child presents his mother to the researcher, and refers to her using the utterance NAME-SIGN-mother INDEX-mother (see Example 11.4 and Example 11.37, in Section 11.5.3.3 in an episode where the boy refers to his mother with her name sign).

Below is presented an incorrect use of the mother’s name sign, which, although it is the only one found in our data, indicates that the exact reference of the sign has not yet been acquired by the deaf child.

Example 11.30
M sits on his mother’s lap and explores the researcher’s bag, which is on the table in the living room. In the same room is the child’s father, who,
according to the researcher’s spoken comments, passes in front of the child but behind the camera. M stops searching the bag, turns his gaze to the left, towards father behind the camera, and signs with his left hand GROWN-UP DADDY, INDEX-father and continues with his right hand KNOW DADDY NAME-SIGN-mother. The child’s gaze seems to follow something, although at the end he does not seem to look anywhere. As M is sitting on his mother’s lap, she moves him continually. The sign GROWN-UP that the boy produces is not precise and clear, whereas DADDY is performed without its non-manual part, i.e. the mouth movement by which it is articulated. The first pointing is produced with the arm half-extended and the thumb in opposition to the rest of the fingers. In KNOW, the index finger touches the head at one side, and its duration is very short. As M looks forwards, his mother tries to make him look at her, but he does not cooperate. Finally, M leaves his mother’s lap. The boy’s mother corrects M, signing that she is ‘mother’s name’ and his father is ‘father’s name’. M whines and runs to his father. (27/ age: 2;1,2, duration: 00:56:45–00:57:05)

On the above occasion, it is obvious that the boy addresses the researcher and refers to his father, who is the main topic of his signing. The meaning of the first utterance composed by the first two signs GROWN-UP DADDY seems to be ‘grown man’. By this utterance, the child makes a statement about his father. He seems to overextend the use of DADDY, using it with the meaning ‘man’, ‘adult’. The child’s utterance is reminiscent of some sayings of his mother who, very often at this developmental stage, will compare her son to his father in various circumstances, using the utterance GROWN-UP MALE (‘man’, ‘boy’), either for telling him about things that are going to happen when he grows up like his father, or asking him to behave as a grown man like his father. So, in this specific episode, the child seems to use the above utterance, reproducing the whole structure copied from his mother’s signing. DADDY, with regard to its form, is articulated without the mouth movement /OPEN, BILABIAL, OPEN, BILABIAL/ which accompanies it, and is still incomplete (see Appendix B). Despite the fact that in the third stage in the acquisition of pointing the child has already started using mouth movements (as independent symbolic gestures), they still do not seem to have been fully integrated into the signs of which they are part. Additionally, from the above communicative situation, it is evident that the boy does not yet realise the difference between the general sign

146 Mother’s moving results in an unstable direction of child’s hands and therefore some of the signs are not clear to the observer.

147 This complicates the transcription and the interpretation of the sign as MALE (‘man’, ‘boy’) or as DADDY because, in Greek Sign Language, both signs differ only in regard to their non-manual part; the sign DADDY is accompanied with the mouth movement /BILABIAL, OPEN, BILABIAL, OPEN/, whereas the sign MALE (‘man’, ‘boy’) is articulated without any mouth movement (see Appendix B).
MALE (‘man’, ‘boy’) and the sign DADDY, with respect to both their form and meaning.

As the episode goes on, the boy produces a second utterance INDEX-father KNOW DADDY NAME-SIGN-mother by which, although he says that he knows his father’s name, he produces his mother’s name. According to the context, DADDY without the mouth movement /OPEN, BILABIAL, OPEN, BILABIAL/ does not seem to mean ‘daddy’. Thus, its presence here can be considered either accidental or purposeful. If it is accidental, then it is produced instead of father’s name by mistake as the NAME-SIGN-mother, its referent being still the boy’s father. M signs DADDY, and immediately afterwards realizes his mistake and corrects himself, signing his mother’s name sign, which is also a mistake.

If, on the other hand, he uses DADDY on purpose, referring to his father as person, then with the above utterance he may say something like ‘I know daddy is (... mother’s name sign)’. In this case the child makes a mistake only in regard to NAME-SIGN-mother using it instead of NAME-SIGN-father. However, by the manner that the signs DADDY and NAME-SIGN-mother are articulated one immediately after the other, the first version seems to be the most plausible one.

Both DADDY and NAME-SIGN-mother appear as unsuccessful attempts to produce the father’s name sign. The referent of NAME-SIGN-mother is undoubtedly father and not mother. The direction of the child’s gaze, his statement about his father in the first utterance, the pointing directed to father, and mother’s correction about her name and her husband’s name at the end of the episode do not leave room for a different interpretation concerning both signs NAME-SIGN-mother and DADDY referent. NAME-SIGN-mother is very well formed and, after its production, the child behaves as if he has finally found what he was looking for. Although he declares that he knows his father’s name, the young boy is wrong, obviously confused. The use of NAME-SIGN-mother in the utterance INDEX-father KNOW DADDY NAME-SIGN-mother constitutes a clear indication that the child has not yet acquired the precise use of the sign, although in the rest of the cases in which it appears it is used with correct reference.

In addition, the fact that up to now the child does not use his father’s name sign correctly (see the previous Section 11.5.1.2) confirms the aforementioned interpretation of the incorrect use of both signs DADDY and NAME-SIGN-mother in this communicative episode.

In summary, due to the similarity in form that NAME-SIGN-mother, NAME-SIGN-father, NAME-SIGN-researcher and DADDY have, the child still seems to have difficulty in differentiating their referents and, therefore, he has not yet acquired their proper use.
11.5.1.4 Relatives’ and friends’ name signs

The signs NAME-SIGN-mother’s-uncle, NAME-SIGN-grandfather, NAME-SIGN-uncle and NAME-SIGN-friend-a are used spontaneously by the child after the age of 25 months (except for the sign NAME-SIGN-mother’s-uncle, which first appears at the age of 23 months and 18 days, when the child imitates his mother’s sign).

The spontaneous use of NAME-SIGN-mother’s-uncle at the age of 25 months has already been described (see Example 11.7). In that situation NAME-SIGN-mother’s-uncle was clearly recognisable, although not very well articulated; by using it, the child referred to the person he was waiting to see at the door since the doorbell had rung. The use of NAME-SIGN-uncle and NAME-SIGN-friend-a have also been described (see Example 11.26).

In the example below, the spontaneous use of NAME-SIGN-grandfather is described.

Example 11.31

M is sitting on the balcony table. He is playing with the plastic lid that is used to cover the opening in the table where a sun umbrella can sit. He raises his head and looks at the camera. Then he turns a little bit to the left to his father, who stands almost in front of him, and to his mother, who is next to father, and signs GRANDPA NAME-SIGN-grandfather, repeatedly. While he is still performing NAME-SIGN-grandfather, he turns to the camera and signs WAIT. The sign GRANDPA is accompanied with a mouth movement /OPEN/ (no vocalisation), although this is not the correct one. M is still occupied with the lid from the table. He turns again to the researcher and signs GRANDPA. At first, he accompanies the sign with the mouth movement /OPEN/, and then, without stopping to produce its manual part, closes his lips to form a /BILABIAL/ mouth movement and performs the manual part by almost touching his lips. He then moves his gaze to his father, who asks, at that particular moment, WHAT GRANDPA. M answers NAME-SIGN-grandfather to his father and smiles. His mother says that grandfather is at his home and is sleeping. M watches her and signs GRANDPA INDEX-out-there. GRANDPA is produced with the right hand and the mouth movement /OPEN/, whereas the sign INDEX-out-there is produced with the left hand (arm extended, G handshape). The young boy, pointing in the direction of the grandfather’s house, turns and looks at his father then to the researcher and back to his father. The father probably says something, but this is not visible in the video and the episode ends here. (27/age: 2;1,21, duration: 00:23:47–00:24:14)

In this episode, the deaf child uses two different signs to refer to his grandfather and probably a pointing sign directed to a location associated
with the grandfather. In his first utterance GRANDPA NAME-SIGN-grandfather, the child simultaneously, without being motivated by an adult (what comes before has no relation to the boy’s grandfather), starts talking about his grandfather, addressing the researcher and his father in signing his grandfather’s name. Then, he pauses for a moment and signs to the researcher to wait, WAIT, plays for some seconds with the lid from the table and, addressing the researcher and his father again comes back to the topic of his grandfather with an utterance consisting of one sign, GRANDPA. When his father asks him what exactly he thinks about his grandfather, the boy responds by naming his grandfather for a second time NAME-SIGN-grandfather and, with his last utterance, GRANDPA INDEX-balcony-outside, probably confirms his mother’s saying that the grandfather sleeps in his home by pointing to the location of the grandfather’s home as ‘over there’. In this episode, it is obvious that the main topic is the grandfather. The child gives some information with regard to his grandfather and practices twice the production of both signs GRANDPA and NAME-SIGN-grandfather. However, all instances of GRANDPA are articulated with many errors. Although the boy seems to have discovered the existence of the non-manual part of the sign, he produces it without accompanying it with its correct mouth movement and, probably because of that (searching for the mouth movement of the sign), changes the location of the sign’s articulation the second time. NAME-SIGN-grandfather is more correctly articulated than GRANDPA, but the child restricts its movement, producing only the (hand internal) movement of the index finger.

Overall, in closing Section 11.5.1, it becomes evident that at the end of the fourth stage in the acquisition of pointing, the child still investigates the function and use of proper names in his language, gradually acquiring their reference and form, step by step, through his interaction with his environment.

11.5.2 Proper name for reference to self

In contrast to the previous stage where the use of a name for reference to self by the child was an unconfirmed and weak hypothesis, the reference to self by the use of his name sign appears in this stage at the age of 23 months, although not very frequently.

As already mentioned, the sign GQ, without its non-manual elements, has been used in the third stage in the acquisition of pointing as the child’s name sign by his parents, due to its frequent occurrence in the child’s expressive language when he wanted to obtain an object. In this stage, the child’s name sign, despite the similarities in form that it has with the sign GQ, differs from it with respect to its function and is used only with referential function in his expressive language for referring to himself. So, from now on, the sign is transcribed with the gloss NAME-SIGN-child.
Example 11.32

M and his mother are sitting at the table. M eats some cereal. His mother holds a camera and is preparing to take a photo of M. She signs NAME-SIGN-child INDEX-child, asking M to sign for her his name in order to take the photo. M watches her as she repeats his name sign many times, and imitates her by signing NAME-SIGN-child. She does not manage to take the photo and repeats NAME-SIGN-child many times. M loses interest and takes a glass from the table in front of him and pretends that he is drinking. M’s mother continues signing his name sign. M gives her his glass. She takes it, holding the boy’s hand and manipulating it to make him articulate his name-sign. The boy laughs and, with his right hand, produces INDEX-mother (arm is extended, L handshape). The child’s gaze is directed at mother and the pointing sign is performed at his right and upwards, whereas she holds the camera in front of her left eye. M’s mother repeats NAME-SIGN-child INDEX-child NAME-SIGN-child, repeating the last sign many times. Then M, looking at her, signs INDEX-mother (right hand, arm half-extended, G handshape) WRONG NAME-SIGN-child. She seizes the opportunity to take the photo. Both turn to the researcher and laugh. The child seems to sign LIGHT (2h). (20/age: 1;11,04, duration: 00:20:21–00:20:48)

The first occurrence of the child’s name sign emerges as an imitation of his mother’s sign. The boy’s mother asks him to sign his name sign so she can take a photo. Understanding his mother’s desire, the child imitates her and repeats the sign she is producing repeatedly. However, despite the fact that his mother’s sign is produced with many repetitions, the child articulates the sign only twice, a fact that can be considered as an indication that the boy knows the specific lexical item NAME-SIGN-child that his mother asks him to perform. The second instance of the above sign in the utterance INDEX-mother WRONG NAME-SIGN-child shows that the child is somehow familiar with the sign, although the meaning of the utterance is not absolutely clear. Initially, the isolated pointing that the child produces, while his mother insistently repeats his name, is directly directed to mother and refers to her as a person without any doubt, as the child’s gaze clearly shows. Addressing his mother by the pronominal pointing sign ‘you’, the child reverses her order, asking her to do what she first asked from him. In the child’s utterance INDEX-mother WRONG NAME-SIGN-child that follows, he seems to correct his mother either for the form of the sign she produces or for her overall idea of asking him to imitate NAME-SIGN-child. At the beginning of his second utterance, the pointing sign he produces is very well formed and, as the previous one, clearly refers to his mother as person. The signs WRONG and NAME-SIGN-child are also very well articulated, and although the mother’s mistake is not made explicit by the child’s signing, WRONG is used by him with negative meaning, as a ‘no’ to her signings.
At the end of the communicative situation, the boy signs LIGHT addressing the researcher and describing what has just happened when mother used the camera. In summary, in the episode described above, it is not evident that the child has acquired the precise reference of NAME-SIGN-child although he seems to be familiar with it. Finally, in the above utterances NAME-SIGN-child, could not be replaced by a pointing sign directed to self. Such a use of the child’s name sign at the age of 24 months and 15 days is described below.

Example 11.33

*M is kneeling on the floor and looks at the camera. He raises his left hand and signs INDEX-camera (arm extended, L handshape) producing a long pointing sign. As he looks forward at the researcher, he turns his gaze three times towards his hand, looking at his index finger and then back to the researcher. Then an INDEX-camera (left hand, arm extended, L handshape) INDEX-researcher (left hand, arm extended, L handshape) follows. Changing his position, he sits towards the camera and, being angry and eager, signs with his left hand, which is extended abruptly forward, as father tries to interfere by touching his face. INDEX-researcher (arm extended, L handshape, the thumb is downwards). Then, immediately with his right hand he signs MINE NAME-SIGN-child (2h) INDEX-camera (right hand, arm extended, L handshape, thumb downwards) INDEX-camera (right hand, arm extended, L handshape, thumb downwards). He tries to avoid his father’s hands. He stops, looks at the researcher and waits for her response. (23/age: 2;0.15, duration: 00:13:26–00:13:47)*

The boy wants the camera and uses his name sign to refer to himself as the recipient of the object. Apart from the use of his name sign (instead of INDEX-self), this episode has additional interest, being an excellent example of the child’s overall progress concerning the use of pronominal pointing signs and other alternative means that he has at his disposal from now on. The first pointing sign, being too long in terms of its duration, refers to the camera and is directed upwards to the researcher’s face before which the camera is positioned. As the child produces the pointing sign, he obviously checks its direction, looking at his index finger three times, slightly correcting the direction of it in relation to the location of the object (camera). The reference of the sign to the object is unambiguous and is confirmed by the child’s next utterance, INDEX-camera INDEX-researcher, which consists of two successive pointing signs. The production of the second pointing is accomplished simply by lowering the child’s hand without changing any other parameter with regard to its form. The first pointing is directed high up to the researcher’s face where the camera is, referring to the object, and the second is directed low to the researcher’s chest, referring to the latter as person. By this utterance, *M addresses the researcher to whom
he gives an order again with regard to the object that interests him by referring to it. As he continues, he completes his order by making a reference to the person (the agent) who has to accomplish it. The accuracy and the distinctiveness by which each pointing sign is articulated constitute a clear indication that, in this developmental stage, the child has finally acquired pronominal signs.

The utterance that follows, INDEX-researcher MINE NAME-SIGN-child INDEX-camera INDEX-camera, consists of five signs, which represent three different semantic roles. By the first pointing sign the child repeats the last sign of his previous utterance INDEX-researcher, the index finger is directed to the researcher’s chest and defines the agent of the act. By MINE and NAME-SIGN-child he defines himself as the recipient of the object using them alternately; by the last pointing signs, INDEX-camera INDEX-camera, he defines the object he wants with emphasis. NAME-SIGN-child is not very well articulated, probably because the boy is eager, and he attempts to avoid his father’s hands that interfere as the father forces the boy to look at him. The last pointing signs are produced emphatically, directed upwards to the object.

In the following records (24-30) the child’s name sign appears four more times in the material of the fourth stage in the acquisition of pointing. In three of the four cases INDEX-self could have been used instead, whereas the fourth time it is produced when the researcher asks the child about his mother’s name.

Example 11.34

The boy is outside in the street in the researcher’s arms. His mother holds the camera. M looks at his mother and smiles, pointing with his right hand INDEX-mother/camera (arm extended, L handshape, loose index finger). Simultaneously the researcher points towards the boy’s mother and says that she is his mother, asking M who she is. As she signs all these, M lowers his gaze and produces NAME-SIGN-child with his right hand. The researcher responds to what M signs, signing ‘you, who are you? M you are M’, using M’s name sign. M continues to look downwards being somehow absorbed in his thoughts. The researcher gives him a kiss to attract his attention. (29/age: 2;2,24, duration: 00:49:39–00:40:47)

The NAME-SIGN-child that the child produces in this specific episode could be considered either as a wrong sign or as an intended reference to himself. The interpretation of NAME-SIGN-child as an erroneous production of the child, as a wrong answer to the researcher’s question, although it cannot be excluded with certainty, is contradicted by all that is known about the child’s expressive and receptive language at this age. In particular: (a) he has already used his name sign a sufficient number of times to refer to himself, (b) he knows and most of the time uses his mother’s
name correctly, (c) he has used the sign WHO in his expressive language occasionally (from the age of 24 months), (d) he has used MUMMY to refer to his mother (from the age of 25 months), and (e) he understands the referents of adult pointing signs most of the time. Additionally, in this case, it is very difficult to claim that the child does not understand the researcher’s question since his mother, about whom the latter is asking, is present in the communicative episode. Therefore, the possibility of his sign being a wrong answer is not a satisfactory interpretation for the child’s performance. At the beginning of the above communicative episode, he produces a pointing sign articulated with a loose index finger whose direction and reference is not clear. This pointing may refer either to the object that mother holds (the camera), to mother as person, or to his mother’s arms as a location to be moved to. NAME-SIGN-child, although following after a pause, probably completes the child’s initial utterance that he left unfinished. The child produces his last sign without looking at his mother or the researcher. The boy’s last sign, following after his smile, shows that he is thinking something about himself. It is not a response to the researcher, but it cannot be interpreted as a mistake either. It appears to be an intended reference to self, although its use there may seem strange to the observer.

11.5.3 Reference to persons with common nouns

As far as the appearance of common nouns, such as MUMMY and DADDY for reference to persons is concerned, mouth movements recorded in the third stage are used as independent symbolic gestures without their manual part. The child’s use of these mouth movements is considered as precursor to the emergence of the first manual forms for reference to persons in the fourth stage.

The common nouns used for reference to persons appearing in the fourth stage in the acquisition of pointing are DADDY, GRANDPA, MUMMY, BABY and FEMALE (‘woman’, ‘girl’), sometimes produced with their respective mouth movements and sometimes without.

11.5.3.1 DADDY

Compared to MUMMY, GRANDPA, BABY and FEMALE, the use of DADDY is more often overextended by the child, most of the time referring either to the mother or the researcher. Up until the end of the fourth stage in the acquisition of pointing, DADDY has been used only once with the father as referent, whereas two instances have been recorded with the meaning ‘adult’ or ‘man’.
Table 16. The use of DADDY in the fourth stage in the acquisition of pointing

<table>
<thead>
<tr>
<th>Referents of DADDY</th>
<th>Predicative use of DADDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>Researcher</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Below, an example of the use of DADDY for reference to mother is presented.

Example 11.35

*M is in the middle of the corridor, almost in front of the toilet door. He goes towards the researcher and looks at her. With his left hand he spontaneously signs INDEX-toilet’s-door (arm extended, L handshape) DADDY SEEINDEX WHAT, DADDY POO. The first sign, DADDY, is produced with many repetitions, all of which are accompanied with /BILABIAL, OPEN, BILABIAL, OPEN/ together with vocalisation. WHAT is performed with a shaking of the head right and left. The second sign, DADDY, is articulated with the mouth movement /BILABIAL, OPEN/, whereas the two additional segments /BILABIAL, OPEN/, which constitute the whole mouth movement of the sign, follow and occur during the production of the sign POO, accompanied with vocalisation. M turns back, looks at the door of the toilet and, turning his gaze to the researcher, continues with his right hand DADDY. DADDY is produced again with many repetitions as the mouth movement /BILABIAL, OPEN, BILABIAL, OPEN/ that accompanies it, together with vocalisation. At the moment the boy performs his last sign, the door opens and his mother comes out of the toilet. M looks at her and leaves. (24/age: 2;0,21, duration: 00:54:19–00:54:34)*

In this episode, the repeated reference to the mother with the sign DADDY is not questionable. In this record there is no other person at home and the child knows with certainty that his father is not in the toilet. On the contrary, realising his mother is absent, he runs directly to the door of the toilet knowing very well that she is inside. Initially he tries to open the door, whines a little and then, accepting that this cannot change, turns to the researcher, first asking and then explaining about his mother.

The first pointing sign the child produces in the direction of the door of the toilet may refer either to his mother as person (as a non-present person) or to the location where she is. The sign SEEINDEX denotes an action and functions as a predicate here. Interestingly, WHAT is here accompanied by the simultaneous shaking of the head by which the question is also expressed. By his signing, the child probably asks what mother is doing in the toilet, the meaning of INDEX-toilet’s-door DADDY SEEINDEX WHAT being probably something like ‘there, see mother, what (is she doing)’? Or he may ask about the location where his mother is by saying something like
‘there, mother, see where (is she)?’ or ‘she, mother, see where (is she)?’ or he even asks about the reason why he cannot go in the toilet to see her.

The utterance that follows, DADDY POO, has a structure similar to that used in adults’ language and makes it clear that the child knows very well what he is talking about. In this sentence, the child himself seems to answer the question he has addressed to the researcher about what his mother is doing in the toilet. The sign POO serves as the predicate in this utterance.

Another situation where DADDY is used for reference to his mother has already been described in Example 11.28. In that case the child at the age of 25 months and 21 days uses DADDY once again to refer to his mother, although MUMMY had already been observed in his expressive language when he imitates his mother’s sign, at the age of 25 months (see Example 11.1).

At this stage in the acquisition of pointing, DADDY is used by the child for reference to the researcher as well (see Example 11.27), despite the fact that he has already used the researcher’s name (NAME-SIGN-researcher) for reference to her in the third developmental stage.

Finally, the only case where DADDY is used for referring to his father is found when the child is 25 months and 21 days old (see Example 11.30). In that communicative episode, the child uses DADDY twice, the first time to refer to his father and the second time meaning ‘adult’ or ‘man’.

At the age of 26 months (2;1,27) DADDY appears again, used by the child with the meaning ‘adult’ or ‘man’.

Example 11.36

The boy’s mother is sitting on the sofa. Beside her is M. On the arm of the sofa is an open book with the picture of a cow showing that it is being milked. M’s mother asks him ‘where is the milk?’ (MILK WHERE). M repeats MILK many times, looking at the book. Then he points with his left hand INDEX-cow (G handshape, the hand touches the picture). Without turning his gaze away from the picture, he continues to sign MILK repeating the sign. While he signs MILK, he raises his head, looks at the researcher and with his left hand adds DADDY. Then he gets involved with something else. (28/ age: 2;1,27, duration: 00:42:48–00:42:58)

At this period in time, milk is associated with a child growing up. The boy becomes a man by drinking it. This is something that the mother usually says to persuade M to drink his milk. So, in the above example, the boy takes the opportunity to reproduce this argument addressing the researcher. Milk is the main topic of the conversation. Initially, the child answers his mother’s question about where the milk is by signing MILK INDEX-cow, and then he goes on with his reasoning. While he plays with the sign MILK, which he does not stop producing (even when he points with his left hand, he continues to produce MILK with many repetitions), he turns to the
researcher and makes a statement MILK DADDY meaning that ‘by (drinking) milk you become (a big) man’. This utterance could also have been transcribed as MILK MALE (‘man’, ‘boy’). This last sign is here used predicatively, meaning ‘being a man’, ‘becoming a man’, and this seems to be the information that the child intends to convey to the researcher. Moreover, it is produced without any mouth movement that is in accordance with the typical form of MALE (‘man’, ‘boy’) and not with that of DADDY (see Appendix B).

From all the above, it becomes evident that in this stage in the acquisition of pointing, the child still investigates both the form and the meaning of DADDY. From this sign two different lexical items will emerge: one meaning ‘father’ accompanied with the mouth movement /BILABIAL, OPEN, BILABIAL, OPEN/, and another one meaning ‘male’ and which will differ from the first one only in the absence of the mouth movement.

11.5.3.2 GRANDPA

A lexical item that is often found in the data of this developmental stage for reference to persons is the sign GRANDPA (12 instances). Its first appearance in the child’s expressive language occurs in a situation when the child imitates (simultaneously, or after some seconds) the adult’s sign, something also observed in the early uses of other lexical items. Four instances of GRANDPA have already been described: In Example 11.2, GRANDPA was performed spontaneously without its mouth movement, in response to the mother’s question addressed to M while they were looking at a photograph with the boy’s grandfather. In Example 11.31, at the age of 25 months and 21 days, the young boy initiates the conversation about his grandfather without the latter being present. On that occasion, the boy tries to combine the manual part of the sign with its mouth movement, becomes confused, and makes a mistake in regard to the location where it is articulated. In general, until the end of the fourth stage, the sign has not yet acquired its proper mouth movement (/BILABIAL, OPEN, BILABIAL, FORWARD/), but the referent is always grandfather, apart from one case where it refers to an old man who lives in the building opposite the boy’s apartment.

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148 He produces the sign with the mouth movement /OPEN/, which is not the correct one.

149 In Greek Sign Language, the signs GRANDPA and OLD-PERSON do not seem to have the same non-manual part. GRANDPA is accompanied with the mouth movement /BILABIAL, OPEN, BILABIAL, FORWARD/, which is a loan from the Greek word “pappous” (‘grandfather’). OLD-PERSON is not accompanied with any mouth movement and is used with the meaning ‘person belonging to the third generation’.
11.5.3.3 MUMMY

The sign MUMMY occurs twice in the data of this stage in the acquisition of pointing but as already mentioned, parallel to that, the child uses NAME-SIGN-mother and DADDY for referring to his mother. The first occurrence of MUMMY happened in a situation where both mother and child are looking at some photographs from the boy’s birthday party (Example 11.1, age 25 months). On that occasion, the sign was used some seconds after it was first performed by the mother. Although it was not well formed – it was not produced in the proper location and the hand configuration was not precise – it was accompanied by the mouth movement /OPEN, BILABIAL, OPEN, BILABIAL, OPEN/, which is quite similar to the mouth movement that the adult’s sign has (Appendix B). The second occurrence of the sign can be observed after three records, at the age of 26 months, when the child spontaneously asks the researcher for the camera to videotape his mother.

Example 11.37

The young boy is on the balcony. In his right hand is his bottle full of milk. He goes close to the researcher and offers his bottle to her. He tries to put the bottle in the researcher’s hand. Although not visible in the screen, the researcher takes the bottle. M continues to go as close as he can to her, raises his gaze upwards and signs with his left hand MUMMY (the sign is produced without any mouth movement) NAME-SIGN-mother INDEX-camera (arm extended, L handshape), bringing his hand close to the camera. He goes to the left, looking down, stops again and looks back at the researcher, smiling in a requesting mode. (28/ age: 2;1,27, duration: 00:03:48–00:04:00)

In the last stage in the acquisition of pointing, because the child often asked for the camera, the researcher sometimes permitted him to hold it and look at his mother through it. So, in the above episode, when the child asks for the camera and explains the reason why he wants it, he knows that this is something that could happen. The meaning of his utterances is understandable basically because of the pointing sign, whose reference to the object (the camera) is clear. The index finger is directed to the left and upwards, almost touching the camera as the child goes very close to the researcher. With the utterance MUMMY NAME-SIGN-mother INDEX-camera, he declares his intention indicating that he is going to use the camera (which is at the centre of his interest) to videotape his mother. Reference to mother is made by two signs, a common noun and a proper name. NAME-SIGN-mother is articulated twice correctly, although the thumb and little finger do not close properly to form a W handshape with precision. In contrast, the MUMMY sign that precedes it is very short but definitely recognisable in spite of the fact that it is not well formed, because
(a) the child does not finish the movement of the sign, and (b) he does not produce its mouth movement. The boy seems to use NAME-SIGN-mother as an alternative sign for reference to mother, probably feeling that he does not perform MUMMY properly, not being sure that the adults will understand him.

In summary, with regard to the acquisition of MUMMY in the videotaped material of this stage, neither variations, overextensions, nor underextensions concerning its use have been observed, as has been the case of the acquisition of other signs used by the child.

11.5.3.4 FEMALE (‘woman’, ‘girl’)

At the end of the fourth stage in the acquisition of pointing, the sign FEMALE (‘woman’, ‘girl’) appears once in the deaf child’s expressive language, referring to the woman in the next apartment. This one single use of the sign, although it constitutes clear evidence for the extension of the child’s first lexicon that is gradually taking place, is not enough for making any conclusions as to whether it is fully acquired or not.

Example 11.38

M sits on their balcony accompanied by a deaf friend of the family and the boy’s father, who is not visible in the screen. They are all sitting on chairs opposite each other, forming a circle. The family friend and the boy are looking outwards, talking about the rain that fell half an hour before. On the next balcony, behind the boy in a diagonal direction to his right, a lady has appeared; a neighbour, visible only to M’s father due to the arrangement of the chairs. M turns his gaze to his father. The family friend is ready to say something to M, but he is watching his father, turning his head right and backwards in the direction of the woman, still looking at his father. M smiles and, with his left hand, signs FEMALE (‘woman’, ‘girl’) with many repetitions, accompanying the sign with a mouth movement /ROUND, PURSED/ with no vocalisation. When signing FEMALE, he looks to his left at the researcher and then turns to the visitor, who signs something about the neighbour. M turns around. His body makes almost a complete rotation, trying to see the woman, and he points with his left hand INDEX-woman/next-balcony, bringing his gaze back to the visitor, addressing him. The woman, also being a friend of the family, stays behind M and watches what is going on. Finally, the father picks up the child in order to bring him closer to her. (30/ age: 2;3,01, duration: 00:00:56–00:01:10)

In the above episode, the child signs FEMALE (‘woman’, ‘girl’) while looking at his father without being able to see the woman who stands behind him, and then searches for her. However, since his father is not visible in the

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150 See Appendix C.
video, it is not clear if FEMALE (‘woman’, ‘girl’) is an imitation or a spontaneous production. From the overall linguistic behaviour of the child, according to which many lexical items primarily appear in imitative circumstances while they are articulated or when they have just been articulated by an adult, the possibility that FEMALE (‘woman’, ‘girl’) is a reproduction of the father’s sign is more likely. In terms of its form, the manual part of the sign is very well formed, but the mouth movement /ROUND, PURSED/ that the boy uses is not part of the adult form, and its presence here could be considered incorrect. In general, at this stage in the acquisition of pointing, the child seems to try to find out how the mouth movements are used in the language of his environment, generalising their use somehow, using them sometimes correctly and sometimes not. Finally, the context in which INDEX-woman/next-balcony occurs does not help disambiguating its reference. Therefore, this pointing sign is not included in the category of pointing signs used for reference to persons.

11.5.3.5 BABY
The sign BABY occurs at the age of 25 months. The boy uses the sign to refer to pictures of children, to pictures of animal offspring, or even to pictures of objects that somehow are related to infancy. At the end of this stage, BABY is also used for reference to other persons. In Example 11.8 (age 2;3,01), which has already been described in detail, BABY refers to the baby in the next apartment, who is not present in the interaction that takes place. In that situation, BABY helps to identify the referent of the pointing signs (INDEX-next-balcony).

BABY is used once in relation to the boy himself in the videotaped material of the present study up to the age of 27 months. However, although the observer’s first impression is that the child uses the sign for referring to himself, a more thorough observation reveals that it is used predicatively, meaning ‘be a baby’.

Example 11.39
M stands in front of the balcony door, which is open, holding his bottle in his right hand. He watches the TV which is inside the house. He turns his gaze to the camera and to the researcher and, with his left hand, produces a typical attention-getting gesture. Then he turns his gaze again to the TV and points INDEX-tv (arm extended, the index finger touches the window of the balcony door through which the boy watches TV, G handshape). Without stopping, he brings his gaze back to the researcher and repeats the same attention-getting gesture, pointing again INDEX-tv (arm extended, the index finger touches the window of the door for a moment, G handshape). This last pointing sign has a long duration. As M points, he steps into the house, stands before the TV and repeats the same utterance for the third time, starting with the attention-getting gesture INDEX-tv (arm extended, G
handshape). Each time he produces the attention-getting gesture, he looks at the researcher, and each time he produces a pointing sign he looks in the direction of where he points. Additionally, as he produces the above utterances, he has his mouth open expressing surprise. The second time that M produces the utterance typical attention-getting gesture INDEX-tv, the researcher’s voice is heard saying that the child sees himself in the TV and becomes pleased. M stops for a split second to watch the video and turns back to researcher pointing INDEX-tv (arm bent, G handshape). Then he turns to his mother, who stands at his right, and with his left hand signs BABY (1 hand) looking again at the TV. (28/age: 2;1,27, duration: 00:56:58–00:57:13)

By signing INDEX-tv, the boy addresses the researcher, whereas by BABY he addresses his mother. The direction of his pointing signs towards the TV is clear, and their most likely referent is the boy himself on the screen. Other possible referents of INDEX-tv may be the TV as object or as location (the screen) in which persons are moving. However the expression on M’s face and his behaviour, i.e. the insistence he shows by pointing four times towards the TV addressing the researcher, indicates that he recognises himself and refers to himself on the screen, probably surprised and excited to see himself. M turns to his mother and very clearly signs BABY, although producing this sign only with his left hand. The only possibility that the boy uses BABY to refer to himself is if he feels that he is not understandable by the researcher, since she does not respond to his pointing signs, and therefore he uses another sign to express himself. If this interpretation is correct, then the use of BABY in this particular communicative situation would be the only case in the videotaped material of the present study that the child uses a common noun to refer to himself. However, after having referred to himself on the screen by pointing several times, it seems more likely that M uses BABY for adding new information. He probably uses BABY to name what he sees on the TV (‘this is a baby’) and to make a comment about himself (‘I am a baby’). In other words, in this context BABY does not refer (to himself) but is used predicatively.

In this stage, a number of common nouns used for reference to persons have emerged in the child’s expressive language. However, in terms of their meaning and reference, these signs differ from the corresponding signs found in adult language. In addition, completing the description of this developmental stage, it has to be mentioned that the child, apart from using the index finger in pronominal pointing signs, has also included in his first lexicon many non-deictic signs in which the index finger hand configuration is used: AFTER, BUTTON, CLOCK, STETHOSCOPE, DON’T, DOWN, EAR, FEEDING-BOTTLE, FINGER, HERE, IN, KISS, MIND, MOUTH, NECK/COUGH, NOSE, NOW, ONE, OTHER, PENIS, SEE\textsuperscript{(INDEX)}, SILENCE, SWEET, THERE, THREAD, TONGUE and UP. Some of them have already
appeared earlier in the third stage in the acquisition of pointing, but in the fourth stage a greater number and variety is observed.

At the end of the fourth stage, the child’s productive lexicon has expanded far beyond the developmental milestone of the 50 words, and most of the child’s utterances are composed of two or three signs.

Summarising the findings of the fourth stage in the acquisition of pointing, it is observed that:

1) The pronominal pointing signs directed to self and other entities have finally been established in the child’s expressive language, being the principle means by which reference to self and others is accomplished.

2) Although their precursors already appear in the third stage, the alternative means that the child uses for referring to persons – proper names and common nouns – are not yet fully acquired by him.

3) Reference to self is made by the child of the present study almost exclusively with the use of INDEX-self and HAND-self, although he has also started to use his name sign but not frequently.

4) Until the end of this stage, the use of common nouns for reference to self has not been found in the material of this study.
CHAPTER 12

Discussion

The aim of the present study was to investigate the developmental process of a deaf child of deaf parents acquiring Greek Sign Language, with regard to the use of pointing for reference to persons and self. The following issues were addressed:

1) The age at which the pronominal pointing signs are acquired by the deaf child exposed to Greek Sign Language.
2) The process of transition from the early communicative to the linguistic use of pointing as first- and non-first-person pronoun.
3) The use of other signs, common nouns and/or proper names for reference to persons before the acquisition of pronominal pointing.
4) The existence of reversal errors in the use of pointing signs for reference to persons and self before their final establishment as pronouns.

The findings presented in the previous four chapters show that the overall developmental pattern by which pronominal pointing signs for reference to persons and self are acquired in Greek Sign Language is similar to the developmental pattern that has been observed in the acquisition of ASL. However, in contrast to the findings about ASL, in the present study the child’s transition from communicative to pronominal pointing used as a first- and non-first-person pronoun does not show evidence of discontinuity.

In addition, the use of other nominal terms, i.e. common nouns and proper names, to refer to persons before the acquisition of pronominal pointing does not appear in the boy’s language except in a very few cases. Pronominal pointing referring to persons and self is used from the beginning without errors; its meaning and use is acquired gradually through the toddler’s interaction with adults.

In this chapter, the findings of the present study are summarized and discussed further. They are compared with findings from previous studies of both signed and spoken language acquisition in order to outline, in a more explicit way, the similarities and differences in deaf children’s transition to pronominal pointing.
12.1 The age at which pronominal pointing signs are acquired in Greek Sign Language

The age that pronominal pointing signs are acquired as first- and non-first-person pronouns in Greek Sign Language coincides with the time that the corresponding pointing signs are acquired in other signed languages, such as in ASL (Petitto 1984, 1987, 1994; Pizzuto 1994) and in Swedish Sign Language (Alghren 1990), as well as with the time that personal pronouns are acquired in spoken languages. Children acquiring signed language and children acquiring spoken language clearly seem to follow a similar developmental process with regard to the acquisition of pronominal terms used for reference to persons and self.

The child acquiring Greek Sign Language, although having very early at his disposal means by which he can refer to persons and self, i.e. pointing, needs a rather long period of time (almost six months) before he starts using INDEX-self and INDEX-non-self in a systematic manner as proper pointing signs. Pronominal pointing signs, despite their apparent semantic transparency (at least to adults) and the similarity with the pointing gesture observed in the spontaneous early communication of children (McNeill 1987a:229), are not used systematically in the child’s expressive language until later, at the age of 21 months. This is also the age at which hearing children acquiring spoken language start using the first-person pronoun in a systematic way (Cooley 1908; Clark 1978; Charney 1980; Oshima-Takane 1988; Girouard et al. 1997). In other words, in the present study, a relatively long period is needed between the first occurrence of INDEX-self and INDEX-non-self, which can be attributed to the communicative pointing directed to objects, locations and persons at 12-13½ months, and their systematic use, when they finally become true linguistic items.

Concerning the order in which pronominal pointing signs are acquired, it is observed that pointing to self comes before pointing to others, as also is observed in deaf children’s language acquiring ASL (Petitto 1984, 1987, 1994; Pizzuto 1994) and in hearing children as well. In fact, in the acquisition of Greek Sign Language, the systematic reference to others by pointing follows after the initial spurt observed in the use of INDEX-self.

The timing and the order of the acquisition of pronominal pointing signs after 20 months in this study clearly indicates that the role of directionality is restricted in the process of the acquisition in the deaf toddler’s language. The overall developmental process of the acquisition of pronominal pointing to persons that the deaf child follows is very likely to be dependent on the development of the cognitive schema of self. Interpreting the findings of this study from the perspective of developmental theories, the existence of three

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151 Hearing children use the first-person pronoun at 18 to 20 months, before the second-person pronoun (Huxley 1970; Clark 1978; Chiat 1982; Girouard et al. 1997; Ricard et al. 1999).
major progressive phases in the child’s acquisition of pronominal pointing: (a) the initial burst of pointing towards persons, (b) its sporadic occurrence between 16 to 20 months, and (c) finally, the systematic use of first- and non-first-person pronominal signs, being parallel with those described in ASL, shows that there is an invariant order of stages.

More importantly, the fundamental issue that arises seems to concern the underlying concept needed as a prerequisite for the acquisition of pronominal terms used for reference to persons by deaf or hearing children. The universal phenomenon of the acquisition of pronominal terms in children’s expressive language, spoken or signed, after 20 months of age and not before then, undoubtedly has to do firstly with the gradual development of the concept of self and its diversification from non-self, and secondly with the comprehension of spatial points of view, considered as a cognitive prerequisite for understanding the different perspectives of speaker and addressee (Loveland 1984).

The observed coincidence of the timing that pronominal terms are acquired by children exposed to sign language and spoken language respectively, definitely indicates that their acquisition is independent of the modality in which languages are produced as well as of the directionality of pronominal pointing signs.

12.2 The process of transition from the early communicative use of pointing to its linguistic use

The overall developmental pattern, by which pronominal pointing signs for reference to persons and self are acquired in Greek Sign Language, is the same as the pattern observed in ASL acquisition. However, in contrast to the findings about ASL in the present study, the child’s transition from communicative to pronominal pointing used as first- and non-first-person pronoun takes place without evidence of discontinuity. The acquisition of pronominal pointing is dependent on the early pointing gestures found in the early communicative period at 12 months and is a continuous process, characterised first by the sporadic use of pointing signs directed to self and others, before their use as proper first- and non-first-person pronominal signs.

In particular, after the emergence of the first reference to objects and locations by pointing, at the age of 14 months, the toddler expands its use for referring to himself and to persons around him. Between 14 and 15 months, the frequency of occurrence of the pointing gesture in the deaf child’s communication reaches a peak, similar to that observed in the pointing gestures used by hearing children, where a significant increase in the frequency of pointing is reported between 14 and 24 months (Greenfield &
Smith 1976; Murphy 1978; Leung & Rheingold 1981; Guidetti 2002). In addition, the boy’s early reference to persons and self by pointing at 14 months and 10 days is in alignment with the findings reported about ASL (Bellugi & Klima 1982a, b; Petitto 1984, 1987, 1994), despite the differences recorded in regard to the exact time152 of its occurrence in each sign language, which can be attributed to individual variation.

However, after the emergence of pointing referring to persons, the developmental process observed in Greek Sign Language differs from that observed in ASL. Deaf children acquiring ASL stop using pointing for reference to persons and self for a period of time extending between 12 and 18 months153 (Petitto 1984, 1987, 1994) before they start to use pronominal pointing. The disruption in the use of pointing directed to persons, and only this, during the “middle period” shows, according to Petitto, that children acquiring ASL avoid that specific function of pointing.154 However, the use of pointing directed to objects and locations, as a “general deictic” (1984:63, 85), “extra-linguistic”(1984:151) gesture does not disappear totally from children’s expressive language, due both to the central role that it has in signed languages as well as to the children’s ability to distinguish between linguistic and non-linguistic pointing (Petitto 1987:40-41, 1984:150-151).

Petitto describes the selective use of pointing from 12 to 18 months as “avoidance” in the language of the deaf children in her study and interprets this (a) in respect to the difficulties the children are facing in the acquisition of “first and second person pronoun” due to the specific “semantic and grammatical properties of personal pronouns”, and also (b) in respect to the children’s ability to use alternative means for referring to persons and self.

The child acquiring Greek Sign Language does not stop using pointing to refer to persons, although he does not use it with the same frequency at which it appeared in the beginning, i.e. between 14 and 15 months. Between 16 and 20 months, the frequency of occurrence of pointing for reference to persons and self shows a decline. The initial, frequent use of pointing, linguistic or not, seems to be temporarily restrained, albeit it does not totally stop, whereas from the 21st month it occurs frequently again, being used to refer to self by the deaf toddler. The picture illustrated in respect to the use of pointing for reference to persons between 16 and 20 months in Greek Sign Language is a picture of sparseness, which, however, does not coincide in

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152 Petitto states that Kate started using the pointing gesture directed to persons and self at 10 months (1984:66-67; 1987:17) and Carla at 12 months (1984:114-115).

153 Extending from 12 to 18 months (1984:70-85) for Kate, and from 15 to 18 months for Carla (1984:115-128).

154 Although Petitto mentions that with respect to Kate there were three unclear cases of pointing to persons, from a total number of 208 pointing gestures, without providing additional information (1984:79), and with respect to Clara, there was an exception found in the period of disruption in a communicative situation in which she imitates her mother’s pronominal sign (1984:124).
time with the total absence of pointing to persons observed in ASL in the “middle period”.

In other words, between 16 and 20 months, the frequency of pointing for reference to persons shows an interesting fluctuation in the boy’s communication – indicating the existence of a common pattern with the acquisition of pronominal pointing in ASL – from which it is not possible to conclude that the process of the deaf child’s transition to pronominal pointing, as first- and non-first-person pronoun, is a discontinuous one. The restricted number of pointing gestures to persons and self, recorded between 16-20 months, does not provide evidence that the child’s developmental process towards the acquisition of linguistic pointing is discontinuous for two main reasons: (a) the pointing gestures to persons and self occurring during the third developmental stage, although sporadic, do exist and therefore cannot be ignored, and (b) the use of pointing, especially pointing directed to self, is gradual and continuous in the child’s expressive language.

12.2.1 Frequency of pointing to persons and self in the third developmental stage

The number of pointing gestures for reference to persons (1.02%) in the third stage in the acquisition of pointing, just before the systematic use of first- and non-first-person pronominal pointing signs, although restricted,155 is not insignificant. In addition, if the ambiguous cases of pointing to persons (5.88%) are also taken into account, it is evident that the spurt in the use of pointing to self, observed at the beginning of the fourth stage, comes from the earlier use of pointing to persons. Although during the third stage the deaf child of the present study reduces the use of pointing for the particular function of reference to persons, he does not abandon it completely. The fluctuation observed in the frequency of pointing to persons and self before the systematic use of pronominal signs, namely the decrease in the frequency of pointing directed to persons, cannot be considered as a disruption of this specific function, but instead it constitutes an indication of continuity in the child’s process towards the final accomplishment of pronominal signs.

The communicative behaviour of the child in the third stage in the acquisition of pointing indicates changes in the way he understands the pointing signs directed to persons and self, reorganising his knowledge about the use of the index finger in signs with different meaning and function. The different functions that pointing has in Greek Sign Language probably plays an important role in its restricted use by the child, just before its final acquisition as first- and non-first-person pronominal signs. According to the principle of “unifunctionality” (Slobin, 1985:1227-1229), when children learn new words, they usually tend to connect one linguistic type with only

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155 During the second stage the percentage of pointing to persons was 11.30%.
one meaning or function. In those cases when a linguistic item has more than one meaning or more than one function in children’s linguistic input, they initially search for different means to express each different meaning or function (see also Gleitman & Wanner 1982).

The deaf child acquiring Greek Sign Language gradually discovers the linguistic characteristics of pronominal pointing used for reference to persons and self in his input, parallel to the acquisition of a number of new signs and the emergence of his combinatorial ability. He investigates the function of pointing for reference to persons and in particular to self at the same time, making a very big step to language by: (a) expanding his lexicon after the emergence of his first signs, and (b) developing his combinatorial ability by combining two or more elements in a communicative act, and thereby making his first step to syntax (Bloom 1973) – much in the manner of hearing children at the same age (Menyuk et al. 1995; Kauschke & Hofmeister 2002). Discovering the lexical items of his language, the deaf child investigates the symbolic relationship between form and meaning and, in addition to pointing, tries to find new means for referring to people, a fact that unquestionably constitutes one additional reason that explains why the use of pronominal pointing becomes restricted for this specific function.

In the case of the deaf child acquiring Greek Sign Language, the transition from the non-linguistic use to the linguistic use of pointing seems to take place gradually and simultaneously with the appearance of other fundamental linguistic achievements. Pointing to persons occurring in the third stage cannot be ignored or considered as insignificant.

12.2.2 Pointing to self

Regarding the use of pointing for reference to self, it should be mentioned that in Greek Sign Language no evidence of disruption was observed. On the contrary, pointing directed to self is acquired progressively. In the third stage, the child refers to himself almost exclusively by pointing gestures, formed either with an index finger or with a relaxed B-hand configuration. Before the systematic occurrence of INDEX-self, he does not use alternative means, such as his name sign or other common nouns until the end of the fourth stage, when his name sign occurs for reference to self. Parallel to INDEX-self, the HAND-self is the only sign that occurs frequently in the child’s expressive language, without any differences recorded in the use of these two signs. These two forms, which differ only in terms of the hand configuration.

156 In the third stage in the acquisition of pointing, apart from the use of pointing for reference, the emergence of one mouth movement used as a true symbolic sign and the occurrence of one common name (the researcher’s name sign) used for reference to both the mother and the researcher have also been described.

157 The use of a relaxed B-hand instead of the index finger hand configuration can also be found in adults’ language for reference to self.
configuration, are used from the second to the fourth stage showing an uninterrupted but progressively proliferated frequency of occurrence in the toddler’s expressive language.

In more detail, in the second developmental stage, from the total number of 13 references to persons, only two references exist to the child himself by using pointing (see Table 17 below). In the third stage, from a total of six references to persons (four with the index finger hand configuration and two with the relaxed B-hand configuration), there are three references to self, whereas, at the beginning of the fourth stage, which is marked with a burst in the use of pointing to self, from a total of 153 references to persons (127 with an index hand configuration and 26 with a relaxed B-hand configuration), there are 84 references to self.

Table 17. Number of pointing gestures/signs referring to persons and self (INDEX-self and HAND-self).

<table>
<thead>
<tr>
<th>STAGE</th>
<th>NO. OF POINTING GESTURES/SIGNS TO PERSONS AND SELF</th>
<th>POINTING TO SELF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO.</td>
<td>%</td>
</tr>
<tr>
<td>2nd</td>
<td>13</td>
<td>15.38%</td>
</tr>
<tr>
<td>3rd</td>
<td>6</td>
<td>50%</td>
</tr>
<tr>
<td>4th</td>
<td>153</td>
<td>54.90%</td>
</tr>
</tbody>
</table>

Table 17 shows that the child’s process towards the acquisition of pronominal pointing for reference to self is continuous and irrespective of the decrease observed in the total number of references to persons from 16 to 20 months in the third stage in the acquisition of pointing. INDEX-self has its roots in the first pointing gestures used in children’s early communication.

By reorganising his continually changing linguistic knowledge about pointing used in his interaction with adults, the boy seems to be more cautious in using pointing, detecting its function, while at the same time he investigates alternative means for reference to others. The association of the form of the pronominal pointing sign INDEX-self with its meaning seems to originate in the child’s general cognitive and communicative abilities.

12.2.3 Additional evidence

Finally, one additional phenomenon is observed in the fourth stage in the acquisition of pointing, indicating that: (a) the acquisition of pronominal pointing takes place gradually, (b) the linguistic knowledge of the deaf child acquiring Greek Sign Language with regard to pronominal signs directed to self and others continues to change and develop even after their systematic occurrence at 21 months, and (c) INDEX-self and HAND-self are used as true linguistic symbols.
In particular, at the age of 20 months and until the middle of the 21st month, the deaf toddler acquiring Greek Sign Language seems somehow to regress, using the unanalysed forms INDEX-self-WHAT and HAND-self-GQ in cases where INDEX-self and HAND-self are used with interrogative function, whereas INDEX-self, HAND-self, WHAT and GQ have already appeared in the previous stages independently. In other words, the occurrence of unanalysed forms recorded in the child’s expressive language at the beginning of the fourth stage reveals incomplete knowledge just before the child finally acquires the exact meaning and use of INDEX-self, HAND-self, GQ and WHAT.

The unified forms INDEX-self-WHAT and HAND-self-GQ in the boy’s language probably emerge from the corresponding utterances adults use while addressing the child, which he copies as a whole. However, the perception of adult’s INDEX-self WHAT and HAND-self GQ as unified forms is probably due to the fact that the signs in each expression have the same common hand configuration (index finger and relaxed B-hand respectively).

Unified forms have also been observed in hearing children’s acquisition of the first-person pronoun (Cooley 1908; Clark 1978; Charney 1980; Loveland 1984), which has also been suggested to be a result of the language used by adults.

In opposition to the dominant view, the co-occurrence of the unanalysed forms with the corresponding independent forms in the child’s expressive language shows that the production of a linguistic form precedes the acquisition of its meaning, which gradually develops through interaction.

In closing this section concerning the transition to linguistic pointing, one more finding that has to be mentioned is the appearance of a precursor of the anaphoric use of pointing in the toddler’s expressive language from which it becomes evident that his linguistic and cognitive knowledge, in regard to the various functions of pronominal pointing, is continually broadening.

Towards the end of the fourth developmental stage, some cases of pointing signs have been considered as early examples from which anaphoric pointing will emerge. Similar observations have been made for ASL (Hoffmeister 1978, 1987; Loew 1984; Petitto 1984; Bellugi et al. 1990) and for Swedish Sign Language (Alghren 1990). At the end of 24 months, the boy refers to absent persons by pointing towards physical locations (but not to locations in the signing space) that are somehow associated with these persons. In his first attempts to use pointing for referring to non-present persons, he is successful at times, whereas at other times, the reference remains ambiguous. According to the findings on other signed languages, the acquisition of the anaphoric function of pointing is expected to be accomplished later, just before the age of 5 years (for ASL Hoffmeister 1978, 1987; Bellugi & Klima 1982a, b; Loew 1984; Bellugi et al. 1990, for Swedish Sign Language Alghren 1990).
Conclusively, in Greek Sign Language, the transition from the early communicative to the linguistic use of pointing for reference to persons is continuous, without evidence of discontinuity. The findings of the present study are in alignment with the scant evidence reported for deaf children of deaf parents acquiring Swedish Sign Language (Alghren 1990) and with Haukioja’s reinterpretation (1993) of Petitto’s findings (1984, 1987). According to Haukioja, what makes Petitto conclude that deaf children acquiring ASL follow a discontinuous process in their transition to the linguistic pointing is not the findings of her research themselves, but the fact that she regards linguistic and non-linguistic communicative pointing as separate from the very beginning. In the present study, such a distinction is not apparent from the beginning because no cutoff is observed in the use of pointing by the deaf child acquiring Greek Sign Language, regardless of whether linguistic status is attributed to it or not.

12.3 Reference to persons with common nouns and proper names before the acquisition of pronominal pointing

In the case of the deaf child acquiring Greek Sign Language, the use of common nouns and proper names for referring to persons before the acquisition of pronominal pointing is extremely restricted and only for reference to others. Common nouns, such as MUMMY, DADDY, etc., have not been recorded anywhere in the toddler’s expressive language before the establishment of pointing signs as first- and non-first-person pronouns. However, in the third stage in the acquisition of pointing, the emergence of a mouth movement, /BILABIAL, OPEN, BILABIAL, OPEN/, used as a linguistic symbol for reference to the father and mother is observed, unaccompanied by the manual component of MUMMY and DADDY, which does not appear in the child’s language until after the systematic occurrence of pointing for reference to persons.

Before the systematic use of pronominal pointing for referring to others, the toddler makes use of the researcher’s name sign as an alternative sign for referring not only to the researcher, but also to his mother, thus overextending the use of the sign without yet comprehending its function as a proper name.

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158 Considering in general the issue of continuity from early communication to language, it has to be mentioned that, with regard to the acquisition of classifiers, recent evidence of continuity in their emergence from first communicative gestures has also been found in deaf children’s expressive language, early in the second year (Slobin et al. 2003).

159 Often made with many repetitions by the child.
For reference to self in the third stage in the acquisition of pointing, the deaf child of the present study uses neither his name sign nor any other sign to refer to himself instead of pronominal pointing. The child’s name sign was given to him by his parents at the age of 18 months (see Section 10.2.2), but is rarely used in their communication with the toddler. He starts using his name for referring to himself after the age of 23 months. In addition, common nouns such as BABY and BOY are observed for reference to self after the end of the fourth stage (2;3,01).

Comparing the above linguistic behaviour of the deaf child acquiring Greek Sign Language with hearing children’s corresponding behaviour, it seems that the use of nominal terms for referring to others and self before the acquisition of pronominal signs is less common than in hearing children’s communication (Strayer 1977; Charney 1980; Chiat 1982; Oshima-Takane 1988). This assertion is based on the fact that in the literature concerning hearing children’s language: (a) reference to self by nominal terms is the most characteristic behaviour before the acquisition of the first-person pronoun by them (Cooley 1908; Huxley 1970; Strayer 1977; Clark 1978; Charney 1980; Chiat 1982; Schiff-Myers 1983; Oshima-Takane 1988), and (b) the use of names or common nouns for reference to self and others before, and also during the acquisition of pronominal forms, is usually interpreted as an alternative way of referring to persons by which hearing children avoid using personal pronouns because they have not yet acquired their exact meaning (Strayer 1977; Charney 1980; Chiat 1982; Oshima-Takane 1988, 1992).

The findings on deaf children’s use of common nouns and proper names instead of pronominal pointing for reference to persons and self, although sparse, show significant differences among them. In particular, whereas deaf children acquiring ASL exhibit similar linguistic behaviours to those observed by hearing children (Petitto 1984, 1987, 1994), deaf children acquiring Swedish Sign Language do not use names or common nouns for reference to persons or self before the acquisition of pronominal pointing signs (Ahlgren 1990). The absence of common nouns or names for the accomplishment of reference to persons or self before the acquisition of pronominal pointing signs is interpreted by Ahlgren (1990) with respect to the communicative and linguistic conventions followed by adult signers.

Ravnholt & Engberg-Pedersen (1986, cited in Engberg-Pedersen 1993a:138) report varying findings in the use of pronominal signs, name signs and

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160 At the age of 2;1,27, the sign BABY is predicatively used in the sense ‘be a baby’ rather than referring to self (Example 11.39). BOY is used for reference to self at the age of 2;5.

161 For ASL, both children participating in Petitto’s research used the common nouns MUMMY and DADDY to refer to their parents, whereas, for reference to self, Kate used the sign GIRL (1984:79), and Carla is mentioned sometimes using her English name by using the American manual alphabet (1984:119) before the emergence of pronominal pointing to self.
common nouns by mothers (native speakers of Danish Sign Language) and their deaf children. The differences observed in the use of common nouns and proper names for reference to persons and self before the acquisition of pronominal pointing in deaf children acquiring different signed languages show that this linguistic behaviour is, at least for deaf children, related to children’s input (Engberg-Pedersen 1993a).

In general, as has became evident in the videotaped material that has been selected for this study, due to the gestural-visual mode by which signed languages are realised, reference to present persons is usually made by pointing signs and infrequently with other signs, such as DADDY and MUMMY, or with name signs. In addition, getting the attention of present persons by using common nouns or proper names is beyond the communicative habits of adult signers, who usually use attention-getting gestures and deictic gestures to gain their interlocutor’s attention. The child’s name sign has not been observed, being used for getting the boy’s attention by adults in the present study.

Moreover, Engberg-Pedersen’s (1993) argument about the relation between the child’s production and the input he is exposed to, with regard to common nouns and proper names, is confirmed in the findings about Greek Sign Language, both in the boy’s early use of the researcher’s name sign and the absence of the names of the mother and father at the beginning. The existence of NAME-SIGN-researcher in the child’s early lexicon is clearly related to the fact that this sign exists in the boy’s input because the parents usually refer to the researcher by using her name sign when she is not present.

Similarly, the infrequent use of DADDY and MUMMY by the parents in the language directed to the deaf toddler probably constitutes one of the main reasons that these signs emerge relatively late in his lexicon (i.e. after 20 months, in the fourth stage in the acquisition of pointing) compared to the time that the corresponding lexical items appear in the hearing child’s language.

Finally, the occurrence of the mouth movement /BILABIAL, OPEN, BILABIAL, OPEN/ for reference to the mother and father, and its use by the deaf child as a linguistic symbol instead of the manually expressed signs MUMMY and DADDY, of which it constitutes a part, is a very interesting finding. Although its emergence before the manual parts of the signs initially seems precocious, similar observations have been made in studies concerning the acquisition of non-manual elements in ASL by deaf children of deaf parents (Reilly et al. 1990, 1994; Reilly & Bellugi 1996; Anderson & Reilly 1998a, b; Reilly & Anderson 2002). According to these studies, the earliest examples of signs occurring together with their non-manual part (e.g. their mouth movements, the raising and furrowing of eyebrows, the shaking of the head, among others) are observed during the period of one-sign utterances in the child’s expressive language, at approximately 18 months.
At the same developmental stage, however, are also observed some cases of non-manual elements used independently of the manual part of the signs of which they are part, realising the same semantic function with them (Reilly & Anderson 2002). Anderson & Reilly’s findings concerning the acquisition of non-manual adverbial elements of some signs in ASL (Anderson & Reilly 1998b:138; Reilly & Anderson 2002:171), as well as the occurrence of the mouth movement /BILABIAL, OPEN, BILABIAL, OPEN/ before the manual part of MUMMY and DADDY in the deaf toddler’s communication acquiring Greek Sign Language, could probably lead to the daring statement that the mouth movement seems in some cases, to be perceived by the child before the manual component of the sign. In other words, the non-manual part of a sign may dominate the child’s perception before the acquisition of the manually produced part.

Finally, in the present study, after the first independent appearance of the mouth movement /BILABIAL, OPEN, BILABIAL, OPEN/ for reference to mother and father, the process of its integration in the signs MUMMY and DADDY seems to be the same as that described in all the above-mentioned studies of Anderson & Reilly on the acquisition of ASL. According to this, the signs composed by a non-manual and a manual part after their first occurrence – either only with their non-manual part or with their full form as an unanalysed, gestalt form – are used by the deaf child only with their manual part, until a period of time when finally both elements are integrated.

### 12.4 The acquisition of pronominal pointing without reversal errors

In the case of the deaf child acquiring Greek Sign Language, there is no evidence of reversal errors in the use of pointing signs for reference to persons and self before the acquisition of pointing as first- and non-first-person pronouns. The deaf child of the present study uses INDEX-self and INDEX-non-self to refer to himself and others from the beginning without errors.

According to studies on the acquisition of personal pronouns by hearing children, reversal errors do not occur in a frequent and systematic manner (Cooley 1908; Clark 1978; Maratsos 1979; Charney 1980; Chiat 1982; Macnamara 1982; Oshima-Takane 1992; Oshima-Takane et al. 1993). The only possible example of an erroneous use of pronominal pointing in this study is a pointing directed to self, instead of being directed to the picture of an object in a book. This specific form (WHAT-INDEX-self see Example 162 In the present study, similar observations have been made for some other signs, such as FORBID, but reporting on them here is beyond the scope of the present work.

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seems to be more or less accidental, a slip of the hand, probably related to the child’s use of unanalysed forms despite the fact that its occurrence after WHAT, and not before, has not been recorded in other communicative situations.

With respect to reversal errors in the use of pointing signs by deaf children acquiring ASL, Petitto (1984, 1987, 1994) presents different findings for each child. Kate makes a systematic error using pointing directed to the addressee for referring to herself (1984:85-90) for a period of almost one month, from 22 to 23 months, whereas Carla, from 21 months, uses pointing directed to others correctly most of the time (1984:34-135). The existence of these errors in the use of pointing for reference to self and others, systematic or not, is interpreted by Petitto (1984,1987, 1994) as an indication of incomplete knowledge of these signs for a period of time after their occurrence in the language of deaf children exposed to ASL.

For interpreting the incorrect reference of pointing directed to the addressee by the one child participating in her study, she adopts the name hypothesis – which has been put forward for reversal errors found in hearing children’s language (Clark 1978) – although it could not be adopted for interpreting the correct use of pointing by the other child acquiring ASL.

Starting from the name hypothesis, Petitto (1984, 1987, 1994) argues that one of the children in her investigation uses pointing directed to the addressee as a proper name referring to self as a sign with set reference regardless of the direction of the index finger. In addition, based on the form that the pointing sign directed to the child’s interlocutor has, which is used erroneously for reference to self, she claims that this pointing form (YOU) is a “non-reciprocal, non-deictic, “frozen” lexical sign” (Petitto 1984:157) that is different from pointing directed to objects and locations, which she considers as non-linguistic.

Following this rationale, Petitto attributes the systematic erroneous use of pointing directed to the addressee to the non-developed yet linguistic abilities of her children in opposition to Clark (1978), whose hypothesis she adopts. Contrary to Petitto, Clark attributes the reversal errors made by hearing children in the use of personal pronouns to their non-developed cognitive abilities in order to comprehend the use of personal pronouns from the speaker’s perspective, until the age of approximately 20 months. Petitto concludes that the acquisition of first- and second-person pronouns in ASL exclusively depends on the development of the children’s linguistic abilities, being independent of their cognitive abilities (1984:63, 167, 1987), based also on the phenomenon of “avoidance” in the use of pointing directed to

163 Petitto mentions that in her data there were three cases of reversal error in this period of time (1984:87-90)
164 The unanalyzed forms at the beginning of the fourth stage in the expressive language of the child acquiring Greek Sign Language indicate incomplete mastery of the pronominal pointing signs (see Section 12.2.3).
persons in deaf children’s expressive language before the systematic occurrence of personal pronouns.

However, it is difficult to accept this conclusion because:

1) The findings of the present study clearly indicate that the transition of the deaf child of deaf parents from the early communicative to the linguistic pointing is continuous, without errors in the use of pronominal pointing signs, regarding both their meaning and reference. The deaf child acquiring Greek Sign Language uses, from the beginning, the pronominal pointing signs directed to persons and self correctly.

2) According to Haukioja (1993), the errors in the use of pronominal pointing made by children acquiring ASL are not exclusively due to their non-developed yet linguistic knowledge but generally to their non-developed symbolic ability, overturning Petitto’s whole rationale based on the division between linguistic and cognitive abilities.

All changes that have been observed in the use of pointing for reference to self and others in this study – the abrupt spurt and its systematic occurrence after 20 months in relation to its sporadic occurrence between 16 and 20 months, and its frequent appearance between 14 and 15 months – indicate that, in the fourth developmental stage, the status of pointing signs to self and others has gradually changed, becoming linguistic in a continuous and smooth manner. In the fourth stage, INDEX-self and INDEX-non-self are used to refer to self and other entities, meaning ‘animate entity in the role of signer’ and ‘single entity other than the signer’, since: (a) their occurrence is systematic in the child’s expressive language, (b) they are used without errors, and (c) their use is extended for reference to non-present persons.

The correct and frequent use of INDEX-self and INDEX-non-self from the beginning of the fourth stage shows that the child has acquired the meaning and not just the form of these pronominal signs – this being a clear indication for distinguishing them from early communicative pointing, or, in other words, for attributing true linguistic status to them. The use of pointing by the deaf child acquiring Greek Sign Language is considered linguistic in the fourth stage, justifying the term “pronominal pointing signs” for INDEX-self and INDEX-non-self in this last developmental phase.

In summary, although the findings about the timing of pronominal pointing acquisition by the child exposed to Greek Sign Language are in alignment with the corresponding findings about the acquisition of pronominal pointing in ASL: (a) the picture of continuity illustrated with respect to their acquisition in Greek Sign Language, and (b) their correct use from the beginning, without reversal errors, differ from the picture that has been drawn about ASL. This difference clearly indicates the necessity for more research on pronominal pointing signs, a fact that has also been stressed by other researchers (Pizzuto 1994; Haukioja 1993). In particular,
more research is needed regarding the acquisition of first- and non-first-person pronominal pointing signs, not only by a larger number of deaf and hearing children exposed to ASL and Greek Sign Language, but also to other signed languages.

12.5 Pointing gestures directed to persons and self in hearing children’s communication

Finally, the picture illustrated concerning deaf children’s transition to the linguistic use of pointing for reference to persons and self raises some questions regarding the use of pointing directed to persons and self by hearing children, and its relation to the acquisition of personal pronouns in spoken language, a topic on which there is very little information in the literature. Only two sources have been found (Petitto’s personal communication with Bates: 1984:45, 69-70; Caselli et al. 1983), according to which hearing children do not use pointing directed to self or others before the emergence of the first-person pronoun in their expressive language. This surprising finding, which must be further investigated, is extremely puzzling because, combined with the findings concerning deaf children, it gives rise to a question regarding the cognitive prerequisites for pointing directed to persons, whether they be self or others.

Finding more specific information on the use of pointing for reference to self and others during the early communicative period by hearing children, and comparing this information with data regarding the use of pointing by deaf children of deaf parents, could lead to interesting conclusions about the cognitive abilities, namely the cognitive background that is necessary for the acquisition of personal pronouns in children’s language. Therefore, the necessity for more in-depth research into the use of pointing for reference to persons and self from the early communicative period until the systematic use of personal pronouns in hearing children’s language can also be of great importance for deepening our knowledge about children’s prerequisite abilities for the accomplishment of reference to self and others.

In closing, the continuity or discontinuity in the transition from early communication to language, the consideration that language emerges from the general cognitive abilities and not from implicit language-specific knowledge that children have (and vice versa), and the relation between the first communicative gesture and language are obviously still central issues. In this inquiry, it seems that research on signed languages performed in the same mode with early communicative gesture can offer much information and can contribute to our understanding of the developmental process in language acquisition that otherwise is lost due to the change that takes place in the modality in the case of spoken languages.
References


Chiat, S. (1982). If I were you and you were me: The analysis of pronouns in a pronoun-reversing child. *Journal of Child Language* 9:359-379.


### Appendix A. The Greek manual alphabet

<table>
<thead>
<tr>
<th>Α</th>
<th>Η</th>
<th>Ν</th>
<th>Τ</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Γ</td>
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<td>Ζ</td>
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</tbody>
</table>

The handshapes are made with the font YourTypeU (Kourbetis 1999b)
Appendix B. Illustrations of some of the gestures and signs in the data of the present study

Attention-getting gesture (repeated movement)

DADDY (repeated movement)

/BILABIAL OPEN BILABIAL OPEN/
GET-ME (repeated up and down movement)

GIVE

GQ
GRANDPA (repeated movement)

/BILABIAL OPEN BILABIAL ROUND/

HAND-self

HAND-self-GQ
INDEX-self

INDEX-self-WHAT

MALE (repeated movement)
MINE

MUMMY (circular forward repeated movement)

/BILABIAL OPEN BILABIAL OPEN/

NAME-SIGN-child (repeated movement)
NAME-SIGN-father (circular forward repeated movement)

NAME-SIGN-grandfather (wiggling index finger)

NAME-SIGN-mother (repeated movement)
NAME-SIGN-researcher

OLD-PERSON (repeated movement)

RED$\text{D}_1$ (circular forward repeated movement)
RED\textsubscript{12} (repeated downward movement)

SEE

SEE\textsubscript{INDEX} (optional repeated movement)

270
WHAT

/STRETCHED/
Appendix C. Segments occurring in the mouth movements in the data of the present study

<table>
<thead>
<tr>
<th>Segment⁶⁵</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/BILABIAL/</td>
<td>/BILABIAL/ is a closed segment in which the lips are in contact.</td>
<td></td>
</tr>
<tr>
<td>/LABIODENTAL/</td>
<td>/LABIODENTAL/ is a closed segment in which the lower lip is in contact with the upper teeth.</td>
<td></td>
</tr>
</tbody>
</table>

⁶⁵ Photos from Bergman & Wallin (2001:56), reprinted with permission of Signum-Press Hamburg.
<table>
<thead>
<tr>
<th>/STRETCHED/</th>
<th>/STRETCHED/ is an open segment in which the lips are stretched and the jaw is not lowered.</th>
</tr>
</thead>
<tbody>
<tr>
<td>/FORWARD/</td>
<td>/FORWARD/ is an open segment in which the lips are protruded.</td>
</tr>
<tr>
<td>/ROUND/</td>
<td>/ROUND/ is an open segment in which the lips are protruded and rounded.</td>
</tr>
</tbody>
</table>
/PURSED/ is an open segment in which the lips are not in contact and the jaw is not lowered.

/OPEN/ is an open segment in which the lips are not in contact and the jaw is lowered.