Input and interaction in deaf families

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8 FORMAL AND FUNCTIONAL ASPECTS IN INPUT AND OUTPUT

In this chapter we shall take a brief look at some of the functions and forms of the utterances in the input of the deaf mothers and the output of the children. In particular to explore the relationship between function and form. A clear link between the two may be facilitative to acquisition (see Chapter 1). In section 8.1 we discuss some aspects of methodology, and in section 8.2 we describe declarative, interrogative and imperative sentences. Section 8.3 deals with affective propositions. In section 8.4 we look at functional evidence for SLN and NL in the input. A summary follows in section 8.5.

8.1 Forms and functions in SLN, NL and SC

We are interested to find out how declarative, interrogative and imperative forms and functions occur in the input of the mothers at the different ages of the children, and whether or not the mothers offer the deaf and hearing children comparable input in this respect. We will also look at the form and functions in the output of the children, to compare to the input of the mothers.

There exist full descriptions of the declarative, interrogative and imperative forms that the average native speaker of Dutch uses in different functions (see ANS 1984:1061-1068). In Dutch the verb is moved to first position in questions and this form may help the child to identify its interrogative function in the input. When the verb is in second position, this indicates to the child that the utterance is a declarative. The match between form and function may thus be facilitative for the acquisition of certain aspects of the grammar of Dutch. There is not much information on the forms and functions that Dutch mothers use with their young children up to age 3:0 (but see Scherlaekens and Gillis 1987; van de Weijer in press).

Moreover, to date there are only incidental descriptions of declarative and interrogative forms in adult SLN (Bos et al. 1988; Coerts 1992; Schermer et al. 1991). In SLN, questions are formed by means of non-manual grammatical markers, among other things. These can serve as a trigger for the child that the utterance has a different function than, for instance, a declarative utterance. Studies on the imperative form, and functional use of all the forms above have not been done yet for SLN. No description at all exists for the use of these SLN and NL forms and functions in simultaneous communication. Also we face the issue that the deaf mothers in our study perhaps do not use 'correct' or native-like spoken
Dutch with their children (see also Chapter 9). This may make it more difficult for the children to establish a link between function and form. The utterance in (1) exemplifies the different Dutch that is used by the mothers. The correct Dutch sentence might be: 'Voor de volgende keer zal mama de suikerschep zoeken' (Before we play this the next time, mummy will look for the sugar spoon). The preposition *voor* is then left out, as well as the auxiliary *zal* 'will' and two articles *de* 'the'. The second part of the compound *SUIKER^SCHEP* is also missing, giving a different meaning to the spoken part of the SC utterance. In fact, this sentence follows SLN rules, except that the verb is not in final position.

(1) *VOLGENDE KEER MAMA ZOEKEN SUIKER^SCHEP*

volgende  keer mama zoeken suiker

NEXT  TIME  MOMMY  SEARCH  SUGAR^SPOON

next  time  mommy  search  sugar

(Before we play this the next time, mummy will look for the sugar spoon)

In the next example (2) the idiomatic Dutch equivalent of the spoken part of the utterance would be: "Er zijn huizen hier, in de straat" (There are houses here, in the street). In the spoken part the verb *heb* 'have' is used instead of the verb *zijn* 'are'. This verb is also incorrectly inflected. *Huizen* 'houses' (subject) is in initial position, *er* 'there' is deleted and there is no preposition *in* and there is no article *de* 'the' before *straat* 'street'. The structure of the sentence is thus more SLN-like than NL-like (see also Schermer 1990).

(2) *HUIZEN POINT huizen STRAAT POINT straat POINT straat*

huizen  heb  straat  pff  straat

HOUSES  POINT  houses  STREET  POINT  street  POINT  street

houses  have  street  pff  street

(There are houses here, on this street)

In order to gain insight into some functions of the input, despite this lack of detailed information on forms in SLN and SC, we decided to make a very global inventory of the input of the mothers regarding the declarative, interrogative and imperative functions they use. We will also look at the use of labeling utterances to compare our data with that of Kyle et al. (1987). Labeling utterances are a subcategory of Declaratives (see Method and Procedures in the next section).
8.2 Declaratives, interrogatives and imperatives

8.2.1 Declarative, interrogative and imperative input
We will first examine the proportion of utterances with a declarative, interrogative and imperative function in the input of the deaf mothers (see research question 18 in section 3.4). We will also look at the form of these declarative, interrogative and imperative utterances. These aspects will be examined in the output in the following section (8.2.2).

Method
All analyzable utterances of the mothers and the children are coded per language mode, that is in SLN, in Dutch and in SC. We distinguish the following categories:

I  D  Declarative  
D1  Declarative, incorrectly formed  
DL  Labeling declarative

II  Q  Interrogative consisting of a wh-question sign/word only  
Q1  Correctly formed yes/no-question  
Q2  Correctly formed wh-question  
Q3  Interrogative, incorrectly formed

III  I1  Imperative in form  
I2  Imperative, incorrectly formed

A more detailed explanation of these categories is given below in Procedures.

Procedures
1  Declarative sentences are sentences that describe an action or state (3). If the utterance has a labeling function, we add a sub-code: L (4). Declaratives in function but not in form are coded as D1 (5) (see also Scheper et al. (in press) on omissions in first position in the sentence)

(3)  D  BOEK LEZEN  
BOOK  READ (you are reading a book)

(4)  DL  dat is een boek  
that is a book  

(5)  D1  ga je rijden  
go you drive (you are going to drive)

The verb in (5) is in first position, which in Dutch indicates a question-form. However, from the context and the mother's facial expression it was
clear that this utterance had a declarative and not an interrogative function.

2 The form of interrogative sentences has been described for SLN (Coerts 1992) and NL (e.g. ANS, 1984: 1064 ff). We established whether or not an utterance was a correctly formed interrogative on the basis of the following criteria:

SLN non-manual marker q (yes/no) (6) or non-manual marker wh-q is used with or without a wh-question sign (7)

NL inversion of the verb occurs (8)
a wh-question word is used (9)
intonal questions (rising intonation, but no inversion of verb) (see example (10))
(this last category is quite common in spontaneous mother-child interaction)

If these criteria are met the utterances are coded with:

Q if the utterance consists of a wh-question sign/word only
Q 1 if it is a correctly formed yes/no-question
Q 2 if it is a correctly formed wh-question
Q 3 the utterance is not an interrogative in form, but has an interrogative function

Note: the deaf mothers make use of intonation contours only rarely in NL. Therefore, if an utterance is a question in form, but no interrogative intonation is used we coded such an utterance as incorrect in form (see example (10)).

(6) SLN Q1  

BOEK LEZEN
BOOK READ

(7) SLN Q2  

WAT LEZEN WAT
WHAT READ WHAT

(8) NL Q1  

zullen we een boekje lezen
shall we a book-dim. read

(9) NL Q2  

wat is dat
what is that

(10) NL Q3  

ik moet hier zitten
I must here sit
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Although in example (10) there is no rising intonation, it was clear from the context and the way the mother paused after the utterance and the manner in which she looked at the child, that she asked him a question. It is unclear in this instance whether or not her facial expression should be interpreted as a non-manual grammatical question marker here. But the child interpreted it as an interrogative, and replied: "Yes".

3 Imperative forms are well described for Dutch (e.g. ANS, 1984:426, 1065) but not at all for SLN. For Dutch therefore we coded:

I1 if the utterance is an imperative in form (11)
I2 if the utterance is an imperative in function, but not in form (12)

(11) I1 pak die bal (take that ball)
    take that ball

(12) I2 pakkken bal (take the ball)
    take-inf ball

For SLN utterances we used only the functional code I3 (14) since formal characteristics of SLN imperatives have not been described yet. If the utterance did not contain a verb, or consisted of one sign or word only we coded: I (13)

(13) I PAKKEN (take)
    TAKE

(14) I3 BAL PAKKEN (take that ball)
    BALL TAKE

Results
We display the results in Figures 8.1 for the deaf mothers with the deaf children and with the hearing children in the three language modes, in order to be able to show a possible development in their use of the three main functions that we distinguish.¹

Taking the results across all language modes, the hearing children are offered more interrogatives than the deaf children (see also Table 8.1). The number of imperatives is comparable as is the number of declaratives.

¹ see also Appendix to Chapter 8, Table A8.1 for the numbers and percentages, page 284
No interrogatives produced in Dutch by the deaf mothers with the deaf children
Figures 8.1 INPUT DC+HC: Declaratives, interrogatives and imperatives in the input of the deaf mothers.
When we look at the patterns of the three functions in the three language modes in the input to the deaf children we can see that the SLN input and the SC input more or less look similar: many declaratives, but at most times also interrogatives and imperatives. The NL input (very small, Chapter 5) has only some declaratives, a few imperatives, but no interrogatives. All spoken interrogatives in the input to the deaf children are in SC. Imperatives occur mainly in SLN and SC. This would lead us to expect, on the basis of input alone, no interrogatives in the NL output of the deaf children, but only declaratives and perhaps imperatives.

We might expect the deaf children to produce all three functions in SLN and in SC. The input to the hearing children shows erratic patterns in SLN and NL and there is much individual variation, as well as no consistent line over time. In SLN declaratives and interrogatives (in total only 13) are offered, but hardly any imperatives. In the NL input we see at times a high percentage of declaratives, but at other times a high percentage of interrogatives (Mother of Sander at 2;6) or imperatives (Alex' mother). On the basis of this input it is difficult to make predictions for the acquisitions of these forms by the hearing children. Van de Weijer (in press) found approximately 58% declaratives, 19% interrogatives and 23% imperatives in monolingual Dutch input to a child at age 2;6 to 2;9. Our mothers offer on average at ages 2;6 and 3;0 54% declaratives, 23% interrogatives and 23% imperatives. These percentages are highly comparable to those of van de Weijer.

In the SC input to the deaf children we see a very slight decrease over time in declaratives and a slight increase in the use of interrogatives, but imperatives do not change. To the hearing children the percentages of declaratives in SC are more or less stable, although at age 3;0 we see some differences between the mothers. Alex and Sander are offered increasingly more SC interrogatives, contrary to Jonas' input of interrogatives, which decreases slightly over time. Imperatives decrease slightly in the SC input to all three hearing children. On the whole the hearing children are offered more signed and spoken interrogatives than the deaf children (see also Table 8.1), and similar signed imperatives. However, the hearing children are offered many more spoken imperatives (see Table 8.2 for the total number of imperatives). Signed imperatives decrease over time in the NL and SC input with all children but not in SLN with the deaf children.

As far as functions are concerned we find the input to the deaf and hearing children similar in SC. The input in SLN is more varied to the hearing children, whereas with the deaf children there is more consistency. The input in Dutch to the hearing children also shows more variation. In section 8.2.2 we will consider the influence of the input on the acquisition of these functions by the deaf and hearing children.

Within the category of declarative utterances labeling utterances in general are expected to be highly represented, but decreasingly over time (see also section 2.2.2). We present the data for labeling utterances in Figures 8.11a for SLN, in
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Figure 8.IIb for NL and in Figure 8.IIc for SC input\(^2\). Percentages are of the total of analyzable utterances of the mothers per language.

We can see a decrease in labeling utterances in SLN with all children, except with Alex where there is an increase at 3;0. The increase in the SLN input with Alex is surprising – it is however at age 3;0 that Alex begins to produce more SLN and SC than at earlier ages (see section 5.3.2). His mother possibly uses more labeling utterances at this point to stimulate his acquisition of vocabulary. The activities were not remarkably different. With the hearing children there appears to be a slightly larger use of labeling, although Jonas' mother only produces them at age 2;0.

In spoken Dutch (see Figure 8.IIb) we see that actually only with the hearing children labeling utterances are used, with the deaf children these rarely occur. At 1;6 there is a peak in the use of these utterances, and after age 2;0 of the children they almost disappear altogether from the NL input to the hearing children.

\(^2\) See Appendix to Chapter 8, Table A8.2, page 284
The percentages of labeling utterances in the SC input to all children show a decrease except with Carla (D) and Alex (H) after age 2;6 (see Figure 8.llc).
At age 3;0 labeling utterances only very rarely occur, except with the two children mentioned. There might be a relation here with the development of the visual attention patterns of Carla (D) and Alex (H) (see Chapter 6), which is a little slower compared to the other children in reaching an 'adequate' level. This fact may influence the mothers to use labeling strategies for a longer period, to continue 'training' their visual attention. With Alex we found that he started to combine representational signs only at age 3;0, later than the other children (see Chapter 7). This may also induce his mother to continue to use labeling utterances more than the other mothers.

We can conclude that the use of labeling utterances decreases as might be expected. There seems to be a relation with the visual attention training of the children who are offered linguistic information in the visual-gestural modality. Once the children are judged to have acquired the appropriate visual attention-giving behavior for sign interaction, the use of labeling utterances decreases in the input. This is then a specific aspect of input in deaf families.

For the discussion of form of interrogative and imperative sentences we have collapsed the data of the functions in SLN and the signed parts in SC, and of the functions in Dutch and in the spoken parts of SC. The form of declarative sentences will be discussed in length in Chapter 9.

We present information on the form of interrogatives in Table 8.1.

<table>
<thead>
<tr>
<th>INPUT</th>
<th>Signed to deaf children</th>
<th>Signed to hearing children</th>
<th>Spoken to deaf children</th>
<th>Spoken to hearing children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q</td>
<td>40 (18)</td>
<td>54 (17)</td>
<td>23 (16)</td>
<td>42 (12)</td>
</tr>
<tr>
<td>Q1</td>
<td>80 (35)</td>
<td>75 (24)</td>
<td>10 (7)</td>
<td>50 (15)</td>
</tr>
<tr>
<td>Q2</td>
<td>90 (39)</td>
<td>104 (33)</td>
<td>32 (22)</td>
<td>145 (43)</td>
</tr>
<tr>
<td>Q3</td>
<td>19 (8)</td>
<td>78 (25)</td>
<td>82 (56)</td>
<td>103 (30)</td>
</tr>
<tr>
<td>Total</td>
<td>229</td>
<td>311</td>
<td>147</td>
<td>340</td>
</tr>
<tr>
<td>Q = wh-word/sign only</td>
<td>Q2 =wh-word/sign question</td>
<td>Q3 =question in function only, incorrect form</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The deaf children are offered in signs over the whole period more or less equal percentages of yes/no interrogatives (Q1 = 35%) and wh-q sign questions (Q2 = 39%), and only a few interrogatives that do not have the correct interrogative form (Q3 = 8%). Over time we find a decrease in incorrectly formed signed interrogatives with Laura and Mark; with Carla this is less evident. We can also see an increase over time in wh-q sign questions, except with Mark whose mother shows an increase in signed yes/no-questions. In comparison to signed interrogatives they are offered more spoken interrogatives that are incorrectly formed (56%), and more
wh-q word questions than spoken yes/no-questions. Spoken interrogatives that are incorrectly formed tend to increase over time with all three deaf children. We must bear in mind here, that the rules for spoken interrogatives in Dutch have been described in much more detail than the rules for signed interrogatives (in SLN). It could be the case that signed interrogatives termed incorrect by us in the interaction between mothers and children would be judged grammatical by adult native signers. A NL example of a Q3 interrogative is given in (15), which actually shows a typical SLN order (with topicalization of bos 'forest').

(15) [ML, 3;0-utt. 57]

NL  

bos, kan over heen  (can you go over the forest? [instead of through forest, can over the forest])

The hearing children are offered more wh-q sign questions (Q2 - 33%) than yes/no-questions (Q1 - 24%). They receive more incorrectly formed signed questions (Q3 - 25%) than the deaf children. Over time this category Q3 decreases in the input to Jonas, increases with Sander and remains more or less the same with Alex. Their spoken input has 43% of wh-q word questions (Q2), but also many incorrectly formed spoken questions (Q3 - 30%). In general Q3 in words increases over time, but there is some individual variation at the different ages of the children. An example is given below of an interrogative in Dutch without verb inversion and without a rising intonation.

(16) [MJ, 1;6-utt. 152]

NL  

jij  kan tekenen  (can you draw)

you can draw

With the deaf children the focus is, again, on the signed mode with many correctly formed interrogatives, whereas 56% of the spoken interrogatives are incorrectly formed. With the hearing children the signed and spoken modes look more similar, but incorrectly formed interrogatives occur often both in signed and spoken modes. With both deaf and hearing children incorrectly formed spoken interrogatives increase, whereas correctly signed interrogatives increasingly occur with the deaf children, but are varied in the input to the hearing children. Quantitatively and qualitatively there are substantial differences in the input of interrogatives to the deaf and to the hearing children. This may have its influence on the acquisition of these forms by the children, which we will discuss in section 8.2.2. In section 9.6.1 we will discuss the different forms of signed interrogatives in more detail.

Next we will look more closely at the form of imperatives in the input of the deaf mothers. Table 8.2 shows the results for the subcategories.
As mentioned earlier, the signed imperatives in the input to the hearing and deaf children are quantitatively the same, except that with the hearing children they occur mainly in SC whereas with the deaf children they are also present in SLN. More spoken imperatives are used with the hearing children than with the deaf children; and of these 55% have the correct imperative form (I1) versus 37% with the deaf children. The higher percentage of spoken imperatives with the hearing children is mainly caused by the mother of Alex (H), who uses significantly more imperatives than the other mothers. Many of these were in the form of attention-getters like *kijk eens* 'look here' or *kom maar* 'come here'. In general though spoken imperatives decrease over time in the input to all children.

In the next section we will discuss functional and formal aspects in the output of the children.

### 8.2.2 Declaratives, interrogatives and imperatives output

We give the percentages for signed and spoken declaratives, interrogatives and imperatives in the SLN, NL and SC output of the deaf and hearing children in Figures 8.3.I

Figures 8.3.II show that the deaf children mainly produce signed declaratives and a few interrogatives (total n=21) and hardly any imperatives in SLN and SC. When they produce NL utterances these are all declaratives. Since there were also no interrogatives in the NL input, this is not surprising.

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3 signed Imperatives $\chi^2 = 92.82$, df=5, $p<0.001$

spoken Imperatives $\chi^2 = 259.3$, df=5, $p<0.001$

4 See Appendix to Chapter 8, Table A8.3, page 284-285
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OUTPUT DC: Declaratives in SLN

OUTPUT DC: Interrogatives in SLN

OUTPUT DC: Imperatives in SLN

OUTPUT HC: Declaratives in SLN

OUTPUT HC: Interrogatives in SLN

OUTPUT HC: Imperatives in SLN

OUTPUT DC: Declaratives in NL

OUTPUT DC: Interrogatives in NL

OUTPUT DC: Imperatives in NL

OUTPUT HC: Declaratives in NL

OUTPUT HC: Interrogatives in NL

OUTPUT HC: Imperatives in NL

The deaf children produce no interrogatives in NL

The deaf children produce no imperatives in NL

Figures 8.III (see next page)
Figures 8.111 OUTPUT DC+HC: Declaratives, interrogatives and imperatives in SLN, NL and SC utterances of the deaf and hearing children
Interestingly, the percentages of interrogatives in SLN decrease over time. It is unclear why this is so, but probably interactional aspects play a role here. Declaratives are also the largest category in the production of the hearing children, but questions do occur (n=45), mainly spoken or in SC. Alex' question in SLN at 1;0 is one *wh*-question sign *WHERE, in imitation of his mother's question where the cat was. The hearing children produce slightly more imperatives than the deaf children, but very few in total (n=12) and mainly in NL and SC. Compared to the input the children produce even more declaratives than their mothers, and far fewer questions, which they start producing at different ages (see also section 9.6.2)

Before discussing the form of interrogative and imperative utterances of the children, we will briefly look at the use of labeling utterances in their output. Figures 8.IVa, 8.IVb and 8.IVc show labeling utterances in SLN, NL and NL output.\(^5\) Not all children produce labeling utterances in all languages at all points in time.

\(^5\) See Appendix to Chapter 8, Table A8.4, page 285
In Dutch (Figure 8.IVb) the deaf children only produce labeling utterances. The hearing children show a decreasing use of labeling in NL, except for Alex (H) at age 3;0, who shows an increase compared to 2;6. In SC (Figure 8.IVc) we see that the deaf children have no consistent production of labeling utterances over time. The hearing children produce them decreasingly as they grow older.
The deaf children produce labeling utterances decreasingly in SLN and SC and their Dutch consists only of labeling utterances. Sander (H) appears to be the only one who show a more or less consistent, decreasing line in the three language modes. Jonas (H) does not produce many labeling utterances, but he does so in all three modes, and decreasingly over time. Alex (H) and Carla (D) show an increase at age 3;0. When we look at their input we also find an increase in SLN and SC in labeling utterances (section 8.2.1). Apparently, the use of labeling in the interaction between these children and their mothers becomes more important in signing at this age. Even though the use of labeling utterances is probably a characteristic of the interaction (labeling utterances in the input elicit labeling by the children) there is the added factor of their slower development in adequate visual attention-giving behavior (see Chapter 6). Their mother continues to give them 'simple' input (i.e. labeling) in order to continue training their attention-giving and this may induce them to use labeling utterances for a longer time themselves. These pragmatic aspects are thus still very important at this stage of their development.

Next we will look at the form of interrogatives and imperatives in the output of the children. The deaf children together produce 20 signed interrogatives, none of which carries the appropriate nonmanual marking. Two are yes/no-questions (see also section 9.6.2). The one spoken interrogative (Mark at 2;6) is one word in a SC utterance, without a wh-q word or a rising intonation:

```
POINTpuzzel ANDER WAAR
ander

POINTpuzzel OTHER WHERE
other
```

The deaf children produce their first wh-q sign WHERE or WHAT in the following sessions: Carla at 2;6, Laura at 2;0 and Mark at 2;0.

The hearing children use 12 signed interrogatives, 8 of which contain a wh-q sign. Alex produced his first wh-q signs at age 1;0, Jonas at age 1;6 and Sander at age 2;0. Surprisingly the hearing children seem to be somewhat earlier in producing these than the deaf children. Three signed interrogatives, from Jonas and Sander, carried a nonmanual marker. They produced 33 spoken interrogatives, and ten of these were incorrectly formed, but typical for child language. Some examples of interrogatives by the hearing children are:

**Dutch:**

(17) Alex 2;0

<table>
<thead>
<tr>
<th>is dit?</th>
<th>is this?</th>
</tr>
</thead>
<tbody>
<tr>
<td>(What is this?)</td>
<td></td>
</tr>
</tbody>
</table>


We see that the children do not produce signed interrogatives very often. These usually contain a wh-q sign, but they hardly ever have the correct grammatical form: nonmanual markers are left out in signed questions. The input to the deaf children was usually better formed than the signed interrogatives in the input to the hearing children, and yet the hearing children are the only ones to produce the correct form.

The deaf children produce no spoken interrogatives, even though their input contained them, albeit often in an incorrect form. The hearing children are offered many (incorrect) spoken interrogatives, and produce these themselves, also often incorrectly formed, although acceptable child forms. They leave out wh-q words or the required rising intonation. We probably see here some influence from the input on the acquisition of these forms by the children, although incorrect forms of questions can be expected at this age in monolingual hearing children.

Utterances with an imperative function were signed only (n=5) by the deaf children, and signed (n=8) and spoken (n=13) by the hearing children. For instance:

(21) Alex 2;6
mama grond  
mummy floor  (Mummy must sit on the floor)

(22) Jonas 2;0
nee niet, zeg jij  
nom not, say you  (Don't say: what are you saying?)

(23) Carla 2;6
 POINTkopje ROEREN  
STIR  (Stir that)
We find that the imperatives produced by the deaf and hearing children still are simple in structure, but most are normal for children at their age (see also Chapter 9). The deaf children use only sign imperatives, whereas the hearing children produce imperatives both spoken and signed.

8.3 Affective propositions

In an earlier study of the interaction between the deaf mothers with the hearing children we found that the mothers showed a tendency to express affective messages towards the children in the spoken modality (see Chapter 2). This has also been found for ASL. These studies concerned the period before the children were one and a half years old. It is not known what the children do when they produce language. We are therefore interested in how affective propositions are expressed by the deaf mothers and, if they are expressed by the children, how (research question 19 in section 3.4).

Method

All declarative utterances that carry an affective or emotional meaning were coded separately. These utterances were labeled 'phatic' by Moores and Moores (1982) and were found to be predominantly spoken by American deaf mothers with deaf children under 6 months of age. Examples of such phatic utterances in SLN and Dutch are:

(24) SLN  KNAP  POINTjj (clever you!)
     CLEVER  POINTyou

(25) NL  stout  jj (you are naughty)
     naughty you

Results

With the hearing children the preference for the spoken modality for affective utterances seems to persist between 1;0 and 3;0 in the same way as it did prior to 1;0 (Mills and Coerts 1990) (see Table 8.3). We have no information on the interaction between the mothers and their deaf children before their first birthday, however the mothers do not show any preference for speech for the affective function with the deaf children after this age. They prefer signs to express affective messages in the communication with their deaf children.
The children produce very few affective propositions, and all these were comments about their own behavior or performance. The deaf children altogether produced 8 affective utterances, and all of these were signed, the same as in their input. Jonas (H) produces one spoken affective proposition and Sander (H) one in SC. Their input of affective propositions was mainly spoken. For these (few) affective propositions then, the output seems to reflect the language choice of the input of the deaf mothers. It is worth mentioning that the point in time in the first year when the mothers realize that the child is deaf should probably influence the input.

8.4 Functional evidence for separating SLN and NL in the input

Sometimes it is the case that there are differences in the functional use of two languages in a bilingual environment. For instance, Mills and Coerts (1990) found that deaf mothers use both signs and spoken language with their hearing children during the first year of their life. They used signs predominantly for object-oriented talk, and spoken language for person-oriented interaction. In this study we find that affective utterances are predominantly spoken with the hearing children, and signed with the deaf children.

Furthermore we found, that the deaf mothers offer the deaf children in Dutch only declaratives, whereas interrogatives and imperatives only occurred in SLN and SC input. The deaf children also only produced declaratives in Dutch. This is of course also connected to their level of development in Dutch, which we will discuss further in section 9.1.2. In the interaction between the deaf mothers and their deaf children we do find a difference between the functional use of the three language modes, namely that questions and directives are produced in signs only.

For the input to the hearing children and for their output also we did not find any functional differences in the use of the three language modes, on the basis of which the children can begin to separate the SLN from NL, except for the use of affective utterances.
8.5 Summary

Declaratives are clearly dominant in the input to all children in all modes; questions and imperatives are present but do not make up much of the input. The proportions are comparable to those found for Dutch input in hearing families. The proportion of imperatives decreases in general over time; there is only an increase in questions with one child, Sander. Within the declaratives labeling decreases with all children over time, as might be expected. The SLN and SC input is similar in terms of distribution of functions; in the Dutch input there are more imperatives. It is not clear why this is; adult-adult interaction needs to be investigated to see if this also occurs. The input to Carla (D) and Alex (H) contains more labeling in general than the input to the other children; this is possible related to the children's slower development in visual attention patterns. The mothers concentrate on labeling as a simple language function in the first instance. In the interrogatives the wh-questions show an increase over time. Signed questions are quite often incorrect in form, that is they have no non-manual marker, but this number decreases over time with the deaf children. Spoken interrogatives are often incorrect in form and this number increases with time (30-56%). This is possible related to the fact that the majority of Dutch questions are produced in a SC context and come under the influence of SLN syntax. We will return to this question in Chapter 9. Affective utterances are produced in the input to all children, only more related to the spoken mode with the hearing children as had already been found in their first year. Affective utterances are more related to the sign mode with the deaf children.

In the output declaratives are also clearly dominant; there are few questions and even fewer imperatives. Labeling utterances decrease with almost all children. There are no clear differences between the language modes in terms of distribution of functions, except of course that the deaf children have also no Dutch. The deaf children show a decrease in the proportion of questions they produce over time; it is not clear why this is the case. The deaf children produce their first wh-q sign at 2;0 to 2;6, the hearing children at 1;6-2;0. The non-manual marking of sign questions is almost totally absent, except for a few cases in the hearing children. The spoken questions of the hearing children show errors as might be expected.

The input to the children shows a dominance of declaratives and this is reflected in the output. This is probably more an influence of interaction than form. The children are offered some interrogatives and imperatives but very few are produced by the children, again probably as a result of interaction. The sign questions that are offered are more correct to the deaf children than the hearing children but the hearing children appear to be more correct and earlier in their production of sign questions. It is not clear why this is the case; it indicates that input is not having an effect in this aspect. The mothers of Carla (D) and Alex (H) both increase their amount of labeling at age 3;0 and so do the children. This suggests that the amount of labeling produced by the children is strongly influenced by the interaction and
input of the mothers. The mode selected for expressing affectives is also reflected in the children. The hearing children express affective utterances in speech as do their deaf mothers, whereas the deaf children use sign as do their mothers.

The deaf and hearing children do receive different input to some extent in terms of functions, not only related to the preferred modes with the two groups. Interrogatives and imperatives in total are offered slightly more to the hearing children; it is not clear why. Signed imperatives occur only in SC in the input to the hearing children, which emphasizes again their little input in SLN. Sign interrogatives are more often correct and increase with the deaf children; this is not the case with the hearing children. Of the hearing children Jonas and Sander do seem to be earlier with their production of wh-q question signs and with non-manual marking of questions than the deaf children; this is not a result of the input but possibly of the fact that they are further with this function in Dutch. On the other hand spoken interrogatives are more often incorrect with the deaf children than with the hearing children. This in general confirms the results from earlier chapters that the deaf children are receiving an input which is more focussed on SLN. The affective function shows a clear difference between the two groups, since hearing children have more affective utterances in speech and produce these too, whereas the deaf children receive them only in sign and produce them in SLN.