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Thesis

**The Lemma Dilemma:  
Finding relevant lemmas to include in the Communicative Development  
Inventory for Sign Language of the Netherlands (NGT-CDI)**

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## Abstract

Vocabulary size is a critical marker for language development. It serves as a predictor for future language development in spoken and/or sign languages. Given the relative lack of assessment instruments for sign language development in deaf children living in The Netherlands, we propose a lemma list for a future Communicative Development Inventory (CDI; Fenson et al., 1994) for Sign Language of the Netherlands (NGT): the NGT-CDI. When compiling this list of NGT lemmas, we compared the lemma lists of six sign languages (i.e., ASL-CDI, Anderson & Reilly, 2002; SLN-CDI, Hoiting, 2009; BSL-CDI, Woolfe et al., 2010; LSE-CDI, Rodriguez-Ortiz et al., 2019; ISL-CDI, Novogrodzky & Meir, 2020; DGS-CDI, Hennies et al., unpublished manuscript) and two spoken languages (MB-CDI, Fenson et al., 1994; N-CDI, Zink & Lejaegere, 2002). After a selection procedure, a proto list was compiled.

A pilot study was conducted to test whether the proto list was suitable for our intended target groups: young deaf children of deaf parents (DCDP) and deaf children of hearing parents (DCHP) between 8-36 months old. It is expected that DCHP, who are born in a hearing environment, will receive atypical sign language input because NGT is not the native language of their parents. In the pilot study, two DCDP and one DCHP were involved.

In general, we can conclude that the results show that the NGT lemma list is suitable for both target groups. This outcome is promising for the development of a future NGT-CDI that can be widely used.

**Keywords:** *Sign language; early vocabulary development; assessment; deaf; CDI*

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## Symbols and Abbreviations

1	First person
2	Second person
3	Third person
ASL	American Sign Language
BSL	British Sign Language
CDI	Communicative Development Inventory
CI	Cochlear Implant
DCDP	Deaf children of deaf parents
DCHP	Deaf children of hearing parents
DGS	German Sign Language ( <i>Deutsche Gebärdensprache</i> )
DU	Dual
HoH	Hard of Hearing
ISL	Israeli Sign Language
L1	First language
L2	Second language
LSE	Spanish Sign Language ( <i>Lengua de Signos Española</i> )
MB-CDI	MacArthur–Bates Communicative Development Inventory
NGT/SLN <sup>1</sup>	Sign Language of the Netherlands ( <i>Nederlandse Gebarentaal</i> )
NmG	Sign Supported Dutch ( <i>Nederlands met Gebaren</i> )
SSD	Sign Supported Dutch
PL	Plural
POSS	Possessive
SG	Singular
TID	Turkish Sign Language ( <i>Türk İşaret Dili</i> )
Years;months	Notation of age (e.g., 1;4 means one year and four months)

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<sup>1</sup> SLN used to be a common abbreviation for Sign Language of the Netherlands when referred to in English.

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## 1 Introduction<sup>2</sup>

### 1.1 The importance of vocabulary assessment in a sign language

Vocabulary size is a critical marker for language development. Moreover, it has been shown to predict future language development and literacy competence both in spoken languages (Lee, 2011; Hammer, Morgan, Farkas, Hillemeier, Bitelli & Maczuga, 2017; Rowe, Raudenbush & Goldin-Meadow, 2012) and signed languages (Strong & Prinz, 1997; Caselli & Pyers, 2017; Thompson, Vinson, Woll & Vigliocco, 2012). These findings suggest a relationship between a poor vocabulary size in young children and later difficulties in other language areas (e.g., syntax).

Language input, mostly provided by caregivers in young children, is the basis of the development of vocabulary. The degree of quality and diversity of spoken input has been shown to affect the size of the spoken language vocabulary in hearing children (Rowe et al., 2012). According to Mitchell and Karchmer (2004), approximately 90% of all deaf children are born into hearing families and raised by hearing caregivers, which has an influence on the quality and diversity of the sign language input offered to the children. Most commonly these caregivers are not proficient in a sign language and have to learn it as a second language, while at the same time already using it in the communication with their child. The resulting non-typical language input can lead to language deprivation and language delay in children's sign language development (Henner, Novorodsky, Reis & Hoffmeister, 2018). Hearing aids and technological equipment like cochlear implants (CI) provide some deaf children with some access to spoken language in the spoken modality (Novogrodzky & Meir, 2020). However, not all children can benefit from hearing support for various reasons (e.g., the cause or degree of hearing loss, or the cost of implants and support). There has been considerable research on the development of spoken language in children implanted with a CI, but the results are diverse (see Duchesne & Marschark, 2019, for a review).

This research will focus specifically on vocabulary development in a sign language and aims to develop an instrument for Sign Language of the Netherlands (NGT). Assessment of sign language development has inherent challenges. The great variation in the quality and quantity of signed input to deaf children is one such challenge in terms of creating norms for comparison (Haug & Mann, 2008; Mann & Haug, 2014). Besides the variation in language

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<sup>2</sup> This study has been assessed and approved by The Faculty Ethics Assessment Committee Humanities (FETC-H): 20-265-05

input, there is also considerable heterogeneity in the population of deaf children caused by the presence of comorbid disorders; about 40% of deaf children are reported to have such a disorder in the Netherlands (Knoors & Vervloed, 2003). This is an additional challenge in assessing sign language acquisition in deaf children. In this study we will not address this issue as it falls outside its scope.

The studies discussed above show the importance of assessing language development in infants and toddlers. An assessment instrument can function as a diagnostic tool, meaning that early intervention can be started when required. For many spoken languages, parental reports or other assessment tools have been created to monitor the spoken lexical development of infants and toddlers. Assessment is even more important in deaf children as was evident from the discussion above. It is important to detect the group of children who are deviating (in a signed and/or a spoken language) from the lexical development of typically developing deaf children. Early intervention in the context of a disorder or delay is crucial for the future development of these children. Furthermore, insights into the lexical sign development of deaf children support the creation of new assessment tools and experiments; for example, researchers can be certain that the vocabulary they use in experiments is suitable for the target (age) group.

## 1.2 The situation of Sign Language of the Netherlands

For Sign Language of the Netherlands (Nederlandse Gebarentaal, NGT), only a few measurement tools are available. One instrument is a test for NGT production and perception (T-NGT; Hermans, Knoors & Verhoeven, 2010); another is an observation instrument for young children that covers diverse aspects of communication (NGT-OP; Baker & Jansma, 2005). A third test focuses on grammar (NGT-SRT; Schüller 2018; Schüller, Ormel & Crasborn, 2019). No full instrument has yet been developed to measure lexical development.

A commonly used tool to assess lexical development of young children is the MacArthur Communicative Development Inventory (CDI; Fenson, Dale, Reznick, Bates, Thal, Pethick, Tomasello, Mervis & Stiles, 1994), now known as the MacArthur-Bates CDI (MB-CDI) and originally developed at Stanford University. Versions of the original MB-CDI (Fenson et al., 1994, p. 126-141) have been developed for 102 spoken languages, but only for seven



sign languages.<sup>3</sup> For most sign languages a full version of this kind of inventory does not exist. For NGT an unpublished version was first developed by Hoiting (2006; 2009).

### 1.3 Structure of this thesis

In this study, we will continue the development of a Communicative Development Inventory for Sign Language of the Netherlands: the NGT-CDI. The aim of this study is to compile a lemma list that is suitable for the target group. The members of this target group are infants and toddlers with hearing loss who have access to NGT or Sign Supported Dutch (SSD). With this goal in mind, the research question of this study is: **“Which lemmas should be included in the NGT-CDI?”**

In Chapter 2, the research background on lexical development is described. The first Section (2.1) focuses on lexical development in deaf children on the one hand and hearing children on the other. Firstly, the similarities and the differences along the path of lexical development are described in a spoken and a signed language in young children.

Subsequently the effect of bilingualism on lexical development is discussed since deaf and hearing children of deaf parents are considered bilingual in two modalities when raised in a signed and a spoken language (bimodal bilinguals).

Section 2.2 describes the history of the MB-CDI and we discuss how the MB-CDI was constructed. Section 2.2 focuses on CDIs for spoken languages, while Section 2.3 discusses the CDIs that have been developed for signed languages.

Chapter 3 presents the methodology used in the lemma selection process. and the results of that process, based on which the pre-final lemma list is determined.

In Chapter 4, a small pilot study and the outcomes are described. The pre-final lemma list, compiled in Chapter 3, was piloted with the target group.

This thesis ends with a discussion and a conclusion in which we look back at the compilation of the NGT lemma list and the pilot study and we reflect on the research question. Further, recommendations for future research will be made.

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<sup>3</sup> <https://mb-cdi.stanford.edu/adaptations.html>

## 2 Background research

Section 2.1 presents background information from studies related to vocabulary development in young, preschool children. The vocabulary development in young, bilingual children is described in Section 2.1.1. Subsequently, a more specific group is highlighted in Section 2.1.2, namely children who are bimodal bilingual.

Section 2.2 focuses on the Communicative Development Inventory (CDI) in spoken languages. The MB-CDI is an assessment tool to evaluate the early language development of preschool children: infants and toddlers from 8-30 months old. By means of parental reports, the parents or caregivers fill out which lemmas are comprehended and/or produced by their preschool child in this age range (Mayor & Mani, 2019). The main purpose of a CDI is to measure the lexical acquisition of typically developing preschool children. Section 2.3 considers the CDI instruments that have been developed for signed languages.

### 2.1 Vocabulary development

As mentioned in Chapter 1, vocabulary growth is one of the characteristics of language development during the first years of life. Moreover, the rate of vocabulary growth is a critical marker of future language development (Lee, 2011; Rowe et al., 2012).

In spoken languages, the first word of a typically developing child is uttered around their first birthday (Schneider, Yurovsky & Frank, 2015). This is an important step in language development. However, children already start to practice language production very early: around 3 months of age, they start to produce vocalizations. Children babble, exploring the possibilities of speech and training their speech motor development (Kuhl, 2004). Furthermore, they show a preference for listening to child-directed-speech over adult-directed speech (Cooper & Aslin, 1990). Young children are also able to recognize, segment and distinguish sounds of their native language (Kuhl, 2004). At 6-9 months of age, they tend to look at objects that are named. This suggests that young children's comprehension abilities are ahead of the capability to produce words (Schneider et al., 2015).

Sign languages acquisition is similar in many ways to spoken language acquisition, but there are some differences. Initially, vocalization and vocal babbling is also encountered in deaf babies. After a few months however, the vocal babbling in deaf babies decreases (Clement, 2004) whereas babbling in hearing babies increases. According to Clement (2004) the main cause of this decrease in deaf babies is because they do not perceive auditory

feedback (i.e., they do not hear their own voice or other voices). Because of this lack of feedback, deaf babies face difficulties in training their mouth motor muscles correctly which might affect spoken language development and cognitive development (Baker, van den Bogaerde & Woll, 2005). Instead of vocal babbling, deaf babies who receive sign language input start to babble manually and produce non-referential gestures and non-referential pointing (Baker et al., 2005; Takei, 2001).

The transfer from manual babbling to actual signs can be difficult to identify but it is often reported that deaf children produce their first sign around 8-11 months of age (Anderson & Reilly, 2002). This appears to be slightly earlier than in spoken languages and has been interpreted as being due to the earlier control of the hands as articulators compared to the speech organs (Goodwyn, Acredolo, & Brown, 2000; Barnes, 2010).

After a relatively slow start, hearing children acquire words and produce new vocabulary at a remarkable speed. Clark (1993) states that the average lexicon in spoken languages at 1;6 is 50-200 words compared to 500-600 words at 2;0. This has been interpreted as a vocabulary spurt in the period between 1;6-2;0. The results of Van den Bogaerde (2000) suggest that deaf children also experience a vocabulary spurt in a sign language. Anderson and Reilly (2002) showed a similar increase in the acquisition of ASL although there was variation. However, more research on this topic is required. The number of ASL signs reported by Anderson and Reilly (2002) at age 2;6 is around 400 signs which is comparable to the number reported for the American English CDI developed by Fenson et al. (1994).

Clark (1993) and Bates, Bretherton, and Snyder (1988) reported a noun primacy in the lexical acquisition of English varying between 47 to 65% of nouns compared to 15-8% of verbs. Haman et al. (2017) in a later study investigated and compared the knowledge of verbs and nouns in 639 children of 3;0–6;11 in 17 spoken languages worldwide (i.e., Afrikaans, Catalan, English (British), English (South African), Finnish, German, Hebrew, Italian, Lithuanian, Luxembourgish, Norwegian, Polish, Serbian, Slovak, Swedish, and Turkish). In four tasks children had to name nouns or verbs. Their results indicated, in line with the studies of Clark (1993) and Bates et al. (1988), that nouns were acquired significantly earlier than verbs. Afrikaans, Swedish and Norwegian were the exception where patterns were inconsistent in different tasks.

Unlike the noun primacy found in the acquisition of some spoken languages, the little evidence from sign language acquisition seems to indicate a predominance for verbs (Baker & van den Bogaerde, 2001; Hoiting, 2006). Hoiting (2006) observed that the focus of deaf children lies rather on movement of signed entities which may be more salient and comprehensive. Therefore, she argues, based on her study of 30 deaf children, that there might be a strong difference in typology between spoken and signed languages (Hoiting, 2006). As a result, deaf children seem to start earlier with predicate acquisition than their hearing peers (Slobin, Hoiting, Kuntze, Lindert, Weinberg, Pyers, Anthony, Biederman & Thumann, 2003).

Compared to monolingual children, bilingual children, that is those who are exposed to two or more languages on a regular basis (Grosjean, 1982), reflect some differences in their lexical acquisition. According to the definition of bilingualism given by Grosjean (1982, p. 1), deaf children of deaf parents (DCDP) can also be considered as bilingual language learners. By definition they are bimodal bilingual (Woll, Meurant & Sinte, 2013). The results of lexical acquisition in bilingual acquisition can therefore also be considered as possibly applying to deaf children.

Vocabulary growth in bilingual children seems to be different from that of monolinguals; it is often slower (De Houwer, Bornstein & De Coster, 2006; Thordardottir, 2019). Thordardottir (2019) studied the influence of age of exposure and the amount of language exposure on the spoken language performance of school-age bilingual children. Her study showed that compared to age of exposure the amount of language exposure is more strongly related to language performance.

Although bilingual children often show a lag in their lexical growth, the number of the words in both languages taken together seems to follow the developmental norms of their monolingual peers (Haman, Łuniewska & Pomiechowska, 2015). The principle of contrast can explain why young children often do not acquire two words for one concept (Clark & MacWhinney, 1987, p. 2); bilingual children seem to block the word in the other language (De Houwer et al., 2006). Assessing language competence in two (or more) languages thus forms a challenge. The knowledge of lexical development in relation to language impairment in bilingual children is limited (Gatt, O'Toole, C. & Haman, 2015). Haman et al. (2015) have developed cross-linguistic lexical tasks which form a test battery for bilingual, preschool children.

Deaf children of hearing parents (DCHP) are also bilingual but develop differently. The first language input for these children will usually be a spoken language followed by sign language input, if any at all. This may look like sequential bilingualism. Unfortunately, the theory of Thordardottir (2019) is not applicable to DCHP. Providing a huge amount of spoken language from birth and exposure to a sign language at a later age will not lead to a linguistic performance at school-age comparable to their hearing peers, since language in the spoken modality is often not accessible for deaf children and access to sign language for these children is at least limited as the sign language input is mostly non-typical, as discussed in Chapter 1. Recent research has, however, shown that DCHP exposed to ASL in the first six months of life developed age-appropriate ASL vocabulary in contrast to those children who had exposure to ASL between 6 months and three years (Caselli, Pyers & Lieberman, 2021). Because full access to both languages usually cannot be met, this type of unintentional language deprivation can lead to language delay and future problems in (sign) language development (Henner et al., 2018).

## 2.2 Communicative Development Inventory – Spoken languages

As mentioned in Chapter 1, the MB-CDI (Fenson et al., 1994) is an assessment instrument for the lexicon of American English and forms the basis for all adaptations of the CDI into other languages. There are two versions for two different age groups, containing different lemmas (see Fenson et al., 1994 p. 16-20 for further discussion on lemma selection). The first list called “Words and Gestures” (CDI-WG) aims to measure early vocabulary comprehension and production amongst infants from 8 to 16 months of age. For this target group, communicative gestures (e.g., waving, pointing or headshakes) are also included. The second list “Words and Sentences” (CDI-WS) assesses productive vocabulary and early grammar targeting toddlers at 16 to 30 months. The CDI-WG includes 396 lemmas whereas the CDI-WS, as an extension of the CDI-WG, contains 680 lemmas spanning twenty-two semantic categories (e.g., body parts, clothing, pronouns, and question words; Fenson et al., 1994; Mayor & Mani, 2019). Eleven categories are composed of nouns, while the other categories cover other parts of speech (e.g., verbs, prepositions, and question words). These twenty-two categories are basically the principles for all adaptations of the CDI lists. The age of the child can influence the presence or absence of one or more categories, e.g., in infants whose

early vocabulary development has just started, auxiliaries will not be expected and therefore the category “helping verbs” is not included in the CDI-WG list (Fenson et al., 1994).

This parental checklist assesses not only the extent of children’s spoken vocabulary, but also communicational gestures (in infants), and some principles of grammar (in toddlers) such as the production of irregular and over-regularized word forms or multiword utterances. Over the past 25 years, a large amount of data has been gathered, which has provided great insight into the first steps of lexical development (Heilmann, Weismer, Evans & Hollar, 2005). Moreover, the test is able to indicate language problems (Sachse & Von Suchodolenz, 2008).

The large amount of data has contributed to measuring the validity and reliability of the MB-CDI. Fenson et al. (1994, p. 25) stated that it is a challenge to interpret reliability on parental reports since parents, for example, may overestimate the skills of their child. Nevertheless, high reliability has been reported (internal consistency,  $r = .96$ ; test-retest,  $r = .95$ ). Furthermore, the MB-CDI showed strong validity (predictive validity ranges from .60 to .80; concurrent validity ranges from .40 to .83; Fenson et al., 1993, as cited in Anderson & Reilly, 2002).

As mentioned in Chapter 1, the MB-CDI of Fenson et al. (1994) has been adapted into many languages.<sup>4</sup> One of these adaptations was the CDI for spoken Dutch/Flemish CDI. This N-CDI, was developed by Zink and Lejaegere (2002) and consists of two lemma lists that were in line with the MB-CDI (Fenson et al., 1994). The “Woorden en Gebaren” (Words and Gestures; WG) list is meant for infants from 8-16 months old, and the “Woorden en Zinnen” (Words and Sentences; WS) for children 16-30 months old. The second list includes more categories and more lemmas, i.e., 434 lemmas on the WG list versus 702 lemmas on the WS list (Zink & Lejaegere, 2002). This is also similar to the MB-CDI lists of Fenson et al. (1994). The N-CDI showed high reliability since internal consistency for both WG list (comprehension [.99] and production [.98]) and WS list (comprehension and production [.99]) showed much higher alpha values than the requested norm of .80 set by Sattler (1992, as cited in Zink & Lejaegere, 2002). Besides that, the N-CDI reported high validity (predicted validity ranges from .55 to .64 while concurrent validity significantly correlates in all fields except for comprehension on the WG list).

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<sup>4</sup> <https://mb-cdi.stanford.edu/adaptations.html>

As well as the long lists, Zink and Lejaegere developed a shorter version of the N-CDIs (2003) based on the MB-CDI short forms developed by Fenson, Pethick, Renda, Cox, Dale, and Reznick (2000). These short forms are only used to get a first impression of the language abilities of a child. Moreover, these short forms were especially developed for a quick assessment when parents have poor literacy skills. Using the short forms is also less time consuming when large amounts of data need to be collected in little time. There are short forms for both age groups (Zink & Lejaegere, 2003).

### 2.3 Communicative Development Inventory – Sign languages

To date, the MB-CDI has been adapted for American Sign Language (ASL) by Anderson and Reilly (2002), British Sign Language (BSL) by Woolfe, Herman, Roy and Woll (2010), Turkish Sign Language (TID; Sümer, Grabitz & Küntay, 2017), German Sign Language (DGS) by Hennies, Hofmann, and Chilla, (unpublished manuscript), Spanish Sign Language (LSE; Rodríguez-Ortiz, Pérez, Valmaseda, Cantillo, Díez, Montero, Moreno-Pérez, Pardo-Guijarro, and Saldaña, 2019), and Israeli Sign Language (ISL; Novogrodsky & Meir, 2020).

In four sign language CDIs, validity and reliability have been reported. In all cases, the researchers used recordings of children in which they were playing and signing with their parents. The recordings provided natural data and were compared to the CDI items elicited in order to measure psychometric properties of the CDI (Anderson & Reilly, 2002; Woolfe et al., 2010, Rodríguez-Ortiz et al., 2019; Novogrodzky & Meir, 2020).

The ASL-CDI instrument showed a high test-retest reliability ( $r = .91$ ), which suggests that parents show consistency when estimating their child's vocabulary of ASL. Further, external validity was measured to indicate the accuracy of reporting. By means of comparing the coded recordings made by the researchers and the filled CDI reports by the parents, the external validity ( $r = .87$ ) showed that parents filled out the forms accurately (Anderson and Reilly, 2002).

Woolfe et al. (2010) measured the interrater reliability of the BSL-CDI using natural recordings in which children were playing and signing with their parents. Two raters coded the video, and the reliability was high ( $r = .97$ ) for expressive vocabulary and receptive vocabulary respectively. The measurement for concurrent validity suggests valid reporting by parents ( $r = .96$  for expressive vocabulary;  $r = .99$  for receptive vocabulary). To ensure

consistency, test-retest reliability was measured and appeared to be high for both, expressive vocabulary ( $r = .95$ ) and receptive vocabulary ( $r = .86$ ).

For the LSE-CDI assessment tool, reliability measurements displayed high interrater reliability ( $r = .996$  for expressive vocabulary;  $r = .975$  for receptive vocabulary). Test-retest reliability showed high rates for expressive vocabulary ( $r = .980$ ) and for receptive vocabulary ( $r = .935$ ) which indicated a consistency in parental reporting. For validity measurement, two analyses were done. Firstly, recorded signs of the children were compared with the signs that were reported by the parents. Here, significant correlations were found for sign language production ( $r = .815$ ) and for comprehension ( $r = .969$ ). A second analysis regarding the external validity revealed an average score of .87 for expressive and .88 for receptive vocabulary. These scores again suggest valid reporting by parents (Rodríguez-Ortiz et al., 2019).

Novogrodzky and Meir (2020) also documented the validity of their instrument. By means of three measurements, the concurrent validity of the ISL-CDI was calculated. Firstly, significant correlations were found between the expressive vocabulary (reported by the parents) and age ( $r = .695$ ), also when age was controlled ( $r = .549$ ). Further, a comparison between the video data and the CDI data showed significant correlations between the CDI scores and the type/token ratio scores ( $r = .603$ ).

The data from these four sign languages suggest that the CDI is a reliable instrument. Since the target group is relatively small and heterogenous (see section 1.1), all researchers argue that more data must be collected in future research to support their primary findings (Anderson & Reilly, 2002; Woolfe et al., 2010; Rodríguez-Ortiz et al., 2019; Novogrodzky & Meir, 2020). Work on CDIs in other cultures is also needed.



## 3 The selection process for the NGT-CDI lemmas

### 3.1 Method used for the selection

This chapter will present the results of the comparison of ten lemma lists from a selection of existing CDIs, which will form the basis for the first version of the lemma list for the NGT-CDI. As mentioned in Chapter 2, the MB-CDI (Fenson et al., 1994) is the basis for all adaptations into other (sign) languages. Despite the leading character of the MB-CDI, CDI-developers for other languages rely on knowledge of the development of vocabulary in that language and use their own cultural concepts (see Section 3.4 for a discussion. We will have a closer look at the four lemma lists for spoken languages. Two lists of the MB-CDI (Fenson et al., 1994) are analyzed because these American English lists, for infants and toddlers respectively, serve as the basis for all developed CDIs. Furthermore, two lists of the N-CDI are considered for Dutch since it can be assumed that the majority of concepts in Dutch and NGT are similar. These lists will be compared to the lemma lists for six additional sign languages (listed in Section 2.3)<sup>5</sup>, following by an additional check with another list of lemmas. This latter list, developed by Nederlands Gebarententrum (2012), was meant for slightly older Dutch deaf/HoH children. After comparisons it will become clear which lemmas can be adopted or need to be adapted, added, or omitted.

By making a comparison of three main features of the CDI (see Sections 3.2-3.4), a basis will be formed for proposing a list of lemmas for a pilot which will be carried out in order to find out whether the proposed lemmas are suitable for a future NGT-CDI (Section 3.5). These lemmas will be listed per semantic category, whereafter is discussed which lemmas will be adopted, omitted or added.

Section 3.2 provides information about the age groups targeted by each of the ten lemma lists. Subsequently, we discuss the use of semantic categories per lemma list in Section 3.3. Next, we will discuss the number of lemmas and the specific items selected across all lists in Section 3.4. These three sections are structured in a similar way: firstly, the observations across all lemma lists are presented. Subsequently, the observations will be discussed. Lastly, conclusions are drawn, and recommendations are made for the lemma list of the NGT-CDI. The final Section 3.5 describes how the process of final lemma selection was carried out. After the steps have been discussed, the selected lemmas are presented.

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<sup>5</sup> As a consequence of the Covid-19 pandemic, it was not possible to receive the requested information of the CDI for Turkish Sign Language (Sümer et al., 2017) which is the 7<sup>th</sup> CDI in sign language.

### 3.2 Age target groups

As outlined in Section 2.2.1, the MB-CDI (Fenson et al., 1994) for American English consists of two versions for a younger and older age group; the version for older children has additional lemmas.

The Dutch/Flemish adaptations of the CDI, the so-called N-CDIs, developed by Zink and Lejaegere (2002) include two lemma lists which are based on the MB-CDI lists. Their “Word and Gesture” list is also meant for infants aged 8-16 months, and the “Words and Sentences” for children aged 16-30 months.

Unlike the two spoken language CDIs discussed above, the sign language CDIs discussed here contain only one lemma list to be used with a wider age range, see Table 3.1 for an overview of age per (sign) language CDI.

**Table 3.1** – Overview of age ranges per CDI instrument

Instrument \ Age	MB-CDI W&G	MB-CDI W&S	N-CDI W&G	N-CDI W&S	ASL-CDI	BSL-CDI	DGS-CDI	ISL-CDI	LSE-CDI	SLN-CDI
0;8-1;4	x		x							
1;4-2;6		x		x						
0;8-3;0					x	x	x	x	x	x

As can be observed from Table 3.1, there are differences between the target age groups of the spoken language CDIs and the sign language CDIs. The spoken language CDIs use two separate scales for infants (8-16 months) and toddlers (16-30 months) while the sign language CDIs broaden one scale to cover both age groups and go up to three years of age (8-36 months). These differences have their origin in the fact that there are few children growing up as native signers (Mitchell & Karchmer, 2004, see discussion in Section 1.1). The number of children to be found in the two age groups is very small. Consequently, it would not be possible to set norms for the CDI for these two age groups. Merging the age groups to create a bigger target group benefits the gathering of data and establishing of norms. Secondly, as is clear from the figures just quoted, most deaf children are born into a hearing environment and the diagnosis of deafness can be delayed. As mentioned in Chapter 1, this might lead to a delay in the onset of accessible language input resulting in language delay and a language age lagging behind the child’s chronological age. If a CDI covers a larger age

range, this variation in level can be accommodated more easily and is more representative of the range of children with hearing loss.

The Adaptation Guidelines from the CDI-Board (2020) do not mention criteria for age ranges for sign language CDIs. However, it is reasonable to follow the example of existing sign language CDIs, and not form two age groups, since these CDIs are from countries with reasonable provisions for children with hearing loss. Infants born in the Netherlands undergo a neonatal audiological screening which leads to early diagnosis and intervention when required (National Institute for Health and Environment; Rijksinstituut voor Volksgezondheid en Milieu [RIVM], 2018).<sup>6</sup> The early diagnosis can result in children being offered NGT at an early age. In other countries, however, this age range may need to be extended even more, since diagnosis of hearing loss can occur much later.

### 3.3 Semantic categories

As mentioned already in Section 2.2, all CDIs are divided into semantic categories. The semantic categories used in the ten CDI versions are listed in Table 3.3 along with the number of lemmas per category. As can be seen, the WS list from the MB-CDI (Fenson et al., 1994) includes 22 semantic categories, two more categories, “Connecting Words” and “Helping Verbs”, than in the WG list (Fenson et al., 1994; Mayor & Mani, 2019). This was done because it was expected that older children would know those concepts or parts of speech. These 22 categories also serve as the basis for all adaptations. The recent Adaptation Guidelines of the CDI-Board (2020) prescribe that the major semantic categories from the original version should be adopted for all new CDI versions.

The N-CDIs, developed by Zink and Lejaegere (2002) for Dutch/Flemish, show the same pattern as the MB-CDI: The WS-list has 22 semantic categories compared to 20 for the WG list (Zink & Lejaegere, 2002).

The ASL-CDI (Anderson & Reilly, 2002) contains 20 semantic categories. The “Body Parts” category was excluded since Anderson and Reilly (2002, p. 86) argue that “pointing to the body part rather than a formal sign is generally used”. The semantic category “Sounds” is omitted because the researchers argue that the vast majority of deaf children are not exposed to sounds or noises (Anderson & Reilly, 2002, p. 86).

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<sup>6</sup> <https://www.pns.nl/documenten/draaiboek-neonatale-gehoorscreening-jeugdgezondheidszorg-v8>

The SLN-CDI list of Hoiting (2006; 2009) contained 16 categories. She included “Body Parts” but omitted “Connecting Signs”, “Games and Routines”, “Helping Verbs”, “Places to go”, and “Pronouns”.<sup>7</sup> The list of lemmas in Hoiting (2009) contained fewer lemmas in fewer semantic categories. This so-called ‘starter list’ was tested on children newly arrived at the school (p. 32).

Woolfe et al. (2010) adapted the ASL-CDI version to create the BSL-CDI. It consists of 21 semantic categories since the “Body Parts” category is included. The authors do not provide any argument for this decision.

The LSE-CDI list (Rodríguez-Ortiz et al., 2019) contains 20 semantic categories following the ASL-CDI of Anderson and Reilly (2002).

Novogrodsky and Meir (2020) included 17 semantic categories in the ISL-CDI lemma list. They omitted the following categories: “Connecting Signs”, “Helping Verbs”, and “Quantifiers”. These categories were excluded since they were following the structure of the Hebrew-CDI according to the researchers (p. 13). Unlike Anderson and Reilly (2002), Novogrodsky and Meir (2020, p. 12) decided to include the “Body Parts” category in the ISL-CDI list.

The lemma list of the DGS-CDI (Hennies et al., unpublished manuscript) contains 20 semantic categories. The category “Body Parts” is included but the “Quantifiers” category is excluded. However, no argumentation is provided for these changes.

As can be seen from Table 3.3 and the above discussion, the CDIs for the sign languages considered here omitted some semantic categories. The exclusion of “Sounds” seems to be reasonable since it is not expected that deaf and HoH children will be exposed to sounds, as Anderson and Reilly (2002) already argued.

As mentioned above the category “Body Parts” is excluded in some CDIs. Smeijers (2019) described an important finding in her study: some deaf people have a lack of knowledge of their own body and health. We consider it important to include this category in the NGT-CDI. Parents and caregivers may then be more aware of the significance of talking about this topic to support their children in body awareness and developing cognitive skills.

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<sup>7</sup> Due to the unfortunate passing of Hoiting, not all her valuable legacy could be documented or published. Therefore, I rely on the articles she published previously. We could only retrieve one list of 144 lemmas distributed over 16 semantic categories (see also Table 3.3).

To summarize, we will adopt the existing 21 categories from the original version (MB-CDI; Fenson et al., 1994) with the exception of the category “Sounds”. Following previous sign language CDIs, signs related to deafness, sign language and Deaf culture will not form a separate category but will be allocated to existing categories.

### 3.4 Lemmas

From Table 3.3, we see that the total number of lemmas included in a CDI differs across (sign) languages. Logically, the WS lists for Dutch and English are longer than WG lists since it is expected that younger children know fewer concepts and parts of speech than toddlers. The appropriateness for the target age group has been considered in each list. As mentioned in Section 3.2, Novogrodsky and Meir (2020) included the “Body Parts” category on the ISL-CDI list. However, they decided to omit some lemmas in this category that are only referred to in ISL by means of indexical pointing. The researchers state that “indexical points could be considered less lexical” (p. 12). Including these lemmas would bias the results since, in hearing children, indexical pointing would not count as linguistic expression. Their list contains nine body parts.

The total amount of lemmas in the DGS-CDI of Hennies et al. (unpublished manuscript) is considerably larger compared to the other CDIs. The instrument is still in its pilot phase; after gathering data, lemmas will probably be excluded if they appear not to be age-appropriate.

When examining the individual lemmas in all CDIs, we notice that there are different types of lemmas.<sup>8</sup> In the first place, many lemmas are common to all the (sign) languages considered here because they refer to shared daily life concepts and actions, for example the verbs “to sleep” and “to eat” or concepts as “nose” and “sock”. Other lemmas appear to be culturally specific. An example from the category “Food and Drink” is the lemma “cheerios” which is familiar in the USA but unknown to children in other parts of the world. Another example is “Sinterklaas” referring to the legendary figure familiar in the Netherlands and Belgium who brings presents on December 5th; this lemma is only found in the list of Dutch/Flemish. Remarkably, the lemma is not mentioned in the SLN list of Hoiting

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<sup>8</sup> A dataset of this comparison is available on request via the author, Anique Schüller ([aniqueschuller@gmail.com](mailto:aniqueschuller@gmail.com)), or via the supervisors Prof. Anne Baker and Prof. Beppie van den Bogaerde.

(2006). In the lists considered here “snow” is included in all lists except ISL. The climate in Israel means snow is a rare occurrence, and therefore it is excluded in that list.

Furthermore, for all sign language CDIs, lemmas referring to Deaf culture are included. In this set, concepts related to deafness are included (e.g., “name sign”), sign language (e.g., “sign language interpreter”), or devices that support communication (e.g., “hearing aid”). As mentioned previously, lemmas referring to sounds are treated as culturally less inappropriate in sign language CDIs.

Fourthly, in comparing the lemma lists of other sign languages, it was obvious that these lists contained few lemmas related to deaf culture, sign language, and deafness (see Table 3.2). It will be a goal to include such lemmas for use in the pilot phase of the NGT-CDI. Our argumentation is that, since parents consciously choose to offer NGT in raising their deaf child(ren), they often become involved in the deaf community, where they will meet other deaf people and share experiences. Therefore, we expect them to be exposed to deaf-related signs which they will then also use with their children.

*Table 3.2 – Number of lemmas related to Deaf Culture, sign language, and deafness*

<b>Sign language CDI</b>	<b>Lemmas</b>
ASL – 2002	6
BSL – 2010	2
DGS – unpubl.	4
ISL – 2020	2
LSE – 2019	5
SLN – 2009	0

Many factors play a role in lemma selection. Taking all factors into consideration, a list of lemmas for the NGT-CDI will be constructed in the next section.

Table 3.3 – Semantic categories and number of lemmas across a selection of CDIs

Language Category	MB-CDI W&G (Fenson et al., 1994)	MB-CDI W&S (Fenson et al., 1994)	N-CDI W&G (Zink & Lejaegere, 2002)	N-CDI W&S (Zink & Lejaegere, 2002)	ASL-CDI (Anderson & Reilly, 2002)	SLN-CDI (Hoiting, 2009)	BSL-CDI (Woolfe et al., 2010)	LSE-CDI (Rodríguez z-Ortiz et al., 2019)	ISL-CDI (Novogrodsky & Meir, 2020)	DGS-CDI (Hennies et al., unpubl.)
Action_words/signs	55	103	57	106	92	16	98	94	101	132
Animals	36	43	38	47	37	9	32	42	43	47
Body_parts	20	27	21	31	-	7	24	-	9	26
Clothing	19	29	21	29	26	9	24	30	31	33
Connecting_words/signs	-	6	-	6	4	-	6	3	-	6
Descriptive_words/signs	37	63	35	60	61	16	53	64	50	77
Food_Drink	30	68	41	69	59	9	55	61	70	70
Furniture_rooms	24	33	33	34	22	10	22	21	33	30
Games_routines	19	25	17	27	29	-	20	28	21	42
Helping_verbs	-	21	-	19	9	-	10	9	-	16
Household	36	50	36	52	40	10	41	41	73	55
Outside	16	31	19	28	21	9	22	25	29	34
People	20	29	19	29	30	10	31	29	21	32
Places (to go)	11	22	16	23	20	-	20	21	-	25
Prepositions	11	26	14	25	17	9	17	17	14	24
Pronouns	11	25	10	23	14	-	14	16	10	12
Quantifiers	8	18	6	16	11	5	11	11	-	-
Question_words/signs	6	7	4	7	8	6	11	8	11	8
Sounds	12	12	17	21	-	-	-	-	-	-
Time_words/signs	8	12	7	15	14	6	15	15	13	16
Toys	8	18	11	19	12	7	12	17	21	18
Vehicles	9	14	12	17	12	6	11	14	13	20
<b>Total</b>	<b>396</b>	<b>680</b>	<b>434</b>	<b>702</b>	<b>537</b>	<b>144</b>	<b>548</b>	<b>567</b>	<b>563</b>	<b>723</b>

### 3.5 Compiling the NGT-CDI lemma list

Based on the comparisons made in Sections 3.2-3.4 and the arguments presented there, the decisions for the list of NGT lemmas were taken with respect to age range and semantic categories. In this section, the choice of individual lemmas will be further motivated.

When determining which lemmas should be chosen for NGT, all lemmas of the CDIs listed in Tables 3.2 and 3.3 were examined to determine which lemmas should be on the lemma list. The WG lists in the MB-CDI and the N-CDI are not taken into account since the WS lists contain all these lemmas. In the first stage, the instances per lemma were counted.

As an additional check on the cultural appropriateness of the Dutch lemmas, another list intended for use with slightly older Dutch children was also considered. This list was retrieved from a dictionary compiled by the Nederlands Gebarententrum (Dutch Sign Language Center, 2012): “Mijn eerste 1500 gebaren” (My first 1500 signs). This pictorial dictionary is organized into several themes (e.g., “food” and “clothes”) and the relevant signs are presented there. All signs are illustrated using a drawing of how the sign is produced. In the foreword to “Mijn eerste 1500 gebaren” (2012) the compilers write that research on lexical development in NGT is very limited. Their 1500 signs were therefore to some extent intuitively chosen. However, they used a list generated by Schlichting and de Koning (1998, as cited in Nederlands Gebarententrum, 2012, p. 7). The list of Schlichting and de Koning contains the first 3000 words in Dutch acquired by hearing children in the Netherlands.

There are, however, some general issues that will affect the organization and choice of lemmas. In several sign languages signs for nouns and verbs are related semantically and overlap phonologically (also known as “conversion” (Pfau, 2016, p. 205). In such cases only one of such pairs will be listed. For example, the noun *drinken* (“drink”) and the verb *drinken* (“to drink”) in NGT meet both criteria. The verb has a slightly extended movement compared to the noun. In these cases, it was decided to omit the noun from the list but keep the verb. In Section 2.3 it was mentioned that in some sign languages, verbs seem to be acquired before nouns (Baker & van den Bogaerde, 2001; Hoiting, 2009). Moreover, Tkachman and Sandler (2013, as cited in Novogrodsky and Meir, 2020, p. 13) argue that the form (e.g., long versus short movements) of signs produced by toddlers is difficult to establish.



If lemmas are related in Dutch but are realized by the same sign in NGT, then the gloss will indicate this. For example, the third person singular pronouns are glossed as he/she since no gender is marked in NGT.

Some glosses are homonyms although the lemmas are distinct, and the signs are lexically different. For example, the adjective lang 'long' in Dutch may refer to a tall person 'hij is lang' (he is tall) or refer to the length of time 'dat duurt lang' (that takes a long time). In NGT, the two signs are different. Therefore, the gloss is included twice with an extra description in brackets to define the meaning: long/tall (person) and long (time).

For lemma selection, one method for all lemmas was used. The first step was to make an overview of all the lemmas in the eight CDI lists. Secondly, instances per lemma were counted. If a certain lemma appeared in more than one lemma list, the selection requirements were met, and the lemma became a 'potential candidate' for our pre-final list. Further, if a lemma only appeared in one list but was listed in the Nederlands Gebarententrum list (2012), the lemma also became a potential candidate. The potential candidates were checked for cultural appropriateness. Lemmas that do not fit in the Dutch culture are marked blue in the Tables 3.5.1-3.5.21 (n=5). In addition, signs that were added, referring to the Dutch culture, are marked purple (n=4). Several lemmas were mentioned in different categories by different languages. If a verb is mentioned twice, the second instance is marked red and will be omitted (n=20). If a noun appears twice, the second noun is marked yellow. An adjective, adverb, or interjection that appears twice is marked dark green. Signs from other categories that were excluded are marked in pink. When a verb is chosen over the noun, the noun is marked orange. Signs related to deafness are indicated in bold. Added signs related to deafness are marked in neon green (n=12). In Tables 3.5.1-3.5.21, the selected lemmas per semantic category are listed in alphabetical order together with the English translation. Any relevant notes on the selection are included per category.

3.5.1 Werkwoorden – Action Signs (n=138)

<b>Bold</b>	(Existing) item related to deafness
	Omitted verb because of multiple occurrences on the lemma list

Dutch gloss	English translation	Dutch gloss	English translation
AANKLEDEN	To dress	LUCIFER-AANSTEKEN	To light a match
AANRAKEN	To touch	LUISTEREN	To listen
AFVEGEN	To wipe	MAKEN	To make
AFWASSEN	To dishes	MISSEN	To miss
BEDEKKEN	To cover	MORSEN	To spill
BIJTEN	To bite	NEMEN	To take
BINNEN-KOMEN	To enter	OPENEN	To open
BLAZEN	To blow	OPRUIJEN	To clean up
BLIJVEN	To stay	OPSCHIETEN	To hurry
BORSTELEN	To brush	OPSTAAN (na zitten)	To stand up (after sitting)
BORSTVOEDEN	To breast-feed	PASSEN	To fit
BOUWEN	To build	PIL-NEMEN	To take a pill
BREKEN	To break	PRATEN	To chat
BRENGEN	To bring	<b>PRATEN</b>	To talk
DANSEN	To dance	PROBEREN	To try
DELEN	To share	PROEVEN	To taste
DENKEN	To think	PUZZELEN	To puzzle
DOEN	To do	RENNEN	To run
DOEN-ALSOF	To pretend	REPAREREN	To fix
DOORGAAN	To continue	RIJDEN	To drive
DOUCHEN	To shower	<b>RIJDEN</b>	To ride
DRAAIEN	To turn	ROEPEN	To call
DRAGEN	To carry	RUIKEN	To smell
DRINKEN	To drink	RUSTEN/ONTSPANNEN	To rest
DROGEN	To dry	SCHEUREN	To tear
DROMEN	To dream	SCHOMMELEN	To swing
DUWEN	To push	SCHOPPEN	To kick
ETEN	To eat	SCHRIJVEN	To write
FELICITEREN	To congratulate	SCHUDDEN	To shake
GAAN (weggaan)	To go away/leave	SKATEN	To skate
GAAN	To go	SLAAN	To hit
<b>GAAN</b>	To go out	<b>SLAAN</b>	To slap
<b>GEBAREN</b>	To sign	SLAPEN	To sleep
GEVEN	To give	SLUITEN	To close
<b>GEVEN</b>	To give	SPELEN	To play
GIETEN	To pour	SPETTEREN	To splash
GLIJDEN	To slide	SPRINGEN	To jump
GOOIEN	To throw	SPIJT-KRIJGEN	To get injection

GROEIEN	To grow	STAAN	To stand
HATEN	To hate	STOPPEN	To stop
HEBBEN	To have	STOTEN	To bump
HELPEN	To help	STRIJKEN	To iron
HOESTEN	To cough	TEKENEN	To draw
HOREN	To hear	TREKKEN	To pull
HOUDEN	To keep	VALLEN	To fall
HOUDEN- VAN	To love	VANGEN	To catch
HUILEN	To cry	VASTHOUDEN	To hold
JAGEN	To hunt	VEGEN	To sweep
KIETELEN	To tickle	VERLIEZEN	To lose
KIEZEN	To choose	VERMOEDEN	To suppose
<b>KIEZEN</b>	To pick	VERSTOPPEN	To hide
KIJKEN/ZIEN	To look	VERTELLEN	To tell
KLAAR (ZIJN)	To finish	VERVEN	To paint
KLAPPEN	To clap	VERZORGEN	To take care
KLIMMEN	To climb	VINDEN	To find
KLOPPEN	To knock	VOEDEN	To feed
KNIPPEN	To cut	VOLGEN	To chase
KNUFFELEN	To hug	VOORSTELLEN/FANTASEREN	To imagine
KOKEN	To cook	WACHTEN	To wait
KOMEN	To come	WAKKER-WORDEN	To wake up
KOPEN	To buy	WASSEN	To wash
KRIJGEN	To get/receive	WEGGOOIEN	To throw away
LACHEN	To smile	WENSEN	To wish
LATEN-VALLEN	To drop	WERKEN	To work
LATEN-ZIEN	To show	ZEGGEN	To say
LEEGMAKEN	To empty container	ZETTEN	To put
LEREN	To learn	<b>ZIEN</b>	To see
LES-GEVEN	To teach	<b>ZIEN</b>	To watch
LEUK-VINDEN	To like	ZINGEN	To sing
LEZEN	To read	ZITTEN	To sit
LIKKEN	To lick	ZOEKEN	To search-for
LOPEN	To walk	ZOENEN	To kiss
LOSLATEN	To let go	ZWEMMEN	To swim

In this semantic category, a total of 186 lemmas were found across all CDIs. Of these 186 lemmas 21.5% appeared only in one list and were not on the Nederlands Gebarententrum (2012) list either. These lemmas are therefore excluded leaving 146 potential candidates. One lemma is marked in bold since it refers to deafness (i.e., “to sign” [GEBAREN]). Seven other lemmas appeared twice in this table. They are marked in red. The English translations of these lemmas (i.e., “to go out” [GAAN], “to give” [GEVEN], “to pick” [KIEZEN], “to talk”

[PRATEN], “to ride” [RIJDEN], “to slap” [SLAAN], and “to watch” [ZIEN]) contain minor differences and might refer to a slightly different concept. Further, the lemma “to see” (ZIEN) is marked in red since this lemma is merged with “to look” (KIJKEN) since the concepts overlap in NGT. The remaining 138 lemmas were kept and are listed in this semantic category.

3.5.2 *Dieren – Animals (n=55)*

	Item that is not common in Dutch culture
	Omitted noun because of multiple occurrences on the lemma list

Dutch gloss	English translation	Dutch gloss	English translation
AAP	Monkey	MUG	Mosquito
BEER	Bear	MUIS	Mouse
BIJ	Bee	NIJLPAARD	Hippo
CAVIA	Guinea pig	OLIFANT	Elephant
DIER	Animal	PAARD	Horse
EELHOORN	Squirrel	PAPEGAAI	Parrot
EEND	Duck	PAUW	Peacock
EGEL	Hedgehog	PINGUIN	Penguin
EZEL	Donkey	PONY	Pony
GANS	Goose	PUPPY	Puppy
GEIT	Goat	RUPS	Caterpillar
GIRAF	Giraffe	SCHAAP	Sheep
HAAN	Rooster	SCHILDPAD	Turtle
HERT	Deer	SLAK	Snail
HOND	Dog	SLANG	Snake
INSECT	Bug	SPIN	Spider
KALKOEN	Turkey	TEDDYBEER	Teddy bear
KAT/POES	Cat	TIJGER	Tiger
KIKKER	Frog	UIL	Owl
KIP	Chicken	VARKEN	Pig
KOE	Cow	VIS	Fish
KONIJN	Rabbit/bunny	VLIEG	Fly
KROKODIL	Alligator	VLINDER	Butterfly
KUIKEN	Chick	VOGEL	Bird
LAM	Lamb	VOS	Fox
LEEUW	Lion	WALVIS	Whale
LIEVEHEERSBEESTJE	Ladybug	WOLF	Wolf
MIER	Ant	WORM	Worm
MOL	Mole	ZEBRA	Zebra

In this semantic category, 69 lemmas were observed across all CDIs. 11 lemmas appeared only in one list (15.9%). Two lemmas, marked blue, are not common in the Dutch culture (i.e., “turkey” [KALKOEN], and “hippo” [NIJLPAARD]) so they will be excluded. Another sign, marked yellow (i.e., “teddy bear” [TEDDYBEER]), appeared in another semantic category (“Toys”) and fits better in that category. This led to a total of 55 lemmas.

3.5.3 *Lichaamsdelen – Body Parts (n=31)*

  Omitted adjective/adverb/interjection because of multiple occurrences on the lemma list

Dutch gloss	English translation	Dutch gloss	English translation
ARM	Arm	NEK	<b>Neck</b>
BEEN	Leg	NEUS	Nose
BILLEN	Bottom	OOG	Eye
BORST	Chest	OOR	Ear
BORSTEN	Breasts	PIEMEL	Penis
BUIK	Belly	<b>PIJN</b>	Pain
ENKEL	Ankle	RUG	Back
GEZICHT	Face	SCHOUDER	Shoulder
HAAR	Hair	VAGINA	Vagina
HAND	Hand	TAND	Tooth
HOOFD	Head	TEEN	Toe
KIN	Chin	TONG	Tongue
KNIE	Knee	VINGER	Finger
LIP	Lip	VOET	Foot
MOND	Mouth	WANG	Cheek
NAVEL	Belly button	WOND	Wound

In this semantic category, a total of 35 lemmas were encountered across all CDIs. In this semantic category, three lemmas were only seen in one language list (i.e., “forehead” [VOORHOOFD], “nail” [NAGEL], and “thumb” [DUIM]; 8.5%). Further, one lemma is omitted because it appeared twice (i.e., “pain” [PIJN], marked dark green). Since this lemma is a descriptive sign, it fits better in semantic category “Descriptive Signs”. The low percentage of single instances (8.5%) can be explained by the fact that humans have the same body parts. Therefore, almost all body parts appear in most CDIs.

3.5.4 *Kleding – Clothing (n=40)*

<b>Bold</b>	(Existing) item related to deafness
	Omitted noun because of multiple occurrences on the lemma list

Dutch gloss	English translation	Dutch gloss	English translation
BADPAK	Swimsuit	ONDERBROEK	Underpants
BRIL	Glasses	OORBELLEN	Earrings
BROEK	Trousers	PET	Cap
<b>CI</b>	Cochlear implant	<b>PET</b>	Peaked cap
<b>GEHOORAPPARAAT*</b>	Hearing aid	PYJAMA	Pajamas
HANDSCHOENEN	Gloves	RIEM	Belt
HEMD	Undershirt	RITS	Zipper
HOED	Hat	ROK	Skirt
HORLOGE	Watch (wrist)	SANDALEN	Sandals
JAS	Coat	SCHOENEN	Shoes
<b>JAS</b>	Jacket	SJAAL	Scarf
JEANS	Jeans	SLAB	Bib
JURK	Dress (clothes)	SLOFFEN	Slippers
KETTING	Necklace	SNEAKERS	Sneakers
KLEDING	Clothes	SNEEUWPAK	Snowsuit
KNOOP	Button	SOKKEN	Socks
KORTE-BROEK	Pants-short	SPEEN	Pacifier
KRALEN	Beads	TRUI	Sweater
LAARZEN	Boots	TSHIRT	T-shirt
LUIER	Diaper	VEST	Vest
MAILLOT/LEGGING	Tights	WANTEN	Mittens

*\* of het woord dat u gebruikt // or word used in your family*

In this semantic category, a total of 49 lemmas were found across all CDIs. Seven lemmas appeared only once and were therefore not included (14.3%). As can be seen, two lemmas are marked yellow because of their double appearance in the category (i.e., “jacket” [JAS] and “peaked cap” [PET]). Therefore, the second instances were omitted. This resulted in 40 lemmas.

3.5.5 *Voeggebaren – Connecting signs (n=7)*

Dutch gloss	English translation	Dutch gloss	English translation
ALS	If	EN	And
DAAROM	Therefore	MAAR	But
DAN	Then	OMDAT	Because
DUS	So		

In this semantic category, a total of seven lemmas were encountered across all CDIs. In this category, all lemmas were selected. Even though NGT has no manual signs for two concepts in the list (i.e., “So” [dus] and “and” [EN]), signs for these concepts may be part of the vocabulary when SSD is offered by the parents or at daycare. NGT does not use many connecting signs. Signers use other strategies to connect sentences, for example by using alternative interrogatives or by using non-manual signals to express connections (Klomp, 2021, p. 266). An example of an alternative interrogative is given in (1).

- (1) SUPPOSE IND<sub>2</sub> TALK DEAF PLUS VOICE WITHOUT VOICE IND<sub>2</sub>  
 “If you’re talking to deaf people, do you do that with or without your voice?”  
 [CNGT0131, S07, 03:33.025-03:37.196]

Alternate interrogatives provide two or more options for the addressee. In (1), the signer gives the options PLUS VOICE (‘with voice’) and WITHOUT VOICE (‘without voice’). This gives addressee (IND<sub>2</sub>) two options for his/her reply. In this way, no connecting sign is required.

3.5.6 Beschrijvende gebaren – Descriptive Signs (n=87)

	Added item related to deafness
<b>Bold</b>	(Existing) item related to deafness
	Omitted adjective/adverb/interjection because of multiple occurrences on the lemma list

Dutch gloss	English translation	Dutch gloss	English translation
AARDIG	Nice	MINDER	Less
ALLEEN	Alone	MOE	Tired
ARM (NIET RIJK)	Poor	MOEILIK	Hard (not easy)
BAH	Yucky	MOOI	Pretty
BANG	Scared	NAT	Wet
BETER	Better	NIEUW	New
BLAUW	Blue	ONDEUGEND	Naughty
BLIJ	Glad	OP/LEEG	Empty
BOOS	Mad	ORANJE	Orange (color)
BRUIN	Brown	OUD	Old
DONKER	Dark	PAARS	Purple
<b>DOOF</b>	Deaf	PIJN	Hurt
<b>DOOFBLIND</b>	Deaf blind	PLAKKERIG	Sticky
DORST	Thirsty	PRIMA	Fine
DROOG	Dry	RIJK (NIET ARM)	Rich
DRUK (GEDRAG)	Noisy	ROOD	Red

EERST	First	ROZE	Pink
FANTASTISCH	Great	RUSTIG	Calm
GEEL	Yellow	SCHATTIG	Cute
GEK	Crazy	SCHOON	Clean
GELUKKIG	Happy	SLAPEND	Asleep
GEMEEN	Mean	SLAPERIG	Sleepy
GENOEG	Enough	SLECHT	Bad
GOED	Good	<b>SLECHTHOREND</b>	Hard-of-hearing
GRAPPIG	Funny	SNEL	Fast
GROEN	Green	STERK	Strong
GROOT	Big	STIL	Quiet
HARD	Hard (not soft)	STOM	Stupid
HEET	Hot	VAST	Stuck
HETZELFDE	Same	<b>VEEL</b>	Many
HONGERIG	Hungry	VERDRIETIG	Sad
HOOG	High	VERTROKKEN/WEG	Gone
KAPOT/STUK	Broken	VIES	Dirty
KLEIN	Little/tiny	VOL	Full
<b>KLEIN</b>	Tiny	VOORZICHTIG	Careful
KOUD	Cold	<b>VOORZICHTIG</b>	Gently
KWAAD	Angry	WAKKER	Awake
LAATSTE	Last	WARM	Warm
LANG (PERSOON)	Tall	WINDERIG	Windy
LANG (TIJD)	Long	WIT	White
LANGZAAM	Slow	ZACHT	Soft
LEKKER	Tasty	ZIEK	Sick
LELIJK	Ugly	<b>ZOUT</b>	Salty
LIEF	Sweet	ZWAAR	Heavy
LUID	Loud	ZWART	Black
MEER	More		

In this semantic category, a total number of 103 lemmas were observed across all CDIs. 14 of these lemmas appeared only in one list and were not seen on the NGC list either (13.4%). Four lemmas were excluded. Two of them appeared twice in this category (i.e., “tiny” [KLEIN] and “gently” [VOORZICHTIG]). The other two are seen in another semantic category in which they fit better. The lemma “a lot” (VEEL) is also seen in “Quantifiers” and “salty” (ZOUT) can be found in the semantic category “Food and Drinks”. Furthermore, two signs were added (i.e., “Deaf blind” [DOOFBLIND] and “Hard of hearing” [SLECHTHOREND]). Note that these additional lemmas are related to deafness (marked neon green and bold). These additions and omissions led to a total of 87 lemmas.



3.5.7 Eten en drinken - Food and Drinks (n=91)

	Item that is not common in Dutch culture
	Omitted noun because of multiple occurrences on the lemma list
	Item placed in "Action Signs" category because verbs are preferred over nouns

Dutch gloss	English translation	Dutch gloss	English translation
AARDAPPELEN	Potatoes	LOLLY	Lollipop
AARDAPPELPUREE	Mashed potatoes	MACARONI	Macaroni
AARDBEI	Strawberry	MAIS	Corn
APPEL	Apple	MANDARIJN	Tangerine
APPELMOES	Apple sauce	MELK	Milk
AUGURK	Pickle	MELOEN	Melon
BAGEL	Bagel	NOODLES	Noodles
BANAAN	Banana	NOTEN	Nuts
BESCHUIT	Rusk	OMELET	Omelette
BIER	Beer	PANNENKOEK	Pancake
BONEN	Beans	PAP	Porridge
BOTER	Butter	PEER	Pear
BOTERHAM	Sandwich	PERZIK	Peach
BROOD	Bread	PINDAKAAS	Peanut butter
BROODJE	Bun	PIZZA	Pizza
CAKE	Cake	POMPOEN	Pumpkin
CEREALS	Cereals	POPCORN	Popcorn
CHIPS	Crisps	PRETZELS	Pretzels
CHOCOLADE	Chocolate	PUDDING	Pudding
CHOCOLADE PASTA	Chocolate spread	RIJST	Rice
CHOCOLADEMELK	Chocolate milk	ROOMKAAS	Cream cheese
COLA	Coke	ROZIJNEN	Raisins
CRACKER	Cracker	SALADE	Salad
DONUT	Doughnut	SAP	Juice
DRINKEN	Drink	SAUS	Sauce
DRUIF	Grape	SINAASAPPEL	Orange
EI	Egg	SNOEP	Candy
ERWTJES	Peas	SOEP	Soup
ETEN	Food	PASTA (SPAGHETTI)	Pasta (spaghetti)
FLESJE	Feeding bottle	SPERZIEBONEN	Green beans
FRIET/PATAT	Chips/fries	SPINAZIE	Spinach
FRISDRANK	Soda	STOKBROOD	Baguette
FRUIT	Fruit	SUIKER	Sugar
GEROOSTERD BROOD	Toast	TAART	Pie
HAGELSLAG	Sprinkles	THEE	Tea
HAMBURGER	Hamburger	TOMAAT	Tomato
HONING	Honey	VANILLE	Vanilla
HOTDOG	Hotdog	VIS	Fish

IJSJE	Ice-cream	VITAMINES	Vitamins
IJSJE	Popsicle	VLA	Custard
JAM	Jelly/jam	VLEES	Meat
JELLO (gelatine toetje)	Jello	WAFEL	Waffle
KAAS	Cheese	WATER	Water
KASTANJE	Chestnut	WATERMELOEN	Watermelon
KAUWGOM	Gum	WORST	Sausage
KIP	Chicken	WORTEL	Carrot
KOEKJE	Cookie	YOGHURT	Yoghurt
KOFFIE	Coffee	ZOET	Sweet (taste)
KOMKOMMER	Cucumber	ZOUT	Salt
KROKET	Croquettes		

In this semantic category, a total of 125 lemmas were encountered across all CDIs. 26

lemmas appeared only once (20.8%);

these lemmas were not selected. Many lemmas that were seen once were culturally specific (e.g., “tortilla” for Spanish Sign Language or “tahina” for Israeli Sign Language). Three lemmas that were potential candidates are not common in the Dutch culture and will be excluded (i.e., “cereals” [CEREALS], “pretzels” [PRETZELS], and “cream cheese” [ROOMKAAS]).

These lemmas are marked in blue. For two lemmas (i.e., “food” [ETEN] and “drink” [DRINKEN]), the matching verbs in the semantic category “Action Signs” are chosen over these nouns (marked in orange). Furthermore, the lemmas “noodles” (NOODLES) and “macaroni” (macaroni) are marked yellow since they can be included in “pasta” (PASTA). Lastly, one lemma is omitted since the Dutch concept is listed twice (i.e., “popsicle” [IJSJE]) and is marked in yellow. 91 lemmas in this category remained.

### 3.5.8 Meubels en Kamers – Furniture and Rooms (n=38)

	Omitted noun because of multiple occurrences on the lemma list
	Item placed in “Action Signs” category because verbs are preferred over nouns

Dutch gloss	English translation	Dutch gloss	English translation
BAD	Bath	LA	Drawer
BADKAMER	Bathroom	LICHT	Light
BALKON	Balcony	OVEN	Oven
BANK	Couch	PORTEMONNEE	Wallet
BED	Bed	POTJE	Potty
BOX	Playpen	RAAM	Window
BUITEN	Outside	SCHOMMELSTOEL	Rocking chair
DEUR	Door	SLAAPKAMER	Bedroom

DOUCHE	Shower	SPIEGEL	Mirror
DROGER	Dryer	STOEL	Chair
EMMER	Bucket	TAFEL	Table
FAUTEUIL	Armchair	TAFELKLEED	Tablecloth
FORNUIS	Stove	TERRAS	Terras
GARAGE	Garage	TRAP	Stairs
GORDIJNEN	Curtains	TV	Tv
KACHEL	Heater	VLOERKLEED	Rug
KAMER	Room	VUILNIS	Garbage
KAST	Closet	WASMACHINE	Washing machine
KELDER	Basement	WASTAFEL	Sink
KEUKEN	Kitchen	WC	Toilet
KINDERSTOEL	High chair	WIEG	Crib
KOELKAST	Refrigerator	WOONKAMER	Living room

In this semantic category, a total number of 48 lemmas were observed across all CDIs. Four lemmas were not selected because they occurred only once (8.3%), and six lemmas were excluded. One lemma (i.e., “shower” [DOUCHE]) also appeared in the category “Action Signs”. Since verbs are preferred over matching nouns, this lemma is omitted. Five other lemmas would fit better in another semantic category and are marked in yellow. Three of them fit better in the “Household” category (i.e., “bucket” [EMMER], “wallet” [PORTEMONNEE], and “garbage” [VUILNIS]). One fits better in “Games and Routines” (i.e., “potty” [POTJE]). Lastly, one lemma suits better in “Places to Go” (i.e., “outside” [BUITEN]). This led to a total amount of 38 lemmas.

### 3.5.9 Spellen en Routines – Games and Routines (n=47)

	Added item related to deafness
<b>Bold</b>	(Existing) item related to deafness
	Added item related to Dutch culture
	Omitted verb because of multiple occurrences on the lemma list
	Omitted noun because of multiple occurrences on the lemma list
	Item placed in “Action Signs” category because verbs are preferred over nouns
	Omitted adjective/adverb/interjection because of multiple occurrences on the lemma list

Dutch gloss	English translation	Dutch gloss	English translation
AAN(DOEN)	On (turn on)	MOETEN	Must/have to
AL	Already	NEDERLANDSE- GEBARENTAAL	Dutch Sign Language
ALSJEBLIEFT	Please	NEDERLANDS-MET- GEBAREN	Sign Supported Dutch
AU!	Ouch!	NEE	No

BAD	Bath	OKEE	Okay
BEDANKT	Thank you	OMDRAAIEN	Turn around
BEDIJD	Bedtime	ONTBIJT	Breakfast
BELLEN (TELEFOON)	Call (phone)	OPNIEUW	Again
DINER (AVONDETEN)	Dinner	PAKJESAVOND	Pack night
DOEI/DAG	Bye	PLASSEN	Pee
ER-IS-NIKS	There is none	POEPEN	Poo
GEZICHT-WASSEN	Wash face	POTJE	Go potty
GOEDEMORGEN	Good morning	SLAAPJE	Nap
GOEDENAVOND	Good night	SORRY	Sorry
HAAR-BORSTELLEN	Brush hair	SSSTT	Shhh
HANDEN-WASSEN	Wash hands	STOP	Stop
HAND-GEVEN	Shake hands	TANDEN-POETSEN	Brush teeth
HANDKLAP (spelletje)	Pattycake	TIKKERTJE	Catch me
HEET	Hot	TOEGESTAAN	Permitted
HET-SPIJT-ME	I'm sorry	TOT MORGEN	See you tomorrow
HOE GAAT HET?	What's up	UIT(DOEN)	Off (turn off)
HOI/HI	Hi/hello	UITSTAPPEN	Get off
JA	Yes	VERHAAL	Story
KIEKEBOE	Peekaboo	VERJAARDAG	Birthday
KLAAR-ZIJN	Finished	VERZORGEN	Take care
KLEIN	Wee	VRAGEN	Ask
KUNNEN	Can	WAKKER-WORDEN	Wake up
KWAAD	Angry	WELTERUSTEN	Sleep well
EVEN-KIJKEN	Let me see	WILLEN	Want
LUISTER	Listen	WINKELN	Shopping
LUNCH	Lunch	ZO-GROOT	So big
MEER	More	ZOENEN	Kisses

In this semantic category, 77 lemmas were observed across all CDIs. 16 lemmas appeared only on one list (20.7%) and will not be selected. As can be seen, 17 lemmas will be excluded because they appeared in multiple semantic categories or fit better in other categories: Five verbal lemmas were already seen in “Action Signs” (i.e., “brush hair” [HAAR-BORSTELLEN], “finished” [KLAAR-ZIJN] “listen” [LUISTEREN], “take care” [VERZORGEN], and “wake up” [WAKKER-WORDEN]). Besides that, three other verbs suit better in the “Auxiliaries and verbal phrases” category because these verbs are rather auxiliaries or modal verbs (i.e., “can” [KUNNEN], “must/have to” [MOETEN], and “want” [WILLEN]). All verbs are marked in red. Further, three adjectival lemmas are mentioned in “Descriptive Signs” (i.e., “hot” [HEET], “wee” [KLEIN], and “angry” [KWAAD]). Those lemmas are marked in dark green. For two lemmas (i.e., “stop” [STOP] and “kisses” [ZOENEN]), the matching verbs in the semantic category “Action Signs” are

chosen over these nouns (marked in orange). The noun “bath” (BAD) is marked in yellow because it was already given in “Furniture and Rooms”. The dark green marked interjection “I’m sorry” (HET-SPIJT-ME) is omitted since the concept is listed twice in this category. The adjective “more” (MEER) fits better in the semantic category “Descriptive Signs” while the interjection “what’s up?” (HOE-GAAT-HET?) fits better in “Question Signs”. Both lemmas are marked in dark green. Furthermore, three lemmas were added of which two are related to deafness (i.e., “Dutch Sign Language” [NEDERLANDSE-GEBARENTAAL] and “Sign Supported Dutch” [NEDERLANDS-MET-GEBAREN]) and one is related to Dutch culture (i.e., “Presents’ night” [PAKJESAVOND]) and is marked in purple. These additions and omissions led to 47 lemmas in this category.

3.5.10 Hulpwerkwoorden – Auxiliaries and Verbal Phrases (n=12)

	Omitted verb because of multiple occurrences on the lemma list
	Omitted adjective/adverb/interjection because of multiple occurrences on the lemma list

Dutch gloss	English translation	Dutch gloss	English translation
DOEN	Do	MOGEN	May
EVEN-KIJKEN	Let me see	MOGEN-NIET	May not
GAAN	Go	NIET-LEUK-VINDEN	Don’t like
HOEFT-NIET	Don’t have to	PROBEREN	Try
KUNNEN	Can	WETEN	Know
KUNNEN-NIET	Can not	WETEN-NIET	Don’t know
LEUK VINDEN	Like	WILLEN	Want
MAAKT-NIET-UIT	Doesn’t matter	WILLEN-NIET	Don’t want
MOETEN	Have to		

In this semantic category, a total of 35 lemmas were encountered across all CDIs. In this category, five lemmas were seen only on one list (14.3%). Further, five lemmas were omitted. Four of them were listed in the category “Action Signs”, these verbs are marked in red (i.e., “do” [DOEN], “go” [GAAN], “like” [LEUK-VINDEN], and “try” [PROBEREN]). The interjection (i.e., “let me see” [EVEN-KIJKEN]), marked dark green, was seen in the category “Games and Routines” The low number of lemmas in this semantic category is supported by the claim that sign languages do not often use function words (Baker & Pfau, 2016, p. 111).

## 3.5.11 Huishouden – Household (n=65)

	Added item related to deafness
<b>Bold</b>	(Existing) item related to deafness
	Omitted noun because of multiple occurrences on the lemma list
	Item placed in “Action Signs” category because verbs are preferred over nouns

Dutch gloss	English translation	Dutch gloss	English translation
BED	Bed	MOBIELE TELEFOON	Mobile phone
BEKER	Cup	MUNTJE	Coin
BEZEM	Broom	PAPIER	Paper
BLOEMPOT	Flowerpot	PLAKBAND	Tape
BORD	Plate	PLANT	Plant
BORSTEL	Brush	PLEISTER	Plaster
BRIEF	Letter	PORTEMONNEE	Wallet
BRIL	Glasses	POT	Jar
CAMERA	Camera	POTJE	Potty
COMPUTER	Computer	RADIO	Radio
CRÈME	Cream	RINGLEIDING	Induction loop
DEKEN	Blanket	ROMMEL	Junk
DIENBLAD	Tray	RUGZAK	Backpack
DOOS	Box	SCHAAR	Scissors
DWEIL	Mop	SHAMPOO	Shampoo
EMMER	Bucket	SIROOP	Syrup
FLES	Bottle	SLEUTELS	Keys
FLESJE	Feeding bottle	SOLO-APPARATUUR	Personal sound amplification device
FLITSBEL	Flashlight	SPEEN	Pacifier
FOTO	Picture	SPIEGEL	Mirror
GELD	Money	SPIJKER	Nail
GLAS	Glass	SPONS	Sponge
HAMER	Hammer	STOFZUIGER	Vacuum cleaner
HANDDOEK	Towel	TANDENBORSTEL	Toothbrush
HORLOGE	Watch (wrist)	TANDPASTA	Toothpaste
KAM	Comb	TAS	Purse
KAN	Can (noun)	TELEFOON	Telephone
KLOK	Clock	THEELEPEL	Teaspoon
KOM	Bowl	VIDEO	Video
KRAAN	Tap	VIDEOCHAT	Videochat
KRANT	Newspaper	VORK	Fork
KUSSEN	Pillow	VUILNIS	Garbage
LAMP	Light	VUILNISBAK	Garbage bin
LEPEL	Spoon	WASHAND	Washcloth
MAND	Basket	ZAKDOEK	Tissue
MEDICIJNEN	Medication	ZEEP	Soap
MES	Knife		

In this semantic category, 84 lemmas were observed across all CDIs. 28 of these lemmas appeared only once (33.3%). Half of these lemmas became candidates because they were on the list of Nederlands Gebarententrum (2012). Eight lemmas will be excluded from this semantic category because they appear in another category (i.e., “bed” [BED] and “mirror” [SPIEGEL] were seen in “Furniture and Rooms”. The lemmas “glasses” [BRIL], “watch” [HORLOGE], and “pacifier” [SPEEN] appeared in “Clothing”. “Potty” [POTJE] is included in “Games and Routines” and “feeding bottle” [FLESJE] is incorporated in “Food and Drinks”). These seven lemmas are marked in yellow. One lemma is marked in orange (i.e., “brush” [BRUSH]) because the phonological/semantic match is a verb and chosen over the noun. Furthermore, three lemmas were added that are related to deafness (i.e., “Flashlight” [FLITSBEL], “Induction loop” [RINGLEIDING], and “personal sound amplification device” [SOLO-APPARATUUR]). They can be recognized by their neon green and bold marking. This led to 65 lemmas.

3.5.12 *Buitenshuis – Outside (n=35)*

	Omitted noun because of multiple occurrences on the lemma list
	Item placed in “Action Signs” category because verbs are preferred over nouns

Dutch gloss	English translation	Dutch gloss	English translation
BERG	Mountain	SPROEIER	Sprinkler
BLIKSEM	Lightning	STATION	Station
BLOEM	Flower	STEEN	Rock
BOOM	Tree	STER	Star
BOS	Woods	STOEP	Sidewalk
DAK	Roof	STORM	Storm
FEEST	Party	STRAAT	Street
GIETER	Watering can	TAK	Stick
GLIBAAN	Slide	TUIN	Garden
GRAS	Grass	TUIN	Yard
GRASMAAIER	Lawn mower	TUINSLANG	Hose
KRAAN	Tap	VLAG	Flag
LADDER	Ladder	WATER (GEEN DRINKEN)	Water (no beverage)
LUCHT	Sky	WIND	Wind
MAAN	Moon	WINKEL	Store
REGEN	Rain	WOLK	Cloud
SCHEP	Shovel	ZAND	Sand
SCHOMMEL	Swing	ZANDBAK	Sand box
SCHOOL	School	ZEE	Sea
SNEEUW	Snow	ZON	Sun
SNEEUWPOP	Snow man	ZWEMBAD	Swimming pool

In this semantic category, a total of 48 lemmas were encountered across all CDIs. Since six lemmas appeared only once (12.5%), they were not potential candidates. Besides that, seven lemmas were excluded since they appeared in other semantic categories. Six lemmas are marked in yellow. Four of these nouns fit better in the category “Places to Go” (i.e., “woods” [BOS], “party” [FEEST], “school” [SCHOOL], and “store” [WINKEL]). One noun was seen in “Household” (i.e., “tap” [KRAAN]) and one noun is mentioned twice in this category (i.e., “garden/yard” [TUIN]). These synonyms in English will be merged. The noun “swing” (SCHOMMEL) is marked orange since the verbal lemma in the semantic category “Action Signs” matches with this lemma and is therefore preferred. This led to 35 lemmas.

3.5.13 *Mensen – People (n=41)*

	Added item related to deafness
<b>Bold</b>	(Existing) item related to deafness
	Added item related to Dutch culture

Dutch gloss	English translation	Dutch gloss	English translation
BABY	Baby	NAAM-OPPAS	Babysitter’s name
BRANDWEERMAN	Fireman	<b>NAAMGEBAAAR</b>	Name sign
BROER	Brother	NEEF/NICHT	Cousins
CLOWN	Clown	OMA*	Grandma
COWBOY	Cowboy	OOM	Uncle
DOKTER	Doctor	OPA*	Grandpa
EIGEN-NAAM	Own name	OPPAS	Babysitter
FEE	Fairy	PAPA*	Daddy
<b>GEBARENTOLK</b>	Sign language interpreter	PERSOON	Person
HEKS	Witch	<b>PIET</b>	Pete
INDIAAN	Indian	POLITIE	Police
JONGEN	Boy	POSTBODE	Postman
JUF/MEESTER	Teacher	PRINSES	Princess
KERSTMAN	Santa clause	<b>SCHRIJFTOLK</b>	Speech-to-text interpreter
KIND	Child	<b>SINTERKLAAS</b>	Sinterklaas
<b>LOGOPEDIST</b>	Speech therapist	TANTE	Aunt
MAMA*	Mommy	VERPLEEGSTER	Nurse
MAN	Man	VRIEND(IN)	Friend
MEISJE	Girl	VROUW	Woman
MENSEN	People	ZUS	Sister
NAAM-HUISDIER	Pet’s name		

\* *of het woord dat u gebruikt // or word used in your family*



In this semantic category, a total of 44 lemmas were found across all CDIs. Eight lemmas appeared only once (18.1%) and were therefore excluded. Besides that, five lemmas were added. Three of these are marked bold and neon green because they are related to deafness (i.e., “Sign language interpreter” [GEBARENTOLK], “Speech therapist” [LOGOPEDIST], and “Speech-to-text interpreter” [SCHRIJFTOLK]). Two lemmas refer to famous characters in Dutch culture (i.e., “Pete” [PIET] and “Sinterklaas” [SINTERKLAAS]) and are marked purple. This makes the total number of lemmas in this category 41.

3.5.14 *Plaatsen – Places to Go (n=31)*

	Added 1 item related to deafness
<b>Bold</b>	(Existing) item related to deafness
	Omitted noun because of multiple occurrences on the lemma list

Dutch gloss	English translation	Dutch gloss	English translation
<b>AUDIOLOGISCH-CENTRUM</b>	Audiological center	MARKT	Market
BAKKERIJ	Bakery	MCDONALDS	McDonalds
BENZINEPOMP	Gas station	PARK	Park
BIBLIOTHEEK	Library	PICKNICK	Picnic
BIOSCOOP	Movies	PLATTELAND	Countryside
BOS	Forrest	RESTAURANT	Restaurant
BUITEN	Outside	SCHOOL	School
CAMPING	Camping	SLAGERIJ	Butcher
CIRCUS	Circus	SPEELTUIN	Playground
DIERENTUIN	Zoo	STAD	Town
FEEST	Party	<b>STRAAT</b>	Street
HUIS	House	STRAND	Beach
KANTOOR/WERK	Workplace	THUIS	Home
KERK	Church	<b>TUIN</b>	Garden
(KINDER)BOERDERIJ	Petting zoo/farm	WINKEL/SUPERMARKT	Store
KINDEROPVANG	Daycare	ZIEKENHUIS	Hospital
<b>LOGOPEDIE</b>	Speech therapy		

In this semantic category, 32 lemmas were observed across all CDIs. Only one of them appeared only once (3.1%) which means that the remaining 31 lemmas were included in the NGT list. Further, two lemmas were omitted since they were encountered in another semantic category (i.e., the lemmas “street” [STRAAT] and “garden” [TUIN] are listed in “Outside”). Besides that, two lemmas referring to deafness were added (i.e., “Audiological center” [AUDIOLOGISCH-CENTRUM], and “Speech therapy” [LOGOPEDIE]). These two lemmas are marked bold and neon green. This led to 31 lemmas.

3.5.15 Voorzetsels – Prepositions (n=17)

Dutch gloss	English translation	Dutch gloss	English translation
ACHTER	Behind	ONDER	Down
BIJ	At	OP	On
BOVEN	Up	OVER	Over
DICHTBIJ	Near-by	RANDOM	Around
IN	In	TUSSEN	Between
MET	With	UIT	Out
NAAR	To	VAN	Of
NAAST	Next-to	VOOR	Front
OM	About		

In this semantic category, it can be seen that sign languages behave very differently from spoken languages. In spoken languages, spatial relations are often expressed using, for example, prepositions while signers use other strategies (Baker & Pfau, 2016, p. 106-108). Therefore, the analysis as described in the first part of Section 3.5 will not be suitable for this list. For analysis, only the prepositions mentioned in sign language CDIs are included. The total amount of lemmas is 17.

3.5.16 Voornaamwoorden – Pronouns (n=18)

Dutch gloss	English translation	Dutch gloss	English translation
ALLEMAAL	All	2.SG	2.SG
DAT	That	2.POSS	2.POSS
DEZE	These	2.PL	2.PL
DIE	Those	2.DU	2.DU
DIT	This	1.POSS	1.POSS
3.SG	3.SG	3.PL	3.PL
IEDERE	Every	3.DU	3.DU
IEDEREEN	Everyone	ZELF	Self
1.SG	1.SG	3.POSS	3.POSS

In this semantic category, a total of 29 lemmas were encountered across all CDIs. However, in this category, it is seen again that signed languages clearly behave differently opposed to spoken languages. For example, the indexical pointing is unmarked and can be used for several pronouns (e.g., 1.SG, 2.SG, “this”, “that”; Baker & Pfau, 2016, p. 105). Therefore, the analysis as described in the first part of Section 3.5 will not be suitable for this list. For analysis, only the pronouns mentioned in sign language CDIs are included. A set of 18 lemmas remained.

3.5.17 *Hoeveelheden/Overig – Quantifiers/Other (n=12)*

	Item that is omitted for other reasons that are described below the table
	Omitted adjective/adverb/interjection because of multiple occurrences on the lemma list

Dutch gloss	English translation	Dutch gloss	English translation
1-2-3	Numbers	IEDER	Any
ALLES	All	MEER	More
ANDERS	Other	NIET	Not
DE/HET	The	NIETS	None
EEN	A	OOK	Too
EEN ANDER	Another	SOMMIGE	Some
EEN BEETJE	A little bit	VEEL	Many/much
ELK	Every	WEG	Gone
ELKE	Each	ZELFDE	Same

In this semantic category, a total of 20 lemmas were found across all CDIs. Two lemmas appeared only once (10%). Six lemmas were omitted. Two of them are listed in “Descriptive Signs” and are therefore marked dark green (“more” [MEER] and “gone” [WEG]). Four signs that are marked in pink are deleted because of double appearance in this category (“another” [EEN ANDER] and “every” [ELK]) or because these are determiners which are not applicable to NGT (“the” [DE/HET] and “a” [EEN]). This resulted in a total of 12 lemmas.

3.5.18 *Vraaggebaren – Question Signs (n=8)*

	Omitted adjective/adverb/interjection because of multiple occurrences on the lemma list
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Dutch gloss	English translation	Dutch gloss	English translation
HOE	How	WANNEER	When
HOEVEEL	How many	WAT	What
HOEVEEL	How much	WELKE	Which
WAAR	Where	WIE	Who
WAAROM	Why		

In this semantic category, a total of 15 lemmas were observed across all CDIs. Six lemmas appeared only once (40%). These six lemmas were not selected for the NGT list. Further, one lemma was omitted because of overlap between concepts in the same category (i.e., “how much” [HOEVEEL]). The total amount of lemmas is therefore 8. The number of lemmas in this category is low because the number of question words/signs is a closed class.

3.5.19 *Tijdgebaren – Time Signs (n=22)*

Omitted adjective/adverb/interjection because of multiple occurrences on the lemma list

Dutch gloss	English translation	Dutch gloss	English translation
AVOND	Evening	OCHTEND	Morning
BIJNA/BINNENKORT	Soon	STRAKS	Later
DAG	Day	TIJD	Time
GISTEREN	Yesterday	TOT-MORGEN	See you tomorrow
LAAT	Late	TOT-NU-TOE	Up to now
LANGE-TIJD	Long time	VANDAAG	Today
MIDDAG	Noon	VANNACHT	Tonight
MORGEN	Tomorrow	VOLGENDE	Next
NA	After	VOOR	Before
NACHT	Night	VOOR	To
NOG-NIET	Not yet	VROEG	Early
NU	Now	WACHT-EVEN	Hang on

In this semantic category, in total 28 lemmas were encountered across all CDIs. Four lemmas appeared only once (14.3%). No additional lemmas were included in the NGT lemma list. Moreover, two lemmas were omitted because these lemmas appeared in the same or other semantic categories: “to” (VOOR) is mentioned in this “Time Signs” category and the interjection “see you tomorrow” (TOT-MORGEN) is listed in “Games and Routines”. This led to an amount of 22 lemmas.

3.5.20 *Speelgoed – Toys (n=23)*

Omitted noun because of multiple occurrences on the lemma list  
 Item placed in “Action Signs” category because verbs are preferred over nouns

Dutch gloss	English translation	Dutch gloss	English translation
BAL	Ball	LIJM	Glue
BALLON	Balloon	MUZIEK	Music
BEL	Bell	PAPIER	Paper
BELLENBLAAS	Bubbles	PEN	Pen
BLOKKEN	Blocks	POP	Doll
BOEK	Book	POTLOOD	Pencil
CADEAU	Gift	PUZZEL	Jigsaw puzzle
CLOWN	Clown	ROBOT	Robot
DOBBELSTEEN	Dice	SPEELGOED	Toy
KINDERWAGEN	Pram/stroller	SPEL	Game
KLEI	Clay/play dough	TAK	Stick
KLEURPOTLOOD	Color pencil	TEDDYBEER	Teddy bear

KNUPPEL	Bat	TOREN	Tower
KRALEN	Beads	VERHAAL	Story
KRIJT	Chalk	VOETBAL	Soccer

In this semantic category, 37 lemmas were observed across all CDIs. Seven of these lemmas appeared only once (18.9%). Furthermore, seven other lemmas were omitted since they appeared in previous semantic categories. These nouns are either marked yellow (i.e., “clown” [CLOWN] seen in “People”, “pram/stroller” [KINDERWAGEN] is listed in “Vehicles”, “beads” [KRALEN] appeared in “Clothing”, “paper” [PAPIER] is seen in “Household”, “stick” [TAK] is listed in “Outside”, and “story” [VERHAAL] is mentioned in “Games and Routines”) or marked in orange (i.e., “jigsaw puzzle” [PUZZEL]) because the matching equivalent is a verb and therefore preferred over the noun. This led to 23 lemmas.

### 3.5.21 Voertuigen – Vehicles (n=21)

Added item related to Dutch culture

Dutch gloss	English translation	Dutch gloss	English translation
AMBULANCE	Ambulance	SCOOTER	Scooter
AUTO	Car	SLEE	Sledge
BOOT	Boat	STOOMBOOT	Steamer
BRANDWEERAUTO	Firetruck	TAXI	Taxi
BUS	Bus	TRACTOR	Tractor
DRIEWIELER	Tricycle	TRAM	Tram
FIETS	Bicycle	TREIN	Train
HELIKOPTER	Helicopter	VLIEGTUIG	Airplane
KINDERWAGEN	Stroller	VRACHTWAGEN	Truck
METRO	Subway	VUILNISWAGEN	Garbage truck
MOTOR	Motor		

In this semantic category, 26 lemmas are observed across all CDIs. Six of these lemmas appeared only once (29%) and were not selected for the NGT list. However, one lemma relevant to Dutch culture was added (i.e., “Steamer” [STOOMBOOT]) and marked purple, this led to 21 lemmas in total.

The total number of lemmas that was selected for the first pilot is 839. This total amount is the result of the consistent method that was used during lemma selection. Depending on the outcomes of this pilot study, which will be discussed in Chapter 4, some lemmas may be added or omitted as necessary.

## 4 Pilot study

### 4.1 Introduction

This pilot study was set up to investigate the usability and the suitability of the new NGT lemma list, as part of a future Communicative Development Inventory for NGT, to be compiled based on our guidelines. The pilot study to investigate the lemma list was carried out in a small sample of three deaf infants and toddlers between the ages of 1;2 and 3;4.

In Section 4.2, the method used is discussed. We present the participants (4.2.1), the materials (4.2.2), and the procedure (4.2.3). In Section 4.2.4 the scoring is explained and in Section 4.2.5 the results and analyses are presented. By means of five sub questions we aim to find an answer for the central research question: **“Which lemmas should be included in the NGT-CDI?”**. The results pertinent to these sub-questions will be presented in the order of analyses.

### 4.2 Method

#### 4.2.1 Participants

Three deaf toddlers between 1;2 and 3;4 years old participated in this pilot study. The parents of the children were approached via the Dutch Foundation for the Deaf and Hard of Hearing Child (Nederlandse Stichting voor het Dove en Slechthorende Kind [NSDSK]). The NSDSK is a Dutch foundation that provides several services for families with deaf children, for example family counseling and sign language courses. Sign language courses are usually organized for the family members and close relatives of the deaf child. During these courses, a professional sign language teacher teaches standardized signs<sup>9</sup> to the learners. These courses last until the parents’ NGT/SSD fluency is sufficient to communicate with their deaf child.<sup>10</sup>

Table 4.1 gives an overview of the participants based on the questionnaire about the language background, described in Section 4.2.2.

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<sup>9</sup> See Schermer (2012) for an overview of the standardization and language planning of NGT.

<sup>10</sup> Personal communication with a sign language teacher at NSDSK.

**Table 4.1** – *Participants and background information*

<b>Participant</b>	<b>Age at test</b>	<b>Hearing status</b>	<b>Hearing status caregivers</b>	<b>Age of start NGT/SSD input</b>
Child_1	2;1	Deaf	Deaf & HoH	0
Child_2	2;10	Deaf	Hearing	0;9
Child_3	3;4	Deaf	Deaf & hearing	0

As can be seen in Table 4.1, the environments in which the children grew up differ from each other. On the one hand we have participants 1 and 3 who were born in families in which NGT was already used as a main language. At least one of their parents is deaf and therefore the sign language input started directly after they were born, making NGT the first language of these participants. On the other hand, we see that participant 2 was born in a hearing environment. The parents were unfamiliar with any sign language but after the birth of their child they started to learn SSD at NSDSK to get able to provide signs to their child. Therefore, the access to signed input of participant 2 started nine months after birth, which is considered within the sensitive period for acquiring a first language in infancy (Pénicaud, Klein, Zatorre, Chen, Witcher, Hyde, & Mayberry, 2013; Lieberman, Borovsky, Hatrak, & Mayberry, 2015), thus avoiding the possible delay related to later acquisition (see Section 2.1).

#### 4.2.2 Materials

The materials used in this pilot study were the NGT lemma list (see Section 3.5 for a detailed discussion) and a questionnaire on background data. This questionnaire contained 13 questions regarding the language background and language use of the child and their family, demographic information, and the hearing status of the child and family (see Appendix 3).

The lemma list contained 839 lemmas distributed over 21 semantic categories. The lemma list used for the pilot was provided in a hard copy containing the lemmas in written Dutch. After each section some free space was left for the parents to fill in any lemmas that were missing on the list or to make other comments and notes. Altogether, this document consisted of 16 pages (see Appendix 4).

#### 4.2.3 Procedure

Since the target group for this research is young, under three years old, the parents had to give consent for sharing sensitive information about their child's background and for the use of the collected data.

The NGT lemma list is a parental checklist whereby the parents of the participants are asked to determine per lemma whether their child understands and/or produces the sign. Further, the parents were asked to fill out the accompanying questionnaire.

All material was printed and sent by mail to the parents in packages.<sup>11</sup> We asked the parents to fill out the forms within three weeks. During this time, the researcher was available for support and assistance by email, texting, or video-calling on phone. Summarizing, there were few queries, one about the lemma list and another one about the questionnaire. Once the parents had completed the lists and questionnaire, the researcher went to their house to collect the data. To thank the parents for their time and effort, the researcher presented them with a children's book.

#### 4.2.4 Results and Analyses

The sub-questions, first mentioned in Section 4.1 and to be answered in this section, are the following:

1. Is there a difference between semantic categories?
2. Is there a difference between comprehension and production of lemmas?
3. Is there a relationship between age and vocabulary size?
4. Is there an influence of the age of access to NGT/SSD input?
5. Are there differences between individual lemmas?

##### Semantic categories

After processing the collected data, the summarized output was collated and is presented in Tables 4.2-4.4. These tables are provided per participant, and list per semantic category how many lemmas the child actively produced and/or understood. These results are given as absolute numbers and as relative values (i.e., the percentage of registered lemmas per semantic category) because there is a great deal of variation in number of lemmas per semantic category. The number of lemmas is given in parentheses after each category. The

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<sup>11</sup> In the situation of COVID-19 we kept physical distance. Therefore, the test materials were sent by mail and support was given on-line.



order of semantic categories in these tables is determined by means of a Spearman’s Rank calculation. The bottom row indicates the total number and the total percentage of lemmas that was reported by the parents. These three tables provide the data for answering the first sub question on the differences between categories. The lemmas that were registered per semantic category and per child can be found in Appendix 5.

Table 4.2 – Results of child 1 (2;1)

Participant	Child_1			Participant	Child_1		
Age at test	2;1			Age at test	2;1		
	Comprehension				Production		
Semantic category	Abs	Rel	Rank	Semantic category	Abs	Rel	Rank
Toys (23)	7	30%	21	Games and Routines (47)	9	19%	21
Body Parts (31)	9	29%	20	Pronouns (18)	3	17%	20
Games and Routines (47)	13	28%	19	Body Parts (31)	4	13%	18
Action Signs (138)	35	25%	18	Clothing (40)	5	13%	18
People (41)	9	22%	17	Question Signs (8)	1	13%	18
Clothing (40)	8	20%	16	Action Signs (138)	17	12%	15.5
Pronouns (18)	3	17%	15	Prepositions (17)	2	12%	15.5
Animals (55)	8	15%	14	Time Signs (22)	2	9%	13.5
Household (65)	9	14%	13	Toys (23)	2	9%	13.5
Question Signs (8)	1	13%	12	Food and Drinks (91)	7	8%	11.5
Prepositions (17)	2	12%	11	Quantifiers/Other (12)	1	8%	11.5
Food and Drinks (91)	10	11%	9.5	People (41)	3	7%	10
Furniture and Rooms (38)	4	11%	9.5	Descriptive Signs (87)	5	6%	7.5
Descriptive Signs (87)	9	10%	7.5	Household (65)	4	6%	7.5
Places to Go (31)	3	10%	7.5	Outside (35)	2	6%	7.5
Time Signs (22)	2	9%	6	Places to Go (31)	2	6%	7.5
Quantifiers/Other (12)	1	8%	5	Vehicles (21)	1	5%	5
Outside (35)	3	6%	4	Furniture and Rooms (38)	1	3%	4
Vehicles (21)	1	5%	3	Animals (55)	1	2%	3
Aux. and Phrases (12)	0	0%	1.5	Aux. and Phrases (12)	0	0%	1.5
Connecting Signs (7)	0	0%	1.5	Connecting Signs (7)	0	0%	1.5
<b>Total (839)</b>	<b>136</b>	<b>16%</b>		<b>Total (839)</b>	<b>72</b>	<b>9%</b>	

Table 4.3 – Results of child 2 (2;10)

Participant	Child_2			Participant	Child_2		
Age at test	2;10			Age at test	2;10		
	Comprehension				Production		
Semantic category	Abs	Rel	Rank	Semantic category	Abs	Rel	Rank
Animals (55)	44	80%	21	Animals (55)	42	76%	21
Clothing (40)	27	68%	20	Descriptive Signs (87)	45	52%	19.5
Descriptive Signs (87)	55	63%	19	Toys (23)	12	52%	19.5
Action Signs (138)	81	59%	18	Question Signs (8)	4	50%	18
Quantifiers/Other (12)	7	58%	17	Action Signs (138)	59	43%	17
Outside (35)	20	57%	15.5	Vehicles (21)	8	38%	16
Toys (23)	13	57%	15.5	Food and Drinks (91)	34	37%	15
Body Parts (31)	17	55%	14	Clothing (40)	14	35%	14
Games and Routines (47)	24	51%	13	Games and Routines (47)	16	34%	13
Furniture and Rooms (38)	19	50%	11.5	Body Parts (31)	10	32%	11.5
Question Signs (8)	4	50%	11.5	People (41)	13	32%	11.5
Food and Drinks (91)	44	48%	10	Outside (35)	10	29%	10
Household (65)	30	46%	9	Household (65)	18	28%	9
Time Signs (22)	10	45%	8	Furniture and Rooms (38)	9	24%	8
Connecting Signs (7)	3	43%	6.5	Time Signs (22)	5	23%	7
Vehicles (21)	9	43%	6.5	Places to Go (31)	6	19%	6
Aux. and Phrases (12)	5	42%	5	Quantifiers/Other (12)	2	17%	5
People (41)	16	39%	4	Prepositions (17)	2	12%	4
Prepositions (17)	6	35%	3	Pronouns (18)	1	6%	3
Pronouns (18)	5	28%	2	Aux. and Phrases (12)	0	0%	1.5
Places to Go (31)	8	26%	1	Connecting Signs (7)	0	0%	1.5
<b>Total (839)</b>	<b>447</b>	<b>53%</b>		<b>Total (839)</b>	<b>310</b>	<b>37%</b>	

Table 4.4 – Results of child 3 (3;4)

Participant	Child_3			Participant	Child_3		
Age at test	3;4			Age at test	3;4		
	Comprehension				Production		
Semantic category	Abs	Rel	Rank	Semantic category	Abs	Rel	Rank
Aux. and Phrases (12)	12	100%	19.5	Aux. and Phrases (12)	12	100%	21
Connecting Signs (7)	7	100%	19.5	Body Parts (31)	29	94%	20
Prepositions (17)	17	100%	19.5	Descriptive Signs (87)	79	91%	18
Question Signs (8)	8	100%	19.5	Time Signs (22)	20	91%	18
Body Parts (31)	30	97%	17	Toys (23)	21	91%	18
Animals (55)	52	95%	15.5	Vehicles (21)	19	90%	16
Vehicles (21)	20	95%	15.5	Games and Routines (47)	42	89%	14
Action Signs (138)	127	92%	14	Outside (35)	31	89%	14
Descriptive Signs (87)	79	91%	11	Pronouns (18)	16	89%	14
Household (65)	59	91%	11	Prepositions (17)	15	88%	11.5
Outside (35)	32	91%	11	Question Signs (8)	7	88%	11.5
Time Signs (22)	20	91%	11	Action Signs (138)	119	86%	10
Toys (23)	21	91%	11	Animals (55)	47	85%	9
Games and Routines (47)	42	89%	7.5	Quantifiers/Other (12)	10	83%	8
Pronouns (18)	16	89%	7.5	Household (65)	52	80%	7
Food and Drinks (91)	80	88%	6	Furniture and Rooms (38)	30	79%	6
Furniture and Rooms (38)	33	87%	5	Clothing (40)	31	78%	5
People (41)	35	85%	4	Food and Drinks (91)	67	74%	4
Quantifiers/Other (12)	10	83%	3	People (41)	30	73%	3
Places to Go (31)	25	81%	2	Connecting Signs (7)	5	71%	2
Clothing (40)	32	80%	1	Places to Go (31)	19	61%	1
<b>Total (839)</b>	<b>757</b>	<b>90%</b>		<b>Total (839)</b>	<b>701</b>	<b>84%</b>	

In Tables 4.2-4.4 the performance on each semantic category is indicated for both comprehension and production in absolute numbers and percentages of the total number of lemmas and is ranked in relation to the other semantic categories. It is interesting to see that for each child the ranking often differs between comprehension and production, so for example for child 1 the category Toys ranks much higher than other categories in comprehension compared to production, but for child 2 it is the reverse. However, some categories (i.e., Connecting Signs and Auxiliaries and Verbal Phrases) score low across the two younger children, but high in the oldest child.

#### Comprehension and Production

All three children show better comprehension of signs than production of signs across all semantic categories, as expected based on previous research (e.g., Rinaldi, Caselli, Di Renzo,

Gulli, & Volterra, 2014). Comprehension always scores higher than or equal to production; as can be seen in Tables 4.2-4.4, some scores are at the maximum (100%) or the minimum (0%). Ideally, a paired-samples T-test would be run to compare the comprehension and production to reveal whether there is a significant difference between production and comprehension. However, due to the small sample size (n=3), the power of statistical outcomes will be too weak. Besides that, the background of the participants (see Table 4.1) varies considerably. Therefore, the participants are treated as three separate case studies and we rely on observations of the data when discussing the results.

#### Vocabulary size and age

The third sub question for this pilot study is whether there is a relationship between the vocabulary size and the age of the participants. Because of the small sample size (n=3), the power of statistical outcomes would not be sufficient. Therefore, to assess this question, the collected data is summarized and plotted in Figure 4.1. The data is divided into comprehension and production and displayed per participant. The observed trends show interaction between age and vocabulary size in both comprehension and production.

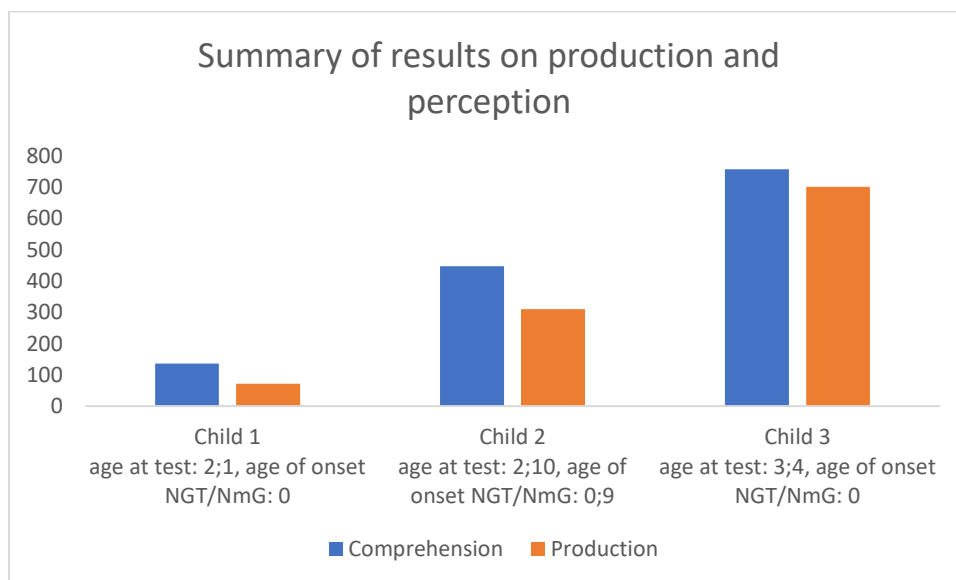


Figure 4.1 – Relationship between age and vocabulary size

As mentioned above, the two younger children also appear to acquire the semantic categories Auxiliaries and Phrases and Connecting Phrases later; these are ranked quite low

in both children. This may have to do with the more grammatical nature of these lexical items.

#### Influence of age of access to NGT or SSD

The fourth research question concerns the influence of the age of access to signed input. What was the age of onset and were the results influenced when input did not start directly after birth?

Participant 1 and Participant 3 were born in a deaf environment and their signed input started at birth. Participant 2 was born into a hearing family who were unfamiliar with any sign language. As mentioned in Sections 1.1 and 2.1, parents who need to learn sign language as an L2 frequently offer signed language input at a later stage. This so-called non-typical language input may lead to language deprivation and language delay in children’s sign language development (Henner et al., 2018). Based on Figure 4.1, however, it seems that Participant 2 does not show a deviating pattern in the vocabulary size of NGT/SSD. Therefore, we conclude that, in this small sample, no influence of age of onset on vocabulary size can be observed.

#### Lemma selection

From the collected data it appeared that 45 lemmas (out of 839; 5.4%) were indicated as being understood and produced by all three child participants (Table 4.5). This list suggests that these are among the first lemmas that emerge in children’s NGT vocabulary in general.

*Table 4.5 – Overview of lemmas that were registered in all participants*

<b>Lemma</b>	<b>Semantic category</b>	<b>Lemma</b>	<b>Semantic category</b>	<b>Lemma</b>	<b>Semantic category</b>
To dress	Action Signs	Cochlear Implant	Clothes	Ouch!	Games and Routines
To shower	Action Signs	Coat/jacket	Clothes	Bye	Games and Routines
To eat	Action Signs	Diaper	Clothes	Shhh	Games and Routines
To give	Action Signs	Socks	Clothes	Picture	Household
To throw	Action Signs	Mad	Descriptive Signs	Toothbrush	Household
To finish	Action Signs	Good	Descriptive Signs	Baby	People
To hug	Action Signs	Empty	Descriptive Signs	Mommy	People
To come	Action Signs	Apple	Food and Drinks	Daddy	People
To sleep	Action Signs	Egg	Food and Drinks	House	Places to Go
To play	Action Signs	Ice-cream	Food and Drinks	Home	Places to Go
To stop	Action Signs	Coffee	Food and Drinks	Mine	Pronouns
To kiss	Action Signs	Tea	Food and Drinks	1-2-3	Quantifiers/Other
Dog	Animals	Water	Food and Drinks	Ball	Toys
Head	Body Parts	Chair	Furniture and Rooms	Book	Toys
Trousers	Clothes	Please	Games and Routines	Car	Vehicles

We also observed that 72 lemmas (8.6%) were not indicated as being understood or produced by any of the three children (Table 4.6). These lemmas are possibly used too infrequently or not at all with these children in this age group. They might therefore have been omitted in the future NGT-CDI.

Table 4.6 – Overview of non-registered lemmas and their semantic category (n=72)

Lemma	Semantic category	Lemma	Semantic category	Lemma	Semantic category
To cover	Action Signs	Bagel	Food and Drinks	Lawn mower	Outside
To breast-feed	Action Signs	Coke	Food and Drinks	Sprinkler	Outside
To hate	Action Signs	Doughnut	Food and Drinks	Station	Outside
To light a match	Action Signs	Soda	Food and Drinks	Cowboy	People
To spill	Action Signs	Jello	Food and Drinks	Fairy	People
To take	Action Signs	Omelette	Food and Drinks	Santa Clause	People
To iron	Action Signs	Peach	Food and Drinks	Cousins	People
To suppose	Action Signs	Vanilla	Food and Drinks	Princess	People
To wish	Action Signs	Vitamins	Food and Drinks	Speech-to-text interpreter	People
Bug	Animals	Waffle	Food and Drinks	Audiological center	Places to Go
Pony	Animals	Balcony	Furniture and Rooms	Movies	Places to Go
Vagina	Body Parts	Playpen	Furniture and Rooms	Park	Places to Go
Beads	Clothes	Dryer	Furniture and Rooms	Picnic	Places to Go
Belt	Clothes	Terras	Furniture and Rooms	Countryside	Places to Go
Snowsuit	Clothes	Crib	Furniture and Rooms	Town	Places to Go
Mittens	Clothes	Lunch	Games and Routines	Every	Pronouns
Poor	Descriptive Signs	NGT	Games and Routines	His/her	Pronouns
Deaf blind	Descriptive Signs	SSD	Games and Routines	Each	Quantifiers/Other
Great	Descriptive Signs	Tray	Household	Any	Quantifiers/Other
Angry	Descriptive Signs	Can (noun)	Household	After	Time Signs
Sticky	Descriptive Signs	Medication	Household	Up to now	Time Signs
Rich	Descriptive Signs	Coin	Household	Bat	Toys
Hard-of-hearing	Descriptive Signs	Induction loop	Household	Robot	Toys
Pickle	Food and Drinks	Solo equipment	Household	Tricycle	Vehicles

#### Parents' comments

In the lemma list, after each semantic category, we left some space for the parents to make notes, for example to add lemmas that were not included but were used by their child and/or to write down any comment. In Table 4.7 below, the comments of the parents are listed.

Table 4.7 – Overview of comments made by parents

1. Parents make use of context in communication with child			
2. Replace superordinate words with easier words that child understands (examples in below synonym list)			
3. Parents added lemmas to the lemma list that are frequently used (by their child) at home:			
<b>Dutch</b>	<b>English</b>	<b>Dutch</b>	<b>English</b>
Stop	Stop	Flamingo	Flamingo
Terug	Back	Limonade	Lemonade
Cactus	Cactus	Aanwezig zijn	To be present
4. Parents found synonyms on list:			
<b>Dutch</b>		<b>English</b>	
Repareren	Maken	To fix	To make
Jeans	Broek	Jeans	Trousers
Sneakers	Schoenen	Sneakers	Shoes
Fauteuil	Stoel	Fauteuil	Chair

The additions and remarks of the parents are very helpful. They best know the language vocabulary of their child. We will use their comments on synonyms to improve our lemma list. There are several reasons why these synonyms appeared on the lemma list. For example, some sign languages have different signs for two related concepts while NGT has only one sign (e.g., “Sneaker” and “Shoes”). Another reason is that the parent may substitute the superordinate lemma with an easier sign which has (almost) the same meaning (e.g., “Fauteuil” and “Chair”) or the parent uses a General-All-Purpose verb (Rice & Bode, 1993) to make the verb less specific (e.g., “To fix” becomes “To make”).

#### 4.2.5 Discussion

This pilot study was set up to investigate the usability and the suitability of the new NGT lemma list, as part of a future Communicative Development Inventory for NGT, to be compiled based on our guidelines. The pilot study to investigate the lemma list was carried out in a small sample of deaf infants and toddlers (n=3) between the ages of 2;1 and 3;4. In this section we discuss whether the outcomes of the pilot study proved that the NGT lemma list is usable in a future CDI and whether the lemmas and semantic categories are suitable for the intended target group.

In Section 2.2 and Section 3.3 it is pointed out that the Adaption Guidelines of the CDI-Board (2020) prescribe that adopted CDIs must be divided in the same major semantic categories as the original MB-CDI (Fenson et al., 1994). Therefore, we adopted all categories except the category “Sounds” which led to a total of 21 semantic categories. The results in

Table 4.2-4.4 show that the used categories are suitable for our target group. Even though not all semantic categories appear in the vocabulary of the participants, it is relevant to retain all semantic categories because the lemma list is designed for a wide age range (8-36 months) and we may expect that the older children in this range gained a greater vocabulary distributed over more semantic categories.

A total number of 839 lemmas survived the first lemma selection (see Section 3.5 for the selection method). These lemmas were noted on a lemma list (see Appendix 4) and sent to the participating families who were asked to fill out the list (see Appendix 5 for the registered lemmas per participant). It turns out that only 72 lemmas (8.6%) were not registered by any participant as can be seen in Table 4.6. Some of these 72 lemmas are old fashioned (e.g., “To light a match”), culture specific (e.g., “Bat” [Toys]), or not suitable to the ages of the intended target group (e.g., “Countryside”). Those 72 lemmas were included to the lemma list because we did not want to deviate from our selection procedure. These lemmas will be marked as being less suitable for this target group. Future research will indicate whether these lemmas should be omitted.

Following previous sign language CDIs, signs related to deafness, sign language and Deaf Culture were included in the lemma list. Table 3.2 gives an overview of how many deaf-related lemmas can be found in sign language CDIs.

*Copy of Table 3.2 – Number of lemmas related to Deaf Culture, sign language, and deafness*

<b>Sign language CDI</b>	<b>Lemmas</b>
ASL – 2002	6
BSL – 2010	2
DGS – unpubl.	4
ISL – 2020	2
LSE – 2019	5
SLN – 2009	0

The NGT lemma list entailed 17 lemmas related to deafness. However, Table 4.6 shows us that eight of these lemmas were not registered by any participant. This implies that these eight lemmas are not age-appropriate. Since we expect that the participants will encounter some of these concepts (e.g., “Dutch Sign Language” and “Audiological center”), it is possible that the related lemmas are unknown. Further, other concepts (e.g., “Induction loop”, “Speech-to-text interpreter” and “Solo equipment”) might appear when the participants are older. Even though not all lemmas related to deafness are registered, it seems good to keep



these lemmas on the list. Parents and caregivers may become more aware to talk about deafness and with that, they can normalize deafness and support the development of their child.

As is clear from Table 4.1, two participants have deaf parents, and one participant is growing up in a hearing family. The results of this pilot study and the trend that is made visual in Figure 4.1 imply that this lemma list is suitable for both DCDP and DCHP.

The frequency table of Participant 3 (Table 4.4) shows that this child in some semantic categories scores 100% in comprehension and sometimes also in production (i.e., Connecting Signs, Auxiliaries and Verbal Phrases, Prepositions and Question Signs). This ceiling effect might be due to the age of this child and the fact that Participant 3 is a native signer growing up in ideal circumstances for developing NGT vocabulary. Therefore, future research in DCDP and DCHP has to reveal when children reach the ceiling.

When evaluating the pilot study and the outcomes, we can conclude that the NGT lemma list measures what it was intended to measure.

## 5 General discussion and conclusions

In this thesis, the goal was to find an answer to the research question “**Which lemmas should be included in the NGT-CDI?**” By means of a research background study and a pilot study, useful information was gathered to construct a lemma list for Sign Language of the Netherlands. This section discusses some issues that were encountered during the construction of the list and how these can or should be solved in the future. Besides that, future plans will be discussed.

The target group is preschool aged so something to think about is how we can reach our intended participants? As far as we know, there are foundations like NSDSK (mentioned in section 4.2.1) who offer daycare for preschool deaf and hard-of-hearing children.<sup>12</sup> By approaching those foundations, it might be possible to find participants and collaborate on testing in the future. Another way of recruiting participants would be via social media.

An important question is how the future NGT-CDI should be implemented. To implement the parental checklist is relatively easy. Parents or caregivers who will fill out the CDI do not have to undergo any training.

An issue here is that hearing parents who learn NGT as L2 might not notice all signs their child produces. With this in mind, it might be an idea to record all lemmas so that parents have the opportunity to see videos about how lemmas are signed. In that way, the parents can check the comprehension of their child more adequately. However, the signs produced by infants and toddlers often are different from the “adult” sign. This is part of the sign language acquisition process in which the children, for example, experience physical constraints because of their motor development. Therefore, it is not certain that all signs or movements made by the child can be recognized as being signs.

Another question is how to set norms for the future NGT-CDI. The target group must be large enough to obtain enough data and find norms. Because this group of deaf infants and toddlers is highly heterogenous (see Section 1.2 and Chapter 2 for further information), it becomes even more important to collect enough data to cover a lot of independent variables in the target group. Based on the differences in language input (see Chapter 1), perhaps different norms should be developed for DCDP on the one hand and DCHP on the other hand.

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<sup>12</sup> [Groepsbehandeling de Knipoog | NSDSK](#)

When norms have been set, and we have thus learned about normal lexical development in NGT, it will become a very important tool to identify children who show deviating patterns in their development and thus/so may be at risk of a language delay or a language disorder. However, it is important to keep in mind that a CDI only measures vocabulary size. Other language developmental fields like syntax and pragmatics (Cheng & Mayberry, 2019; Toe, Rinaldi, Caselli, Paatsch & Church, 2016) are not measured by means of a CDI. The results of this relatively simple checklist can indicate that further research is required.

In spoken language CDIs (following the original version Fenson et al., 1994), the CDI-WS list for toddlers contains questions about early grammar (e.g., verbs conjugated for tense or number, combining words, and usage of gerunds). The sign language CDIs studied here, however, have not included questions about grammatical development. An argument given by Anderson and Reilly (2002) is that sign languages are visual languages expressed by manual and non-manual signs. This means that the grammatical aspects are also expressed manually and non-manually. Because of this multilayered (and often simultaneous) structure of signed languages, it is hard to describe grammatical aspects in a written form. In a future version of the NGT CDI we will consider if simple questions on early NGT grammar can be included using the overview grammar of NGT (Klomp 2021)

Getting back to the main research question “**Which lemmas should be included in the NGT-CDI?**”, the answer has been found during the process of compiling the list with lemmas and in the data that was gathered during the pilot. Even though future (pilot) studies must guide us, the lemma dilemma we had at the beginning of this project has decreased.

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## Appendices

1. Information letter
2. Declaration of consent
3. Questionnaire language background
4. Lemma list for parents
5. Registered lemmas per child

## Appendix 1: Information letter (in Dutch)



Universiteit Utrecht

Facultaire Ethische ToetsingsCommissie – Geesteswetenschappen

FETC-GW-referentienummer: 20-265-05

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### Informatie over deelname aan

Onderzoek naar de gebarenschat in de Nederlandse Gebarentaal

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#### 1. Inleiding

Wij vragen u om mee te doen aan een wetenschappelijk onderzoek dat bij u thuis plaatsvindt. Meedoen is vrijwillig. Om mee te doen is uw schriftelijke toestemming nodig. Voordat u beslist of u wilt meedoen aan dit onderzoek, krijgt u uitleg over wat het onderzoek inhoudt. Het onderzoek zal digitaal plaatsvinden (zie punt 3).

Lees deze informatie alstublieft rustig door en vraag de onderzoeker uitleg als u vragen heeft. Het onderzoek is goetoevonden door de ethische commissie (FETC-GW) van Universiteit Utrecht.

#### 2. Wat is de achtergrond en het doel van het onderzoek?

Door dit onderzoek willen we meer te weten komen over de gebarenschat in de Nederlandse Gebarentaal (NGT) bij dove en slechthorende kinderen tot en met de leeftijd van 36 maanden. Dit is nog niet eerder onderzocht, maar wel heel belangrijk. Uit eerder onderzoek blijkt namelijk dat de woordenschat een voorspeller is voor taalontwikkeling en taalvaardigheid in de toekomst. Door deze ontwikkeling van jonge dove en slechthorende kinderen in NGT in kaart te brengen, leren we welke gebarenschat passend is op welke leeftijd. Zo wordt het in de toekomst bijvoorbeeld mogelijk om bijtijds ondersteuning te bieden wanneer dit noodzakelijk blijkt.

#### 3. Hoe wordt het onderzoek uitgevoerd?

Het onderzoek vindt plaats bij u thuis. In verband met de coronacrisis is de onderzoeker zelf niet fysiek aanwezig, maar zal online wel beschikbaar zijn voor ondersteuning als dat nodig is. Voor dit onderzoek zijn er twee taken opgezet. Bij beide taken speelt/spelen de ouder/ouders een grote rol. De eerste taak is een vragenlijst over de taalachtergrond van uw kind. De tweede taak is een checklist die door u wordt ingevuld. Deze twee lijsten kunnen online worden aangeleverd of op papier worden opgestuurd. Uw voorkeur kunt u aangeven bij de onderzoeker. Na afloop van het onderzoek vragen wij u de formulieren te retourneren of worden deze opgehaald.

#### 4. Wat wordt er van u en uw kind verwacht?

Voor dit onderzoek gaat u (eventueel met uw kind) de checklist doornemen. Wij vragen u om per begrip te bepalen of uw kind het gebaar ervoor begrijpt en/of zelf gebaart. Naar schatting zal het invullen van de lijst in totaal zo'n twee uur duren. Het staat u vrij om de lijst in delen in te vullen op verschillende momenten (bijvoorbeeld per categorie), maar wel graag binnen 2/3 weken.

## 5. Wat zijn mogelijke voor- en nadelen van deelname aan dit onderzoek?

U en uw kind hebben zelf geen voordeel van deelname aan dit onderzoek. Voor de toekomst zal het onderzoek wel nuttige gegevens opleveren. Zo kan onderzoek naar de verwerving van NGT-lexicon inzichten opleveren over de algemene taalontwikkeling van dove en slechthorende kinderen die met NGT opgroeien.

Mogelijke nadelen zijn:

- Het invullen van de woordenschat-checklist zal zo'n 2 uur in beslag nemen in verband met het aantal woorden die op de checklist staan. Deze woorden zijn verdeeld over 21 categorieën (12 blz.). Wij raden u aan in ieder geval per invulmoment een categorie helemaal in te vullen.
- Daarnaast is er een korte vragenlijst over de taalachtergrond van uw kind. Het invullen van deze vragenlijst kost 5-10 minuten. Alle gegevens zullen vertrouwelijk worden behandeld (zie punt 7).

## 6. Vrijwillige deelname

U doet vrijwillig mee aan dit onderzoek. Als u toch besluit dat u niet meedoet, dan hoeft u verder niets te doen. U hoeft niets te tekenen. Als u wel meedoet, dan kunt u zich altijd bedenken en stoppen op ieder gewenst moment — ook tijdens het onderzoek. Bovendien kunt u nadat u heeft meegedaan nog uw toestemming intrekken. Indien u daarvoor kiest, zullen uw onderzoeksgegevens niet meegenomen worden in de analyses. Uw onderzoeksgegevens kunnen echter niet meer verwijderd worden als deze al zijn geanalyseerd, of als de onderzoeksgegevens niet meer tot u of uw kind te herleiden zijn, zie hieronder uitgelegd in punt 7.

## 7. Wat gebeurt er met de verzamelde gegevens?

Uw persoonsgegevens (uw naam, de naam van uw kind, de geboortedatum van uw kind, woonplaats en geboorteplaats van uw kind, gegevens over eventuele taal- en ontwikkelingsproblematiek van uw kind en gegevens omtrent doofheid in de familie en in het gezin) worden beheerd door prof. dr. René Kager en Anique Schüller. Mocht u uw persoonsgegevens willen aanpassen, dan kunt u dit doen door contact op te nemen met: prof. dr. René Kager (R.W.J.Kager@uu.nl).

Wij zijn verplicht de gecodeerde onderzoeksgegevens minimaal 10 jaar te bewaren. Daarvoor geeft u toestemming als u meedoet aan dit onderzoek. Als u dat niet wilt, kunt u niet meedoen aan dit onderzoek. Gegevens verzameld tijdens het onderzoek zullen gecodeerd worden opgeslagen en bewaard op een door de Universiteit Utrecht beveiligde server. De volgende personen hebben toegang tot uw gecodeerde gegevens: prof. dr. René Kager, prof. dr. Beppie van den Bogaerde, prof. dr. Anne Baker en Anique Schüller.

## 8. Is er een vergoeding wanneer u besluit om met uw kind aan dit onderzoek mee te doen?

Als dank voor uw deelname ontvangt u een kinderboek.

## 9. Goedkeuring van dit onderzoek

De Facultaire Ethische ToetsingsCommissie - Geesteswetenschappen (FETC-GW) heeft dit onderzoek goedgekeurd. Wanneer u een klacht wilt indienen over de procedure omtrent dit onderzoek, dan kunt u contact opnemen met de secretaris van de FETC-GW, e-mail: [fetc-gw@uu.nl](mailto:fetc-gw@uu.nl), of met de functionaris voor gegevensbescherming van de Universiteit Utrecht, e-mail: [privacy@uu.nl](mailto:privacy@uu.nl).

## 10. Meer informatie over dit onderzoek?

Als u meer informatie over het onderzoek wilt hebben, kunt u contact opnemen met *Anique Schüller*, *Prof. dr. Beppie van den Bogaerde*, of *Prof. dr. Anne Baker*. Telefoon: 0634047243 (alleen bereikbaar via tekstberichten i.v.m. doofheid); e-mail: [a.c.schuller@students.uu.nl](mailto:a.c.schuller@students.uu.nl); [aniqueschuller@gmail.com](mailto:aniqueschuller@gmail.com); [a.e.baker@uva.nl](mailto:a.e.baker@uva.nl); [e.m.vandenbogaerde@uva.nl](mailto:e.m.vandenbogaerde@uva.nl).

## 11. Bijlagen:

1. Toestemmingsverklaring
2. Vragenlijst over taalachtergrond
3. Gebarenschatlijst



Appendix 2 : Declaration of consent (in Dutch)



Universiteit Utrecht

Facultaire Ethische ToetsingsCommissie – Geesteswetenschappen

FETC-GW-referentienummer: 20-265-05

**TOESTEMMINGSVERKLARING voor deelname aan:**

Onderzoek naar de gebarenschat in de Nederlandse Gebarentaal

Ik, ouder of voogd van het hieronder genoemde kind, bevestig:

- dat ik via de informatiebrief naar tevredenheid over het onderzoek ben ingelicht;
- dat ik in de gelegenheid ben gesteld om vragen over het onderzoek te stellen en dat mijn eventuele vragen naar tevredenheid zijn beantwoord;
- dat ik gelegenheid heb gehad om grondig over deelname aan het onderzoek na te denken;
- dat ik uit vrije wil samen met mijn kind deelneem.

Ik stem er mee in dat:

- de verzamelde gegevens voor wetenschappelijke doelen worden verkregen en bewaard zoals in de informatiebrief vermeld staat;
- de verzamelde, gecodeerde, onderzoeksgegevens door wetenschappers kunnen worden gedeeld en/of worden hergebruikt om eventueel andere onderzoeksvragen mee te beantwoorden;

Ik begrijp dat:

- ik het recht heb om mijn toestemming voor het gebruik van de data van mijn kind in te trekken zoals vermeld staat in de informatiebrief.

Naam ouder of voogd: \_\_\_\_\_ Geboortedatum: \_\_\_ / \_\_\_ / \_\_\_ (dd/mm/jjjj)

Handtekening ouder of voogd: \_\_\_\_\_ Datum, plaats: \_\_\_ / \_\_\_ / \_\_\_, \_\_\_\_\_

Naam kind: \_\_\_\_\_ Geboortedatum: \_\_\_ / \_\_\_ / \_\_\_ (dd/mm/jjjj)

**In te vullen door de uitvoerend onderzoeker:**

Naam: \_\_\_\_\_

Datum: \_\_\_ / \_\_\_ / \_\_\_ (dd/mm/jjjj)

Ik verklaar dat ik bovengenoemde ouder of voogd heb uitgelegd wat deelname inhoudt.

Handtekening: \_\_\_\_\_

Appendix 3: Questionnaire language background (in Dutch)

**VRAGENLIJST over TAALACHTERGROND**

**Datum:**

**Ingevuld door:**

**Relatie tot kind:**

Naam kind: \_\_\_\_\_

Geboortedatum: \_\_\_\_\_

Geslacht: \_\_\_\_\_

Geboorteplaats: \_\_\_\_\_

Woonplaats: \_\_\_\_\_

Doof/slechthorend

(Omcirkel het antwoord)

1. Vanaf welke leeftijd is uw kind doof/slechthorend? \_\_\_\_\_ maanden oud
2. Vanaf welke leeftijd heeft uw kind gebaren aangeboden gekregen?  
\_\_\_\_\_ maanden oud
3. Gebruikt uw kind een gehoorapparaat, CI of een ander hulpmiddel? Zo ja, welke?

\_\_\_\_\_

4. Is er bij uw kind een vermoeden van een taalstoornis of een ontwikkelingsprobleem (zoals ADHD) geuit?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Thuisituatie**

5. Bent u zelf doof, slechthorend of horend? En uw partner? (Omcirkel het antwoord)

U:           doof   slechthorend   horend

Uw partner:   doof   slechthorend   horend

6. Wat is uw hoogst genoten opleiding? En dat van uw partner?

U: \_\_\_\_\_

Uw partner: \_\_\_\_\_

7. Heeft uw kind broertjes of zusjes? Zo ja, zijn zij ouder of jonger en zijn zij doof, slechthorend of horend?

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8. Welke taal/talen worden er thuis gebruikt?

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**Familie**

9. Zijn er, buiten het gezin, nog meer familieleden doof of slechthorend?

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10. Zo ja, welke talen gebruiken deze familieleden met uw kind?

---

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**Sociale situatie**

11. Gaat uw kind regelmatig naar een crèche/opvang/kinderdagverblijf? Zo ja, voor hoe veel uren per week?

---

12. Zo ja, welke talen worden daar gebruikt?

---

---

13. Gaat uw kind wel eens naar activiteiten voor doven en slechthorenden? Zo ja, kunt u een paar voorbeelden noemen?

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**Bedankt voor het invullen!**

Appendix 4: Lemma list for parents (in Dutch)

**Gebarenschat Nederlandse Gebarentaal**

Naam kind: \_\_\_\_\_

Datum aanvang invullen: \_\_\_\_\_

Datum eindigen invullen: \_\_\_\_\_

<b>Werkwoorden (138)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AANKLEDEN			LOPEN		
AANRAKEN			LOSLATEN		
AFVEGEN			LUCIFER-AANSTEKEN		
AFWASSEN			LUISTEREN		
BEDEKKEN			MAKEN		
BIJTEN			MISSEN		
BINNENKOMEN			MORSEN		
BLAZEN			NEMEN		
BLIJVEN			OPENEN		
BORSTELLEN			OPRUIMEN		
BORSTVOEDEN			OPSCHIETEN		
BOUWEN			OPSTAAN (na zitten)		
BREKEN			PASSEN		
BRENGEN			PIL-NEMEN		
DANSEN			PRATEN		
DELEN			PRIK/SPUIT-KRIJGEN		
DENKEN			PROBEREN		
DOEN			PROEVEN		
DOEN-ALSOF			PUZZELEN		
DOORGAAN			RENNEN		
DOUCHEN			REPAREREN		
DRAAIEN			RIJDEN		
DRAGEN			ROEPEN		
DRINKEN			RUIKEN		
DROGEN			RUSTEN/ONTSPANNEN		
DROMEN			SCHEUREN		
DUWEN			SCHOMMELEN		
ETEN			SCHOPPEN		
FANTASEREN			SCHRIJVEN		
FELICITEREN			SCHUDDEN		
GAAN (weggaan)			SKATEN		
GAAN			SLAAN		
GEBAREN			SLAPEN		
GEVEN			SLUITEN		
<b>Tabel gaat verder op volgende bladzijde</b>					

<b>Werkwoorden (voortzetting)</b>					
GIETEN			SPELEN		
GLIJDEN			SPETTEREN		
GOOIEN			SPRINGEN		
GROEIEN			STAAN		
HATEN			STOPPEN		
HEBBEN			STOTEN		
HELPEN			STRIJKEN		
HOESTEN			TEKENEN		
HOREN			TREKKEN		
HOUDEN			VALLEN		
HOUDEN- VAN			VANGEN		
HUILEN			VASTHOUDEN		
JAGEN			VEGEN		
KIETELEN			VERLIEZEN		
KIEZEN			VERMOEDEN		
KIJKEN/ZIEN			VERSTOPPEN		
KLAAR (ZIJN)			VERTELLEN		
KLAPPEN			VERVEN		
KLIMMEN			VERZORGEN		
KLOPPEN			VINDEN		
KNIPPEN			VOEDEN		
KNUFFELEN			VOLGEN		
KOKEN			WACHTEN		
KOMEN			WAKKER-WORDEN		
KOPEN			WASSEN		
KRIJGEN			WEGGOOIEN		
LACHEN			WENSEN		
LATEN-VALLEN			WERKEN		
LATEN-ZIEN			ZEGGEN		
LEEGMAKEN			ZETTEN		
LEREN			ZINGEN		
LESGEVEN			ZITTEN		
LEUK-VINDEN			ZOEKEN		
LEZEN			ZOENEN		
LIKKEN			ZWEMMEN		

Eventuele opmerkingen:

<b>Dieren (55)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AAP			MUG		
BEER			MUIS		
BIJ			OLIFANT		
CAVIA			PAARD		
DIER			PAPEGAAI		
EELHOORN			PAUW		
EEND			PINGUÏN		
EGEL			PONY		
EZEL			PUPPY		
GANS			RUPS		
GEIT			SCHAAP		
GIRAF			SCHILDPAD		
HAAN			SLAK		
HERT			SLANG		
HOND			SPIN		
INSECT			TIJGER		
KAT/POES			UIL		
KIKKER			VARKEN		
KIP			VIS		
KOE			VLIEG		
KONIJN			VLINDER		
KROKODIL			VOGEL		
KUIKEN			VOS		
LAM			WALVIS		
LEEUW			WOLF		
LIEVEHEERSBEESTJE			WORM		
MIER			ZEBRA		
MOL					

Eventuele opmerkingen:

<b>Voeggebaren (7)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
ALS			EN		
DAAROM			MAAR		
DAN			OMDAT		
DUS					

Eventuele opmerkingen:

<b>Lichaamsdelen (31)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
ARM			NEK		
BEEN			NEUS		
BILLEN			OOG		
BORST			OOR		
BORSTEN*			PIEMEL*		
BUIK			RUG		
ENKEL			SCHOUDER		
GEZICHT			VAGINA*		
HAAR			TAND		
HAND			TEEN		
HOOFD			TONG		
KIN			VINGER		
KNIE			VOET		
LIP			WANG		
MOND			WOND		
NAVEL					

*\* of het woord dat u gebruikt*

Eventuele opmerkingen:

<b>Kleding (40)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BADPAK			ONDERBROEK		
BRIL			OORBELLEN		
BROEK			PET		
CI			PYJAMA		
GEHOORAPPARAAT*			RIEM		
HANDSCHOENEN			RITS		
HEMD			ROK		
HOED			SANDALEN		
HORLOGE			SCHOENEN		
JAS			SJAAL		
JEANS			SLAB		
JURK			SLOFFEN		
KETTING			SNEAKERS		
KLEDING			SNEEUWPAK		
KNOOP			SOKKEN		
KORTE-BROEK			SPEEN		
KRALEN			TRUI		
LAARZEN			T-SHIRT		
LUIER			VEST		
MAILLOT/LEGGING			WANTEN		

\* of het woord dat u gebruikt

Eventuele opmerkingen:

<b>Beschrijvende gebaren (87)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AARDIG			MEER		
ALLEEN			MINDER		
ARM (NIET RIJK)			MOE		
BAH			MOEILIJK		
BANG			MOOI		
BETER			NAT		
BLAUW			NIEUW		
BLIJ			ONDEUGEND		
<b>Tabel gaat verder op volgende bladzijde</b>					



<b>Beschrijvende gebaren (voortzetting)</b>					
BOOS			OP/LEEG		
BRUIN			ORANJE		
DONKER			OUD		
DOOF			PAARS		
DOOFBLIND			PIJN		
DORST			PLAKKERIG		
DROOG			PRIMA		
DRUK (GEDRAG)			RIJK (NIET ARM)		
EERST			ROOD		
FANTASTISCH			ROZE		
GEEL			RUSTIG		
GEK			SCHATTIG		
GELUKKIG			SCHOON		
GEMEEN			SLAPEND		
GENOEG			SLAPERIG		
GOED			SLECHT		
GRAPPIG			SLECHTHOREND		
GROEN			SNEL		
GROOT			STERK		
HARD			STIL		
HEET			STOM		
HETZELFDE			VAST		
HONGERIG			VERDRIETIG		
HOOG			VERTROKKEN/WEG		
KAPOT/STUK			VIES		
KLEIN			VOL		
KOUD			VOORZICHTIG		
KWAAD			WAKKER		
LAATSTE			WARM		
LANG (PERSOON)			WINDERIG		
LANG (TIJD)			WIT		
LANGZAAM			ZACHT		
LEKKER			ZIEK		
LELIJK			ZWAAR		
LIEF			ZWART		
LUID					

Eventuele opmerkingen:

<b>Meubels en Kamers (38)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BAD			LA		
BADKAMER			LICHT		
BALKON			OVEN		
BANK			RAAM		
BED			SCHOMMELSTOEL		
BOX			SLAAPKAMER		
DEUR			SPIEGEL		
DROGER			STOEL		
FAUTEUIL			TAFEL		
FORNUIS			TAFELKLEED		
GARAGE			TERRAS		
GORDIJNEN			TRAP		
KACHEL			TV		
KAMER			VLOERKLEED		
KAST			WASMACHINE		
KELDER			WASTAFEL		
KEUKEN			WC		
KINDERSTOEL			WIEG		
KOELKAST			WOONKAMER		

Eventuele opmerkingen:

<b>Hulpwerkwoorden (12)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
HOEFT-NIET			MOGEN-NIET		
KUNNEN			NIET-LEUK-VINDEN		
KUNNEN-NIET			WETEN		
MAAKT-NIET-UIT			WETEN-NIET		
MOETEN			WILLEN		
MOGEN			WILLEN-NIET		

Eventuele opmerkingen:

<b>Eten en Drinken (91)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AARDAPPELEN			LOLLY		
AARDAPPELPUREE			MAIS		
AARDBEI			MANDARIJN		
APPEL			MELK		
APPELMOES			MELOEN		
AUGURK			NOTEN		
BAGEL			OMELET		
BANAAN			PANNENKOEK		
BESCHUIT			PAP		
BIER			PASTA (bv. macaroni)		
BONEN			PEER		
BOTER			PERZIK		
BOTERHAM			PINDAKAAS		
BROOD			PIZZA		
BROODJE			POMPOEN		
CAKE			POPCORN		
CHIPS			PUDDING		
CHOCOLADE			RIJST		
CHOCOLADE PASTA			ROZIJNEN		
CHOCOLADEMELK			SALADE		
COLA			SAP		
CRACKER			SAUS		
DONUT			SINAASAPPEL		
DRUIF			SNOEP		
EI			SOEP		
ERWTJES			SPERZIEBONEN		
FLESJE			SPINAZIE		
FRIET/PATAT			STOKBROOD		
FRISDRANK			SUIKER		
FRUIT			TAART		
GEROOSTERD BROOD			THEE		
HAGELSLAG			TOMAAAT		
HAMBURGER			VANILLE		
HONING			VIS		
HOTDOG			VITAMINES		
IJSJE			VLA		
JAM			VLEES		
JELLO (gelatine toetje)			WAFEL		
KAAS			WATER		
KASTANJE			WATERMELOEN		
<b>Tabel gaat verder op volgende bladzijde</b>					

<b>Eten en Drinken (voortzetting)</b>					
KAUWGOM			WORST		
KIP			WORTEL		
KOEKJE			YOGHURT		
KOFFIE			ZOET		
KOMKOMMER			ZOUT		
KROKET					

Eventuele opmerkingen:

<b>Spellen en Routines (47)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AAN(DOEN)			OKEE		
AL			OMDRAAIEN		
ALSJEBLIEFT			ONTBIJT		
AU!			OPNIEUW		
BEDANKT			PAKJESAVOND		
BEDTIJD			PLASSEN		
BELLEN (TELEFOON)			POEPEN		
DINER (AVONDETEN)			POTJE		
DOEI/DAG			SLAAPJE		
ER-IS-NIKS			SORRY		
EVEN-KIJKEN			SSSTT (stil)		
GEZICHT-WASSEN			TANDENPOETSEN		
GOEDEMORGEN			TIKKERTJE		
GOEDENAVOND			TOEGESTAAN		
HANDEN-WASSEN			TOT MORGEN		
HAND-GEVEN			UIT(DOEN)		
HANDKLAP (spelletje)			UITSTAPPEN		
HOI/HI			VERHAAL		
JA			VERJAARDAG		
KIEKEBOE			VRAGEN		
LUNCH			WELTERUSTEN		
NEDERLANDSE- GEBARENTAAL			WINKELN		
NEDERLANDS-MET- GEBAREN			ZO-GROOT		
NEE					

Eventuele opmerkingen:

<b>Huishouden (65)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BEKER			MUNTJE		
BEZEM			PAPIER		
BLOEMPOT			PLAKBAND		
BORD			PLANT		
BRIEF			PLEISTER		
CAMERA			PORTEMONNEE		
COMPUTER			POT		
CRÈME			RADIO		
DEKEN			RINGLEIDING		
DIENBLAD			ROMMEL		
DOOS			RUGZAK		
DWEIL			SCHAAR		
EMMER			SHAMPOO		
FLES			SIROOP		
FLITSBEL			SLEUTELS		
FOTO			SOLO-APPARATUUR		
GELD			SPIJKER		
GLAS			SPONS		
HAMER			STOFZUIGER		
HANDDOEK			TANDENBORSTEL		
KAM			TANDPASTA		
KAN			TAS		
KLOK			TELEFOON		
KOM			THEELEPEL		
KRAAN			VIDEO		
KRANT			VIDEOCHAT		
KUSSEN			VORK		
LAMP			VUILNIS		
LEPEL			VUILNISBAK		
MAND			WASHAND		
MEDICIJNEN			ZAKDOEK		
MES			ZEEP		
MOBIELE TELEFOON					

Eventuele opmerkingen:

<b>Buitenshuis (35)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BERG			STEEN		
BLIKSEM			STER		
BLOEM			STOEP		
BOOM			STORM		
DAK			STRAAT		
GIETER			TAK		
GLIJBaan			TUIN		
GRAS			TUINSLANG		
GRASMAAIER			VLAG		
LADDER			WATER (GEEN DRINKEN)		
LUCHT			WIND		
MAAN			WOLK		
REGEN			ZAND		
SCHEP			ZANDBAK		
SNEEUW			ZEE		
SNEEUWPOP			ZON		
SPROEIER			ZWEMBAD		
STATION					

Eventuele opmerkingen:

<b>Plaatsen (31)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AUDIOLOGISCH- CENTRUM			LOGOPEDIE		
BAKKERIJ			MARKT		
BENZINEPOMP			MCDONALDS		
BIBLIOTHEEK			PARK		
BIOSCOOP			PICKNICK		
BOS			PLATTELAND		
BUITEN			RESTAURANT		
CAMPING			SCHOOL		
CIRCUS			SLAGERIJ		
DIERENTUIN			SPEELTUIN		
FEEST			STAD		
HUIS			STRAND		
<b>Tabel gaat verder op volgende bladzijde</b>					

Plaatsen (voortzetting)					
KANTOOR/WERK			THUIS		
KERK			WINKEL/SUPERMARKT		
(KINDER)BOERDERIJ			ZIEKENHUIS		
KINDEROPVANG					

Eventuele opmerkingen:

Mensen (41)					
Gebaar	Begrijpt	Gebruikt	Gebaar	Begrijpt	Gebruikt
BABY			NAAM-OPPAS		
BRANDWEERMAN			NAAMGEBAAAR		
BROER			NEEF/NICHT		
CLOWN			OMA*		
COWBOY			OOM		
DOKTER			OPA*		
EIGEN-NAAM			OPPAS		
FEE			PAPA*		
GEBARENTOLK			PERSOON		
HEKS			PIET		
INDIAAN			POLITIE		
JONGEN			POSTBODE		
JUF/MEESTER			PRINSES		
KERSTMAN			SCHRIJFTOLK		
KIND			SINTERKLAAS		
LOGOPEDIST			TANTE		
MAMA*			VERPLEEGSTER		
MAN			VRIEND(IN)		
MEISJE			VROUW		
MENSEN			ZUS		
NAAM-HUISDIER					

\* of het woord dat u gebruikt

Eventuele opmerkingen:

<b>Voorzetsels (17)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
ACHTER			ONDER		
BIJ			OP		
BOVEN			OVER		
DICHTBIJ			RONDONOM		
IN			TUSSEN		
MET			UIT		
NAAR			VAN		
NAAST			VOOR		
OM					

Eventuele opmerkingen:

<b>Voornaamwoorden (18)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
ALLEMAAL			JIJ		
DAT			JOUW		
DEZE			JULLIE		
DIE			JULLIE-TWEE		
DIT			MIJN		
HIJ/ZIJ			WIJ		
IEDERE			WIJ-TWEE		
IEDEREEN			ZELF		
IK			ZIJN/HAAR		

Eventuele opmerkingen:



<b>Hoeveelheden/Overig (12)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
1-2-3			NIET		
ALLES			NIETS		
ANDERS			OOK		
EEN BEETJE			SOMMIGE		
ELKE			VEEL		
IEDER			ZELFDE		

Eventuele opmerkingen:

<b>Vraaggebaren (8)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
HOE			WANNEER		
HOVEEL			WAT		
WAAR			WELKE		
WAAROM			WIE		

Eventuele opmerkingen:

<b>Tijd (22)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AVOND			NU		
BIJNA/BINNENKORT			OCHTEND		
DAG			STRAKS		
GISTEREN			TIJD		
LAAT			TOT-NU-TOE		
LANGE-TIJD			VANDAAG		
MIDDAG			VANNACHT		
MORGEN			VOLGENDE		
NA			VOOR		
NACHT			VROEG		
NOG-NIET			WACHT-EVEN		

Eventuele opmerkingen:

<b>Speelgoed (23)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BAL			LIJM		
BALLON			MUZIEK		
BEL			PEN		
BELLENBLAAS			POP		
BLOKKEN			POTLOOD		
BOEK			ROBOT		
CADEAU			SPEELGOED		
DOBBELSTEEN			SPEL		
KLEI			TEDDYBEER		
KLEURPOTLOOD			TOREN		
KNUPPEL			VOETBAL		
KRIJT					

Eventuele opmerkingen:

<b>Voertuigen (21)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AMBULANCE			SCOOTER		
AUTO			SLEE		
BOOT			STOOMBOOT		
BRANDWEERAUTO			TAXI		
BUS			TRACTOR		
DRIEWIELER			TRAM		
FIETS			TREIN		
HELIKOPTER			VLIEGTUIG		
KINDERWAGEN			VRACHTWAGEN		
METRO			VUILNISWAGEN		
MOTOR					

Eventuele opmerkingen:

**Woorden die niet op de lijst staan maar wel gebruikt worden in de NGT/NmG communicatie met mijn kind:**


**Heeft u overige opmerkingen of feedback:**

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## Appendix 5 : Registered lemmas by parents (in Dutch)

Child 1 – 2;1

<b>Werkwoorden (35/138)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AANKLEDEN	X	X	KLAAR (ZIJN)	X	X
AFVEGEN	X	X	KNUFFELEN	X	X
BIJTEN	X	X	KOMEN	X	X
BINNENKOMEN	X		LOPEN	X	
BLAZEN	X		OPRUIMEN	X	
BLIJVEN	X		RENNEN	X	
DANSEN	X		ROEPEN	X	
DOEN-ALSOF	X		SLAAN	X	X
DOUCHEN	X	X	SLAPEN	X	X
DRAGEN	X		SPELEN	X	X
DRINKEN	X		STOPPEN	X	X
DROGEN	X		WACHTEN	X	
ETEN	X	X	WASSEN	X	
GAAN (weggaan)	X		ZEGGEN	X	
GAAN	X		ZETTEN	X	X
GEVEN	X	X	ZOEKEN	X	
GOOIEN	X	X	ZOENEN	X	X
HOESTEN	X	X			
<b>Dieren (8/55)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AAP	X		KONIJN	X	
BEER	X		OLIFANT	X	
HOND	X	X	SCHAAP	X	
KAT/POES	X		SLAK	X	
<b>Voeggebaren (0/7)</b>					
<b>Lichaamsdelen (9/31)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
HAAR	X		NEUS	X	
HAND	X		OOG	X	
HOOFD	X	X	OOR	X	
KNIE	X	X	TEEN	X	X
MOND	X	X			
<b>Kleding (8/40)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BROEK	X	X	LUIER	X	X
CI	X	X	SOKKEN	X	X
JAS	X	X	TRUI	X	
JEANS	X		VEST	X	

<b>Beschrijvende gebaren (9/87)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AARDIG	X	X	NAT	X	
BOOS	X	X	OP/LEEG	X	X
DORST	X		PIJN	X	
GOED	X	X	STIL	X	X
HONGERIG	X				
<b>Meubels en Kamers (4/38)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BAD	X		LICHT	X	
DEUR	X		STOEL	X	X
<b>Hulpwerkwoorden (0/12)</b>					
<b>Eten en Drinken (10/91)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AARDAPPELEN	X		IJSJE	X	X
APPEL	X	X	KOFFIE	X	X
BANAAN	X		MANDARIJN	X	X
BROOD	X		THEE	X	X
EI	X	X	WATER	X	X
<b>Spellen en Routines (13/47)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
ALSJEBLIEFT	X	X	HANDJEKLAP (spel)	X	X
AU!	X	X	HOI/HI	X	X
BEDANKT	X	X	JA	X	X
DOEI/DAG	X	X	NEE	X	X
GEZICHT-WASSEN	X	X	POEPEN	X	
HANDEN-WASSEN	X		SSSTTT (stil)	X	X
HAND-GEVEN	X				
<b>Huishouden (9/65)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
DEKEN	X	X	MOBIELE TELEFOON	X	X
FOTO	X	X	TANDENBORSTEL	X	X
HANDDOEK	X		TELEFOON	X	
KAM	X		VUILNISBAK	X	
LAMP	X				
<b>Buitenshuis (2/35)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
REGEN	X		ZAND	X	
<b>Plaatsen (3/31)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BUITEN	X		THUIS	X	X
HUIS	X	X			

<b>Mensen (9/41)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BABY	X	X	OPA	X	
EIGEN-NAAM	X		PAPA	X	X
MAMA	X	X	TANTE	X	
OMA	X		ZUS	X	
OOM	X				
<b>Voorzetsels (2/17)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
IN	X	X	OP	X	X
<b>Voornaamwoorden (3/18)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
DIE	X	X	MIJN (1.POSS)	X	X
IK (1.SG)	X	X			
<b>Hoeveelheden/Overig (1/12)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt			
1-2-3	X	X			
<b>Vraaggebaren (1/8)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt			
WAAR	X	X			
<b>Tijd (2/22)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
DAG	X		NU	X	
<b>Speelgoed (7/23)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BAL	X	X	POP	X	
BALLON	X		SPEELGOED	X	
BOEK	X	X	SPEL	X	
MUZIEK	X				
<b>Voertuigen (1/21)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt			
AUTO	X	X			

Child 2 – 2;10

<b>Werkwoorden (81/138)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AANKLEDEN	X	X	KOMEN	X	X
AFVEGEN	X		KOPEN	X	X
AFWASSEN	X	X	LACHEN	X	X
BIJTEN	X		LATEN-VALLEN	X	
BINNENKOMEN	X		LEUK-VINDEN	X	
BLAZEN	X	X	LEZEN	X	X
BLIJVEN	X	X	LOPEN	X	X
BORSTELLEN	X	X	LOSLATEN	X	
BOUWEN	X	X	LUISTEREN	X	
BREKEN	X	X	MAKEN	X	X
BRENGEN	X	X	OPENEN	X	
DANSEN	X	X	OPRUIMEN	X	X
DELEN	X		OPSTAAN (na zitten)	X	
DENKEN	X		PRATEN	X	
DOEN	X		PROBEREN	X	
DOUCHEN	X	X	PROEVEN	X	
DRAAIEN	X	X	PUZZELEN	X	
DRAGEN	X		RENNEN	X	X
DRINKEN	X	X	ROEPEN	X	
DROGEN	X	X	SCHOMMELEN	X	X
DUWEN	X	X	SLAPEN	X	X
ETEN	X	X	SPELEN	X	X
GAAN (weggaan)	X	X	SPRINGEN	X	X
GEBAREN	X	X	STOPPEN	X	X
GEVEN	X	X	TEKENEN	X	X
GOOIEN	X	X	VALLEN	X	X
HELPEN	X	X	VERSTOPPEN	X	X
HOESTEN	X		VERTELLEN	X	
HOREN	X	X	VERVEN	X	
HOUDEN VAN	X	X	WACHTEN	X	X
HUILEN	X	X	WAKKER-WORDEN	X	X
KIETELEN	X	X	WASSEN	X	X
KIEZEN	X		WEGGOOIEN	X	X
KIJKEN/ZIEN	X	X	WERKEN	X	X
KLAAR (ZIJN)	X	X	ZEGGEN	X	X
KLAPPEN	X	X	ZINGEN	X	X
KLIMMEN	X	X	ZITTEN	X	X
KLOPPEN	X		ZOEKEN	X	X
KNIPPEN	X	X	ZOENEN	X	X
KNUFFELEN	X	X	ZWEMMEN	X	X

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KOKEN	X	X			
<b>Dieren (44/55)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AAP	X	X	MUIS	X	X
BEER	X	X	OLIFANT	X	X
BIJ	X	X	PAARD	X	X
CAVIA	X		PAPEGAAI	X	X
DIER	X	X	PINGUIN	X	X
EEKHOORN	X	X	RUPS	X	X
EEND	X	X	SCHAAP	X	X
EGEL	X	X	SCHILDPAD	X	X
EZEL	X	X	SLAK	X	X
GEIT	X	X	SLANG	X	X
GIRAF	X		SPIN	X	X
HAAN	X	X	TIJGER	X	X
HOND	X	X	UIL	X	X
KAT/POES	X	X	VARKEN	X	X
KIKKER	X	X	VIS	X	X
KIP	X	X	VLIEG	X	X
KOE	X	X	VLINDER	X	X
KONIJN	X	X	VOGEL	X	X
KROKODIL	X	X	VOS	X	X
LEEUW	X	X	WALVIS	X	X
LIEVEHEERSBEESTJE	X	X	WOLF	X	X
MOL	X	X	ZEBRA	X	X
<b>Voeggebaren (3/7)</b>					
ALS	X		OMDAT	X	
MAAR	X				
<b>Lichaamsdelen (17/31)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BILLEN	X		NAVEL	X	
BUIK	X	X	NEUS	X	X
GEZICHT	X	X	OOG	X	X
HAAR	X	X	OOR	X	X
HAND	X		TAND	X	X
HOOFD	X	X	TONG	X	X
KIN	X		VINGER	X	X
LIP	X		WANG	X	
MOND	X				
<b>Kleding (27/40)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BADPAK	X		MAILLOT/LEGGING	X	
BRIL	X	X	PET	X	
BROEK	X	X	PYJAMA	X	



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CI	X	X	RITS	X	
HANDSCHOENEN	X	X	ROK	X	X
HOED	X	X	SCHOENEN	X	X
JAS	X	X	SJAAL	X	X
JURK	X	X	SLAB	X	
KETTING	X	X	SOKKEN	X	X
KLEDING	X		SPEEN	X	
KNOOP	X		TRUI	X	
KORTE-BROEK	X		T-SHIRT	X	
LAARZEN	X	X	VEST	X	
LUIER	X	X			

**Beschrijvende gebaren (55/87)**

<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>	<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>
BANG	X	X	MOOI	X	X
BLAUW	X	X	NAT	X	X
BLIJ	X	X	NIEUW	X	X
BOOS	X	X	OP/LEEG	X	X
BRUIN	X	X	ORANJE	X	X
DONKER	X	X	OUD	X	X
DORST	X	X	PAARS	X	X
DROOG	X		PIJN	X	X
EERST	X		ROOD	X	X
GEEL	X	X	ROZE	X	X
GEK	X	X	RUSTIG	X	X
GELUKKIG	X	X	SCHOON	X	X
GENOEG	X	X	SNEL	X	
GOED	X	X	STERK	X	
GROEN	X	X	STIL	X	
GROOT	X	X	VAST	X	X
HEET	X	X	VERDRIETIG	X	X
HETZELFDE	X	X	VERTROKKEN/WEG	X	X
HONGERIG	X	X	VIES	X	X
HOOG	X	X	VOL	X	X
KAPOT/STUK	X	X	VOORZICHTIG	X	
KLEIN	X	X	WAKKER	X	X
KOUD	X	X	WARM	X	X
LANGZAAM	X		WIT	X	X
LEKKER	X	X	ZACHT	X	
LIEF	X	X	ZIEK	X	
MEER	X	X	ZWART	X	X
MOE	X	X			

**Meubels en Kamers (19/38)**

Gebaar	Begrijpt	Gebruikt	Gebaar	Begrijpt	Gebruikt
BAD	X	X	RAAM	X	
BADKAMER	X		SLAAPKAMER	X	
BANK	X	X	SPIEGEL	X	
BED	X	X	STOEL	X	X
DEUR	X		TAFEL	X	X
KAST	X	X	TRAP	X	
KEUKEN	X	X	TV	X	X
KOELKAST	X		WASMACHINE	X	
LICHT	X	X	WC	X	
OVEN	X				

**Hulpwerkwoorden (5/12)**

MAAKT-NIET-UIT	X		NIET-LEUK-VINDEN	X	
MOETEN	X		WILLEN	X	
MOGEN	X				

**Eten en Drinken (44/91)**

Gebaar	Begrijpt	Gebruikt	Gebaar	Begrijpt	Gebruikt
AARDBEI	x	X	LOLLY	x	X
APPEL	x	X	MANDARIJN	x	
BANAAN	x	X	MELK	x	x
BESCHUIT	x	X	MELOEN	x	X
BOTER	X	X	NOTEN	X	
BOTERHAM	X	X	PANNENKOEK	x	X
CAKE	X	X	PASTA (bv. macaroni)	x	X
CHIPS	X	X	PEER	x	X
CHOCOLADE	X	X	PINDAKAAS	X	
CRACKER	X	X	PIZZA	X	
DRUIF	X	X	RIJST	X	
EI	X	X	SALADE	X	
FLESJE	X	X	SNOEP	X	X
FRIET/PATAT	X	X	SOEP	x	X
FRUIT	X	X	TAART	x	X
HAGELSLAG	X	X	THEE	x	x
IJSJE	X	X	WATER	X	X
KAAS	X		WATERMELOEN	x	x
KIP	X	X	WORST	x	x
KOEKJE	X	X	WORTEL	X	x
KOFFIE	X	X	YOGHURT	X	
KOMKOMMER	X		ZOUT	X	

**Spellen en Routines (24/47)**

Gebaar	Begrijpt	Gebruikt	Gebaar	Begrijpt	Gebruikt
AAN(DOEN)	x		OPNIEUW	x	
ALSJEBLIEFT	x	x	PLASSEN	x	x
AU!	x	x	POEPEN	x	x

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BEDANKT	X	X	SORRY	X	X
BEDTIJD	X		SSSTTT (STIL)	X	X
BELLEN (TELEFOON)	X	X	TANDENPOETSEN	X	X
DOEI/DAG	X	X	TIKKERTJE	X	
GOEDEMORGEN	X	X	TOT-MORGEN	X	X
HANDEN-WASSEN	X	X	VERHAAL	X	
JA	X		VERJAARDAG	X	
KIEKEBOE	X	X	VRAGEN	X	X
NEE	X		WELTERUSTEN	X	X
<b>Huishouden (30/65)</b>					
<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>	<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>
BEKER	X	X	MES	X	X
BEZEM	X		PLANT	X	X
BORD	X	X	ROMMEL	X	X
CAMERA	X		RUGZAK	X	
COMPUTER	X		SCHAAR	X	
CRÈME	X		SLEUTELS	X	X
DOOS	X	X	STOFZUIGER	X	X
EMMER	X		TANDENBORSTEL	X	X
FLES	X		TANDPASTA	X	X
FOTO	X	X	TAS	X	X
GELD	X		TELEFOON	X	X
HAMER	X		VORK	X	X
HANDDOEK	X		VUILNISBAK	X	X
LAMP	X	X	WASHAND	X	
LEPEL	X	X	ZEEP	X	X
<b>Buitenshuis (20/35)</b>					
<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>	<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>
BLIKSEM	X		STORM	X	
BLOEM	X	X	TAK	X	
BOOM	X	X	VLAG	X	X
GIETER	X	X	WIND	X	
GLIJBAAN	X	X	WOLK	X	
GRAS	X	X	ZAND	X	
MAAN	X	X	ZANDBAK	X	
REGEN	X	X	ZEE	X	
SCHEP	X	X	ZON	X	
SNEEUW	X	X	ZWEMBAD	X	
<b>Plaatsen (8/31)</b>					
<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>	<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>
BOS	X	X	SPEELTUIN	X	X
BUITEN	X	X	STRAND	X	
FEEST	X	X	THUIS	X	X
HUIS	X	X	WINKEL/SUPERMARKT	X	

<b>Mensen (16/41)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BABY	X	X	MEISJE	X	X
BABY	X	X	NAAM-HUISDIER	X	X
DOKTER	X		NAAMGEBAAAR	X	X
EIGEN-NAAM	X	X	OMA	X	X
INDIAAN	X	X	OPA	X	X
JONGEN	X		PAPA	X	X
KIND	X		TANTE	X	X
MAMA	X	X	VRIEND(IN)	X	X
<b>Voorzetsels (6/17)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BOVEN	X	X	NAAST	X	
IN	X		ONDER	X	X
NAAR	X		OP	X	
<b>Voornaamwoorden (5/18)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
IEDEREEN	X		WIJ-TWEE (3.DU)	X	
IK (1.SG)	X		ZELF	X	
MIJN (1.POSS)	X	X			
<b>Hoeveelheden/Overig (7/12)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
1-2-3	X	X	OOK	X	
ALLES	X		SOMMIGE	X	
EEN BEETJE	X		ZELFDE	X	X
NIET	X				
<b>Vraaggebaren (4/8)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
WAAR	X		WAT	X	
WAAROM	X		WIE	X	
<b>Tijd (10/22)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AVOND	X		NOG-NIET	X	
BIJNA/BINNENKORT	X	X	NU	X	
DAG	X	X	OCHTEND	X	
GISTEREN	X		STRAKS	X	X
MORGEN	X	X	WACHT-EVEN	X	X
<b>Speelgoed (13/23)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BAL	X	X	MUZIEK	X	X
BALLON	X	X	POP	X	X
BLOKKEN	X	X	POTLOOD	X	X
BOEK	X	X	SPEELGOED	X	
CADEAU	X	X	TEDDYBEER	X	X

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KLEI	X	X	TOREN	X	X
KLEURPOTLOOD	X	X			
<b>Voertuigen (9/21)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AUTO	X	X	TRACTOR	X	X
BOOT	X	X	TREIN	X	X
FIETS	X	X	VLIEGTUIG	X	X
MOTOR	X		VRACHTWAGEN	X	X
SCOOTER	X				

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<b>Werkwoorden (127/138)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AANKLEDEN	X	X	LIKKEN	X	X
AANRAKEN	X	X	LOPEN	X	X
AFVEGEN	X	X	LOSLATEN	X	X
BIJTEN	X	X	LUISTEREN	X	X
BINNENKOMEN	X	X	MAKEN	X	X
BLAZEN	X	X	MISSEN	X	
BLIJVEN	X	X	OPENEN	X	X
BORSTELEN	X	X	OPRUIJEN	X	X
BOUWEN	X	X	OPSCHieten	X	X
BREKEN	X	X	OPSTAAN (na zitten)	X	X
BRENGEN	X	X	PASSEN	X	X
DANSEN	X	X	PIL-NEMEN	X	X
DELEN	X	X	PRATEN	X	X
DENKEN	X	X	PRIK/SPUIT-KRIJGEN	X	X
DOEN	X	X	PROBEREN	X	X
DOEN-ALSOF	X		PROEVEN	X	X
DOORGAAN	X	X	PUZZELEN	X	X
DOUCHEN	X	X	RENNEN	X	X
DRAAIEN	X	X	REPAREREN	X	
DRAGEN	X	X	RIJDEN	X	X
DRINKEN	X	X	ROEPEN	X	X
DROGEN	X	X	RUIKEN	X	X
DROMEN	X		RUSTEN/ONTSPANNEN	X	X
DUWEN	X	X	SCHEUREN	X	X
ETEN	X	X	SCHOMMELEN	X	X
FANTASEREN	X		SCHOPPEN	X	X
FELICITEREN	X	X	SCHRIJVEN	X	X
GAAN (weggaan)	X	X	SCHUDDEN	X	X
GAAN	X	X	SKATEN	X	X
GEBAREN	X	X	SLAAN	X	X
GEVEN	X	X	SLAPEN	X	X
GIETEN	X	X	SLUITEN	X	X
GLIJDEN	X	X	SPELEN	X	X
GOOIEN	X	X	SPETTEREN	X	X
GROEIEN	X	X	SPRINGEN	X	X
HEBBEN	X	X	STAAN	X	X
HELPEN	X	X	STOPPEN	X	X
HOESTEN	X	X	STOTEN	X	X
HOREN	X	X	TEKENEN	X	X
HOUDEN	X	X	TREKKEN	X	X

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HOUDEN- VAN	X	X	VALLEN	X	X
HUILEN	X	X	VANGEN	X	X
JAGEN	X		VASTHOUDEN	X	X
KIETELEN	X	X	VEGEN	X	X
KIEZEN	X	X	VERLIEZEN	X	X
KIJKEN/ZIEN	X	X	VERSTOPPEN	X	X
KLAAR (ZIJN)	X	X	VERTELLEN	X	X
KLAPPEN	X	X	VERVEN	X	X
KLIMMEN	X	X	VERZORGEN	X	
KLOPPEN	X	X	VINDEN	X	X
KNIPPEN	X	X	VOEDEN	X	X
KNUFFELEN	X	X	VOLGEN	X	X
KOKEN	X	X	WACHTEN	X	X
KOMEN	X	X	WAKKER-WORDEN	X	X
KOPEN	X	X	WASSEN	X	X
KRIJGEN	X	X	WEGGOOIEN	X	X
LACHEN	X	X	WERKEN	X	X
LATEN-VALLEN	X	X	ZEGGEN	X	X
LATEN-ZIEN	X	X	ZINGEN	X	X
LEEGMAKEN	X	X	ZITTEN	X	X
LEREN	X	X	ZOEKEN	X	X
LESGEVEN	X		ZOENEN	X	X
LEUK-VINDEN	X	X	ZWEMMEN	X	X
LEZEN	X	X			

**Dieren (52/55)**

<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AAP	X	X	MUG	X	
BEER	X	X	MUIS	X	X
BIJ	X	X	OLIFANT	X	X
DIER	X	X	PAARD	X	X
EEKHOORN	X	X	PAPEGAAI	X	X
EEND	X	X	PAUW	X	X
EGEL	X	X	PINGUÏN	X	X
EZEL	X	X	PUPPY	X	
GANS	X	X	RUPS	X	X
GEIT	X	X	SCHAAP	X	X
GIRAF	X	X	SCHILDPAD	X	X
HAAN	X	X	SLAK	X	X
HERT	X	X	SLANG	X	
HOND	X	X	SPIN	X	X
KAT/POES	X	X	TIJGER	X	X
KIKKER	X	X	UIL	X	X
KIP	X	X	VARKEN	X	X
KOE	X	X	VIS	X	X

KONIJN	X	X	VLIEG	X	X
KROKODIL	X	X	VLINDER	X	X
KUIKEN	X	X	VOGEL	X	X
LAM	X		VOS	X	X
LEEUW	X	X	WALVIS	X	
LIEVEHEERSBEESTJE	X		WOLF	X	X
MIER	X	X	WORM	X	X
MOL	X	X	ZEBRA	X	X
<b>Voeggebaren (7/7)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
ALS	X	X	EN	X	X
DAAROM	X		MAAR	X	X
DAN	X	X	OMDAT	X	
DUS	X	X			
<b>Lichaamsdelen (30/31)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
ARM	X	X	NAVEL	X	X
BEEN	X	X	NEK	X	X
BILLEN	X	X	NEUS	X	X
BORST	X	X	OOG	X	X
BORSTEN	X	X	OOR	X	X
BUIK	X	X	PIEMEL	X	X
ENKEL	X		RUG	X	X
GEZICHT	X	X	SCHOUDE	X	X
HAAR	X	X	TAND	X	X
HAND	X	X	TEEN	X	X
HOOFD	X	X	TONG	X	X
KIN	X	X	VINGER	X	X
KNIE	X	X	VOET	X	X
LIP	X	X	WANG	X	X
MOND	X	X	WOND	X	X
<b>Kleding (32/40)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
BADPAK	X	X	LAARZEN	X	X
BRIL	X	X	LUIER	X	X
BROEK	X	X	ONDERBROEK	X	X
CI	X	X	OORBELLEN	X	X
GEHOORAPPARAAT	X	X	PET	X	X
HANDSCHOENEN	X	X	PYJAMA	X	X
HEMD	X	X	SANDALEN	X	X
HOED	X	X	SCHOENEN	X	X
HORLOGE	X	X	SJAAL	X	X
JAS	X	X	SLOFFEN	X	X
JEANS	X	X	SNEAKERS	X	X



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JURK	X	X	SOKKEN	X	X
KETTING	X	X	SPEEN	X	X
KLEDING	X	X	TRUI	X	X
KNOOP	X		T-SHIRT	X	X
KORTE-BROEK	X	X	VEST	X	X
<b>Beschrijvende gebaren (79/87)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AARDIG	X	X	MINDER	X	X
ALLEEN	X	X	MOE	X	X
BAH	X	X	MOEILIJK	X	X
BANG	X	X	MOOI	X	X
BETER	X	X	NAT	X	X
BLAUW	X	X	NIEUW	X	X
BLIJ	X	X	ONDEUGEND	X	X
BOOS	X	X	OP/LEEG	X	X
BRUIN	X	X	ORANJE	X	X
DONKER	X	X	OUD	X	X
DOOF	X	X	PAARS	X	X
DORST	X	X	PIJN	X	X
DROOG	X	X	PRIMA	X	X
DRUK (GEDRAG)	X	X	ROOD	X	X
EERST	X	X	ROZE	X	X
GEEL	X	X	RUSTIG	X	X
GEK	X	X	SCHATTIG	X	X
GEMEEN	X	X	SCHOON	X	X
GENOEG	X	X	SLAPEND	X	X
GOED	X	X	SLAPERIG	X	X
GRAPPIG	X	X	SLECHT	X	X
GROEN	X	X	SNEL	X	X
GROOT	X	X	STERK	X	X
HARD	X	X	STIL	X	X
HEET	X	X	STOM	X	X
HETZELFDE	X	X	VAST	X	X
HONGERIG	X	X	VERDRIETIG	X	X
HOOG	X	X	VERTROKKEN/WEG	X	X
KAPOT/STUK	X	X	VIES	X	X
KLEIN	X	X	VOL	X	X
KOUD	X	X	VOORZICHTIG	X	X
LAATSTE	X	X	WAKKER	X	X
LANG (PERSOON)	X	X	WARM	X	X
LANG (TIJD)	X	X	WINDERIG	X	X
LANGZAAM	X	X	WIT	X	X
LEKKER	X	X	ZACHT	X	X
LELIJK	X	X	ZIEK	X	X

LIEF	X	X	ZWAAR	X	X
LUID	X	X	ZWART	X	X
MEER	X	X			

**Meubels en Kamers (33/38)**

Gebaar	Begrijpt	Gebruikt	Gebaar	Begrijpt	Gebruikt
BAD	X	X	LICHT	X	X
BADKAMER	X	X	OVEN	X	X
BANK	X	X	RAAM	X	X
BED	X	X	SCHOMMELSTOEL	X	X
DEUR	X	X	SLAAPKAMER	X	X
FAUTEUIL	X	X	SPIEGEL	X	X
FORNUIS	X	X	STOEL	X	X
GARAGE	X		TAFEL	X	X
GORDIJNEN	X	X	TAFELKLEED	X	X
KACHEL	X	X	TRAP	X	X
KAMER	X	X	TV	X	X
KAST	X	X	VLOERKLEED	X	X
KELDER	X		WASMACHINE	X	X
KEUKEN	X	X	WASTAFEL	X	X
KINDERSTOEL	X	X	WC	X	X
KOELKAST	X	X	WOONKAMER	X	X
LA	X	X			

**Hulpwerkwoorden (12/12)**

Gebaar	Begrijpt	Gebruikt	Gebaar	Begrijpt	Gebruikt
HOEFT-NIET	X	X	MOGEN-NIET	X	X
KUNNEN	X	X	NIET-LEUK-VINDEN	X	X
KUNNEN-NIET	X	X	WETEN	X	X
MAAKT-NIET-UIT	X	X	WETEN-NIET	X	X
MOETEN	X	X	WILLEN	X	X
MOGEN	X	X	WILLEN-NIET	X	X

**Eten en Drinken (80/91)**

Gebaar	Begrijpt	Gebruikt	Gebaar	Begrijpt	Gebruikt
AARDAPPELEN	X	X	LOLLY	X	X
AARDAPPELPUREE	X	X	MAIS	X	
AARDBEI	X	X	MANDARIJN	X	X
APPEL	X	X	MELK	X	X
APPELMOES	X	X	MELOEN	X	
BANAAN	X	X	NOTEN	X	X
BESCHUIT	X		PANNENKOEK	X	X
BIER	X		PAP	X	X
BONEN	X	X	PASTA (bv. macaroni)	X	X
BOTER	X	X	PEER	X	X
BOTERHAM	X	X	PINDAKAAS	X	X
BROOD	X	X	PIZZA	X	X

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BROODJE	X	X	POMPOEN	X	
CAKE	X	X	POPCORN	X	X
CHIPS	X	X	PUDDING	X	X
CHOCOLADE	X	X	RIJST	X	
CHOCOLADE PASTA	X	X	ROZIJNEN	X	X
CHOCOLADEMELK	X	X	SALADE	X	
CRACKER	X	X	SAP	X	X
DRUIF	X	X	SAUS	X	X
EI	X	X	SINAASAPPEL	X	X
ERWTJES	X		SNOEP	X	X
FLESJE	X	X	SOEP	X	X
FRIET/PATAT	X	X	SPERZIEBONEN	X	X
FRUIT	X	X	SPINAZIE	X	X
GEROOSTERD BROOD	X	X	STOKBROOD	X	X
HAGELSLAG	X	X	SUIKER	X	X
HAMBURGER	X	X	TAART	X	X
HONING	X	X	THEE	X	X
HOTDOG	X		TOMAAT	X	X
IJSJE	X	X	VIS	X	X
JAM	X	X	VLA	X	X
KAAS	X	X	VLEES	X	X
KASTANJE	X	X	WATER	X	X
KAUWGOM	X		WATERMELOEN	X	
KIP	X	X	WORST	X	X
KOEKJE	X	X	WORTEL	X	X
KOFFIE	X	X	YOGHURT	X	X
KOMKOMMER	X	X	ZOET	X	X
KROKET	X		ZOUT	X	
<b>Spellen en Routines (42/47)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AAN(DOEN)	X	X	OMDRAAIEN	X	X
AL	X	X	ONTBIJT	X	X
ALSJEBLIEFT	X	X	OPNIEUW	X	X
AU!	X	X	PAKJESAVOND	X	X
BEDANKT	X	X	PLASSEN	X	X
BEDTIJD	X	X	POEPEN	X	X
BELLEN (TELEFOON)	X	X	POTJE	X	X
DINER (AVONDETEN)	X	X	SLAAPJE	X	X
DOEI/DAG	X	X	SORRY	X	X
ER-IS-NIKS	X	X	SSSTT (stil)	X	X
EVEN-KIJKEN	X	X	TANDENPOETSEN	X	X
GEZICHT-WASSEN	X	X	TOEGESTAAN	X	X
GOEDEMORGEN	X	X	TOT MORGEN	X	X
GOEDENAVOND	X	X	UIT(DOEN)	X	X

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HANDEN-WASSEN	X	X	UITSTAPPEN	X	X
HAND-GEVEN	X	X	VERHAAL	X	X
HOI/HI	X	X	VERJAARDAG	X	X
JA	X	X	VRAGEN	X	X
KIEKEBOE	X	X	WELTERUSTEN	X	X
NEE	X	X	WINKELN	X	X
OKEE	X	X	ZO-GROOT	X	X

**Huishouden (59/65)**

Gebaar	Begrijpt	Gebruikt	Gebaar	Begrijpt	Gebruikt
BEKER	X	X	PAPIER	X	X
BEZEM	X	X	PLAKBAND	X	X
BLOEMPOT	X		PLANT	X	X
BORD	X	X	PLEISTER	X	X
BRIEF	X		PORTEMONNEE	X	X
CAMERA	X	X	POT	X	X
COMPUTER	X		RADIO	X	X
CRÈME	X	X	ROMMEL	X	
DEKEN	X	X	RUGZAK	X	X
DOOS	X	X	SCHAAR	X	X
DWEIL	X		SHAMPOO	X	X
EMMER	X	X	SIROOP	X	X
FLES	X	X	SLEUTELS	X	X
FLITSBEL	X	X	SPIJKER	X	X
FOTO	X	X	SPONS	X	X
GELD	X	X	STOFZUIGER	X	X
GLAS	X	X	TANDENBORSTEL	X	X
HAMER	X	X	TANDPASTA	X	X
HANDDOEK	X	X	TAS	X	X
KAM	X	X	TELEFOON	X	X
KLOK	X	X	THEELEPEL	X	X
KOM	X	X	VIDEO	X	X
KRAAN	X	X	VIDEOCHAT	X	X
KRANT	X		VORK	X	X
KUSSEN	X	X	VUILNIS	X	X
LAMP	X	X	VUILNISBAK	X	X
LEPEL	X	X	WASHAND	X	X
MAND	X		ZAKDOEK	X	X
MES	X	X	ZEEP	X	X
MOBIELE TELEFOON	X	X			

**Buitenshuis (32/35)**

Gebaar	Begrijpt	Gebruikt	Gebaar	Begrijpt	Gebruikt
BERG	X	X	STER	X	X
BLIKSEM	X	X	STOEP	X	X
BLOEM	X	X	STORM	X	X

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BOOM	X	X	STRAAT	X	X
DAK	X	X	TAK	X	X
GIETER	X	X	TUIN	X	X
GLIJBAAAN	X	X	TUINSLANG	X	X
GRAS	X	X	VLAG	X	X
LADDER	X	X	WATER (geen drinken)	X	X
LUCHT	X	X	WIND	X	X
MAAN	X	X	WOLK	X	X
REGEN	X	X	ZAND	X	X
SCHEP	X	X	ZANDBAK	X	X
SNEEUW	X	X	ZEE	X	X
SNEEUWPOOP	X		ZON	X	X
STEEN	X	X	ZWEMBAD	X	X

**Plaatsen (25/31)**

Gebaar	Begrijpt	Gebruikt	Gebaar	Begrijpt	Gebruikt
BAKKERIJ	X	X	KINDEROPVANG	X	X
BENZINEPOMP	X		LOGOPEDIE	X	X
BIBLIOTHEEK	X		MARKT	X	X
BOS	X	X	MCDONALDS	X	X
BUITEN	X	X	RESTAURANT	X	X
CAMPING	X		SCHOOL	X	X
CIRCUS	X		SLAGERIJ	X	
DIERENTUIN	X		SPEELTUIN	X	X
FEEST	X	X	STRAND	X	X
HUIS	X	X	THUIS	X	X
KANTOOR/WERK	X	X	WINKEL/SUPERMARKT	X	X
KERK	X	X	ZIEKENHUIS	X	X
(KINDER)BOERDERIJ	X	X			

**Mensen (35/41)**

Gebaar	Begrijpt	Gebruikt	Gebaar	Begrijpt	Gebruikt
BABY	X	X	NAAM-OPPAS	X	X
BRANDWEERMAN	X	X	NAAMGEBAAAR	X	X
BROER	X		OMA	X	X
CLOWN	X	X	OOM	X	X
DOKTER	X	X	OPA	X	X
EIGEN-NAAM	X	X	OPPAS	X	
GEBARENTOLK	X	X	PAPA	X	X
HEKS	X	X	PERSOON	X	X
INDIAAN	X	X	PIET	X	X
JONGEN	X	X	POLITIE	X	X
JUF/MEESTER	X	X	POSTBODE	X	
KIND	X	X	SINTERKLAAS	X	X
LOGOPEDIST	X	X	TANTE	X	X
MAMA	X	X	VERPLEEGSTER	X	

MAN	X	X	VRIEND(IN)	X	
MEISJE	X	X	VROUW	X	X
MENSEN	X	X	ZUS	X	
NAAM-HUISDIER	X	X			
<b>Voorzetsels (17/17)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
ACHTER	X	X	ONDER	X	X
BIJ	X	X	OP	X	X
BOVEN	X	X	OVER	X	X
DICHTBIJ	X	X	RANDOM	X	
IN	X	X	TUSSEN	X	X
MET	X	X	UIT	X	X
NAAR	X	X	VAN	X	X
NAAST	X	X	VOOR	X	X
OM	X				
<b>Voornaamwoorden (16/18)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
ALLEMAAL	X	X	JIJ (2.SG)	X	X
DAT	X	X	JOUW (2.POSS)	X	X
DEZE	X	X	JULLIE (2.PL)	X	X
DIE	X	X	JULLIE-TWEE (2.DU)	X	X
DIT	X	X	MIJN (1.POSS)	X	X
HIJ/ZIJ (3.SG)	X	X	WIJ (3.PL)	X	X
IEDEREEN	X	X	WIJ-TWEE (3.DU)	X	X
IK (1.SG)	X	X	ZELF	X	X
<b>Hoeveelheden/Overig (10/12)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
1-2-3	X	X	NIETS	X	X
ALLES	X	X	OOK	X	X
ANDERS	X	X	SOMMIGE	X	X
EEN BEETJE	X	X	VEEL	X	X
NIET	X	X	ZELFDE	X	X
<b>Vraaggebaren (8/8)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
HOE	X	X	WANNEER	X	X
HOEVEEL	X	X	WAT	X	X
WAAR	X	X	WELKE	X	X
WAAROM	X		WIE	X	X
<b>Tijd (20/22)</b>					
<b>Gebaar</b>	Begrijpt	Gebruikt	<b>Gebaar</b>	Begrijpt	Gebruikt
AVOND	X	X	NU	X	X
BIJNA/BINNENKORT	X	X	OCHTEND	X	X
DAG	X	X	STRAKS	X	X
GISTEREN	X	X	TIJD	X	X

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LAAT	X	X	VANDAAG	X	X
LANGE-TIJD	X	X	VANNACHT	X	X
MIDDAG	X	X	VOLGENDE	X	X
MORGEN	X	X	VOOR	X	X
NACHT	X	X	VROEG	X	X
NOG-NIET	X	X	WACHT-EVEN	X	X
<b>Speelgoed (21/23)</b>					
<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>	<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>
BAL	X	X	LIJM	X	X
BALLON	X	X	MUZIEK	X	X
BEL	X	X	PEN	X	X
BELLENBLAAS	X	X	POP	X	X
BLOKKEN	X	X	POTLOOD	X	X
BOEK	X	X	SPEELGOED	X	X
CADEAU	X	X	SPEL	X	X
DOBBELSTEEN	X	X	TEDDYBEER	X	X
KLEI	X	X	TOREN	X	X
KLEURPOTLOOD	X	X	VOETBAL	X	X
KRIJT	X	X			
<b>Voertuigen (20/21)</b>					
<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>	<b>Gebaar</b>	<b>Begrijpt</b>	<b>Gebruikt</b>
AMBULANCE	X	X	SCOOTER	X	X
AUTO	X	X	SLEE	X	
BOOT	X	X	STOOMBOOT	X	X
BRANDWEERAUTO	X	X	TAXI	X	X
BUS	X	X	TRACTOR	X	X
FIETS	X	X	TRAM	X	X
HELIKOPTER	X	X	TREIN	X	X
KINDERWAGEN	X	X	VLIEGTUIG	X	X
METRO	X	X	VRACHTWAGEN	X	X
MOTOR	X	X	VUILNISWAGEN	X	X