THE DEVELOPMENT OF EARLY PROSODIC WORD STRUCTURE IN CHILD GERMAN: SIMPLEX WORDS AND COMPOUNDS

Dissertation

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APPENDIX

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1 Introduction

1.1 Investigating child phonology

At approximately 12 months of age, normally developing children produce their first meaningful words. These early words differ from their corresponding adult target word in several respects: Usually, the words do not comprise more than two syllables, and children are not yet capable of producing the complete sound inventory of the target language.

It has long been noticed that, despite the frequent segmental and prosodic errors, children do not randomly omit or substitute sounds and syllables of the adult target word. There is ample evidence that reduction processes are applied in a systematic way. This holds for the level of segmental structure (Jakobson 1948/65, Smith 1971, see Bernhardt and Stemberger 1998: 277-287, Fikkert 2007 for an overview), syllable structure (Fikkert 1994, Ota, 2003, see also Bernhardt and Stemberger 1998: 368-441, Fikkert 2007) and for foot and prosodic word structure (cf. Fikkert 1994, Demuth and Fee 1995, Archibald 1995, Gerken 1996).

The present study investigates the acquisition of prosodic word structure in German. The aim is to provide an empirical and theoretical analysis of the development of multisyllabic simplex words and compounds in early child German. Consistent with previous research, it will be shown that the children pass through a single-foot stage, a two-feet stage, and finally permit unfooted syllables. In accordance with Kehoe 1999/2000, I argue that the stages characterize the upper limit of words. For example, children's outputs are permitted to contain two feet at the two-feet stage. Some outputs do so, while others are persistently truncated to a single foot.

Previous research has stated that children's single foot stage corresponds to the minimality constraints found in adult language. For example, the foot represents the lower prosodic limit of content words in many languages. This observation is formulated by the so-called *Minimal Word Constraint* (Demuth and Fee 1995, Demuth 1996a for child language). The foot also represents the minimal stress domain in adult (cf. Hayes 1995) and child language (Fikkert 1994). Furthermore, morphological and prosodic processes often result in a bisyllabic foot in adult (cf. Fery 1997 for German clippings, Wiese 1996 for German plural formation) and child language (cf. Fikkert 1994 for truncation and epentheses, Salidis and Johnson 1997 and Ota 2003 for truncation and compensatory lengthening). Due to the importance of the foot in German phonology, it plays a crucial role in early child German.

It has also been emphasized that the shape of children's early feet is determined by language-specific properties. The early vocabularies of children acquiring German, Dutch and English contain many bisyllabic words (Fikkert 1994, Demuth and Fee 1995, Lleó and Demuth 1999). In these languages the unmarked prosodic word corresponds to a bisyllabic trochee. By contrast, the early foot structure of children acquiring stress-final languages such as French is a monosyllable (Rose 2000, Demuth and Johnson 2003). These authors also reported that, due to the fact that French permits sub-minimal prosodic words, truncation to CV-syllables is found for a relatively long period of time. Prieto (2006) made a similar observation comparing child Catalan and Spanish. Catalan permits more monosyllables and iambic bisyllables than Spanish. Children acquiring Catalan truncate iambs to monosyllables for a longer period of time than children acquiring Spanish. For child Japanese, Ota (2003) showed that the moraic content of feet is respected at the beginning of word production. The mora constrains stress placement and syllable complexity in adult Japanese, and children are sensitive to these restrictions. And finally, in a cross-linguistic comparison of child German and child Spanish, Lleó and Demuth (1999) and Lleó (2001) showed that Spanish children start producing unfooted syllables at an earlier age than their German peers. The German children first passed through a two-feet-stage before they permitted unfooted syllables.

The brief review shows that most of the earlier research is based on the production pattern of multisyllabic simplex words in languages other than German. Although the acquisition of closely related languages such as Dutch and English has been studied to some extent (e.g., Fikkert 1994, 2001, Wijnen et al. 1994 for Dutch; Gerken 1991 and subsequent research, Demuth and Fee 1995, Pater 1997, Salidis and Johnson 1997, Kehoe 1999/2000 for English), a detailed investigation of the development of prosodic word structure is still lacking for German. Furthermore, it is unclear whether children are sensitive to the word-internal morphological and prosodic organization of simplex words and compounds. The present thesis compares the development of simplex words and compounds concentrating on the following two questions:

1) Which stages of word-prosodic development can be determined for simplex words and compounds in early child German?
2) Are these stages consistent with optimality-theoretic approaches to phonological development stating that child grammars reflect the re-ranking of universal constraints?

These two questions will be illustrated in more detail in subsections 1.2 and 1.3.

1.2 Empirical Analysis

The primary aim of the study is to identify and describe the developmental stages for early child German. The evidence is based on the truncation pattern of multisyllabic words. In adult German, these words differ with regard to the target number of syllables and the location of the main-stressed syllable. In German multisyllabic simplex words, main stress normally falls on the final or prefinal syllable. In contrast, compounds regularly receive main stress on the first constituent (and here usually on the first syllable). The children have to learn these prosodic regularities, and their knowledge should be reflected in the output. Therefore, one important aspect of the empirical part is to what extent the prosodic organization of the target word determines the structure of the output. If it plays no role, children are predicted to truncate simplex words and compounds in the same way at a given stage in their development. If children distinguish between simplex words and compounds, prosodic restrictions might apply differently to the various input prosodic shapes, and no shape uniformity is expected.

In this thesis, I argue for the latter position. This has implications for the representation and processing of compounds in early child language. Simplex words and compounds can be treated in a different way only if they are represented differently in a child's mental lexicon. A number of models of morphological processing have been suggested that address the representation and processing of complex words in adults. Most of them have focused on inflection (cf. Caramazza, Laudanna and Romani 1988) or derivation (cf. Hay 2003). The findings of the present study strongly support the view that children break up compounds into their constituents at a very early age. Several cues help children to detect morphological complexity at a pre-lexical level, such as boundary phonotactics, stress pattern, and the possible word constraint (Hay 2003, for an overview). On the lexical level, the increasing vocabulary allows children to create so-called mini-paradigms (Dressler, Kiliani-Schoch and Klampfer 2003). According to Dressler, children split the input into separate morphological constituents if there are paradigmatically identical constituents.

Surprisingly, the prosodic acquisition of compounds has rarely been investigated in opposition to simplex words (e.g., Fikkert 2001, Tzakosta 2004). In the thesis, I argue for four developmental stages. I show that the truncation pattern is different for simplex words and compounds and also within the group of simplex words. The findings are consistent with the hypothesis that children store words in their target-like form. As the target prosodic structure differs, there is no uniform output at a given stage. These empirical findings can be naturally explained by a constraint-based framework.

1.3 Theoretical Analysis

In the theoretical analysis, I adopt the position that children initially rank markedness constraints higher than faithfulness constraints (cf. Gnanadesikan 1995, Demuth 1995, 1996b, Smolensky 1996). In the course of development, markedness constraints are gradually demoted to the bottom of the hierarchy (Tesar and Smolensky 1996, 1998). The re-ranking predicts an increase of prosodic complexity over time.

In the theoretical analysis of the data, I demonstrate that the developmental stages in child German can be captured by different rankings of the same constraints. The constraints involved in the analysis are motivated by cross-linguistic research on child and adult language. Hence, the developmental pattern in child German is consistent with the widely accepted view that there are no qualitative differences between adult and child language (*continuity hypothesis*, Pinker 1982). The analysis also accounts for inter-individual variation in the data.

1.4 Organization of the thesis

The thesis is organized as follows: Section 2 introduces theoretical aspects of word-prosodic organization. It summarizes the general tenets and principles of prosodic phonology and provides an overview of the prosodic organization of simplex words and compounds in German.

Section 3 addresses the acquisition of prosodic words from an empirical perspective. I first summarize earlier findings on the development of simplex words. In the second part of the section, I discuss previous research on the development of compounds. The section ends with an outline of how learning takes place in optimality-theoretic grammars.

Section 4 is concerned with the methodology. I describe the data collection, transcription and the structure of the database. The section provides information about the data selected for the analysis. The section also describes how I dealt with problems arising in the annotation of compounds.

Section 5 analyzes the development of trisyllabic simplex words and compounds. It compares the production pattern of sWS simplex words and S-sW and SW-s compounds. These prosodic shapes are selected because they consist of footed syllables but differ in their stress pattern. The section describes the stages of development for these trisyllabic words and provides an analysis in terms of re-ranking.

In Section 6, I test whether the predictions drawn from the empirical and theoretical analysis can be applied to the other simplex words found in the database. These are the prosodic shapes WS, WSW, SWW, sWSW and sWWSW. I show that the output differs at the same stage, depending on the structure of the input. The theoretical analysis shows that the ranking proposed in Section 5 accounts for the production patterns at the four different stages.

Section 7 is concerned with the development of compounds. The compounds in the database show a greater range of target prosodic shapes than the simplex words, with only few tokens for a particular shape. A separate analysis is provided for SW-sW compounds but the other shapes are combined into three further categories. The first category includes compounds containing a bipedal constituent such as sWSW-s and sWS-sW. The second one summarizes shapes containing an unfooted syllable such as WSW-sW and WSW-s. The third category consists of the so-called pseudo-compounds. I demonstrate that the production pattern of compounds is consistent with the four stages proposed in the previous sections, and that the constraint-based analysis captures the observed output shapes.

Section 8 provides a discussion of the main findings. It ends with concluding remarks and suggests topics for future research.

2 Theoretical background: The word-prosodic organization of German

2.1 Introduction

The present study is concerned with the development of word prosodic structure from the perspective of prosodic phonology. The study links up with earlier research showing that the prosodic structure of children's early words is influenced by the principles and constraints of the prosodic hierarchy (cf., Fikkert 1994; Demuth and Fee 1995; Demuth 1995, 1996ab; Gerken 1996, Ota 2003).

This section provides the theoretical background for the later analysis. Subsection 2.2 introduces the basic work in prosodic phonology and common views on the stress system of German simplex words and compounds. The section starts with an overview of the aims and assumptions of prosodic phonology in subsection 2.2. The prosodic organization of German is outlined in 2.3. The section ends with a brief description of the prosodic organization of German simplex words and compounds in 2.4.

2.2 Prosodic phonology

Prosodic phonology is concerned with phonological rules and processes and how these rules apply to prosodic domains. The basic assumption of prosodic phonology is that prosodic rules or constraints apply to prosodic and not to morphological or syntactic domains. Morphosyntactic and prosodic structure are related because prosodic representations are derived from morphosyntactic constituency via mapping rules (cf., Inkelas and Zec 1995 for an overview).

The prosodic domains or constituents are arranged hierarchically to form the *prosodic hierarchy* which is organized according to size. Listed from top to bottom, the Prosodic Hierarchy consists of seven levels: the utterance, the intonational phrase, the phonological phrase, the prosodic word, the foot, the syllable and the mora. The full hierarchy of constituents is depicted in Figure 2-1:

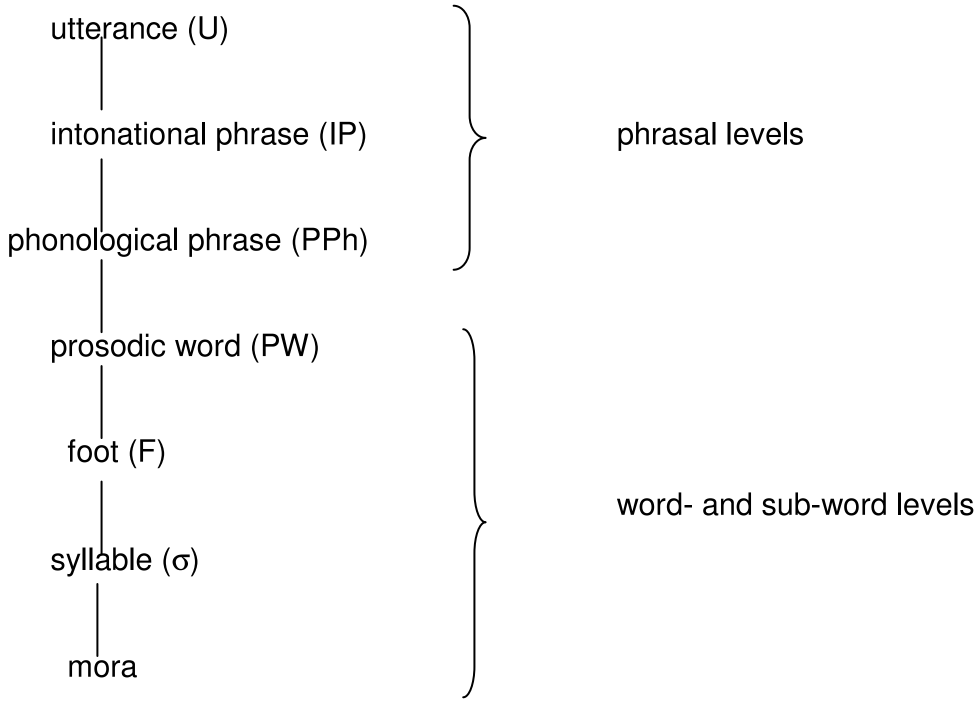

Figure 2-1. The prosodic hierarchy

Following rule-based accounts of prosodic phonology, the hierarchical order of the constituents is guaranteed by the *strict layer hypothesis* (Selkirk 1984, Nespor and Vogel 1986). The strict layer hypothesis requires that a given constituent *n* is immediately dominated by a constituent *n+1*. For example, it prohibits syllables to be associated directly with the prosodic word layer, thereby skipping the foot level.

The skipping of the foot level is one of the main problems that has been observed in many languages (see Selkirk 1995:443, and references therein). For example, German trisyllabic words with the main stress on the penultimate syllable do not parse the word-initial syllable *gi* into a foot in the target word *Giraffe* [giˈʁafə] 'giraffe'. Instead, *gi* is directly linked to the prosodic word (Figure 2-2). In Figure 2-2 and the following figures, 'PW' denotes a prosodic word, 'F' a foot, and 'σ' a syllable.

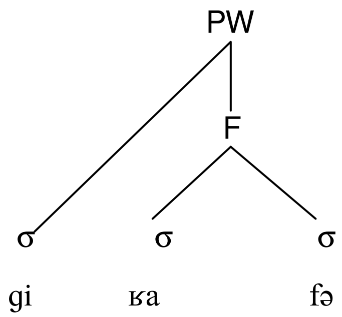

Figure 2-2. The prosodic representation of Giraffe 'giraffe'

Although non-exhaustive prosodic representations violate the *strict layer hypothesis*, they are frequent and well-formed in adult German. Evidence of this sort led to a new definition of the *strict layer hypothesis* in the form of four primitive markedness constraints: LAYEREDNESS, HEADEDNESS, EXHAUSTIVITY, and NONRECURSIVITY (Selkirk 1995). These constraints are defined in (1) below (Selkirk, 1995: 443):

(1) *Primitive Constraints of the strict layer hypothesis*

LAYEREDNESS: No C_i dominates a C_j, j>i,

e.g. "No syllable dominates a foot."

HEADEDNESS: Any C_i must dominate a C_i -1 (except if $C_i = \sigma$),

e.g. "A prosodic word must dominate a foot."

EXHAUSTIVITY: No C_i immediately dominates a constituent C_j, j <i-1,

e.g."No prosodic word immediately dominates a syllable."

NONRECURSIVITY: No C_i dominates C_j, j=i,

e.g. "No foot dominates a foot."

Selkirk argues that LAYEREDNESS and HEADEDNESS are universal properties of (adult) prosodic systems. Therefore, she proposes them to form undominated constraints. The ranking of EXHAUSTIVITY and NONRECURSIVITY is language-specific. Figure 2-2 indicates that EXHAUSTIVITY must be dominated by other constraints in the grammar of German; otherwise the word-initial syllable *gi* cannot directly be associated with the prosodic word. German also violates NONRECURSIVITY, for example when constructing compounds (see subsection 2.3.2. below).

2.3 Morphological complexity and the prosodic structure of words

2.3.1 Terminology

The prosodic structure of words depends on morphological units such as words, stems, and roots. The terms *word, stem,* and *root* are used in a different way in literature. I will outline below how they will be used in this thesis.

With respect to the term *word*, I refer to Selkirk (1982), who defines words as X^0 categories. Words form the terminal elements of a syntactic tree. For the definition of the terms *root* and *stem*, I follow Aronoff (1994). Aronoff defines *roots* as 'denoting the ultimate elements from which words are derived' (p. 5). The definition implies that German *haus* 'house', *kind* 'child' and *lieb* 'love' are roots because these morphemes cannot be decomposed into smaller morphological units. *Stems* are defined as 'the part of a complete word form that remains when an affix is removed' (p. 31). According to these two definitions, stems can (but do not have to) be identical with roots: free morphemes such as *kind* 'child' are roots that can be subject to derivation e.g., *kind-lich* 'child-like', and the stripping of the affix *–lich* from *kind-lich* resolves in the stem *kind*, too. Derived forms such as *kind-lich* can be stems as well if it is the input for further derivation e.g., to *früh-kind-lich* 'early childhood (adjective)'. Trivially, *kind-lich* cannot be a root because it does not represent a morphological primitive.

(2) Bisyllabic trochees in German plural formation (Wiese 1996:61-62)

Frau	~ Frau.-en	'woman'
Kind	~ Kin.d-er	'child'
Baum	~ Bäu.m-e (with umlaut)	'tree'
Va.ter	~ Vä.ter (with umlaut)	father'
Schwe.ster	~ Schwes.ter-n	'sister'
Au.to	~ Au.to-s	'car'

Keeping in mind the definitions of the terms *word, stem* and *root*, it becomes clear why the German unmarked prosodic *word* is a bisyllabic trochee (Wiese 1996, Féry 1997), but the unmarked *root* is a bimoraic monosyllable[1] (Golston and Wiese 1998). The unmarked status of trochaic *words* results from the observation that the German vocabulary contains many underived trochaic *words* (e.g. *ˈTasse* 'cup', *ˈNase* 'nose', *ˈBesen* 'broom). Furthermore, derivational processes usually result in bisyllabic trochees in (2) above:

The unmarked root is a bimoraic monosyllable. According to Golston and Wiese (1998:175), this holds for 79% of the native roots. The overwhelming majority of these monosyllables contain a coda consonant (96%).

[1] Confusingly, the *Minimal Word* is a bimoraic monosyllable in German (Féry 1991, Hall 1999, see also Féry 2001) because bimoraic roots such as *See* [zeː] 'sea' form existing stems and content words in German.

After the basic morphological terms have been introduced, the remaining part of this section is concerned with the correlation between morphology and prosody.

2.3.2 The correlation of prosodic and lexical words

According to the tenets of prosodic phonology, prosodic and morphosyntactic constituency is connected via mapping rules. With regard to the level of the prosodic word the correspondence is straightforward: An existing lexical word always forms a prosodic word, and a prosodic word can only be created upon morphological categories such as lexical words, stems, or affixes. Formally, this is expressed by the followng two constraints:

(3) *Constraints relating morphological categories and prosodic words*

LXWD ≈ PRWD: A lexical word corresponds to a prosodic word
(Prince and Smolensky 1993).

MCAT = PRWD: Morphological categories correspond to a prosodic word, where MCAT ≡ root, stem, lexical word, etc. (McCarthy and Prince 1995)

In German, the morphological categories (MCAT) forming prosodic words are lexical words, stems, and a subset of derivational affixes (Wiese 1996, Hall 1998, Raffelsiefen 2000).[2] As the present study is concerned with the correlation between lexical and prosodic words, I will refer to the more specific constraint LXWD ≈ PRWD and will not further regard MCAT = PRWD. LXWD ≈ PRWD requires that lexical words must be parsed into a prosodic word. Simplex words thus form single prosodic words. Examples are provided in (4):

[2] For more details on the prosodification of stems and affixes the reader is referred to Wiese (1996), Hall (1998), Raffelsiefen (2000).

(4) Simplex words forming a prosodic word

ˈAuto	‘car’	[(Auto)$_{F}$]$_{PW}$	*[Au]$_{PW}$ [to]$_{PW}$
ˌEleˈfant	‘elephant’	[(Ele)$_{F}$ (fant)$_{F}$]$_{PW}$	*[(Ele)$_{F}$]$_{PW}$ [(fant)$_{F}$]$_{PW}$
ˌMandaˈrine	‘tangerine’	[(Manda)$_{F}$ (rine)$_{F}$]$_{PW}$	*[(Manda)$_{F}$]$_{PW}$ [(rine)$_{F}$]$_{PW}$

Although the prosodic structure of the two feet in *Elefant* ‘elephant’ and *Mandarine* ‘tangerine’ satisfies word minimality conditions (i.e., they represent binary feet), these feet cannot form prosodic words because they do not refer to morphological categories of German. This stands in contrast to the morphological structure of compounds. Compound constituents do form lexical words and thus satisfy the morphological and prosodic requirements to be parsed as prosodic words of their own. In fact, the syllabification pattern and the behavior of secondary stressed vowels suggest the presence of a word-internal prosodic boundary (Raffelsiefen 2000). As the examples in (5) illustrate, onset maximization is blocked across the internal morpheme boundary, but is obligatory within German prosodic words. The examples in (5b) show that the vowels of the second constituents also cannot undergo laxing:

(5) Compounds forming a recursive prosodic word

a.	ˌSchokoˈladen-ˌeis		
	‘chocolate ice cream’	[[(ʃoko)$_{F}$(laːdən)$_{F}$]$_{PW}$ [(ʔa͡ɪs)$_{F}$]$_{PW}$]$_{PW}$	*[(ʃoko)$_{F}$(laːdə)$_{F}$.(na͡ɪs)$_{F}$]$_{PW}$
b.	ˈAbend-ˌrot		
	‘afterglow	[[(ʔaːbɛnt)$_{F}$]$_{PW}$ [(ʁoːt)$_{F}$]$_{PW}$]$_{PW}$	*[(ʔaːbɛn)$_{F}$.(tʁɔt)$_{F}$]$_{PW}$
	ˈPuste-ˌblume		
	‘blowball’	[[(puːstə)$_{F}$]$_{PW}$ [(bluːmə)$_{F}$]$_{PW}$]$_{PW}$	*[(puːstə)$_{F}$(blʊmə)$_{F}$]$_{PW}$

In bipedal simplex words, laxing of the secondary stressed vowel is permitted (6):

(6) Laxing of the secondary stressed vowel in simplex words

ˌEleˈfant	‘elephant’	ˌ[ɛ]leˈfant	ˌ[e]leˈfant
ˌKrokoˈdil	‘crocodile	ˌkr[ɔ]koˈdil	ˌkr[o]koˈdil
ˌSchokoˈlade	‘chocolate’	ˌsch[ɔ]koˈlade	ˌsch[o]koˈlade

The German language shows a preference for compounding by aligning lexical words and prosodic words. This is contrary to other languages such as Greek, which predominantly create root compounds. The nature of the morphemes is important because the constituents of root compounds do not usually form prosodic words of their own (Peperkamp 1997:15, Nespor 1999[3]). I describe the prosodic organization of German simplex words and compounds in more detail below.

2.4 The word-prosodic system of German

2.4.1 Simplex words

The word-prosodic organization of German simplex words has been analyzed in several different ways. The most controversial issues regarding German word stress are a) whether or not stress rules apply differently to words of native and non-native origin, and b) whether or not the function of stress depends on syllable weight (see Jessen 1999 for an overview), For constraint-based analyses, I refer to Féry 1995, 2001.

The present thesis adopts the position that the assignment of stress applies in the same way to native and non-native words. I hold the view that the German stress system is sensitive to syllable weight (cf., Giegerich 1985, Vennemann 1991, Hall 1992, Ramers 1992, Féry 1995, 1996). The relation between stress, weight constraints and position has been strongly debated in studies on child phonology. Nevertheless, I will not present a closer examination thereof, as the development of syllable weight will not be examined in this study.

Most analyses propose that the rightmost foot of simplex words receives main stress (Giegerich 1985, Hall 1992, Wiese 1996, Féry 1996), and that the leftmost foot bears secondary stress if it branches into two syllables (Féry 1995, 1996, Lentge 2003). According to literature in this field, feet are left-headed in German. The basic mechanisms of stress assignment are illustrated in Figure 2-3 as a metrical tree. In the following, 'PW' denotes a prosodic word, 'F' a Foot, 'σ' a Syllable; subscribed 'S' indicates the strong, subscribed 'W' the weak branch of the tree.

[3] Note that root compounds in Peperkamp (1997) correspond to stem compounds in Nespor (1999).

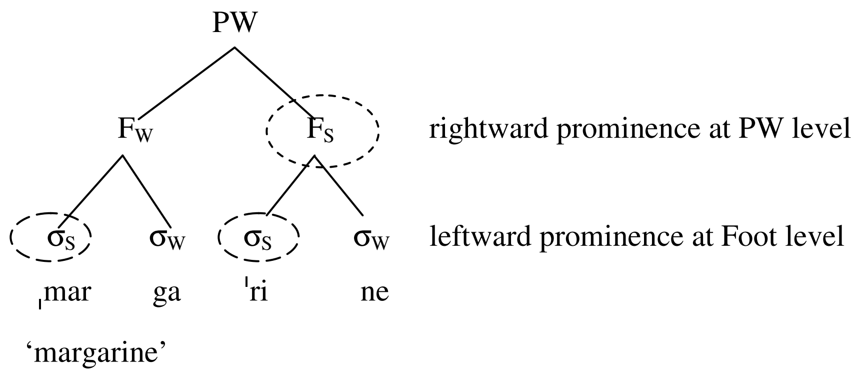

Figure 2-3. A metrical tree of German simplex words

Prosodic words receive penultimate main stress if they end in a light or in a schwa-syllable. These words end with a bisyllabic trochee. Examples are provided in (7) below for words with up to five syllables:

(7) Simplex words with main stress on the penultimate syllable

Target word	Gloss	Prosodic parsing	SW-structure
Tasse	'cup'	$[['tasse]_F]_{PW}$	SW
Giraffe	'giraffe'	$[gi['raffe]_F]_{PW}$	WSW
Margarine	'margarine'	$[[ˌmarga]_F ['rine]_F]_{PW}$	sWSW
Lokomotive	'locomotive'	$[[ˌloko]_F mo ['tive]_F]_{PW}$	sWWSW

The main-stressed foot can also comprise a heavy monosyllable (examples in (8)). Féry (1995, 1996) observed that final superheavy syllables (CVCC or CVVC) always create a foot which attracts main stress. By contrast, if heavy syllables (CVC, CVV) are stressed they tend to occur in non-final positions.

(8) Simplex words with main stress on the ultimate syllable

Target word	Gloss	Prosodic parsing	Final syllable	SW structure
Kamel	'camel'	[ka [ˈme:l]$_F$]$_{PW}$	CVVC	WS
Elefant	'elephant'	[[ˌele]$_F$ [ˈfant]$_F$]$_{PW}$	CVCC	sWS
Bibliothek	'library'	[[ˌbibli]$_F$ o [ˈthe:k]$_F$]$_{PW}$	CVVC	sWWS[4]

Féry (1995) presents a corpus-based analysis of the stress pattern of German simplex words. As expected, bisyllabic words predominantly show penultimate main stress (2507 types; 79.2% in contrast to 918 types with ultimate stress; 26.8%). Penultimate main stress was found in the vast majority of bisyllabic native German words, but it also occurs in many loanwords with open syllables such as *ˈYoga* 'yoga', *ˈKino* 'cinema', and *ˈLama* 'lama'. The stress distribution of bisyllabic words is not surprising given the widely held assumption that the trochee forms the unmarked prosodic word in German.

Penultimate main stress is the most frequent stress pattern in trisyllabic simplex words (664; 50.6%); ultimate main stress was observed to a far lower rate (393; 29.9%). A minor group of trisyllabic words displays antepenultimate main stress in Féry's data (255 types, 19.4%). Antepenultimate stress is usually regarded as an exceptional pattern in German (cf., Giegerich 1985, Féry 1995, 1996, Wiese 1996, Jessen 1999, but see Hall 1992). The syllable structure is not homogeneous in these words. Some words are analyzed as pseudo-compounds because parts of these words correspond to existing German words (such as *ˈElfenˌbein* 'ivory' containing *Elfe(n)* 'elfin' and *Bein* 'leg'). Other words could be compounds with respect to their syllable structure, such as *ˈTeleˌfon* 'telephone' and *ˈPinguˌin* 'penguin', comprising the bisyllabic initial pseudo-constituents *tele* and *pingu* and the final heavy syllables *fon* and *in* (Giegerich 1985, Féry 1996, Jessen 1999). It is not clear if the pseudo-constituents should be analyzed as prosodic words or just feet. In the present analysis, I distinguish between two types of pseudo-compounds. Pseudo-compounds class I contain lexical words or word-like

[4] The study concentrates on quadrisyllabic words with main stress on the penultimate syllable (*ˌMargaˈrine* 'margarine', *ˌMandaˈrine* 'tangerine', *ˌSchokoˈlade* 'chocolate', see Table 2-1) as the child database contains no instances of target quadrisyllabic or longer simplex words where main stress is not on the penultimate syllable.

bound morphemes. I assume that they are parsed with recursive prosodic structure like real compounds. Examples are *Ameise* ‘ant’, *Heuschrecke* ‘grasshopper’ and *Mikrofon* ‘microphone’. The second type are monomorphemic ones, which I subsume under class II. Examples are proper names such as *Benjamin* and *Jonathan*, and words like *Pelikan* ‘pelicane’ and *Pinguin* ‘penguine’. The pseudo-compounds are distinctive from trisyllabic words with antepenultimate stress and a light ultimate syllable such as *ˈPaprika* ‘bell pepper’, *ˈRadio* ‘radio’, *ˈBrokkoli* ‘broccoli’. The prosodic parsing of trisyllabic words with antepenultimate stress is summarized in (9) below:

(9) Trisyllabic simplex words bearing main stress on the antepenultimate syllable

Target word	Gloss	Prosodic parsing	SW form	Word type
Ameise	‘ant’	[[(ˈA)$_F$][(ˌmeise)$_F$]$_{PW}$]$_{PW}$	SsW	pseudo-compound class I
Heuschrecke	‘grasshopper’	[(ˈHeu)$_F$]$_{PW}$ [(ˌschrecke)$_F$]$_{PW}$]$_{PW}$	SsW	pseudo-compound class I
Benjamin	Proper name	[[(Benja)$_F$] [(ˌmin)F]$_{PW}$]$_{PW}$	SWs	pseudo-compound class II
Pinguin	‘penguine’	[[(ˈPingu)$_F$]$_{PW}$ [(ˌin)$_F$]$_{PW}$]$_{PW}$	SWs	pseudo-compound class II
Paprika	‘bell pepper’	[(ˈpapri)$_F$ ka]$_{PW}$	SWW	simplex word
Radio	‘radio’	[(ˈradi)$_F$ o]$_{PW}$	SWW	simplex word
Brokkoli	‘broccoli’	[(ˈbrokko)$_F$ li]$_{PW}$	SWW	simplex word

In quadrisyllabic and longer simplex words, ultimate main stress as in e.g., *ˌOrthograˈphie* ‘orthography’ and *ˌBiblioˈthek* ‘library’ predominates (60%) penultimate main stress (28%) such as *ˌPropaˈganda* ‘propaganda’ and *ˌAbrakaˈdabra* ‘abracadabra’.[5] Initial main stress as found in *ˈImperativ* ‘imperative’ and *ˈAbenteuer* ‘adventure’ is very rare in quadrisyllabic words (2%), and many of these words are regarded as pseudo-derived words. Féry (1995, 1996) found main

[5] Unfortunately, Féry (1996) does not provide absolute numbers.

stress on the antepenultimate syllable in 10% of the data (e.g., *A'quarium* 'aquarium' and *A'naphora* 'anaphora').

Compound-like words that are derived from latin roots such as *ˌOrthogra'phie* 'orthography', *ˌPsycho-'logie* 'psychology', *ˌSpektro-'graph* 'spectrograph', *ˌThermo-'meter* 'thermometer' (often called root compounds; e.g. Wiese 1996:131, Peperkamp 1997, Nespor 1999) are an intricate issue. These roots are more restricted in their distribution than native roots. Some researchers analyze the roots to project prosodic words as well (e.g., Wiese 1996). In line with Peperkamp (1997) and Nespor (1999), I consider non-native bounded roots to project a foot, but not a prosodic word. This position explains why the words show the same stress pattern as simplex words. Due to their similar prosodic pattern, I conflate root compounds with simplex words.

In sum, Féry's results strengthen the role of syllable structure for the assignment of lexical stress. The data are also consistent with the claim that main stress has to fall on one of the final three syllables in German simplex words (also called the *three-syllable-window*). The syllable structure determines if stress is assigned to the penultimate or the ultimate syllable. Feet are left-headed either at the mora level (in case of monosyllabic feet) or at the syllable level (in case of bisyllabic feet). At the level of the prosodic word, main stress is assigned to the rightmost foot. As I will describe in 2.4.2., simplex words crucially differ from compounds in the orientation of main and secondary stress.

2.4.2 Compounds

Compounding is a highly productive process of word formation in German, and the German vocabulary contains numerous compounds. According to Ortner et al. (1991), approximately 75% of the German noun vocabulary consists of compounds. Although there is formally no upper limit to the possible number of constituents, most compounds comprise two or three constituents. Due to their distribution in the database, the thesis will focus on bipartite compounds.

German compounds are primarily derived from existing words such as *ˈSand-ˌkasten* 'sand pit and *ˈGummi-ˌbärchen* 'jelly bear'. The German vocabulary also contains root compounds (e.g., *ˌOrtho-ˈgraphie* 'orthography') which will be analyzed with simplex words here (see subsection 2.4.1 above). Due to the requirement that lexical words must correspond to prosodic words, the individual constituents and the complete compound represent prosodic words (Giegerich 1985, Féry 1996, 2001, Wiese 1996, Peperkamp 1997, Nespor 1999, Raffelsiefen 2000).

Figure 2-4 depicts the prosodic organization of word compounds. The figure illustrates that compound stress is assigned to the leftmost constituent at compound level. Secondary stress is assigned to the other constituent.

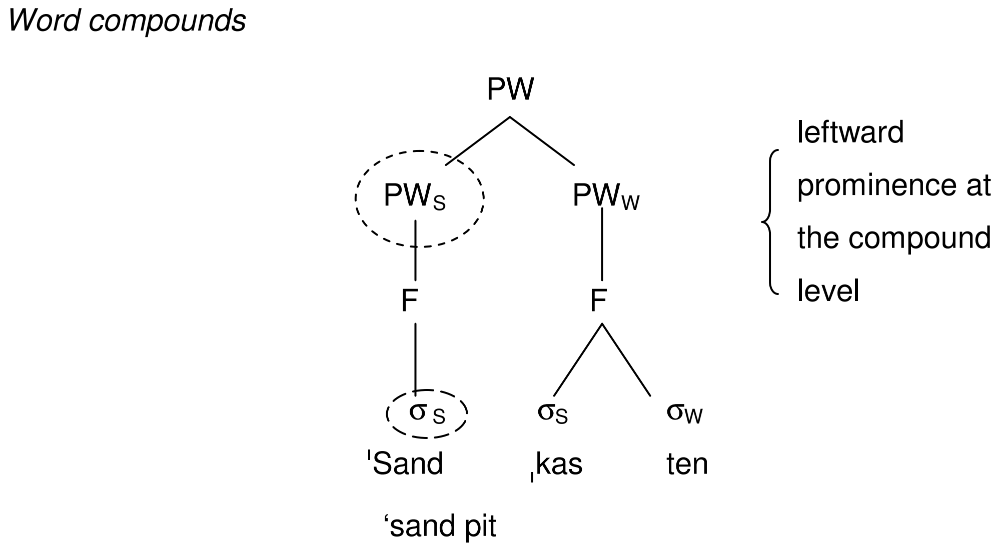

Figure 2-4. A metrical tree of German word compounds

I assume that German compounds are headed by a prosodic word (Löhken 1997, Féry, 2001 for German, Nespor 1999, Peperkamp 1997 for other Germanic languages). As a consequence, compounds violate the constraint of NONRECURSIVITY (Selkirk 1995)[6] because they project recursive prosodic words. Recursivity will become important for the analysis of the child data later in this thesis.

It must be noted that compound stress might also appear on the non-initial constituent for semantic or morphological reasons. A widely accepted semantic generalization is that exocentric compounds such as *ˌsüß-ˈsauer* 'sweet and sour' and *ˌMords-spekˈtakel* 'INT-spectacle' (the two examples from Raffelsiefen 2000:44) are stressed on the rightmost

[6] Alternatively, it has been suggested that the stress pattern determines whether compounds are bound to a prosodic word or phonological phrase (Wiese 1996:299); or that compounds project a prosodic compound layer (Féry 1996:92). Others remain agnostic in that point (Giegerich 1985; Raffelsiefen 2000).

constituent. The leftward orientation of compound stress holds for most endocentric compounds, i.e., for compounds containing a semantic head (Selkirk 1982, Raffelsiefen 2000). Endocentric compounds with three or more constituents are likely to show non-initial compound stress (Giegerich 1985, Féry 1995). To date, a satisfying solution to the problem of non-initial German compound stress is still lacking.

The compound constituents underlay the stress rules of simplex words. Thus, the ‘typical’ German compound starts with a main-stressed syllable. Compound stress may also fall on a non-initial syllable of the constituent, e.g. if the constituent starts with an initial unfooted syllable (such as *ToˈmatenˌsoBe* ‘tomato sauce’, see (11)(10) below). In the child data, the majority of compounds is derived from monosyllabic or trochaic constituents where compound stress falls on the first constituent. Hence, only these compounds will be of interest in the present study. (10) provides examples of compounds with main stress on the word-initial syllable.

(10) Compounds bearing main stress on the compound-initial syllable

Target word	Gloss	Prosodic bracketing	SW structure
Gieß-kanne	‘watering can’	[[(ˈgieß)]$_F$]$_{PW}$ [(ˌkanne)$_F$]$_{PW}$]$_{PW}$	S-sW
Apfel-saft	‘apple juice’	[[(ˈapfel)$_F$]$_{PW}$ [(ˌsaft)$_F$]$_{PW}$]$_{PW}$	SW-s
Puppen-wagen	‘doll’s pram’	[[(ˈpuppen)$_F$]$_{PW}$ [(ˌwagen)$_F$]$_{PW}$]$_{PW}$	SW-sW

(11) shows examples of word compounds where the main stress does not appear on the compound-initial syllable. These compounds represent a minor group in the child vocabularies.

(11) Compounds not bearing main stress on the compound-initial syllable

Target word	Gloss	Prosodic bracketing	SW structure
Koala-bär	‘koala’	[[ko (ˈala)$_F$]$_{PW}$ [(ˌbär)$_F$]$_{PW}$]$_{PW}$	WSW-s
Tomaten-soße	‘tomato sauce’	[[to (ˈmaten)$_F$]$_{PW}$ [(ˌsoße)$_F$]$_{PW}$]$_{PW}$	WSW-sW
Polizei-auto	‘police car’	[[(ˌpoli)$_F$ (ˈzei)$_F$]$_{PW}$ [(ˌauto)$_F$]$_{PW}$]$_{PW}$	sWS-sW
Toiletten-papier	‘toilet paper’	[[toi (ˈletten)$_F$]$_{PW}$ [pa (ˌpier)$_F$]$_{PW}$]$_{PW}$	WSW-Ws
Kassetten-recorder	‘tape recorder’	[[ka (ˈssetten)$_F$]$_{PW}$ [re (ˌkorder)$_F$]$_{PW}$]$_{PW}$	WSW-WsW

In sum, the placement of main stress in simplex words and compounds can be generalized as depicted in Figure 2-5 (adopted from Raffelsiefen 2000, added by a superordinate prosodic word in compounds):

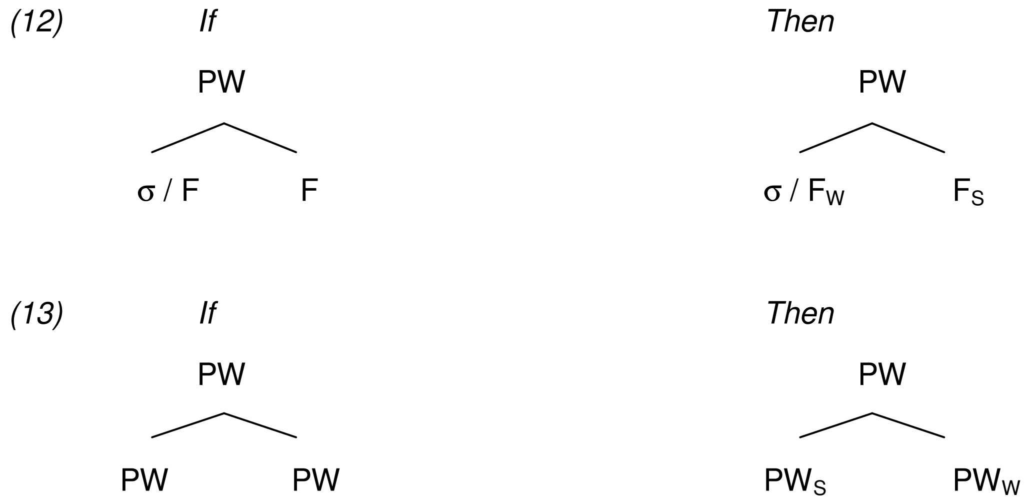

Figure 2-5. The stress rules for German simplex words and word compounds

The generalizations state that the rightmost foot is prominent *within* a prosodic word (12) whereas the leftmost prosodic word is prominent *between* two prosodic words (13). The first generalization (a) accounts for the regular stress placement in simplex words and in root compounds. The second one (b) applies to word compounds.

I argue in this thesis that children know about these regularities. Previous evidence suggests that children are aware of the prosodic constituency of simplex words. This study goes beyond the earlier research, showing that prosodic constituents also determine the production pattern of compounds. As I will point out in the next section, some evidence is already provided in the previous literature even if only few studies explicitly addressed the development of compounds from a prosodic point of view.

3 Empirical background: Previous research on the development of word-prosodic structure

3.1 Introduction

This section summarizes empirical findings on the development of prosodic word structure. It consists of three parts: The first part describes previous findings on the acquisition of the prosodic word (3.2). It sums up empirical arguments for the existence of (at least) three stages in the acquisition of simplex words: a single foot stage, a stage where bipedal words emerge and a stage where unfooted syllables are permitted. In contrast to simplex words, very few studies have addressed the acquisition of compounds. Subsection 3.3 discusses these findings from morphological and prosodic perspectives. Optimality-theoretic approaches to child language are outlined at the end in subsection 3.3.

3.2 The development of simplex words

3.2.1 Evidence for a single foot / minimal word stage

There is ample evidence that children pass through a stage during which outputs are restricted to a single foot. The main source of evidence originates in analyses of syllable truncations from target multisyllabic words (Fikkert 1994, Wijnen, Krijkhaar, and den Os 1994 for Dutch; Demuth and Fee 1995, Gerken 1994, 1996, Archibald 1995, Pater and Paradis 1996, Pater 1997, Salidis and Johnson 1997 for English; Fee 1996 for English and Hungarian; Vihman 1992 for French; Lleó and Demuth 1999 for German and Spanish; Adam 2002 for Hebrew; Ota 2001, 2003 for Japanese; Prieto 2006 for Spanish and Catalan; Hochberg 1988, Gennari and Demuth 1997, Demuth 2001a, Lleó 2006, for Spanish; Allen and Hawkins 1980 for Quiche Mayan; Demuth 1996a for Sesotho; but see Santos 2003, 2005 for Brazilian and Vigário, Freitas, and Frota 2006 for European Portuguese, Kehoe 1999/2000 for English). The examples provided in (14) illustrate the reduction of multisyllabic simplex words to a single foot (taken from Fikkert 1994:202-233):

(14) Reduction of multisyllabic words to a single foot at Stages 1 and 2 in child Dutch (Fikkert 1994)[7]

Target word	Phonetic form	Gloss	Child form	Child, age
banaan	/baːˈnaːn/	‘banana’	[baːn]	Robin, 2;1.07
Krokodil	/ˌkroːkoːˈdɪl/	‘crocodile’	[diːw]	Robin, 1;10.7
Vakantie	/vaːˈkɑnsiː/	‘vacation’	[ˈtɑsiː]	Robin, 2;0.18
Olifant	/ˈoːliːˌfɑnt/	‘elephant’	[ɑnt]	Tirza, 1;11.19
Helicopter	/ˌheːliːˈkɔptər/	‘helicopter’	[ˈkɔptɛ]	Enzo, 2;1.17

The restriction to bisyllabic outputs parallels universal constraints on the size of prosodic words (Fee 1992, Fikkert 1994, Demuth and Fee 1995). According to the *minimal word hypothesis*, the early words correspond to single moraic or syllabic feet, which in turn form the minimal size of well-formed prosodic words in adult systems (Demuth and Fee 1995, Demuth 1996a, b). It is yet an open question whether children initially construct moraic and syllabic feet or syllabic feet only. Usually, researchers take compensatory lengthening following consonant deletion as evidence for moraic structure in child language (e.g., Fikkert 1994). However, Ota (2003:28-30) points out that, with respect to moraic structure, it is necessary to show that compensatory lengthening only occurred if segmental material is deleted from rimes and blocked if deletion targets syllable onset positions. In his literature review he states that there are some hints towards sub-syllabic structure in child language, but that the evidence is still inconclusive in general.

Although the issue of sub-syllabic structure is closely related to the internal organization of feet it will not be further addressed in this thesis. I follow the widely held assumption that children acquiring Germanic and Romance languages do not count the moraic content in their early productions (Fikkert 1994, Demuth 1996b, Pater and Paradis 1996, Pater 1997, Rose 2000, Kehoe 1999/2000, Lleó 2001, Adam 2002). It should be noted, however, that the children of this study hardly produced sub-minimal words. At first sight, the children seemed to respect the minimal word constraint. Only a fine-grained examination of the data can shed light on the

[7] The table comprises data from Stage 1 (the monosyllabic stage) and Stage 2 (bisyllabic trochees).

question whether the children associate moraic structure with coda consonants or not. This will be addressed in future research (Grimm and van de Vijver, in prep.).
The present study concentrates on two further issues related to the early productions: The orientation of the head syllable in feet and the pattern of content preservation in truncated forms.

3.2.1.1 Location of head syllables

In their truncated forms, children adopt the foot structure from their ambient language (Demuth 1996, Prieto 2006, Goad and Prevost 2008). Children acquiring Germanic languages tend to create trochees (cf., Fikkert 1994, Wijnen, Krijkhaar and den Os 1994, Gerken 1991, 1994, Demuth and Fee 1995, Kehoe 1999/2000, but see Vihman, de Paolis and Davis 1998). If feet are right-headed in the target language (e.g. in French), children produce a high proportion of monosyllables (Paradis, Petitclerc, and Genese 1997, Archibald and Carson 2000, Rose 2000). Final stress in bisyllables is produced much earlier than in trochaic languages (Goad and Prevost 2008).

Interestingly, truncation to iambs was occasionally reported from languages with a trochaic stress system (Gennari and Demuth 1997 for child Spanish, Prieto 2006 for Catalan, Wijnen, Krijkhaar and den Os 1994:74 for Dutch WWS targets words). In an acoustic investigation of bisyllabic words produced by nine English- and five French-acquiring children, Vihman, de Paolis and Davis (1998) observed that four of the five French children, but also five of the nine English children predominantly produced stress-final bisyllables. These findings indicate that children adopt the foot shape from the ambient language (Demuth 1996a, Prieto 2006), but that children also sometimes develop their own production system. Precisely, I do not assume that the foot inventory of these children contains both trochees and iambs, as this violates universal properties of natural languages. I assume that these children pass through a stage where the constraint ranking selects iambic outputs for certain target forms. I will return to this issue later in this thesis since one girl of the study also creates trochees and iambs in parallel for a certain period of time. I show that right-headed feet result from the interaction of constraints in her grammar, rather than from a high-ranked constraint requiring right-headed feet. The optimality-theoretic analysis will employ a high-ranked constraint requiring left-headed feet like in adult German (cf., Fery 1995).

3.2.1.2 Content preservation

In truncated words children maintain prosodically salient material from the target word such as stressed and final syllables. Non-salient syllables, i.e. weak and word-medial ones, are systematically truncated. The truncatory pattern is highly consistent in target words with single stress. Children preserve the stressed syllable and, if present in the target word, a following weak one. For example, the child Robin in Fikkert's (1994) study realized Dutch *banaan* /baːˈnaːn/ 'banana' as [baːn] (2;1.07), and *vakantie* /vaːˈkɑnsiː/ 'vacation' as [ˈtɑsiː] (2;0.18; preserved syllables are underlined).

Germanic languages regularly assign main stress to the final foot. For these words, the truncation pattern is highly systematic. The children select the stressed syllable from the main-stressed foot and the following weak one if present in the input (Fikkert 1994, Archibald 1995, Gennari and Demuth 1997, Kehoe and Stoel-Gammon 1997, Kehoe 1999/2000). For example, in Fikkert's (1994) data, the child Robin reduced *Krokodil* /ˌkroːkoːˈdɪl/ 'crocodile' to [diːw] (1;10.7), and Enzo *Helicopter* /ˌheːliːˈkɔptər/ 'helicopter' to [ˈkɔptɛ] (2;1.17).

The vocabularies of Dutch and German also contain bipedal words with main stress on the first foot. Some of these are often referred to as pseudo-compounds. Pseudo-compounds are words which could be compounds with respect to their lexical properties, stress pattern and/or syllable structure, such as German *ˈAˌmeise* 'ant' or Dutch *ˈOliˌfant* 'elephant'. Morphologically they are simplex words. For example, German *ˈAˌmeise* is semantically and etymologically unrelated to *meise* 'titmouse' and *a* 'a'. Likewise, Dutch *ˈOliˌfant* is unrelated to *Olie* 'oil', and *fant* does not exist as a lexical word in Dutch. Other initially stressed words contain single main stress and light syllables. Examples are German *ˈPaprika* 'pepper' or *ˈRadio* 'radio'.

The reduction pattern of pseudo-compounds varies across studies. Some children preserve the initial, main-stressed syllable (Pye 1983, Lewis, Antone, and Johnson 1999). Other researchers find that children maintain the final foot (Fikkert 1994, 2001, Adam 2002). Fikkert (1994: 228-9) reports that the Dutch children varied between pseudo-compounds and words with light syllables in that they realized the final, secondary stressed foot of pseudo-compounds but the initial, main-stressed one if there were only light syllables. The apparent inconsistency in Fikkert's data finds a natural explanation in her template-mapping model.

The review so far suggests that there is inter-individual variation. Individual children, however, do not seem to vary with respect to their preferred reduction strategy in simplex words. I turn back to the consistency issue later in this study as this is one essential property in which simplex words differ from compounds.

A further matter of debate is which weak syllable is maintained if the target word contains more than one to the right of a main-stressed syllable. Some researchers report that children preserve the weak syllable directly to the right of the main stressed one (Fikkert 1994, Wijnen, Krijkhaar, and den Os 1994, in part Gerken 1994, 1996). Others found that children prefer the final weak syllable (Echols and Newport 1992, Echols 1996, Pater 1997, Pater and Paradis 1996, Kehoe and Stoel-Gammon 1997, Kehoe 1999/2000, Adam 2002). The complexity of weak syllables (Gerken 1991, 1994) or the phonological features of the onset also seem to play a role. Children prefer the weak syllable with obstruent onsets and tend to omit syllables with sonorant onsets (Gnanadesikan 1995, Pater and Paradis 1996, Pater 1997, Kehoe and Stoel-Gammon 1997, Kehoe 1999/2000).

So far, a number of factors have been introduced which influence the preservation pattern at the single-foot stage. These are prosodic saliency and the target prosodic organization of feet and words. For the present study, constraints on foot headedness and the content preservation in children's truncated words will be of importance.

3.2.2 Evidence for a two-feet stage

To date, it is not clear to what extent children go through a two-feet stage. Partly, this is related to the lack of research on latter stages of prosodic development. A second reason is that there are different interpretations of what the two-feet stage looks like. On the one hand, it is defined as a stage where outputs obligatorily consist of two feet (cf., Fikkert 1994, Demuth and Fee 1995). On the other hand, some researchers describe the two-feet stage as a period where outputs are allowed to comprise two feet, and where monopedal and bipedal forms do co-exist (Kehoe 1999/2000). Under the first view, the outputs show relatively uniform prosodic shapes.[8]

[8] According to Fikkert (1994) repair to bipedal outputs occurs in trisyllabic words with initial main stress and light syllables. She states that these words remain truncated to a monopedal output at the bipedal Stage 3. However, most of Fikkert's examples (i.e., *tekenen 'to mark'*, *hinkelen 'to hop'* and *schommelen 'to seesaw')* are not morphologically simple. The children might have stripped off the affixes.

Bipedal target words then appear with their target number of syllables, and target words consisting of a single foot and a preceding unfooted syllable undergo repair to a bipedal form. I refer to these analyses by the term 'foot-based approach', as they take the foot as the basic unit of word expansion. Examples are provided in (15):

(15) The two-feet stage: foot-based approach (Dutch data from Fikkert 1994: 202-233)

Target word	Phonetic form	Gloss	Child form	Child, age	Comment
Krokodil	/ˌkroːkoːˈdɪl/	'crocodile'	[ˈkoːkəˈdɪɔ], [ˈdoːkɛˌdiːw]	Robin, 2;3.22, Noortje, 2;9.26	target and output ~ 2 feet
Olifant	/ˈoːliːˌfɑnt/	'elephant'	[ˈoːfiːˈfɑnt], [ˈoːviːˌɑnt]	Robin, 2;4.8 Robin, 2;4.8	target and output ~ 2 feet
Helicopter	/ˌheːliːˈkɔptər/	'helicopter'	[ˈhɛijəˈkɔptə], [ˌheːləˈkɔptɛ]	Enzo, 2;2.14 Enzo, 2;3.14	target and output ~ 2 feet
Banana	/baːˈnaːn/	'banana'	[ˈmaːˈnaːn]	Robin, 2;2.27	target ~ 1 foot + unfooted syllable, output ~ 2 feet
Spaghetti	/spaːˈχɛtiː/	'spaghetti'	[ˈmaːˈkɪtiː]	Robin, 2;3.22	target ~ 1 foot and an unfooted syllable, output ~ 2 feet

The second position is that the bipedal stage prosodic words are *permitted* to comprise two feet (Kehoe 1999/2000). Children license prosodically prominent input syllables in the output, i.e., stressed and edgemost syllables.[9] In contrast to the foot-based approach, prosodically less

[9] Even if the left and the right edge of the word are perceptually prominent (cf., Beckman 1999), the evidence from children's early productions suggests that children produce unstressed syllables from the right edge of a word earlier than unstressed syllables from the left edge (e.g., Slobin 1973, Pater 1997, Kehoe 1999/2000, Adam 2002).

prominent syllables can be omitted even from footed positions.[10] Unfooted input material, on the other hand, can be maintained in children's output if it occurs in prosodically prominent positions. I refer to these accounts as 'syllable-based accounts'.

In contrast to the foot-based approach that directly proposes a bipedal stage the syllable-based approach does not rule out the possibility of producing unfooted material *per se*. Rather, the precise prosodic shape of the output depends on the interaction of constraints. Outputs containing unfooted syllables are eliminated if constraints militating against unfooted syllables are ranked at the top of the hierarchy (such as PARSE-σ in Pater and Paradis 1996, Pater 1997, Ota 2001, 2003, or EXHAUSTIVITY in Lleó 2001). Likewise, two input stressed syllables might or might not survive with their two stresses – depending on the ranking of the constraints requiring preservation of prosodic prominence in the output.[11] The number and the placement of prominent syllables in the target word determine the structure of the output.

(16) The two-feet stage, syllable based approach (data from Kehoe 1999/2000:40)

Target word	Phonetic form	Child form	Child, age	Output shape
Giraffe	/dʒəˈræf/	[dwæf]	M6, 2;3	single foot
Banana	/bəˈnænə/	[ˈbɑni]	M6, 2;3	single foot
telephone	/ˈteləfəʊn/	[ˈtɛlfo]	F1; 2;4	single foot
dinosaur	/ˈdaɪnəˌsɔːr/	[ˈdaɪnˌsɔ]	M6; 2;3	two feet
avocado	/ˌævəˈkɑːdəʊ/	[ˌɑˈkɑdo]	M6; 2;3	two feet

The syllable-based approach predicts a greater variety of prosodic shapes in the output as compared to the foot-based approach. Examples for variation in the prosodic output shapes are provided in (16) above by data from children acquiring English. Note that Kehoe's original

[10] Fikkert (1994: 220- 228) provides a few examples from Tirza's, Tom's, Robin's, and Eva' data where the children truncated medial weak syllables from trisyllabic words even if the syllables were footed. Fikkert refers to that Stage as Stage 3.

[11] It might be misleading to discuss syllable-based analyses within the present section because authors defending a syllable-based approach explicitly argue against shape constraints (Pater and Paradis 1996, Pater 1997, Kehoe 1999/2000). Notwithstanding, stress is assigned to the head of a foot; therefore a stressed syllable implies the presence of a foot.

coding ID of the children 27m6 and 28f1 (for age in months, sex, child number) is changed in the table to the standard notation (child, years; months).

Some models of prosodic development propose that the two feet in bipedal forms are first produced with *level stress* before children learn to realize secondary stress (Fikkert 1994, Archibald 1995, Demuth and Fee 1995). Level stress denotes a sort of stress error where syllables from different feet contain an equal amount of stress. There is also evidence for systematic *stress shifts* to the left. Main stress is incorrectly assigned to the leftmost foot for a certain period. After that, children correctly produce main stress on the final foot (Fikkert 1994, 2001, Kehoe 1999/2000).[12] To my knowledge, no study has yet reported on systematic stress shifts to the right.

The existence and relevance of level stress and stress shifts in bipedal words are ongoing matters of debate. Both processes target word headedness constraints, and it is not clear whether errors regarding headedness occur systematically or not. Concerning level stress, it has sometimes been stated that children systematically realize prosodic units with equal prominence at a certain stage of development (cf., Fikkert 1994, Archibald 1995, Demuth and Fee 1995). Other researchers cast doubts on the systematic occurrence of level stress (Kehoe and Stoel-Gammon 1997, Bernhardt and Stemberger 1998). The same holds for stress shifts. Fikkert (1994) found that children systematically shifted main stress to the word-initial syllable in mono- and some bipedal outputs. Other studies report very marginal occurrences of stress shifts (Wijnen, Krijkhaar and den Os 1994, Kehoe and Stoel-Gammon 1997, Archibald and Carson 2000). Kehoe (1999/2000:58) points out that their low frequency of occurrence does not necessarily rule out the possibility that stress shifts are a systematic process in child language. In fact, optimality-theoretic approaches predict systematic stress shifts, depending on the course of re-ranking (Kehoe 1999/2000).

Some children do not produce words with two stresses at all but expand their words syllable by syllable. For example, Adam (2002: 82-88) reports that children acquiring Hebrew preserve one unfooted syllable to the left of the rightmost stressed syllable, e.g., *ka'dur* 'ball' > [a'dur], *avi'ron* 'airplane' > [vi'ron], *hippopo'tam* 'hippopotamus' > [po'tam]. In addition to the left-adjacent syllable, the Hebrew children also preserve the weak syllable to the right of the stressed one, e.g., *pi'jama* 'pyjama' > [pi'jama], *avo'kado* 'avocado' > [vo'kado], *kleman'tina*

[12] In Fikkert's (1994) Stage 4, main stress is assigned to the rightmost branching foot in bipedal words.

'tangerine' > [aˈtina]).[13] In a study of three children acquiring Spanish, Lleó (2006) observed prosodic words with initial unfooted syllables before bipedal ones. And finally, Ota (2003) finds that bipedal prosodic words and words with unfooted material emerge at the same time in child Japanese.

The findings from child Hebrew, Spanish and Japanese indicate that a bipedal stage does not obligatorily follow the single foot stage. This is interesting since Hebrew is analyzed as a language constructing syllabic trochees (Graf and Ussishkin 2002), and since in adult Spanish penultimate main stress is very common (Hayes 1995, Lleó 2001). There are a number of factors that influence the path of development. For example, the foot plays an important role as a domain of phonological processes in Germanic languages, but it is of less importance in Romance languages. Children from Germanic backgrounds might thus focus on the foot, whereas children from Romance languages first establish the prosodic word domain. Frequencies of certain prosodic shapes additionally influence the acquisition path. Adult Spanish, for example, contains considerably more trisyllabic words with an initial unfooted syllable than adult German. Thus, it might not be surprising that Spanish children produce initial unfooted syllables earlier than their German peers (Lleó and Demuth 1999, Lleó 2001). In contrast, Lleó and Demuth (1999) state that the German children entered into a bipedal stage and then permitted unfooted syllables. Due to the striking parallels to Fikkert's findings from Dutch, one could predict the same developmental pathways in Dutch and German. There is no longitudinal analysis of the acquisition of German that reports an asymmetry as was found in child English, i.e., that certain prosodic shapes are truncated and others are not (Kehoe 1999/2000).

Considering the evidence so far, we expect that German children exhibit a two-feet stage but it remains to be seen if their pattern resembles the foot-based or the syllable-based

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[13] Adam (2002) does not provide information on whether there is secondary stress in Hebrew. However, in a recent analysis, Graf and Ussishkin (2003) argue that Modern Hebrew assigns secondary stress to alternating syllables to the left of the main-stressed one, i.e., *ˌaviˈron* 'airplane', *ˌavoˈkado* 'avocado', *ˌklemanˈtina* 'tangerine', *hipˌpopoˈtam* 'hippopotamus'. The child data give rise to different interpretations I will not address here. In any case, they cast doubts on the role of prominence in the preservation pattern in child Hebrew: Regarding bipedal words, the children preferred non-initial unstressed syllables over word-initial (probably stressed) ones.

approach. I will show in this study that the data are in fact more consistent with a syllable-based approach to prosodic development.

3.2.3 The final stage: Target-like prosodic words

In the final stage, the children produce target-like prosodic words. Syllables omitted at the previous stages are now integrated into the output form, and words are realized with the target-like stress pattern. With respect to Germanic languages this means that the output contains unfooted syllables.

To sum up, the findings reported above motivate three main phases of prosodic word development: A single foot stage, one or more intermediate stages, usually characterized by bipedal productions, and a final stage where adult-like forms are produced. The outline of the earlier findings also shows that particularly children acquiring Germanic languages refer to monosyllabic or bisyllabic feet when adopting the target prosodic structure. The Dutch, German and English children select particular syllables from the target word and parse these syllables into feet.

Furthermore, the findings reported above provide ample empirical evidence for the role of the foot and the syllable as basic constituents in children's early word productions. By contrast, very few studies have aimed to provide empirical evidence for the role of the prosodic word constituent. Although there is no doubt that the early word productions form prosodic words, little research has been performed to show that the prosodic word plays an active role in the early production pattern. This is due to the fact that almost all previous studies investigated children's productions of simplex words, where grammatical words directly correspond to single prosodic words.

One source of empirical evidence for the role of prosodic word domain comes from words with nested prosodic words. In German, this is the case in some derived words (e.g. particle verbs such as *auf-machen* 'to open') and in compounds (Raffelsiefen 2000). Unfortunately, our knowledge of the role of the prosodic word domain in child language is poor because, apart from prosodic restrictions on grammatical morphemes, only few studies have so far addressed the prosody-morphology-interface in child language. The following subsection summarizes evidence from the early production pattern of derived words and compounds with a particular focus on the compound data available so far.

3.3 Sensitivity to morphological constituency in child language

The acquisition of grammatical morphemes has received a great amount of attention (cf., Gerken, Landau, and Remez 1990, Gerken 1991, 1994, 1996, Wijnen, Krijkhaar and den Os 1994, Peters 1997, Lleó and Demuth 1999, Lleó 1998, 2001, Demuth 2001ab). The broad interest in grammatical morphemes results from their inconsistent emergence in children's productions. Several suggestions have been made to explain why particular grammatical morphemes are produced and others are omitted. Their prosodification seems to play an important role; either because grammatical morphemes do not match a rhythmic production template (cf., Gerken 1991 and subsequent work), or because grammatical morphemes cannot be integrated into the prosodic representation the children derive from the target language (e.g., Lleó 1998, 2001, Lleó and Demuth 1999, Demuth 2001a,b). Interestingly, even if they are usually unstressed and therefore prosodically not salient, there is evidence that infants at and beyond 10 months of age perceive grammatical morphemes (Gerken, Landau, and Remez 1990, Höhle and Weissenborn 2003, Blenn, Seidl and Höhle 2003, Pelzer and Höhle 2006). Hence, the omission of grammatical morphemes cannot be explained by their lower perceptual saliency alone (Echols and Newport 1992, Echols 1994).

Out of the studies mentioned here, the production pattern of a girl acquiring Spanish studied by Demuth (2001a,b) is of particular interest. The child truncates bisyllabic functional morphemes, but not bisyllabic lexical categories to monosyllabic outputs. As Demuth points out, the syllable truncation cannot be explained by rhythmic well-formedness constraints; neither does it match universal principles of prosodic well-formedness which prefer footed over unfooted material. Demuth argues that the child has derived from her target language the two prosodic representations of the type $[\sigma({}^{\text{ˈ}}\sigma\sigma)_{F}]_{PW}$ for the structure of the prosodic word and $\{\sigma[\sigma({}^{\text{ˈ}}\sigma\sigma)_{F}]_{PW}\}_{PP}$ for the structure of the phonological phrase. Demuth's findings suggest that the girl knows about the morphological and prosodic status of grammatical morphemes and distinguishes it from prosodic constraints on lexical categories.

Demuth's data is consistent with the observation that children often substitute grammatical morphemes with monosyllabic fillers (cf., Peters and Menn 1993, Peters 1997). The production of such placeholders depends on the morphological and phonological regularities of languages. As suggested by Peters and Menn (1993), children produce morphemes earlier in languages where the morpheme boundaries coincide with syllable boundaries (i.e., Asian languages; as opposed to the non-concatenative Semitic languages or polysynthetic languages). If acquiring languages with fusing morpho-phonology (Peters and

Menn quote examples from Mohawk and K'iche, p. 765), children correlate syllables with morphemes because the morphological structure is not transparent to them.

The results of the perception and production studies suggest that children try to correlate larger strings of syllables with prosodic and morphological units. At least in languages with transparent morphology children can bootstrap morphological constituency from basic morpho-prosodic correlations such as word stress or prosodic clitization. In addition, statistical information on segmental properties or phoneme sequencing helps children to segment the input into smaller meaningful units. The data of Demuth (2001a,b) indicate that the child knows about the morphological complexity of the syllable chunks she produces because grammatical and lexical categories are subject to different production constraints. In the following section, I argue that a similar proposal can be made with respect to another type of morphologically complex words, namely compounds.

3.4 The production pattern of early compounds

In contrast to grammatical morphemes, which have been extensively studied in the past, there is almost no research on children's perception and production of compounds from a prosodic point of view. There are a number of approaches to the acquisition of compounds from lexicalist (e.g., Marchman and Bates 1994, Dale, Dionne, Eley and Plomin 2000, Dressler, Kiliani-Schoch and Klampfer 2003, Krott and Nicoladis 2005), syntactic (Clark 1981, Clark, Gelman and Lane 1985 for modifier-head-relations), and semantic perspectives (Clark, Gelman and Lane 1985, Krott, Gagné and Nicoladis 2008). Comparing the productive use of French and (Austrian) German compounds, Dressler, Kiliani-Schoch and Klampfer (2003) provide evidence for productive compound formation around the age of 1;08 in the data of an Austrian German child, Jan.[14] By contrast, the authors did not find productive formation of compounds in early child

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[14] Dressler, Kiliani-Schoch and Klampfer (2003) analyze the emergence of mini-paradigms as a clue to morphological processing (see p. 396 for an explanation of the term mini-paradigm). According that view, children have detected morphological complexity in compounds if they realize compounds in opposition to simplex words within the same month of recordings (p. 401), e.g., *Feuerwehr-auto* 'fire engine' opposed to *Auto* 'car'. The present paper does not refer to mini-paradigms because the concept cannot account for truncated compounds. Dressler, Kiliani-Schoch and Klampfer (2003: 403-411) also report the data of a late-

French. Apparently, the development of productive morphology is closely related to the richness of morphological processes in the target language.

Nicoladis (2006:118) points out that there is surprisingly little research on the prosodic acquisition of compounds. To date, the early production pattern of compounds has explicitly been addressed in Fikkert (2001, for child Dutch) and Tzakosta (2004, for child Greek). Tzakosta's (2004) database on child Greek contains only few compounds, and there was no evidence in the truncation pattern that the Greek children differed between simplex words and compounds. This might be due to the specific properties of compounding in Greek.[15]

The most comprehensive study on the development of compounds is provided by Fikkert (2001). The following review is mainly based on her analysis of the acquisition of Dutch compounds. Some compound data are taken from two further studies (Wijnen, Krijkhaar and den Os 1994 for Dutch; Lewis, Antone, and Johnson 1999 for English). The authors of these two studies include compounds in their analyses without keeping them separate from simplex words.

One of the parallels to simplex words is that compounds initially undergo truncation to a single foot. A closer examination of the data, however, reveals striking differences between simplex words and compounds. Analyzing the frequency and exact pattern of truncation, Fikkert observed three crucial differences to simplex words. First, compounds are truncated to a single foot to a significantly lower rate than simplex words. Children who regularly truncate simplex words (e.g., Eva, see Fikkert 2001: 73-74) do not necessarily also truncate compounds. Second, compounds survive as bipedal forms at an earlier age than simplex words – despite the fact that compounds emerge later in children's productive vocabularies than most of the longer simplex words. Third, simplex words show a consistent pattern of preserving the rightmost stressed syllable, but there is much more variation in compounds. For example, the child Noortje preserved the final foot of compounds – as she also did in simplex words. This is illustrated by the Dutch examples in (17) to (20) taken from Fikkert (2001: 74-77).

talking Austrian German child (Katharina) realizing compounds from age 2;3. Jan started to speak at age 1;3; Katharina at age 1;8.

[15] Greek differs from Germanic languages in that compounding is relatively infrequent and in that Greek creates root compounds (see Nespor 1999 for more details).

(17) Reduction of compounds to the final foot in Noortje's data

Target word	Phonetic form	Gloss	Child form	Preservation	Child, age
vlieg-tuig	/ˈvliːχˌtœyχ/	'airplane'	[hɑuχ]	final foot	Noortje, 2;3.20
sneeuw-pop	/ˈsneːwˌpɔp/	'snow man'	[pɔp]	final foot	Noortje, 2;4.4
thee-pot	/ˈteːˌpɔt/	'tea pot'	[pɔt]	final foot	Noortje, 2:4.4

Tirza, by contrast, maintained the constituent she was more familiar with, regardless of its position within the compound (18).

(18) Reduction to the initial or final foot in Tirza's data

Target word	Phonetic form	Gloss	Child form	Preservation	Child, age
dieren-tuin	/ˈdiːrəˌtœyn/	'zoo'	[tœyn]	final foot	Tirza, 1;8.5
zee-hond	/ˈzeːˌhɔnt/	'seal'	[seː]	initial foot	Tirza, 1;10.22
zak-doek	/ˈzɑgˌduːk/	'handkerchief'	[saːk]	initial foot	Tirza, 1;11.8
hobbel-paard	/ˈhɔbəlˌpaːrt/	'rocking horse'	[pɑnt]	final foot	Tirza, 1;11.19

Eva, Elke and Jarmo preserved the two syllables from target bisyllabic compounds, but reduced them to single bisyllabic trochees. Fikkert does not provide truncated instances from tri- or quadrisyllabic compounds from Elke and Jarmo's databases; probably, there are not many such instances. Based on bisyllabic compounds it is difficult to determine if the children preserved the prosodic heads from both constituents or just processed the bisyllabic compounds like single trochees. (19) provides examples from the databases of Eva, Elke and Jarmo.

(19) Preservation of two syllables in the data of Eva, Elke and Jarmo

Target word	Phonetic form	Gloss	Child form	Preservation	Child, age
glij-baan	/ˈχlɛiˌbaːn/	'slide'	[ˈdɛibaːn]	both feet	Eva, 1;9.8
zand-bak	/ˈzɑmˌbak/	'sand pit	[ˈsɑmbɑ]	both feet	Eva, 1;9.8
schild-pad	/ˈsχɪlˌpɑt/	'tortoise'	[ˈχɪpɑt]	both feet	Elke, 2;3.26
vlieg-tuig	/ˈvliːχˌtœyχ/	'airplane'	[ˈfiːtœy]	both feet	Elke, 2;4.15
zand-bak	/ˈzɑmˌbak/	'sand box'	[ˈsɑmbɑk]	both feet	Elke, 2;4.29
kauw-gom	/ˈkɑuˌχɔm/	'chewing gum'	[ˈkɑuχɔ]	both feet	Jarmo, 1;11.20
schild-pad	/ˈsχɪlˌpɑt/	'tortoise'	[ˈtiːtaːt]	both feet	Jarmo, 1;11.20

Finally, Robin used different strategies to reduce compounds, and his data are not easy to interpret. Examples from his database are presented in (20). In *sesam-straat* he appears to preserve the first constituent *sesam*, but he maintaines the first or the second syllable of *auto* together with the second constituent *bus* in *auto-bus*. In view of the fact that children often preserve prosodically strong material from the target word (cf., Fikkert 1994, 2001), it is likely that Robin selected the initial syllable from *au*to. In *vlieg-tuig*, Robin applied prosodic reduction to a single trochee the same way as Elke and Jarmo did in their bisyllabic compounds.

(20) Different reduction strategies in the speech of Robin

Target word	Phonetic form	Gloss	Child form	Preservation	Child, age
sesam-straat	/ˈseːsɑmˌstraːt/	'sesame street'	[ˈseːsaː]	(?) initial foot	Robin, 1;7.13
auto-bus	/ˈoːtoːˌbʉs/	'bus'	[ˈɔbɪs]	two syllables	Robin, 1;8.10
vlieg-tuig	/ˈvliːχˌtœyχ/	'airplane'	[ˈtiːtaː]	both feet	Robin, 1;8.24

Fikkert's summary nicely illustrates the individual variation in the preservation pattern of compounds. It is a crucial point, however, that her observations can hardly be explained if it is assumed that all children analyze simplex words and compounds alike.

Besides the variation, the truncation pattern points to two further differences between simplex words and compounds. First, if there is truncation it takes place at the word-internal morphological and prosodic boundary (except Elke's realization of *dieren-tuin* 'zoo' as [ˈtiːtœy] and Robin's realization of *auto-bus* 'bus' as [ˈɔbɪs]). Secondly, systematic truncation to monosyllables appears to be unusual. Fikkert finds it in the data of Noortje and Tirza, but not in that of Eva, Elke, Jarmo, and Robin. As I will show later in the paper, the German data corroborate the Dutch ones in these two respects.

The vast majority of compounds reduced to bisyllabic trochees in the Dutch data are bisyllabic in their target form. The children (except Noortje) select the two stressed syllables from the target compound and produce them as single trochees. Fikkert (2001) argues that the children preserve the prosodic heads of compounds and map them onto a trochaic template – as they did with simplex words at Stage 2.[16] However, due to the lack of truncated trisyllabic and longer compounds, the evidence remains rather tentative in Fikkert's study.

Some support for Fikkert's analysis is found in a study of Wijnen, Krijkhaar and den Os (1994). The authors investigated two children acquiring Dutch. Some of these data are presented in (21). Note that none of the reduced compounds provided in Wijnen, Krijkhaar and den Os (1994) result in a monosyllabic output even if the target compounds are constructed from monosyllabic constituents. Unfortunately, Wijnen, Krijkhaar and den Os do not transcribe secondary stress. Therefore it cannot be determined whether the two syllables from the compound constituents form a single foot or two feet.

[16] The pattern Fikkert decribes seems somehow asymmetric to mine. Bisyllabic compounds are rarely truncated, and there is variation in the truncation pattern of trisyllabic compounds. Children sometimes maintain a constituent (e.g., Tirza in *dieren-tuin* 'zoo' and *hobble-paard* 'rocking horse') and sometimes select material from both constituents (e.g., Robin in *Auto-bus* 'bus'). This gives rise to a 'Gedankenexperiment': Could children treat bisyllabic compounds in a different way than longer ones? How would children perform if they perceived bisyllabic compounds as simple trochees, but more easily detected the morphological complexity in longer compounds as there is more room for alternation of prominence? At first, it would explain why there is little truncation of bisyllabic compounds to monosyllables (observed only in Noortje's and Tirza's data). Note that simple trochees hardly ever undergo truncation to monosyllables (Fikkert 1994: 201). Taken into account that compounds might differ depending on the number of syllables, I follow Taelman (2004) in annotating bisyllabic compounds as simple trochees (SW).

(21) *Selection of the prosodic heads in two- and trisyllabic compounds in child Dutch (data from Wijnen, Krijkhaar and den Os 1994:71)*

Child	Target word	Phonetic form	Gloss	Child form
M	zieken-huis	/ˈsikəˌhœys/	'hospital'	[ˈsikhʌys]
M	stof-zuiger	/ˈstɔfˌsœyxər/	'vacuum cleaner'	[ˈkɔkhʌyx]
M	vracht-auto	/ˈfrɑxtˌa͡uto/	'lorry'	[ˈfrɑxɑu]
D	neus-hoorn	/ˈnøːsˌhorn/	'rhinocerus'	[ˈnøːshɔːr]

Does the fact that the Dutch children seem to preserve the head syllables from simplex words and compounds imply that they do not recognize their morpho-prosodic complexities and treat simplex words and compounds alike? Although Fikkert (2001) remains non-committed regarding the prosodic input representation of compounds, she provides two arguments against a unified prosodic structure of simplex words and compounds: First, if compounds are parsed the same way as simplex words, they should undergo the same reduction strategies. As Fikkert points out, in her data only Noortje (but no other child) consistently truncates compounds to the rightmost stressed foot. Second, at Stage 3 Fikkert observes that at least compounds with illegal boundary phonotactics are parsed into minor prosodic words by some children (e.g., Eva). These compounds are not reduced to a single foot, but survive with the target number of syllables and two stresses. Fikkert argues that the child Eva parses compounds with illegal phonotactics as two prosodic words, but compounds with legal phonotactics as a single prosodic word.[17]

That phonotactics plays a role is suggested by data from an English child, Kyle, analyzed by Lewis, Antone, and Johnson (1999). The authors do not distinguish between simplex words and compounds in their analysis, and the data they provide include only a small number of compounds. The data suggest that the child truncates bisyllabic compounds to monosyllables if there is a phonotactically legal sequence of consonants (i.e., *star-fish* > [dæs], *wal-nut* > [want], *bed-room* > [bum], but see *pan-cake* > [keɪk]), whereas phonotactically illegal bisyllabic compounds tend to be preserved with two syllables (e.g., *oat-meal* > [opma], *gold-fish* > [kafəs], *good night* > [gʊnaɪt], *suit-case* > [sukeɪs], but see *star-fish* > [dæfɪʃ]; p. 51). If there is

[17] The target illegal consonant sequences were not necessarily also maintained in the output.

truncation to a monosyllable, the output can often not be attributed to a particular syllable because, in many cases, the child selects the compound-initial consonant and merges it with material from the second syllable. In that respect, the child treats compounds with legal phonotactics and simplex words alike: Kyle regularly truncated bisyllabic trochees to monosyllables, contrary to the frequent observation that children do not truncate bisyllabic trochees (cf., Gerken 1991, 1994, Fikkert 1994, Wijnen, Krijkhaar and den Os 1994, Pater 1997, Kehoe 1999/2000). Hence, the bisyllabic outcome in the data of Lewis, Antone and Johnson (1999) indicates that the child analyzes words containing illegal consonant cluster differently from simplex words and compounds with legal boundary phonotactics. Unfortunately, the authors do not mark stress in their data, such that it cannot be decided whether the two syllables also form two feet.

The English child Kyle studied by Lewis, Antone and Johnson (1999) also appears to select the prosodic heads from trisyllabic compounds (e.g., *grass-hopper* > [gəhap] and *zoo-keeper* > [zukup]; p. 53). In doing so, the English data support Fikkert's findings from child Dutch in that a) they highlight the role of phonotactics for children's prosodic parsing, and b) the children try to preserve the prosodic heads from the compound constituents in their bisyllabic output. In addition, simplex words and phonotactically legal compounds show the identical pattern of preservation of the prosodic head syllables.

In this thesis, I put forward the idea that children distinguish between simplex words and compounds from early on. I argue that the equal preservation of the prosodic head does not necessarily imply that children represent all simplex words and compounds alike. Children are sensitive to morphological and prosodic regularities distinguishing simplex words from compounds. As outlined in sub-section 2.4, German simplex words differ from compounds not only in the placement of main stress, but also with respect to syllable structure, boundary phonotactics and vocalic behaviour. Hence, the children can rely on a number of cues to bootstrap morphological complexity, making it possible to parse simplex words and compounds in an adult-like way.

The advantage of this analysis is that variation in the preservation pattern of compounds can be explained by the internal prosodic organization of words. If the prosodic word is limited to a single foot, each constituent satisfies the size restriction. Children have to choose one foot, and, in fact, they do. Noortje maintains the foot from the second constituent. Tirza, by contrast, maintains the constituent 'that is known to her' (Fikkert 2001: 74); a fact that particularly clearly indicates the decomposition of compounds into smaller lexical and prosodic units. Moreover, decomposition and truncation take place even if the morpheme boundary contains phonotactically legal phoneme sequences (e.g., *dieren-tuin* 'zoo' > [tœyn], *zee-hond* 'seal' > [seː], *hobbel-paard* 'rocking horse' > [pɑnt], *glij-baan* 'slide'> [χɛi] all contain phonotactically legal consonant clusters).

Alternatively, one might propose that (some) children do not recognize the different prosodic organization of simplex words and compounds. For example, the two children studied by Wijnen, Krijkhaar and den Os (1994:71-75) consistently preserve the target main- and secondary-stressed syllables from the target words, independently of their respective prosodic complexities. However, as stated above, the study presents a very small number of compounds, so that it is difficult to detect variation between simplex words and compounds in the data. Therefore, the study is inconclusive with respect to the question of whether there are children who do not distinguish between simplex words and compounds.

Some examples from Lewis, Antone and Johnson (1999) and Fikkert (2001) indicate that children do not consistently distinguish simplex words and compounds. In particular, this seems to hold for bisyllabic compounds. As Fikkert (2001) states, the stress pattern alone does not provide robust information for children to distinguish simplex words from compounds. Therefore, children must focus on additional cues such as boundary phonotactics and syllable complexity in order to make this distinction. It remains a topic for further research to find out which cues are more easily accessible, and if some cues are more important than others.

In sum, a number of empirical observations made by Fikkert (2001) support the view that (the Dutch) children distinguish simplex words from compounds by means of their phonological structure. First, Fikkert reports that truncation is generally rare in compounds, but widespread in simplex words. Second, compounds emerge as bipedal forms at a time when simplex words are still limited to a single foot. Third, compounds vary with respect to the content of preservation – in contrast to simplex words, where the rightmost stressed foot is usually preserved. As I will show later in this thesis, in these respects, the production pattern of simplex words and compounds is largely consistent in child German and child Dutch. I argue that the production pattern of the simplex words and compounds can be accounted for if simplex words are represented in a different way than compounds, and that constraint-based approaches best account for the production data.

In order to present the theoretical background for the analysis of prosodic development in Section 6, I outline the basic assumptions on learnability and phonological development in an optimality theoretic framework below.

3.5 Learning optimality-theoretic grammars

3.5.1 The continuity hypothesis

Jakobson (1948/1968) was among the first researchers to propose universal similarities between child language, language impairment and language change. He does not assume a close relation between the phonological pattern of babbling and early words (*discontinuity hypothesis*). In contrast, more recent investigation has provided evidence for a continuity between babbling and first words. For example, babbling and the early words contain the same sound inventories and syllable structures (Leopold 1953/1971, Oller, Wieman, Doyle, and Ross 1975, Vihman, Kay, de Boysson-Bardies, Durand, and Sundberg 1994, Kent and Miolo 1995). These findings are important because they demonstrate a successive adaption to the target language beginning from the early vocalizations.

In generative approaches, continuity is also postulated with respect to the grammatical and cognitive pre-requisites of language acquisition (*continuity assumption,* Pinker 1984). In its strong formulation, the continuity assumption states that child and adult language refer to the same set of linguistic units and constraints, and that these units and constraints are inborn in humans. Several studies on prosodic development have provided evidence consistent with a strong interpretation of the continuity assumption (cf., Gnanadesikan 1995, Pater 1997, Ota 2001, 2003, Rose 2000).

In its weaker interpretation, the continuity hypothesis permits maturation of linguistic principles and mechanisms (*maturational hypothesis*, Borer and Wexler 1987). With respect to prosodic development, Demuth (1995a, 1996a) discusses (and rejects) the possibility that children initially have restricted access to the prosodic hierarchy. However, it has been suggested recently that children pose child-specific constraints (Fikkert, Levelt and van de Weijer, submitted) or child-specific domains of constraint application (Pater and Werle 2001 for consonant harmony).

The analysis presented in this study refers to prosodic units and constraints well-established in adult language. No additional assumptions about children's grammars are required.

3.5.2 The initial state of the grammar

It is a common observation that children's early words are largely unmarked with respect to their phonological organization, and that the amount of markedness increases during the course of development. Based on this very general finding, researchers assume that markedness constraints outrank faithfulness constraints at the initial state (Gnanadesikan 1995, Demuth 1995a, 1996a, Levelt 1995, Smolensky 1996, Pater 1997, Pater and Paradis 1996, Levelt and van de Vijver 1998/2004, Ota 2001, 2003, Rose 2000, Adam 2002, Davidson, Smolensky, and Jusczyk 2004, Hayes 2004, Prince and Tesar 2004).

Analyses of the acquisition of word-prosodic structure also employ alignment constraints. Alignment constraints and markedness constraints are often referred to as structural constraints. Both determine the prosodic well-formedness of children's early words. At the initial state, structural constraints outrank faithfulness constraints (cf., Pater and Paradis 1996, Pater 1997, see also Kehoe 1999/2000: 61 for a brief discussion).

Other proposals state that, at the initial state, all constraints are unranked with respect to each other (Tesar and Smolensky 1993), or that any initial ranking is possible (*Gradual Learning Algorithm*, Boersma 1997, 1998, Boersma and Hayes 2001), or that faithfulness outranks markedness constraints (Hale and Reiss 1998). If there is no initial ranking (cf., Tesar and Smolensky 1993, also possible in Boersma's *Gradual Learning Algorithm*), a great variability is predicted, which is not supported by empirical findings (cf., Bernhardt and Stemberger 1998, Adam 2002). Also, an initial grammar where faithfulness constraints outrank markedness constraints (Hale and Reiss 1998a,b) is problematic because phonological development then essentially relies on the presence of a lexicon. However, at the time children build up their lexical representations they already have acquired a large part of their phonological knowledge. This suggests that the lexicon cannot represent the initial basis for deriving a phonological grammar.

3.5.3 Development as re-ranking

In optimality-theoretic approaches, language development means re-ranking of constraints. The task of the learner is to change the initial ranking in such a way that faithfulness constraints ultimately dominate markedness constraints.

Learning algorithms differ with respect to the direction of re-ranking. Some assume constraint demotion only (*constraint demotion algorithm,* Tesar and Smolensky 1993, 1998, 2000). If markedness outranks faithfulness at the initial state (Smolensky 1996, see also Davidson, Smolensky and Jusczyk 2004) markedness constraints must be demoted. Due to its clear predictions on the course of re-ranking, the constraint demotion algorithm has received ample application in empirical studies of phonological development (Rose 2000, Adam 2002, Kehoe 1999/2000). I adopted it in this thesis as well.

Some analyses also allowed constraint promotion (cf., Gnanadesikan 1995, Demuth 1996b). Bernhardt and Stemberger (1998:258-263) refer to regression phases arguing that re-ranking most of all means promotion of faithfulness. In their model, constraint demotion plays a minor role.

Re-ranking in both directions is possible also in the g*radual learning algorithm* (Boersma 1997, 1998), which explains variation in adult and child language. It has successfully been tested with empirical data (cf., Boersma and Hayes 2001, Boersma and Levelt 2000, Curtin and Zuraw 2002).

The OT-analysis adopts the more restrictive *constraint demotion algorithm.* I emphasize that a less restrictive algorithm would account for the German data as well, but that it allows more intermediate stages than the constraint demotion algorithm.

3.5.4 The representation of the input

The precise nature of children's input representations is not directly accessible to linguistic research. A position taken since the 70s is that children's early representations are very similar to that of adults. That is, children's input representations consist of the adult string of sounds (cf., Smith 1973, Macken 1980, Curtin 2001, see also Menn 1980 for an overview).[18]

As Rose (2000:93) points out, there is a gap in research with respect to the question whether children's input representations are also completely prosodified. Complete prosodification is assumed in several analyses of child speech - given the essential role the input structure plays for children's outcome (Gnanadesikan 1995, Demuth 1996b, Rose 2000, Kehoe 1999/2000, Ota 2001, 2003).[19] Fikkert (2001:70), by contrast, argues that children do not completely parse the melodic content of the (simplex) target word at Stage 1.

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[18] It is a matter of debate whether there is featural underspecification in child language, and the evidence is controversial. See Rose (2000:92) for a discussion.

[19] See also Demuth (1996b:119) for concerns regarding a prosodification of the input representation.

In this thesis, I adopt the position that the output candidates are generated from an adult-like melodic and prosodic input representation. I assume that children perceive the segmental content and the prosodic prominence of stressed syllables (or vowels) from the adult output (cf., Echols and Newport 1992, Echols 1996, Lewis, Antone and Johnson 1999, Kehoe 1999/2000). Thus, children are not only able to store the position of the main-stressed syllable. They also perceive and store the syllabification of the adult surface form. Consequently, they can parse these syllables into feet and feet into prosodic words. This is possible because children have access to universal principles of prosodic organization. The children take the presence of stressed syllables as an indication for the edges of feet, and the prominence relations within the morphological word as a cue to the internal organization into feet and prosodic words. In doing so, children parse simplex words and compounds in an adult-like fashion. This is consistent with *Lexicon Optimization*, a strategy ensuring maximal equivalence between input and output form (Prince and Smolensky 1993). Even if there are hypothetical inputs leading to the same outputs under a given ranking, the strategy of Lexicon Optimization predicts a lower number of violations of faithfulness constraints. Hence, in absence of evidence against that view, it is assumed that input and output are fully prosodified.

The proposal that children prosodify compounds as recursive prosodic words is a strong claim that should be a subject of further empirical testing. As I have argued above, the input provides a number of phonological cues (e.g., stress pattern, phonotactics, vocalic behaviour) allowing children to detect the internal prosodic and morphological word boundary in compounds. Therefore, it is reasonable to assume this distinction. This thesis adopts the following positions from the literature:

- Child grammar is composed of universally motivated constraints, i.e., there is a strong continuity of child and adult language.
- At the initial state, markedness constraints outrank faithfulness constraints.
- There is only constraint demotion, not constraint promotion.
- The candidate set is generated on the basis of fully prosodified adult-like inputs.

These assumptions are important for the analyses later in this thesis.

4 Methodology

4.1 Introduction

The present study analyzes spontaneous productions and imitations of four children acquiring German. The children are typically-developing monolinguals growing up at Osnabrück (Northern Germany).

This section describes the data collection and preparation procedures. It consists of two major parts. The first one, section 4.2, provides information about the data collection and the compilation of the corpus (4.2.1), the transcription (4.2.2), the data checking (4.2.3) and the coding procedure (4.2.4). The second part, section 4.3, describes how the prosodic word structure was coded in the child data. This includes the coding of word-prosodic properties (4.3.1), of stress patterns (4.3.2) and of word-prosodic structure of simplex words and compounds (4.3.3). The section also illustrates how variation in the input forms is regarded (4.3.4). Finally, section 4.3.5 describes methodological problems arising particularly with respect to truncated compounds and how these problems are treated prior to the analysis.

4.2 The Osnabrück-Corpus

4.2.1 Participants

The parents and children of the study were recruited with the support of a local family initiative.[20] The recruitment took place several months before the children started to produce their first words.

Three girls and three boys were initially selected to participate in the study. Two of the three boys showed a very slow increase of their productive vocabularies, such that the recordings with them were cancelled in May 2003. These two boys produced less than 10 word types at 20 months of age so that they were at risk of becoming late talkers. Due to their

[20] Thanks to the Katholische Familienbildungsstätte (FaBi) in Osnabück for permitting me to contact the parents.

elimination, the study ended up with four children, three girls and one boy. The profiles of these four children are provided in Table 4-1. The names of the children are pseudonyms. The recorded periods are given in *year;month.day.*

Table 4-1. Profiles of the individual participants

Child	Sex	Siblings	Recorded period in months	Age range of recording	Number of Recordings[21]
Sandra	F	No	9	1;02.10 - 1;11.0[22]	23
Eleonora	F	No	10	1;0.07 – 1;10.25	30
Nele	F	No	12	1;01.22 - 2;0.19	22
Wiglaf	M	No	11	1;03.21 - 2;01.21	24

All four children are firstborns without siblings, being raised in monolingual German middle-class environments. Their parents either have a university degree or some other kind of professional training. During the recording time, the children were day-cared at home by their mothers. Apart from occasional colds, none of the children suffer from health problems or hearing impairments or have deficits in cognitive and motor development. Also, there were no complications during pregnancy and childbirth.

4.2.2 Data collection

Regular recordings started as soon as the parents identified the first meaningful words in the speech of their children. Sandra, Eleonora, and Nele produced their first words in September 2002; Wiglaf in October 2002. The recordings took place over a period of 9 - 12 months at the children's homes in presence of a parent (mostly the mothers) and the author.

During the earliest phase when the number of word productions increased very slowly, bi-weekly speech samples were taken for 45 - 60 minutes. As soon as the parents reported a rapid increase of the productive vocabulary ('vocabulary explosion'), weekly recordings took

[21] These are the number of recordings including meaningful speech.

[22] Sandra's recording period had to stop at age 1;11.0 because the family moved away.

place for 30 - 40 minutes.[23] The mean recording period is 10 months and 6 days; the mean number of recordings containing meaningful speech is 25 per child.

The speech samples were taken as audio recordings using a SONY TCD-D8 DAT-recorder and a SONY ECM-MS957 microphone. The microphone was placed in front of the child and adopted to the child's position if she or he moved through the room. In order to keep background noises as minimal as possible, the caretakers were asked to remove crackling or other noisy toys before starting the session.

The children were observed during natural interaction with their caretaker(s) and the author, while looking at picture books or playing with toys. As far as possible, the data represent spontaneous productions. The setting was controlled to some degree because, in order to elicit tri- and quadrisyllabic words, five plastic animals were introduced into the spontaneous interaction: *Papagei* 'parrot' [ˌpapaˈga͡ɪ], *Krokodil* 'crocodile' [ˌkʁokoˈdiːl], *Elefant* 'elephant' [ˌeleˈfant], *Kamel* 'camel' [kaˈmeːl], and *Giraffe* 'giraffe' [giˈʁafə]. Occasionally, the attention of the child was shifted to other objects to elicit longer object names. If the child was not willing to speak, she or he was asked to repeat particular target words from time to time but imitations did not follow a fixed criterion.

In natural interaction, parents usually pick up children's word productions and extend ('Yes, this is a X.') or expand them ('Yes, a green X.'). Such parental behaviour allows for the identification of a word and for separating it from babbling sequences.

4.2.3 Data transcription

The recordings were digitalized using Cool Edit/Adobe Audition software at a sampling rate of 44100 in 16bit stereo mode. The sound files of the children's utterances were edited in two different ways: To retain contextual information, the children's utterances were marked by a cue within the long sound file. For an easier handling of the sound data (e.g. for phonetic analysis), the children's utterances were also copied and saved as short sound files.

[23] I detected the onset of the vocabulary explosion by a list of the productive vocabulary the parents provided. The criterion was simple: Prior to the vocabulary explosion, it was no problem for the parents to draw up the word list. After the beginning of the vocabulary explosion, they felt unable to write down every word type their child produced.

The transcriptions comprise every word identified via parental repetition or direct confirmation (see section 3.2. above), except deictic *da* ‘there’. Productions with speech overlaps or minor distortions were also regarded as long as the phonetic form could be identified.

The children’s utterances were transcribed by the author in a narrow phonetic transcription according to IPA (1993/1996); the adult speech was disregarded. Children’s sound inventory differed from that of Standard German: For example, at the early stage of word production, the children often realized target labiodental fricatives /f/ and /v/ as bilabial fricatives /ɸ/ and /β/ or approximant /ʋ/. Further phenomena transcribed in the data are phonetically long consonants (geminates), aspiration of plosives, and lateral and nasal release of plosives. Vowels often had a centralized variant, and were sometimes nasalized.

At the prosodic level, the transcriptions encode main and secondary prominence and vowel length. It is rather *prominence* than *stress* that has been transcribed because once children entered into the multiword stage, sentence and word level stress are difficult to distinguish from each other on a merely perceptual level. Therefore, first-level prominence (i.e. main stress) was assigned to the most prominent syllable(s) of an utterance and second-level prominence (secondary stress) to syllables that were not main-stressed but still more prominent than surrounding weak ones.

In adult German, an intervocalic consonant is ambisyllabic if the first vowel is phonologically short but appears in a stressed position. Ambisyllabic consonants are marked in the transcriptions by a short underline at the bottom of the respective consonant, e.g. *Hammer* /ˈham̠əɐ/ ‘hammer’. It is important to keep in mind that the underline denotes ambisyllabicity in the transcriptions (which has no diacritic symbol in IPA), not retraction.

4.2.4 Data checking

A sample of 1,086 utterances (12.6%) was checked for stress placement and syllable number by a second transcriber. The selected utterances all contain words comprising more material than a single foot in the adult form. The agreement was 92.4%.

4.2.5 Data coding

The recorded period comprises utterances produced at the single word and the multiword stage. Even during the early recording sessions, the children self-repeated their words, raising the problem of whether these word sequences should be broken into separate utterances or not. Sequences of words such as *Papa # Papa* [ˈpʰapa ˈpapa] 'daddy # daddy' (Nele, 1;01.22) occur in children's self-repetitions, but also in self-corrections such as *das da hin [reset]# hin* [tasˈtaːhɪt # hɪn] 'this there [reset] # there' (Nele, 1;09.16), or in intonationally coherent multiword utterances. Multiword utterances sometimes contain even more than one proposition, such as *das da Kind nackig (Bauch-)nabel* [ˈdastaˌkɪntˌnatiˈnaːbi] 'there child naked bellybutton (Nele, 1;10.14). Altogether, the corpus contains 5,550 single word utterances, 88 self-repetitions, and 2,971 multiword utterances.

I did not break down the word sequences into separate utterances because these data were not intended to be subjects of lexical or syntactic computation.[24] Moreover, the word sequences probably retain information on larger intonational units. Thus, the corpus allows for an investigation of the acquisition of larger prosodic units (cf., Gut 2000, Behrens and Gut 2005, Grimm 2006). I broke down sequences of words into minor utterances only if a) children's productions belonged to different conversational turns, and if b) the pause between the lexical items exceeded an arbitrary duration of 5 seconds. The proportion of single word utterances, self-repetitions, and word combinations is depicted in Table 4-2 for each child.[25] 'SWU' denotes single word utterances, 'REP' self-repetitions, and 'MWU' multiword utterances.

[24] Given that children occasionally repeat a lexical item 10 times or more the coding in the present study results in an unnaturally high MLU.

[25] The token calculation includes lexical words of adult German, i.e. content words and function words that appear in isolation in adult speech. Compounds and split particle verbs are counted as single lexical words.

Table 4-2. Overview of the number of utterances and words in the database

Child	SWU	REP	MWU	Sum utterances	Sum words
Eleonora	1,552	67	352	1,971	2,994
Nele	1,135	6	1,104	2,245	4,607
Sandra	1,269	12	407	1,688	3,048
Wiglaf	1,594	3	1,108	2,706	4,889
Total	5,550	88	2,971	8,610	15,538

The utterances are coded for the following general information: Name of the child, age of the child, utterance number, number of utterance within the recording session, child's production in phonetic form, adult target in orthographic form, adult target in phonetic form, spontaneous production or repetition of an adult form (henceforth called imitation).

The phonetic form of the German target words was extracted automatically from the machine-readable dictionary HADI-BOMP, a SAMPA-coded version of BOMP (*Bonn Machine-Readable Pronunciation Dictionary,* Portele, Krämer and Stock 1995; see also http://www.ikp.uni-bonn.de/dt/forsch/phonetik/bomp/ for more information about BOMP).[26]

Utterances were regarded as imitated if there were less than two conversational turns between the adult model and the child's production. Children's productions counted as imitations of the adult model if the child's production was fully included in the adult utterance produced before. This means that if the child selected one or more words from the parental turn, the child's production was coded as an imitated utterance. If the child added a new word, the utterance was coded as a spontaneous production. Self-repetitions were regarded as imitations if the first word occurred in the adult speech before, regardless of the number of repetitions.

[26] I am particularly grateful to Stefan Breuer for automatically transcribing words not included in BOMP, and to Marko Sonntag for the automatic extraction and composition of the adult target forms.

4.3 The data of the present study

4.3.1 Data selection and annotation

Children's attempts to produce multisyllabic words (i.e., words containing more syllables than can be parsed into a single foot) were semi-automatically extracted from the corpus (total rate: 1,714 target words; 1,206 simplex words, 121 pseudo-compounds and 391 compounds. Table 4-3 illustrates the distribution of simplex words, pseudo-compounds and compounds in the database, given in absolute numbers and percentages.

Table 4-3. Distribution of simplex words, pseudo-compounds and compounds in the database in absolute numbers and percentages

Child	Simplex words	Pseudo-compounds	Compounds	Sum
Eleonora	410 (81.0%)	45 (8.9%)	51 (10.1%)	506 (100%)
Nele	311 (70.5%)	14 (3.2%)	116 (26.3%)	441 (100%)
Sandra	187 (55.3%)	31 (9.2%)	120 (35.5%)	338 (100%)
Wiglaf	298 (69.5%)	31 (7.2%)	100 (23.3%)	429 (100%)
Total	1,206 (70.4%)	121 (7.1%)	387 (22.5%)	1,714 (100%)

Based on these words, a token list was created and annotated for the morphological structure of the target word (i.e. simplex word, compound, pseudo-compound), the target number of syllables and the stress pattern. The children's productions were re-described for their actual word stress because the corpus transcription provides only utterance prominence, not word stress. Then, the child tokens were labelled manually for the following characteristics: number of syllables, whether they deviate from the adult target in syllable number or stress pattern (correct vs. incorrect), and the position of the token in multiword utterances or self-repetitions (initial vs. non-initial).

Incorrect realizations were coded for the presence of syllable and foot truncations, addition or deletion of secondary stress, stress shifts, level stress, and epentheses. Importantly, children's productions were regarded as *correct* realizations if they agreed to the target word with respect to the number of syllables and stress pattern, and as *incorrect* if they deviated from the adult form at least in one of the two characteristics. Changes of the syllable-internal structure (e.g. cluster reduction, coda deletion, vowel shortening or lengthening) were disregarded.

4.3.2 Determining the stress pattern

The stress pattern is coded according to strong-weak (SW) relations. In the adult and child forms, ‘S’ denotes a main-stressed; ‘s’ a secondary stressed and ‘W’ a weak syllable. For the adult words, the SW structure has been determined according to the stress patterns of Standard German. The morpheme boundary in compounds is indicated by a hyphen (‘-’), syllable boundaries by a dot (.).

In children’s productions, main or secondary stress is determined on the basis of their perceived prominence. The most prominent syllable of the word was categorized as main-stressed; syllables which are less prominent than main-stressed ones are coded as secondary stressed. Note that words can also appear with two main stresses in child speech (level stress). Every other syllable was classified as unstressed (weak).

No systematic acoustic analyses have been performed to evaluate the presence (or absence) of main or secondary stress in the child data. To date, it is not clear which acoustic parameters provide the most reliable cues for word stress in child German (e.g., Gies 2001, Lintfert and Schneider 2006, Lintfert and Vollmer 2007, Lintfert 2009). Lintfert and Schneider observed individual preferences in the use of the parameters in children up to 18 months of age. The children vary with regard to the use of the acoustic parameters. This explains why intensity was the most consistent cue to main stress in the data of Lintfert (2009), but not in the data of Gies (2001).

Figure 4-1 exemplifies a target word transcribed as level-stressed (8a) and as bearing target-like stress (b). There are clear differences in the values for F0 and intensity on the stressed and unstressed syllables. The figure represents two instances of the target word *Papagei* ‘parrot’ produced by Sandra at age 1;8.14 and 1;8.31.

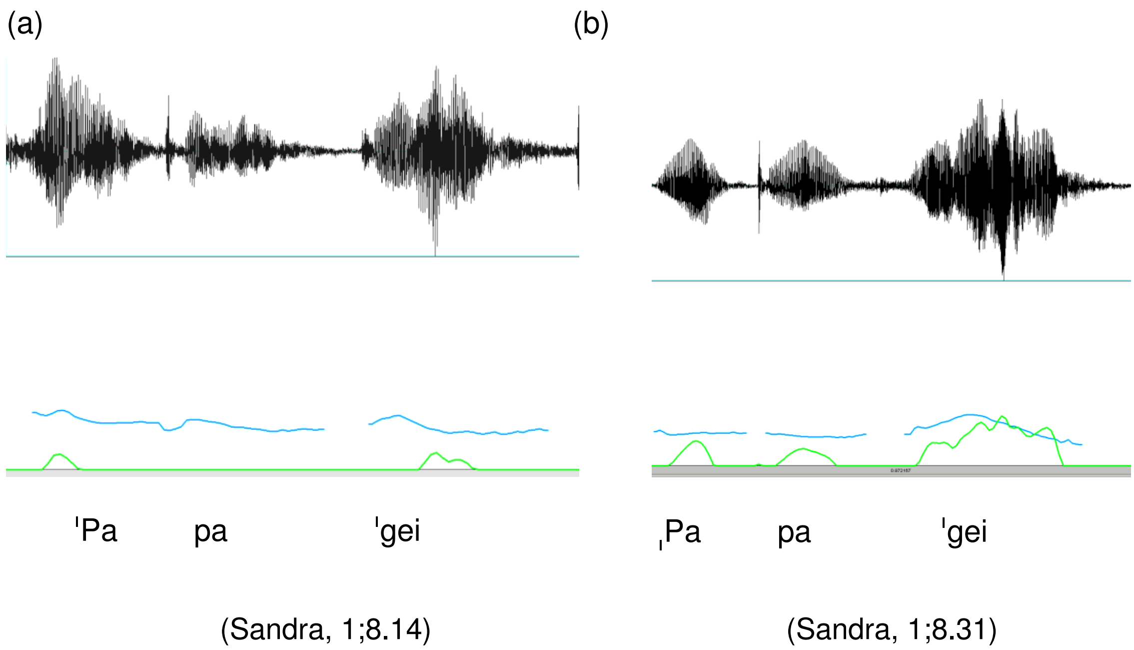

Figure 4-1. The target word ˌPapaˈgei ‘parrot’ produced with level stress (a) and target-like with ultimate main stress (b).

4.3.3 Determining the prosodic structure of simplex words and compounds

In determining the word-prosodic organization, I follow the assumption that a stressed syllable marks the left edge of a foot in German (cf., Féry 1995, Hayes 1995). Feet can be monosyllabic or bisyllabic: In the first case, the foot is constructed on a single stressed syllable (S), in the second case on a stressed syllable followed by an unstressed one (SW).

I propose that the foot inventory of German children contains only trochees. Therefore, if a strong syllable is surrounded by two weak syllables (WSW), I assume that the children parse a trochee and leave the initial syllable unfooted. For example, WSW words such as *Giraffe* ‘giraffe’ are parsed *gi(ˈraffe)*$_F$ not **(giˈraf)*$_F$ *e*. Pre-tonic weak syllables remain unfooted also in WS words (e.g., *<u>Ka</u>(ˈme)]*$_F$ ‘camel’). If a simplex word contains sequences of two post-tonic weak syllables, the second weak syllable remains unfooted because it cannot create a foot (e.g., SW<u>W</u> in *(Kängu)*$_F$ *<u>ru</u>* ‘cangaroo’, sW<u>W</u>SW in *(ˌLoko)*$_F$*<u>mo(</u>ˈtive)*$_F$ ‘ˌlocomotive’).[27] Pseudo-compounds are described with two stresses and count as bipedal in the target form (e.g., SWs

[27] In adult language, the syllables cannot create a foot because they are light. They can neither form the head of a foot nor can they be assigned to a complement position of a foot.

in *(Tele)*$_F$*(fon)*$_F$ 'telephone', *(Mikro)*$_F$*(fon)*$_F$ ‚microphone', (*Benja)*$_F$*(min)*$_F$ (proper name), *(Jona)*$_F$*(than)*$_F$ (proper name) and SsW in (*Heu)*$_F$*(schrecke)*$_F$ 'grasshopper', *(Ei)*$_F$*(dechse)*$_F$ 'lizzard', *(A)*$_F$*(meise)*$_F$ 'ant').

The analysis investigated if the target words and children's productions correspond to a single trochaic foot, to two feet and if they contain unfooted syllables. Monosyllabic (S) or bisyllabic trochees (SW) were labelled 'single foot'. Productions containing two stressed syllables, each of them potentially followed by a weak syllable (i.e., sS, sWS, SWsW, Ss, SS, etc.), were labelled 'two feet'. I follow the common view that feet contain exactly one head (cf., Hayes 1995 for adult language, Fikkert 1994 for child language). Therefore, two stressed syllables cannot belong to the same foot. Productions containing syllables that are not parsed into trochaic feet were labelled 'unfooted' (such as <u>W</u>S, SW<u>W</u>, <u>W</u>SW). These productions also contain footed structure but they do not correspond exactly to a monopedal, or a bipedal form.

Table 4-4. Overview of the different prosodic structure of simplex data in the database

Syllables	Target shape	Examples	Types/Tokens	Type-Token-Ratio
2	WS	*Ka'mel* 'camel', *Del'fin* 'dolphin'	21/349	0.060
3	sWS	*ˌPapa'gei* 'parrot', *ˌEle'fant* 'elephant'	9/384	0.023
3	WSW	*Gi'raffe* 'giraffe', *Ba'nane* 'banana'	31/313	0.099
3	SWW	*'Paprika* 'pepper', *'Känguru* ‚cangaroo'	7 /77	0.091
4	sWSW	*ˌManda'rine* 'tangerine', ˌMarme'lade 'jam'	11/64	0.172
5	sWWSW	*ˌLokomo'tive* 'locomotive'	1/19	0.053
Sum			80/1207	0.066

Table 4-4 depicts the target prosodic shapes of simplex words occurring in the database. The numbers in the last column indicate the rate of different types and tokens in the child database.

A complete list of simplex word types included in the study and their prosodification is provided in Appendix A.

The overall type-token ratio of simplex words is 0.066, which is relatively low. This implies that the children use few different word types relatively often. There is some amount of variation, ranging from the very low type-token ratio of 0.023 in sWS words to 0.172 in sWSW words.

The prosodic shapes listed in Table 4-4 above include different syllable shapes: The WS group contains words with a heavy penultimate syllable (e.g., *Bal'kon* 'balcony', *Del'fin* 'dolphin') and a light penultimate syllable (e.g. *Ka'mel* 'camel', *Pa'pier* 'paper', *Sa'lat* 'salad'). Likewise, the WSW group includes words with heavy antepenultimate syllables (*Trom'pete* 'trumpet', *Gir'lande* 'galand', *Kohl'rabi* 'kohlrabi') and light antepenultimate syllables (*Gi'raffe* 'giraffe', *Ba'nane* 'banana', *To'mate* 'tomato'). The group of SWW words only contains words with light syllables (*'Känguru* 'cangaroo', *'Brokkoli* 'broccoli', *'Radio* 'radio').

Pseudo-compounds are analyzed as a category of its own. In the analysis, I assume two classes of pseudo-compounds. An overview is presented in Table 4-5.

Table 4-5. Overview of the different prosodic structure of pseudo-compounds

Syllables	Target shape	Example	Types/Tokens	Type-Token-Ratio
3	SsW	*'A,meise* 'ant', *'Ei,dechse* 'lizzard'	3/39	0.077
3	SWs	*'Tele,fon* 'telephone', *'Jona,than* (proper name)	7/75	0.093
Sum			10/121	0.083

Pseudo-compounds display a type-token ratio of 0.083, thereby showing a larger range of types in SWs targets (0.093) as compared to SsW forms (0.077).

Table 4-6 illustrates different prosodic shapes of the compounds in the database. Note that the study focuses on the prosodic pattern of the early compounds and does not consider semantic transparancy. The analysis also disregarded morphological properties such as the word classes of the constituents (although noun + noun compounds predominated), or the presence of linking morphemes such as the stem-final consonant *–n* in *Schokoladen-eis* ‘chocolate ice-cream’, *Tomaten-soße* ‘tomato sauce’, *Kassetten-recorder* ‘tape recorder’. The derivational affix *riesen-* (e.g., *Riesen-rad* ‘giant wheel’), and *ur-* (e.g. *Ur-oma* ‘great grandmother’) were included in the analysis because they have corresponding free morphemes and because they form a prosodic word of their own (Raffelsiefen 2000).

The children exclusively produced prosodically left-headed compounds, although the German vocabulary contains compounds with main stress on the final constituent as well, such as *ˌOster-ˈsonntag,* ‘easter sunday’. Appendix A provides a list of the compound types in the database. Though there is a wider range of target prosodic shapes in compounds than in simplex words, compounds with monopedal constituents predominate. Additionally, the majority of compounds in the database comprises two constituents. Very few compounds contain three constituents such as *ˈFisch-öl-ˌkapsel* ‘fish+oil+capsule’, and *ˈFahr-rad-ˌhelm* ‘cycle helmet’. Tripartide compounds are subsumed in the category ‘other’ as there are too few types and tokens to draw conclusions. The analysis includes bipartide, left-headed compounds with monopedal or longer constituents.

There is a higher overall type-token-ratio in ‘real’ compounds (0.372) compared to simplex words (0.066) and pseudo-compounds (0.083), with considerable variation between the different prosodic shapes. This suggests that the compound vocabulary is more differentiated than that of simplex words.

Table 4-6. Overview of the different prosodic organization in the compounds

Syll	Target shape	Example	Types/ Tokens	Type-Token-Ratio
3	SW-s	*ˈOster-ˌei* ‘ easter egg’, *ˈRiesen-ˌrad* ‘giant wheel’	40/99	0.404
3	S-sW	*ˈMüll-ˌeimer* ‘refuse bin’ , ˈSand-ˌkasten ‘sand pit	46/106	0.434
3	S-Ws	ˈLuft-baˌllon ‘balloon’, ˈReiß-verˌschluss ‚zip’	2/17	0.118
4	SW-sW	*ˈGummi-ˌbärchen* ‘jelly bear’, *ˈPuppen-ˌwagen* ‘doll’s pram’	39/108	0.361
4	WSW-s	Koˈala-ˌbär ‘coala’	1/13	0.077
4	S-WsW	*ˈKehr-maˌschine* ‘ road sweeper’	2/4	0.5
5	sWS-sW	ˌPoliˈzei-ˌauto ‘police car’	1/1	1
5	sWsW-s	*ˌSchokoˈladen-ˌeis* ‘chocolate ice-cream’	1/1	1
5	WSW-sW	*Toˈmaten-ˌsoße* ‘tomato sauce’, Joˈhannis-ˌbeeren ‘red currants’	2/3	0.667
6	SW-sWsW	*ˈFieber-ˌthermoˌmeter* ‘clinical thermometer’	1/17	0.059
6	WSW-WSW	Kaˈssetten-reˌcorder ‘tape recorder’	1 /2	0.5
	Other shapes		8/16	0.5
Sum			144/387	0.372

4.3.4 Variation in the target stress pattern

The word-prosodic pattern is subject to some variation in adult German speech. Several pseudo-compounds such as *Mikrofon* ‘microphone’, *Telefon* ‘telephone’, or *Pelikan* ‘pelican’ have stress variants showing either initial *ˈMikroˌfon, ˈTeleˌfon, ˈPeliˌkan* or final main stress

ˌMikroˈfon, ˌTeleˈfon, ˌPeliˈkan (see Wiese 1996:278 for more examples). In the analysis, both variants are counted as correct variants.

Variation also occurs with respect to the number of syllables. The suffix *–en* (occurring in plural forms and as a linking morpheme in compounds) often undergoes place assimilation with the stem-final consonant. If the stem ends in a nasal consonant, the vowel is often not realized and the suffix-final consonant assimilates to the stem-final consonant (e.g., *Blumen* 'flowers' (pl.) > *Blum*). For example, the first constituent of the target word *Blumen-kohl* 'cauliflower' /ˈbluːmənˌkoːl/ might appear as a disyllabic SW form /ˈbluːmən/ if unreduced, or /ˈbluːmm̩/ if assimilated. The time slot of the nasal affix can also be deleted, resulting in the monosyllabic form /bluːm/ (Kohler 1995: 210-211). In the data coding such assimilatory processes are considered as regular variants to the standard SW patterns, not as syllable truncations.

The children also produced plural forms. The analysis combines singular and plural forms if the plural form does not change the rhythmic pattern, i.e., *ˈA.ˌmei.se* vs. *ˈA.ˌmei.se-n* 'ant', *Kar.ˈtoffel* vs. *Kar.ˈtoffel-n* 'potato', *To.ˈma.te* vs. *To.ˈma.te-n* 'tomato'. Singular and plural forms are counted as different types if there were changes in the syllable number, e.g., *ˌE.le.ˈfant* vs. *ˌE.le.ˈfan.t-en* 'elephant', *Del.ˈfin* vs. *Del.ˈfi.n-e* 'dolphin'. Note that nasal assimilation in plural formation not only adds to the singular form but also shortens the derived form (such as in *Ba.ˈna.ne* vs. *Ba.ˈnan(-en)* [baˈnaːnː] 'banana', *Ro.ˈsine* vs. *Roˈsin(-en)* [ʁoˈziːnː] 'raisin', *San.ˈda.le* vs. *San.ˈdal-n* [zanˈdaːln] 'sandal'). Therefore, some plural forms are counted separately from their singular forms, whereas others are not.

4.3.5 Further methodological issues

4.3.5.1 Notes on truncation processes in simplex words and compounds

Truncation in simplex words and compounds differs in one essential point: In simplex words, the truncated form can be (relatively) easily associated with an adult target word (e.g., [ˈga͡ɪ] with /ˌpapaˈga͡ɪ/ *Papagei* 'parrot'). The identification of truncated compounds is more complicated if the child truncates a complete constituent. For example, if a child produces *Tonne* [ˈdɔnə] 'bin' as Wiglaf did at age 1;08.06, how can it be determined if he attempted the simplex form *Tonne* 'bin' or the compound *Müll-tonne* 'refuse bin'?

To determine attempted compounds, I analyzed the *situational use* by the parents. The method was as follows: Outputs coded as compounds in the child database were examined regarding whether the parents used an underived alternative in the preceding or following two conversational turns.

An example of such a situation is illustrated in (22). Parents and children often interacted in recurring routines, e.g. they looked at the same picture books or played with the same toys. For example, Nele's mother often asked to name parts of her body: The arms, the legs, etc. In these situations, she also used to asked the child to name *Bauch-nabel* 'navel'. The mother always extended Nele's simplex output *nabel* to the compound *Bauch-nabel* 'navel'. Although *nabel* represents an existing lexical word and an adequate response in that situation, I assume that Nele's intake was a compound.

(22) Determining compound productions where the final constituent is preserved

Mother:	Guck mal, was ist das denn?
Gloss:	Look, what is this?
Child:	(Bauch)**nabel**# (Bauch)**nabel**
Gloss:	‚navel' # ‚navel'
Phonetic form:	[ˈnapa ˈnapa]
Mother:	Ja, der **Bauch-nabel,** ne.
Gloss:	Yes, the navel, isn't it?
(Nele, 1;08.29)	

The identification of an attempted compound is straightforward if children preserve the first compound constituent because the outcome is not adequate in that situation anyway. For example, in the situation illustrated in (23) below, Sandra's mother talks about *Gummi-bärchen* 'gummi bears' /ˈgʊmiˌbæɐçən/. The mother always uses the compound *Gummi-bärchen* when talking about these sweets. Consider particularly the third turn of the mother when she requests Sandra to continue the word. The mother clearly indicates to Sandra that her response is incomplete and that she expects Sandra to produce the second constituent *bärchen* 'bear' (diminuitive). Sandra, however, repeatedly realizes the first constituent *gummi* 'rubber'which is situationally inadequate because the can did not contain *rubber*.

(23) Determining compound productions where the initial constituent is preserved

Mother:	Guck mal, weißt du, was da [in der Dose] noch drin war?
Gloss:	Look, do you know what was there [in the can]?
Child:	**Gummi**(bärchen) # **Gummi**(bärchen)
Gloss:	gummi (bears)# gummi (bears)
Phonetic form:	[ˈkʊmɪ # ˈgʊm̠ɨ]
Mother:	Was? # Was war (den)n da drin?
Gloss:	What? # What was in there?
Child:	**Gummi**(bärchen)
Gloss:	gummi (bears)
Phonetic form:	[ˈgʊm̠ɨ]
Mother:	**Gummi**? Weiter?
Gloss:	Gummi? Further?
Child:	Gummi-bärchen
Phonetic form:	[ˈgʊm̠ɨˌbɛçə]
Gloss:	Gummi bears
Mother:	Gummi-bärchen.
Gloss:	gummi bears
(Sandra, 1;10.19)	

Potential compounds are disregarded from the analysis if the parental responses and situations were ambiguous, for example, if the parents used a compound together with a non-compound alternate.

4.3.5.2 Comparing spontaneous productions and imitations

The corpus contains spontaneous productions and imitations. Quantitative comparisons are given in Table 4-7 below. To find out whether the production mode (spontaneous productions vs. imitations) influences the error rate, a Chi-square-Test (Pearson's χ^2) was performed for each child. Note that 'correctness' regards the number of syllables and stress pattern, not the segmental content of a target word. Outputs corresponding to the adult target in number of syllables and stress pattern are labelled 'correct', otherwise 'incorrect'. As the results show, production mode has no significant impact on the error rate. Therefore, spontaneous productions and imitations were not further distinguished in the study.[28]

Table 4-7. Statistical comparison of spontaneous and imitated productions

Child	Correctness	Spont.	Imitat.	Sum	Items	Comparison
Eleonora	Correct	64	34	98	506	$\chi^2(1) = 0.92; p > .1$
	Incorrect	245	163	408		
	Sum	309	197			
Nele	Correct	107	38	145	441	$\chi^2(1) = 1.26; p > .1$
	Incorrect	203	93	296		
	Sum	310	131			
Sandra	Correct	79	55	134	338	$\chi^2(1) = 0.54; p > .1$
	Incorrect	112	92	204		
	Sum	191	147			

4.3.5.3 Comparing initial and non-initial position

The words analyzed in the study were extracted from single word or multiword utterances. Prosodic errors might occur more often in initial positions than in non-initial ones, for example, because a preceding strong syllable serves as host for unfooted syllables (Lleó and Demuth 1999, Gerken 1996). Therefore, the distribution of incorrect and correct realizations was compared for for initial and non-initial position. Again, correct means that the child form corresponds to the adult target in number of syllables and stress pattern. The results show that the position does not influence the error rates.[29] Only in the data of Eleonora are words in utterance-initial positions slightly more prone to errors as compared to non-initial positions (see Table 4-8 below). Therefore, the word productions were combined for the positions.

[28] A Chi-Square-Test comparing Truncation (truncated, non-truncated) * Production mode (spontaneous, imitation) showed the same result. See Appendix B for more details.

[29] Single word utterances are disregarded (N = 923) because there is no non-initial position, and because they are characteristic for the earliest stages where children produce many errors.

Table 4-8. The statistical comparison of initial and non-initial position

Child	Correct-ness	Init	Non-init.	Sum	Items in total	Comparison
Eleonora	Correct	16	42	58	219	$\chi^2(1) = 3.56$; $p > .05$
	Incorrect	67	94	161		
	Sum	83	163			
Nele	Correct	28	54	82	240	$\chi^2(1) = 0.24$; $p > .5$
	incorrect	49	109	158		
	Sum	77	163			
Sandra	Correct	24	37	61	137	$\chi^2(1) = 0.88$; $p > .1$
	incorrect	36	40	76		
	Sum	60	77			
Wiglaf	Correct	18	56	74	195	$\chi^2(1) = 0.003$; $p > .5$
	incorrect	29	92	121		
	Sum	47	148			

5 Development of simplex words and compounds in child German

5.1 Introduction

This section analyses the developmental pattern of trisyllabic simplex words and compounds in child German. I suggest four stages of development. Contrasting simplex sWS words with SW-s and S-sW compounds, I argue that the children know the morphological and prosodic complexity of simplex words and compounds. Due to the different prosodic representation, developmental stages are not uniformly visible in different target shapes.

The analysis begins with the empirical observation that the trisyllabic simplex words and compounds are truncated to a single foot at Stage 1. At Stage 2, compounds, but not simplex words survive with two prosodic words, each comprising a single foot. At Stage 3, the children permit bipedal simplex words and bipedal compound constituents. The analysis predicts that unfooted syllables emerge at Stage 4.

In the optimality-theoretic analysis, I demonstrate that the developmental pattern can be explained by the re-ranking of the same set of constraints. The analysis is based on the assumption that the children parse compounds into recursive prosodic words. For the course of re-ranking, it is presumed that structural constraints successively become outranked by faithfulness constraints (cf., Gnanadesikan 1995, Demuth 1995, 1996b, Smolensky 1996). Furthermore, according to the *constraint demotion algorithm* (Tesar and Smolensky 1993, 1996), there is only constraint demotion.

The section is organized as follows: Subsection 5.2 describes the developmental pattern of trisyllabic sWS words. The development of trisyllabic SW-s and S-sW compounds follows thereafter in subsection 5.3. I rely mainly on the data of Wiglaf and Nele. Subsection 5.4 introduces the constraint set used in the analysis. The following subsection 5.5 provides a formal analysis of the developmental stages for the trisyllabic words under consideration. Finally, subsection 5.6 gives a summary of the analysis.

5.2 Trisyllabic simplex words with final main stress

Consistent with previous analysis of child German (cf. Lleó and Demuth 1999, Lleó 2001), the children of this study invariably truncate multisyllabic words to a single foot. From target sWS words, the children always select the main-stressed foot and truncate the initial one. The following realizations of sWS-targets from Wiglaf illustrate that the pattern is highly systematic.

(24) *Stage 1, truncation of sWS words to S in Wiglaf's data*

Target	Gloss	Phonetic form	Child form	Age
Elefant	'elephant'	/ˌʔeləˈfant/	[mant˺]	1;08.13
			[fant˺], [van], [fanː]	1;09.02
			[vant˺], [fant]	1;09.09
			[vanː], [fant]	1;09.19
			[fan]	1;10.13
Krokodil	'crocodile'	/ˌkʁokoˈdiːl/	[ˈʔɨːjl̥]	1;07.25
			[tɵjː]	1;08.13
Papagei	'parrot'	/ˌpapaˈga͡ɪ/	[ma͡ɪ], [ma͡ɪ]	1;05.26

sWS targets do not undergo changes in the prosodic output when children enter into Stage 2. As we will see in sub-section 5.3, Stage 2 only affects compounds. sWS words are realized as a bipedal form with target-like stress when children enter into Stage 3.

(25) *Stage 3, realization of sWS words as bipedal output in Wiglaf's data*

Target	Gloss	Phonetic form	Child form	Age
Elefant	'elephant'	/ˌʔelə'fant/	[ˌʔeːlə'fant˺]	1;10.28
			[ˌʔeːlɛ'fant], [ˌʔeːlə'fant]	1;11.03
			['ʔeːlɛˌfan]	1;11.13
			[ˌʔeːlɛ'fant], [ˌʔeːlɛ'fant˺]	1;11.19
			[ˌʔɛlɛ'fant], [ˌʔelɛ'fant']	2;0.11
			[ˌʔɛle'fan], [ˌʔeːlɛ'fant], [ˌʔɛle'fan]	2;0.24
			[ˌʔeːlɛ'fant], [ˌʔelɛ'fant˺]	2;01.07
Krokodil	'crocodile'	/ˌkʁoko'diːl/	[ˌkɔkəl'dijɐ]	1;11.19
			[ˌkɔkəl'diːl], [ˌkoko'tiːl]	1;11.23
			[ˌkɔkel'diːl], [ˌkɔkɔ'diːl]	2;0.11
			[ˌkɔkəl'diːl], [ˌkɔkə'diːl]	2;0.24
			[ˌkɔkɔˌtiːl] , [ˌkχɔko'tiːəl]	2;01.07
Papagei	'parrot'	/ˌpapa'ga͡ɪ/	[ˌpapa'ka͡ɪ]	1;10.13
			[ˌpapa'ka͡ɪ], [ˌpapa'ka͡ɪ]	1;10.28
			[ˌpapa'ka͡ɪ], [papːa'ga͡ɪ], [ˌpapa'ka͡ɪ]	1;11.13
			[ˌpapa'kʰa͡ɪ]	1;11.19
			[ˌpapa'kɣa͡ɪ], [ˌpapa'ka͡ɪ]	1;11.23
			['papaˌka͡ɪ], [ˌbapa'ka͡ɪ]	2;0.11
			[ˌpapa'ga͡ɪ], [ˌbapa'kʰa͡ɪ]	2;0.17
			[ˌpapa'ga͡ɪ]	2;0.24

At Stage 4, unfooted syllables are permitted in the output. sWS words do not contain such syllables, thus the transition to Stage 4 is not directly visible in these words. Direct evidence for Stage 4 comes from WS and WSW shapes.

Eleonora and Sandra pass through the same four stages as Wiglaf. I will not go into further detail here. An interesting difference, however, is observed in the data of Nele. Nele first passes through Stages 1 and 2 like the other three children (26).

(26) Stage 1, truncation of sWS words to S in Nele's data

Target word	Gloss	Phonetic form	Child form	Age
Elefant	'elephant'	/ˌʔeləˈfant/	[fant], [fan]	1;09.24
			[fan], [fant], [fant], [fant]	1;10.0
			[fant], [fant], [fʌnt], [fɔnt]	1;10.07
			[fant], [fant]	1;10.14
			[fant], [fant], [fant], [van]	1;10.23
			[fanːtʰ], [fantʰ]	1;11.0
Krokodil	'crocodile'	/ˌkʁokoˈdiːl/	[tɯj]	1;08.12
			[kɯ͡ɪ]	1;08.29
			[gɯ͡ɪ]	1;10.0
			[kɔ͡ɪ]	1;10.23
			[kʊ͡ɪ]	1;11.14
Polizist	'police man'	/ˌpoliˈt͡sɪst/	[tit], [tit]	1;07.25
			[t̺itʰ], [titʰ], [titʰ]	1;08.12
			[tɪt]	1;08.29
Papagei	'parrot'	/ˌpapaˈga͡ɪ/	[ga]	1;06.11
			[ga͡ɪ]	1;08.12
			[ka͡ɪt], [kʰa͡ɪ]	1;08.29
			[ka͡ɪ]	1;09.24
			[ka͡ɪ], [ga͡ɪ]	1;10.0
			[ka͡ɪ]	1;10.07

Again, Stage 2 only affects compounds. In the following Stage, however, Nele realizes sWS targets as bisyllabic iambs. I refer to this pattern as Stage 3”. At Stage 3”, Nele preserves the main-stressed syllable and adds a preceding one. Both syllables are preserved with their target-like prosodic role and position (27).

(27) Stage 3”, realization of sWS words as WS in Nele’s data

Target word	Gloss	Phonetic form	Child form	Age
Krokodil	‘crocodile’	/ˌkʁokoˈdiːl/	[kɔˈkoj]	1;08.29
			[kɯˈkɯ͡ɪ], [kɔˈkɔ͡ɪ]	1;10.0
			[koˈkɯ͡ɪ]	1;11.04
			[kʊˈkʊ͡ɪ], [kɔˈkiː]	1;11.14
			[guˈgʊ͡ɪ]	1;11.25
			[kɯˈkɯ͡ɪ], [kɯˈkɯ͡ɪ]	2;0.02
			[guˈguː]	2;0.19
Papagei	‘parrot’	/ˌpapaˈga͡ɪ/	[kaˈka͡ɪ], [kaˌka͡ɪ], [kəˈka͡ɪ]	1;10.0
			[kɪˈka͡ɪ]	1;10.07
			[kaˈka͡ɪ]	1;11.04
			[kɔˈka͡ɪ], [gɔˈga͡ɪ], [gaˈga͡ɪ]	1;11.14

Nele only produces WS outputs of the two sWS-types *Krokodil* ‘crocodile’ and *Papagei* ‘parrot’, but with 9 tokens each in the database. In these words, the two preceding syllables are segmentally identical such that it cannot be decided by sWS words which syllable is selected. However, the same pattern is observed in WS targets, as I will demonstrate later in this thesis. Due to the similarities between sWS and WS targets, I assume that she preserves the weak one.

There is no evidence for distinct Stages 3 and 4 in Nele’s data. In any case, Nele produces a few sWS words in a target-like way at the end of the recorded period.

(28) Stage 3, realization of sWS words as bipedal output in Nele's data

Target word	Gloss	Phonetic form	Child form	Age
Papagei	'parrot'	/ˌpapaˈga͡ɪ/	[ˌkakaˈka͡ɪ], [ˌkakaˈka͡ɪ]	1;09.24
			[ˌkakaˈka͡ɪ]	1;11.25
Elefant	'elephant'	/ˌʔeləˈfant/	[ˌɛleˈfant], [ˌʔɛlɛˈfantʰ]	1;10.0
			[ˌʔɛleˈfant]	1;11.04
			[ˌʔɛlɛˈfantʰ], [ˌʔɛlɛˈfant]	1;11.14
			[ˌʔɛlɛˈvant]	1;11.25
			[ˌʔɛlɛˈfant]	2;0.19

To sum up, the data of Wiglaf and Nele show that trisyllabic words with final stress systematically increase in their prosodic size. Despite individual differences, the children reduce the words to a single foot at Stage 1. At Stage 3, sWS targets emerge as a bipedal form in a target-like way.

The model proposed here assumes that not all prosodic shapes are affected by developmental trajectories in the same way. Thus, no change is detected at Stages 2 and 4. Asymmetries can also be observed in the acquisition of trisyllabic compounds, which I describe below.

5.3 Trisyllabic compounds

Like simplex words, compounds are truncated to a single foot at Stage 1. At first glance, the pattern does not seem to be as systematic as in simplex words. Differences are observed in two respects. First, truncation is far less frequent compared to simplex words. Only few compounds are truncated to a single foot in the database. Second, in contrast to simplex words, the children sometimes produce the initial constituent (containing the main-stressed syllable) and sometimes the final constituent (containing the secondary stressed one). Hence, we do not observe the same consistency of preservation as in simplex words. These two findings from German are consistent with Fikkert's data from child Dutch (Fikkert 2001). A closer examination of the German data shows that the children cut off the compound at the word-internal morphological boundary and realize the bisyllabic constituent. This explains why Wiglaf produces the initial constituent from SW-s compounds (29).

(29) Stage 1, truncation of SW-s compounds to SW in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Riesen-rad	'giant wheel'	/ˈʁiːzənˌʁaːt/	[ˈhiːsn̩], [ˈhiːsn̩], [ˈhiːsn̩]	1;09.09
			[ˈhiːsn̩]	1;09.19

If the compound starts with a monosyllabic constituent, the children produce the final, bisyllabic constituent (30):

(30) Stage 1: Truncation of S-sW compounds to SW in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Müll-tonne	'refuse bin'	/ˈmʏlˌtɔnə/	[ˈdɔnə]	1;08.06
Farb-kasten	'paint box'	/ˈfaɐpˌkastən/	[ˈfastn̩]	1;10.13

At Stage 2, SW-s and S-sW compounds emerge with two feet. The examples in (31) and (32) illustrate that the children now produce these compounds in a target-like way. Therefore, the output pattern does not change at the following Stages 3 and 4. Remind that, contrary to compounds, simplex sWS words were persistently truncated to a single foot at Stage 2.

(31) Stage 2, target-like production of SW-s compounds in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Apfel-mus	'apple sauce'	/ˈʔap͡fəlˌmuːs/	[ˈʔap͡fəlˈmuːs]	1;10.13
Baby-buch	'baby book'	/ˈbeːbiˌbuːx/	[ˈpeːbiˌpɯːx]	1;10.13
Hammer-bank	'hammer bank' (a toy)	/ˈhaməɐˌbaŋk/	[ˈhamaˌbaŋk̚]	1;10.13
Schlüssel-loch	'keyhole'	/ˈʃlʏsəlˌlɔx/	[ˈlʏsəˌlɔx]	1;10.28

(32) Stage 2, target-like production of S-sW compounds in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Hub-schrauber	'helicopter'	/ˈhuːpˌʃʁa͡ʊbəɐ/	[ˈxɯːpˌsa͡ʊbɐ]	1;10.13
Pfann-kuchen	'pancake'	/ˈp͡fanˌkuːxən/	[ˈpanːˌkuːxŋ̩]	1;10.13
Sand-kasten	'sandpit'	/ˈzantˌkastən/	[ˈθanˌkastn̩]	1;10.13
Sand-kiste	'sandpit'	/ˈzantˌkɪstə/	[ˈvanstˌkɪstə]	1;10.13
Sand-kuchen	'sand cake'	/ˈzantˌkuːxən/	[ˈzʷanˌkɯxŋ̩]	1;10.13
Schein-werfer	'spotlight'	/ˈʃa͡ɪnˌvɛɐfəɐ/	[ˈva͡ɪnˌvɛɐfɐ]	1;10.28
Wasch-straße	'car-wash '	/ˈvaʃˌʃtʁaːsə/	[ˈvasˌtasːə]	1;10.13
Wind-mühle	'windmill'	/ˈvɪntˌmyːlə/	[ˈvɪntʰˈhyːlə]	1;10.28

To summarize, two stages are evident in SW-s and S-sW compounds. At Stage 1, the children truncate compounds to a single foot, therby preserving the bisyllabic constituent. At Stage 2, compounds are realized with both constituents. The apparent variation turns out to be systematic because children maintain the bisyllabic constituent. This implies that the children know the morphological and prosodic boundaries.

Summing up the findings from the trisyllabic word shapes, the developmental stages can be generalized as follows. In (33) and (34) below, the right column indicates the upper limit of the prosodic word size.

(33) Stages of prosodic development in the data of Wiglaf, Sandra, and Eleonora

	Simplex words	Compounds
Stage 1	- correspond to a single trochaic foot	- correspond to a single trochaic foot
Stage 2	- correspond to a single trochaic foot	- comprise two feet - target-like stress
Stage 3	- one or two feet - deletion of unfooted syllables - target-like stress	- comprise two feet - deletion of unfooted syllables - target-like stress
Stage 4	- target-like outputs	- target-like outputs

Nele additionally passed trough Stage 3". Her developmental pattern is summarized in (34).

(34) Stages of prosodic development in the data of Nele

	Simplex words	Compounds
Stage 1	- correspond to a single trochaic foot	- correspond to a single trochaic foot
Stage 2	- correspond to a single trochaic foot	- comprise two feet - target-like stress
Stage 3"	- correspond to a trochaic or iambic foot	- each constituent corresponds to a trochaic or iambic foot
Stage 3	- one or two feet - deletion of unfooted syllables - target-like stress	- comprise two feet - deletion of unfooted syllables - target-like stress
Stage 4	- target-like outputs	- target-like outputs

5.4 A formal analysis of the data

5.4.1 The constraints

Recently, a number of optimality-theoretic analyses of word-prosodic development structure have been presented, attempting to explain the acquisition of simplex words (Demuth 1995, 1996b; Pater 1997, Pater and Paradis 1996, Kehoe 1999/2000, Lleo 2001, Ota 2003). From these analyses, I adopt the following faithfulness constraints:

(35) *Faithfulness constraints*

- FAITHSTRESS: The stressed syllable from the head foot of a prosodic word has a stressed correspondent in the output prosodic word.[30]
- MAX-σ: Every syllable in the input has a corresponding syllable in the output.

FAITHSTRESS is restricted to the main-stressed syllable *within* a prosodic word. Following the definition in (35), the constraint does not directly refer to the syllable bearing compound stress because the compound does not directly dominate the head syllable of a foot. It has been argued that FAITH-constraints are related to the perceptual saliency of prosodic (and segmental) material (cf., Pater 1997, Pater and Paradis 1996, Bernhardt and Stemberger 1998). With respect to MAX-σ, I follow the work of Pater (1997) and Kehoe (1999/2000) who argue that MAX refers to syllables, not to segments. The analysis employs the following alignment constraints (McCarthy and Prince 1995):

(36) *Alignment constraints*

- ALIGN (FOOT, LEFT, PROSODIC WORD, LEFT): The left edge of every foot must be aligned with the left edge of a prosodic word (hf. ALIGNLEFT).
- FOOTFORM (TROCHEE) (ALIGN FOOT, LEFT, HEAD OF THE FOOT, LEFT): Feet are left-headed (hf. TROCHEE)

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[30] The literature also refers to IDENT-σ́ (Ota 2003), MAX(HEAD) (Rose 2000), STRESS-FAITH (Pater 1997, Pater and Paradis 1996).

ALIGNLEFT requires feet to appear at the left edge of a prosodic word. High-ranked, the constraint militates against word-initial unfooted syllables and the presence of more than one foot. ALIGNLEFT is a gradient constraint; it counts violations by the number of syllables standing between the left edge of the word and a foot.

FOOTFORM(TROCHEE), abbreviated TROCHEE, requires stress-initial feet. The constraint is violated if a bisyllabic foot bears main stress on the final syllable. Here I do not consider TROCHEE to affect monosyllabic feet because I only propose a syllabic analysis of feet.[31]

The analysis further includes the following markedness constraints (Prince and Smolensky 1993, Selkirk 1995, McCarthy and Prince 1995):

(37) Markedness constraints[32]

- PARSE-σ: Syllables must be parsed into feet.
- LXWD ≈ PRWD: Lexical words correspond to prosodic words.
- NONRECURSIVITY: No C_i dominates C_j, j=i (no recursive prosodic structure).
- NOCLASH: Adjacent heads of feet are prohibited within the prosodic word.

PARSE-σ ensures that segmental material is organized into feet. I have argued in Section 3.3 that children have access to a fully prosodified structure when generating output candidates. Hence, the constraint PARSE-σ cannot ensure the entire prosodic parsing. In order to build up a well-formed prosodic representation, constraints that require the parsing of segmental material into syllables (PARSE-SEGMENT), feet into prosodic words (PARSE-FOOT), and prosodic words into

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[31] Under a moraic analysis, monosyllabic feet also form trochees (cf., Kager 1999, Fery 1995, 1996). I disregard the moraic structure here because I assume that the children are not yet sensitive to syllable weight.

[32] In contrast to several earlier analyses, the present one does not involve the markedness constraint FOOTBINARITY (FTBIN). This is because I did not examine the development of syllable weight but followed the assumption that children are not sensitive to the moraic content of syllables at the initial stages (cf., Fikkert 1994, 2001, Pater 1997, but see Salidis and Johnson 1997, Ota 2003). In adult language, FTBIN can be satisfied by bisyllabic or by bimoraic feet. Assuming that children do not create moraic feet, high-ranked FTBIN requires bisyllabic feet. This is against the empirical finding that truncation to monosyllables is very common in early child speech. Therefore, in the absence of a closer examination of the development of syllable weight it must be proposed that FTBIN forms a dominated constraint. In the present analysis, it had no impact on the selection of candidates.

higher domains (PARSE-PRWD) are involved as well. However, with the exception of PARSE-σ, I disregard these prosodic parsing constraints because they are not relevant for the analysis.
LXWD ≈ PRWD ensures that a lexical word corresponds to a prosodic word (and hence forms a stress domain). The effect that simplex words form a single prosodic word, whereas compounds contain word-internal prosodic words is due to LXWD ≈ PRWD. LXWD ≈ PRWD is an undominated constraint that is vacuously satisfied in truncated simplex words. Therefore, it was explicitly included in few earlier analyses of child phonology (cf., Ota 2003). The present analysis goes beyond these previous analyses by demonstrating that LXWD ≈ PRWD in fact influences children's prosodic outcome.

NONRECURSIVITY is one of the primitive markedness constraints composing the *strict layer hypothesis* (Selkirk 1995; see subsection 2.2.1 for more information). In the present analysis, NONRECURSIVITY militates against the nesting of prosodic words in compounds.

NOCLASH militates against adjacent head syllables. The constraint is ranked high in the grammar of adult German (cf., Fery 1995, 1996). Due to the effect of NOCLASH, secondary stress can be assigned only if there is a minimal distance of two syllables between the main and secondary stressed syllables. In adult German, NOCLASH determines the rhythmic pattern *within* prosodic words. It does not apply systematically *between* prosodic words: The frequent and regular occurrence of German compounds with adjacent stresses (for example in S-sW compounds such as ˈ*Müll-*ˌ*tonne* 'refuse bin') indicates that NOCLASH does not affect prosodic heads belonging to different prosodic words.

Having introduced the set of constraints, I will go on to show how the pattern of sWS simplex words and SW-s and S-sW-compounds can be accounted for by the re-ranking of constraints.

5.4.2 Stage 1: Single foot stage

The analysis adopts two assumptions from the literature: First, at any stage in their development, the children store the input in a target-like fashion. This implies that simplex words are parsed as single prosodic words, and that compounds form recursive prosodic words. In fact, as the analysis shows, the data can elegantly be explained if it is assumed that children represent simplex words and compounds in a different way.
The second assumption is that structural constraints initially dominate faithfulness constraints. However, some re-rankings might have already been done within the sets of constraints.

Previous analyses propose an internal ranking of some faithfulness constraints at the initial state of word production. For example, Demuth (1996b) provides an analysis where FAITHSTRESS dominates FAITHSYLL, and Rose (2000) assumes a ranking of MAXHEAD >> DEP >> MAXSEG) at Stage 1. I adopt Demuth's analysis assuming that FAITHSTRESS already dominates MAX-σ. The alignment and markedness constraints are not internally ordered. The ranking at Stage 1 is provided in (38):

(38) The ranking at Stage1

NONRECURSIVITY, LXWD ≈ PRWD, ALIGNLEFT, TROCHEE, PARSE, NOCLASH >> FAITHSTRESS >> MAX-σ

Table 5-1 illustrates the evaluation of candidates for sWS words (i.e., ˌ*Papa*ˈ*gei* 'parrot' > [gaɪ͡]). Of the structural constraints, only ALIGNLEFT and TROCHEE are included in the table because the other constraints do not have an effect on the selection of candidates. Syllabification is indicated by a dot '.'

Table 5-1. The evaluation of simplex sWS words at Stage 1

Input: / [(ˌpa.pa)$_F$ (ˈgei)$_F$]$_{PW}$ /	ALIGNLEFT	TROCHEE	FAITHSTRESS	MAX-σ
a. [(ˌpa.pa)$_F$ (ˈgei)$_F$]$_{PW}$	*!*			
b. [(ˈpa.pa)$_F$ (ˌgei)$_F$]$_{PW}$	*!*		*	
c. [(ˈpa$_1$.gei)$_F$]$_{PW}$			*!	* pa$_2$
d. [(pa$_1$.ˈgei)$_F$]$_{PW}$		*!		
e. ☞ [(gei)$_F$]$_{PW}$				** pa ,pa

The truncated output candidate e. optimally satisfies the ranking. Any bipedal candidate is eliminated due to the fatal violations of the high-ranked alignment constraint ALIGNLEFT (candidates b. and c.). Reduction to a bisyllabic trochee (see c.) incurs a fatal violation of FAITHSTRESS, and the candidate is eliminated. On the other hand, a bisyllabic iambic output (d.) is impossible because it incurs fatal violations of TROCHEE.

The following Table 5-2 shows that the same hierarchy accounts for the production pattern of trisyllabic compounds. Consistent with the data, the ranking predicts systematic variation at Stage 1.

Table 5-2. The evaluation of SW-s and S-sW compounds at Stage 1

1. Input: /[[('rie.sen)F]PW [(ˌrad)F]PW]PW /	LxWd ≈ PrWd	NonRec	Max-σ
a. [[('rie.sen)F]PW [(ˌrad)F]PW]PW		*!	
b. [('rie.sen)F (ˌrad)F]PW	*!*		
c. [('rie.sen)F]PW [(ˌrad)F]PW	*!		
d. [('rad)F]PW			**! rie, sen
e. ☞ [('rie.sen)F]PW			* rad
2. Input: /[[('müll)F]PW [(ˌton.ne)F]PW]PW /	LxWd ≈ PrWd	NonRec	Max-σ
a. [[('müll)F]PW [(ˌton.ne)F]PW]PW		*!	
b. [('müll)F (ˌton.ne)F]PW	*!*		
c. [('müll)F]PW [(ˌton.ne)F]PW	*!		
d. [('müll)F]PW			**! ton, ne
e. ☞ [('ton.ne)F]PW			* müll

The target-like candidates 1a. and 2a. are eliminated because they fatally violate NonRecursivity. Candidates 1b. and 2b. satisfy NonRecursivity by parsing compounds into bipedal prosodic words. These candidates contain two lexical words that do not correspond to prosodic words (i.e., the two compound constituents). Therefore, they violate LxWd ≈ PrWd twice and thus are ruled out. Candidates 1c. and 2c. illustrate that recursive structure cannot be avoided, leaving the two minor prosodic words undominated by a higher constituent. As a lexical (or grammatical) word, the whole compound also underlies the constraint LxWd ≈ PrWd. Note that for the same reason, LxWd ≈ PrWd also prevents compounds from being parsed as a phonological phrase (not depicted in the table).

The truncated candidates 1d.-e. and 2d.-e. only incur violations of the lower-ranked MAX-σ. The table straightforwardly shows that the constraint MAX-σ is responsible for the selection of the bisyllabic candidates 1e. and 2e. as the winning candidates.

The ranking proposed for Stage 1 does not exclude candidates that preserve two head syllables from the minor prosodic words. Remember that the Dutch children in Fikkert (2001) and Wijnen, Krijkhaar and den Os (1994) tended to preserve the head syllables from the two constituents. In order to ban such a pattern for German, a constraint I-O-CONTIGUITY is necessary, requiring contiguous segments from the constituent to be maintained. I-O-CONTIGUITY dominates MAX-σ. The preservation of the prosodic heads as a single trochee, shown in Table 5-3 by the candidates 3a.-b. and 4 a.-b. fatally violate I-O-CONTIGUITY because the syllables are not a contiguous part of the minor prosodic words. Hence, the bisyllabic constituents 3c. and 4c. are the winners.

Table 5-3. The content preservation of truncated compounds at Stage 1

1. Input: /[[(ˈrie.sen)$_F$]$_{PW}$ [(ˌrad)$_F$]$_{PW}$]$_{PW}$ /	I-O-CONT	MAX-σ
a. [[(ˈrie.rad)$_F$]$_{PW}$	*!	* sen
b. [(ˈsen.rad)$_F$]$_{PW}$	*!	* rie
c. ☞ [(ˈrie.sen)$_F$]$_{PW}$		* rad
2. Input: /[[(ˈmüll)$_F$]$_{PW}$ [(ˌton.ne)$_F$]$_{PW}$]$_{PW}$ /	I-O-CONT	MAX-σ
a. [[(ˈmüll.ton)$_F$]$_{PW}$	*!	* ne
b. [(ˈmüll.ne)$_F$]$_{PW}$	*!	* ton
c. ☞ [(ˈton.ne)$_F$]$_{PW}$		* müll

In sum, the constraint ranking proposed in (38) accounts for the differences in the preservation pattern of trisyllabic simplex sWS and in complex SW-s and S-sW targets. The variation in the compound data shows that the children do not just select the final foot from the compounds as they do with regularly stressed simplex words. The preservation of the final foot of S-sW compounds is rather due to its bisyllabic structure. The preference for the bisyllabic constituent naturally falls out from the dominated constraint MAX-σ if it is assumed that each constituent forms a single prosodic word in the input. Under these assumptions, the apparent variation in the compound data turns out to be highly systematic.

The following data of Eleonora, Nele, and Sandra confirm the systematic nature of the truncation pattern of compounds. Like Wiglaf, the three girls produce the first constituent from SW-s compounds (39):

(39) Stage 1, truncation of SW-s compounds to SW in the data of Nele and Eleonora

Target word	Gloss	Phonetic form	Child form	Child, age
Oster-ei	'easter egg'	/ˈʔoːstəɐˌʔa͡ɪ/	[ˈʔoːsta]	Nele, 1;09.29
Bauern-hof	'farm'	/ˈba͡ʊəɐnˌhoːf/	[ˈpa͡ʊmə]	Eleonora, 1;09.09

Contrary to SW-s compounds, S-sW compounds are truncated to the final constituent. This is illustrated in (40).

(40) Stage 1, truncation of S-sW compounds to SW in the data of Nele, Sandra, and Eleonora

Target word	Gloss	Phonetic form	Child form	Child, age
Wind-mühle	'windmill'	/ˈvɪntˌmyːlə/	[ˈmyːlə]	Eleonora, 1;08.15
Hand-feger	'hand brush'	/ˈhantˌfeːgəɐ/	[ˌfeːga]	Eleonora, 1;09.09
Bauch-nabel	'bellybutton'	/ˈba͡ʊxˌnaːbəl/	[ˈnapa]	Nele, 1;08.29
Staub-sauger	'vacuum cleaner'	/ˈʃta͡ʊpˌza͡ʊgəɐ/	[ˈga͡ʊka]	Sandra, 1;08.14

5.4.3 Stage 2: Recursive prosodic words

At Stage 2, the children demote NONRECURSIVITY below MAX-σ:

(41) The ranking at Stage 2

~~NONRECURSIVITY~~, LXWD ≈ PRWD, ALIGNLEFT, TROCHEE, PARSE-σ, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY

NONRECURSIVITY is vacuously satisfied in simplex words. Hence, its demotion does not lead to a change in the prosodic shape of the output. Like at Stage 1, the monosyllabic candidate d. is the winner, as illustrated in Tabl 5-4.

Tabl 5-4. The evaluation of simplex sWS words at Stage 2

Input: / $[(_{\text{ˌ}}\text{pa.pa})_F\ (\text{ˈgei})_F\ ]_{PW}$ /	ALIGNLEFT	FAITHSTRESS	MAX-σ	NONREC
a. $[(\text{ˌpa.pa})_F\ (\text{ˈgei})_F]_{PW}$	*!*			
b. $[(\text{ˈpa.pa})_F\ (\text{ˌgei})_F]_{PW}$	*!*	*		
c. $[(\text{ˈpa}_1.\text{gei})_F]_{PW}$		*!	* pa_2	
d. ☞ $[(\text{gei})_F]_{PW}$			** pa ˌpa	

NONRECURSIVITY militates against recursive structure in compounds. Its demotion at Stage 2 now allows recursivity, such that compounds can emerge with two prosodic words. Due to the structural constraints limiting the size of internal prosodic words, each constituent must comprise one foot only. In fact, as we will see later, longer constituents behave like simplex words in that they are truncated to a single foot at Stage 2.

The SW-s and S-sW outputs *Apfel-mus* 'apple sauce' and *Hub-schrauber* 'helicopter' from Wiglaf's database illustrate the selection of candidates at Stage 2 (Table 5-5 above).[33] It becomes clear that, due to the demotion of Nonrecursivity, the adult-like candidates 1c. and 2c.

[33] Due to the low token frequencies of compounds, there are no compound types in Wiglaf's database containing truncated and non-truncated instances. I decided to illustrate the candidate selection by attested instances, thus the example words vary from one stage to another.

are the winning ones. Candidates 1a. and 2a., forming bipedal single prosodic words, fatally violate LXWD ≈ PRWD and ALIGNLEFT and are eliminated. Truncation evokes violation of the faithfulness constraints FAITHSTRESS and MAX-σ dominating NONRECURSIVITY. Thus, candidates 1b. and 2b. are ruled out as well. Note that FAITHSTRESS is violated because each internal prosodic word forms a stress domain. ALIGNLEFT, by contrast, is not violated by candidates 1c. and 1c. because the two feet are left-aligned with a prosodic word.

Table 5-5. The evaluation of SW-s and S-sW compounds at Stage 2

1. Input: Apfelmus /[[(ˈAp.fel)$_F$] $_{PW}$ [(ˌmus)$_F$]$_{PW}$]$_{PW}$ /	LXWD ≈ PRWD	ALIGNLEFT	FAITH STRESS	MAX-σ	NONREC
a. [(ˈAp.fel)$_F$ (ˌmus)$_F$] $_{PW}$	*!*	*!*			
b. [(ˈap.fel)$_F$]$_{PW}$			*! mus	*! mus	
c. ☞ [[(ˈAp.fel)$_F$]$_{PW}$ [(ˌmus)$_F$]$_{PW}$] $_{PW}$					*
2. Input: Hubschrauber /[[(ˈHub)$_F$]$_{PW}$[(ˌschrau.ber)$_F$]$_{PW}$]$_{PW}$ /	LXWD ≈ PRWD	ALIGNLEFT	FAITH STRESS	MAX-σ	NONREC
a. [(ˈHub)$_F$ (ˌschrau.ber)$_F$]$_{PW}$	*!*	*			
b. [(ˈschrau.ber)$_F$]$_{PW}$			*! hub	* hub	
c. ☞ [[(ˈHub)$_F$]$_{PW}$ [(ˌschrau.ber)$_F$]$_{PW}$]$_{PW}$					*

After Stage 2, Nele shows a slightly different preservation pattern compared to Eleonora, Sandra, and Wiglaf. I referred to the transitional period as Stage 3”. As the outputs at Stage 3” are maximally bisyllabic, I propose that Stage 3” precedes Stage 3. In the following, I demonstrate how a slight variation in the re-ranking accounts for the differences, and how Nele finally ends up with almost the same grammar as the other children.

5.4.4 Stage 3”: The bisyllabic stage in Nele’s speech

Contrary to the other three children, Nele first demotes TROCHEE. Her intermediate grammar at Stage 3” is presented in (42)

(42) Nele’s grammar at Stage 3”

LXWD ≈ PRWD, ~~TROCHEE~~, ALIGNLEFT, PARSE-σ >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY >> TROCHEE

The ranking correctly predicts the production of the bisyllabic iambic output 1e. Table 5-6 depicts that the target-like candidate a. is ruled out because it violates ALIGNLEFT. Bisyllabic trochees such as candidate b. are impossible because they incur fatal violations of FAITHSTRESS. Furthermore, the optimal candidate cannot be truncated to a monosyllable (as in Stages 1 and 2) because truncation leads to fatal violations of Max-σ.

Candidates containing unfooted syllables (candidate d.) violate ALIGNLEFT and are eliminated. Unfooted syllables also violate the high-ranked constraint Parse-σ. This is not depicted in the table because ALIGNLEFT has the same effect.

Table 5-6. The evaluation of sWS words at Stage 3” in Nele’s speech

Input: /[(ˌpa.pa)$_F$ ('gei)$_F$]$_{PW}$ /	ALIGNLEFT	FAITH STRESS	MAX-σ	TROCHEE
a. [(ˌpa.pa)$_F$ ('gei)$_F$]$_{PW}$	*!*			
b. [('pa.gei)$_F$]$_{PW}$		*!	* pa	
c. [(gei)$_F$]$_{PW}$			**! pa, pa	
d. [pa ('gei)$_F$]$_{PW}$	*!		* pa	
e. ☞ [(pa.'gei)$_F$]$_{PW}$			* pa	*

The ranking also predicts that Nele reduces sWS constituents of compounds to WS. Unfortunately, there are no data in the database that support this prediction. Following Stage 3”, it is predicted that Nele passes through Stage 3 like the other three children.

5.4.5 Stage 3: Bipedal simplex words and compound constituents

In order to allow prosodic words to survive with main stress on the final foot, ALIGNLEFT has to be demoted. I assume the following ranking at Stage 3.

(43) The ranking at Stage 3:

LXWD ≈ PRWD, TROCHEE, ~~ALIGNLEFT,~~ PARSE-σ, NOCLASH >> FAITHSTRESS, MAX-σ >> NONRECURSIVITY >> ALIGNLEFT

Note that Nele shows a slightly different hierarchy with TROCHEE ranked between NONRECURSIVITY and ALIGNLEFT. However, the ranking has no effect on the outcome at Stage 3. Table 5-7 illustrates the candidate evaluation for simplex sWS words under the ranking in (43). The ranking correctly permits final main stress in bipedal words such as *(ˌPapa)(ˈgei)*. Stress shift (candidate a.) leads to exclusion because of its violation of FAITHSTRESS. The optimal candidate b. corresponds to the adult prosodic form. Syllable deletion incurs fatal violations of MAX-σ and leads to the exclusion of candidates (candidate c). This also holds for the iambic candidate d. which was optimal in Nele's speech at Stage 3". As the table shows, sWS words have now to be realized in a target-like way in Nele's speech as well.

The candidate evaluation nicely shows the increasing role of the faithfulness constraints at Stage 3. In the table, the elimination of the non-optimal candidates results from their violations of faithfulness constraints.

Table 5-7. The evaluation of sWS words at Stage 3

Input: /[(ˌpa.pa)$_F$ (ˈgei)$_F$]$_{PW}$ /	FAITHSTRESS	MAX-σ	ALIGNLEFT
a. [(ˈpapa)$_F$ (ˌgei)$_F$]$_{PW}$	*!		**
b. ☞ [(ˌpapa)$_F$ (ˈgei)$_F$]$_{PW}$			**
c. [(gei)$_F$]$_{PW}$		*!* pa, pa	
d. [(paˈgei)$_F$]$_{PW}$		*! pa	

The demotion of ALIGNLEFT at Stage 3 has no consequences for SW-s and S-sW compounds. The fully faithful candidates 1c. and 2c. are identical to the winners in Table 5-5 above.

Table 5-8. The evaluation of SW-s and S-sW compounds at Stage 3

1. Input: Apfel-mus /[[(ˈAp.fel)$_F$] $_{PW}$ [(ˌmus)$_F$] $_{PW}$]$_{PW}$ /	LXWD ≈ PRWD	FAITH STRESS	MAX-σ	NONREC	ALIGNLEFT
a. [(ˈAp.fel) $_F$ (ˌmus)$_F$] $_{PW}$	*!*				**
b. [(ˈAp.fel)$_F$] $_{PW}$		*! mus	*! mus		
c. ☞ [[(ˈAp.fel)$_F$] $_{PW}$ [(ˌmus)$_F$]$_{PW}$]$_{PW}$				*	
2. Input: Hub-schrauber /[[(ˈHub)$_F$]$_{PW}$[(ˌschrau.ber)$_F$]$_{PW}$]$_{PW}$ /	LXWD ≈ PRWD	FAITH STRESS	MAX-σ	NONREC	ALIGNLEFT
a. [(ˈHub)$_F$ (ˌschrau.ber)$_F$]$_{PW}$	*!*				*
b. [(ˈschrau.ber)$_F$]$_{PW}$		*! hub	* hub		
c. ☞ [[(ˈHub)$_F$]$_{PW}$ [(ˌschrau.ber)$_F$]$_{PW}$]$_{PW}$				*	

The ranking predicts that sWS constituents in compounds are realized in a target-like way. In fact, as I will show in Section 7 below, Wiglaf produces *ˌPoliˈzei-ˌauto* ‘police car’ at age 1;11.23 as [ˌboliˈsa͡ɪˌʔa͡ʊtɤ], i.e. with a bipedal initial constituent.

5.4.6 Stage 4: Emergence of unfooted structure

At Stage 4, the children produce unfooted syllables. The trisyllabic words considered so far cannot provide evidence for Stage 4 because they do not contain unfooted syllables. In order to acquire unfooted structure, the children have to demote PARSE-σ. The proposed ranking is given in (44). I will illustrate the effect of the ranking if other prosodic shapes are considered in the following section.

(44) The ranking at Stage 4 (Wiglaf, Eleonora, Sandra)

LXWD ≈ PRWD, TROCHEE, ~~PARSE-σ,~~ NOCLASH >> FAITHSTRESS, MAX-σ >> NONRECURSIVITY >> ALIGNLEFT >> PARSE-σ

5.5 Summary

This section contrasts the word-prosodic development of German trisyllabic simplex sWS words with SW-s and S-sW-compounds. I argue that there are three crucial differences between simplex words and compounds. First, simplex words undergo truncation to a single foot to a much larger extent than compounds. In fact, there are few instances of truncation to a single foot in the individual databases motivating a single foot stage in compounds. Second, children produce compounds with two feet/ two prosodic words earlier than bipedal simplex words. Third, while simplex sWS words are consistently reduced to the final monosyllabic foot, children vary with respect to whether they realize the first or the second constituent from compounds. The children consistently select the bisyllabic constituent. SW-s compounds are thus reduced to the initial, S-sW compounds to the final constituent.

These empirical observations suggest that children store simplex words and compounds in a different way. Following standard optimality-theoretic analyses, I argue that children store simplex words and compounds in their adult-like prosodic representation. That is, simplex words form a single prosodic word and compounds display recursive prosodic word structure. The asymmetric acquisition path results from a successive re-ranking of constraints targeting the word shapes in a different way. Development is understood as demotion of structural constraints, which corresponds to the *constraint demotion algorithm*. Consequently, the influence of faithfulness constrains increases over time, as it becomes evident at Stage 3.

In sum, children's grammars look as follows:

5.5.1 Stage 1

NONRECURSIVITY, LXWD ≈ PRWD, ALIGNLEFT, TROCHEE, PARSE, NOCLASH >> FAITHSTRESS >> MAX-σ

The ranking of structural over faithfulness constraints restricts any prosodic word to a single foot. Ranking NONRECURSIVITY at the top of the hierarchy bans recursive prosodic structure in the output. Thus, only one compound constituent survives. Further structural constraints, most of all ALIGNLEFT, ensure that compound constituents and simplex words are restricted to a single foot.

5.5.2 Stage 2

LXWD ≈ PRWD, ALIGNLEFT, TROCHEE, PARSE, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY

At Stage 2, NONRECURSIVITY is demoted. Therefore, simplex words are subject to the same size restriction as at Stage 1, whereas compounds emerge with two constituents. Each constituent, however, must not go beyond a single foot because the constraints restricting the size of prosodic words are still ranked at the high. SW-s and S-sW compounds are produced in a target-like way at Stage 2. Truncation is predicted only if there are longer constituents.

5.5.3 Stage 3”

LXWD ≈ PRWD, ALIGNLEFT, PARSE-σ, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY >> TROCHEE

At stage 3”, the child Nele demotes TROCHEE. Simplex sWS words are now realized as bisyllabic iambs. In the analysis, the iambic feet result from the interaction of constraints. In other words, there is no need to include constraints forcing iambic feet. SW-s and S-sW compounds are not affected by the ranking at Stage 3” as Nele acquired these compounds at Stage 2.

5.5.4 Stage 3

LXWD ≈ PRWD, TROCHEE, PARSE-σ, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY>> ALIGNLEFT

At Stage 3, ALIGNLEFT is demoted. The grammars of Eleonora, Sandra, and Wiglaf show the hierarchy presented above.

As Nele demoted TROCHEE at Stage 3”, her grammar is slightly different at Stage 3:

LxWd ≈ PrWd, Parse-σ, NoClash >> FaithStress >> Max-σ >> NonRecursivity >> Trochee >> AlignLeft

Simplex sWS words can comprise two feet at Stage 3. Due to the increasing role of the faithfulness constraints, the main-stressed syllable is maintained in its exact prosodic role. With respect to sWS words, children thus produce word-final main stress.

Given that compound constituents underlie the same size and shape restrictions, it is predicted that bipedal compound constituents survive with two feet, too. There are very few instances in the database but tentative evidence confirms the prediction.

5.5.5 Stage 4

LxWd ≈ PrWd, Trochee, NoClash >> FaithStress >> Max-σ >> NonRecursivity>> AlignLeft >> Parse-σ

At the final stage, the children demote Parse-σ. The trisyllabic words considered in this section are not affected by the re-ranking. We will see in the next section that unfooted syllables emerge at Stage 4 due to the demotion of Parse-σ.

In sum, although developments in the grammar were more striking in simplex words, there is evidence that the re-ranking targets the individual compound constituents, not the whole compound. Two observations, the variation in the preservation pattern at Stage 1, and the earlier production of compounds with prosodic words at Stage 2, support the assumption that children prosodify simplex words and compounds in a different way.

In this section, I have focused on the trisyllabic word shapes sWS, SW-s and S-sW. Given that there is a single grammar, the analysis makes empirical and theoretical predictions for other word shapes. The following sections examine to what extent the analysis also accounts for bisyllabic and quadrisyllabic words.

6 Predictions for simplex words

6.1 Introduction

The previous section analyzed the developmental pattern of simplex sWS words as well as SW-s and S-sW compounds from an empirical and theoretical perspective. In the present section, I show that the ranking makes correct predictions for other simplex word shapes of the database, and I provide empirical data supporting the predictions.

The section takes the constraint rankings for the four stages as proposed in Section 5 as a starting point. I illustrate how the evaluation selects the optimal candidates and provide empirical data supporting the predictions. Again, the data will mainly be extracted from Wiglaf's and Nele's databases.

The section is organized as follows: Subsection 6.2. is concerned with the development of bisyllabic words with final stress. Subsection 6.3. concentrates on trisyllabic words with penultimate stress. Trisyllabic words with antepenultimate main stress follow in subsection 6.4. Finally, subsection 6.5. analyzes quadrisyllabic and longer words. Subsection 6.6. provides a summary and discussion of the analysis of simplex words.

6.2 Bisyllabic words with final stress

6.2.1 Stage 1

The initial hierarchy NONRECURSIVITY, LXWD ≈ PRWD, ALIGNLEFT, TROCHEE, PARSE, NOCLASH >> FAITHSTRESS >> MAX-σ, predicts that WS words are reduced to a monosyllable. Table 6-1 exemplifies the evaluation of the word *Ka'mel* /kaˈmeːl/ 'camel'. The table displays the constraints relevant for the evaluation.

Table 6-1. The evaluation of simplex WS words at Stage 1

Input: / [ka. (ˈmel)$_F$]$_{PW}$ /	ALIGNLEFT	TROCHEE	FAITHSTRESS	MAX-σ
a. [ka. (ˈmel)$_F$]$_{PW}$	*!			
b. [(ˌka)$_F$ (ˈmel)$_F$]$_{PW}$	*!			
c. [(ˈka.mel)$_F$]$_{PW}$			*!	
d. [(ka.ˈmel)$_F$]$_{PW}$		*!		
e. ☞ [(mel)$_F$]$_{PW}$				*ka

The initial unfooted syllable in the fully faithful candidate a. fatally violates ALIGNLEFT. Parsing the unfooted syllable into a foot of its own (candidate b.) leads to a violation of ALIGNLEFT. Hence, candidates a. and b. are ruled by ALIGNLEFT. Stress shifts to the left, as illustrated in candidate c., cannot be an option because FAITHSTRESS is fatally violated. Parsing the two syllables into a single iambic foot as depicted in candidate d. is impossible because it incurs a fatal violation of TROCHEE. Hence, the truncated candidate e., violating low-ranked MAX-σ is the winner.

Hence, the presumed ranking predicts truncation of WS targets to a monosyllable, not stress shift or epenthesis to a bisyllabic trochee. The following data taken from Wiglaf's and Nele's databases illustrate that truncation is indeed very common in WS words (45) and (46).

(45) Stage 1, truncation of WS to S in the data of Wiglaf

Target word	Gloss	Phonetic form	Child form	Age
Delfin	‚dolphin'	/dɛlˈfiːn /	[miːn]	1;07.26
			[sviːn]	1;10.13
Kamel	‚camel'	/ kaˈmeːl /	[meːl]	1;10.13
Kaputt	‚defective'	/ kaˈpʊt /	[pʉt]	1;08.13
			[ˈpʊt͡s]	1;09.02
			[pʊt˺]	1;09.19
Ballon	‚balloon'	/ baˈlɔŋ /	[bɔŋ]	1;10.13

(46) Stage 1, truncation of WS to S in the data of Nele

Target word	Gloss	Phonetic form	Child form	Age
Kamel	‚camel‘	/ kaˈmeːl /	[meːl]	1;08.12
			[meːɐ]	1;08.29
			[meː]	1;10.0
Kaputt	‚defective‘	/ kaˈpʊt /	[pɯːt]	1;08.29
			[pʊt]	1;09.24
Salat	‚salad‘	/zaˈlaːt /	[la͡ɪt]	1;08.29
			[lat]	1;09.24

6.2.2 Stage 2

At Stage 2, NONRECURSIVITY is demoted. As the constraint does not affect simplex words, a monosyllabic outcome (candidate d.) is predicted like at Stage 1.

Table 6-2: The evaluation of simplex WS words at Stage 2

Input: / [ka. (ˈmel)$_F$]$_{PW}$ /	ALIGNLEFT	FAITHSTRESS	MAX-σ	NONREC
a. [ka (ˈmel)$_F$]$_{PW}$	*!			
b. [(ˌka)$_F$ (ˈmel)$_F$]$_{PW}$	*!			
c. [(ˈka.mel)$_F$]$_{PW}$		*!		
d. ☞ [(mel)$_F$]$_{PW}$			*ka	

The examples in (47) and (48) provide empirical support for the analysis:

(47) *Stage 2, truncation of WS to S in the data of Wiglaf*

Target word	Gloss	Phonetic form	Child form	Age
Kamel	‚camel‘	/ kaˈmeːl /	[meːl]	1;10.28
			[meːl]	1;11.19
			[giːl]	1;11.23
Kaputt	‚defective‘	/ kaˈpʊt /	[pʊt]	1;11.03
			[pʊt]	1;11.19
Ballon	‚balloon‘	/ baˈlɔŋ /	[tlɔŋ], [plɔŋ]	1;11.03

(48) *Stage 2, truncation of WS to S in the data of Nele*

Target word	Gloss	Phonetic form	Child form	Age
Kamel	‚camel‘	/ kaˈmeːl /	[meːɐ]	1;10.23
			[mæːɐ]	1;11.0
			[meːl], [meː]	1;11.14
Ballon	‚balloon‘	/ baˈlɔŋ /	[lɔm]	1;10.23
			[lʌm]	1;11.0
Delfin	‚dolphin‘	/ dɛlˈfiːn /	[fiːn]	1;10.14
			[fiːn]	1;11.04
Kaputt	‚defective‘	/ kaˈpʊt /	[pʰʊt]	1;10.0
			[pʰʉːt], [pʰʊt]	1;10.07
			[pʰʊt]	1;10.14
			[pʰʊt]	1;11.04

6.2.3 Stage 3”

Stage 3” is observed only in Nele’s database. In the analysis presented in the previous section 5, I proposed that Nele demotes TROCHEE. As shown in Table 6-3, the demotion leads to bisyllabic iambic outputs in the case of WS targets.

Like in Stages 1 and 2, candidate a. containing unfooted syllables, and candidate b., parsing the two syllables into a bipedal form, incur fatal violations of ALIGNLEFT. Stress shift is impossible, as illustrated by candidate c. because FAITHSTRESS is fatally violated. However, contrary to Stage 1 and 2, truncation cannot be an option because MAX-σ is violated. As MAX-σ dominates TROCHEE, violation of TROCHEE is preferred over truncation. Therefore, the iambic candidate e. is the winner. We thus predict WS targets to be realized as bisyllabic iambs.

Table 6-3. The evaluation of simplex WS words at Stage 3” in Nele’s data

Input: / [ka. (ˈmel)$_F$]$_{PW}$ /	ALIGNLEFT	FAITHSTRESS	MAX-σ	TROCHEE
a. [ka.(ˈmel)$_F$]$_{PW}$	*!			
b. [(ˌka)$_F$ (ˈmel)$_F$]$_{PW}$	*!			
c. [(ˈka.mel)$_F$]$_{PW}$		*!		
d. [(mel)$_F$]$_{PW}$			*! ka	
e. ☞ [(ka.ˈmel)$_F$]$_{PW}$				*

The following examples illustrate that Nele produces a considerable number of WS targets with final stress at Stage 3” (49).

(49) Stage 3", realization of WS tragets in the data of Nele

Target word	Gloss	Phonetic form	Child form	Age
Kamel	‚camel'	/ kaˈmeːl /	[əˈmeːɐ]	1;10.0
			[kʰiˈmiː]	1;11.25
Kaputt	‚defective'	/ kaˈpʊt /	[taˈpʊt], [ʔəˈpʊt]	1;09.24
			[təˈpʊt]	1;10.0
Salat	‚salad'	/ zaˈlaːt /	[lɛˈlaːt]	1;10.0

6.2.4 Stage 3

The children demote ALIGNLEFT at Stage 3. Now the high-ranked markedness constraints PARSE-σ and NOCLASH come into play. Since they are ranked at the top of the hierarchy, they rule out candidates containing unfooted syllables (candidate a.) or bipedal ones (candidate b.). The table also shows that violation of ALIGNLEFT has no consequences due to its low position in the hierarchy. Candidates showing stress shifts to the left (candidate c.) violate FAITHSTRESS and are eliminated. Contrary to Nele at Stage 3", TROCHEE is still ranked at the top of the hierarchy. Thus, iambic candidates such as d. are eliminated due to their fatal violations of TROCHEE. Again, the winner is the truncated candidate e.

Table 6-4. The evaluation of simplex WS words at Stage 3 in the grammar of Wiglaf, Sandra, and Eleonora

Input: / [ka. (ˈmel)$_F$]$_{PW}$ /	TROCHEE	PARSE-σ	NOCLASH	FAITH STRESS	MAX-σ	ALIGNLEFT
a. [ka. (ˈmel)$_F$]$_{PW}$		*!				*
b. [(ˌka)$_F$ (ˈmel)$_F$]$_{PW}$			*!			*
c. [(ˈka.mel)$_F$]$_{PW}$				*!		
d. [(ka.ˈmel)$_F$]$_{PW}$	*!				*	
e. ☞ [(mel)$_F$]$_{PW}$					*ka	

In fact, the three children persist to truncate WS targets to monosyllables. (50) provides examples from Wiglaf's database.

(50) Stage 3, truncation of WS to S in the data of Wiglaf

Target word	Gloss	Phonetic form	Child form	Age
Kamel	‚camel'	/ kaˈmeːl /	[meːl]	2;0.11
			[meːl], [meːʲl]	2;0.17
			[meːl]	2;0.24
Kaputt	‚defective'	/ kaˈpʊt /	[pʰʊt]	2;0.24
Ballon	‚balloon'	/ baˈlɔŋ/	[lɔm]	2;0.11

For Nele's grammar, the demotion of ALIGNLEFT predicts a bisyllabic iambic output. Nele demoted TROCHEE at Stage 3" before, a constraint militating against iambic feet. Contrary to the other three children, the optimal output thus remains a bisyllabic iamb, identical to Stage 3". This is illustrated in Table 6-5.

Table 6-5. The evaluation of simplex WS words at Stage 3 in Nele's grammar

Input: / [ka (ˈmel)$_F$]$_{PW}$ /	PARSE-σ	NOCLASH	FAITH STRESS	MAX-σ	TROCHEE	ALIGNLEFT
a. [ka (ˈmel)$_F$]$_{PW}$	*!					*
b. [(ˌka)$_F$ (ˈmel)$_F$]$_{PW}$		*!				*
c. [(ˈka.mel)$_F$]$_{PW}$			*!			
d. [(mel)$_F$]$_{PW}$				*ka		
e. ☞ [(ka.ˈmel)$_F$]$_{PW}$					*	

Chronologically, Stage 3" and Stage 3 are indistinguishable. The following data illustrate that Nele consistently produces WS outputs at the end of the recorded period, but these outputs are also consistent with Stage 4.

6.2.5 Stage 4

Due to the demotion of PARSE-σ, unfooted syllables are permitted at Stage 4. Table 6-6 illustrates the selection of candidates after the re-ranking.

It becomes clear that the faithful candidate a. best satisfies the ranking; it only violates low-ranked constraints. As an effect of NOCLASH, the outranking of PARSE-σ does not predict an intermediate bipedal stage. This is illustrated by the fatal violation of the constraint in candidate b. After Stages 1 to 3, where monosyllabic outputs are produced, the children realize WS words in a target-like way. Stress shift (candidate c.), complete footing as an iamb (candidate d.) and truncation (candidate e.) are impossible due to the violations of high-ranked structural or faithfulness constraints.

Table 6-6. The evaluation of simplex WS words at Stage 4 in the grammars of Wiglaf, Eleonora, and Sandra

Input: / [ka (ˈmel)$_F$]$_{PW}$ /	TROCHEE	NOCLASH	FAITH STRESS	MAX-σ	ALIGNLEFT	PARSE-σ
a. ☞ [ka. (ˈmel)$_F$]$_{PW}$					*	*
b. [(ˌka)$_F$ (ˈmel)$_F$]$_{PW}$		*!			*	
c. [(ˈka.mel)$_F$]$_{PW}$			*!			
d. [(ka.ˈmel)$_F$]$_{PW}$	*!					
e. [(mel)$_F$]$_{PW}$				*!ka		

In fact, the examples in (51) show that Wiglaf produces WS words in an adult-like way at the end of the recorded period.

(51) Stage 4, realization of unfooted syllables of WS targets by Wiglaf

Target word	Gloss	Phonetic form	Child form	Age
Kamel	‚camel‘	/ kaˈmeːl /	[kaˈmeːl]	1;11.13
			[kχaˈmeːl]	2;01.07
			[kʰiˈmeːl]	2;01.07
			[kʰaˈmel]	2;01.07
			[kaˈmeːl]	2;01.07
			[ˈkχamel]	2;01.07
Kaputt	‚defective‘	/ kaˈpʊt /	[aˈbʊt]	1;11.03

The other children produce outputs indicative of Stage 4, too. (52) and (53) provide examples from Eleonora's and Sandra's databases.

(52) Stage 4, realization of unfooted syllables of WS targets by Eleonora

Target word	Gloss	Phonetic form	Child form	Age
Kamel	‚camel‘	/ kaˈmeːl /	[kʰaˈmeː], [kχaˈmeːˡ], [kʰɔˈmeːl]	1;10.25
			[kʰaˈmeːl]	1;10.19
Ballon	‚balloon‘	/ baˈlɔŋ/	[baˈlɔŋ], [bəˈlɔŋ̥]	1;10.19
			[ʃpaˈlɔŋ], [baˈlɔŋ]	1;10.25
Kakao	‚cocoa‘	/ kaˈka͡ɔ /	[kʰaˈkʰa͡ɔ]	1,10.02
			[kʰaˈkʰa͡ɔ], [kaˈka͡ɔ]	1;10.19
Delfin	‚dolphin‘	/ dɛlˈfiːn /	[həˈfiːn]	1;10.19

(53) Stage 4, realization of unfooted syllables of WS targets by Sandra

Target	Gloss	Phonetic form	Child form	Age
Kamel	‚camel‘	/ kaˈmeːl /	[kɛˈmel], [piˈmeːl]	1;10.0
			[kʰaˈmeːl], [kaˈmeːl]	1;11.0
Kaputt	‚defective‘	/ kaˈpʊt /	[kaˈpʰʊt], [kaˈpʊtʰ]	1;10.0
			[kʰaˈpʰʊt]	1;11.0

The outranking of PARSE-σ predicts that Nele persistently realizes WS targets as iambs. In contrast to Stages 3" and 3, where she parsed both syllables into an iambic foot, the initial weak syllable is unfooted in the output at Stage 4.[34] This is illustrated by candidate a. in Table 6-7. The ranking at Stage 4 eliminates candidate d. which was the optimal candidate at the previous Stages 3" and 3.

Table 6-7. The evaluation of simplex WS words at Stage 4 in Nele's grammar

Input: / [ka (ˈmel)$_F$]$_{PW}$ /	NOCLASH	FAITH STRESS	MAX-σ	TROCHEE	ALIGNLEFT	PARSE-σ
a. ☞ [ka (ˈmel)$_F$]$_{PW}$					*	*
b. [(ˌka)$_F$ (ˈmel)$_F$]$_{PW}$	*!				*	
c. [(ˈka.mel)$_F$]$_{PW}$		*!				
d. [(ka.ˈmel)$_F$]$_{PW}$				*!		
e. [(mel)$_F$]$_{PW}$			*! Ka			

The examples provided in (54) support the analysis.

[34] The transition from Stages 3" and 3 to Stage 4 does not change the rhythmic pattern at the word level. Evidence for a different footing could be provided by analyzing foot-related processes such as aspiration and glottal stop insertion. In German, these processes apply to stressed syllables. As German creates trochees, the processes might apply more consistently if the stressed syllable coincides with the left edge of a foot (Fery 2001).

(54) Stage 4, production of WS targets in a target-like way in Nele's database

Target word	Gloss	Phonetic form	Child form	Age
Kamel	‚camel'	/ kaˈmeːl /	[kʰɪˈmɛˡ]	2;0.2
Kaputt	‚defective'	/ kaˈpʊt /	[taˈpʊt]	2;0.2
Kakao	‚cocoa'	/ kaˈka͡ɔ /	[kaˈka͡ɔ]	2;0.2

In sum, with respect to WS words, the predictions of the constraint-based analysis are supported by the empirical findings from the database. As predicted, WS targets are produced as monosyllables for a long period by Wiglaf, Eleonora and Sandra. These children produce WS words in a target-like way very late, at Stage 4. Outranking TROCHEE at Stage 3", Nele permits iambic outputs of WS targets at an earlier stage. The rhythmic pattern of WS words will not change at the transition to Stages 3 and 4. The internal structure, however, develops from a footed iamb at Stages 3" and 3 to outputs permitting initial unfooted syllables. In that respect, all four children have acquired the target-like prosodic organization of WS words in German.

6.3 Trisyllabic words with penultimate stress

6.3.1 Stage 1

Following the assumption that markedness constraints initially outrank faithfulness constraints, a bisyllabic trochee is predicted to survive at Stage 1. The candidate selection is presented in Table 6-8 below. Throughout the subsection, I exemplify the candidate evaluation by the target word Giˈraffe /giˈʁafə/ 'giraffe'.

Table 6-8 illustrates that the faithful candidate a. will be eliminated due to its violation of ALIGNLEFT. Violation of ALIGNLEFT also leads to the exclusion of candidates b. and c. Preservation of the first two syllables of WSW words with their exact prosodic role additionally incurs a fatal violation of TROCHEE in candidate c. However, preserving the first two syllables with a trochaic stress pattern is also impossible because it fatally violates FAITHSTRESS. Thus, candidate d. is eliminated. For the winning candidate, truncation of the initial unfooted syllable is predicted because it only incurs a violation of the low-ranked constraint MAX-σ (candidate e.).

Table 6-8. The evaluation of simplex WSW words at Stage 1

Input: / [gi (ˈraf.fe)$_F$]$_{PW}$ /	ALIGNLEFT	TROCHEE	FAITHSTRESS	MAX-σ
a. [gi (ˈraf.fe)$_F$]$_{PW}$	*!			
b. [(ˌgi)$_F$ (ˈraf.fe)$_F$]$_{PW}$	*!			
c. [(gi.ˈraf)$_F$]$_{PW}$	*!	*!		* fe
d. [(ˈgi.ra)$_F$]$_{PW}$			*!	* fe
e. ☞ [(ˈraf.fe)$_F$]$_{PW}$				* gi

The empirical data confirm the prediction of the ranking. As the examples in (55) to (58) show, truncation of the initial unfooted syllable of WSW words is widespread in the databases.

(55) Stage 1, truncation of WSW targets to SW in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Giraffe	‚giraffe'	/ giˈʁafə /	[ˈhafə], [ˈhafə]	1;08.13
			[ˈhaf̠ɛ], [ˈhaf̠ə]	1;09.02
			[ˈhafə]	1;09.19
Tomate	‚tomato'	/ toˈmaːtə /	[ˈmaːθə], [ˈmaːtə]	1;09.02
			[ˈmaːt]	1;09.09
			[ˈmaːkŋ̩]	1;09.26
Kassette	‚tape'	/ kaˈsɛtə /	[ˈvɛtə]	1;09.09
Johanna	Proper name	/ joˈhana /	[ˈhan̠a]	1;09.02
			[ˈhana]	1;09.09
Banane	‚banana'	/ baˈnaːnə /	[ˈmænɛ]	1;08.13
			[ˈmaːnə]	1;09.19
			[ˈmaːnə]	1;09.26
Kartoffel(n)	‚potato' (pl.)	/ kaɐˈtɔfəl /	[ˈtɔfl̩n]	1;09.26

(56) Stage 1, truncation of WSW targets to SW in Eleonora's data

Target	Gloss	Phonetic form	Child form	Age
Giraffe	‚giraffe'	/ gi'ʁafə /	['χaχə], ['haχə]	1;06.15
			['haɸə], ['haxɵ]	1;06.22
			['ʁafə], ['hafə]	1;07.15
			['χafə], ['xafə]	1;08.0
			['xafə], ['ʁa:fə],['hafə]	1;08.26
Gitarre	‚guitar'	/ gi'taʁə /	['tχaχə], ['tχaxə]	1;06.22
			['kʰaxə]	1;06.29
			['taxə]	1;07.08
Melissa	Proper name	/ me'lɪsa/	['lɛsa]	1;08.15
Kartoffel	‚potato'	/ kaɐ'tɔfəl /	['kɔfəl]	1;08.32
Tomate	‚tomato'	/ to'ma:tə /	['pʰa:tə]	1;06.15

(57) Stage 1, truncation of WSW targets to SW in Nele's database

Target	Gloss	Phonetic form	Child form	Age
Tomate	‚tomato'	/ to'ma:tə /	['ma:ta], ['na:pi]	1;09.24
			['na:bi]	1;08.29
Banane	‚banana'	/ ba'na:nə /	['ʔanɛ]	1;06.26
			['na:ni]	1;08.12
			['nană]	1;08.29
			['na:ni]	1;09.24

(58) Stage 1, truncation of WSW targets to SW in Sandra's data

Target	Gloss	Phonetic form	Child form	Age
Giraffe	‚giraffe'	/ giˈʁafə /	[ˈgɔxə], [ˈgafə]	1;08.21
			[ˈkʰafə]	1;08.31
			[ˈkʰafɛ]	1;09.06
			[ˈtafə], [ˈkʰafɛ]	1;09.26
Banane	‚banana'	/ baˈnaːnə /	[ˈmana]	1;05.20
			[ˈpana]	1;05.26
			[ˈnaːnə], [ˈmana]	1;06.01
			[ˈmana]	1;07.15
			[ˈmana]	1;07.29
Tomate	‚tomato'	/ toˈmaːtə /	[ˈmaːtɛ], [ˈmaːtə]	1;07.15
			[ˈmatə], [ˈmatʰə]	1;07.29
			[ˈmaːtə]	1;08.31
Kassette	‚tape'	/ kaˈsɛtə /	[ˈtɛk̠ə]	1;08.31
Kartoffel	‚potato'	/ kaɐˈtɔfəl /	[ˈkɔfəl, [tɔɸəl]	1;08.31

6.3.2 Stage 2

The demotion of NONRECURSIVITY at Stage 2 does not affect the production pattern of WSW words. Like in sWS and WS targets before, no change in the prosodic shape of the output is predicted. The winning candidate is the truncated candidate e.

Table 6-9. The evaluation of simplex WSW words at Stage 2

Input: / [gi (ˈraf.fe)$_F$]$_{PW}$ /	ALIGNLEFT	TROCHEE	FAITHSTRESS	MAX-σ	NONREC
a. [gi. (ˈraf.fe)$_F$]$_{PW}$	*!				
b. [(ˌgi.)$_F$ (ˈraf.fe)$_F$]$_{PW}$	*!				
c. [(gi.ˈraf)$_F$]$_{PW}$	*!	*!		* fe	
d. [(ˈgi.ra)$_F$]$_{PW}$			*!	* fe	
e. ☞ [(ˈraf.fe)$_F$]$_{PW}$				* gi	

In fact, the children persistently truncate WSW words to single trochees, omitting the initial weak syllable. I illustrate the production pattern by data from Wiglaf's database in (59) below:

(59) Stage 2, truncation of WSW targets to SW in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Giraffe	‚giraffe'	/ giˈʁafə /	[ˈʁafɛ], [ˈʁafə]	1;10.13
			[ˈxafə]	1;11.03
Kartoffel(n)	‚potato' (pl.)	/ kaɐˈtɔfəln /	[ˈtɔfl̩]	1;10.13
			[ˈtɔfl̩n]	1;10.28
Tomaten	‚tomato' (pl.)	/ toˈmaːtən /	[ˈmaːtn̩]	1;10.28
Banane	‚banana'	/ baˈnaːnə /	[ˈmaːnə]	1;10.13
			[ˈmaːnə]	1;11.03

6.3.3 Stage 3"

The demotion of TROCHEE in Nele's grammar at Stage 3" does not incur a change in the prosodic output pattern. Nele still truncates the initial weak syllable of WSW words:

Table 6-10. The evaluation of simplex WSW words at Stage 3"

Input: / [gi (ˈraf.fe)$_F$]$_{PW}$ /	ALIGNLEFT	FAITHSTRESS	MAX-σ	NONREC	TROCHEE
a. [gi (ˈraf.fe)$_F$]$_{PW}$	*!				
b. [(ˌgi)$_F$ (ˈraf.fe)$_F$]$_{PW}$	*!				
c. [(gi.ˈraf)$_F$]$_{PW}$	*!		* fe		*
d. [(ˈgi.ra)$_F$]$_{PW}$		*!	* fe		
e. ☞ [(ˈraf.fe)$_F$]$_{PW}$			* gi		

The following examples in (60) provide empirical support for Stage 3":

(60) Stage 3", 7runcation of WSW targets to SW in Nele's data

Target	Gloss	Phonetic form	Child form	Age
Banane	‚banana'	/ baˈnaːnə /	[ˈnaːni]	1;10.07
			[ˈnanḭ]	1;10.14
			[ˈnaːnə]	1;11.04
			[ˈnaːnɛ]	1;11.14
Tomate	‚tomato'	/ toˈmaːtə /	[ˈnaːpʰa]	1;10.07
			[ˈnapɨ], [ˈmaːta]	1;11.04
Giraffe	‚giraffe	/ giˈʁafə /	[ˈlafi]	1;10.0
			[ˈlafi]	1;11.0
			[ˈlafi]	1;11.04

6.3.4 Stage 3

At Stage 3, the children outrank ALIGNLEFT. Due to the demotion of trochee in Nele's grammar, there are two different grammars for Stage 3. Both predict that WSW words are persistently truncated to SW.

Table 6-11 illustrates the evaluation in the grammars of Wiglaf, Sandra and Nele, who did not previously demote TROCHEE. TROCHEE is not included in the table as iambic candidates of WSW targets are governed by other constraints. The non-truncated candidates a. and b. are ruled out by their violations of PARSE-σ and NOCLASH, respectively. Stress shift to the left leads to the violation of FAITHSTRESS. Hence, candidate c. is eliminated. Candidates d. and e. both violate MAX-σ. As candidate d. additionally violates ALIGNLEFT, it is ruled out. Hence, candidate e., which truncates the initial weak syllable, is the winner at Stage 3 in the grammars of Wiglaf, Eleonora and Sandra.

Table 6-11. The evaluation of simplex WSW words at Stage 3 (Wiglaf, Sandra, Eleonora)

Input: / [gi (ˈraf.fe)$_F$]$_{PW}$ /	PARSE-σ	NOCLASH	FAITHSTRESS	MAX-σ	ALIGNLEFT
a. [gi (ˈraf.fe)$_F$]$_{PW}$	*!				*
b. [(ˌgi)$_F$ (ˈraf.fe)$_F$]$_{PW}$		*!			*
c. [(ˈgi.ra)$_F$]$_{PW}$			*!	* fe	
d. [(gi.ˈraf)$_F$]$_{PW}$				* fe	*!
e. ☞ [(ˈraf.fe)$_F$]$_{PW}$				* gi	

The following data support the predictions of the re-ranking at Stage 3. In fact, truncation of WSW words to a bisyllabic trochee is still found in the databases of the children:

(61) Stage 3, truncation of WSW targets to SW in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Giraffe	‚giraffe'	/ giˈʁafə /	[ˈkʰʁafːə]	2;0.11
Kassette	‚tape'	/ kaˈsɛtə /	[ˈsɛtə]	2;0.17
Banane	‚banana'	/ baˈnaːnə /	[ˈmaːnə]	2;0.17
Antenne	‚aerial'	/ ʔanˈtɛnə /	[ˈtɛnə]	2;0.11
Garage	‚garage'	/ gaˈʁaːʒə /	[ˈʁaːzə]	2;0.11

(62) Stage 3, truncation of WSW targets to SW in Eleonora's data

Target word	Gloss	Phonetic form	Child form	Age
Kartoffeln	‚potato' (pl.)	/ kaɐˈtɔfəln /	[ˈtʰɔfəln]	1;09.21
Tomate	‚tomato'	/ toˈmaːtə /	[ˈmaːtʰɛ]	1;09.21
Melissa	proper name	/ meˈlɪsa/	[ˈlɪsa]	1;09.09
Giraffe	‚giraffe'	/ giˈʁafə /	[ˈhafə]	1;09.09
			[ˈhafɛː]	1;09.21

(63) Stage 3, truncation of WSW targets to SW in Sandra's data

Target	Gloss	Phonetic form	Child form	Age
Giraffe	‚giraffe'	/ giˈʁafə /	[ˈtafə], [ˈkʰafɛ]	1;09.26
			[ˈkʰafə], [ˈkχafɛ]	1;10.10
Banane	‚banana'	/ baˈnaːnə /	[ˈnaːnə]	1;11.0

Nele's grammar also predicts SW outputs at Stage 3. TROCHEE is not regarded in the table because iambic candidates of WSW targets are impossible due to other constraints. The evaluation is very similar to that of the other three children. Again, in Table 6-12, the truncated candidate e. is the winner.

Table 6-12. The evaluation of simplex WSW words at Stage 3 (Nele)

Input: / [gi (ˈraf.fe)$_F$]$_{PW}$ /	PARSE-σ	NOCLASH	FAITHSTRESS	MAX-σ	ALIGNLEFT
a. [gi (ˈraf.fe)$_F$]$_{PW}$	*!				*
b. [(ˌgi)$_F$ (ˈraf.fe)$_F$]$_{PW}$		*!			*
c. [(ˈgi.ra)$_F$]$_{PW}$			*!	* fe	
d. [(gi.ˈraf)$_F$]$_{PW}$				* fe	*!
e. ☞ [(ˈraf.fe)$_F$]$_{PW}$				* gi	

As there are no changes in the output, I do not further provide data from her database.

6.3.5 Stage 4

Due to the demotion of PARSE-σ, unfooted syllables are permitted in the output. The children now produce WSW words in a target-like way. It does not matter if TROCHEE is ranked at the top of the hierarchy (as in the grammars of Wiglaf, Eleonora and Sandra), or beneath MAX-σ (as in Nele's grammar), the winning candidate is the fully faithful one (candidate a.). Table 6-13 illustrates the selection of candidates for the four children, disregarding TROCHEE.

Table 6-13. The evaluation of simplex WSW words at Stage 4

Input: / [gi (ˈraf.fe)$_F$]$_{PW}$ /	NOCLASH	FAITHSTRESS	MAX-σ	ALIGNLEFT	PARSE-σ
a. ☞ [gi (ˈraf.fe)$_F$]$_{PW}$				*	*
b. [(ˌgi)$_F$ (ˈraf.fe)$_F$]$_{PW}$	*!			*	
c. [(ˈgi.ra)$_F$]$_{PW}$		*!	* fe		
d. [(gi.ˈraf)$_F$]$_{PW}$			* fe	*!	
e. [(ˈraf.fe)$_F$]$_{PW}$			*! gi		

In fact, at the end of the recorded period, the children realized initial unfooted syllables in WSW words (examples in (64) to (67)).

(64) Stage 4, realization of WSW targets in a target-like way Wiglaf's data

Target	Gloss	Phonetic form	Child form	Age
Giraffe	‚giraffe'	/giˈʁafə /	[giˈʁafə]	1;11.23
			[kiˈʁa̠fə], [giˈʁa̠fə]	2;0.24
			[giˈʁafə]	2;01.07

(65) Stage 4, realization of WSW targets in a target-like way Nele's data

Target word	Gloss	Phonetic form	Child form	Age
Banane	‚banana'	/ baˈnaːnə /	[baˈnaːnə]	2;0.02
			[baˈnaːnə]	2;0.19
Giraffe	‚giraffe'	/ giˈʁafə /	[giˈlafi]	1;11.04
			[giˈlafə]	2;0.19
Girlande	‚garland'	/ gɪɐˈlandə /	[giˈlandə]	2;0.02
Tomate	‚tomato	/ toˈmaːtə /	[toˈmaːtə]	2;0.02
			[toˈmaːtə]	2;0.19

(66) Stage 4, realization of WSW targets in a target-like way Sandra's data

Target word	Gloss	Phonetic form	Child form	Age
Giraffe	‚giraffe'	/ giˈʁafə /	[gʁiˈvafə]	1;10.10
			[tçiˈtχafɛ], [kʰiˈkʰaːvə], [giˈtχafɛ]	1;11.0
Tomate	‚tomato	/ toˈmaːtə /	[tɔˈmatʰɛ]	1;09.26
			[tʰoˈmaːtɛ]	1;11.0
Garage	'garage'	/ gaˈʁaːʒə /	[kaˈʁaːʒ̥ə]	1;10.10
Rosine	'raisin'	/ ʁoˈziːnə /	[ʁoˈziːnɛ]	1;10.10
Banane	'banana'	/ baˈnaːnə /	[baˈnaːnə]	1;11.0

(67) Stage 4, realization of WSW targets in a target-like way Eleonora's data

Target word	Gloss	Phonetic form	Child form	Age
Giraffe	‚giraffe'	/ giˈʁafə /	[giˈʁaf̱ə]	1;10.19
			[giˈʁaf̱ə]	1;10.25

To summarize, the proposed initial ranking predicts the omission of the initial unfooted syllable of WSW words. The re-rankings at Stage 2, Stage 3" and Stage 3 do not lead to a change of the prosodic shape of the output. The intermediate grammars predict that truncation persists over a long period of time, independently of whether TROCHEE is maintained at the top of the hierarchy as in Wiglaf, Eleonora, Sandra's grammars or demoted at Stage 3" as in Nele's grammar. In fact, the empirical data show that truncation of WSW words is observed in the databases of all four children. Only at the very end of the recorded period do the children preserve the initial unstressed syllable of WSW words.

6.4 Trisyllabic words with antepenultimate main stress

Trisyllabic words with antepenultimate main stress and two light syllables occur rather infrequently in adult and child German. This subsection describes the characteristics in the four developmental stages.

6.4.1 Stage 1

At Stage 1, markedness constraints dominate faithfulness constraints. To realize an unmarked structure, trisyllabic SWW words survive as a bisyllabic output. The evaluation of SWW candidates is illustrated in Table 6-14.

Table 6-14. The evaluation of simplex SWW words at Stage 1

Input: / [(ˈRadi)$_F$ o]$_{PW}$ /	PARSE-σ	ALIGNLEFT	MAX-σ
a. [(ˈradi)$_F$ o]$_{PW}$	*!		
b. [(ˈra.di)$_F$(ˌo)$_F$]$_{PW}$		*!	
c. ☞ [(ˈra.di)$_F$]$_{PW}$			* o
d. ☞ [(ˈra.jo)$_F$]$_{PW}$			* di

The first two candidates are ruled out due to their fatal violations of the high-ranked structural constraints PARSE-σ and ALIGNLEFT. Hence, fully faithful outputs (candidate a.) are impossible at Stage 1. Due to ALIGNLEFT being high-ranked, the children cannot repair the output to a bipedal form. This is depicted by candidate b. Interestingly, the ranking renders two candidates to be optimal: Both candidates c. and d. omit a weak syllable such that they violate MAX-σ.

There is no agreement in the literature with respect to the question which weak syllable children prefer in the output. Fikkert (1994) reported that the Dutch children of her study preserve the pre-final syllable that is footed with the stressed one. By contrast, several other studies found a preference for preserving the final syllable rather than the pre-final one (Pater 1997, Kehoe and Stoel-Gammon 1997, Kehoe 1999/2000, Adam 2002). In addition, the preservation pattern of SWW words seems to be influenced by onset sonority in child English. Children select the syllable with the less sonorant onset (Pater 1997), or they generally truncate weak syllables with sonorant onsets and preserve weak syllables with obstruent onsets (Kehoe and Stoel-Gammon 1997, Kehoe 1999/2000). The German data support the latter position, i.e., that the children preserve the final rather than the pre-final syllable, and that onset sonority additionally influences the preservation pattern. Due to the scarcity of SWW words in the databases – there are only four types with truncated tokens - these effects remain rather tentative. Note that Wiglaf did not produce truncated instances of SWW words at all. Therefore, the following examples in (68) to (70) are taken from the databases of Eleonora, Nele and Sandra.

Only Nele's database contains a single word type, *ˈPaprika* 'pepper', suitable for illustrating the preservation of the final syllable if both onset consonants are obstruents (68):

(68) Stage 1, impact of onsets in the preservation patterns of SWW words

Target word	Gloss	Phonetic form	Child form	Child, age
Paprika	‚pepper'	/ ˈpapʁika /	[ˈpʰakʰa]	Nele, 1;11.0
			[ˈpʰaka]	Nele, 2;0.02
			[ˈpʰaka]	Nele, 2;0.19

Other types of SWW words, presented in (69) are consistent with the position that children preserve the weak syllable with a less sonorant onset (Pater 1997) or containing an obstruent onset (Kehoe and Stoel-Gammon 1997, Kehoe 1999/2000).

(69) *Stage 1, preservation of the pre-final weak syllable in SWW words*

Target word	Gloss	Phonetic form	Child form	Child and Age
Radio	'radio'	/ˈʁaːdijo/	[ˈʔati]	Eleonora, 1;02.22
Radio	'radio'	/ˈʁaːdijo/	[ˈha͡ʊdi]	Nele, 1;08.29

Sandra merges segmental material from both weak syllables in *ˈJaguar* 'jaguar'. In *ˈKänguru* 'kangaroo', it cannot be clearly decided which syllable the vowel is taken from (70).

(70) *Stage 1, merging of segmental material from both weak syllables*[35]

Target word	Gloss	Phonetic form	Child form	Child and Age
Jaguar	'jaguar'	/ˈjaːgʊaɐ/	[ˈjaːka]	Sandra, 1;08.21
Känguru	'kangaroo'	/ˈkɛŋguʁu/	[ˈtɨŋʊ]	Sandra, 1;09.06

So far, the data suggests that the children tend to preserve weak syllables of SWW words because of their prominence and segmental features. Formally, these observations are captured by adding the following structural constraints to the ranking:

(71) *Further structural constraints*

- RIGHT-ANCHOR (R-ANCH): Any element at the right edge of the input has a correspondent at the right edge of the output (McCarthy & Prince 1995; Pater and Paradies 1996, Pater 1997 for child language)
- *SON-ONSET (*SON-ONS): Sonorant onsets are not presented in the output (Kehoe 1999/2000).
- ONSET (ONS): Syllables have onsets (McCarthy & Prince 1993).

ONSET and *SON-ONSET are ranked at the top of the hierarchy with the other markedness constraints. RIGHT-ANCHOR is equally ranked with FAITHSTRESS (Pater and Paradies 1996).

[35] An analysis of these data goes beyond the scope of the subsection.

Following the presumed ranking, the selection of the correct bisyllabic output for *ˈPaprika* ‘pepper’ and *ˈRadio* ‘radio’ is as depicted in Table 6-15.

Table 6-15. Content preservation in simplex SWW words at Stage 1

1. Input: / [(ˈPa.pri)$_F$ ka] $_{PW}$ /	Ons	*Son-Onset	R-Anch	Max-σ
a. [(ˈpa. a)$_F$]$_{PW}$	*!			*pri
b. [(ˈPa.pri)$_F$]$_{PW}$			*!	*ka
c. ☞ [(ˈpa.ka)$_F$]$_{PW}$				*pri
2. Input: / [(ˈRa.di)$_F$ jo]$_{PW}$ /	Ons	*Son-Onset	R-Anch	Max-σ
a. [(ˈra.i)$_F$]$_{PW}$	*!			
b. [(ˈra.jo)$_F$]$_{PW}$		*!		* di
c. ☞ [(ˈra.di)$_F$]$_{PW}$			*	* o

ONSET militates against candidates deleting the onset consonant (candidates 1a. and 2a). Hence, omission of the onset is impossible in 1a. and 2a. Candidates preserving the weak syllable right-adjacent to the stressed one violate RIGHT-ANCHOR and are eliminated (1b. and 2b.). The ranking correctly predicts the variation in the preservation pattern of SWW words. If the weak syllables contain two obstruent onsets (e.g., *ˈPaprika* ‘pepper’), the output is produced with the final weak syllable (1c.). By contrast, if there is a sonorant onset as in *ˈRadi[j]o* ‘radio’ (usually realized with the glide [j] in the onset position), the pre-final syllable is preserved (candidate 2c.). The analysis therefore shows that by adding a few well-motivated constraints, the free variation predicted in Table 6-15 is ruled out in favor of empirically attested patterns of content preservation.

6.4.2 Stage 2

Targeting only compounds, the demotion of NONRECURSIVITY does not change the prosodic shape of SWW at Stage 2. Like at Stage 1, SW_1W_2 words are predicted to survive as bisyllabic SW_2 if there are two obstruents or SW_1 if the pre-final weak syllable contains an obstruent and the final one a sonorant. Due to the small number of empirical data, I do not go into further detail here.

6.4.3 Stage 3”

The demotion of TROCHEE in Nele’s grammar does not change the production pattern of SWW targets. Table 6-16 illustrates the selection of candidates on the basis of the example *'Radio* ‘radio’. Like in Stages 1 and 2, the ranking predicts the truncated bisyllabic candidate c. to be the winner. The trisyllabic candidates a. and b. are ruled out due to their violations of PARSE-σ and ALIGNLEFT.

Table 6-16. The evaluation of simplex SWW words at Stage 3”

Input: / [(ˈRadi)$_F$ jo]$_{PW}$ /	PARSE-σ	ALIGNLEFT	MAX-σ	TROCHEE
a. [(ˈRadi)$_F$ jo]$_{PW}$	*!			
b. [(ˈra.di)$_F$ (ˌjo)$_F$]$_{PW}$		*!*		
c. ☞ [(ˈra.di)$_F$]$_{PW}$			* jo	

Unfortunately, due to the scarcity of SWW outputs in Nele’s database, there are no examples in the database supporting the analysis.

6.4.4 Stage 3

The outranking of ALIGNLEFT at Stage 3 predicts a bipedal outcome in the grammars of the four children. Table 6-17 represents the candidate evaluation for all children. The different ranking of TROCHEE in the grammars of Wiglaf, Sandra and Eleonora on the one hand and in the grammar of Nele on the other hand has no effect on the shape of the output.

The fully faithful candidate a. is still ruled out because of its violation of PARSE-σ. Contrary to the previous stages, the truncated candidate c. is also eliminated due to its violation of MAX-σ. The ranking predicts that the final syllable of SWW words creates a foot of its own.

Note that high-ranked NoClash (not depicted in the table) bans the parsing of *ˈRadio* into [(ˈra)F(ˌdijo)F]PW, i.e. with a bisyllabic secondary stressed foot.

Table 6-17. The evaluation of simplex SWW words at Stage 3

Input: / [(ˈRadi)F jo]PW /	Parse-σ	Max-σ	AlignLeft
a. [(ˈRadi)F jo]PW	*!		
b. ☞ [(ˈra.di)F (ˌjo)F]PW			**
c. [(ˈra.di)F]PW		*! Jo	

The examples given in (72) to (74) support the predictions of the hierarchy.

(72) Stage 3, realization of SWW targets as bipedal output in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Brokkoli	‚broccoli'	/ ˈbʁokoli /	[ˈboˌkoːli], [ˈboˌɣoːli]	1;11.23
Känguru	‚cangaroo'	/ ˈkɛŋguʁu /	[ˈkæŋuˈʁuː]	2;0.11

(73) Stage 3, realization of SWW targets as bipedal output in Sandra's data

Target word	Gloss	Phonetic form	Child form	Age
Känguru	‚cangaroo'	/ ˈkɛŋguʁu /	[ˈgejʊˌχɯː]	1;08.31
Brokkoli	‚broccoli'	/ ˈbʁokoli /	[ˈpɔkʰɛˌli]	1;11.0

(74) Stage 3, realization of SWW targets as bipedal output in Eleonora's data

Target word	Gloss	Phonetic form	Child form	Age
Brokkoli	‚broccoli'	/ ˈbʁokoli /	[ˈgʊliˌki]	1;07.08

6.4.5 Stage 4

At Stage 4, PARSE-σ is demoted. The re-ranking predicts that SWW words survive with unfooted final syllables.

Table 6-18 illustrates that candidate a., leaving the final syllable unfooted, is the winning candidate. In contrast to Stage 3, bipedal candidates are now ruled out by their violations of ALIGNLEFT. Truncation is impossible as it incurs a fatal violation of MAX-σ.

Table 6-18. The evaluation of simplex SWW words at Stage 4

Input: / [('Radi)$_F$ jo]$_{PW}$ /	MAX-σ	ALIGNLEFT	PARSE-σ
a. ☞ [('Radi)$_F$ jo]$_{PW}$			*
b. [('ra.di)$_F$ (ˌjo)$_F$]$_{PW}$		*!*	
c. [('ra.di)$_F$]$_{PW}$	*! jo		

To summarize, SWW words are truncated to a bisyllabic SW form at Stage 1. The presumed hierarchy does not make clear predictions with respect to the content of the preserved weak syllables. A closer examination reveals parallels to the preservation pattern reported from child English (Kehoe 1999/2000, Pater 1997, Pater and Paradies 1996) and child Hebrew (Adam 2002) in that the final weak syllable is maintained over the prefinal one. Also in line with earlier research, the segmental features of the onsets of the weak syllables influence the preservation pattern. The children prefer syllables with obstruent onsets over syllables with sonorant onsets. Unfortunately, there are only few types and tokens supporting this theoretical analysis.

Truncation to a bisyllabic output persists until Stage 2 in the data of Wiglaf, Eleonora, and Sandra or to Stage 3" in Nele's database. Stage 3 characterizes a transitional period, where SWW words undergo repair to a bipedal output. At Stage 4, the final syllables remain unfooted. The children have now acquired SWW words in a target-like way.

6.5 Quadrisyllabic and longer words

This subsection analyzes the predictions of the presumed ranking for quadrisyllabic and longer simplex words. There are two different prosodic shapes in the database: First, sWSW words such as ˌ*Marme*ˈ*lade* 'jam' and, second, the sWWSW word ˌ*Lokomo*ˈ*tive* 'locomotive' as a single type.

6.5.1 Stage 1

At Stage 1, the ranking of markedness over faithfulness predicts a bisyllabic trochaic outcome. Table 6-19 illustrates the candidate evaluation for ˌ*Marme*ˈ*lade* 'jam' and for ˌ*Lokomo*ˈ*tive* 'locomotive'. Any bipedal candidate (i.e., candidates 1a., 1b., 1c. and 2a., 2b. and 2c.) is ruled out due to its fatal violations of ALIGNLEFT. The winners are the truncated bisyllabic candidates 1d. and 1d. These candidates only incur violations of the low-ranked constraint MAX-σ.

Table 6-19. The evaluation of simplex sWSW and sWWSW words at Stage 1

1. Input: / [(ˌMar.me)$_F$ (ˈla.de)$_F$]$_{PW}$ /	ALIGNLEFT	PARSE-σ	FAITHSTRESS	MAX-σ
a. [(ˌMar.me)$_F$ (ˈla.de)$_F$]$_{PW}$	*!*			
b. [(ˈMar.me)$_F$ (ˌla.de)$_F$]$_{PW}$	*!*		*	
c. [(ˌMar)$_F$ (ˈla.de)$_F$]$_{PW}$	*!			*me
d. ☞ [(ˈla.de)$_F$]$_{PW}$				** mar, me,
2. Input: / [(ˌLo.ko)$_F$ mo (ˈti.ve)$_F$]$_{PW}$ /	ALIGNLEFT	PARSE-σ	FAITHSTRESS	MAX-σ
a. [(ˌLo.ko)$_F$ mo (ˈti.ve)$_F$]$_{PW}$	*!*	*!		
b. [(ˈLo.ko)$_F$ (ˌti.ve)$_F$]$_{PW}$	*!*		*	
c. [(ˌLo)$_F$ (ˈti.ve)$_F$]$_{PW}$	*!			*ko
d. ☞ [(ˈti.ve)$_F$]$_{PW}$				***mo, ti, ve

The empirical data show that the children in fact truncate sWSW and sWWSW words to bisyllabic trochees at Stage 1. The examples provided in (75) to (78) illustrate that they consistently select the final foot.

(75) Stage 1, truncation of sWSW and sWWSW targets to SW in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Indianer	‚native american'	/ ˌʔɪndiˈjaːnəɐ /	[ˈsʲaːna], [ˈsaːna]	1;10.13
			[ˈjaːna]	1;11.13
Margarine	‚margarine'	/ ˌmaɐgaˈʁiːnə /	[ˈhiːni], [ˈhɪni], [ˈhɪnə]	1;08.13
			[ˈhiːnə]	1;09.09
Marmelade	‚jam'	/ ˌmaɐməˈlaːdə /	[ˈhaːda]	1;08.13
			[ˈhaːtə]	1;09.09
Lokomotive	‚locomotive'	/ ˌlokomoˈtiːvə /	[ˈtɨːfə]	1;09.02
			[ˈtiːfə]	1;09.09
			[ˈtɨːɸə]	1;09.19

(76) Stage 1, truncation of sWSW and sWWSW targets to SW in Eleonora's data

Target word	Gloss	Phonetic form	Child form	Age
Indianer	‚native american'	/ ˌʔɪndiˈjaːnəɐ /	[ˈjaːna]	1;08.0
Limonade	‚lemonade'	/ ˌlimoˈnaːdə /	[ˈnaːtə]	1;08.15
Marmelade	‚jam'	/ ˌmaɐməˈlaːdə /	[ˈlalɛ], [ˈdaːlɛ]	1;06.05
Schokolade	‚chocolate'	/ ˌʃokoˈlaːdə /	[ˈlaːdə]	1;09.09
			[ˈlatə]	1;10.19
Mandarine	‚tangerine'	/ ˌmandaˈʁiːnə /	[ˈnini]	1;04.08
			[ˈneːne]	1;06.15
			[ˈnini]	1;06.22

(77) *Stage 1, truncation of sWSW and sWWSW targets to SW in Sandra's data*

Target word	Gloss	Phonetic form	Child form	Age
Apfelsine	‚orange'	/ ˌʔap͡fəlˈziːnə /	[ˈziːnə]	1;09.26

(78) *Stage 1, truncation of sWSW and sWWSW targets to SW in Nele's data*

Target word	Gloss	Phonetic form	Child form	Age
Marmelade	‚jam'	/ˌmaɐməˈlaːdə /	[ˈlaːja]	1;08.29
			[ˈlali]	1;10.0
Lokomotive	‚locomotive'	/ˌlokomoˈtiːvə /	[ˈtiz̯i], [ˈdɨzi], [ˈtɪːvə]	1;08.12

6.5.2 Stage 2

Table 6-20 depicts the candidate evaluation under the ranking at Stage 2.

Table 6-20: The evaluation of simplex sWSW and sWWSW words at Stage 2

1. Input: /[(ˌMar.me)F(ˈla.de)F]PW/	ALIGNLEFT	PARSE-σ	FAITH STRESS	MAX-σ	NONREC
a. [(ˌMar.me)F (ˈla.de)F]PW	*!*				
b. [(ˈMar.me)F (ˌla.de)F]PW	*!*		*		
c. [(ˈMar)F (ˌla.de)F]PW	*!			*me	
d. ☞ [(ˈla.de)F]PW				** mar, me	
2. Input:/[(ˌLo.ko)F mo(ˈti.ve)F]PW/	ALIGN LEFT	PARSE-σ	FAITH STRESS	MAX-σ	NONREC
a. [(ˌLo.ko)F mo (ˈti.ve)F]PW	*!*	*!			
b. [(ˈLo.ko)F (ˌti.ve)F]PW	*!*		*		
c. [(ˌLo)F (ˈti.ve)F]PW	*!			*ko	
d. ☞ [(ˈti.ve)F]PW				***mo, ti, ve	

Quadrisyllabic and longer simplex words form a single prosodic word in adult German. Following the assumption that children parse the input in a target-like way, the outranking of NONRECURSIVITY at Stage 2 does affect sWSW and sWWSW targets because it is vacuously satisfied by simplex words. Like at Stage 1, the bisyllabic candidates 1d. and 1d. are the winners. This is depicted in Table 6-20. The ranking does not predict a change in the output at the transition to Stage 2. As there are only few data, I do not provide examples.

6.5.3 Stage 3”

At Stage 3”, Nele outranks TROCHEE. Table 6-21 shows that no changes are predicted with respect to the prosodic shape of the output. Therefore, like at Stages 1 and 2, the truncated candidates 1d. and 2d. are the winners. This is because TROCHEE is vacuously satisfied by the candidates. Any candidate changing the foot structure to an iamb incurs a violation of higher-ranked FAITHSTRESS and is ruled out.

Table 6-21. The evaluation of simplex sWSW and sWWSW words at Stage 3” in Nele’s grammar

1 Input: / [(ˌMar.me)$_F$ (ˈla.de)$_F$]$_{PW}$ /	ALIGN LEFT	PARSE-σ	FAITHSTRESS	MAX-σ	TROCHEE
a. [(ˌMar.me)$_F$ (ˈla.de)$_F$]$_{PW}$	*!*				
b. [(ˈMar.me)$_F$ (ˌla.de)$_F$]$_{PW}$	*!*		*		
c. [(ˌMar)$_F$ (ˈla.de)$_F$]$_{PW}$	*!			*me	
d. ☞ [(ˈla.de)$_F$]$_{PW}$				** mar, me	
2 Input: / [(ˌLo.ko)$_F$ mo (ˈti.ve)$_F$]$_{PW}$ /	ALIGN LEFT	PARSE-σ	FAITHSTRESS	MAX-σ	TROCHEE
a. [(ˌLo.ko)$_F$ mo (ˈti.ve)$_F$]$_{PW}$	*!*	*!			
b. [(ˈLo.ko)$_F$ (ˌti.ve)$_F$]$_{PW}$	*!*		*		
c. [(ˌLo)$_F$ (ˈti.ve)$_F$]$_{PW}$	*!			*ko	
d. ☞ [(ˈti.ve)$_F$]$_{PW}$				***mo, ti, ve	

Examples showing persistent truncation of sWSW and sWWSW targets are presented in (79).

(79) Stage 3", truncation of sWSW and sWWSW targets to SW in Nele's data

Target word	Gloss	Phonetic form	Child form	Age
Marmelade	‚jam'	/ˌmaɐməˈlaːdə /	[ˈlaːli]	1;10.07
			[ˈlalə]	1;11.14

6.5.4 Stage 3

Due to the outranking of ALIGNLEFT, bipedal outputs are permitted at Stage 3. Now, sWSW words will be produced in a target-like way. At the same time, the medial unfooted syllable will be truncated in sWWSW words.

Table 6-22 below exemplifies the consequences of the re-ranking for sWSW words. The fully faithful candidate a. is the winner because it only violates the outranked constraint ALIGNLEFT. Candidates showing stress shift to the left are eliminated due to their violation of FAITHSTRESS. It is reported that children sometimes pass through a period where they produce only the heads of the non-final foot (Kehoe 1999/2000, Pater and Paradies 1996). With respect to German, this is ruled out because it incurs a fatal violation of NOCLASH (candidate c.). Finally, truncation cannot be an option at Stage 3 because under the new ranking it causes fatal violations of MAX-σ.

Table 6-22. The evaluation of simplex sWSW words at Stage 3

Input: / [(ˌMar.me)$_F$ (ˈla.de)$_F$]$_{PW}$ /	NOCLASH	PARSE-σ	FAITHSTRESS	MAX-σ	ALIGNLEFT
a. ☞ [(ˌMar.me)$_F$ (ˈla.de)$_F$]$_{PW}$					**
b. [(ˈMar.me)$_F$ (ˌla.de)$_F$]$_{PW}$			*!		**
c. [(ˌMar)$_F$ (ˈlade)$_F$]$_{PW}$	*!			*me	*
d. [(ˈla.de)$_F$]$_{PW}$				*!* mar, me	

Examples supporting Stage 3 are presented in (80) to (82).

(80) *Stage 3, realization of sWSW and sWWSW targets as bipedal output in Wiglaf's data*

Target word	Gloss	Phonetic form	Child form	Age
Schokolade	‚chocolate'	/ˌʃokoˈlaːdə /	[ˌsokoˈlaːdə]	2;0.17
Lokomotive	‚locomotive'	/ˌlokomoˈtiːvə /	[ˌlɔkaˈtiːfə], [ˌlɔkaˈti̥və]	1;11.03
			[ˌlɔkəˈtʰiːvə]	1;11.13

(81) *Stage 3, realization of sWSW and sWWSW targets as bipedal output in Eleonora's data*

Target word	Gloss	Phonetic form	Child form	Age
Schokolade	‚chocolate'	/ˌʃokoˈlaːdə /	[ˌkχʊkəˈladə]	1;10.19
Ventilator	‚ventilator'	/ ˌvɛntiˈlaːtɔɐ /	[ˌvɛntiˈlaːto͡ɐ]	1;10.25

(82) *Stage 3, realization of sWSW and sWWSW targets as bipedal output in Sandra's data*

Target word	Gloss	Phonetic form	Child form	Age
Michaela	proper name	/ ˌmɪçaˈʔeːla /	[ˌmɪçəˈæːla]	1;08.21
			[ˌmɪçəˈʔeːla]	1;09.06
			[ˌmɪçaˈʔeːla]	1;11.0

The slightly different ranking in Nele's grammar of Stage 3 does not affect the candidate selection. Like the other three children, Nele realizes sWSW words in a target-like way at Stage 3 (83):

(83) *Stage 3, realization of sWSW and sWWSW targets as bipedal output in Nele's data*

Target word	Gloss	Phonetic form	Child form	Age
Elefanten	‚elephant' (pl.)	/ ˌʔeləˈfantən /	[ˌʔelɛˈfantn̩]	2;0.02
Schokolade	‚chocolate'	/ˌʃokoˈlaːdə /	[ˌlɔkəˈlaːlə]	1;11.25
			[ˌlɔkəˈlalə]	2;0.02
			[ˌlʊkəˈlaːlə]	2;0.19

By contrast, sWWSW words still undergo truncation of the medial unfpooted syllable. Table 6-23 illustrates that the fully faithful candidate a. incurs a violation of PARSE-σ and is ruled out. Candidate b., truncating the medial unfooted syllable optimally satisfies the ranking and is selected as the winner. Candidate c. illustrates that it is impossible to parse the medial syllable into a separate foot because it violates the ban against adjacent heads, NOCLASH. Likewise, a monosyllabic initial foot is ruled out by NOCLASH. And finally, candidate d, truncated to a bisyllabic output, is eliminated due to the multiple violations of MAX-σ.

Table 6-23. The evaluation of simplex sWWSW words at Stage 3

Input: / [(ˌLo.ko)$_F$ mo (ˈti.ve)$_F$]$_{PW}$ /	NOCLASH	PARSE-σ	MAX-σ	ALIGNLEFT
a. [(ˌLo.ko)$_F$ mo (ˈti.ve)$_F$]$_{PW}$		*!		**
b. ☞ [(ˌLo.ko)$_F$ (ˈti.ve)$_F$]$_{PW}$			*mo	**
c. [(ˌLo.ko)$_F$ (ˌmo)$_F$ (ˈti.ve)$_F$]$_{PW}$	*!			***
c. [(ˌLo)$_F$ (ˈti.ve)$_F$]$_{PW}$	*!		*ko	*
d. [(ˈti.ve)$_F$]$_{PW}$			**!* mo, ti, ve	

The following data in (84), repeated from (80), illustrate that the children indeed truncate the medial syllable at a certain stage. Unfortunately, due to the infrequency of sWWSW words, instances indicative of Stage 3 are found only in the database of Wiglaf.

(84) Stage 3: Realization of sWWSW targets as bipedal output in Wiglaf's data

Target	Gloss	Phonetic form	Child form	Age
Lokomotive	‚locomotive‘	/ˌlokomoˈtiːvə /	[ˌlɔkaˈtiːfə], [ˌlɔkaˈti̞və]	1;11.03
			[ˌlɔkəˈtʰiːvə]	1;11.13

6.5.5 Stage 4

The outranking of PARSE-σ at Stage 4 does not predict a change in the production pattern of sWSW words. With respect to sWWSW words, it predicts that the medial weak syllable will now be maintained. In Table 6-24 below, I only illustrate the predictions for sWWSW words.

The faithful candidate a. optimally satisfies the ranking. Truncation violates MAX-σ leading to the elimination of candidates b., c. and e. Again, the output cannot be repaired to a tripedal output (candidate c.) because the repair violates ALIGNLEFT. Hence, candidate d. is ruled out as well. Note that candidates c. and d. are also eliminated due to their violations of NOCLASH which is not depicted in the table.

Due to the scarcity of sWWSW words in the database, there is no empirical evidence supporting the analysis.

Table 6-24. The evaluation of simplex sWWSW words at Stage 4

Input: / [(ˌLo.ko)$_F$ mo (ˈti.ve)$_F$]$_{PW}$ /	MAX-σ	ALIGNLEFT	PARSE-σ
a. ☞ [(ˌLo.ko)$_F$ mo (ˈti.ve)$_F$]$_{PW}$		**	*!
b. [(ˌLo.ko)$_F$ (ˈti.ve)$_F$]$_{PW}$	*!mo	**	
c. [(ˌLo.ko)$_F$ (ˌmo)$_F$ (ˈti.ve)$_F$]$_{PW}$		*!**	
d. [(ˌLo)$_F$ (ˈti.ve)$_F$]$_{PW}$	*!ko	*	
e. [(ˈti.ve)$_F$]$_{PW}$	*!** mo, ti, ve		

To summarize, the ranking predicts that sWSW and sWWSW survive as bisyllabic trochees at Stage 1 and 2. The words are still truncated to a single trochee at Stage 3" in Nele's grammar. That is, the demotion of NONRECURSIVITY at Stage 2 and of TROCHEE at Stage 3" does not change the prosodic shape of the output. At Stage 3 the children permit bipedal outputs, and sWSW words emerge in a target-like way. At the same time, the children still omit the medial unfooted syllable in sWWSW words. The unfooted syllable is produced at Stage 4.

6.6 Summary and discussion: Simplex words

This section investigated the predictions of the re-ranking for different prosodic target shapes and supported them by empirical data. The proposed path of re-ranking and its consequences for different target shapes is summarized below.

6.6.1 Stage 1

NONRECURSIVITY, LXWD ≈ PRWD, ALIGNLEFT, TROCHEE, PARSE, NOCLASH >> FAITHSTRESS >> MAX-σ

Due to the ranking of structural over faithfulness constraints, outputs are limited to a single foot. The children consistently select the main-stressed syllable from simplex words.[36] If the target word bears final main stress, the output is systematically reduced to the final syllable. If there is a weak syllable right-adjacent to the main-stressed one, it is preserved as well. Words with penultimate main stress are thus realized as bisyllabic trochees.

Variation is observed in SWW words. Consistent with findings from the literature, segmental properties of the input syllable influence the output (e.g. Pater and Paradies 1996, Kehoe 1999/2000). There seems to be a preference to maintain the word-final weak syllable if the onsets of both weak syllables are identical with respect to their sonority. The preference for final syllables is functionally explained by their higher prosodic prominence. Formally, this is accounted by RIGHT-ANCHOR, a constraint requiring the preservation of the right edge of the prosodic word. The constraint is vacuously satisfied by words with final or prefinal stress. If the two weak syllables differ with respect to their sonority, the children select the syllable with the less sonorous onset. This explains why the pattern of content preservation varies in a systematic way in SWW words.

[36] Remember that pseudo-compounds are disregarded in this section.

6.6.2 Stage 2

LXWD ≈ PRWD, ALIGNLEFT, TROCHEE, PARSE, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY

The demotion of NONRECURSIVITY at Stage 2 does not change the prosodic outcome of simplex words. Like at Stage 1, all simplex words are truncated to a single monosyllabic foot if the target word is stress-final, and to a bisyllabic foot otherwise.

6.6.3 Stage 3”

LXWD ≈ PRWD, ALIGNLEFT, PARSE-σ, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY >> TROCHEE

Only Nele shows an intermediate stage where TROCHEE is demoted. The ranking predicts asymmetries in the production pattern: Simplex WS and sWS words are realized as bisyllabic iambs. By contrast, words with penultimate main stress survive as bisyllabic trochees. These words are not affected by the re-ranking at Stage 3”.

6.6.4 Stage 3

In the following Stage 3, ALIGNLEFT is demoted. The grammars of Wiglaf, Eleonora and Sandra show the following ranking:

LXWD ≈ PRWD, TROCHEE, PARSE-σ, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY >> ALIGNLEFT

As Nele already demoted TROCHEE at Stage 3”, her grammar looks as follows after the demotion of ALIGNLEFT:

LXWD ≈ PRWD, PARSE-σ, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY >> TROCHEE >> ALIGNLEFT

Again, truncated and non-truncated outputs do coexist at Stage 3. In addition, the different hierarchies at Stage 3 predict slightly different inter-individual output patterns. It is common for all children to realize target bipedal words with two feet at Stage 3. Truncation affects initial unfooted syllables only in the data of Wiglaf, Eleonora and Sandra. By contrast, due to the demotion of TROCHEE, Nele truncates WSW words to SW but realizes WS words in their target-like rhythmic pattern WS. Note that she did not acquire the target-like shape of WS words (i.e., $[W(S)_F]_{PW}$) at Stage 3" because unfooted syllables are footed with the strong one to $[(WS)_F]_{PW}$).

Word-medial unfooted syllables are truncated by all children at Stage 3. SWW words, by contrast, survive as bipedal outputs in the grammars of the four children. Hence, the position of the unfooted syllable determines if there is truncation or repair to two feet. Truncation is found in initial or word-medial position, repair to two feet if the unfooted syllable is word-final.

6.6.5 Stage 4

LXWD ≈ PRWD, TROCHEE, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY>> ALIGNLEFT >> PARSE-σ

Due to the demotion of PARSE-σ, unfooted syllables emerge at Stage 4. Wiglaf, Sandra and Eleonora now realize the initial unfooted syllables in WS and WSW targets, Nele does so in WSW words. All children are predicted to maintain the medial unfooted syllable in sWWSW words.

Table 6-25 summarizes the prosodic development of simplex words in German. Bold letters indicate the Stage at which the children acquired the target-like shape.

Table 6-25: The prosodic development of simplex words

	WS	sWS	WSW	SWW	sWSW	sWWSW
Stage 1	S	S	SW	SW	SW	SW
Stage 2	S	S	SW	SW	SW	SW
Stage 3”: Nele	WS	WS	SW	SW	SW	SW
Stage 3:		**sWS**	SW	SWs	**sWSW**	sWSW
Nele	**WS**					
Wiglaf, Sandra, Eleonora	S					
Stage 4	**WS**	sWS	**WSW**	**SWW**	sWSW	**sWWSW**

In conclusion, the data are consistent with the view that the input prosodic organization influences the output. In particular, this is striking at Stage 3, where bipedal outputs of simplex words coexist with monopedal ones. Whether or not a target word undergoes truncation depends on the prosodic organization of the target word. Likewise, the prosodic structure of the target word determines whether in Nele’s Stage 3” outputs survive as an iambic or as a trochaic form.

The acquisition pattern is mostly in line with findings from child Dutch and English. The early shape restriction to a single foot is consistent with formal accounts of template mapping (Fikkert 1994 for Dutch, Gerken 1991, 1994 for English), but also with input-output correspondence accounts (cf. Demuth 1995, 1996b, Pater and Paradis 1996, Pater 1997, Kehoe 1999/2000 for English, Adam 2002 for Hebrew). Germanic languages, among them German, take the trochaic foot as an unmarked prosodic word, and many phonological processes refer to the foot as their prosodic domain. Therefore, it is not surprising that German children reduce longer words to a single foot at the early stages.[37]

Given the importance of the (bisyllabic) trochee in German, it is an open question which factors induce Nele to create iambic feet at Stage 3”. Remember that bisyllabicity is *required* by the ranking at Stage 3”. As the target stressed syllable has to be maintained in its prosodic role in the output, Nele produces bisyllabic trochees and iambs in parallel at Stage 3”. This cannot be explained by linguistic unmarkedness because there is no iambic foot in adult German. Also,

[37] For example, no evidence for a single foot was found in child Portuguese, a Romance language (Santos 2003, 2005 for Brazilian Portuguese, Vigário et al. 2006 for European Portuguese)

the typical German word is a trochee, hence Nele's iambs cannot arise from a high word shape frequency.

Although it cannot be ultimately determined where Nele's iambs arise from, it is clear that the iambs form a kind of 'last resort' to save otherwise ill-formed structure. Iambs only appear if the ranking rules out the construction of trochees. Parsing the final two syllables from WS and sWS words as iambic output, Nele avoids unfooted syllables and maintains more material from the input than at the previous stage. Remember that at Stages 1 and 2, WS and sWS words survive as monosyllables. I have shown in the constraint-based analysis that Nele's production pattern can be easily explained assuming a slightly different way of constraint re-ranking.

6.6.6 Stress shifts to the left in bipedal words?

In contrast to earlier models of prosodic development (Fikkert 1994, Kehoe 1999/2000), the present analysis does not assume a bipedal stage with obligatory word-initial stress. Formally, this could be accounted for by a high-ranked constraint LEFTMOSt, requiring the realization of main stress on the leftmost foot or syllable. Given that OT-learning algorithms allow for individual courses in their re-rankings, a stage of obligatory stress shifts is predicted by the theoretical model. Empirically, however, stress shifts are rare in bipedal outputs, and they cannot quantitatively define a developmental stage (Kehoe 1999/2000). Nevertheless, previous models proposed that stress shifts are systematic despite their sparse empirical support.

In the German data, stress shifts to the left are extremely rare in bipedal outputs. Thus, I did not regard stress shifts as a systematic pattern in the grammars of the children analyzed. However, it should be emphasized that, investigating other children or a dense database, stress shifts might be systematic in the acquisition of German, too.

6.6.7 The pattern of content preservation

There is an ongoing discussion in the literature with respect to two questions. First, it is an unresolved issue if children select the main-stressed or the rightmost stressed syllable from simplex words. In regularly stressed German words, the main-stressed syllable coincides with the rightmost stressed one. Irregular antepenultimate stress is found in SWW words but these words lack secondary stress. Hence, the simplex words of the database cannot contribute to the discussion about the preservation of the head syllables.

The second issue is which weak syllable children select in SWW words at the single foot stage. Some studies report that they produce the weak syllable right-adjacent to the stressed one (Fikkert 1994, Gerken 1996). Other researchers observed a preference towards the rightmost weak syllable (Pater and Paradies 1996, Pater 1997, Kehoe 1999/2000, Adam 2002). In addition, segmental properties of the syllable onsets influence the preservation pattern. The data of the present study are in line with the latter position. The children tend to preserve the final syllable if both weak syllables have obstruent onsets and the weak syllable with the obstruent onset if there is a sonorant and an obstruent onset. Thus, *'Paprika* 'pepper' survives as [ˈp^{h}ak^{h}a] (Nele, 1;11.0) but *'Radio* 'radio' as [ˈha͡ʊdi] (Nele, 1;08.29). The apparent variation can be accounted for by the interaction of prosodic prominence and segmental features. However, for German the evidence is rather tentative due to the low number of truncated SWW words in the database.

6.6.8 The role of the target prosodic structure of simplex words

The optimality-theoretic analysis predicts different output prosodic shapes, depending on the structure of the input. At Stages 1 and 2, outputs are monosyllabic or bisyllabic, depending on the position of the input stressed syllable. At the latter stages, truncated and non-truncated outputs coexist. Whether a target word is truncated or not depends on its number of syllables and the position of the stressed syllable. In other words, the input prosodic organization determines whether the output survives in a truncated or non-truncated way. The asymmetries result from the interaction of structural and faithfulness constraints. Due to the increasing role of faithfulness constraints over time, the correspondence between input and output form does not increase.

Faithfulness constraints already influence the structure of the output at Stage 1, a time when they are fully dominated by structural constraints. This is consistent with the tenets of Optimality Theory. Faithfulness constraints ensure that the stressed and a post-tonic weak syllable of the input survive in the output and thus they essentially determine the pattern of content preservation. Prosodic size and shape restrictions result from the structural constraints.

The empirical data suggest that the children distinguish simplex words by their target prosodic structure. The children do not randomly truncate syllables, but respect the internal prosodic parsing into syllables and feet when truncating simplex words.

With regard to simplex words, it can be concluded that the prosodic structure of the target form essentially determines the shape of the output. Children maintain a correspondence between input and output as far as possible. The findings clearly support optimality-theoretic accounts proposing that children (and adults) store phonological representations in a fully specified way.

We will see in the next section that the production pattern of compounds and pseudo-compounds also supports the correspondence account.

7 Predictions for compounds

7.1 Introduction

This section examines whether the ranking proposed in section X. also correctly predicts the production pattern of compounds. It was shown earlier in this thesis that trisyllabic SW-s and S-sW compounds are initially truncated to a single foot. Interestingly, the reduction to a monopedal form still persists at a time when compounds are already produced with two feet. I have demonstrated in sections X and X. that a single ranking can account for the production pattern of simplex words and of trisyllabic SW-s and S-sW compounds. The question addressed in this section is to what extent the assumed grammars also explain the pattern of quadrisyllabic compounds and of compounds containing longer constituents. In addition, I will examine the predictions for pseudo-compounds.

The section is organized as follows: Subsection 7.2 is concerned with the development of quadrisyllabic SW-sW-compounds. Subsection 7.3 concentrates on compounds containing bipedal constituents. Compounds containing constituents with unfooted syllables are analyzed in subsection 7.4. Subsection 7.5 investigates to what extent the presumed re-rankings account for the production pattern of pseudo-compounds. Finally, subsection 7.6 provides a summary and discussion of the analysis of compounds and pseudo-compounds.

7.2 Quadrisyllabic compounds

7.2.1 Stage 1

The assumed ranking NonRecursivity, LxWd ≈ PrWd, AlignLeft, Trochee, Parse, NoClash >> FaithStress >> Max-σ predicts that a truncated candidate is selected at Stage 1. Table 7-1 illustrates the evaluation of the candidates by reference to the example *Gummi-bärchen* ‘gummi bear’.

The fully faithful candidate a. fatally violates the high-ranked markedness constraint NonRecursivity and is ruled out. As illustrated by candidate b., the children cannot ban recursivity by parsing the constituents into two feet. This is due to AlignLeft which militates against bipedal outputs. For SW-sW compounds, the ranking predicts two optimal candidates, the initial and the final constituent (candidates c. and d.). Both candidates incur two violations of MAX-σ.

Table 7-1. The evaluation of SW-sW compounds at Stage 1.

Input: /[[(ˈgum.mi) $_F$]$_{PW}$ [(ˌbär.chen)$_F$]$_{PW}$]$_{PW}$ /	NONREC	ALIGNLEFT	MAX-σ
a. [[(ˈgum.mi) $_F$]$_{PW}$ [(ˌbär.chen)$_F$]$_{PW}$]$_{PW}$	*!		
b. [(ˈgum.mi) $_F$ (ˌbär.chen)$_F$]$_{PW}$		*!*	
c. ☞ [(ˈgum.mi) $_F$]$_{PW}$			** bär, chen
d. ☞ [(ˈbär.chen)$_F$]$_{PW}$			** gum, mi

Truncation of quadrisyllabic compounds is infrequent in the database; altogether, there are six instances produced by Sandra and Eleonora. As either constituent forms a bisyllabic foot, the variation reflects the individual preservation strategies of the children. Sandra preserves the initial constituent from quadrisyllabic compounds and truncates the second constituent as depicted in (85):

(85) Stage 1, truncation of the second constituent in SW-sW compounds in Sandra's data

Target word	Gloss	Phonetic form	Child form	Age
Nagel-schere	'nail scissors'	/ˈnaːgəlˌʃeːʁə/	[ˈnakə]	1;09.06
Gummi-bärchen	'gummi bear'	/ˈgʊmiˌbæːʁçən/	[ˈgʊmi], [ˈgʊmi], [ˈgʊmi]	1;10.19

In contrast to Sandra, Eleonora maintains the final constituent of quadrisyllabic compounds (86).

(86) Stage 1, truncation of the first constituent in SW-sW compounds in Eleonora's data

Target word	Gloss	Phonetic form	Child form	Age
Puppen-wagen	'doll's pram'	/ˈpʊpənˌvaːgən/	[ˈʋakŋ]	1;07.15
Gummi-bärchen	'gummi bear'	/ˈgʊmiˌbæːɐçən/	[ˈpæçɪn]	1;09.09

7.2.2 Stage 2

Due to the demotion of NONRECURSIVITY at Stage 2, SW-sW compounds emerge in a target-like way with two prosodic words. Table 7-2 illustrates the candidate evaluation under the presumed ranking of ALIGNLEFT >> MAX-σ >> NONRECURSIVITY. The new ranking renders the fully faithful candidate a. to be the optimal one as it only incurs a violation of low-ranked NONRECURSIVITY. High-ranked ALIGNLEFT still bans bipedal outputs such that candidate b. is eliminated. The truncated candidates c. and d. are eliminated due to their violations of MAX-σ.

Table 7-2. The evaluation of SW-sW compounds at Stage 2

Input: /[[(ˈgum.mi) $_F$]$_{PW}$ [(ˌbär.chen)$_F$]$_{PW}$]$_{PW}$ /	ALIGNLEFT	MAX-σ	NONREC
a. ☞ [[(ˈgum.mi) $_F$]$_{PW}$ [(ˌbär.chen)$_F$]$_{PW}$]$_{PW}$			*
b. [(ˈgum.mi) $_F$ (ˌbär.chen)$_F$]$_{PW}$	*!*		
c. [(ˈgum.mi) $_F$]$_{PW}$		*!* bär, chen	
d. [(ˈbär.chen)$_F$]$_{PW}$		*!* gum, mi	

The examples provided in (87) from Wiglaf's database support the analysis.

(87) Stage 2, target-like production of quadrisyllabic compounds in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Unter-hose	'underpants	/ˈʔʊntəɐˌhoːzə/	[ˈʔʊntaˌhɤzə]	1;10.28
Oster-hase	'easter bunny'	/ˈʔoːstəɐˌhaːzə/	[ˈʔoːstaˌhasə]	1;10.13
Bade-hose	'bathing trunks'	/ˈbaːdəˌhoːzə/	[ˈbaːdəˌhoːzə]	1;10.28

Target-like instances of quadrisyllabic compounds are found in the databases of Sandra (88), Nele (89) and Eleonora (90), too:

(88) Stage 2, target-like production of quadrisyllabic compounds in Sandra's data

Target	Gloss	Phonetic form	Child form	Age
Mietze-katze	'pussy cat'	/ˈmiːt͡səˌkat͡sə /	[miːtəˌhœt͡sɛ]	1;10.0
Gummi-bärchen	'gummi bear'	/ˈgʊmiˌbæːɐçən	[ˈgʊmɪçˌbeçn̩]	1;10.19
Tannen-zapfen	'fir cone'	/ˈtanənˌt͡sap͡fən /	[ˈtʰanəˌhapm̩]	1;10.19
Butter-blume	'buttercup'	/ ˈbʊtəɐˌbluːmə /	[ˈpʊtəˌpluːmə]	1;11.0

(89) Stage 2, target-like production of quadrisyllabic compounds in Nele's data

Target word	Gloss	Phonetic form	Child form	Age
Apfel-schorle	'apple spritzer	/ ˈʔap͡fəlˌʃɔɐlə /	[ʔapəˌs͡ɔɐlə]	2;0.19
Katzen-babies	'baby cats'	/ ˈkat͡sənˌbeːbis/	[ˈkʰatiˌbebis]	1;11.0
Kuschel-hase	‚cuddly bunny'	/ ˈkʊʃəlˌhaːzə /	[ˈkʊtiˌhali], [ˈkɯtiˌhaːzə]	1;11.04
Rasen-mäher	'lawn-mower'	/ ˈʁaːzənˌmæːhəɐ /	[ˈdaziˌmeːɐ]	1;11.04

(90) Stage 2, target-like production of quadrisyllabic compounds in Eleonora's data

Target word	Gloss	Phonetic form	Child form	Age
Affen-baby	'baby monkey'	/ ˈʔafənˌbebi /	[ˈʔa̠fm̩ˌbibi]	1;10.25
Tausend-füßler	'centipede'	/ ˈt͡aʊzəntˌfyːsləɐ /	[ˈtʰ͡aʊsəˌtʰyːsɐ]	1;10.25

7.2.3 Stages 3 and 4

The re-rankings at Stages 3 and 4 do not change the prosodic shape of the output of SW-sW compounds. I briefly outline the re-rankings at these stages below. Table 7-3 illustrates that the fully faithful candidate a. remains the optimal one under the new ranking. The parsing of SW-sW compounds into bipedal structure as shown by candidate b. should in principle be possible after the demotion of ALIGNLEFT. However, it violates high-ranked LXWD ≈ PRWD, because the minor lexical words do not correspond to prosodic words. Thus, candidate b. is eliminated. Like at Stage 2, truncation incurs fatal violations of the faithfulness constraint MAX-σ. Therefore, candidates c. and d. are ruled out.

Table 7-3. The evaluation of SW-sW compounds at Stage 3

Input: /[[(ˈgum.mi) $_F$]$_{PW}$ [(ˌbär.chen)$_F$]$_{PW}$]$_{PW}$ /	LXWD ≈ PRWD	MAX-σ	NONREC	ALIGNLEFT
a. ☞ [(ˈgum.mi) $_F$]$_{PW}$ (ˌbär.chen)$_F$]$_{PW}$]$_{PW}$			*	
b. [(ˈgum.mi) $_F$ (ˌbär.chen)$_F$]$_{PW}$	*!			**
c. [(ˈgum.mi) $_F$]$_{PW}$		*!* bär, chen		
d. [(ˈbär.chen)$_F$]$_{PW}$		*!* gum, mi		

At Stage 4, PARSE-σ is demoted, which means that unfooted syllables are now permitted. Note that SW-sW compounds do not contain unfooted syllables so that the constraint is vacuously satisfied. As depicted in Table 7-4 below, the re-ranking at Stage 4 cannot affect the outcome of SW-sW compounds.

Table 7-4. The evaluation of SW-sW-compounds at Stage 4

Input:/[(ˈgum.mi)$_F$]$_{PW}$ [(ˌbär.chen)$_F$]$_{PW}$]$_{PW}$ /	LXWD ≈ PRWD	MAX-σ	NONREC	ALIGNLEFT	PARSE-σ
a. ☞ [(ˈgum.mi) $_F$]$_{PW}$ [(ˌbär.chen)$_F$]$_{PW}$]$_{PW}$			*		
b. [(ˈgum.mi) $_F$ (ˌbär.chen)$_F$]$_{PW}$	*!			**	
c. [(ˈgum.mi) $_F$]$_{PW}$		*!* bär, chen			
d. [(ˈbär.chen)$_F$]$_{PW}$		*!* gum, mi			

So far, this subsection has shown that the proposed re-ranking can account for the production pattern of compounds containing monopedal constituents. At Stage 1, SW-sW compounds are truncated to a single bisyllabic constituent. As both constituents satisfy the ranking, the children consistently applied additional strategies in the pattern of content preservation. At Stage 2, the children permitted recursive structure, thus realizing SW-sW compounds in a target-like way. The demotion of ALIGNLEFT at Stage 3 and of PARSE-σ at Stage 4 did not change the internal structure of SW-sW compounds. We can thus conclude that SW-sW compounds are mastered at Stage 2, when they first emerge with recursive prosodic structure.

In the next subsection, I show that the re-ranking at Stage 3 does affect the pattern of a certain type of compounds, namely compounds containing bipedal constituents.

7.3 Compounds containing bipedal constituents

In this subsection, I analyze compounds containing bipedal constituents. Since they occur very infrequently in the database, I combine different shapes, often containing very few tokens. These are sWSW-s (e.g., *ˌSchokoˈladen-ˌeis* 'chocolate ice cream'; Wiglaf, 1 token), sWS-SW (e.g., *ˌPoliˈzei-ˌauto* 'police car'; Wiglaf, 1 token), SWs-sW (e.g., *ˈFeuerˌwehr-ˌauto* 'fire engine'; Wiglaf and Nele, 5 tokens) and SW-sWsW compounds (*ˈFieber-ˌthermoˌmeter* 'clinical thermometer', Sandra, 17 tokens). The subsection aims to show that the re-rankings affect these bipedal constituents in the same way. In the OT-analysis, I exemplify the production pattern by the most frequent compound *Fieber-thermometer* 'clinical thermometer', where the second constituent comprises two feet.

7.3.1 Stage 1

As has been demonstrated for the other prosodic shapes, the ranking predicts truncation to a single foot at Stage 1. Table 7-5 illustrates that non-truncated candidates such as a. and b. are ruled out due to their fatal violations of NONRECURSIVITY and ALIGNLEFT. Like in quadrisyllabic SW-sW compounds, the ranking predicts more than one optimal candidate. The table shows that the initial constituent (candidate c.) and the final foot (candidate d.) equally satisfy the ranking. Note that a further candidate [(ther.mo)$_F$]$_{PW}$, not depicted in Table 7-5, would be optimal, too.

Table 7-5. The evaluation of compounds comprising bipedal constituents at Stage 1

Input: /[[(ˈfie.ber) $_F$]$_{PW}$ [(ˌther.mo)$_F$ (ˌme.ter)$_F$]$_{PW}$]$_{PW}$ /	NONREC	ALIGNLEFT	MAX-σ
a. [[(ˈfie.ber) $_F$]$_{PW}$ [(ˌther.mo)$_F$ (ˌme.ter)$_F$]$_{PW}$]$_{PW}$	*!		
b. [(ˈfie.ber) $_F$ (ˌther.mo)$_F$ (ˌme.ter)$_F$]$_{PW}$		*!*, *!***	
c. ☞ [(ˈfie.ber) $_F$]$_{PW}$			**** ther, mo, me, ter
d. ☞ [(ˈme.ter)$_F$]$_{PW}$			**** fie, ber, ther, mo

Of those compounds containing bipedal constituents, only *Fieber-thermometer* 'clinical thermometer' is truncated to a single foot. The compound is produced by Sandra. Sandra realizes eleven truncated instances at age 1;08.14 consistently preserving the first constituent *Fieber*. This coincides with her strategy to select the first constituent of SW-sW compounds (see (85) above).

(91) Stage 1, truncation of the second constituent in Fieber-thermometer *in Sandra's data*

Target word	Gloss	Phonetic form	Child form	Age
Fieber-thermometer	'clinical thermometer'	/ˈfiːbəʁˌtɛʁmoˌmeːtəʁ /	[ˈtibə], [ˈdibɛ], [ˈbiːba]	1;08.14

7.3.2 Stage 2

The demotion of NONRECURSIVITY at Stage 2 predicts that prosodic words survive with two constituents. The bipedal constituent is truncated to a single foot.

Table 7-6 illustrates that non-truncated outputs cannot be optimal because they fatally violate ALIGNLEFT (candidates a. and b.). Truncation to a single foot leads to exclusion, too because MAX-σ is fatally violated. The optimal candidate c. maintains one foot from each constituent.

Table 7-6. The evaluation of compounds containing bipedal constituents at Stage 2

Input: /[[(ˈfie.ber)$_{F}$]$_{PW}$ [(ˌther.mo)$_{F}$ (ˌme.ter)$_{F}$]$_{PW}$]$_{PW}$ /	ALIGNLEFT	MAX-σ	NONREC
a. [[(ˈfie.ber)$_{F}$]$_{PW}$ [(ˌther.mo)$_{F}$ (ˌme.ter)$_{F}$]$_{PW}$]$_{PW}$	*!*		*
b. [(ˈfie.ber)$_{F}$ (ˌther.mo)$_{F}$ (ˌme.ter)$_{F}$]$_{PW}$	*!*, *!***		
c. ☞ [[(ˈfie.ber)$_{F}$]$_{PW}$ [(ˌme.ter)$_{F}$]$_{PW}$]$_{PW}$		** ther, mo	*
d. [(ˈfie.ber)$_{F}$]$_{PW}$		***!* ther, mo, me, ter	

The database contains eight instances of compounds with bipedal constituents indicative of Stage 2. The examples provided in (92) illustrate that the children in fact selected a foot from each constituent. From the bipedal constituents *–ˌthermoˈmeter*, *ˌSchokoˈladen-* and *ˈFeuerˌwehr-*, they maintained the main-stressed feet (meter)$_{F}$, (laden)$_{F}$, and (feuer)$_{F}$. This corresponds to the content preservation observed in simplex words and supports the position that the children analyze the constituents as independent morphological and prosodic words.

(92) *Stage 2, truncation of compounds containing bipedal constituents in Sandra's and Wiglaf's data*

Target word	Gloss	Phonetic form	Child form	Name, age
Fieber-thermometer	'clinical thermometer'	/ˈfiːbəʁˌtɛʁmoˌmeːtəʁ/	[ˈpiːpəˌmʉːdi]	Sandra, 1;08.14
			[ˈbiːbaˌmɯːti]	1;08.21
Schokoladen-eis	'chocolate ice cream'	/ˌʃokoˈlaːdənˌʔa͡ɪs/	[ˈlaːxŋ̩ˌʔa͡ɪs]	Wiglaf, 1;10.28
Feuerwehr-auto	'fire engine'	/ ˈf͡ɔɪəʁˌveːʁˌʔa͡ʊto /	[ˈf͡ɔɪjaˌʔa͡ʊtɤ]	Wiglaf, 1;10.28

7.3.3 Stage 3

At Stage 3, ALIGNLEFT is demoted. Now, truncation of bipedal constituents is ruled out, and the constituents survive in their target-like way. Table 7-7 illustrates that the fully faithful candidate a. is the winner with the aid of the example *Fieber-thermometer*. Candidate b. satisfies

NONRECURSIVITY at the cost of LXWD ≈ PRWD. This leads to its exclusion. The truncated candidates c. and d. fatally violate MAX-σ and are therefore eliminated.

Table 7-7. The evaluation of compounds containing bipedal constituents at Stage 3.

Input: /[[(ˈfie.ber)$_F$]$_{PW}$ [(ˌther.mo)$_F$ (ˌme.ter)$_F$]$_{PW}$]$_{PW}$/	LXWD ≈ PRWD	MAX-σ	NONREC	ALIGNLEFT
a. ☞ [[(ˈfie.ber)$_F$]$_{PW}$ [(ˌther.mo)$_F$ (ˌme.ter)$_F$]$_{PW}$]$_{PW}$			*	**
b. [(ˈfie.ber)$_F$ (ˌther.mo)$_F$ (ˌme.ter)$_F$]$_{PW}$	*!*			**, ****
c. [[(ˈfie.ber)$_F$]$_{PW}$ [(ˌme.ter)$_F$]$_{PW}$]$_{PW}$		*!* ther, mo	*	
d. [(ˈfie.ber)$_F$]$_{PW}$		*!*** ther, mo, me, ter		

The majority of compounds containing bipedal constituents are consistent with Stages 1 and 2. Therefore, empirical evidence for the analysis is scarce. The database unfortunately does not contain a faithful instance of *Fieber-thermometer* 'clinical thermometer' but there is another example, *Polizei-auto* 'police car', in Wiglaf's recordings that supports the analysis (93):

(93) *Stage 3, target-like realization of compounds containing bipedal constituents in Wiglaf's data*

Target word	Gloss	Phonetic form	Child form	Age
Polizei-auto	'police car'	/ˌpoliˈt͡saɪ̯ˌʔa͡ʊto/	[ˌboliˈsa͡ɪˌʔa͡ʊtɤ]	1;11.23

7.3.4 Stage 4

As there are no unfooted syllables in the compound shapes under consideration, the demotion of PARSE-σ at Stage 4 has no further effect on the output. Table 7-8 shows that PARSE-σ is vacuously satisfied by these types of compounds.

Table 7-8. The evaluation of compounds containing bipedal constituents at Stage 4.

Input: /[[(ˈfie.ber) $_F$]$_{PW}$ [(ˌther.mo)$_F$ ˌme.ter)$_F$]$_{PW}$]$_{PW}$ /	LXWD ≈ PRWD	MAX-σ	NON REC	ALIGN LEFT	PARSE-σ
a. ☞ [[(ˈfie.ber) $_F$]$_{PW}$ [(ˌther.mo)$_F$ (ˌme.ter)$_F$]$_{PW}$]$_{PW}$			*	**	
b. [(ˈfie.ber)$_F$ (ˌther.mo)$_F$ (ˌme.ter)$_F$]$_{PW}$	*!*			**, ****	
c. [[(ˈfie.ber) $_F$]$_{PW}$ [(ˌme.ter)$_F$]$_{PW}$]$_{PW}$		*!* ther, mo	*		
d. [(ˈfie.ber) $_F$]$_{PW}$		*!*** ther, mo, me, ter			

To summarize the results so far, the constraint-based analysis predicts that compounds containing a bipedal constituent undergo truncation to a single foot at Stage 1. Although the database is small, there is empirical evidence for Stage 1. At Stage 2, the demotion of NONRECURSIVITY predicts that the children select one foot from each constituent. Stage 2 is also supported by the empirical data from Sandra's and Wiglaf's databases. At the following Stage 3, children demote ALIGNLEFT. In consequence, bipedal constituents are permitted. As the outranking of PARSE-σ at Stage 4 does not change the production pattern, it can be concluded that compounds containing bipedal constituents are mastered at Stage 3.

7.4 Compounds containing unfooted syllables

The last type of morphologically complex words considered in this thesis are compounds containing an unfooted syllable. The following analysis comprises a number of different prosodic shapes. These are S-Ws (e.g., ˈ*Luft-baˌllon* 'balloon', ˈ*Reiß-verˌschluss* 'zip'), WSW-WsW (e.g., *Kaˈssetten-reˌcorder* 'tape recorder'), WSW-Ws (e.g., *Toiˈletten-paˌpier* 'toilet paper'), WSW-s (*Koˈala-ˌbär* 'coala'), WSW-sW (e.g., *Toˈmaten-ˌsoße* 'tomato sauce').

7.4.1 Stage 1

The initial ranking of structural constraints over faithfulness constraints predicts that the compounds are reduced to a single foot. Although there is no empirical support for Stage 1 in the database, I exemplify what the evaluation of candidates would look like with reference to the compound *Toˈmaten-ˌsoße* 'tomato sauce'.

Table 7-9 shows that there are, again, two optimal candidates c. and d., which leaves room for individual preferences in the preservation pattern. The prediction is that Sandra selects candidate c. and Eleonora candidate d. Remember that the girls applied these strategies in SW-sW compounds and that Sandra preserved the initial constituent in *Fieber-thermometer* 'clinical thermometer', too.

Table 7-9. The evaluation of compounds containing unfooted syllables at Stage 1

Input: /[[to (ˈma.ten) $_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$ /	NONREC	ALIGNLEFT	MAX-σ
a. [[to (ˈma.ten) $_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$	*!	*!	
b. [(ˈma.ten)$_F$ (ˌso.ße)$_F$]$_{PW}$		*!*	* to
c. ☞ [(ˈma.ten) $_F$]$_{PW}$			*** to, so, ße
d. ☞ [(ˈso.ße)$_F$]$_{PW}$			*** to, ma, ten

7.4.2 Stage 2

Due to the demotion of NONRECURSIVITY at Stage 2, the compounds survive with two monopedal constituents. Table 7-10 shows that the fully faithful candidate a. cannot be the winner because the unfooted syllable incurs a fatal violation of ALIGNLEFT. Likewise, bipedal candidates such as c. are eliminated due to their violations of ALIGNLEFT. Candidates truncated to a single foot are ruled out because of their violations of MAX-σ (d. and e.).

Table 7-10. Stage 2, the evaluation of compounds containing unfooted syllables

Input: /[[to (ˈma.ten) $_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$ /	ALIGNLEFT	MAX-σ	NONREC
a. [[to (ˈma.ten)$_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$	*!		*
b. ☞ [[(ˈma.ten) $_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$		* to	*
c. [(ˈma.ten) $_F$ (ˌso.ße)$_F$]$_{PW}$	*!*	* to	
d. [(ˈma.ten) $_F$]$_{PW}$		**!* to, so, ße	
e. [(ˈso.ße)$_F$]$_{PW}$		**!* to, ma, ten	

Outputs consistent with Stage 2 are provided in (94):

(94) Stage 2, realizations of compounds containing unfooted syllables in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Luft-ballon	'balloon'	/ˈlʊftbaˌlɔŋ/	[ˈnʊfˌpɔŋ:]	2;0.11
Kehr-maschine	'road sweeper'	/ˈke:ɐmaˌʃi:nə/	[ˈge:ɐˌsi:mə], [ˈge:ɐˌsi:mə]	1;11.19
Kassetten-recorder	'tape recorder'	/kaˈsɛtənʁeˈkɔɐdəɐ/	[ˈsɪtnˌkɔɐda] [ˈsɛtn̩ˌkχɔ͡ɐdə]	1;11.13, 2;0.24

A few instances indicative of Stage 2 are found in Nele's and Sandra's databases (95). Eleonora did not produce compounds consistent with Stage 2.

(95) Stage 2, realizations of compounds containing unfooted syllables in Nele's and Sandra's data

Target word	Gloss	Phonetic form	Child form	Child, age
Koala-bär	'coala'	/ koˈʔa:laˌbæ:ɐ /	[ˈka:biˌpe:ɐ], [ˈka:baˌpe:ɐ]	Nele, 1;10.0,
Toiletten-papier	'toilet paper'	/toˈlɛtənpaˌpi:ɐ /	[ˈtɛtn̩ˌpi:]	Nele, 2;0.19
Tomaten-soße	'tomato sauce'	/ tɔˈma:tənˌzo:sə /	[ˈmatəˌs:ɔsə]	Sandra, 1;09.06

7.4.3 Stage 3”

Out of the four children, only Nele demotes TROCHEE at Stage 3”. In consequence, she permits bisyllabic trochaic and iambic prosodic words. For compounds containing unfooted syllables, the ranking at Stage 3” predicts that bisyllabic iambic constituents do not undergo truncation. I exemplify the effect of the re-ranking by the target word ˈ*Luft-baˌllon* ‘balloon’, which is in fact found in Nele’s database.

Table 7-11 illustrates that the adult-like parsing of the compound is impossible because it incurs a fatal violation of ALIGNLEFT (and, not depicted, of PARSE-σ). The ranking is optimally satisfied if the bisyllabic constituent is parsed as an iambic foot. This is the case with candidate b. Truncation of the unfooted syllable (candidate c.) or of more syllables (candidate d.) leads to the exclusion of the candidates because they fatally violate MAX-σ.

Table 7-11. Demotion of TROCHEE in Nele’s grammar at Stage 3”:

Input: /[[(ˈLuft) $_F$]$_{PW}$ [ba(ˌlon)$_F$]$_{PW}$]$_{PW}$ /	ALIGNLEFT	MAX-σ	NONREC	TROCHEE
a. [[(ˈLuft) $_F$]$_{PW}$ [ba (ˌlon)$_F$]$_{PW}$]$_{PW}$	*!		*	
b. ☞ [[(ˈLuft) $_F$]$_{PW}$ [(baˌlon)$_F$]$_{PW}$]$_{PW}$			*	*
c. [[(ˈLuft) $_F$]$_{PW}$ [(ˌlon)$_F$]$_{PW}$]$_{PW}$		*! Ba	*	
d. [(ˌlon)$_F$]$_{PW}$		*!* luft, ba		

Two instances of *Luft-ballon* ‘balloon’ support the predictions of the OT-analysis (96).[38]

[38] Note that the examples are also consistent with a rhythmic constraint as proposed in Gerken (1992, 1996) and Wijnen, Krijkhaar & den Os (1994). According to this view, the children would parse the input syllables of *Luft-ballon* into trochaic feet [(luft.ba)$_F$(lon)$_F$]$_{PW}$ across the morphological boundary. However, there is independent evidence against rhythmic constraints (Demuth 2001 a,b). Also, a rhythmic constraint cannot explain a) why Wiglaf truncated the weak syllable in Luft-ballon (see (94) above), and why Nele preserved the weak syllable in simplex WS targets (e.g., *Kaˈmel* ‘camel’) at Stage 3”, too.

(96) *Stage 3, realizations of compounds containing unfooted syllables in Nele's data*

Target word	Gloss	Phonetic form	Child form	Age
Luft-ballon	'balloon'	/ˈlʊftbaˌlɔŋ/	[ˈlapiˌla͡ʊm],	1;11.04
			[ˈlɤpɛˌpɔŋ]	2;0.19

7.4.4 Stage 3

Table 7-12 illustrates that each constituent of compounds such as *Toˈmaten-ˌsoße* 'tomato sauce' comprises a single foot at Stage 3. Despite the demotion of ALIGNLEFT, candidate a. is ruled out due to its violations of the top-ranked constraint PARSE-σ . The constraint militates against unfooted syllables. The table also shows that the children cannot preserve the initial unfooted syllable by parsing it into a foot because this incurs a fatal violation of high-ranked NOCLASH. The winning candidate c. incurs a violation of MAX-σ and NONRECURSIVITY. Candidate d., parsing the syllables into two feet, is ruled out because of its violations of LXWD ≈ PRWD. Finally, truncation to a single foot is impossible because it causes fatal violations of MAX-σ (candidate e.).

Table 7-12. The evaluation of compounds containing unfooted syllables at Stage 3

Input:/[[to (ˈma.ten)$_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$ /	PARSE-σ	NO CLASH	LXWD ≈ PRWD	MAX-σ	NONREC	ALIGNLEFT
a. [[to (ˈma.ten) $_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$	*!				*	*
b. [[ˌto]$_F$(ˈma.ten)$_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$		*!			*	*
c. ☞ [[(ˈma.ten)$_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$				* to	*	
d. [(ˈma.ten)$_F$ (ˌso.ße)$_F$]$_{PW}$				* to		**
e. [(ˈma.ten) $_F$]$_{PW}$				**!* to, so, ße		

As the demotion of ALIGNLEFT at Stage 3 does not cause a change in the output, the empirical evidence is identical to Stage 2 above.

7.4.5 Stage 4

At Stage 3, PARSE-σ and NOCLASH ensured that the unfooted syllable of *To'maten-ˌsoße* 'tomato sauce' is truncated. Due to the demotion of PARSE-σ at Stage 4, the fully faithful candidate a. in Table 7-13 optimally satisfies the ranking. Candidates b., c. and d. are ruled out due to their violations of NOCLASH and MAX-σ, respectively.

Table 7-13. The evaluation of compounds containing unfooted syllables at Stage 4

Input: /[[to ('ma.ten)$_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$ /	NO CLASH	MAX-σ	ALIGNLEFT	PARSE-σ
a. ☞ [[to ('ma.ten)$_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$			*	*
b. [(ˌto)$_F$('ma.ten)$_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$	*!		*	
c. [[('ma.ten)$_F$]$_{PW}$ [(ˌso.ße)$_F$]$_{PW}$]$_{PW}$		*! to		
d. [('ma.ten) $_F$]$_{PW}$		*!** to, so, ße		

A few instances from Sandra's database support the analysis:

(97) *Stage 4, target-like realizations of compounds containing unfooted syllables in Sandra's data*

Target word	Gloss	Phonetic form	Child form	Age
Luft-ballon	'balloon'	/'lʊftbaˌlɔŋ/	['lʊfkaˌtɔn]	1;09.16
			[bɪŋəˌlɔŋ]	1;10.0
Reiß-verschluss	'zip'	/ 'ʁa͡ɪsfɐˌʃlʊs /	['ʁa͡ɪzəˌçlʊs], ['ʁa͡ɪsəçˌçlʊs]	1;11.0

To summarize, the prediction for all children is that they truncate compounds containing unfooted syllables to a single foot at Stage 1. Unfortunately, there are no empirical data supporting Stage 1. At Stage 2, one foot from each constituent is realized. Unfooted syllables undergo truncation. Nele then enters into Stage 3" by outranking TROCHEE. At this stage, prosodic words are bisyllabic, forming either trochees or iambs. In Nele's database, there is evidence that compound constituents are in fact realized as iambs. At the following Stage 3, the children demote ALIGNLEFT. The new ranking, however, has no effect on the output because additional structural constraints such as NoClash and Parse-σ militate against preservation of the initial weak syllable. A target-like form is realized at Stage 4 after the demotion of Parse-σ.

Table 7-14 summarizes the prosodic development of compounds in German. Bold letters indicate the Stage at which the children acquired the target-like shape. Note that, due to the variation in the target prosodic shape of compounds, the shapes in the table provide the maximal size of the output.

Table 7-14. The prosodic development of compounds

	SW-s	S-sW	SW-sW	Bipedal constituents	Unfooted syllables
Stage 1	SW	SW	SW	SW	SW
Stage 2	**SW-s**	**S-sW**	**SW-sW**	SW-sW	SW-SW
Stage 3": Nele	SW-s	S-sW	SW-sW	SW-sW	WS-WS
Stage 3:	SW-s	S-sW	SW-sW	**sWSW-sWSW**	SW-SW
Stage 4	SW-s	S-sW	SW-sW	sWSW-sWSW	**WSW-WSW**

7.5 Pseudo-compounds

This subsection analyzes the predictions for pseudo-compounds. There are only few different word types, which comprise different prosodic shapes.

Analyzing pseudo-compounds is an intricate issue because the literature provides no clear position with respect to the structure of the input. Féry (2001:134) argues that words containing existing stems or bound stems such as *ˈElfenˌbein* 'ivory' and *ˈTeleˌfon* 'telephone' should be analyzed as morphologically complex words. In contrast, words without embedded stems such as *ˈPeliˌkan* 'pelican' and *ˈPinguˌin* 'penguin' are monomorphemic.

In the analysis, we thus have to consider two types of underlying forms. The first class of pseudo-compounds contains words that are parsed like real compounds, i.e. with recursive prosodic structure. Examples are *Ameise* 'ant', *Eidechse* 'lizzard', *Heuschrecke* 'grasshopper', *Mikrofon* 'microphone', *Nackedei* 'naked child', *Telefon* 'telephone'. I will refer to these pseudo-compounds as Class I. The second type consists of monomorphemic words, referred to as

Class II. Examples in the database are *Benjamin* and *Jonathan* (proper names), *Pelikan* ‘pelican’ and *Pinguin* ‘penguin’. In the analysis, I will consider to what extent the presumed differences in the prosodic organization predict differences in the output, and whether the predicted differences can be supported by empirical data. I start by analyzing Class I pseudo-compounds below. Class II pseudo-compounds follow thereafter.

7.6 Pseudo-compounds class I

7.6.1 Stage 1

The initial ranking of structural constraints over faithfulness constraints predicts that all pseudo-compounds are truncated to a single foot. If it is assumed that pseudo-compounds Class I are parsed as recursive prosodic words, the bisyllabic pseudo-constituent should survive in the output.

In Table 7-15 below, I exemplify the evaluation by the word *ˈTeleˌfon* ‘telephone’. Non-truncated candidates a. and b. are eliminated due to their violations of NONRECURSIVITY and ALIGNLEFT. Of the truncated candidates c. and d., candidate c. is optimal because it incurs fewer violations of MAX-σ.

Table 7-15. The evaluation of pseudo-compounds Class I at Stage 1 if they form recursive prosodic words

Input: /[[(ˈte.le)$_F$]$_{PW}$ [(ˌfon)$_F$]$_{PW}$]$_{PW}$ /	NONREC	ALIGNLEFT	MAX-σ
a. [[(ˈte.le)$_F$]$_{PW}$ [(ˌfon)$_F$]$_{PW}$]$_{PW}$	*!		
b. [[(ˈte.le)$_F$ [(ˌfon)$_F$]$_{PW}$		*!*	
c. ☞ [(ˈte.le)$_F$]$_{PW}$			* fon
d. [(ˈfon)$_F$]$_{PW}$			** te, le

Empirically, the evidence for Stage 1 comes from Eleonora’s realizations of *ˈTelefon* and *ˈMikrofon* ‘microphone’. This is shown in (98). *Ameise* ‘ant’, *Heuschrecke* ‘grasshopper’ and *Nackedei* ‘naked child’ are not truncated.

(98) *Stage 1, realizations of pseudo-compounds Class I in Eleonora's data*

Target word	Gloss	Phonetic form	Child form	Age
Telefon	'telephone'	/ˈteːləˌfon	[ˈdeːja]	1;02.22
			[ˈteja]	1;04.08
			[ˈtɨja]	1;07.15
			[ˈtɨja]	1;08.26
Mikrofon	'microphone'	/ˈmɪkʁoˌfoːn/	[ˈmɪk̠ŋ]	1;10.25

By contrast, if it is assumed that pseudo-compounds Class I are analyzed as bipedal simplex words, the ranking predicts that *ˈTelefon* is truncated to [ˈtefon] at Stage 1. Such a truncation pattern is attested from child Dutch (Fikkert 1994) and English (Gerken 1994), but preservation of the two head syllables as a single foot was not observed in the German data. In Table 7-16 below, the non-attested winning candidate is indicated by a bomb. Table 7-16 illustrates that the attested candidate c. cannot survive because of its violations of *SONONS.

Table 7-16. The evaluation of pseudo-compounds Class I at Stage 1 if they form bipedal prosodic words

Input: /[(ˈte.le) $_F$ (ˌfon)$_F$]$_{PW}$ /	ALIGNLEFT	*SON-ONS	FAITHSTRESS	MAX-σ
a. [[(ˈte.le) $_F$ [(ˌfon)$_F$]$_{PW}$	*!*	*		
b. [[(ˈfon) $_F$]$_{PW}$			*!	
c. [(ˈte.le) $_F$]$_{PW}$		*!		* fon
d. M [(ˈtefon)$_F$]$_{PW}$				* le

One might wonder what the pattern of content preservation looks like if it is assumed that *ˈTelefon* forms a recursive prosodic word (see Table 7-17). Remember from subsection 6.4 that a further constraint, I-O CONTIGUITY, ensures that adjacent syllables within a prosodic word are maintained. If I-O-CONT dominates R-ANCH, the ranking correctly predicts *ˈTelefon* to survive with the initial two syllables (candidate b.). Candidate c. is ruled out due to its violations of I-O-

CONT and R-ANCH. R-ANCH is violated because the rightmost syllable of the minor prosodic word is not realized in the output.

Table 7-17. The content preservation pattern at Stage 1 if pseudo-compounds are parsed as recursive prosodic words

Input: /[[(ˈte.le) $_F$]$_{PW}$ [(ˌfon)$_F$]$_{PW}$]$_{PW}$ /	NONREC	I-O-CONT	*SONONS	R-ANCH	MAX-σ
a. [[(ˈte.le) $_F$]$_{PW}$ [(ˌfon)$_F$]$_{PW}$]$_{PW}$	*!		*		
b. ☞ [(ˈte.le) $_F$]$_{PW}$			*		* fon
c. [(ˈtefon)$_F$]$_{PW}$		*		*!	* le

7.6.2 Stage 2

Due to the demotion of NONRECURSIVITY at Stage 2, Class I pseudo-compounds should survive in a target-like way. The adult-like candidate a. optimally satisfies the ranking because it incurs a violation of low-ranked NONRECURSIVITY. Bipedal candidates such as b. are eliminated because of their fatal violations of ALIGNLEFT. Finally, truncated candidates such as c. and d. are eliminated due to their violations of MAX-σ.

Table 7-18. The evaluation of pseudo-compounds Class I at Stage 2

Input: /[[(ˈte.le) $_F$]$_{PW}$ [(ˌfon)$_F$]$_{PW}$]$_{PW}$ /	ALIGNLEFT	MAX-σ	NONREC
a. ☞ [[(ˈte.le) $_F$]$_{PW}$ [(ˌfon)$_F$]$_{PW}$]$_{PW}$			*
b. [[(ˈte.le) $_F$ [(ˌfon)$_F$]$_{PW}$	*!*		
c. [(ˈte.le)$_F$]$_{PW}$		*! fon	
d. [(ˈfon)$_F$]$_{PW}$		*!* te, le	

The database contains a few instances supporting the analysis (99).

(99) Stage 2, realizations of pseudo-compounds Class I at Stage 2 in Wiglaf's data

Target word	Gloss	Phonetic form	Child form	Age
Telefon	'telephone'	/ ˈteːləˌfon /	[ˈtʰeːləˌfoːn]	1;11.03
Mikrofon	'microphone'	/ˈmɪkʁoˌfoːn /	[ˈmikɔˌfoːn]	1;11.13
			[ˈmɪkoˌfon]	1;11.19
Ameise	'ant'	/ ˈʔaˌːma͡ɪzə /	[ˈʔaˌmasə], [ˈʔaˌba͡ɪsə]	1;08.06
			[ˈʔa͡ɪˌma͡ɪsɛː]	1;10.13

Bipedal realizations of pseudo-compounds Class I are found in the databases of Eleonora, Sandra and Nele, too (100):

(100) Stage 2, realization of pseudo-compounds Class I in Eleonora's, Nele's, Sandra's data

Target word	Gloss	Phonetic form	Child form	Name, age
Ameise	'ant'	/ ˈʔaˌːma͡ɪzə /	[ˈʔaˌmenan], [ˈʔaˌmena]	Eleonora, 1;06.29
Telefon	'telephone'	/ ˈteːləˌfon /	[ˈtʰeːmaˌdɯ]	Sandra, 1;09.06
Nackedei	'naked child'	/ ˈnakəˌda͡ɪ /	[ˈnakiˌna͡ɪn]	Sandra, 1;09.26
Heuschrecke	'grasshopper'	/ ˈh͡ɔɪˌʃʁɛkə /	[ˈh͡ɔɪçˌlɛkə]	Sandra, 1;10.0
Eidechse	'lizzard'	/ ˈʔa͡ɪˌdɛksə /	[ˈʔa͡ɪˌditi], [ˈʔa͡ɪˌditi]	Nele, 1;10.14

As it was already the case with SW-s and S-sW compounds, the re-rankings at Stages 3 to 4 do not change the production pattern. Therefore, I will not go into detail with respect to these stages.

In sum, if it is assumed that pseudo-compounds Class I are organized into recursive prosodic words, the ranking predicts that they are mastered at Stage 2. The empirical data contain few truncated instances of these pseudo-compounds, which is in line with the prediction.

7.7 Pseudo-compounds class II

The database contains four different types of pseudo-compounds that are categorized as bipedal but are morphologically simplex words. These are ˈ*Jonaˌthan*, ˈ*Benjaˌmin* (proper names), ˈ*Pinguˌin* 'penguin', and ˈ*Peliˌkan* 'pelican'. This subsection examines the output pattern predicted by the re-rankings at the four Stages and provides empirical support for the analysis.

7.7.1 Stage 1

The following Table 7-19 illustrates that members of the second class of pseudo-compounds are truncated to a bisyllabic output, too. The bipedal candidate a. incurs fatal violations of ALIGNLEFT and is ruled out. The winning candidate b. comprises a single foot and shows a single violation of MAX-σ. Candidate c. truncates two syllables and, is eliminated due to its violations of MAX-σ.

Table 7-19. The evaluation of pseudo-compounds Class II at Stage 1

Input: /[(ˈpin.gu)$_F$ (ˌin)$_F$]$_{PW}$ /	ALIGNLEFT	MAX-σ
a. [(ˈpin.gu)$_F$ (ˌin)$_F$]$_{PW}$	*!*	
b. ☞ [(ˈpin.gu)$_F$]$_{PW}$		* in
c. [(ˈpin)$_F$]$_{PW}$		**! gu, in

The examples from Sandra's database given in (101) provide evidence that pseudo-compounds Class II are truncated to bisyllabic trochees.

(101) Stage 1, truncation of pseudo-compounds Class II in Sandra's data

Target word	Gloss	Phonetic form	Child form	Age
Benjamin	proper name	/ˈbɛnjaˌmin /	[ˈmɛna], [ˈbɛna]	1;08.05
			[ˈmɛna]	1;08.14

7.7.2 Stage 2

The demotion of NONRECURSIVITY does not affect pseudo-compounds Class II because I do not presume recursive structure. Hence, the output remains identical to that of Stage 1. Due to the scarcity of data in the database, I do not go into detail here.

7.7.3 Stage 3

At Stage 3, the children demote ALIGNLEFT. As illustrated by candidate a. in Table 7-20, pseudo-compounds Class II now appear with their target-like number of syllables and stress patterns. The truncated candidates b. and c. are ruled out due to their violations of MAX-σ.

Table 7-20. The evaluation of pseudo-compounds Class II at Stage 3

Input: /[(ˈpin.gu) $_F$ (ˌin)$_F$]$_{PW}$ /	MAX-σ	ALIGNLEFT
a. ☞ [(ˈpin.gu) $_F$ (ˌin)$_F$]$_{PW}$		**
b. [(ˈpin.gu) $_F$]$_{PW}$	*! In	
c. [(ˈpin) $_F$]$_{PW}$	*!* gu, in	

Only Sandra's database contains instances of pseudo-compounds Class II. They are presented in (102).

(102) Stage 3, realization of pseudo-compounds Class II with two feet in Sandra's data

Target word	Gloss	Phonetic form	Child form	Age
Jonathan	Proper name	/ ˈjonataːn /	[ˈnonaˌtʰan]	1;09.06
Pinguin	'penguin'	/ ˈpɪŋguˌin /	[ˈpʊŋiˌʔĩːn], [ˈpɨŋɯˌʔiːn],	1;09.26
			[ˈpɪŋgɯˌʔi], [ˈpɪŋgɯˌʔɯ͡ɪn]	
			[ˈpɪŋɔˌʔɯ͡ɪn]	1;10.0
			[ˈpɪŋʊˌʔʊ͡ɪn]	1;10.19
Pelikan	'pelican'	/ ˈpeːliˌkan /	[ˈpeːjl̩ˌjkan]	1;08.31

7.7.4 Stage 4

At Stage 4, the children demote PARSE-σ. Pseudo-compounds Class II do not contain unfooted syllables, so that the re-ranking does not affect the output.

In sum, the analysis predicts that the two classes of pseudo-compounds are acquired in different ways. If it is assumed that pseudo-compounds Class I form recursive prosodic words, they should already be produced in a target-like way at Stage 2. In contrast, if it is assumed that pseudo-compounds Class II correspond to bipedal simplex words, they should emerge in a target-like way later on, namely at Stage 3. Hence, the prediction is that pseudo-compounds such as *Ameise* 'ant' and *Telefon* 'telephone' are mastered before pseudo-compounds such as *Pinguin* 'penguin' and *Pelikan* 'pelican'.

The empirical data do not clearly support a distinction between the two classes of pseudo-compounds. If it is assumed that pseudo-compounds Class I (such as *Ameise* 'ant' and *Eidechse* 'lizzard') form recursive prosodic words, and pseudo-compounds Class II (such as *Pinguin* 'penguin' and *Pelikan* 'pelican') do not, the ranking predicts the latter ones to appear with two feet at a later age than pseudo-compounds Class I. Sandra produced most of the pseudo-compounds. In her data, both types appear with two feet at almost the same time, precisely at age 1;09. At least for her grammar, a different prosodic organization of pseudo-compounds can hardly be motivated from an empirical perspective. Due to the lack of bipedal pseudo-compounds Class II, no conclusion can be drawn for the other three children.

The following overview summarizes the ages at which the children produce bipedal compounds and pseudo-compounds.[39] In Eleonora's and Wiglaf's speech, bipedal compounds and pseudo-compounds emerge at almost the same age. Nele and Sandra produce bipedal compounds earlier than bipedal pseudo-compounds. One could tentatively infer that children differ with respect to whether they treat pseudo-compounds like real compounds or as a different morpho-prosodic category.

Table 7-21. Emergence of bipedal compounds and pseudo-compounds

Child	Compounds	Pseudo-compounds Class I	Pseudo-compounds Class II
Eleonora	1;07.08	1;06.29	No data
Nele	1;09.24	1;10.14	No data
Sandra	1;07.15	1;09.06	1;08.31
Wiglaf	1;09.26	1;08.06	No data

Table 7-22 summarizes the prosodic development of pseudo-compounds in German. Bold letters indicate the Stage at which the children acquired the target-like shape.

Table 7-22. The prosodic development of pseudo-compounds

	Class I	Class II
Stage 1	SW	SW
Stage 2	**SWs, SsW**	SW
Stage 3": Nele	SWs, SsW	SW
Stage 3:	SWs, SsW	**SWs**
Stage 4	SWs, SsW	SWW

[39] Due to the scarcity of pseudo-compounds, the ages indicate the first emergence of bipedal pseudo-compounds and compounds.

7.8 Summary and Discussion

This section analyzed the word-prosodic development of German compounds and pseudo-compounds. In accordance with the *constraint demotion algorithm*, development is understood as a process that successively demotes structural constraints. Consequently, the influence of faithfulness constraints increases over time. The analysis started with the assumption that German children parse compounds as recursive prosodic words. Pseudo-compounds are divided into two classes: Class I, which I assume to form recursive prosodic words, and Class II, which form single prosodic words.

7.8.1 Stage 1

NONRECURSIVITY, LXWD ≈ PRWD, ALIGNLEFT, TROCHEE, PARSE, NOCLASH >> FAITHSTRESS >> MAX-σ

In the analysis, I showed that the initial ranking of structural over faithfulness constraints predicts the reduction to a single foot at Stage 1 independently of the prosodic organization of the input. In SW-s and S-sW compounds, the children maintain the bisyllabic constituent. In doing so, the children satisfy the low-ranked constraint MAX-σ. Thus, the variation in the preservation pattern of compounds at Stage 1 is predicted by MAX-σ.

In the database, a few pseudo-compounds Class I also undergo truncation. The children maintain the first two syllables from pseudo-compounds such as *ˈTeleˌfon* 'telephone' and *ˈMikroˌfon* 'microphone', which is in line with the predictions of the OT analysis. Pseudo-compounds Class II, which are assumed to form single prosodic words, undergo truncation to the main-stressed and a weak syllable to the right. In that respect, these pseudo-compounds behave like simplex words.

7.8.2 Stage 2

LXWD ≈ PRWD, ALIGNLEFT, TROCHEE, PARSE, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY

At Stage 2, NONRECURSIVITY is demoted. Compounds and pseudo-compounds Class I now emerge with two monopedal prosodic words. In consequence, SW-s, S-sW and SW-sW compounds and the pseudo-compounds in the database are realized in a target-like way. Regarding compounds, truncation to a single foot affects bipedal constituents and constituents containing an unfooted syllable. Pseudo-compounds Class II are limited to a single foot, too.

7.8.3 Stage 3

LXWD ≈ PRWD, TROCHEE, PARSE-σ, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY >> ALIGNLEFT

At Stage 3, the children outrank ALIGNLEFT. Prosodic words now comprise up to two feet. This implies that sWSW-s, SWsW-sW and SWs-sW compounds and pseudo-compounds Class II are realized in a target-like way. Unfooted syllables remain omitted until Stage 4.

7.8.4 Stage 4

LXWD ≈ PRWD, TROCHEE, NOCLASH >> FAITHSTRESS >> MAX-σ >> NONRECURSIVITY>> ALIGNLEFT >> PARSE-σ

Stage 4 is characterized by the demotion of Parse-σ. The constraint does not affect pseudo-compounds as there is no unfooted material. Changes are predicted for compounds containing unfooted syllables. These compounds are produced in a target-like way.

Contrary to simplex words, only few studies have investigated the prosodic development of compounds so far. The results of the present study largely confirm Fikkert's (2001) finding that compounds are mastered earlier than simplex words.

In this thesis, I argue that children distinguish between simplex words and compounds on the basis of their morphological and prosodic structure. The analysis, however, leaves open a number of issues which require further consideration. In the remaining part of this section, I first discuss the role of the superordinate constituent in compounds (7.8.5) and then briefly review alternative explanations (7.8.6).

7.8.5 The role of the superordinate constituent in compounds

In this thesis, I assume that compounds form recursive prosodic words in children's phonological representations. It is a matter of debate whether recursivity is an inherent property of phonology. For example, Kabak & Revithiadou (2009) argue that recursivity results from the interaction between morphosyntax and phonology and suggest replacing the constraint NONRECURSIVITY by independently motivated ALIGNMENT and WRAP constraints. The constraint NONRECURSIVITY would then target morphosyntactic, not phonological domains. Note that the output is a recursive prosodic word, though.

With respect to the present data, this position could be followed. This implies that the truncation of compounds to a single constituent at Stage 1 is triggered by constraints against their morphological complexity. As far as I can see, Kabak & Revithiadou's (2009) proposal would not cause major difficulties for the present data. For child language, I had to assume that truncation may be due to prosodic (e.g., in the case of simplex words) or morphological restrictions in the shape of the output, as it is in adult language, too.

The analysis put forward in this thesis adopts the position that compounds form recursive prosodic words, and that truncation at Stage 1 is caused by high-ranked NONRECURSIVITY banning recursive prosodic structure. One might wonder why size restrictions do not affect the superordinate prosodic word. In the analysis, the children cannot satisfy the markedness constraint NONRECURSIVITY by parsing compounds into phonological phrases at Stage 1. This violates another high-ranked constraint, LXWD ≈ PRWD, which requires the parsing of lexical words into prosodic words. It is the interaction between these two markedness constraints that basically leads to the selection of a truncated candidate at Stage 1. Truncation causes violations of the low-ranked faithfulness constraint MAX-σ. The preservation of a bisyllabic truncated candidate over a monosyllabic one results from its lower number of violations of MAX-σ.

Surprisingly, the superordinate prosodic word also plays a marginal role in stress preservation. In truncated compounds, the children preserve either the constituent containing the main-stressed syllable (such as *'Riesen-ˌrad* 'giant wheel' > ['riesen], Wiglaf, 1;09.09, output given in orthographic form) or the constituent containing the secondary-stressed syllable (such as *'Müll-ˌtonne* 'refuse bin' > ['tonne], Wiglaf, 1;08.06). The main criterion for a particular constituent to be selected is its syllable number, not the presence of compound stress. Only if both constituents form bisyllabic trochees, does one child (Sandra) prefer the initial constituent that bears compound stress. These observations indicate that maintaining the syllable bearing *compound stress* is inferior to the satisfaction of MAX-σ, a general constraint requiring faithfulness to input syllables. Only if either constituent satisfies MAX-σ, can children also regard prosodic prominence at the compound level (Sandra).

The effect of FAITHSTRESS is clearly limited to the word-internal prosodic word. It requires faithfulness to the head syllable of the main-stressed foot of a prosodic word. Violation occurs if children truncate either constituent because then, the stressed syllable (i.e., the head syllable of the main-stressed foot) of the second word-internal prosodic word is not realized in the output. Following this definition, FAITHSTRESS does not refer to the main-stressed syllable of the whole compound because the superordinate prosodic word directly dominates a (subordinate) prosodic word, not a foot.

It remains an open question why the German children ignore compound stress at Stage 1. If children mainly concentrate on prosodically prominent material, the syllable bearing compound stress should be realized in the output due to its saliency. It is known that stress and location at word edges increase perceptual prominence (cf., Beckman 1999, see Pater and Paradis 1996, Pater 1997, Kehoe 1999/2000 for child speech). The German data clearly show that the highest perceptual prominence does not provide the most relevant factor for preserving syllables in the output. As compound stress consistently falls on the initial constituent in the compounds analyzed, children should consistently preserve the initial constituent (or at least the stressed syllable of the initial constituent). The absence of such a consistent preservation pattern in compounds shows that perceptual prominence interacts with the morphological and prosodic complexity of the input.

7.8.6 Alternative explanations

In this section, I briefly explain why lexical or semantic explanations fail to account for the German compound data. I concentrate on three common factors: Lexical frequencies, taxonomic constraints, and semantic concreteness.

7.8.6.1 Lexical frequencies

It has been argued that input frequency strongly influences the acquisition of multisyllabic words (Ota 2006). A detailed analysis as provided in Ota (2006) goes beyond the scope of this study. However, a simple comparison of the type frequencies of simplex words and compounds in the maternal input shows that pure lexical frequencies cannot explain the advantage of compounds.

For example, *Giraffe* 'giraffe' and *Kamel* 'camel' (117 and 105 tokens, respectively) occurred more frequently in parental speech than *Krokodil* 'crocodile' or *Marmelade* 'jam' (96 and 15 tokens, respectively). Nevertheless, *Giraffe* 'giraffe' and *Kamel* 'camel' are produced with a target-like prosodic pattern later than *Krokodil* 'crocodile' and *Marmelade* 'jam'. The differences are even more striking if we consider compounds: The most frequent compound, *Mieze-katze* 'pussy cat' has 20 instances in the input, and a large proportion of the compounds are hapaxes (74/146 types; 50.7%). Despite the rare lexical frequencies, the children acquired compounds at an early stage and realized them with two feet before they realized simplex words. This shows that the relation between lexical frequencies and the speed of acquisition is intricate, and that children compute the frequency of certain prosodic structures (Demuth 2006, and papers therein). Importantly, these observations suggest that morphological complexity should always be regarded when analyzing frequency effects in early child speech.

7.8.6.2 Lexical familiarity/semantic taxonomies

One might argue that children select the constituent they are more familiar with (e.g., Fikkert 2001 for the child Tirza), or the constituent denoting a basic-level object (Markman 1990). However, there is no reason to assume that the children in this study are more familiar with the first constituents of *Nagel-schere* 'nail scissors', *Oster-ei* 'Easter egg' and *Riesen-rad* 'giant wheel', nor do the first constituents form better *basic-level objects* than the second constituents.

7.8.6.3 Semantic concreteness

Following the literature, children's early words are concrete nouns (Gentner 1982). This also holds for early compounds (Dressler et al. 2003). Nevertheless, the children selected the more abstract constituent when truncating *Riesen-rad* 'giant wheel' to *riesen* 'giant' and *Oster-ei* 'easter egg' to *oster* 'easter', so that accounts regarding semantic properties fail to explain the truncation pattern.

In sum, the brief discussion of these alternatives demonstrates that a phonological account best captures the truncation pattern of compounds. From a lexical or semantic perspective, there is no reason to prefer the bisyllabic constituent over the monosyllabic ones. The phonological approach presented in the paper easily accounts for the regularities of simplex words and compounds without requiring additional assumptions.

The claim that children know about the morphological and prosodic complexity of compounds from early on certainly requires further empirical support. As the present study regards production data, we cannot be sure about the precise nature of children's representations. Taking into account the variety of cues indicating word-internal morphological and prosodic boundaries, I consider it very likely that compounds are stored with their target-like structure. More research is needed to shed light on the structure of the lexical representation in young infants, and to obtain a better picture of how the input is linked to the output form.

8 Conclusion and directions for further research

8.1 Conclusions

The goal of this thesis is to investigate the prosodic development of simplex words and compounds in child German. The thesis examines the development of the two word classes from an empirical and from a theoretical perspective. The empirical aim is to describe the development of prosodic words in German and to discuss the results in the context of earlier findings. The results are analyzed within Optimality Theory, which has been successfully used to explain phonological development (cf., Gnanadesikan 1995, Demuth 1995, 1996a, Pater 1997, Levelt 1995, 1996, Ota 2003, see Dinnsen 2001). The following sections summarize the main findings and arguments.

8.1.1 Empirical analysis

The empirical analysis focuses on word size restrictions and stress pattern of the output. The German data are consistent with findings from previous studies on prosodic development in several respects.

First of all, similar to children from other Germanic backgrounds, the German children pass through initial stages where prosodic words are limited to a single foot (Stages 1 and 2). Then, three of the four children produce prosodic words with two feet (Stage 3). Finally, unfooted syllables emerge at Stage 4. The analysis also supports Fikkert's (2001) observation that compounds are produced with two feet at a time when simplex words still undergo truncation to a single foot. This leads to a production asymmetry indicative of Stage 2.

A striking observation is that the fourth child, Nele, shows evidence for an additional Stage 3" following Stage 2. At Stage 3", she permits bisyllabic words with trochaic and iambic stress. Nele's production pattern corresponds to findings from child Hebrew (Adam 2002) and child Catalan (Prieto 2006). After Stage 3", Nele enters into Stage 3 (permitting bipedal words with final stress) and Stage 4 (permitting unfooted syllables).

A closer examination of the truncation and preservation pattern of simplex words and compounds provides evidence that the German children distinguish between simplex words and compounds. This implies that the children are aware of the morpho-prosodic complexity of the perceived input. The evidence is based on two observations. First, children consistently preserved the main-stressed syllable of simplex words but varied with respect to whether they realized the main-stressed or secondary-stressed syllable of compounds (see also Fikkert 2001 for child Dutch). The variation can be explained by their preference to preserve the bisyllabic constituent of the compounds. Second, longer compound constituents underwent truncation the same way as longer simplex words. In other words, the restriction to a single foot affects the individual constituents, not the compound as a whole.

From an empirical perspective, the present thesis presents a number of findings that support earlier findings and extend the current knowledge base. New insights and research questions can be derived from the production pattern of compounds, but also from the finding that German children do not exclusively rely on trochaic feet in their early word productions, as indicated by Nele's Stage 3".

8.1.2 Theoretical analysis

The theoretical analysis starts with the assumption that adult and child language share the same set of constraints but differ in their rankings. The analysis includes independently motivated constraints such as the markedness constraints NONRECURSIVITY, LXWD ≈ PRWD, and the alignment constraints TROCHEE and ALIGNLEFT. The faithfulness constraints FAITHSTRESS, and MAX-σ are output-output constraints: These constraints directly relate the adult surface form and the child output. Hence, the two faithfulness constraints do not violate basic principles of OT such as *richness of the base,* stating that no constraint holds at the input level. In adopting universally motivated constraints, the present analysis presupposes continuity between adult and child language. According to the continuity hypothesis, differences in child and adult outputs arise from the ranking of constraints in the actual grammar, not from the constraint inventory or limited access to prosodic principles.

The analysis employs a number of constraints from a larger set of universal constraints. If they can be ranked freely, one could expect a huge number of different rankings of these constraints. In consequence, the children could pass through an indefinite number of intermediate stages. Therefore, I adopted the *constraint demotion algorithm* (Tesar and Smolensky 1996, 1998). This algorithm proposes that re-ranking involves constraint demotion, but excludes constraint promotion. In combination with the assumption that markedness constraints initially dominate faithfulness constraints (cf. Gnanadesikan 1995), it restricts the number of intermediate grammars but still allows some individual variation in the order of re-ranking. The slightly different production pattern at Stage 3" can be elegantly captured by OT-approaches assuming that Nele, but not the other three children, demoted TROCHEE after Stage 2. Eleonora, Sandra and Wiglaf outranked ALIGNLEFT, hence immediately entering from Stage 2 into Stage 3.

Altogether, the present analysis supports earlier accounts analyzing prosodic development of underived lexical words in terms of successive re-ranking of universal constraints (cf. Demuth 1995, 1996a, Pater 1997, Kehoe 1999/2000, Lleó 2001, Ota 2003). The analysis goes beyond these approaches in showing that, at a given stage, the same grammar does not only account for simplex words, but also predicts the attested production pattern of early compounds. The analysis also accounts for the asymmetric truncation pattern at Stage 3, where some simplex words undergo truncation to a single foot, whereas others appear with two feet. Hence, the thesis shows that constraint-based accounts to child language capture both the non-uniformity of prosodic shapes and the individual variation between children.

8.2 Directions for further research

The results of the present study touched upon topics that deserve more attention. First, more research is necessary with respect to the morphology-prosody interface in early child language. As shown in the thesis, compounding provides a particularly insightful type of word formation to explore the role of the prosodic word domain in child language. I have dealt here with just one sub-type of compounding, namely compounds forming a recursive prosodic word (word-compounds in Peperkamp 1997, Nespor 1999). However, German compounds do not always form recursive prosodic words. Like in other languages, compounds vary as to whether they are composed from bare roots, existing words, or a combination of the two types (cf. Selkirk 1982, Peperkamp 1997, Nespor 1999).[40] The respective morphological structure is reflected in the prosodic parsing: Whereas root compounds form a single prosodic word, word compounds constitute recursive prosodic words. The prosodic organization of pseudo-compounds is not clear. I have suggested that there are two classes. Pseudo-compounds Class I contain lexical words and thus form recursive prosodic words. Like root compounds, pseudo-compounds Class II form single prosodic words but show a different stress pattern.

[40] Here, I adopt Wiese's (1996) terminology. Root compounds in Wiese (1996) are identical to stem+stem compounds, and stem compounds in Wiese (1996) correspond to word+word compounds in Selkirk (1982), Peperkamp (1997), Nespor (1999).

Unfortunately, the database contains just one root compound, ˌ*thermo*ˈ*meter*, produced by Sandra as a constituent of the compound *Fieber-thermometer* 'clinical thermometer'. Main stress is assigned to the rightmost foot in root compounds and simplex words. Hence, the preservation of the final main-stressed stem in the root compound ˌ*thermo*ˈ*meter* > [ˈmeter], is consistent with the prediction that children treat root compounds and simplex words alike.

A further issue that has not received attention in this study is the influence of additional factors on the production of compounds. The content preservation pattern in quadrisyllabic SW-sW compounds already indicates effects of phonological and non-phonological factors on the early truncation pattern. In quadrisyllabic compounds, Sandra preserved the initial constituent but Eleonora preserved the second one. Fikkert (2001) suggests that boundary phonotactics, semantic transparency of the compound and lexical familiarity of individual constituents play a role in the production pattern. Future investigation into the acquisition of compounds should not only regard semantic transparency and boundary phonotactics, but should also examine lexical properties of the constituents.

A third issue not addressed in this thesis is whether there are restrictions to the maximal number of constituents and/or the stress placement in the production of compounds. The present thesis analyzed the canonical compounds of German, i.e., compounds bearing compound stress on the initial constituent. German permits compounds to contain three, four, and more constituents. The analysis provided in this thesis in principle admits compounds of an indefinite length – as long as they form recursive prosodic words. However, it is very likely that there is an upper limit to the maximal size of compounds in early child speech. It is probable that there are restrictions parallel to the two-word-stage in early syntactic development.

Finally, the present thesis has not considered the question how exactly children learn about the morphological complexity of compounds. The production pattern suggests that the German children do not treat simplex words and compounds alike. In line with Fikkert (2001), I have argued that phonotactics plays a role in determining the morphological complexity of the input, as it does in the data of children acquiring Dutch and - tentatively - also in child English. This thesis cannot answer the question which properties lead the German children to recognize morphological complexity in their intake. To do so, further experimental research is needed to show how children perceive and process compounds and how the perception is related to production.

To conclude, the present thesis provides evidence that children distinguish between simplex words and compounds. The pattern of both simplex words and compounds has been captured within a single optimality-theoretic approach explaining the developmental stages by re-ranking universal constraints. Some findings of this thesis require closer examination in future research. This holds in particular for compounds which have hardly ever been explicitly investigated in the literature. Future research on the development of compounds should consider a greater variety of languages and target prosodic shapes. In that respect, the present study has opened a window to examine factors that influence the acquisition of morpho-prosodic regularities at the word level.

9 References

Adam, G. (2002). *From variable to optimal grammar: Evidence from language acquisition and language change*. PhD dissertation, University of Tel-Aviv.

Alber, B. (1998). Stress preservation in German loan words. In Kehrein, W. and Wiese, R. (eds.). *Phonology and Morphology of the Germanic Languages*. Tübingen: Niemeyer. 113–143.

Allen, G.D. and Hawkins, S. (1980). Phonological rhythm: Definition and development. In Yeni-Komshian, G., Kavanagh, J. and Ferguson, C. (eds.), *Child phonology.* Vol. 1: Production. New York: Academic Press, 227-256.

Archibald, J. (1995). The acquisition of stress. In Archibald, J. (ed.), *Phonological Acquisition and Phonological Theory,* Hillsdale, NJ: Lawrence Earlbaum Associates, 81-109.

Archibald, J. and Carson, J. (2000). *The acquisition of Quebec French stress*. Ms, University of Calgary. (http://www.ss.ucalgary.ca/JArchibald/pdfpapers.htm.).

Aronoff, M. (1994). *Morphology by itself*. Cambridge, MA: MIT Press.

Beckman, J. (1999). *Positional faithfulness: An optimality-theoretic treatment of phonological asymmetries*. New York: Garland.

Behrens, H. and Gut, U. (2005). The relationship between syntactic and prosodic organization in early multiword speech. *Journal of Child Language* 32 (1), 1-34.

Berman, R. (1985). Acquisition of Hebrew. In Slobin, D. (ed.), *The crosslinguistic study of language acquisition*. Hillsdale, NJ: Lawrence Earlbaum Associates, 255-371.

Bernhardt, B. H. and Stemberger, J. P. (1998). *Handbook of phonological development: From the perspective of constraint-based nonlinear phonology*. San Diego: Academic Press.

Blenn, L., Seidl, A. and Höhle, B. (2003). Recognition of phrases in early language acquisition: The role of morphological markers. In Beachley, B., Brown, A. and Conlin, F. (eds.) *Proceedings of the 27th Annual Boston University Conference on Language Development*. Somerville: Cascadilla Press, 138-149.

Boersma, P. (1997). *How we learn variation, optionality and probability.* ([ROA-221], http://roa.rutgers.edu.).

Boersma, P. (1998). *Functional phonology. Formalizing the interaction between articulatory and perceptual drives*. PhD. Dissertation, University of Amsterdam.

Boersma, P. and Hayes, B. (2001). Empirical tests of the Gradual Learning Algorithm. *Linguistic Inquiry* 32, 45-86.

Boersma, P. and Levelt, C.C. (2000). Gradual constraint-ranking learning algorithm predicts acquisition order. In Clark, E. (ed.) *Proceedings of the Thirtieth Annual Child Language Research Forum.* Stanford: CSLI Publications, 229-237.

Borer, H. and Wexler, K. (1987). The maturation of syntax. In Roeper, T. and Williams, E. (eds.), *Parameter setting*. Dordrecht: Riedel.

Curtin, S. (2001). Children's early representations: Evidence from production and perception. In Féry, C., van de Vijver, R., and Dubach Green, A. (eds.), *Proceedings of HILP 5*. Linguistics in Potsdam 12, University of Potsdam, 20-39.

Curtin, S. and Zuraw, K. (2002). Explaining constraint demotion in a developing system. In Skarabela, B., Fish, S. and Do, A. (eds.). *Proceedings of the 26th Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press, 118-129.

Davidson, L., Smolensky, P. and Jusczyk, P. (2004). The initial and the final states: Theoretical implications and experimental explorations of richness of the base. In Kager, R., Pater, J., and Zonneveld, W. (eds.), *Constraints in phonological acquisition*, Cambridge: Cambridge University Press, also available as ROA 428, http://roa.rutgers.edu.

de Boysson-Bardies, B., Vihman, M.M., Rough-Hellicius, L., Durand, C., Landberg, I., and Arao, F. (1992). Evidence of infant selection from target language: A cross-linguistic phonetic study. In Ferguson, C., Menn, L. and Stoel-Gammon, C. (eds.), *Phonological development: Models, research, implications.* Timonium, MD: York press, 369-392.

Demuth, K. (1995). Markedness and the development of the prosodic structure. In: *Proceedings of the North East Linguistics Societey 25. Amherst, MA: Graduate Linguistics Association*, 13-25.

Demuth, K. (1996a). The prosodic structure of early words. In Morgan, J. L. and Demuth, K. (eds.) *Signal to syntax: Bootstrapping from speech to grammar in early acquisition, Lawrence Earlbaum*, 171 – 184.

Demuth, K. (1996b). Alignment, stress and parsing in early phonological words. In Bernhardt, B., Gilbert, J. and Ingram D. (eds.), *Proceedings of the International Conference on Phonological Acquisition*. Somerville, MA: Cascadilla Press, 113-125.

Demuth, K. (2001a). A prosodic approach to filler syllables. *Journal of Child Language* 28, 246-249.

Demuth, K. (2001b). Prosodic constraints on morphological development. In Weissenborn, J. and Höhle, B. (eds.), *Approaches to Bootstrapping: Phonological, syntactic and neurobiological aspects of early language acquisition*, Language Acquisition and Language Disorders Series 24, Amsterdam: John Benjamins, 3-21.

Demuth, K. (2006). (ed.) *Special issue on the prosodic word. Language and Speech*, 49 (2).

Demuth, K. and Fee, J. (1995). *Minimal words in early phonological development*. Ms., Brown University and Dalhousie University.

Demuth, K. and Johnson, M. (2003). *Truncation to subminimal words in early French*. available from http://www.cog.brown.edu/People/demuth/research_la.htm.

Demuth, K., Culbertson, J., and Alter, J. (2006). Word-minimality, epenthesis and coda licensing in the early acquisition of English. *Language and Speech* 49(2), 137-174.

Dinnsen, D. (2001). New insights from optimality theory for acquisition. *Clinical Linguistics & Phonetics* 15(1/2), 15-18.

Dresher, B. E. and van der Hulst, H. (1998). Head-dependent asymmetries in phonology: complexity and visibility. *Phonology* 15, 317-352.

Echols, C. and Newport, E. (1992). The role of stress and position in determining first words. *Language Acquisition* 2, 189-220.

Echols, C.H. (1996). A role for stress in early speech segmentation. In Morgan, J. and Demuth, K. (eds.), *Signal to syntax: Bootstrapping from speech to grammar in early acquisition*. Mahwah, NY: Lawrence Earlbaum Associates, 151-169.

Elsen, H. (1991). *Erstspracherwerb. Der Erwerb des deutschen Lautsprachsystems. Wiesbaden*: Deutscher Universitäts-Verlag.

Fee J. (1992). Exploring the Minimal Word in Early Phonological Acquisition. *Proceedings of the 1992 Annual Conference of the Canadian Linguistics Association*.

Fee, J. (1995). Segments and syllables in early language acquisition. In Archibald, J. (ed.), *Phonological acquisition and phonological theory.* Hillsdale, NJ: Lawrence Earlbaum Associates, 43-61.

Fee, J. (1996). Syllable structure and minimal words. In Bernhardt, B. Gilbert, J. and Ingram, D. (eds.), *Proceedings of the International Conference on Phonological Acquisition.* Somerville, MA: Cascadilla Press, 85-98.

Féry, C. (1995). *Alignment, syllable and metrical structure in German. Habilitationsschrift, Universität Tübingen*. [SfS-Report-02-95].

Féry, C. (1996). *German foot and word stress in OT.* Nordlyd 24, 63-96.

Féry, C. (1997). Uni und Studi: die besten Wörter im Deutschen. *Linguistische Berichte* 172. 461-490.

Féry, C. (1998) German word stress in optimality theory. *Journal of Comparative Germanic Linguistics* 2, 101-142.

Féry, C. (2001). *Phonologie des Deutschen. Eine optimalitätstheoretische Einführung. Vol. 2.*, Linguistics in Potsdam 11, Potsdam: University of Potsdam.

Fikkert, P. (1994). *On the acquisition of prosodic structure. HIL Series 6*, The Hague: Holland Academic Graphics.

Fikkert, P. (2001). Compounds triggering prosodic development. In Weissenborn, J. and Höhle, B. (eds.), *Approaches to bootstrapping,* Amsterdam: Benjamins, 59-85.

Fikkert, P., Levelt, C.C. and van de Weijer, J. (submitted). *Input, intake and phonological development.*

Fikkert, P. (2007). Acquiring phonology. In de Lacy, P. (ed.), *Handbook of phonological theory.* Cambridge, MA: Cambridge University Press. 537–554.

Fox, A.V. and Dodd, B. J. (1999). Der Erwerb des phonologischen Systems in der deutschen Sprache. *Sprache-Stimme-Gehör* 23, 183-191.

Gennari, S. and Demuth, K. (1997). Syllable omissions in the acquisition of Spanish. In E. Hughes, M. Hughes, and A. Greenhill (eds.), *Proceedings of the 21st Annual Boston University Conference on Language Development.* Somerville, MA: Cascadilla Press, 182-193.

Gerken, L. A. (1991). The metrical basis for children's subjectless sentences. *Journal of Memory and Language,* 30, 431-451.

Gerken, L. A. (1994). A metrical template account of children's weak syllable omissions from multisyllabic words. *Journal of Child Language,* 21, 565-584.

Gerken, L. A. (1996). Prosodic structure in young children's language production. *Language* 72(4), 683-712.

Gerken, L.A., Landau, B., and Remez, R. (1990). Function morphemes in young children's speech perception and production. *Developmental Psychology* 26, 204-216.

Giegerich, H. (1985). *Metrical phonology and phonological structure. German and English. Cambridge Studies in Linguistics 43*. Cambridge: Cambridge University Press.

Gies, J. (2001). *Frühe Wortbetonungsmuster im Deutschen: Eine explorative Einzelfallstudie.* Diploma thesis, University of Potsdam.

Gnanadesikan, A. (1995/2004). Markedness and faithfulness constraints in child phonology. In Kager, R., Pater, J., and Zonneveld, W. (eds.), *Constraints in phonological acquisition*, Cambridge: Cambridge University Press, 73-109.

Golston, C. and Wiese, R. (1998). The structure of the German root. In: W. Kehrein and R. Wiese (eds), *Phonology and morphology of the Germanic languages*, Tübingen: Niemeyer, 165-185.

Grijzenhout, J. and Joppen, S. (1998). *First steps in the acquisition of German. A case study.* SFB 262 Working Papers 110 (http://user.phil-fak.uniduesseldorf.de/~grijzenh/#PUBLICATIONS).

Grimm, A. (2006). Intonational patterns and word structure in early child German. In Bramman, D., Magnitskaia, T. and Zaller, C. (eds.), *Proceedings of the 30th Annual Boston Conference on Language Development.* Somerville, MA: Cascadilla Press, 237-248.

Gut, U. (2000). *Bilinguial acqusition of intonation.* Tübingen: Niemeyer.

Hale, M. and Reiss, C. (1998a). Formal and empirical arguments concerning phonological acquisition. *Linguistic Inquiry* 29, 656-683.

Hale, M. and Reiss, C. (1998b). *Grammar optimization: The simultaneous acquisition of constraint ranking and a lexicon*. Ms, Concordia University.

Hall, T. (1992). Syllable structure and syllable-related processes in German*. Linguistische Arbeiten* 276. Tübingen: Niemeyer.

Hall, T. (1998). A note on secondary stress in German prosodic morphology. *Linguistische Berichte* 175, 414-424.

Hall, T.A. (1999). The phonological word: a review. In Hall, T.A. and Kleinhenz, U. (eds.), *Studies on the phonological word*. Amsterdam: J. Benjamins, 1-22.

Hay, J. (2003) *Causes and consequences of word structure. Outstanding Dissertations in Linguistics.* New York, London: Routledge.

Hayes, B. (1995). *Metrical stress theory. Principles and case studies*. Chicago: The University of Chicago Press.

Hochberg, J. (1988). First steps in the acquisition of Spanish stress. *Journal of Child Languge* 15, 273-292.

Höhle, B. (2002). *Der Einstieg in die Grammatik. Die Rolle der Syntax-Phonologie-Schnittstelle für Sprachverarbeitung und Spracherwerb*. Habilitationsschrift, Freie Universität Berlin.

Höhle, B. and Weissenborn, J. (1998). Sensitivity to closed-class-elements in preverbal children. In A., Greenhill, M. Hughes, H. Littelefield, and H. Walsh (eds), *Proceedings of the 22 Annual Boston Conference on Language Development, Vol.1*. Somerville, Mass.: Cascadilla Press, 348-359.

Inkelas, S. and Zec, D. (1995). Syntax-phonology interface. In Goldsmith, J. (ed.), *The handbook of phonological theory.* Cambridge, MA: Blackwell, 535-549.

Jakobson, R. (1941) *Kindersprache, Aphasie und allgemeine Lautgesetze*. reprinted (1968), Child language, aphasia, and phonological universals. The Hague: Mouton.

Jessen, M. (1999). Word stress in Germanic languages: German. In Harry van der Hulst (ed.), *Word Prosodic Systems of the Languages of Europe.* Berlin/New York: Mouton de Gruyter, 515-545.

Joanisse, M. and Curtin, S. (1999). Dutch stress acquisition: OT and connectionist approaches. *Proceedings of SWOT 5*, University of California, San Diego.

Jusczyk, P.W., Cutler, A. and Redanz, N.J. (1993). Infant's preference for the predominant stress patterns of English words. *Child Development* 64, 675-687.

Kager, R. (1999). *Optimality Theory*. Cambridge: Cambridge University Press.

Kehoe, M. (1999/2000). Truncation without shape constraints: The latter stages of prosodic acquisition. *Language Acquisition* 8(1), 23-67.

Kehoe, M. and Stoel-Gammon, C. (1997). The acquisition of prosodic structure: An investigation of current accounts of children's prosodic development. *Language* 73(1), 113-144.

Kent, R.D. and Miolo, G. (1995). Phonetic abilities in the first year of life. In Fletcher, P. and McWhinney, B. (eds.), *The handbook of child language,* Cambridge, MA: Blackwell, 303-334.

Kohler, K. (1995). *Einführung in die Phonetik des Deutschen.* Berlin: Schmidt, 2nd Edition.

Lentge, D. (2003). *Wortbetonung im Deutschen. Eine optimalitätstheoretische Analyse.* M.A. Thesis, University of Potsdam.

Leopold, W.F. (1953/1971). Patterning in children's language learning. In Bar-Adon, A., and Leopold N. F. (eds.), *Child language: A book of readings.,* NJ: Englewood Cliffs, NJ: Prentice-Hall, 134-141.

Levelt, C. and van de Vijver, R. (1998/2004). Syllable types in cross-linguistic and developmental grammars. In Kager, R., Pater, J., and Zonneveld, W. (eds.), *Constraints in phonological acquisition,* Cambridge: Cambridge University Press, 204-218.

Lewis, L., Antone, C., and Johnson, J. S. (1999). Effects of prosodic stress and serial position on syllable omission in first words. *Developmental Psychology* 35(1), 45-59.

Lintfert, B. and Schneider, K. (2006). *Prosodic correlates of stress in babbling and first words: Acoustic analysis of German infants.* Poster presented at the 10th Conference on Laboratory Phonology, Paris.

Lintfert, B. and Vollmer, U. (2007). *Acoustic analysis of stress in babbling and first words in German*. Paper presented at the Child Language Seminar, Reading.

Lleó, C. (1998). Proto-articles in the acquisition of Spanish: Interface between phonology and morphology. In Fabri, R., Ortmann, A. and Parodi, T (eds.), *Models of inflection.* Tübingen: Niemeyer, 175-195.

Lleó, C. (2001). The interface of phonology and syntax: The emergence of the article in the early acquisition of Spanish and German. In Weissenborn, J. and Höhle, B. (eds.), *Approaches to bootstrapping*, Amsterdam: Benjamins, 23-44.

Lleó, C. (2006). The acquisition of prosodic word structures in Spanish by monolingual and Spanish-German Bilingual children. *Language and Speech* 49(2), 205-229.

Lleó, C. and Demuth, K. (1999). Prosodic contraints on the emergence of grammatical morphemes: Crosslinguistic evidence from Germanic and Romance languages. In: *Proceedings from the 23rd annual Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press.

Löhken, S. (1997). *Deutsche Wortprosodie. Abschwächungs- und Tilgungsvorgänge*. Tübingen: Stauffenberg.

Macken, M. (1980). The child's lexical representation: the 'puzzle-puddle-pickle' evidence. *Journal of Linguistics* 16, 1-17.

McCarthy, J. and Prince, A. (1993/2001). *Prosodic Morphology I: Constraint interaction and satisfaction.* Technical Report #3, University of Amherst and Rutgers University Center for Cognitive Science.

McCarthy, J. and Prince, A. (1995). Prosodic morphology. In Goldsmith, J. (ed.) *The handbook of phonological theory*. Oxford: Blackwell. 318-366.

Menn, L. (1980). Phonological theory and child phonology. In Yeni-Komshian, G., Kavanagh, J. and Ferguson, C. (eds.), *Child phonology.* Vol. 1: Production. New York: Academic Press, 23-42.

Morgan, J. L. (1996). A rhythmic bias in preverbal speech segmentation. *Journal of Memory and Language* 35, 666-688.

Nespor, M. (1999). Stress domains. In van der Hulst, H. (ed.), *Word prosodic systems in the languages of Europe.* Berlin: Mouton de Gruyter, 171-160.

Nespor, M. and Vogel, I. (1986). *Prosodic phonology.* Dordrecht: Floris.

Oller, D.K., Wieman, L. A. Doyle, W., and Ross, C. (1975). Infant babbling and speech. *Journal of Child Language* 3, 1-11.

Ortner, L., Müller-Bollhagen, E. Ortner, H., Wellmann, H., Pümpel-Mader, M., and Gärtner, H. (1991). *Deutsche Wortbildung. Typen und Tendenzen in der Gegenwartssprache. Vierter Hauptteil: Substantivkomposita (Komposita und kompositionsähnliche Strukturen 1).* Berlin, New York, Walter de Gruyter.

Ota, M. (2001). *Phonological theory and the development of prosodic structure: Evidence from child Japanese.* Annual Review of Language Acquisition 1, 65-118.

Ota, M. (2003). *The development of prosodic structure in early words. Continuity, divergence and change.* Language acquisition and disorders, Vol. 34. Amsterdam/ Philadelphia: John Benjamins.

Paradis, J., Peticlerc, S. and Genese, F. (1997). Word truncation in French-speaking two-year-plds. In E. Hughes, M. Hughes, and A. Greenhill (eds.), *Proceedings of the 21st Annual Boston University Conference on Language Development.* Somerville, MA: Cascadilla Press, 441-452.

Pater, J. (1997). Minimal violation and phonological development. *Language Acquisition* 6, 201-253.

Pater, J. (2000). Non-uniformity in English secondary stress: the role of ranked and lexically specific constraints. *Phonology* 17, 237-274.

Pater, J. and Paradis J. (1996). Truncation without templates in child phonology. In A. Stringfellow, D., Cahana-Amitay, E. Huges, and A. Zukowski (eds.), *Proceedings of the 20th Annual Boston University Conference on Language Development.* Somerville, MA: Cascadilla Press, 540-551.

Pater, J. and Werle, A. (2001). Typology and variation in child consonant harmony. In Féry, C., van de Vijver, R., and Dubach Green, A. (eds.), *Proceedings of HILP 5.* Linguistics in Potsdam 12, University of Potsdam, 119-139.

Pelzer, L. and Höhle, B. (2006). The Impact of Morphological Markers on Infants' and Adults' Speech Processing. In Bramman, D., Magnitskaia, T. and Zaller, C. (eds.), *Proceedings of the 30th Annual Boston Conference on Language Development.* Somerville, MA: Cascadilla Press, 452-463.

Peperkamp, S. (1997). *Prosodic words.* PhD. Dissertation. Den Haag, HIL Series 34.

Peters, A. (1997). Language typology, prosody and the acquisition of grammatical morphemes. In Slobin, D.I. (ed.), *The crosslinguistic study of language acquisition,* Vol. 5, Hillsdale, NJ: Lawrence Earlbaum Associates, 136-197.

Peters, A. and Menn, L. (1993). False starts and filler syllables: Ways to lern grammatical morphemes. *Language* 69(4), 742-777.

Pinker, S. (1982). *Language learnability and language learning.* Cambridge, MA: Harvard University Press.

Prieto, P. (2006). The relevance of metrical information in early prosodic word acquisition: a comparison of Catalan and Spanish. *Language and Speech* 49(2), 231-259.

Prince, A. (1983). Relating to the grid. Linguistic Inquiry 14, 19-100.

Prince, A. and Smolensky, P. (1993/2004). *Optimality Theory. Constraint interaction in Generative Grammar*. Malden, MA: Blackwell.

Pye, C. (1983). Mayan telegraphese: Intonational determinants of inflectional development in Quiche Mayan. *Language* 59, 583 – 604.

Raffelsiefen, R. (2000). Evidence for word-internal phonological words in German. In Thieroff, R., Tamrath, M., Fuhrhop, N., and Teuber, O. (eds.), *Deutsche Grammatik in Theorie und Praxis*, Tübingen: Niemeyer, 43-56.

Ramers, K. H. (1992). Ambisyllabische Konsonanten im Deutschen. In Eisenberg, P., Ramers, K. H. and Vater, H. (eds.), *Silbenphonologie des Deutschen.* Tübingen: Narr, 246-283.

Rose, Yvan (2000). *Headedness and prosodic licensing in the L1 acquisition of phonology*. PhD dissertation, Montréal: McGill University.

Russell, K. (1997). Optimality theory and morphology. In Archangeli, D. and Langendorn, D.T. (eds.), *Optimality Theory. An overview.* Malden, MA: Blackwell, 102-133.

Saffran, J. R., Newport, E. L. and Aslin, R. N. (1996). Word segmentation: The role of distributional cues. *Journal of Memeory and Language* 35, 606-621.

Salidis, J. and Johnson, J. (1997). The production of minimal words: A longitudinal case study of phonological development. *Language Acquisition* 6(1), 1-36.

Santos, R. S. (2003). Bootstrapping in the acquisition of word stress in Brazilian Portuguese. *Journal of Portuguese Linguistics,* 93-114.

Santos, R.S. (2005) Strategies for word stress in Brazilian Portuguese. In Tsakosta, M., Levelt, C., and van de Weijer, J. (eds.), *Developmental paths in phonological acquisition*. Special issue of Leiden Working Papers in Linguistics 2(1), 71-91.

Selkirk, E. (1981). On prosodic structure and its relation to syntactic structure. In Fretheim, T. (ed.). *Nordic Prosody II.* Trontheim: TAPIR. 111-140.

Selkirk, E. (1984). *Phonology and syntax: The relation between sound and structure.* Cambridge, MA: MIT Press.

Selkirk, L. (1982). *The syntax of words.* Cambridge, MA: The MIT Press.

Selkirk, L. (1995). The prosodic structure of function words. In Beckman, J., Walsh-Dickey, L. and Urbanczyk, S. (eds.), *University of Massachusetts Occasional Papers in Optimality Theory* 18, 439-469.

Smith, N. (1973). *The acquisition of phonology.* A case study. Cambridge: Cambridge University Press.

Tesar, B. and Smolensky, P. (1996). *Learnability in Optimality Theory (short version).* Ms., Johns Hopkins University.

Tesar, B. and Smolensky, P. (1998). Learnability in Optimality Theory. *Linguistic Inquiry* 29(2), 229-268.

van de Vijver, R. (1998). *The iambic issue. Iambs as a result of constraint interaction*. PhD. Dissertation, Den Haag: HIL Series 37.

Vennemann, T. (1991). Skizze der deutschen Wortprosodie. *Zeitschrift für Sprachwissenschaft* 10, 86-111.

Vigário, M., Freitas, M. J., and Frota, Sónia (2006). Grammar and frequency effects in the acquisition of prosodic words in European Portuguese. *Language and Speech* 49(2), 175-203.

Vihman, M. M. (1992). Early syllables and the construction of phonology. In Ferguson, C.A., Menn, L. and Stoel-Gammon, C. (eds.), *Phonological development: Models, research, implications.* Timonium, MD: York Press, 393-422.

Vihman, M. M. (1996). *Phonological development: The origins of language in the child. Cambridge,* MA: Blackwell.

Vihman, M. M., DePaolis, R. and Davis, B. (1998). Is there a „trochaic bias“ in early word learning? Evidence from infant production in English and French. *Child Development* 69 (4), 935-949.

Vihman, M.M., Kay, E. de Boysson-Bardies, B. Durand, C. and Sundberg, U. (1994). External sources of individual differences? A cross-linguistic analysis of the phonetics of mother’s speech to one-year-old children. *Developmental Psychology* 30, 651-662.

Vihman, M.M., Velleman, S. L., and McCune, L. (1994). How abstract is child phonology? Towards an integration of linguistic and psychological approaches. In Yavas, M. (ed.), *First and second language phonology*. San Diego, CA: Singular Publishing Group, 9-44.

Wiese, R. (1996). *The phonology of German*. Oxford: Oxford University Press.

Wijnen, F., Krijkhaar, E. & den Os, E. (1994). The (non)realization of unstressed elements in children's utterances: A rhythmic constraint? *Journal of Child Language* 21, 59-83.

A. List of Types

Simplex words

Bisyllabic words with ultimate main stress (total: 348/1206)

light penultimate syllable

Target word	Gloss	Token
Ka'mel	‘camel’	105
ka'putt	‘defective’	73
Ka'kao	‘cocoa’	35
Pa'pier	‘paper’	20
Sa'lat	‘salad’	17
Re'nee	proper name	7
Hu'sar	‘hussar’	4
Spi'nat	‘spinach’	4
Ro'sin(en) (plural)	‘raisin’	3
Fa'san	‘pheasant’	2
Fa'gott	‘bassoon’	1
Pi'lot	‘pilot’	1
Pro'zent	‘per cent’	1
Ba'nan(en) (plural)	‘banana’	1
Wa'ggon	‘carriage’	1
Zi'tron(en) (plural)	‘lemon’	1

with a heavy penultimate syllable

Target word	Gloss	Token
Del'fin	‘dolphin’	19
San'dal(e)n (plural)	‘sandal’	4
Jas'min	proper name	1

Trisyllabic words with antepenultimate main stress (total 187/1206)

Target word	Gloss	Token
ˈRadio	‘radio’	37
ˈPaprika	‘pepper’	15
ˈBrokkoli	‘broccoli’	12
ˈKänguruh	‘kangaroo’	5
ˈGisela	proper name	4
ˈKasperle	‘puch’ (diminuitive)	2

Trisyllabic words with ultimate main stress (total: 391/1206)

Target word	Gloss	Token
ˌEleˈfant	‘elephant’	152
ˌPapaˈgei	‘parrot’	117
ˌKrokoˈdil	‘crocodile’	96
ˌMikroˈfon	‘microphone’	7
ˌPoliˈzist	‘police man’	7
ˌKaruˈssell	‘marry-go-round’	6
ˌAppeˈtit	‘appetite’	3
ˌBatteˈrie	‘battery’	1
ˌMamaˈgei	creation from ‘parrot’	1
ˌPeliˈkan	‘pelican’	1

Trisyllabic words with penultimate main stress (total 313/1206)

light antepenultimate

Target word	Gloss	Token
Giˈraffe	‘giraffe’	117
Baˈnane, Baˈnanen (plural)	‘banana’	57
Toˈmate, Toˈmaten (plural)	‘tomato’	40

Ga'rage	‘garage’	16
Go'rilla	‘gorilla’	10
Zi'trone	‘lemon’	9
Gi'tarre	‘guitar’	8
Ka'ssette	‘cassette’	6
Se'lina	proper name	4
Me'lissa	proper name	3
Hy'dranten (Plural)	‘hydrant’	2
Jo'hanna	proper name	2
Ro'sine, Ro'sinen (plural)	‘raisin’	2
La'terne	‘lantern’	1
Pu'llover	‘pullover’	1
Sa'bine	proper name	1
Toi'lette	‘bathroom’	1
Va'nille	‘vanilla’	1

heavy antepenultimate syllable

Target word	Gloss	Token
Kar'toffel, Kar'toffeln (Plural)	‘potato’	13
An'tenne	‘aerial’	7
Del'fine (plural)	‘dolphin’	4
Kohl'rabi	‘kohlrabi’	2
Trom'pete	‘trumpet’	2
Ros'witha	proper name	2
Gir'lande	‘garland’	1

Quadrisyllabic words with penultimate main stress (total 64/1206)

Target word	Gloss	Token
ˌSchoko'lade	‘chocolate’	17

ˌManda'rine	‘tangerine’	10
ˌMarme'lade	‘marmalade’	10
ˌMarga'rine	‘margarine’	7
ˌEle'fanten (plural)	‘elephant’	4
ˌIndi'aner	‘native American’	4
ˌMicha'ela	proper name	4
ˌApfel'sine	‘orange’	3
ˌLimo'nade	‘lemonade’	3
ˌSala'mander	‘salamander’	1
ˌVenti'lator	‘ventilator’	1

Words with five syllables and penultimate main stress (total 19/1206)

Target word	Gloss	Token
ˌLokomo'tive	‘locomotive’	19

Compounds

Trisyllabic compounds with a monosyllabic initial constituent (total 110/387)

Target word	Gloss	Token
'Eich-ˌhörnchen	‘squirrel’	14
'Staub-ˌsauger	‘vacuum cleaner’	10
'Wind-ˌmühle	‘windmill’	10
'Gieß-ˌkanne	‘watering can’	7
'Hub-ˌschrauber	‘helicopter’	7
'Bauch-ˌnabel	‘bellybutton’	4
'Erd-ˌbeere, 'Erd-ˌbeeren (plural)	‘strawberry’	4
'Sand-ˌkasten	‘sand box’	4

ˈBuch-ˌstabe, ˈBuch-ˌstaben (plural)	‘letter’	2
ˈHaar-ˌshampoo	‘hair + shampoo’	2
ˈHeu-ˌschrecke	‘grasshopper’	2
ˈMäh-ˌdrescher	‘combine harvester’	2
ˈPfann-ˌkuchen	‘pancake’	2
ˈSchei(ben)-ˌwischer [ˈʃa͡ɪmˌvɪʃɐ]	‘windscreen wiper’	2
ˈSchein-ˌwerfer	‘spotlight’	2
ˈSonn(en)-ˌbrille	‘sunglasses’	2
ˈSonn(en)-ˌkäfer	‘sun + beetle’	2
ˈSpinn-ˌweben	‘cobweb’	2
ˈWasch-ˌstraße	‘car wash’	2
ˈWein-ˌtrauben	‘grapes’	2
ˈZahn-ˌpasta	‘toothpaste’	2
ˈArzt-ˌkoffer	‘medical bag’	1
ˈBlum(en)- ˌgießer	‘flower + watering’	1
ˈBus-ˌfahrer	‘bus driver’	1
ˈEis-ˌcafé	‘ice + café’	1
ˈFarb-ˌkasten	‘box of paints’	1
ˈFern-ˌseher	‘TV’	1
ˈFuß-ˌboden	‘floor’	1
ˈHand-ˌfeger	‘hand brush’	1
ˈLok-ˌführer	‘locomotive driver’	1
ˈMais-ˌkolben	‘corn cob’	1
ˈMal-ˌstifte (plural)	‘crayon’	1
ˈMilch-ˌflasche	‘milk bottle’	1
ˈMüll-ˌauto	‘refuse lorry’	1
ˈMüll-ˌtonne	‘refuse bin’	1
ˈRot-ˌkäppchen	‘Little Red Hiding	1

	Hood’	
ˈSalz-ˌstange	‘pretzel stick’	1
ˈSand-ˌkiste	‘sand box’	1
ˈSand-ˌkuchen	‘sand cake’	1
ˈSchnee-ˌbesen	‘eggbeater’	1
ˈSchrau(ben)-ˌzieher [ˈʃʁa͡ʊmˌt͡sijɐ]	‘screwdriver’	1
ˈSteck-ˌdose	‘power socket’	1
ˈUr-ˌoma	‘great grandmother’	1
ˈWohn-ˌwagen	‘caravan’	1
ˈZahn-ˌbürste	‘toothbrush’	1

Trisyllabic compounds with an unfooted syllable (total 17/387)

Target word	Gloss	Token
ˈLuft-baˌllon	‘balloon’	15
ˈReiß-verˌschluß	‘zip’	2

Trisyllabic compounds with a final monosyllabic constituent (total: 101/387)

Target word	Gloss	Token
ˈBauern-ˌhof	‘farm’	15
ˈRiesen-ˌrad	‘giant wheel’	10
ˈApfel-ˌsaft	‘apple juice’	6
ˈHeiken-ˌdorf	name of a city	5
ˈMurmel-ˌbahn	‘marble run’	5
ˈOster-ˌei	‘easter egg’	5
ˈAuto-ˌbahn	‘motorway’	3
ˈEisen-ˌbahn	‘railway’	3
ˈHampel-ˌmann	‘jumping jack’	3

ˈLego-ˌstein	‘lego brick’	3
ˈMittags-ˌschlaf	‘afternoon nap’	3
ˈMutter-ˌmal	‘birthmark’	3
ˈWasser-ˌhahn	‘water-tap’	3
ˈBrio-ˌbahn	‘brio + railway’	2
ˈFleder-ˌmaus	‘bat’	2
ˈHammer-ˌbank	‘hammer bank’	2
ˈKinder-ˌsitz	‘child’s safety seat’	2
ˈNacke-ˌdei	‘naked child’	2
ˈSchoko-ˌeis	‘chocolate ice cream’	2
ˈAbend-ˌbrot	‘supper’	1
ˈApfel-ˌmus	‘apple sauce’	1
ˈBaby-ˌbuch	‘baby book’	1
ˈBaby-ˌtee	‘baby tea’	1
ˈBlumen-ˌkohl	‘cauliflower’	1
ˈFeier-ˌtag	‘official holiday’	1
ˈKinder-ˌarzt	‘pediatrician’	1
ˈKlapper-ˌstorch	‘stork’	1
ˈKlebe-ˌband	‘adhesive tape’	1
ˈKoffer-ˌraum	‘luggage space’	1
ˈLeber-ˌfleck	‘mole’	1
ˈNeben-ˌmann	‘neighbor’	1
ˈNudel-ˌholz	‘rolling pin’	1
ˈOster-ˌnest	‘easter + nest’	1
ˈPausen-ˌclown	‘pause + clown’	1
ˈPurzel-ˌbaum	‘tumble’	1
ˈPuste-ˌblume	‘blow ball’	1
ˈSchlüssel-ˌloch	‘keyhole’	1
ˈTinten-ˌfisch	‘octopus’	1
ˈUnter-ˌhemd	‘undershirt’	1

'Wasser-ˌschlauch	'garden hose'	1
'Zipfel-ˌmann	'point + man'	1

Quadrisyllabic compounds with bisyllabic constituents (total 110/387)

Target word	Gloss	Token
'Mieze-ˌkatze, 'Mieze-ˌkatzen (plural)	'pussy cat'	28
'Oster-ˌeier (plural)	'easter egg'	9
'Gummi-ˌbärchen	'jelly bear'	8
'Auto-ˌpizza	'car + pizza'	4
'Kuschel-ˌhase	'cruddly + bunny'	4
'Auto-ˌschlüssel	'car key'	3
'Eier-ˌbecher	'egg cup'	3
'Puppen-ˌwagen	'doll's pram'	3
'Apfel-ˌkuchen	'apple pie'	2
'Auto-ˌfahrer	'car driver'	2
'Butter-ˌblume	'buttercup'	2
'Ellen-ˌbogen	'elbow'	2
'Höhlen-ˌdecke	'cave + ceiling'	2
'Katzen-ˌbabies	'baby cat'	2
'Kinder-ˌgarten	'kindergarten'	2
'Kirchen-ˌglocken (plural)	'church bells'	2
'Mittag-ˌessen	'lunch'	2
'Oster-ˌhase	'easter + bunny'	2
'Rasen-ˌmäher	'lawn-mower'	2
'Tannen-ˌzapfen	'fir cone'	2
'Unter-ˌhose	'shorts'	2
'Wäsche-ˌklammer	'clothespin'	2
'Affen-ˌbaby	'baby ape'	1

'Apfel-ˌschorle	'apple cider'	1
'Bade-ˌhose	'bathing suit'	1
'Bauch-ˌnabel	'bellybutton'	1
'Butter-ˌbrot	'butter ham'	1
'Finger-ˌpuppe	'finger + puppet'	1
'Häschen-ˌfutter	'bunny + forage'	1
'Hunde-ˌhütte	'doghouse'	1
'Käse-ˌkuchen	'cheesecake'	1
'Keller-ˌtreppe	'basement stairs'	1
'Kinder-ˌtasche	'child's bag'	1
'Kinder-ˌwagen	'buggy'	1
'Nagel-ˌschere	'nail scissors'	1
'Nasen-ˌtropfen	'nose drops'	1
'Regen-ˌtonne	'rain barrel'	1
'Tausend-ˌfüßler	'centipede'	1

Quadrisyllabic compounds with an initial monosyllabic constituent (total 4/387)

Target word	Gloss	Token
'Kehr-maˌschine	'road sweeper'	3
'Wasch-maˌschine	'washing machine'	1

Quadrisyllabic compounds with a monosyllabicc final constituent (total 13/387)

Target word	Gloss	Token
Ko'ala-ˌbär	'koala + bear'	13

Five syllables, compound-initial unfooted syllable (total 3/387)

Target word	Gloss	Token
To'maten-ˌsoße	'tomato sauce'	2
Jo'hannis-ˌbeeren (plural)	'red currants'	1

Five syllables, compound-internal unfooted syllable (total 1/387)

Target word	Gloss	Token
'Ameisen-ˌstraße	'ant-trail'	1

Five syllables, initial bipedal constituent (total 1/387)

Target word	Gloss	Token
Poli'zei-ˌauto	'police car'	1
ˌSchoko'laden-ˌeis	'chocolate ice-cream'	1

Six syllables, final bipedal constituent (total 17/387)

Target word	Gloss	Token
'Fieber-ˌthermoˌmeter	'clinical thermometer'	17

Six syllables, both constituents with unfooted syllables (total 2/387)

Target word	Gloss	Token
Ka'ssetten-reˌcorder	'tape recorder'	2

Other compound shapes (total 15/ 387)

Prosodic shape	Target word	Gloss	Token
S-s-s	ˈFahr-ˌrad-ˌhelm	‘bike helmet’	1
S-s-sW	ˈFisch-ˌöl-ˌkapsel	‘fish + oil + capsule’	2
S-s-Ws	ˈHeiß-ˌluft-baˌllon	‘hot-air balloon’	3
WS-SW	Moˈtor-ˌroller	‘scooter’	1
WSW-WS	Toiˈletten-paˌpier	‘toilet paper’	1
S-sW-sW	ˈSonn(en)- ˌkäfer-ˌpapa	‘sun + beetle + daddy’	1
SW-s-sW	ˈFeuer-ˌwehr-ˌauto	‘fire engine’	5
sWSW-sW	ˌMozzaˈrella-ˌkäse	‘mozzarella + cheese’	1

Pseudo-Compounds

Pseudo-compounds class I (86 /121)

Target word	Gloss	Token
ˈTeleˌfon	‘telephone’	26
ˈAˌmeise, ˈAˌmeisen (plural)	‘ant’	24
ˈEiˌdechse	‘lizard’	13
ˈMikroˌfon	‘microphone’	12
ˈNackeˌdei	‚naked child‘	2
ˈHeuˌschrecke	‚grasshopper‘	2

Pseudo-compounds class II (35/121)

Target word	Gloss	Token
ˈPinguˌin	‘penguin’	25
ˈBenjaˌmin	proper name	7
ˈPeliˌkan	‘pelican’	2
ˈJonaˌthan	proper name	1

B. Statistical comparisons

Spontaneous vs. imitated production

Table B-1. The results of the Chi-square-test (Pearson's χ^2) comparing the truncation rate (truncated, non-truncated) depending on the production mode (spontaneous, imitated).

Child	Truncation?	Spont.	Imitation	Total	Comparison
Eleonora	non-truncated	104	77	506	$\chi^2(1) = 1.29; p > .1$
	truncated	205	120		
Nele	non-truncated	143	55	441	$\chi^2(1) = 0.64; p > .1$
	truncated	167	76		
Sandra	non-truncated	111	88	338	$\chi^2(1) = 0.11; p > .5$
	truncated	80	59		
Wiglaf	non-truncated	153	75	429	$\chi^2(1) = 0.72; p > .1$
	truncated	127	74		
Total	non-truncated	511	295	1714	$\chi^2(1) = 0.02; p > .5$
	truncated	579	329		

Initial vs. non-initial position

Table B-2. The outcome of the Chi-square-test (Pearson's χ^2) comparing the truncation rate (truncated, non-truncated) depending on the position (initial, non-initial), Words produced as single word utterances (N=923) are not regarded.

Child	Truncation?	Initial	non-initial	Total	Comparison
Eleonora	non-truncated	28	56	219	$\chi^2(1) = 1.21; p > .1$
	truncated	55	80		
Nele	non-truncated	35	72	240	$\chi^2(1) = 0.04; p > .5$
	truncated	42	91		
Sandra	non-truncated	36	51	137	$\chi^2(1) = 0.56; p > .1$
	truncated	24	26		
Wiglaf	non-truncated	29	93	195	$\chi^2(1) = 0.02; p > .5$
	truncated	18	55		
total	non-truncated	128	272	791	$\chi^2(1) = 1.11; p > .1$
	truncated	139	252		

C. Overview of the individual development

The foot-based development: Summary

	Simplex words	Compounds
Stage 1	- correspond to a single trochaic foot	
Stage 2	- correspond to a single trochaic foot	- comprise two feet - target-like stress
Stage 3	- one or two feet - target-like stress	- comprise two feet - target-like stress
Stage 4	target-like outputs	no data

The following Figures C-1 to C-3 depict the duration of the developmental stages for the three children show a foot-based development. The dark grey bars indicate the duration of a stage in simplex words, the light grey bars in compounds. The final column presents the precise periods a particular stage is observed in the data of the respective child.

Wiglaf (recorded from age 1;03.21 to 2;01.21)

	1;05	1;06	1;07	1;08	1;09	1;10	1;11	2;0	2;01	Stages observed at
Stage 1: sim										1;05.26- 1;10.28
Stage 1: com										1;08.06- 1;09.09
Stage 2: sim										1;05.26- 1;10.28
Stage 2: com										1;09.26 – 2.01.24
Stage 3: sim										2;0.11 – 2;0.24
Stage 3: com										marginally at 1;11.23
Stage 4: sim										2;0.24 – 2.01.21

Figure C-1. The developmental stages observed in the data of Wiglaf. Compounds are not depicted for Stage 3 as they did not change as compared to Stage 2. Stage 5 refers only to simplex words because there were no instances of compounds indicative of that stage in Wiglaf's speech.

Sandra (recorded from age 1;02.10 to 1;11.0)

	1;05	1;06	1;07	1;08	1;09	1;10	1;11	Stages observed at
Stage 1: sim								1;05.20 – 1; 08.31
Stage 1: com								marginally from 1;07.08- 1;08.21
Stage 2: sim								1;05.20 – 1; 08.31
Stage 2: com								1;08.21 – 1;11.0
Stage 3: sim								1;08. 31 – 1;11.0
Stage 4: sim								1;09.16 – 1;11.0

Figure C-2. The developmental stages observed in the data of Sandra. Note that the production pattern of compounds is not provided for Stages 3, 4 and 5 as there are no compound data indicative of these stages in Sandra's database.

Eleonora (recorded from age 1;0.07 to 1;10.25)

	1;03	1;04	1;05	1;06	1;07	1;08	1;09	1;10	Stages observed at
Stage 1: sim									1;03.05 – 1;08.15
Stage 1: com									1;04.06 – 1;09.09
Stage 2: sim									1;03.05 – 1;08.15
Stage 2: com									1;09.09 – 1;10.25
Stage 3: sim									1;09.21 – 1;10.25
Stage 3: com									1;09.09 (marginally)
Stage 4: sim									1;10.19- 1;10.25

Figure C-1. The developmental stages observed in the data of Eleonora. No compound data are provided for Stages 3 and 5 because Eleonora's database does not contain instances representative for these stages.

Syllable-based development: Summary

	Simplex words	Compounds
Stage 1	correspond to a single trochaic foot	
Stage 2	correspond to a single trochaic foot	- comprise two feet - target-like stress
Stage 3"	correspond to a trochaic or iambic foot	each constituent corresponds to a trochaic or iambic foot
Stages 3 and 4	target-like outputs	no data

The following Figure C-4 depicts the duration of the developmental stages for Nele, the child showing a syllable-based development. The dark grey bars indicate the duration of a stage in simplex words, the light grey bars in compounds. The final column presents the precise periods a particular stage is observed in her data.

Nele (recorded from age 1;01.22 – 2;0.19)

	1;06	1;07	1;08	1;09	1;10	1;11	2;0	Stages observed at
Stage 1: sim								1;06.11 – 1;10.0
Stage 1: com								1;08.29 – 1;09.24
Stage 2: sim								1;06.11 – 1;10.0
Stage 2: com								1;09.24 – 2;0.19
Stage 3": sim								1;10.0 – 2;0.02
Stage 3": com								1;11.04 - 2;0.19
Stage 3 and 4: sim								1;11.14 – 2;0.19

Figure C-4. The developmental stages observed in the data of Nele. There are no compound data corresponding to Stage 5.

D. Agreement with the model

The following tables regard outputs which exactly correspond to the acquisition model.

Overall agreement

Name	Simplex words	Compounds	Pseudocompounds
Eleonora	304/410 (74.1%)	31/51 (60.8%)	34/45 (75,5%)
Nele	257/311 (82.3%)	89/116 (76.7%)	6/14 (42.0%)
Sandra	161/187 (86.1%)	75/120 (62.5%)	20/31 (64.4%)
Wiglaf	225/298 (74.0%)	69/100 (69.0%)	13/31 (41.9%)

Simplex words

WS targets

Eleonora, Sandra, and Wiglaf

	Stage 1	Stage 2	Stage 3	Stage 3'	Stage 4	Sum
Prediction	S			-	WS	
Eleonora	43/112 (38.4 %)			-	37/112 (33.0 %)	80/112 (71.4%)
Sandra	32/73 (43.8%)			-	31/73 (42.5%)	63/73 (86.3%)
Wiglaf	44/80 (55.0 %)			-	9/80 (11.3%)	53/80 (66.3%)

Nele

	Stage 1	Stage 2	Stage 3	Stage 3'	Stage 4	Sum
Prediction	S		-	WS		
Nele	54/84 (64.3%)		-	15/84 (17.9 %)		69/84 (82.2%)

WSW targets

	Stage 1	Stage 2	Stage 3	Stage 4	Sum
Prediction	SW			WSW	
Eleonora	60/74 (81.1%)			5/74 (6.8%)	65/74 (89.9%)
Nele	48/88 (54.5%)			30/88 (34.1%)	78/88 (88.6%)
Sandra	46/66 (69.7%)			14/66 (21.2%)	60/66 (90.9%)
Wiglaf	61/85 (71.8%)			17/85 (20.0%)	78/85 (91.8%)

sWS targets

Eleonora, Sandra, Wiglaf

	Stage 1	Stage 2	Stage 3'	Stage 4	sum
Prediction	S		-	sWS	
Eleonora	93/158 (58.9%)		-	22/158 (13.9%)	115/158 (72.8%)
Sandra	2/31 (6.5%)		-	24/31 (77.4%)	26/31 (83.9%)
Wiglaf	14/92 (15.2%)		-	46/92 (50.0%)	60/92 (65.2%)

Nele

	Stage 1	Stage 2	Stage 3	Stage 3'	Stage 4	sum
Prediction	S		-	WS	sWS	
Nele	51/110 (46.4%)		-	19 (17.3%)	16 (14.5%)	86/110 (78.2%)

sWSW targets

	Stage 1	Stage 2	Stage 3	Stage 4	sum
Prediction	SW		sWSW		
Eleonora	18/27 (66.7%)		2/27 (7.4%)		20/27 (74.1%)
Nele	5/13 (38.5%)		6/13 (46.2%)		11/13 (84.6%)
Sandra	1/19 (11.1%)		4/9 (44.4%)		5/9 (55.6%)
Wiglaf	13/15 (86.7%)		2/15 (13.3%)		15/15 (100%)

sWWSW targets

	Stage 1	Stage 2	Stage 3	Stage 4	Sum
Prediction	SW		sWSW	sWWSW	
Nele	3/3 (100%)		-	-	3/3 (100%)
Wiglaf	10/16 (62.5%)		3/16 (18.8%)	-	13/16 (81.3%)

SWW targets

	Stage 1	Stage 2	Stage 3	Stage 4	sum
Prediction	SW		SWs	SWW	
Eleonora	13/39 (33.3%)		1/39 (7.7%)	10/39 (25.5%)	24/39 (61.5%)
Nele	9/14 (64.3%)		0/14	1/14 (7.1%)	10/14 (71.4%)
Sandra	4/8 (50.0%)		2/8 (25.0%)	1/8 (12.5%)	7/8 (87.5%)
Wiglaf	3/16 (18.8%)		0/16	3/16 (18.8%)	6/16 (37.5%)

Compounds

S-sW targets

	Stage 1	Stage 2	Stage 3	Stage 4	Sum
Prediction	SW	S-sW			
Eleonora	10/19 (52.6%)	6/19 (31.6%)			16/19 (84.2%)
Nele	8/24 (33.3%)	14/24 (58.3%)			22/24 (91.6%)
Sandra	2/24 (8.3%)	17/24 (70.8%)			19/24 (79.1%)
Wiglaf	3/41 (7.3%)	28/41 (68.3%)			31/41(75.6%)

SW-s targets

	Stage 1	Stage 2	Stage 3	Stage 4	Sum
Prediction	SW	SW-s			
Eleonora	1/20 (5.0%)	9/20 (45.0%)			10/20 (50.0%)
Nele	2/39 (5.1%)	32/39 (82.1%)			34/39 (87.2%)
Sandra	0/10 (0%)	9/10 (90.0%)			9/10 (90.0%)
Wiglaf	7/30 (23.3%)	14/30 (46.7%)			21/30 (70.0%)

SW-sW targets

	Stage 1	Stage 2	Stage 3	Stage 4	Sum
Prediction	SW	SW-sW			
Eleonora	2/7 (28.6%)	2/7 (28.6%)			4/7 (57.1%)
Nele	1/28 (3.6%)	23/28 (82.1%)			24/28 (85.7%)
Sandra	4/57 (7.0%)	23/57 (40.4%)			27/57 (47.4%)
Wiglaf	0/14 (0%)	11/14 (78.6%)			11/14 (78.6%)

Compounds containing unfooted syllables

	Stage 1	Stage 2	Stage 3	Stage 4	Sum
Prediction	Single foot	Bipedal output	Bipedal constituents	Unfooted syllables	
Eleonora	0/5 (0%)	0/5 (0%)	1/5 (20%)	0/5	1/5 (20%)
Nele	0/17 (0%)	9/17 (52.9%)	0/17 (0%)	0/17 (0%)	9/17 (52.9%)
Sandra	1/8 (12.5%)	2/8 (25%)	0/8 (0%)	5/8 (62.5%)	8/8 (100%)
Wiglaf	2/4 (50%)	2/4 (50%)	0/4 (0%)	0/4 (0%)	(4/4 (100%)

Compounds containing bipedal constituents

	Stage 1	Stage 2	Stage 3	Stage 4	Sum
Prediction	Single foot	Bipedal output	Bipedal constituents, target-like stress		
Sandra	11/14 (78.6%)	1/14 (7.1%)	0/14 (0%)		12/14 (85.7%)
Wiglaf	0/2 (0%)	1 /2 (50%)	1/ 2 (50%)		2/2 (100%)

Pseudo-compounds

Class I

	Stage 1	Stage 2	Stage 3	Stage 4	Sum
Prediction	Single foot	Two feet			
Eleonora	23/36 (63.9%)	8/36 (22.2%)			31/36 (86.1%)
Nele	1/14 (7.1%)	5/14 (35.7%)			6/14 (42.9%)
Sandra	0	3/6 (50%)			3/6 (50%)
Wiglaf	0	13/30 (43.3%)			13/30 (43.3%)

Class II

	Stage 1	Stage 2	Stage 3	Stage 4	Sum
Prediction	Single foot		Two feet		
Eleonora	3/9 (33.3%)		0/9		3/9 (33.3%)
Sandra	7/25 (28%)		10/25 (40%)		17/25 (68%)
Wiglaf	0/1		0/1		0/1

E. List of Tokens

Abbreviations: AD = adult, CH = child

Children's age is given in year; month. day

SW child = SW-structure of the child's utterance; with S = main-stressed, s = secondary stressed, and W = weak syllable

Word type: mon = simplex (monomorphemic), com = compound,

Mode: Sp = spontaneous, imit = imitated production

Position: SWU = single word utterance; n-ini = non-initial, and ini = initial position

Note: Due to technical reasons, the transcriptions in APPENDIX F) encode ambisyllabicity in very few cases. Ambisyllabicity is indicated by a small hyphen beneath the respective consonant (e.g. [n̠].

Eleonora

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈhaːdʲ	S	mon	radio	Sp	SWU
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈhaːdi	SW	mon	radio	Sp	SWU
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈhadi	SW	mon	radio	imit	SWU
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈdadi	SW	mon	radio	Sp	n-ini
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈaːdija	SWW	mon	radio	imit	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈaːdi	SW	mon	radio	Sp	n-ini
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈaːdi	SW	mon	radio	imit	SWU
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈaːdi	SW	mon	radio	imit	ini
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈaˈdi	SS	mon	radio	Sp	n-ini
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈadi	SW	mon	radio	Sp	ini
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈʔaːdi	SW	mon	radio	imit	SWU
Eleonora	1;0.07	Radio	ˈʁaːdijo	ˈʔati	SW	mon	radio	imit	SWU
Eleonora	1;0.07	Radio	ˈʁaːdijo	adʲ	S	mon	radio	imit	SWU
Eleonora	1;01.11	Radio	ˈʁaːdijo	haˈti	WS	mon	radio	imit	n-ini
Eleonora	1;01.11	Radio	ˈʁaːdijo	ˈʔaˈti	SS	mon	radio	Sp	SWU
Eleonora	1;01.11	Radio	ˈʁaːdijo	ʔaˈti	WS	mon	radio	imit	n-ini
Eleonora	1;01.11	Radio	ˈʁaːdijo	ʔaˈti	WS	mon	radio	Sp	SWU
Eleonora	1;01.11	Radio	ˈʁaːdijo	ʔaˈti	WS	mon	radio	imit	ini
Eleonora	1;02.07	Telefon	ˈteːləˌfon	ˈdeːja	SW	mon	telephone	Sp	SWU
Eleonora	1;02.07	Telefon	ˈteːləˌfon	ˈdeːja	SW	mon	telephone	Sp	SWU
Eleonora	1;02.14	Radio	ˈʁaːdijo	ˈati	SW	mon	radio	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;02.14	Radio	ˈʁaːdijo	aːˈti	WS	mon	radio	Sp	SWU
Eleonora	1;02.14	Radio	ˈʁaːdijo	aˈti	WS	mon	radio	Sp	n-ini
Eleonora	1;02.22	Radio	ˈʁaːdijo	ˈʔati	SW	mon	radio	Sp	SWU
Eleonora	1;02.22	Radio	ˈʁaːdijo	ˈʔati	SW	mon	radio	Sp	SWU
Eleonora	1;02.22	Telefon	ˈteːləˌfon	ˈdeːja	SW	mon	telephone	Sp	SWU
Eleonora	1;03.05	Papagei	ˌpapaˈga͡ɪ	ta͡ːɪ	S	mon	parrot	imit	ini
Eleonora	1;03.05	Papagei	ˌpapaˈga͡ɪ	ta͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;03.05	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	imit	SWU
Eleonora	1;03.05	Papagei	ˌpapaˈga͡ɪ	da͡ɪ	S	mon	parrot	imit	n-ini
Eleonora	1;03.05	Papagei	ˌpapaˈga͡ɪ	da͡ɪ	S	mon	parrot	imit	SWU
Eleonora	1;03.05	Papagei	ˌpapaˈga͡ɪ	da͡ɪ	S	mon	parrot	imit	SWU
Eleonora	1;03.05	Papagei	ˌpapaˈga͡ɪ	da͡ɪ	S	mon	parrot	imit	SWU
Eleonora	1;03.05	Papagei	ˌpapaˈga͡ɪ	daˈhɨ	WS	mon	parrot	Sp	SWU
Eleonora	1;03.05	Telefon	ˈteːləˌfon	ˈdija	SW	mon	telephone	Sp	SWU
Eleonora	1;03.12	Papagei	ˌpapaˈga͡ɪ	ta͡ːɪ	S	mon	parrot	imit	SWU
Eleonora	1;03.12	Papagei	ˌpapaˈga͡ɪ	ta͡ɪ	S	mon	parrot	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;03.22	Elefant	ˌʡeləˈfant	ˈʡɛˈθan	SS	mon	elephant	Sp	SWU
Eleonora	1;04.02	Elefant	ˌʡeləˈfant	mant	S	mon	elephant	imit	SWU
Eleonora	1;04.02	Giraffe	giˈʁafə	ˈʡafʊf	SW	mon	giraffe	Sp	n-ini
Eleonora	1;04.02	Giraffe	giˈʁafə	ˈʡafʊf	SW	mon	giraffe	imit	SWU
Eleonora	1;04.02	Giraffe	giˈʁafə	ˈʡafuf	SW	mon	giraffe	Sp	ini
Eleonora	1;04.02	Giraffe	giˈʁafə	ˈʡafʊf	SW	mon	giraffe	imit	SWU
Eleonora	1;04.02	Giraffe	giˈʁafə	ˈʡafɯf	SW	mon	giraffe	imit	SWU
Eleonora	1;04.02	Mandarine	ˌmandaˈʁiːnə	niˈniː	WS	mon	tangerine	Sp	n-ini
Eleonora	1;04.02	Mandarine	ˌmandaˈʁiːnə	neˈne	WS	mon	tangerine	Sp	n-ini
Eleonora	1;04.02	Mandarine	ˌmandaˈʁiːnə	nɛˈne	WS	mon	tangerine	imit	SWU
Eleonora	1;04.02	Mandarine	ˌmandaˈʁiːnə	ˈnene	SW	mon	tangerine	Sp	ini
Eleonora	1;04.02	Papagei	ˌpapaˈga͡ɪ	ta͡ɪ	S	mon	parrot	imit	SWU
Eleonora	1;04.02	Telefon	ˈteːləˌfon	ˈtʰeja	SW	mon	telephone	imit	SWU
Eleonora	1;04.08	Krokodil	ˌkʁokoˈdiːl	ˈdijahaː	SWW	mon	crocodile	imit	SWU
Eleonora	1;04.08	Mandarine	ˌmandaˈʁiːnə	ˈniːna	SW	mon	tangerine	imit	SWU
Eleonora	1;04.08	Mandarine	ˌmandaˈʁiːnə	ˈnini	SW	mon	tangerine	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;04.08	Papagei	ˌpapaˈga͡ɪ	ta͡ɪ	S	mon	parrot	imit	SWU
Eleonora	1;04.08	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	imit	SWU
Eleonora	1;04.08	Papagei	ˌpapaˈga͡ɪ	da͡ɪː	S	mon	parrot	Sp	SWU
Eleonora	1;04.08	Papagei	ˌpapaˈga͡ɪ	da͡ɪç	S	mon	parrot	imit	SWU
Eleonora	1;04.08	Radio	ˈʁaːdijo	ˈadija	SWW	mon	radio	Sp	n-ini
Eleonora	1;04.08	Renee	ʁeˈneː	ˈneneː	SW	mon	proper name	Sp	SWU
Eleonora	1;04.08	Salat	zaˈlaːt	ˈdadatʰ	SW	mon	salad	imit	SWU
Eleonora	1;04.08	Telefon	ˈteːləˌfon	ˈtija	SW	mon	telephone	Sp	SWU
Eleonora	1;04.08	Telefon	ˈteːləˌfon	ˈteja	SW	mon	telephone	Sp	SWU
Eleonora	1;04.08	Telefon	ˈteːləˌfon	ˈdija	SW	mon	telephone	imit	SWU
Eleonora	1;04.08	Telefon	ˈteːləˌfon	ˈdeja	SW	mon	telephone	Sp	ini
Eleonora	1;04.23	Kamel	kaˈmeːl	meːl	S	mon	camel	imit	ini
Eleonora	1;04.23	Kamel	kaˈmeːl	mel	S	mon	camel	imit	n-ini
Eleonora	1;04.23	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	imit	SWU
Eleonora	1;04.23	Telefon	ˈteːləˌfon	ˈdeja	SW	mon	telephone	Sp	SWU
Eleonora	1;04.23	Telefon	ˈteːləˌfon	diˈja	WS	mon	telephone	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;04.23	Telefon	ˈteːləˌfon	deˈja	WS	mon	telephone	Sp	SWU
Eleonora	1;04.30	Elefant	ˌʔeləˈfant	pʰan	S	mon	elephant	imit	SWU
Eleonora	1;04.30	Elefant	ˌʔeləˈfant	pʰan	S	mon	elephant	imit	SWU
Eleonora	1;04.30	Elefant	ˌʔeləˈfant	pãⁿ	S	mon	elephant	imit	SWU
Eleonora	1;04.30	Kamel	kaˈmeːl	ˈmeːa	SW	mon	camel	imit	SWU
Eleonora	1;04.30	Kamel	kaˈmeːl	ˈmejaˡ	SW	mon	camel	imit	SWU
Eleonora	1;04.30	Krokodil	ˌkʁokoˈdiːl	ˈtɨja	SW	mon	crocodile	imit	SWU
Eleonora	1;04.30	Mandarine	ˌmandaˈʁiːnə	niˈni	WS	mon	tangerine	Sp	SWU
Eleonora	1;04.30	Papagei	ˌpapaˈga͡ɪ	ga͡ɪˡ	S	mon	parrot	Sp	SWU
Eleonora	1;04.30	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	imit	SWU
Eleonora	1;04.30	Radio	ˈʁaːdijo	haˈdija	WSW	mon	radio	imit	SWU
Eleonora	1;04.30	Renee	ʁeˈneː	nenː	S	mon	proper name	imit	SWU
Eleonora	1;04.30	Renee	ʁeˈneː	ˈneˈneː	SS	mon	proper name	Sp	SWU
Eleonora	1;05.05	Krokodil	ˌkʁokoˈdiːl	ˈkʰiːjɛl	SW	mon	crocodile	imit	SWU
Eleonora	1;05.05	Radio	ˈʁaːdijo	ˈʔatija	SWW	mon	radio	imit	SWU
Eleonora	1;05.23	Elefant	ˌʔeləˈfant	pantʰ	S	mon	elephant	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;05.23	Elefant	ˌʔeləˈfant	maːntʰ	S	mon	elephant	Sp	n-ini
Eleonora	1;05.23	Elefant	ˌʔeləˈfant	maːntʰ	S	mon	elephant	Sp	ini
Eleonora	1;05.23	Papagei	ˌpapaˈga͡ɪ	ka͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;05.23	Papagei	ˌpapaˈga͡ɪ	gal	S	mon	parrot	Sp	n-ini
Eleonora	1;05.23	Papagei	ˌpapaˈga͡ɪ	ˈpʰapʰa	SW	mon	parrot	imit	SWU
Eleonora	1;05.23	Papagei	ˌpapaˈga͡ɪ	ka͡ːɪt	S	mon	parrot	Sp	SWU
Eleonora	1;05.23	Telefon	ˈteːləˌfon	ˈtʰøɐ	SW	mon	telephone	Sp	SWU
Eleonora	1;05.23	Telefon	ˈteːləˌfon	ˈtʰeɐ	SW	mon	telephone	Sp	SWU
Eleonora	1;05.23	Telefon	ˈteːləˌfon	ˈdija	SW	mon	telephone	Sp	SWU
Eleonora	1;06.05	Elefant	ˌʔeləˈfant	pʰantʰ	S	mon	elephant	imit	n-ini
Eleonora	1;06.05	Elefant	ˌʔeləˈfant	pʰantʰ	S	mon	elephant	Sp	n-ini
Eleonora	1;06.05	Elefant	ˌʔeləˈfant	pʰantʰ	S	mon	elephant	imit	SWU
Eleonora	1;06.05	Elefant	ˌʔeləˈfant	pʰantʰ	S	mon	elephant	imit	SWU
Eleonora	1;06.05	Elefant	ˌʔeləˈfant	pʰantʰ	S	mon	elephant	Sp	SWU
Eleonora	1;06.05	Elefant	ˌʔeləˈfant	pʰantʰ	S	mon	elephant	Sp	SWU
Eleonora	1;06.05	Elefant	ˌʔeləˈfant	pʰantʰ	S	mon	elephant	imit	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;06.05	Elefant	ˌʔeləˈfant	pʰantʰ	S	mon	elephant	Sp	ini
Eleonora	1;06.05	Fagott	faˈgɔt	kʰɔkʰ	S	mon	bassoon	imit	SWU
Eleonora	1;06.05	Kakao	kaˈka͡ɔ	kʰa͡ɔkʰ	S	mon	cocoa	imit	SWU
Eleonora	1;06.05	Kakao	kaˈka͡ɔ	kʰa͡ɔ	S	mon	cocoa	Sp	n-ini
Eleonora	1;06.05	Kakao	kaˈka͡ɔ	kʰa͡ɔ	S	mon	cocoa	Sp	n-ini
Eleonora	1;06.05	Kakao	kaˈka͡ɔ	kʰa͡ɔ	S	mon	cocoa	imit	SWU
Eleonora	1;06.05	Kakao	kaˈka͡ɔ	kʰa͡ɔ	S	mon	cocoa	imit	SWU
Eleonora	1;06.05	Kakao	kaˈka͡ɔ	kʰa͡ɔ	S	mon	cocoa	Sp	ini
Eleonora	1;06.05	Kakao	kaˈka͡ɔ	kʰaɔkʰ	S	mon	cocoa	Sp	n-ini
Eleonora	1;06.05	Kakao	kaˈka͡ɔ	kʰaɔ	S	mon	cocoa	Sp	n-ini
Eleonora	1;06.05	Kaputt	kaˈpʊt	pʰɯpʰ	S	mon	defective	imit	SWU
Eleonora	1;06.05	Marmelade	ˌmaɐməˈlaːdə	ˈlalɛ	SW	mon	jam	imit	n-ini
Eleonora	1;06.05	Marmelade	ˌmaɐməˈlaːdə	ˈlaˈlɛ	SW	mon	jam	imit	ini
Eleonora	1;06.05	Marmelade	ˌmaɐməˈlaːdə	ˈdaːlɛ	SW	mon	jam	imit	SWU
Eleonora	1;06.05	Papagei	ˌpapaˈga͡ɪ	gaɪ	S	mon	parrot	Sp	SWU
Eleonora	1;06.05	Radio	ˈʁaːdijo	ˈʔatɨja	SWW	mon	radio	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;06.15	Ballon	baˈlɔŋ	ˈbɪlːɛn	SW	mon	balloon	Sp	SWU
Eleonora	1;06.15	Ballon	baˈlɔŋ	ˈbɪlən	SW	mon	balloon	Sp	ini
Eleonora	1;06.15	Ballon	baˈlɔŋ	ˈbanɔn	SW	mon	balloon	Sp	n-ini
Eleonora	1;06.15	Ballon	baˈlɔŋ	bɪˈlɛːn	WS	mon	balloon	Sp	n-ini
Eleonora	1;06.15	Ballon	baˈlɔŋ	bɪˈlɛn	WS	mon	balloon	Sp	n-ini
Eleonora	1;06.15	Elefant	ˌʔeləˈfant	phant^h	S	mon	elephant	Sp	n-ini
Eleonora	1;06.15	Elefant	ˌʔeləˈfant	p^{h}ant^h	S	mon	elephant	Sp	ini
Eleonora	1;06.15	Elefant	ˌʔeləˈfant	pant^h	S	mon	elephant	Sp	SWU
Eleonora	1;06.15	Elefant	ˌʔeləˈfant	pant^h	S	mon	elephant	imit	SWU
Eleonora	1;06.15	Elefant	ˌʔeləˈfant	pant	S	mon	elephant	Sp	SWU
Eleonora	1;06.15	Fasan	faˈzaːn	ʋaːn	S	mon	pheasant	imit	SWU
Eleonora	1;06.15	Fasan	faˈzaːn	ˈʋaːna	SW	mon	pheasant	imit	SWU
Eleonora	1;06.15	Giraffe	giˈʁafə	ˈχaχə	SW	mon	giraffe	imit	SWU
Eleonora	1;06.15	Giraffe	giˈʁafə	ˈhaχə	SW	mon	giraffe	Sp	SWU
Eleonora	1;06.15	Gitarre	giˈtaʁə	ˈχaxə	SW	mon	guitar	imit	SWU
Eleonora	1;06.15	Gorilla	goˈʁɪla	ˈχʊlala	SWW	mon	gorilla	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;06.15	Gorilla	goˈʁɪla	ˈχɤlala	SWW	mon	gorilla	imit	SWU
Eleonora	1;06.15	Gorilla	goˈʁɪla	ˈχɯlaː	SW	mon	gorilla	imit	SWU
Eleonora	1;06.15	Gorilla	goˈʁɪla	ˈχɯlala	SWW	mon	gorilla	imit	SWU
Eleonora	1;06.15	Gorilla	goˈʁɪla	ˈkχohala	SWW	mon	gorilla	imit	ini
Eleonora	1;06.15	Gorilla	goˈʁɪla	ˈkɯlala	SWW	mon	gorilla	imit	n-ini
Eleonora	1;06.15	Kakao	kaˈka͡ɔ	kʰa͡ɔ	S	mon	cocoa	imit	SWU
Eleonora	1;06.15	Kamel	kaˈmeːl	meːl	S	mon	camel	Sp	n-ini
Eleonora	1;06.15	Kamel	kaˈmeːl	meːl	S	mon	camel	Sp	ini
Eleonora	1;06.15	Kamel	kaˈmeːl	ˈpʰɨːn̩	SW	mon	camel	imit	SWU
Eleonora	1;06.15	Karussell	ˌkaʁuˈsɛl	zɛl	S	mon	marry-go-round	imit	SWU
Eleonora	1;06.15	Karussell	ˌkaʁuˈsɛl	ˈsɛʔɛl	SW	mon	marry-go-round	imit	SWU
Eleonora	1;06.15	Krokodil	ˌkʁokoˈdiːl	ˈkʰɯˈkʰi	SS	mon	crocodile	Sp	SWU
Eleonora	1;06.15	Luftballon	ˈlʊftbaˌlɔŋ	ˈbəˈnɔn	SS	com	balloon	Sp	SWU
Eleonora	1;06.15	Luftballon	ˈlʊftbaˌlɔŋ	bəˈnɔ̃ːn	WS	com	balloon	Sp	SWU
Eleonora	1;06.15	Mandarine	ˌmandaˈʁiːnə	ˈneːne	SW	mon	tangerine	imit	ini
Eleonora	1;06.15	Mandarine	ˌmandaˈʁiːnə	ˈneˈne	SS	mon	tangerine	imit	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;06.15	Papagei	ˌpapaˈga͡ɪ	ka͡ɪ	S	mon	parrot	imit	SWU
Eleonora	1;06.15	Paprika	ˈpapʁika	piˈkʰa	WS	mon	pepper	imit	SWU
Eleonora	1;06.15	Paprika	ˈpapʁika	ˈpʰiːkʰa	SW	mon	pepper	imit	SWU
Eleonora	1;06.15	Salat	zaˈlaːt	tʰaːtʰ	S	mon	salad	imit	SWU
Eleonora	1;06.15	Tomate	toˈmaːtə	ˈpʰaːtə	SW	mon	tomato	imit	SWU
Eleonora	1;06.15	Zitrone	t͡siˈtʁoːnə	ˈχɤːntʰɛ	SW	mon	citron	imit	SWU
Eleonora	1;06.22	Apfelsaft	ˈʔap͡fəlˌzaft	ˈʔaˈpl̩	SS	com	apple juice	Sp	SWU
Eleonora	1;06.22	Elefant	ˌʔeləˈfant	pãtʰ	S	mon	elephant	imit	SWU
Eleonora	1;06.22	Giraffe	giˈʁafə	ˈhaxɵ	SW	mon	giraffe	imit	SWU
Eleonora	1;06.22	Giraffe	giˈʁafə	ˈhaxɛn	SW	mon	giraffe	Sp	SWU
Eleonora	1;06.22	Giraffe	giˈʁafə	ˈhaɸə	SW	mon	giraffe	Sp	SWU
Eleonora	1;06.22	Gitarre	giˈtaʁə	ˈtχaχə	SW	mon	guitar	Sp	SWU
Eleonora	1;06.22	Gitarre	giˈtaʁə	ˈtχaxə	SW	mon	guitar	imit	SWU
Eleonora	1;06.22	Kamel	kaˈmeːl	meːˡ	S	mon	camel	imit	SWU
Eleonora	1;06.22	Kamel	kaˈmeːl	mel	S	mon	camel	imit	SWU
Eleonora	1;06.22	Krokodil	ˌkʁokoˈdiːl	ˈkχʊli	SW	mon	crocodile	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;06.22	Krokodil	ˌkʁokoˈdiːl	ˈkχoːlɨ	SW	mon	crocodile	Sp	SWU
Eleonora	1;06.22	Krokodil	ˌkʁokoˈdiːl	ˈkʊlili	SWW	mon	crocodile	Sp	SWU
Eleonora	1;06.22	Krokodil	ˌkʁokoˈdiːl	ˈkʊlili	SWW	mon	crocodile	imit	SWU
Eleonora	1;06.22	Krokodil	ˌkʁokoˈdiːl	ˈkʊlili	SWW	mon	crocodile	Sp	SWU
Eleonora	1;06.22	Krokodil	ˌkʁokoˈdiːl	ˈkʰʊlili	SWW	mon	crocodile	Sp	SWU
Eleonora	1;06.22	Krokodil	ˌkʁokoˈdiːl	ˈkʰɤːli	SW	mon	crocodile	Sp	SWU
Eleonora	1;06.22	Krokodil	ˌkʁokoˈdiːl	ˈgʊlili	SWW	mon	crocodile	Sp	SWU
Eleonora	1;06.22	Krokodil	ˌkʁokoˈdiːl	ˈgɤːtʰi	SW	mon	crocodile	Sp	ini
Eleonora	1;06.22	Krokodil	ˌkʁokoˈdiːl	ˈçχɤli	SW	mon	crocodile	imit	SWU
Eleonora	1;06.22	Mandarine	ˌmandaˈʁiːnə	ˈnini	SW	mon	tangerine	Sp	SWU
Eleonora	1;06.22	Papagei	ˌpapaˈga͡ɪ	ka͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;06.22	Papagei	ˌpapaˈga͡ɪ	ka͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;06.22	Papagei	ˌpapaˈga͡ɪ	ka͡ɪ	S	mon	parrot	imit	ini
Eleonora	1;06.22	Papagei	ˌpapaˈga͡ɪ	ˌpʰapaˈga͡ɪ	sWS	mon	parrot	Sp	SWU
Eleonora	1;06.22	Telefon	ˈteːləˌfon	ˈtita	SW	mon	telephone	Sp	ini
Eleonora	1;06.22	Telefon	ˈteːləˌfon	ˈtija	SW	mon	telephone	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;06.22	Telefon	ˈteːləˌfon	ˈtija	SW	mon	telephone	Sp	SWU
Eleonora	1;06.29	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaˌmenan	SsW	mon	ant	imit	SWU
Eleonora	1;06.29	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaˌmena	SsW	mon	ant	imit	SWU
Eleonora	1;06.29	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaˌmena	SsW	mon	ant	imit	SWU
Eleonora	1;06.29	Ballon	baˈlɔŋ	ˈbɪlɛn	SW	mon	balloon	imit	SWU
Eleonora	1;06.29	Ballon	baˈlɔŋ	ˈbɪlɛm	SW	mon	balloon	Sp	SWU
Eleonora	1;06.29	Ballon	baˈlɔŋ	ˈbalɛn	SW	mon	balloon	imit	SWU
Eleonora	1;06.29	Delfin	dɛlˈfiːn	fin	S	mon	dolphin	imit	SWU
Eleonora	1;06.29	Delfin	dɛlˈfiːn	ˈviːnə	SW	mon	dolphin	imit	n-ini
Eleonora	1;06.29	Delfin	dɛlˈfiːn	ˈvi͡ːənɛ	SW	mon	dolphin	imit	Ini
Eleonora	1;06.29	Delfin	dɛlˈfiːn	ˈfiən	SW	mon	dolphin	imit	SWU
Eleonora	1;06.29	Elefant	ˌʔeləˈfant	pʰan͡tθ	S	mon	elephant	Sp	SWU
Eleonora	1;06.29	Elefant	ˌʔeləˈfant	pʰantʰ	S	mon	elephant	imit	SWU
Eleonora	1;06.29	Elefant	ˌʔeləˈfant	pantʰ	S	mon	elephant	imit	SWU
Eleonora	1;06.29	Elefant	ˌʔeləˈfant	pantʰ	S	mon	elephant	Sp	SWU
Eleonora	1;06.29	Elefant	ˌʔeləˈfant	pantʰ	S	mon	elephant	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;06.29	Elefant	ˌʔeləˈfant	bãtʰ	S	mon	elephant	Sp	SWU
Eleonora	1;06.29	Giraffe	giˈʁafə	ˈhafə	SW	mon	giraffe	imit	SWU
Eleonora	1;06.29	Gitarre	giˈtaʁə	ˈkʰaxə	SW	mon	guitar	Sp	SWU
Eleonora	1;06.29	Gorilla	goˈʁɪla	ˈhʊla	SW	mon	gorilla	imit	n-ini
Eleonora	1;06.29	Gorilla	goˈʁɪla	ˈhʊla	SW	mon	gorilla	imit	SWU
Eleonora	1;06.29	Gorilla	goˈʁɪla	ˈhʊla	SW	mon	gorilla	imit	SWU
Eleonora	1;06.29	Gorilla	goˈʁɪla	ˈhʊla	SW	mon	gorilla	imit	ini
Eleonora	1;06.29	Krokodil	ˌkʁokoˈdiːl	ˈkʊlili	SWW	mon	crocodile	Sp	SWU
Eleonora	1;06.29	Krokodil	ˌkʁokoˈdiːl	ˈgʊlili	SWW	mon	crocodile	imit	SWU
Eleonora	1;06.29	Krokodil	ˌkʁokoˈdiːl	ˈgʊlili	SWW	mon	crocodile	imit	SWU
Eleonora	1;06.29	Krokodil	ˌkʁokoˈdiːl	ˈgʊlili	SWW	mon	crocodile	imit	SWU
Eleonora	1;06.29	Krokodil	ˌkʁokoˈdiːl	ˈgʊlili	SWW	mon	crocodile	Sp	SWU
Eleonora	1;06.29	Papagei	ˌpapaˈga͡ɪ	ka͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;06.29	Papagei	ˌpapaˈga͡ɪ	ka͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;06.29	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	imit	SWU
Eleonora	1;06.29	Papagei	ˌpapaˈga͡ɪ	ˈkaka͡ɪ	SW	mon	parrot	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;06.29	Papagei	ˌpapaˈga͡ɪ	ˈgaːka͡ɪ	SW	mon	parrot	imit	SWU
Eleonora	1;06.29	Pinguin	ˈpɪŋguˌin	ˈpekan	SW	mon	penguin	imit	SWU
Eleonora	1;06.29	Renee	ʁeˈneː	neˈneː	WS	mon	proper name	imit	SWU
Eleonora	1;06.29	Telefon	ˈteːləˌfon	ˈtija	SW	mon	telephone	Sp	n-ini
Eleonora	1;06.29	Telefon	ˈteːləˌfon	ˈtʰija	SW	mon	telephone	Sp	ini
Eleonora	1;07.08	Apfelsaft	ˈʔap͡fəlˌzaft	ˈʔapəˌlːas	SW-s	com	apple juice	imit	SWU
Eleonora	1;07.08	Brokkoli	ˈbʁokoli	ˈkʊlɛlki	SWW	mon	broccoli	imit	SWU
Eleonora	1;07.08	Brokkoli	ˈbʁokoli	ˈgʊliˌki	SWs	mon	broccoli	imit	SWU
Eleonora	1;07.08	Elefant	ˌʔeləˈfant	pʰantʰ	S	mon	elephant	Sp	SWU
Eleonora	1;07.08	Elefant	ˌʔeləˈfant	pantʰ	S	mon	elephant	Sp	SWU
Eleonora	1;07.08	Elefant	ˌʔeləˈfant	pantʰ	S	mon	elephant	Sp	ini
Eleonora	1;07.08	Elefant	ˌʔeləˈfant	pant	S	mon	elephant	Sp	n-ini
Eleonora	1;07.08	Elefant	ˌʔeləˈfant	pʰantʰ	S	mon	elephant	Sp	n-ini
Eleonora	1;07.08	Gitarre	giˈtaʁə	ˈtaxə	SW	mon	guitar	imit	SWU
Eleonora	1;07.08	Kamel	kaˈmeːl	kʰeːn	S	mon	camel	Sp	SWU
Eleonora	1;07.08	Krokodil	ˌkʁokoˈdiːl	ˈkʊli	SW	mon	crocodile	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;07.08	Krokodil	ˌkʁokoˈdiːl	ˈgʊlili	SWW	mon	crocodile	imit	SWU
Eleonora	1;07.08	Krokodil	ˌkʁokoˈdiːl	ˈgʊlili	SWW	mon	crocodile	imit	SWU
Eleonora	1;07.08	Krokodil	ˌkʁokoˈdiːl	ˈgʊli	SW	mon	crocodile	Sp	SWU
Eleonora	1;07.08	Krokodil	ˌkʁokoˈdiːl	ˈgʊˈli	SS	mon	crocodile	Sp	SWU
Eleonora	1;07.08	Osterhase	ˈʔoːstɐˌhaːzə	ˈʔoːsasa	SWW	com	easter + bunny	imit	SWU
Eleonora	1;07.08	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;07.08	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;07.08	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;07.08	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;07.08	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;07.15	Apfelsaft	ˈʔap͡fəlˌzaft	ˈʔapəla	SWW	com	apple juice	Sp	SWU
Eleonora	1;07.15	Apfelsaft	ˈʔap͡fəlˌzaft	ˈʔapəˌlas	SW-s	com	apple juice	imit	SWU
Eleonora	1;07.15	Bauernhof	ˈba͡ʊəɐnˌhoːf	hɤːɸ	S	com	farm	imit	SWU
Eleonora	1;07.15	Elefant	ˌʔeləˈfant	fʰantʰ	S	mon	elephant	Sp	SWU
Eleonora	1;07.15	Elefant	ˌʔeləˈfant	fantʲ	S	mon	elephant	Sp	SWU
Eleonora	1;07.15	Elefant	ˌʔeləˈfant	fantʰ	S	mon	elephant	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;07.15	Elefant	ˌʔeləˈfant	fantʰ	S	mon	elephant	Sp	n-ini
Eleonora	1;07.15	Elefant	ˌʔeləˈfant	fantʰ	S	mon	elephant	Sp	n-ini
Eleonora	1;07.15	Elefant	ˌʔeləˈfant	fantʰ	S	mon	elephant	Sp	SWU
Eleonora	1;07.15	Elefant	ˌʔeləˈfant	fantʰ	S	mon	elephant	Sp	SWU
Eleonora	1;07.15	Elefant	ˌʔeləˈfant	fantʰ	S	mon	elephant	Sp	SWU
Eleonora	1;07.15	Elefant	ˌʔeləˈfant	fantʰ	S	mon	elephant	Sp	ini
Eleonora	1;07.15	Elefant	ˌʔeləˈfant	fantʰ	S	mon	elephant	Sp	ini
Eleonora	1;07.15	Giraffe	giˈʁafə	ˈʁafə	SW	mon	giraffe	Sp	ini
Eleonora	1;07.15	Giraffe	giˈʁafə	ˈʁafə	SW	mon	giraffe	Sp	n-ini
Eleonora	1;07.15	Giraffe	giˈʁafə	ˈhafə	SW	mon	giraffe	Sp	n-ini
Eleonora	1;07.15	Giraffe	giˈʁafə	ˈhafə	SW	mon	giraffe	Sp	SWU
Eleonora	1;07.15	Giraffe	giˈʁafə	ˈhafə	SW	mon	giraffe	Sp	ini
Eleonora	1;07.15	Gitarre	giˈtaʁə	ˈhaxə	SW	mon	guitar	Sp	SWU
Eleonora	1;07.15	Kamel	kaˈmeːl	pʰeːl	S	mon	camel	imit	SWU
Eleonora	1;07.15	Kamel	kaˈmeːl	ˈmeːjl̩	SW	mon	camel	imit	SWU
Eleonora	1;07.15	Kaputt	kaˈpʊt	pʊt	S	mon	defective	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;07.15	Kaputt	kaˈpʊt	pɯt	S	mon	defective	Sp	ini
Eleonora	1;07.15	Krokodil	ˌkʁokoˈdiːl	ˈgʊlili	SWW	mon	crocodile	Sp	ini
Eleonora	1;07.15	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;07.15	Pinguin	ˈpɪŋguˌin	ʊɪŋ	S	mon	penguin	Sp	SWU
Eleonora	1;07.15	Pinguin	ˈpɪŋguˌin	pɪŋ	S	mon	penguin	Sp	SWU
Eleonora	1;07.15	Pinguin	ˈpɪŋguˌin	fɪŋ	S	mon	penguin	imit	SWU
Eleonora	1;07.15	Pinguin	ˈpɪŋguˌin	ʔɨŋ	S	mon	penguin	Sp	SWU
Eleonora	1;07.15	Pinguin	ˈpɪŋguˌin	ʔɪŋ	S	mon	penguin	Sp	SWU
Eleonora	1;07.15	Puppenwagen	ˈpʊpənˌvaːgən	ˈʊakŋ	SW	com	doll's pram	Sp	SWU
Eleonora	1;07.15	Radio	ˈʁaːdijo	ˈhadija	SWW	mon	radio	Sp	SWU
Eleonora	1;07.15	Radio	ˈʁaːdijo	aˈtija	WSW	mon	radio	Sp	n-ini
Eleonora	1;07.15	Radio	ˈʁaːdijo	aˈtija	WSW	mon	radio	Sp	ini
Eleonora	1;07.15	Renee	ʁeˈneː	ˈneːne	SW	mon	proper name	Sp	SWU
Eleonora	1;07.15	Telefon	ˈteːləˌfon	ˈtɨja	SW	mon	telephone	Sp	SWU
Eleonora	1;08.0	Apfelsaft	ˈʔap͡fəlˌzaft	ˈʔapəlas	SWW	com	apple juice	imit	SWU
Eleonora	1;08.0	Apfelsaft	ˈʔap͡fəlˌzaft	ˈʔapəˌlas	SW-S	com	apple juice	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;08.0	Giraffe	giˈʁafə	ˈχafə	SW	mon	giraffe	Sp	SWU
Eleonora	1;08.0	Giraffe	giˈʁafə	ˈxafə	SW	mon	giraffe	Sp	SWU
Eleonora	1;08.0	Giraffe	giˈʁafə	ˈχafə	SW	mon	giraffe	Sp	SWU
Eleonora	1;08.0	Giraffe	giˈʁafə	ˈχafə	SW	mon	giraffe	Sp	SWU
Eleonora	1;08.0	Giraffe	giˈʁafə	ˈɣafə	SW	mon	giraffe	Sp	SWU
Eleonora	1;08.0	Indianer	ˌʔɪndiˈjaːnəɐ	ˈjaːna	SW	mon	native American	imit	SWU
Eleonora	1;08.0	Krokodil	ˌkʁokoˈdiːl	ˈkʊli	SW	mon	crocodile	Sp	SWU
Eleonora	1;08.0	Krokodil	ˌkʁokoˈdiːl	ˈkʊli	SW	mon	crocodile	Sp	SWU
Eleonora	1;08.0	Papagei	ˌpapaˈga͡ɪ	daːj	S	mon	parrot	Sp	SWU
Eleonora	1;08.0	Radio	ˈʁaːdijo	ɑˈtiɐ	WS	mon	radio	Sp	SWU
Eleonora	1;08.0	Schokolade	ˌʃokoˈlaːdə	ˈlaːdɛ	SW	mon	chocolate	imit	ini
Eleonora	1;08.0	Schokolade	ˌʃokoˈlaːdə	ˈlaːdə	SW	mon	chocolate	imit	n-ini
Eleonora	1;08.0	Schokolade	ˌʃokoˈlaːdə	ˈladɛ	SW	mon	chocolate	imit	n-ini
Eleonora	1;08.0	Telefon	ˈteːləˌfon	ˈdeːjaʔa	SWW	mon	telephone	Sp	SWU
Eleonora	1;08.15	Ballon	baˈlɔŋ	lɔŋ	S	mon	balloon	imit	SWU
Eleonora	1;08.15	Ballon	baˈlɔŋ	ˈxnɵ	S	mon	balloon	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;08.15	Ballon	baˈlɔŋ	ˈpɪlɛn	SW	mon	balloon	imit	SWU
Eleonora	1;08.15	Ballon	baˈlɔŋ	ˈpɪlɛn	SW	mon	balloon	imit	Ini
Eleonora	1;08.15	Elefant	ˌʔeləˈfant	fantʰ	S	mon	elephant	Sp	SWU
Eleonora	1;08.15	Elefant	ˌʔeləˈfant	ˈʔekɛlˌfant	SWs	mon	elephant	Sp	SWU
Eleonora	1;08.15	Gießkanne	ˈgiːsˌkanə	ˈkʰɨˌnana	S-sW	com	watering can	Sp	SWU
Eleonora	1;08.15	Gießkanne	ˈgiːsˌkanə	ˈkʰiːˌnana	S-sW	com	watering can	Sp	SWU
Eleonora	1;08.15	Kakao	kaˈka͡ɔ	kʰa͡ɔ	S	mon	cocoa	Sp	n-ini
Eleonora	1;08.15	Kakao	kaˈka͡ɔ	kʰa͡ɔ	S	mon	cocoa	Sp	ini
Eleonora	1;08.15	Kakao	kaˈka͡ɔ	ka͡ɔ	S	mon	cocoa	Sp	n-ini
Eleonora	1;08.15	Kakao	kaˈka͡ɔ	ka͡ɔ	S	mon	cocoa	Sp	ini
Eleonora	1;08.15	Kakao	kaˈka͡ɔ	ka͡ɔ	S	mon	cocoa	Sp	ini
Eleonora	1;08.15	Kakao	kaˈka͡ɔ	ˈkʰaʔɔ	SW	mon	cocoa	Sp	n-ini
Eleonora	1;08.15	Kakao	kaˈka͡ɔ	ˈka͡ɔka͡ɔ	SW	mon	cocoa	Sp	n-ini
Eleonora	1;08.15	Kakao	kaˈka͡ɔ	ˈka͡ɔka͡ɔ	SW	mon	cocoa	Sp	n-ini
Eleonora	1;08.15	Kakao	kaˈka͡ɔ	ˈkaʔo	SW	mon	cocoa	Sp	ini
Eleonora	1;08.15	Kakao	kaˈka͡ɔ	ˈkaʔə	SW	mon	cocoa	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;08.15	kaputt	kaˈpʊt	pʊ͡ts	S	mon	defective	imit	SWU
Eleonora	1;08.15	kaputt	kaˈpʊt	pʊ͡ts	S	mon	defective	Sp	ini
Eleonora	1;08.15	Karussell	ˌkaʁuˈsɛl	tɛl	S	mon	marry-go-round	Sp	n-ini
Eleonora	1;08.15	Karussell	ˌkaʁuˈsɛl	sɛl	S	mon	marry-go-round	Sp	SWU
Eleonora	1;08.15	Karussell	ˌkaʁuˈsɛl	sɛl	S	mon	marry-go-round	Sp	SWU
Eleonora	1;08.15	Karussell	ˌkaʁuˈsɛl	sɛl	S	mon	marry-go-round	Sp	n-ini
Eleonora	1;08.15	Krokodil	ˌkʁokoˈdiːl	ˈkʊlili	SWW	mon	crocodile	Sp	SWU
Eleonora	1;08.15	Krokodil	ˌkʁokoˈdiːl	ˈkʊliˌli	SWs	mon	crocodile	Sp	SWU
Eleonora	1;08.15	Krokodil	ˌkʁokoˈdiːl	ˈkɤlili	SWW	mon	crocodile	Sp	SWU
Eleonora	1;08.15	Limonade	ˌlimoˈnaːdə	ˈnaːtə	SW	mon	lemonade	imit	n-ini
Eleonora	1;08.15	Limonade	ˌlimoˈnaːdə	ˈnaːtə	SW	mon	lemonade	imit	n-ini
Eleonora	1;08.15	Limonade	ˌlimoˈnaːdə	ˈnaːnə	SW	mon	lemonade	imit	ini
Eleonora	1;08.15	Melissa	meˈlɪsa	ˈlɛsa	SW	mon	proper name	imit	SWU
Eleonora	1;08.15	Windmühle	ˈvɪntˌmyːlə	ˈmyːlə	SW	com	windmill	Sp	ini
Eleonora	1;08.15	Windmühle	ˈvɪntˌmyːlə	ˈmyːlə	SW	com	windmill	Sp	n-ini
Eleonora	1;08.15	Windmühle	ˈvɪntˌmyːlə	ˈmyːlə	SW	com	windmill	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;08.15	Windmühle	ˈvɪntˌmyːlə	ˈmɵːnə	SW	com	windmill	Sp	ini
Eleonora	1;08.15	Windmühle	ˈvɪntˌmyːlə	ˈmɵːnə	SW	com	windmill	Sp	n-ini
Eleonora	1;08.15	Windmühle	ˈvɪntˌmyːlə	ˈmøːlɛː	SW	com	windmill	Sp	SWU
Eleonora	1;08.15	Windmühle	ˈvɪntˌmyːlə	ˈmøːlə	SW	com	windmill	Sp	ini
Eleonora	1;08.15	Windmühle	ˈvɪntˌmyːlə	ˈmøːlə	SW	com	windmill	Sp	ini
Eleonora	1;08.15	Windmühle	ˈvɪntˌmyːlə	ˈmøːlə	SW	com	windmill	Sp	n-ini
Eleonora	1;08.26	Abendbrot	ˈʔaːbɛntˌbʁoːt	ˌʔamˈpʰoːtʰ	s-S	com	dinner	Sp	ini
Eleonora	1;08.26	Elefant	ˌʔeləˈfant	fanː	S	mon	elephant	Sp	SWU
Eleonora	1;08.26	Elefant	ˌʔeləˈfant	fant	S	mon	elephant	Sp	ini
Eleonora	1;08.26	Elefant	ˌʔeləˈfant	fant	S	mon	elephant	Sp	n-ini
Eleonora	1;08.26	Elefant	ˌʔeləˈfant	ˈfaʔŋ	SW	mon	elephant	imit	ini
Eleonora	1;08.26	Elefant	ˌʔeləˈfant	ˌekəˈfant	sWS	mon	elephant	Sp	n-ini
Eleonora	1;08.26	Elefant	ˌʔeləˈfant	ˌʔekəˈfant	sWS	mon	elephant	Sp	n-ini
Eleonora	1;08.26	Giraffe	giˈʁafə	ˈxafə	SW	mon	giraffe	Sp	SWU
Eleonora	1;08.26	Giraffe	giˈʁafə	ˈʁaːfə	SW	mon	giraffe	Sp	SWU
Eleonora	1;08.26	Giraffe	giˈʁafə	ˈʁafɛ	SW	mon	giraffe	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;08.26	Giraffe	giˈʁafə	ˈʁafə	SW	mon	giraffe	Sp	SWU
Eleonora	1;08.26	Giraffe	giˈʁafə	ˈʁaˈfɛː	SS	mon	giraffe	Sp	SWU
Eleonora	1;08.26	Giraffe	giˈʁafə	ˈhafə	SW	mon	giraffe	Sp	SWU
Eleonora	1;08.26	Giraffe	giˈʁafə	ˈhafə	SW	mon	giraffe	Sp	SWU
Eleonora	1;08.26	Kamel	kaˈmeːl	ˈkʰɛːmɛ	SW	mon	camel	Sp	SWU
Eleonora	1;08.26	Krokodil	ˌkʁokoˈdiːl	ˈtokɛlɨ	SWW	mon	crocodile	Sp	SWU
Eleonora	1;08.26	Krokodil	ˌkʁokoˈdiːl	ˈtʰokeːt	SW	mon	crocodile	Sp	ini
Eleonora	1;08.26	Mikrofon	ˌmɪkʁɔˈfoːn	ˈtɣɛtoˌfon	SWs	mon	microphone	imit	SWU
Eleonora	1;08.26	Mikrofon	ˌmɪkʁɔˈfoːn	ˈkʰeːtʰɔsˌʔɔn	SWs	mon	microphone	imit	SWU
Eleonora	1;08.26	Mikrofon	ˌmɪkʁɔˈfoːn	ˈkʰeːfon	SW	mon	microphone	Sp	SWU
Eleonora	1;08.26	Mikrofon	ˌmɪkʁɔˈfoːn	ˈkʰetoˌfon	SWs	mon	microphone	imit	SWU
Eleonora	1;08.26	Mikrofon	ˌmɪkʁɔˈfoːn	ˈkʰefono	SWW	mon	microphone	Sp	SWU
Eleonora	1;08.26	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	mon	parrot	Sp	SWU
Eleonora	1;08.26	Renee	ʁeˈneː	hɛˈneː	WS	mon	proper name	imit	SWU
Eleonora	1;08.26	Renee	ʁeˈneː	hɛˈneː	WS	mon	proper name	imit	SWU
Eleonora	1;08.26	Telefon	ˈteːləˌfon	ˈtɨja	SW	mon	telephone	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;09.09	Ameisenstraße	ˈʔaːma͡ɪzənˌʃtʁaːsə	ˈʔa͡ɪˌvanaˌtʁaːsə	SsW-sW	com	ant + street	Sp	SWU
Eleonora	1;09.09	Ballon	baˈlɔŋ	lɔŋ	S	mon	balloon	imit	Ini
Eleonora	1;09.09	Ballon	baˈlɔŋ	lɔm	S	mon	balloon	imit	n-ini
Eleonora	1;09.09	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈp^{h}anˈhof	S-S	com	farm	Sp	SWU
Eleonora	1;09.09	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈpa͡ʊmə	SW	com	farm	imit	SWU
Eleonora	1;09.09	Delfin	dɛlˈfiːn	fin	S	mon	dolphin	imit	n-ini
Eleonora	1;09.09	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ˈʔa͡ɪʲʔœˌçɪn	SW-s	pcom	squirrel	imit	ini
Eleonora	1;09.09	Elefant	ˌʔeləˈfant	fant^{h}	S	mon	elephant	imit	SWU
Eleonora	1;09.09	Giraffe	giˈʁafə	ˈhafə	SW	mon	giraffe	Sp	SWU
Eleonora	1;09.09	Gummibärchen	ˈgʊmiˌbæːɐçən	ˈpæçɪn	SW	com	jelly bear	Sp	ini
Eleonora	1;09.09	Gummibärchen	ˈgʊmiˌbæːɐçən	ˌk^{h}ʊmiˈbæːçin	sW-SW	com	jelly bear	Sp	n-ini
Eleonora	1;09.09	Handfeger	ˈhantˌfeːgəɐ	ˈfeːga	SW	com	hand brush	Sp	n-ini
Eleonora	1;09.09	Kakao	kaˈka͡ɔ	k^{h}aˈka͡ɔ	WS	mon	cocoa	imit	SWU
Eleonora	1;09.09	Kakao	kaˈka͡ɔ	ka͡ɔ	S	mon	cocoa	imit	n-ini
Eleonora	1;09.09	Kakao	kaˈka͡ɔ	ˈt^{h}ako	SW	mon	cocoa	imit	n-ini
Eleonora	1;09.09	Kakao	kaˈka͡ɔ	ˈk^{h}a͡ɔˈk^{h}a͡ɔ	SS	mon	cocoa	imit	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;09.09	Koalabär	koˈʔaːlaˌbæːɐ	ˌkɛˈbæɐ	s-S	com	koala + bear	Sp	n-ini
Eleonora	1;09.09	Koalabär	koˈʔaːlaˌbæːɐ	ˈʔalokɛˈbæɐ	SWW-S	com	koala + bear	Sp	n-ini
Eleonora	1;09.09	Melissa	meˈlɪsa	ˈlɪsa	SW	mon	proper name	Sp	n-ini
Eleonora	1;09.09	Melissa	meˈlɪsa	ˈlɪsa	SW	mon	proper name	Sp	n-ini
Eleonora	1;09.09	Papagei	ˌpapaˈga͡ɪ	ˈga͡ɪ	S	mon	parrot	Sp	ini
Eleonora	1;09.09	Puppenwagen	ˈpʊpənˌvaːgən	ˈpʊpəkˈaːgŋ	SW-SW	com	doll's pram	imit	SWU
Eleonora	1;09.09	Pusteblume	ˈpuːstəˌbluːmə	ˈpuːsəˌluːm	SW-s	com	blow ball	imit	SWU
Eleonora	1;09.09	Schokolade	ˌʃokoˈlaːdə	ˈlaːdə	SW	mon	chocolate	imit	SWU
Eleonora	1;09.09	Schokolade	ˌʃokoˈlaːdə	ˈkɔkəˌlaːdə	SWsW	mon	chocolate	Sp	ini
Eleonora	1;09.21	Balkon	balˈkɔŋ	p^{h}ɔm	S	mon	balcony	Sp	ini
Eleonora	1;09.21	Balkon	balˈkɔŋ	ˈbalˈkɔŋ	SS	mon	balcony	Sp	ini
Eleonora	1;09.21	Ballon	baˈlɔŋ	lɔm	S	mon	balloon	Sp	n-ini
Eleonora	1;09.21	Ballon	baˈlɔŋ	lɔm	S	mon	balloon	Sp	n-ini
Eleonora	1;09.21	Ballon	baˈlɔŋ	lɔm	S	mon	balloon	Sp	Ini
Eleonora	1;09.21	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈbanˌhoːf	S-s	com	farm	Sp	n-ini
Eleonora	1;09.21	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈbanˌhoːf	S-s	com	farm	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;09.21	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈbanˌhoːf	S-s	com	farm	Sp	n-ini
Eleonora	1;09.21	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈbanˌhoːf	S-s	com	farm	Sp	Ini
Eleonora	1;09.21	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈbaʔanˌhoːf	SW-s	com	farm	Sp	n-ini
Eleonora	1;09.21	Delfin	dɛlˈfiːn	ˈdɛltˈfin	SS	mon	dolphin	imit	SWU
Eleonora	1;09.21	Elefant	ˌʔeləˈfant	fantʰ	S	mon	elephant	Sp	n-ini
Eleonora	1;09.21	Elefant	ˌʔeləˈfant	ˌʔekəˈfantʰ	sWS	mon	elephant	Sp	SWU
Eleonora	1;09.21	Giraffe	giˈʁafə	ˈhafɛː	SW	mon	giraffe	imit	n-ini
Eleonora	1;09.21	Giraffe	giˈʁafə	ˈgikχafɛ	SWW	mon	giraffe	imit	n-ini
Eleonora	1;09.21	Gisela	ˈgizəla	ˈgiːzəla	SWW	mon	proper name	imit	n-ini
Eleonora	1;09.21	Gisela	ˈgizəla	ˈgiːzəla	SWW	mon	proper name	imit	n-ini
Eleonora	1;09.21	Gisela	ˈgizəla	ˈgiːzəla	SWW	mon	proper name	imit	SWU
Eleonora	1;09.21	Gisela	ˈgizəla	ˈgiːzəla	SWW	mon	proper name	imit	ini
Eleonora	1;09.21	kaputt	kaˈpʊt	pʰʊt	S	mon	defective	imit	n-ini
Eleonora	1;09.21	Kartoffeln	kaɐˈtɔfəln	ˈtʰɔfəln	SW	mon	potato (plural)	Sp	n-ini
Eleonora	1;09.21	Klapperstorch	ˈklapəɐˌʃtɔʁç	ˈklapaˌtɔɐç	SW-s	com	stork	imit	SWU
Eleonora	1;09.21	Krokodil	ˌkʁokoˈdiːl	tʁɔˈtiːl	WS	mon	crocodile	Sp	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;09.21	Krokodil	ˌkʁokoˈdiːl	ˈtʁɔtʡeli	SWW	mon	crocodile	Sp	ini
Eleonora	1;09.21	Krokodil	ˌkʁokoˈdiːl	ˈtʁœtili	SWW	mon	crocodile	Sp	SWU
Eleonora	1;09.21	Tomate	toˈmaːtə	ˈmaːtʰɛ	SW	mon	tomato	imit	n-ini
Eleonora	1;09.21	Tomate	toˈmaːtə	ˈmaːtʰɛ	SW	mon	tomato	imit	n-ini
Eleonora	1;09.21	Tomate	toˈmaːtə	ˈmaːtʰɛ	SW	mon	tomato	imit	n-ini
Eleonora	1;09.21	Tomate	toˈmaːtə	ˈmaːtʰɛ	SW	mon	tomato	imit	ini
Eleonora	1;10.02	Elefant	ˌʡeləˈfant	fantʰ	S	mon	elephant	Sp	SWU
Eleonora	1;10.02	Elefant	ˌʡeləˈfant	fant	S	mon	elephant	Sp	n-ini
Eleonora	1;10.02	Elefant	ˌʡeləˈfant	fantʰ	S	mon	elephant	Sp	ini
Eleonora	1;10.02	Garage	gaˈʁaːʒə	ˈχaːʒə	SW	mon	garage	Sp	n-ini
Eleonora	1;10.02	Garage	gaˈʁaːʒə	ˈχaːdə	SW	mon	garage	Sp	n-ini
Eleonora	1;10.02	Garage	gaˈʁaːʒə	ˈʁaːdə	SW	mon	garage	Sp	n-ini
Eleonora	1;10.02	Garage	gaˈʁaːʒə	ˈʁaːdə	SW	mon	garage	Sp	n-ini
Eleonora	1;10.02	Garage	gaˈʁaːʒə	ˈʁaːdə	SW	mon	garage	Sp	ini
Eleonora	1;10.02	Garage	gaˈʁaːʒə	ˈkχaːʒɛ	SW	mon	garage	imit	ini
Eleonora	1;10.02	Garage	gaˈʁaːʒə	ˈkʁaːʒɛ	SW	mon	garage	imit	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;10.02	Kakao	kaˈka͡ɔ	kʰaˈkʰa͡ɔ	WS	mon	cocoa	imit	n-ini
Eleonora	1;10.02	Krokodil	ˌkʁokoˈdiːl	ˌkχɔkəˈtiːl	sWS	mon	crocodile	imit	SWU
Eleonora	1;10.02	Legostein	ˈleːgoˌʃta͡ɪn	ˈleːgoˌta͡ɪn	SW-s	com	lego brick	Sp	n-ini
Eleonora	1;10.02	Legostein	ˈleːgoˌʃta͡ɪn	ˈleːgoˌta͡ɪ	SW-s	com	lego brick	Sp	n-ini
Eleonora	1;10.02	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈga͡ɪ	sWS	mon	parrot	imit	ini
Eleonora	1;10.02	Zitrone	t͡siˈtʁoːnə	t͡θɪtˈtoːnə	WSW	mon	citron	Sp	n-ini
Eleonora	1;10.02	Zitrone	t͡siˈtʁoːnə	t͡θɪˈtʁoːnɛ	WSW	mon	citron	Sp	n-ini
Eleonora	1;10.02	Zitrone	t͡siˈtʁoːnə	ˈtʁoːnɛ	SW	mon	citron	Sp	n-ini
Eleonora	1;10.02	Zitrone	t͡siˈtʁoːnə	ˈtʁonə	WSW	mon	citron	Sp	n-ini
Eleonora	1;10.02	Zitrone	t͡siˈtʁoːnə	ˈtʁonə	SW	mon	citron	Sp	ini
Eleonora	1;10.19	Ballon	baˈlɔŋ	baˈlɔŋ	WS	mon	balloon	Sp	n-ini
Eleonora	1;10.19	Ballon	baˈlɔŋ	baˈlɔŋ	WS	mon	balloon	Sp	SWU
Eleonora	1;10.19	Ballon	baˈlɔŋ	bəˈlɔŋ	WS	mon	balloon	Sp	Ini
Eleonora	1;10.19	Delfin	dɛlˈfiːn	həˈfiːn	WS	mon	dolphin	Sp	n-ini
Eleonora	1;10.19	Eichhörnchen	ˈʔa͡ɪçˌhœʁnçən	ˈʔa͡ɪçˌhɔnçən	S-sW	pcom	squirrel	imit	n-ini
Eleonora	1;10.19	Eichhörnchen	ˈʔa͡ɪçˌhœʁnçən	ˈʔa͡ɪçˌhɔnçən	S-sW	pcom	squirrel	imit	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;10.19	Eisenbahn	ˈʔa͡ɪzənˌbaːn	ˈʔa͡ɪvaˌna	SWs	com	railway	Sp	n-ini
Eleonora	1;10.19	Elefant	ˌʔeləˈfant	ˈʔeləˈfantʰ	SWS	mon	elephant	Sp	SWU
Eleonora	1;10.19	Elefant	ˌʔeləˈfant	ˌʔekɛˈfantʰ	sWS	mon	elephant	Sp	SWU
Eleonora	1;10.19	Elefant	ˌʔeləˈfant	ˌʔekəˈfantʰ	sWS	mon	elephant	imit	SWU
Eleonora	1;10.19	Elefant	ˌʔeləˈfant	ˌʔekʔəˈfantʰ	sWS	mon	elephant	Sp	n-ini
Eleonora	1;10.19	Erdbeere	ˈʔɛɐtˌbeːʁə	ˈʔæːˌpʁɛʁə	S-sW	com	strawberry	imit	n-ini
Eleonora	1;10.19	Erdbeere	ˈʔɛɐtˌbeːʁə	ˈʔæˌpʁɛjəʁə	S-sWW	com	strawberry	imit	n-ini
Eleonora	1;10.19	Fernseher	ˈfɛɐnˌzeːhəɐ	ˈfe͡ɐnˌzeːɐ	S-s	com	TV	Sp	n-ini
Eleonora	1;10.19	Giraffe	giˈʁafə	giˈʁaf̠ə	WSW	mon	giraffe	Sp	n-ini
Eleonora	1;10.19	Kakao	kaˈka͡ɔ	kʰaˈkʰa͡ɔ	WS	mon	cocoa	imit	n-ini
Eleonora	1;10.19	Kakao	kaˈka͡ɔ	kʰaˈkʰa͡ɔ	WS	mon	cocoa	imit	ini
Eleonora	1;10.19	Kakao	kaˈka͡ɔ	kʰaˈka͡ɔ	WS	mon	cocoa	Sp	ini
Eleonora	1;10.19	Kakao	kaˈka͡ɔ	kaˈka͡ɔ̩	WS	mon	cocoa	Sp	ini
Eleonora	1;10.19	Kakao	kaˈka͡ɔ	kaˈka͡ɔ	WS	mon	cocoa	Sp	ini
Eleonora	1;10.19	Kamel	kaˈmeːl	kʰaˈmeːl	WS	mon	camel	Sp	n-ini
Eleonora	1;10.19	Kamel	kaˈmeːl	kʰaˈmeːl	WS	mon	camel	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;10.19	Kamel	kaˈmeːl	kʰaˈmeːl	WS	mon	camel	Sp	n-ini
Eleonora	1;10.19	Kamel	kaˈmeːl	kʰaˈmeːl	WS	mon	camel	imit	SWU
Eleonora	1;10.19	Kamel	kaˈmeːl	kʰaˈmeːl	WS	mon	camel	Sp	ini
Eleonora	1;10.19	Kamel	kaˈmeːl	ˈkʰaːmel	WS	mon	camel	Sp	n-ini
Eleonora	1;10.19	Krokodil	ˌkʁokoˈdiːl	ˌkɔkəˈtiːl	sWS	mon	crocodile	Sp	SWU
Eleonora	1;10.19	Krokodil	ˌkʁokoˈdiːl	ˌkɔkəˈdiːl	sWS	mon	crocodile	Sp	SWU
Eleonora	1;10.19	Legostein	ˈleːgoˌʃt͡aɪn	ˌlegoˈst͡aɪn	SW-s	com	lego brick	Sp	SWU
Eleonora	1;10.19	Mikrofon	ˌmɪkʁɔˈfoːn	ˈnɪk̠əˌʁoːfə	SWsW	mon	microphone	Sp	SWU
Eleonora	1;10.19	Papagei	ˌpapaˈg͡aɪ	ˌpʰapʰaˈg͡aɪ	sWS	mon	parrot	Sp	n-ini
Eleonora	1;10.19	Roswitha	ʁɔsˈviːta	ˌɣɔsˈviːtʰa	sSW	mon	proper name	imit	SWU
Eleonora	1;10.19	Roswitha	ʁɔsˈviːta	ˌɣɔsˈviːta	sSW	mon	proper name	imit	SWU
Eleonora	1;10.19	Schokolade	ˌʃokoˈlaːdə	ˈlatə	SW	mon	chocolate	Sp	SWU
Eleonora	1;10.19	Schokolade	ˌʃokoˈlaːdə	ˈkɔkəˈladə	SWSW	mon	chocolate	Sp	n-ini
Eleonora	1;10.19	Schokolade	ˌʃokoˈlaːdə	ˌkχʊkəˈladə	sWSW	mon	chocolate	Sp	ini
Eleonora	1;10.19	Spinat	ʃpiˌnaːt	ˈpeʔˈnat	SS	mon	spinach	imit	SWU
Eleonora	1;10.25	Affenbaby	ˈʔafənˌbebi	ˈʔa̠fm̩ˌbibi	SW-sW	com	ape + baby	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;10.25	Ameise	ˈʔaːˌma͡ɪzə	ˈʔa͡ɪvaˌnaː	SWs	mon	ant	imit	SWU
Eleonora	1;10.25	Ameise	ˈʔaːˌma͡ɪzə	ˈʔa͡ɪmaˌnaː	SWs	mon	ant	Sp	SWU
Eleonora	1;10.25	Ballon	baˈlɔŋ	ʃpaˈlɔŋ	WS	mon	balloon	Sp	n-ini
Eleonora	1;10.25	Ballon	baˈlɔŋ	baˈlɔŋə	WSW	mon	balloon	Sp	Ini
Eleonora	1;10.25	Ballon	baˈlɔŋ	baˈlɔŋ	WS	mon	balloon	Sp	n-ini
Eleonora	1;10.25	Ballon	baˈlɔŋ	baˈlɔŋ	WS	mon	balloon	Sp	n-ini
Eleonora	1;10.25	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ˈʔa͡ɪˌtɕɔtçən	S-sW	pcom	squirrel	imit	SWU
Eleonora	1;10.25	Elefant	ˌʔeləˈfant	ˌʔeːkʰɛˈfantʰ	sWS	mon	elephant	Sp	SWU
Eleonora	1;10.25	Elefant	ˌʔeləˈfant	ˌʔekʰɛˈfantʰ	sWS	mon	elephant	Sp	n-ini
Eleonora	1;10.25	Elefant	ˌʔeləˈfant	ˌʔekʰɛˈfantʰ	sWS	mon	elephant	Sp	ini
Eleonora	1;10.25	Elefant	ˌʔeləˈfant	ˌʔekɛˈfantʰ	sWS	mon	elephant	Sp	n-ini
Eleonora	1;10.25	Elefant	ˌʔeləˈfant	ˌʔekɛˈfantʰ	sWS	mon	elephant	Sp	n-ini
Eleonora	1;10.25	Giraffe	giˈʁafə	giˈʁaf̠ə	WSW	mon	giraffe	Sp	SWU
Eleonora	1;10.25	Gitarre	giˈtaʁə	ˈtχaʁə	SW	mon	guitar	Sp	n-ini
Eleonora	1;10.25	Kamel	kaˈmeːl	kχaˈmeːjl	WS	mon	camel	Sp	n-ini
Eleonora	1;10.25	Kamel	kaˈmeːl	kχaˈmeːjl	WS	mon	camel	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;10.25	Kamel	kaˈmeːl	kχaˈmeːˡ	WS	mon	camel	Sp	ini
Eleonora	1;10.25	Kamel	kaˈmeːl	kʰɔˈmeːl	WS	mon	camel	Sp	ini
Eleonora	1;10.25	Kamel	kaˈmeːl	kʰaˈmeːl	WS	mon	camel	Sp	n-ini
Eleonora	1;10.25	Kamel	kaˈmeːl	kʰaˈmeːjl̩ː	WS	mon	camel	Sp	n-ini
Eleonora	1;10.25	Kamel	kaˈmeːl	kʰaˈmeːjl̩	WS	mon	camel	Sp	SWU
Eleonora	1;10.25	Kamel	kaˈmeːl	kʰaˈmeː	WS	mon	camel	Sp	SWU
Eleonora	1;10.25	Kamel	kaˈmeːl	kʰaˈmeː	WS	mon	camel	Sp	ini
Eleonora	1;10.25	Kamel	kaˈmeːl	kʰaˌmeːl	WS	mon	camel	Sp	n-ini
Eleonora	1;10.25	Krokodil	ˌkʁokoˈdiːl	kχɔk̠oˈdiːəl	sWS	mon	crocodile	Sp	SWU
Eleonora	1;10.25	Krokodil	ˌkʁokoˈdiːl	ˌkokoˈdiːəl	sWS	mon	crocodile	Sp	SWU
Eleonora	1;10.25	Mamagei	ˌmamaˈga͡ɪ	ˌmamaˈka͡ɪ	sWS	mon	creation from papagei ‚parrot'	Sp	n-ini
Eleonora	1;10.25	Mikrofon	ˌmɪkʁɔˈfoːn	ˈmɪk̠ŋ	SW	mon	microphone	Sp	Ini
Eleonora	1;10.25	Papagei	ˌpapaˈga͡ɪ	ˌpapu͡aˈga͡ːɪ	sWS	mon	parrot	Sp	n-ini
Eleonora	1;10.25	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈgaʔɨ	sWS	mon	parrot	Sp	ini
Eleonora	1;10.25	Pinguin	ˈpɪŋguˌin	ˈpʰijuɨːː	SWW	mon	penguin	Sp	Ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Eleonora	1;10.25	Pinguin	ˈpɪŋguˌin	ˈpʰijuiː	SWW	mon	penguin	Sp	n-ini
Eleonora	1;10.25	Pinguin	ˈpɪŋguˌin	ˈpʰijuin	SWW	mon	penguin	imit	SWU
Eleonora	1;10.25	Prozent	pʁoˈt͡sɛnt	pχɔˈt͡sɛnt	WS	mon	per cent	imit	n-ini
Eleonora	1;10.25	Tausendfüßler	ˈta͡ʊzəntˌfyːsləɐ	ˈtʰa͡ʊsəˌtʰyːsɐ	SW-sW	com	centipede	imit	SWU
Eleonora	1;10.25	Telefon	ˈteːləˌfon	ˈtejaˌθʰɤn	SW	mon	telephone	imit	ini
Eleonora	1;10.25	Ventilator	ˌvɛntiˈlaːtɔɐ	ˌvɛntiˈlaːt͡oɐ	sWSW	mon	ventilator	imit	SWU

Nele

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;06.11	Papagei	ˌpapaˈga͡ɪ	ga	S	Mon	parrot	imit	SWU
Nele	1;06.26	Banane	baˈnaːnə	ˈʔanɛ	SW	Mon	banana	imit	SWU
Nele	1;07.09	Appetit	ˌʔapəˈtiːt	ˈapəˌtitʰ	SWs	Mon	appetite	imit	n-ini
Nele	1;07.25	Apfelsine	ˌʔa͡pfəlˈziːnə	ˌhapəˈtit	sWS	Mon	orange	imit	SWU
Nele	1;07.25	Hubschrauber	ˈhuːpˌʃʁa͡ʊbɐ	ˈhɪpi	SW	Com	helicopter	imit	SWU
Nele	1;07.25	Paprika	ˈpapʁika	ˈkʰakʰə	SW	Mon	pepper	imit	SWU
Nele	1;07.25	Polizist	ˌpoliˈt͡sɪst	tit	S	Mon	police man	imit	n-ini
Nele	1;07.25	Polizist	ˌpoliˈt͡sɪst	ˈtit	S	Mon	police man	Sp	SWU
Nele	1;08.12	Appetit	ˌʔapəˈtiːt	ˌʔapəˈdɪt	sWS	Mon	appetite	imit	SWU
Nele	1;08.12	Banane	baˈnaːnə	ˈnaːni	SW	Mon	banana	imit	SWU
Nele	1;08.12	Banane	baˈnaːnə	ˈnaːni	SW	Mon	banana	imit	SWU
Nele	1;08.12	Kamel	kaˈmeːl	meːl	S	Mon	camel	imit	SWU
Nele	1;08.12	Kamel	kaˈmeːl	meːl	S	Mon	camel	imit	SWU
Nele	1;08.12	Krokodil	ˌkʁokoˈdiːl	ˈtɯja	SW	Mon	crocodile	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;08.12	Krokodil	ˌkʁokoˈdiːl	tɯj	S	Mon	crocodile	imit	SWU
Nele	1;08.12	Lokomotive	ˌlokomoˈtiːvə	ˈtiz̥i	SW	Mon	locomotive	imit	SWU
Nele	1;08.12	Lokomotive	ˌlokomoˈtiːvə	ˈdɨzi	SW	Mon	locomotive	Sp	n-ini
Nele	1;08.12	Lokomotive	ˌlokomoˈtiːvə	ˈdɨzi	SW	Mon	locomotive	Sp	ini
Nele	1;08.12	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	Mon	parrot	imit	SWU
Nele	1;08.12	Paprika	ˈpapʁika	taːˈta	WS	Mon	pepper	Sp	ini
Nele	1;08.12	Paprika	ˈpapʁika	ˈtɛta	SW	Mon	pepper	Sp	n-ini
Nele	1;08.12	Polizist	ˌpoliˈt͡sɪst	titʰ	S	Mon	police man	Sp	n-ini
Nele	1;08.12	Polizist	ˌpoliˈt͡sɪst	titʰ	S	Mon	police man	Sp	n-ini
Nele	1;08.12	Polizist	ˌpoliˈt͡sɪst	titʰ	S	Mon	police man	imit	SWU
Nele	1;08.12	Polizist	ˌpoliˈt͡sɪst	t̥itʰ	S	Mon	police man	imit	SWU
Nele	1;08.29	Banane	baˈnaːnə	ˈnană	SW	Mon	banana	imit	SWU
Nele	1;08.29	Bauchnabel	ˈba͡ʊxˌnaːbəl	ˈnapa	SW	Com	bellybutton	Sp	ini
Nele	1;08.29	Bauchnabel	ˈba͡ʊxˌnaːbəl	ˈnapa	SW	Com	bellybutton	Sp	n-ini
Nele	1;08.29	Kamel	kaˈmeːl	meːɐ	S	Mon	camel	imit	n-ini
Nele	1;08.29	Kamel	kaˈmeːl	meːɐ	S	Mon	camel	imit	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;08.29	Kamel	kaˈmeːl	meːɐ	S	Mon	camel	imit	ini
Nele	1;08.29	Kaputt	kaˈpʊt	pɯːt	S	Mon	defective	imit	SWU
Nele	1;08.29	Krokodil	ˌkʁokoˈdiːl	kɔj	WS	Mon	crocodile	imit	ini
Nele	1;08.29	Krokodil	ˌkʁokoˈdiːl	kɔˈkoj	WS	Mon	crocodile	imit	n-ini
Nele	1;08.29	Krokodil	ˌkʁokoˈdiːl	kɯ͡ɪ	S	Mon	crocodile	imit	SWU
Nele	1;08.29	Marmelade	ˌmaɐməˈlaːdə	ˈlaːja	SW	Mon	jam	imit	SWU
Nele	1;08.29	Papagei	ˌpapaˈga͡ɪ	kʰa͡ɪ	S	Mon	parrot	imit	SWU
Nele	1;08.29	Papagei	ˌpapaˈga͡ɪ	ka͡ɪt	S	Mon	parrot	imit	SWU
Nele	1;08.29	Papagei	ˌpapaˈga͡ɪ	ˈka͡ɪˈka͡ɪt	SS	Mon	parrot	imit	SWU
Nele	1;08.29	Paprika	ˈpapʁika	ˈkʰaːti	SW	Mon	pepper	imit	ini
Nele	1;08.29	Paprika	ˈpapʁika	ˈkʰa͡ɪti	SW	Mon	pepper	imit	n-ini
Nele	1;08.29	Polizist	ˌpoliˈt͡sɪst	tɪt	S	Mon	police man	Sp	SWU
Nele	1;08.29	Radio	ˈʁaːdijo	ˈha͡ʊlɨ	SW	Mon	radio	imit	ini
Nele	1;08.29	Radio	ˈʁaːdijo	ˈha͡ʊdi	SW	Mon	radio	imit	n-ini
Nele	1;08.29	Salat	zaˈlaːt	la͡ɪt	S	Mon	salad	imit	SWU
Nele	1;08.29	Tomate	toˈmaːtə	ˈnaːpi	SW	Mon	tomato	imit	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;08.29	Tomate	toˈmaːtə	ˈnaːbi	SW	Mon	tomato	imit	n-ini
Nele	1;08.29	Tomate	toˈmaːtə	ˈnaːbi	SW	Mon	tomato	imit	n-ini
Nele	1;08.29	Tomate	toˈmaːtə	ˈnabi	SW	Mon	tomato	imit	n-ini
Nele	1;09.24	Banane	baˈnaːnə	ˈnaːni	SW	Mon	banana	Sp	SWU
Nele	1;09.24	Banane	baˈnaːnə	ˈnani	SW	Mon	banana	Sp	SWU
Nele	1;09.24	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈba͡ʊɐˌhɔːf	SW-s	Com	farm	Sp	n-ini
Nele	1;09.24	Delfin	dɛlˈfiːn	ˈfinan	SW	Mon	dolphin	imit	SWU
Nele	1;09.24	Delfin	dɛlˈfiːn	ˈfinə	SW	Mon	dolphin	imit	SWU
Nele	1;09.24	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	SWU
Nele	1;09.24	Elefant	ˌʔeləˈfant	fan	S	Mon	elephant	Sp	n-ini
Nele	1;09.24	Elefant	ˌʔeləˈfant	fan	S	Mon	elephant	Sp	ini
Nele	1;09.24	Kaputt	kaˈpʊt	taˈpʊt	WS	Mon	defective	Sp	ini
Nele	1;09.24	Kaputt	kaˈpʊt	pʊt	S	Mon	defective	Sp	n-ini
Nele	1;09.24	Kaputt	kaˈpʊt	pʊt	S	Mon	defective	Sp	SWU
Nele	1;09.24	Kaputt	kaˈpʊt	pʊt	S	Mon	defective	Sp	SWU
Nele	1;09.24	Kaputt	kaˈpʊt	pʊt	S	Mon	defective	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;09.24	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	SWU
Nele	1;09.24	Kaputt	kaˈpʊt	ʔəˈpʊt	WS	Mon	defective	Sp	n-ini
Nele	1;09.24	Kaputt	kaˈpʊt	ʔəˈpʊt	WS	Mon	defective	Sp	ini
Nele	1;09.24	Krokodil	ˌkʁokoˈdiːl	ˈtiʲtaː	SW	Mon	crocodile	Sp	n-ini
Nele	1;09.24	Osterei	ˈʔoːstɐˌʔa͡ɪ	ˈhɤːstaˌʔa͡ːɪ	SW-s	Com	easter egg	Sp	SWU
Nele	1;09.24	Osterei	ˈʔoːstɐˌʔa͡ɪ	ˈɤstaˌʔa͡ɪ	SW-s	Com	easter egg	Sp	SWU
Nele	1;09.24	Osterei	ˈʔoːstɐˌʔa͡ɪ	ˈʔoːsta	SW	Com	easter egg	Sp	n-ini
Nele	1;09.24	Osterei	ˈʔoːstɐˌʔa͡ɪ	ˈʔɤs̥taˌʔa͡ɪ	SW-s	Com	easter egg	imit	SWU
Nele	1;09.24	Ostereier	ˈʔoːstɐˌʔa͡ɪɐ	ˈoːstɐˌa͡ɪɐ	SW-sW	Com	easter egg (plural)	Sp	SWU
Nele	1;09.24	Ostereier	ˈʔoːstɐˌʔa͡ɪɐ	ˈʔoːstɐˌʔa͡ɪa	SW-sW	Com	easter egg (plural)	Sp	SWU
Nele	1;09.24	Ostereier	ˈʔoːstɐˌʔa͡ɪɐ	ˈʔoːstɐˌʔa͡ɪa	SW-sW	Com	easter egg (plural)	Sp	SWU
Nele	1;09.24	Papagei	ˌpapaˈga͡ɪ	ka͡ɪ	S	Mon	parrot	Sp	n-ini
Nele	1;09.24	Papagei	ˌpapaˈga͡ɪ	ˌkakaˈka͡ɪ	sWS	Mon	parrot	Sp	SWU
Nele	1;09.24	Papagei	ˌpapaˈga͡ɪ	ˌkakaˈka͡ɪ	sWS	Mon	parrot	Sp	SWU
Nele	1;09.24	Pausenclown	ˈpa͡ʊzenˌkla͡ʊn	ˈpa͡ʊʒiˌka͡ʊ	SW-s	Com	pause + clown	imit	SWU
Nele	1;09.24	Rasenmäher	ˈʁaːzənˌmæːhɐ	ˈhaːziˌmeːɐ̥	SW-sW	Com	lawn-mower	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;09.24	Salat	zaˈlaːt	lat	S	Mon	salad	imit	SWU
Nele	1;09.24	Tomate	toˈmaːtə	ˈmaːta	SW	Mon	tomato	imit	SWU
Nele	1;10.0	Abendbrot	ˈʔaːbɛntˌbʁoːt	ˈʔaβɐˌpotʰ	SW-s	Com	dinner	Sp	SWU
Nele	1;10.0	Ballon	baˈlɔŋ	ˈlɛlɱː	SW	Mon	balloon	imit	SWU
Nele	1;10.0	Ballon	baˈlɔŋ	ˈlelɔm	SW	Mon	balloon	Sp	SWU
Nele	1;10.0	Banane	baˈnaːnə	ˈnaːˈnɨː	SS	Mon	banana	Sp	SWU
Nele	1;10.0	Delfin	dɛlˈfiːn	fiːn	S	Mon	dolphin	Sp	n-ini
Nele	1;10.0	Delfin	dɛlˈfiːn	fiːn	S	Mon	dolphin	Sp	n-ini
Nele	1;10.0	Delfin	dɛlˈfiːn	fiːn	S	Mon	dolphin	imit	SWU
Nele	1;10.0	Delfin	dɛlˈfiːn	fiːn	S	Mon	dolphin	Sp	ini
Nele	1;10.0	Delfin	dɛlˈfiːn	fa͡ɪn	S	Mon	dolphin	Sp	SWU
Nele	1;10.0	Delfin	dɛlˈfiːn	ˈfiːnə	SW	Mon	dolphin	Sp	SWU
Nele	1;10.0	Delfin	dɛlˈfiːn	ˈfiːnə	SW	Mon	dolphin	Sp	SWU
Nele	1;10.0	Delfin	dɛlˈfiːn	ˈfiːn	S	Mon	dolphin	Sp	ini
Nele	1;10.0	Eidechse	ˈʔa͡ɪˌdɛksə	ˈtɛˌkɛː	Ss	pcom	lizard	Sp	SWU
Nele	1;10.0	Eidechse	ˈʔa͡ɪˌdɛksə	ˈdaˈdeː	SS	Pcom	lizard	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;10.0	Eidechse	ˈʔa͡ɪˌdɛksə	ˈʔadiː	SW	Pcom	lizard	Sp	SWU
Nele	1;10.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	n-ini
Nele	1;10.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	n-ini
Nele	1;10.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	n-ini
Nele	1;10.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	n-ini
Nele	1;10.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	n-ini
Nele	1;10.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	n-ini
Nele	1;10.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	ini
Nele	1;10.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	ini
Nele	1;10.0	Elefant	ˌʔeləˈfant	eˌleːˈfant	WsS	Mon	elephant	Sp	ini
Nele	1;10.0	Elefant	ˌʔeləˈfant	ˌɛlɛːf.ˈfant	sWS	Mon	elephant	Sp	ini
Nele	1;10.0	Elefant	ˌʔeləˈfant	ˌɛleˈfant	sWS	Mon	elephant	Sp	ini
Nele	1;10.0	Giraffe	giˈʁafə	ˈlafi	SW	Mon	giraffe	Sp	n-ini
Nele	1;10.0	Giraffe	giˈʁafə	ˈlafi	SW	Mon	giraffe	Sp	n-ini
Nele	1;10.0	Giraffe	giˈʁafə	ˈlafi	SW	Mon	giraffe	Sp	n-ini
Nele	1;10.0	Giraffe	giˈʁafə	ˈlafi	SW	Mon	giraffe	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;10.0	Giraffe	giˈʁafə	ˈlafi	SW	Mon	giraffe	Sp	ini
Nele	1;10.0	Hammerbank	ˈhaməɐˌbaŋk	haˈpil̩t	WSW	Com	hammer bank	Sp	SWU
Nele	1;10.0	Hampelmann	ˈhampəlˌman	ˈhapiˌlɛt	SW-s	Com	jumping jack	Sp	n-ini
Nele	1;10.0	Hampelmann	ˈhampəlˌman	ˈhaˈpiː	S-S	Com	jumping jack	Sp	SWU
Nele	1;10.0	Heißluftballon	ˈha͡ɪsˌlʊftbaˌlɔŋ	ˌleleˈlɔm	sW-S	Com	hot-air balloon	Sp	n-ini
Nele	1;10.0	Heißluftballon	ˈha͡ɪsˌlʊftbaˌlɔŋ	ˈha͡ɪsˌpʰʊnt	S-s	Com	hot-air balloon	imit	SWU
Nele	1;10.0	Heißluftballon	ˈha͡ɪsˌlʊftbaˌlɔŋ	tlɔmtʰ	S	Com	hot-air balloon	Sp	n-ini
Nele	1;10.0	Kamel	kaˈmeːl	meː	S	Mon	camel	Sp	SWU
Nele	1;10.0	Kamel	kaˈmeːl	əˈmeːɐ	WS	Mon	camel	imit	SWU
Nele	1;10.0	Kaputt	kaˈpʊt	təˈpʊt	WS	Mon	defective	Sp	SWU
Nele	1;10.0	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	n-ini
Nele	1;10.0	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	n-ini
Nele	1;10.0	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	SWU
Nele	1;10.0	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	SWU
Nele	1;10.0	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	ini
Nele	1;10.0	Koalabär	koˈʔaːlaˌbæːɐ	ˈkaːpaˌga͡ɪa	SW-sW	Com	koala + bear	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;10.0	Koalabär	koˈʔaːlaˌbæːɐ	ˈkaːbiˌpeːɐ	SW-s	Com	koala + bear	imit	SWU
Nele	1;10.0	Koalabär	koˈʔaːlaˌbæːɐ	ˈkaːbaˌpeːɐ	SW-s	Com	koala + bear	imit	SWU
Nele	1;10.0	Koalabär	koˈʔaːlaˌbæːɐ	ˌkaˈβa͡ɪja	sSW	Com	koala + bear	Sp	n-ini
Nele	1;10.0	Krokodil	ˌkʁokoˈdiːl	kɔˈkɔ͡ɪ	WS	Mon	crocodile	imit	n-ini
Nele	1;10.0	Krokodil	ˌkʁokoˈdiːl	kɯˈkɯ͡ɪ	WS	Mon	crocodile	Sp	ini
Nele	1;10.0	Krokodil	ˌkʁokoˈdiːl	gɯ͡ɪ	S	Mon	crocodile	Sp	n-ini
Nele	1;10.0	Marmelade	ˌmaɐməˈlaːdə	ˈlali	SW	Mon	jam	Sp	ini
Nele	1;10.0	Mittagsschlaf	ˈmɪtaksˌʃlaːf	ˈmɪtaˌlaːf	SW-s	Com	afternoon nap	imit	n-ini
Nele	1;10.0	Mittagsschlaf	ˈmɪtaksˌʃlaːf	ˈmɪtaˌlaːf	SW-s	Com	afternoon nap	imit	ini
Nele	1;10.0	Mittagsschlaf	ˈmɪtaksˌʃlaːf	ˈmɪtaˌlaːf	SW-s	Com	afternoon nap	imit	n-ini
Nele	1;10.0	Ostereier	ˈʔoːstəɐˌʔa͡ɪəɐ	ˈʔɔstɐˌʔa͡ɪəɐ	SW-sW	Com	easter egg (plural)	Sp	SWU
Nele	1;10.0	Papagei	ˌpapaˈga͡ɪ	ka͡ɪ	S	Mon	parrot	Sp	n-ini
Nele	1;10.0	Papagei	ˌpapaˈga͡ɪ	kaˈka͡ɪjə	WSW	Mon	parrot	Sp	SWU
Nele	1;10.0	Papagei	ˌpapaˈga͡ɪ	kaˈka͡ɪ	WS	Mon	parrot	Sp	n-ini
Nele	1;10.0	Papagei	ˌpapaˈga͡ɪ	kaˈka͡ɪ	WS	Mon	parrot	Sp	ini
Nele	1;10.0	Papagei	ˌpapaˈga͡ɪ	kəˈka͡ɪ	WS	Mon	parrot	Sp	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;10.0	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	Mon	parrot	Sp	n-ini
Nele	1;10.0	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	Mon	parrot	Sp	n-ini
Nele	1;10.0	Papagei	ˌpapaˈga͡ɪ	ga͡ɪ	S	Mon	parrot	Sp	n-ini
Nele	1;10.0	Salat	zaˈlaːt	lɛˈlaːt	WS	Mon	salad	imit	SWU
Nele	1;10.0	Salat	zaˈlaːt	ˈlalɛː	SW	Mon	salad	Sp	SWU
Nele	1;10.07	Autobahn	ˈʔa͡ʊtoˌbaːn	ˈʔa͡ʊtoˌbaːn	SW-s	Com	motorway	Sp	SWU
Nele	1;10.07	Autobahn	ˈʔa͡ʊtoˌbaːn	ˈʔa͡ʊtoˌbaːn	SW-s	Com	motorway	Sp	SWU
Nele	1;10.07	Ballon	baˈlɔŋ	leˈlɔm	WS	Mon	balloon	Sp	ini
Nele	1;10.07	Banane	baˈnaːnə	ˈnaːni	SW	Mon	banana	Sp	n-ini
Nele	1;10.07	Banane	baˈnaːnə	ˈnaːˌni	Ss	Mon	banana	Sp	SWU
Nele	1;10.07	Bauchnabel	ˈba͡ʊxˌnaːbəl	ˈnaːbi	SW	Com	bellybutton	Sp	ini
Nele	1;10.07	Elefant	ˌʔeləˈfant	fɔnt	S	Mon	elephant	imit	SWU
Nele	1;10.07	Elefant	ˌʔeləˈfant	fʌnt	S	Mon	elephant	Sp	SWU
Nele	1;10.07	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	imit	SWU
Nele	1;10.07	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	imit	SWU
Nele	1;10.07	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;10.07	Elefant	ˌʔeləˈfant	ˈeːliˌfant	SWs	Mon	elephant	Sp	SWU
Nele	1;10.07	Elefant	ˌʔeləˈfant	ˈʔɛlɛˌfant	SWs	Mon	elephant	imit	SWU
Nele	1;10.07	Hubschrauber	ˈhuːpˌʃʁa͡ʊbəɐ	ˈhɯːβa	SW	Com	helicopter	Sp	SWU
Nele	1;10.07	Kaputt	kaˈpʊt	pʊt	S	Mon	defective	Sp	n-ini
Nele	1;10.07	Kaputt	kaˈpʊt	pʊt	S	Mon	defective	Sp	SWU
Nele	1;10.07	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	n-ini
Nele	1;10.07	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	imit	n-ini
Nele	1;10.07	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	n-ini
Nele	1;10.07	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	imit	SWU
Nele	1;10.07	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	ini
Nele	1;10.07	Kaputt	kaˈpʊt	pʰʉːt	S	Mon	defective	Sp	n-ini
Nele	1;10.07	Kartoffeln	kaɐˈtɔfəln	ˈtafn̩	SW	Mon	potato (plural)	Sp	SWU
Nele	1;10.07	Kassette	kaˈsɛtə	ˈtɪti	SW	Mon	cassette	Sp	ini
Nele	1;10.07	Kassette	kaˈsɛtə	ˈtɛtɛ	SW	Mon	cassette	Sp	ini
Nele	1;10.07	Krokodil	ˌkʁokoˈdiːl	ˈkoˈkɯ͡ɪ	SS	Mon	crocodile	imit	ini
Nele	1;10.07	Marmelade	ˌmaɐməˈlaːdə	ˈlaːli	SW	Mon	jam	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;10.07	Marmelade	ˌmaɐməˈlaːdə	ˈlaːli	SW	Mon	jam	Sp	ini
Nele	1;10.07	Ostereier	ˈʔoːstəɐˌʔa͡ɪəɐ	ˈɤstaˌʔa͡ɪa	SW-sW	Com	easter egg (plural)	Sp	n-ini
Nele	1;10.07	Ostereier	ˈʔoːstəɐˌʔa͡ɪəɐ	ˈʔɤstaˌʔa͡ɪa	SW-sW	Com	easter egg (plural)	Sp	SWU
Nele	1;10.07	Papagei	ˌpapaˈga͡ɪ	kɪˈka͡ɪ	WS	Mon	parrot	Sp	SWU
Nele	1;10.07	Papagei	ˌpapaˈga͡ɪ	ka͡ɪ	S	Mon	parrot	Sp	n-ini
Nele	1;10.07	Paprika	ˈpapʁika	ˌkaˈka͡ɪ	sS	Mon	pepper	Sp	SWU
Nele	1;10.07	Salat	zaˈlaːt	lːaːt	S	Mon	salad	Sp	SWU
Nele	1;10.07	Salat	zaˈlaːt	laːt	S	Mon	salad	Sp	SWU
Nele	1;10.07	Tomate	toˈmaːtə	ˈnaːpʰa	SW	Mon	tomato	imit	n-ini
Nele	1;10.07	Tomate	toˈmaːtə	ˈnaːpʰa	SW	Mon	tomato	imit	n-ini
Nele	1;10.07	Tomate	toˈmaːtə	ˈnaːpʰa	SW	Mon	tomato	imit	ini
Nele	1;10.07	Zitrone	t͡siˈtʁoːnə	tʰɔˈɤːnɨ	WSW	Mon	citron	imit	SWU
Nele	1;10.14	Banane	baˈnaːnə	ˈnani̩	SW	Mon	banana	Sp	ini
Nele	1;10.14	Banane	baˈnaːnə	ˈnani	SW	Mon	banana	Sp	SWU
Nele	1;10.14	Bauchnabel	ˈba͡ʊxˌnaːbəl	ˈnaːbi	SW	Com	bellybutton	Sp	n-ini
Nele	1;10.14	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈba͡ʊɐˌhof	SW-s	Com	farm	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;10.14	Delfin	dɛlˈfiːn	fiːn	S	Mon	dolphin	Sp	n-ini
Nele	1;10.14	Delfin	dɛlˈfiːn	fiːn	S	Mon	dolphin	Sp	SWU
Nele	1;10.14	Eidechse	ˈʔa͡ɪˌdɛksə	ˈʔa͡ɪdɛtə	SWW	pcom	lizard	Sp	SWU
Nele	1;10.14	Eidechse	ˈʔa͡ɪˌdɛksə	ˈʔa͡ɪˌditi	SsW	Pcom	lizard	imit	n-ini
Nele	1;10.14	Eidechse	ˈʔa͡ɪˌdɛksə	ˈʔa͡ɪˌditi	SsW	Pcom	lizard	imit	n-ini
Nele	1;10.14	Eidechse	ˈʔa͡ɪˌdɛksə	ˈʔa͡ɪˌditi	SsW	Pcom	lizard	Sp	SWU
Nele	1;10.14	Eidechse	ˈʔa͡ɪˌdɛksə	ˈʔa͡ɪˌditi	SsW	Pcom	lizard	Sp	ini
Nele	1;10.14	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	n-ini
Nele	1;10.14	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	SWU
Nele	1;10.14	Giraffe	giˈʁafə	ˈlɔfi	SW	Mon	giraffe	Sp	SWU
Nele	1;10.14	Giraffe	giˈʁafə	ˈlafi	SW	Mon	giraffe	Sp	ini
Nele	1;10.14	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	n-ini
Nele	1;10.14	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	SWU
Nele	1;10.14	Kartoffeln	kaɐˈtɔfəln	ˈtɔfm̩	SW	Mon	potato (plural)	Sp	SWU
Nele	1;10.14	Koalabär	koˈʔaːlaˌbæːɐ	keˈkeˌkaːba	WS-sW	Com	koala + bear	imit	SWU
Nele	1;10.14	Krokodil	ˌkʁokoˈdiːl	ˈkoku͡ɯɪ	SW	Mon	crocodile	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;10.14	Ostereier	ˈʔoːstəɐˌʔa͡ɪəɐ	ˈʔoːstaˌʔa͡ɪa	SW-sW	Com	easter egg (plural)	Sp	SWU
Nele	1;10.14	Ostereier	ˈʔoːstəɐˌʔa͡ɪəɐ	ˈʔostaˌʔa͡ɪa	SW-sW	Com	easter egg (plural)	Sp	n-ini
Nele	1;10.14	Sandalen	zanˈdaːlən	ʔɛnˈda͡ɪn	WS	Mon	sandal (plural)	Sp	ini
Nele	1;10.14	Waschmaschine	ˈvaʃmaʃiːnə	ˈdati	SW	Com	washing machine	Sp	n-ini
Nele	1;10.23	Ballon	baˈlɔŋ	lɔm	S	Mon	balloon	Sp	n-ini
Nele	1;10.23	Ballon	baˈlɔŋ	ˈlɛlɔm	SW	Mon	balloon	imit	SWU
Nele	1;10.23	Eiscafe	ˈʔa͡ɪskaˌfeː	ˈʔa͡ɪsˌkafeː	S-sW	Com	cafe	imit	SWU
Nele	1;10.23	Eisenbahn	ˈʔa͡ʊtoˌbaːn	ˈʔa͡ʊtoˌbaⁿ	SW-s	Com	motorway (means railway)	Sp	SWU
Nele	1;10.23	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	SWU
Nele	1;10.23	Hundehütte	ˈhʊndəˌhʏtə	ˈʔʊntˈhʊti	SW-SW	Com	doghouse	Sp	SWU
Nele	1;10.23	Kamel	kaˈmeːl	meːɐ	S	Mon	camel	Sp	SWU
Nele	1;10.23	Kohlrabi	koːlˈʁaːbi	ˌkʊ͡ɪˈhaːbi	sSW	Mon	kohlrabi	imit	SWU
Nele	1;10.23	Krokodil	ˌkʁokoˈdiːl	ˈkɔjə	SW	Mon	crocodile	Sp	SWU
Nele	1;10.23	Krokodil	ˌkʁokoˈdiːl	kɔ͡ɪ	S	Mon	crocodile	Sp	ini
Nele	1;10.23	Malstifte	ˈmaːlˌʃtɪftə	ˈmːa͡ɪˌtɪfə	S-sW	Com	crayon (plural)	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;10.23	Motorroller	moˈtoɐˌʁɔləɐ	ˈmotala	SWW	Com	scooter	Sp	n-ini
Nele	1;10.23	Osterei	ˈʔoːstəɐˌʔa͡ɪ	ˈʔɣ͡ʊstaˌa͡ɪ	SW-s	Com	easter egg	Sp	n-ini
Nele	1;10.23	Papagei	ˌpapaˈga͡ɪ	ˈkaka͡ɪ	SW	Mon	parrot	imit	n-ini
Nele	1;10.23	Puppenwagen	ˈpʊpənˌvaːgən	ˈbʊbm̩ˌvaːgŋ̍	SW-sW	Com	doll's pram	Sp	n-ini
Nele	1;10.23	Salat	zaˈlaːt	əˈlaːt	WS	Mon	salad	Sp	SWU
Nele	1;10.23	Sandalen	zanˈdaːlən	naˈda͡ɪn	WS	Mon	sandal (plural)	Sp	SWU
Nele	1;11.0	Ballon	baˈlɔŋ	lʌm	S	Mon	balloon	imit	SWU
Nele	1;11.0	Bauchnabel	ˈba͡ʊxˌnaːbəl	ˈnabɨ	SW	Com	bellybutton	Sp	SWU
Nele	1;11.0	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈba.af	SW	Com	farm	Sp	ini
Nele	1;11.0	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ˈʔa͡ɪˌhɔnta	S-sW	Com	squirrel	imit	SWU
Nele	1;11.0	Elefant	ˌʔeləˈfant	van	S	Mon	elephant	Sp	n-ini
Nele	1;11.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	n-ini
Nele	1;11.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	n-ini
Nele	1;11.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	n-ini
Nele	1;11.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	SWU
Nele	1;11.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	imit	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;11.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	ini
Nele	1;11.0	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	ini
Nele	1;11.0	Elefant	ˌʔeləˈfant	ˌʔɛlɛˈfantʰ	sWS	Mon	elephant	Sp	n-ini
Nele	1;11.0	Elefant	ˌʔeləˈfant	ˌʔɛlɛˈfant	sWS	Mon	elephant	Sp	n-ini
Nele	1;11.0	Erdbeeeren	ˈʔɛɐtˌbeːʁən	ˈʔeːt̚pe͡ɐn	SW	Com	strawberry (plural)	Sp	n-ini
Nele	1;11.0	Erdbeeeren	ˈʔɛɐtˌbeːʁən	ˈʔetˌbɛ͡ɐn	S-s	Com	strawberry (plural)	imit	SWU
Nele	1;11.0	Erdbeeeren	ˈʔɛɐtˌbeːʁən	ˈʔaˌʔetbe͡ɐn	SW	Com	strawberry (plural)	Sp	n-ini
Nele	1;11.0	Giraffe	giˈʁafə	ˈlafi	SW	Mon	giraffe	Sp	ini
Nele	1;11.0	Haarshampoo	ˈhaːɐˌʃampu	ˈhaːpɯː	SW	Com	shampoo	imit	n-ini
Nele	1;11.0	Haarshampoo	ˈhaːɐˌʃampu	ˈhapɯː	SW	Com	shampoo	Sp	SWU
Nele	1;11.0	Kamel	kaˈmeːl	mæːɐ	S	Mon	camel	Sp	SWU
Nele	1;11.0	Kartoffeln	kaɐˈtɔfəln	ˈtʌfn̩	SW	Mon	potato (plural)	Sp	SWU
Nele	1;11.0	Katzenbabies	ˈka͡tsənˌbeːbis	ˈkʰatiˌbebis	SW-sW	Com	cat + babies	Sp	ini
Nele	1;11.0	Kinderwagen	ˈkɪndəɐˌvaːgən	ˈkɪnaˈvagŋ̍	SW-SW	Com	buggy	Sp	n-ini
Nele	1;11.0	Krokodil	ˌkʁokoˈdiːl	ˈgɯːgu͡ɪ	SW	Mon	crocodile	Sp	n-ini
Nele	1;11.0	Nudelholz	ˈnuːdəlˌhɔ͡lts	ˈnʉdiˌha͡ɪtʰ	SW-s	Com	rolling pin	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;11.0	Papagei	ˌpapaˈga͡ɪ	ˌgaˈga͡ɪ	sS	Mon	parrot	imit	SWU
Nele	1;11.0	Paprika	ˈpapʁika	ˈp^{h}ak^{h}a	SW	Mon	pepper	imit	SWU
Nele	1;11.0	Rosinen	ʁoˈziːnən	ˌhɤz̥iˈz̥iːn	sWS	Mon	raisin (plural)	imit	SWU
Nele	1;11.0	Rosinen	ʁoˈziːnən	ˌhɤz̥əˈz̥iːn	sWS	Mon	raisin (plural)	Sp	SWU
Nele	1;11.0	Sandalen	zanˈdaːlən	ta͡ɪn	S	Mon	sandal (plural)	Sp	SWU
Nele	1;11.0	Wasserhahn	ˈvasəɐˌhaːn	ˈvasaˌhaːn	SW-s	Com	water-tap	Sp	SWU
Nele	1;11.04	Banane	baˈnaːnə	ˈnaːnə	SW	Mon	banana	imit	SWU
Nele	1;11.04	Delfin	dɛlˈfiːn	fiːn	S	Mon	dolphin	Sp	SWU
Nele	1;11.04	Eidechse	ˈʔa͡ɪˌdɛksə	ˈa͡ɪditi	SWW	Pcom	lizard	Sp	SWU
Nele	1;11.04	Elefant	ˌʔeləˈfant	ˌʔɛleˈfant	sWS	Mon	elephant	Sp	SWU
Nele	1;11.04	Giraffe	giˈʁafə	ˈlafi	SW	Mon	giraffe	Sp	n-ini
Nele	1;11.04	Giraffe	giˈʁafə	giˈlafi	WSW	Mon	giraffe	imit	n-ini
Nele	1;11.04	Giraffe	giˈʁafə	giˈlafi	WSW	Mon	giraffe	imit	ini
Nele	1;11.04	Kaputt	kaˈpʊt	p^{h}ʊt	S	Mon	defective	Sp	n-ini
Nele	1;11.04	Kaputt	kaˈpʊt	p^{h}ʊt	S	Mon	defective	Sp	n-ini
Nele	1;11.04	Kaputt	kaˈpʊt	p^{h}ʊt	S	Mon	defective	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;11.04	Koalabär	koˈʔaːlaˌbæːɐ	ˈkabaˌbeːɐ	SW-s	Com	koala + bear	imit	SWU
Nele	1;11.04	Krokodil	ˌkʁokoˈdiːl	koˈkɯɪ͡	WS	Mon	crocodile	imit	SWU
Nele	1;11.04	Kuschelhase	ˈkʊʃəlˌhaːzə	ˈkʊtiˈha͡ɪsi	SW-SW	Com	cuddly + bunny	Sp	SWU
Nele	1;11.04	Kuschelhase	ˈkʊʃəlˌhaːzə	ˈkʊtiˌhali	SW-sW	Com	cuddly + bunny	Sp	ini
Nele	1;11.04	Kuschelhase	ˈkʊʃəlˌhaːzə	ˈkʊtiˌha͡ɪ	SW-s	Com	cuddly + bunny	Sp	ini
Nele	1;11.04	Kuschelhase	ˈkʊʃəlˌhaːzə	ˈkɯtiˌhaːzə	SW-sW	Com	cuddly + bunny	Sp	SWU
Nele	1;11.04	Luftballon	ˈlʊftbaˌlɔŋ	ˈlapiˌla͡ʊm	SWs	Com	balloon	Sp	n-ini
Nele	1;11.04	Marmelade	ˌmaɐməˈlaːdə	ˈlalə	SW	Mon	jam	Sp	SWU
Nele	1;11.04	Mittagessen	ˈmɪtakˌʔɛsən	ˈmɪtaˌʔɛsn̩	SW-sW	Com	lunch	Sp	SWU
Nele	1;11.04	Papagei	ˌpapaˈga͡ɪ	kaˈka͡ɪ	WS	Mon	parrot	Sp	SWU
Nele	1;11.04	Rasenmäher	ˈʁaːzənˌmæːhəɐ	ˈdaziˌmeːɐ	SW-sW	Com	lawn-mower	Sp	n-ini
Nele	1;11.04	Riesenrad	ˈʁiːzənˌʁaːt	ˈhiːsənat	SWW	Com	giant wheel	Sp	SWU
Nele	1;11.04	Sandkasten	ˈzantˌkastən	ˈzanˌkʰasn̩	S-sW	Com	sand box	Sp	SWU
Nele	1;11.04	Sonnenkäferpapa	ˈzɔnənˌkæːfəɐˌpapa	ˌsɔnˌkefɐˈbapa	s-sW-SW	Com	sun + beetle + daddy	Sp	SWU
Nele	1;11.04	Tomate	toˈmaːtə	ˈnapɨ	SW	Mon	tomato	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;11.04	Tomate	toˈmaːtə	ˈmaːta	SW	Mon	tomato	imit	SWU
Nele	1;11.04	Tomate	toˈmaːtə	ˌtomiˈmaːti	sWSW	Mon	tomato	imit	SWU
Nele	1;11.04	Wasserschlauch	ˈvasɐˌʃlaʊ͡x	ˈvasaˌla	SW-s	Com	garden hose	Sp	SWU
Nele	1;11.14	Banane	baˈnaːnə	ˈnaːnɛ	SW	Mon	banana	Sp	SWU
Nele	1;11.14	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈba͡ʊəɐˌhɤːf	SW-s	Com	farm	Sp	SWU
Nele	1;11.14	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈba͡ʊəɐˌhɤːf	SW-s	Com	farm	Sp	n-ini
Nele	1;11.14	Blumenkohl	ˈbluːmənˌkoːl	ˈbʊmiˌkʰoːl	SW-s	Com	cauliflower	imit	ini
Nele	1;11.14	Elefant	ˌʔeləˈfant	fanːtʰ	S	Mon	elephant	Sp	SWU
Nele	1;11.14	Elefant	ˌʔeləˈfant	fantʰ	S	Mon	elephant	Sp	SWU
Nele	1;11.14	Elefant	ˌʔeləˈfant	ˈʔɛlɛˈfantʰ	SWS	Mon	elephant	Sp	n-ini
Nele	1;11.14	Elefant	ˌʔeləˈfant	ˌʔɛlɛˈfantʰ	sWS	Mon	elephant	Sp	n-ini
Nele	1;11.14	Elefant	ˌʔeləˈfant	ˌʔɛlɛˈfantʰ	sWS	Mon	elephant	Sp	ini
Nele	1;11.14	Elefant	ˌʔeləˈfant	ˌʔɛlɛˈfant	sWS	Mon	elephant	Sp	n-ini
Nele	1;11.14	Erdbeeeren	ˈʔɛɐtˌbeːʁən	ˈʔeˌpe͡ːɐn	S-s	Com	strawberry (plural)	imit	SWU
Nele	1;11.14	Giraffe	giˈʁafə	giˈlafi	WSW	Mon	giraffe	Sp	n-ini
Nele	1;11.14	Giraffe	giˈʁafə	giˈlafi	WSW	Mon	giraffe	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;11.14	Giraffe	giˈʁafə	giˈlafə	WSW	Mon	giraffe	Sp	n-ini
Nele	1;11.14	Giraffe	giˈʁafə	giˈlafə	WSW	Mon	giraffe	Sp	SWU
Nele	1;11.14	Giraffe	giˈʁafə	ˈlafi	SW	Mon	giraffe	Sp	n-ini
Nele	1;11.14	Giraffe	giˈʁafə	ˈlafə	SW	Mon	giraffe	Sp	n-ini
Nele	1;11.14	Kamel	kaˈmeːl	meː	S	Mon	camel	Sp	n-ini
Nele	1;11.14	Kamel	kaˈmeːl	meː	S	Mon	camel	Sp	n-ini
Nele	1;11.14	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	n-ini
Nele	1;11.14	Kartoffeln	kaɐˈtɔfəln	ˈtɔfm̩	SW	Mon	potato (plural)	Sp	n-ini
Nele	1;11.14	Krokodil	ˌkʁokoˈdiːl	kʊ͡ɪ	S	Mon	crocodile	Sp	n-ini
Nele	1;11.14	Krokodil	ˌkʁokoˈdiːl	kɔˈkiː	WS	Mon	crocodile	Sp	n-ini
Nele	1;11.14	Krokodil	ˌkʁokoˈdiːl	ˈkɔkɛ͡ɪ	SW	Mon	crocodile	Sp	n-ini
Nele	1;11.14	Krokodil	ˌkʁokoˈdiːl	ˌkʊˈkʊ͡ɪ	WS	Mon	crocodile	Sp	n-ini
Nele	1;11.14	Mikrofon	ˌmɪkʁɔˈfoːn	ˌmɪkəˈfɤn	sWS	Mon	microphone	imit	SWU
Nele	1;11.14	Ostereier	ˈʔoːstəɐˌʔa͡ɪəɐ	ˈʔɤːstɐˌʔa͡ɪɐ	SW-sW	Com	easter egg (plural)	Sp	SWU
Nele	1;11.14	Osternest	ˈʔoːstəɐˌnɛst	ˈʔɤːstaˌnɛstʰ	SW-s	Com	easter + nest	Sp	SWU
Nele	1;11.14	Papagei	ˌpapaˈga͡ɪ	kɔˈka͡ɪ	WS	Mon	parrot	Sp	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;11.14	Papagei	ˌpapaˈga͡ɪ	gɔˈga͡ɪ	WS	Mon	parrot	Sp	n-ini
Nele	1;11.14	Papagei	ˌpapaˈga͡ɪ	gaˈga͡ɪ	WS	Mon	parrot	Sp	n-ini
Nele	1;11.14	Papagei	ˌpapaˈga͡ɪ	ˈkaga͡ɪ	SW	Mon	parrot	Sp	n-ini
Nele	1;11.14	Papagei	ˌpapaˈga͡ɪ	ˈgaga͡ɪ	SW	Mon	parrot	Sp	n-ini
Nele	1;11.14	Salat	zaˈlaːt	ˈlaːl͡ɛa	SW	Mon	salad	Sp	ini
Nele	1;11.14	Salat	zaˈlaːt	lat	S	Mon	salad	imit	ini
Nele	1;11.14	Sandkasten	ˈzantˌkastən	ˈzanˌkasn̩	S-sW	Com	sand box	Sp	n-ini
Nele	1;11.14	Sonnenkäfer	ˈzɔnənˌkæːfəɐ	ˈzɔmˌkɛːfɐ	S-sW	Com	sun + beetle	Sp	ini
Nele	1;11.14	Sonnenkäfer	ˈzɔnənˌkæːfəɐ	ˈzɔmˌkɛːfɐ	S-sW	Com	sun + beetle	Sp	n-ini
Nele	1;11.14	Spinnennetz	ˈʃpɪnənˌnɛ͡ts	ˈpɪnːɪtʰ	SW	Com	spider's web	Sp	SWU
Nele	1;11.14	Spinnennetz	ˈʃpɪnənˌnɛ͡ts	ˈpɪntˌnet	S-s	Com	spider's web	Sp	n-ini
Nele	1;11.14	Tomaten	toˈmaːtən	tiˈtapm̩	WSW	Mon	tomato (plural)	imit	SWU
Nele	1;11.14	Wasserhahn	ˈvasəɐˌhaːn	ˈvasaˈhaːn	SW-S	Com	water-tap	Sp	ini
Nele	1;11.25	Autobahn	ˈʔa͡ʊtoˌbaːn	ˈʔa͡ʊtoˌban	SW-s	Com	motorway	imit	n-ini
Nele	1;11.25	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈpa͡ʊəɐhɤf	SWW	Com	farm	Sp	SWU
Nele	1;11.25	Butterbrot	ˈbʊtəɐˌbʁoːt	ˈkɪnaˌtaçə	SW-sW	Com	butter + bread	Sp	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;11.25	Elefant	ˌʔeləˈfant	ˌʔɛlɛˈvant	sWS	Mon	elephant	Sp	n-ini
Nele	1;11.25	Erdbeeeren	ˈʔeɐtˌbeːʁən	ˈʔɛ͡ɐˌpeɐn	S-s	Com	strawberry (plural)	Sp	n-ini
Nele	1;11.25	Erdbeeeren	ˈʔeɐtˌbeːʁən	ˈʔɛˌpeɐnə	S-sW	Com	strawberry (plural)	Sp	SWU
Nele	1;11.25	Erdbeeeren	ˈʔeɐtˌbeːʁən	ˈʔɛ͡ɐˌpeɐn	S-s	Com	strawberry (plural)	imit	ini
Nele	1;11.25	Giraffe	giˈʁafə	giˈlafɨ	WSW	Mon	giraffe	Sp	ini
Nele	1;11.25	Giraffe	giˈʁafə	giˈlafi	WSW	Mon	giraffe	Sp	ini
Nele	1;11.25	Giraffe	giˈʁafə	giˈlafʰɛ	WSW	Mon	giraffe	Sp	SWU
Nele	1;11.25	Giraffe	giˈʁafə	giˈlafɛ	WSW	Mon	giraffe	Sp	ini
Nele	1;11.25	Giraffe	giˈʁafə	gəˈlafə	WSW	Mon	giraffe	Sp	SWU
Nele	1;11.25	Häschenfutter	ˈhæːsçənˌfʊtəɐ	ˈhæsənˌfʊta	SW-sW	Com	bunny + forage	Sp	SWU
Nele	1;11.25	Kamel	kaˈmeːl	kʰiˈmiː	WS	Mon	camel	Sp	n-ini
Nele	1;11.25	Kamel	kaˈmeːl	ˈkʰimæː	SW	Mon	camel	imit	SWU
Nele	1;11.25	Kamel	kaˈmeːl	ˈkʰɪmi	SW	Mon	camel	imit	SWU
Nele	1;11.25	Kamel	kaˈmeːl	ˈkʰɛmɛ	SW	Mon	camel	Sp	SWU
Nele	1;11.25	Kaput	kaˈpʊt	pʰʊt	S	Mon	defective	imit	n-ini
Nele	1;11.25	Kartoffeln	kaɐˈtɔfəln	ˈtɔfm̩	SW	Mon	potato (plural)	imit	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;11.25	Kassette	kaˈsɛtə	ˈsɪti	SW	Mon	cassette	imit	ini
Nele	1;11.25	Katzenbabies	ˈka͡tsənˌbeːbis	ˈkatiˌbebiːs	SW-sW	Com	cat + babies	Sp	n-ini
Nele	1;11.25	Kindergarten	ˈkɪndɐˌgaɐtən	ˈkʰɪnaˌgaːtn̩	SW-sW	Com	kindergarten	Sp	SWU
Nele	1;11.25	Kindertasche	ˈkɪndɐˌtaʃə	ˈkɪnaˌtaçə	SW-sW	Com	child's bag	Sp	n-ini
Nele	1;11.25	Klebeband	ˈkleːbəˌbant	ˈkebɛˌbantʰ	SW-s	Com	adhesive tape	imit	SWU
Nele	1;11.25	Krokodil	ˌkʁokoˈdiːl	guˈg͡ʊɪ	WS	Mon	crocodile	Sp	ini
Nele	1;11.25	Krokodil	ˌkʁokoˈdiːl	ˈkɛkɤ	SW	Mon	crocodile	Sp	n-ini
Nele	1;11.25	Krokodil	ˌkʁokoˈdiːl	ˌkʊˈk͡ʊɪ	sS	Mon	crocodile	Sp	SWU
Nele	1;11.25	Maiskolben	ˈm͡aɪsˌkɔlbən	ˈm͡aɪsˌk͡ɔɪpm̩	S-sW	Com	corn cob	Sp	SWU
Nele	1;11.25	Papagei	ˌpapaˈg͡aɪ	ˌkakaˈk͡aɪ	sWS	Mon	parrot	imit	SWU
Nele	1;11.25	Riesenrad	ˈʁiːzənˌʁaːt	ˈhiːzn̩ˌhɪtʰ	SW-s	Com	giant wheel	imit	ini
Nele	1;11.25	Schokolade	ˌʃokoˈlaːdə	l͡aʊlɔkəˈlalə	sWWSW	Mon	chocolate	Sp	n-ini
Nele	1;11.25	Schokolade	ˌʃokoˈlaːdə	ˌlɔləˈlaːlə	sWSW	Mon	chocolate	imit	n-ini
Nele	1;11.25	Schokolade	ˌʃokoˈlaːdə	ˌlɔkəˈlaːlə	sWSW	Mon	chocolate	Sp	ini
Nele	1;11.25	Schokolade	ˌʃokoˈlaːdə	ˌlɔkəˈlalə	sWSW	Mon	chocolate	Sp	n-ini
Nele	1;11.25	Selina	zeˈliːna	liziziˈlina	WWWSW	Mon	proper name	imit	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	1;11.25	Selina	zeˈliːna	leˈzizili	WSWW	Mon	proper name	imit	n-ini
Nele	1;11.25	Selina	zeˈliːna	hɪlihɪˈliːna	WWWSW	Mon	proper name	Sp	SWU
Nele	1;11.25	Selina	zeˈliːna	ˌsiˈliːna	sSW	Mon	proper name	imit	n-ini
Nele	1;11.25	Spinnweben	ˈʃpɪnˌveːbən	ˈpɪmˌfebm̩	S-sW	Com	cobweb	imit	SWU
Nele	1;11.25	Spinnweben	ˈʃpɪnˌveːbən	ˈpɪmˌfɛbm̩	S-sW	Com	cobweb	Sp	n-ini
Nele	1;11.25	Tomaten	toˈmaːtən	tɤːˈbnaːtn̩	WSW	Mon	tomato (plural)	imit	ini
Nele	1;11.25	Tomaten	toˈmaːtən	ˌtomiˈmaːtn̩	sWSW	Mon	tomato (plural)	Sp	SWU
Nele	1;11.25	Tomaten	toˈmaːtən	ˌtomiˈmaːtn̩	sWSW	Mon	tomato (plural)	imit	n-ini
Nele	1;11.25	Vanille	vaˈnɪlə	ˈlɪlɛ	SW	Mon	vanilla	imit	ini
Nele	1;11.25	Zitrone	t͡siˈtʁoːnə	ˈtɤːnə	SW	Mon	citron	Sp	SWU
Nele	2;0.02	Arztkoffer	ˈʔaːɐt͡stˌkɔfəɐ	ˈʔaːtˌkʰɔfɐ	S-sW	Com	medical bag	Sp	SWU
Nele	2;0.02	Banane	baˈnaːnə	ˈnaːnə	SW	Mon	banana	imit	SWU
Nele	2;0.02	Banane	baˈnaːnə	baˈnaːnə	WSW	Mon	banana	imit	n-ini
Nele	2;0.02	Banane	baˈnaːnə	baˈnaːnə	WSW	Mon	banana	imit	ini
Nele	2;0.02	Bauernhof	ˈba͡ʊəɐnˌhoːf	ˈba͡ʊɐˌhɤːf	SW-s	Com	farm	Sp	n-ini
Nele	2;0.02	Eidechse	ˈʔa͡ɪˌdɛksə	ˈʔa͡ɪsdɛkə	SWW	Pcom	lizard	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	2;0.02	Elefant	ˌʔeləˈfant	ˈʔɛnəˈfant^h	SWS	Mon	elephant	Sp	SWU
Nele	2;0.02	Elefant	ˌʔeləˈfant	ˌʔɛlɛˈfantn̩	sWSW	Mon	elephant	Sp	ini
Nele	2;0.02	Elefant	ˌʔeləˈfant	ˈʔɛlɛˈfantn	SWSW	Mon	elephant	Sp	n-ini
Nele	2;0.02	Feuerwehrauto	ˈfɔ͡ɪɐˌveːɐˌʔa͡ʊto	ˈfaɪɐˌʔa͡ʊt^h	SW-s	Com	fire engine	Sp	SWU
Nele	2;0.02	Girlande	gɪɐˈlandə	giˈlandə	WSW	Mon	garland	imit	n-ini
Nele	2;0.02	Hubschrauber	ˈhuːpˌʃʁa͡ʊbəɐ	ˈpɯhava	SWW	Com	helicopter	imit	SWU
Nele	2;0.02	Kakao	kaˈka͡ɔ	kaˈka͡ɔ	WS	Mon	cocoa	imit	n-ini
Nele	2;0.02	Kakao	kaˈka͡ɔ	kaˈka͡ɔ	WS	Mon	cocoa	imit	ini
Nele	2;0.02	Kamel	kaˈmeːl	k^{h}ɪˈmɛ^l	WS	Mon	camel	Sp	SWU
Nele	2;0.02	Kamel	kaˈmeːl	ˈkɛmɛ	SW	Mon	camel	Sp	n-ini
Nele	2;0.02	Kamel	kaˈmeːl	ˈkɛmɛ	SW	Mon	camel	Sp	n-ini
Nele	2;0.02	Kamel	kaˈmeːl	ˈkɛmɛ	SW	Mon	camel	Sp	ini
Nele	2;0.02	Kaputt	kaˈpʊt	taˈpʊt	WS	Mon	defective	Sp	ini
Nele	2;0.02	Koalabär	koˈʔaːlaˌbæːɐ	ˈgaːbɨˌpeɐt	SW-s	Com	koala + bear	Sp	n-ini
Nele	2;0.02	Krokodil	ˌkʁokoˈdiːl	kɯˈk͡ɯɪ	WS	Mon	crocodile	Sp	SWU
Nele	2;0.02	Krokodil	ˌkʁokoˈdiːl	kɯˈk͡ɯɪ	WS	Mon	crocodile	Sp	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	2;0.02	Luftballon	ˈlʊftbaˌlɔŋ	ˈlɯkɛpɔŋ	SWW	Com	balloon	Sp	n-ini
Nele	2;0.02	Luftballon	ˈlʊftbaˌlɔŋ	ˈlɯˌkɛˌbɔŋ	Sss	Com	balloon	Sp	SWU
Nele	2;0.02	Mittagessen	ˈmɪtakˌʔɛsən	ʔmˈmɪtaˌʔɛsn̩	SW-sW	Com	lunch	Sp	SWU
Nele	2;0.02	Paprika	ˈpapʁika	ˈpʰaka	SW	Mon	pepper	Sp	SWU
Nele	2;0.02	Salat	zaˈlaːt	laːt	S	Mon	salad	imit	n-ini
Nele	2;0.02	Schokolade	ˌʃokoˈlaːdə	ˌlɔkəˈlalə	sWSW	Mon	chocolate	Sp	SWU
Nele	2;0.02	Spinat	ʃpiˌnaːt	ˈpinaːt	SW	Mon	spinach	Sp	n-ini
Nele	2;0.02	Tomate	toˈmaːtə	toˈmaːtə	WSW	Mon	tomato	Sp	n-ini
Nele	2;0.02	Tomate	toˈmaːtə	toˌmaːtə	WSW	Mon	tomato	Sp	n-ini
Nele	2;0.19	Apfelschorle	ˈʔap͡fəlˌʃɔɐlə	ˈʔapəˌs͡ɔɐlə	SW-sW	Com	apple cider	Sp	SWU
Nele	2;0.19	Banane	baˈnaːnə	baˈnaːnə	WSW	Mon	banana	Sp	n-ini
Nele	2;0.19	Banane	baˈnaːnə	baˈnaːnə	WSW	Mon	banana	Sp	SWU
Nele	2;0.19	Banane	baˈnaːnə	baˈnaːnə	WSW	Mon	banana	Sp	n-ini
Nele	2;0.19	Banane	baˈnaːnə	ʔaˈpaːnən	WSW	Mon	banana	Sp	ini
Nele	2;0.19	Eidechse	ˈʔa͡ɪˌdɛksə	ˈʔa͡ɪdɛtɛ	SWW	Pcom	lizard	Sp	n-ini
Nele	2;0.19	Eidechse	ˈʔa͡ɪˌdɛksə	ˈʔa͡ɪdɛtɛ	SWW	Pcom	lizard	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	2;0.19	Eidechse	ˈʔa͡ɪˌdɛksə	ˈʔa͡ɪdɛtɛ	SWW	Pcom	lizard	Sp	ini
Nele	2;0.19	Elefant	ˌʔeləˈfant	ˈʔɛlɛˌfantʰ	SWs	Mon	elephant	Sp	n-ini
Nele	2;0.19	Elefant	ˌʔeləˈfant	ˌʔɛlɛˈfant	sWS	Mon	elephant	Sp	n-ini
Nele	2;0.19	Giraffe	giˈʁafə	giˈlafə	WSW	Mon	giraffe	Sp	n-ini
Nele	2;0.19	Giraffe	giˈʁafə	giˈlafə	WSW	Mon	giraffe	Sp	n-ini
Nele	2;0.19	Giraffe	giˈʁafə	giˈlafə	WSW	Mon	giraffe	Sp	n-ini
Nele	2;0.19	Giraffe	giˈʁafə	giˈlafə	WSW	Mon	giraffe	Sp	SWU
Nele	2;0.19	Giraffe	giˈʁafə	giˈlafə	WSW	Mon	giraffe	Sp	ini
Nele	2;0.19	Hubschrauber	ˈhuːpˌʃʁa͡ʊbɐ	ˈhʊpˌsa͡ʊbɐ	S-sW	Com	helicopter	Sp	n-ini
Nele	2;0.19	Hubschrauber	ˈhuːpˌʃʁa͡ʊbɐ	ˈhʊpˌsa͡ʊbɐ	S-sW	Com	helicopter	Sp	n-ini
Nele	2;0.19	Hubschrauber	ˈhuːpˌʃʁa͡ʊbɐ	ˌhʊpsa͡ʊbɐ	s-SW	Com	helicopter	Sp	ini
Nele	2;0.19	Kamel	kaˈmeːl	ˈkʰɪˈmɛ	SS	Mon	camel	Sp	SWU
Nele	2;0.19	Kasperle	ˈkaspɐlə	ˈkaspɐlə	SWW	Mon	clown	Sp	SWU
Nele	2;0.19	Kasperle	ˈkaspɐlə	ˌkaˈkaspalː	sSW	Mon	clown	Sp	SWU
Nele	2;0.19	Koalabär	koˈʔaːlaˌbæːɐ	ˈpalaˈbɛ͡ːɐ	SW-S	Com	koala + bear	Sp	SWU
Nele	2;0.19	Koalabär	koˈʔaːlaˌbæːɐ	ˈkaːlaˌbala	SW-sW	Com	koala + bear	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Nele	2;0.19	Koalabär	koˈʔaːlaˌbæːɐ	ˈkalaˌbæ͡ɐ	SW-s	Com	koala + bear	Sp	SWU
Nele	2;0.19	Koalabär	koˈʔaːlaˌbæːɐ	ˈkalaˌbæ͡ːɐ	SW-s	Com	koala + bear	imit	SWU
Nele	2;0.19	Krokodil	ˌkʁokoˈdiːl	guˈguː	WS	Mon	crocodile	Sp	ini
Nele	2;0.19	Krokodil	ˌkʁokoˈdiːl	ˈkɯkɯ͡ɪ	SW	Mon	crocodile	Sp	n-ini
Nele	2;0.19	Krokodil	ˌkʁokoˈdiːl	ˈgɔtəˌtɪn	SWs	Mon	crocodile	Sp	n-ini
Nele	2;0.19	Laterne	laˈtɛɐnə	ˈtʰɛ͡ɐnə	SW	Mon	lantern	Sp	SWU
Nele	2;0.19	Luftballon	ˈlʊftbaˌlɔŋ	ˈlʊpəˌbɔŋkə	SWsW	Com	balloon	Sp	n-ini
Nele	2;0.19	Luftballon	ˈlʊftbaˌlɔŋ	ˈlɤpɛˌpɔŋ	SWs	Com	balloon	Sp	n-ini
Nele	2;0.19	Mozzarellakäse	ˌmozaˈʁɛlaˌkæːzə	ˌmɔtahɛ.ˈhɛlaˌkæːzə	sWWSW-sW	Com	mozzarella + cheese	imit	SWU
Nele	2;0.19	Murmelbahn	ˈmʊɐməlˌbaːn	ˈmɔməˌbaːn	SW-s	Com	marble run	imit	ini
Nele	2;0.19	Murmelbahn	ˈmʊɐməlˌbaːn	ˈmɤməˌbaːn	SW-s	Com	marble run	imit	n-ini
Nele	2;0.19	Murmelbahn	ˈmʊɐməlˌbaːn	ˈmɤməˌbaːn	SW-s	Com	marble run	imit	n-ini
Nele	2;0.19	Murmelbahn	ˈmʊɐməlˌbaːn	ˈmɤməˌbaːn	SW-s	Com	marble run	imit	n-ini
Nele	2;0.19	Murmelbahn	ˈmʊɐməlˌbaːn	ˈmɤməˌbaːn	SW-s	Com	marble run	imit	n-ini
Nele	2;0.19	Paprika	ˈpapʁika	ˈpʰaka	SW	Mon	pepper	Sp	SWU
Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position

Nele	2;0.19	Paprika	ˈpapʁika	ˈpʰaˌka	Ss	Mon	pepper	Sp	n-ini
Nele	2;0.19	Purzelbaum	ˈpʊɐt͡səlˌba͡ʊm	ˈpɔːtnˌba͡ʊn	SW-s	Com	tumble	Sp	n-ini
Nele	2;0.19	Schokolade	ˌʃokoˈlaːdə	ˌlʊkəˈlaːlə	sWSW	Mon	chocolate	Sp	SWU
Nele	2;0.19	Toilette	toˈlɛtə	tcˈlɛtə	WSW	Mon	WC	imit	n-ini
Nele	2;0.19	Toilettenpapier	toˈlɛtənpaˌpiːɐ	ˈtɛtn̩ˌpiː	SW-s	Com	WC paper	Sp	n-ini
Nele	2;0.19	Tomate	toˈmaːtə	toˈmaːtə	WSW	Mon	tomato	imit	SWU

Sandra

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;05.20	Banane	baˈnaːnə	ˈmana	SW	mon	banana	imit	n-ini
Sandra	1;05.20	Banane	baˈnaːnə	ˈmana	SW	mon	banana	imit	SWU
Sandra	1;05.20	Banane	baˈnaːnə	ˈmana	SW	mon	banana	imit	SWU
Sandra	1;05.20	Banane	baˈnaːnə	ˈmana	SW	mon	banana	imit	SWU
Sandra	1;05.26	Banane	baˈnaːnə	ˈpana	SW	mon	banana	imit	SWU
Sandra	1;05.26	Banane	baˈnaːnə	ˈmanaː	SW	mon	banana	imit	SWU
Sandra	1;05.26	Banane	baˈnaːnə	ˈmana	SW	mon	banana	imit	SWU
Sandra	1;05.26	Banane	baˈnaːnə	ˈmana	SW	mon	banana	imit	SWU
Sandra	1;05.26	Tomate	toˈmaːtə	ˈpatːa	SW	Mon	tomato	imit	SWU
Sandra	1;05.26	Tomate	toˈmaːtə	ˈmɔ͡ɪta	SW	Mon	tomato	imit	SWU
Sandra	1;06.01	Banane	baˈnaːnə	ˈnaːnə	SW	mon	banana	Sp	SWU
Sandra	1;06.01	Banane	baˈnaːnə	ˈmana	SW	mon	banana	imit	n-ini
Sandra	1;06.01	Banane	baˈnaːnə	ˈmana	SW	mon	banana	imit	SWU
Sandra	1;06.01	Banane	baˈnaːnə	ˈmaja	SW	mon	banana	imit	ini
Sandra	1;07.08	Banane	baˈnaːnə	ˈmana	SW	mon	banana	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;07.08	Banane	baˈnaːnə	ˈmana	SW	mon	banana	Sp	SWU
Sandra	1;07.08	Banane	baˈnaːnə	ˈmana	SW	mon	banana	Sp	SWU
Sandra	1;07.08	Banane	baˈnaːnə	ˈmana	SW	mon	banana	Sp	SWU
Sandra	1;07.08	Banane	baˈnaːnə	ˈmana	SW	mon	banana	Sp	ini
Sandra	1;07.08	Banane	baˈnaːnə	ˈmana	SW	mon	banana	Sp	ini
Sandra	1;07.08	Banane	baˈnaːnə	ˈma͡ɪnə	SW	mon	banana	Sp	SWU
Sandra	1;07.08	Miezekatze	ˈmiː͡tsəˌka͡tsə	ˈmiː͡tθəˌhatə	SW-sW	Com	pussycat	Sp	SWU
Sandra	1;07.15	Banane	baˈnaːnə	ˈmana	SW	mon	banana	Sp	SWU
Sandra	1;07.15	Kaputt	kaˈpʊt	βʊtʰ	S	Mon	defective	imit	SWU
Sandra	1;07.15	Miezekatze	ˈmiː͡tsəˌka͡tsə	ˈmi͡tθəˌha͡tθi	SW-sW	Com	pussycat	imit	SWU
Sandra	1;07.15	Salat	zaˈlaːt	laːtʰ	S	Mon	salad	imit	SWU
Sandra	1;07.15	Tomate	toˈmaːtə	ˈmaːtɛ	SW	Mon	tomato	imit	SWU
Sandra	1;07.15	Tomate	toˈmaːtə	ˈmaːtə	SW	Mon	tomato	imit	SWU
Sandra	1;07.29	Banane	baˈnaːnə	ˈmana	SW	mon	banana	imit	SWU
Sandra	1;07.29	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	SWU
Sandra	1;07.29	Kamel	kaˈmeːl	mel	S	Mon	camel	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;07.29	Kamel	kaˈmeːl	mel	S	Mon	camel	Sp	ini
Sandra	1;07.29	Miezekatze	ˈmiːt͡səˌkat͡sə	ˈmiːˌta͡ʊtθi	S-sW	Com	pussycat	Sp	SWU
Sandra	1;07.29	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmiːt͡θəʔɛˌtat͡θn̩	SWW-sW	Com	pussycat (plural)	Sp	SWU
Sandra	1;07.29	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmiːtəˌhat͡θɪn	SW-sW	Com	pussycat (plural)	Sp	SWU
Sandra	1;07.29	Papier	paˈpiːɐ	piːɐ	S	Mon	paper	imit	SWU
Sandra	1;07.29	Tomate	toˈmaːtə	ˈmatʰə	SW	Mon	tomato	Sp	SWU
Sandra	1;07.29	Tomate	toˈmaːtə	ˈmatə	SW	Mon	tomato	Sp	SWU
Sandra	1;08.05	Benjamin	ˈbɛnjaˌmin	ˈnɔm	S	Pcom	proper name	Sp	ini
Sandra	1;08.05	Benjamin	ˈbɛnjaˌmin	ˈmɛna	SW	Pcom	proper name	Sp	ini
Sandra	1;08.05	Benjamin	ˈbɛnjaˌmin	ˈmɛna	SW	Pcom	proper name	Sp	ini
Sandra	1;08.05	Benjamin	ˈbɛnjaˌmin	ˈbɛnamɪn	SWW	Pcom	proper name	Sp	ini
Sandra	1;08.05	Benjamin	ˈbɛnjaˌmin	ˈbɛna	SW	Pcom	proper name	imit	ini
Sandra	1;08.05	Elefant	ˌʔeləˈfant	ˌeːaˈβa͡ʊθ	sWS	Mon	elephant	imit	SWU
Sandra	1;08.05	Giraffe	giˈʁafə	ˈtiaˌgaθ	SWs	Mon	giraffe	imit	SWU
Sandra	1;08.05	Giraffe	giˈʁafə	ˈkʰihafə	SWW	Mon	giraffe	imit	SWU
Sandra	1;08.05	Giraffe	giˈʁafə	ˈgʰijaˌβɔf	SWs	Mon	giraffe	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;08.05	Kamel	kaˈmeːl	meːl	WS	Mon	camel	Sp	ini
Sandra	1;08.05	Kamel	kaˈmeːl	ˈmeːlə	SW	Mon	camel	Sp	n-ini
Sandra	1;08.05	Kamel	kaˈmeːl	əˈmeːl	WS	Mon	camel	Sp	SWU
Sandra	1;08.05	Kaputt	kaˈpʊt	pɯtʰ	S	Mon	defective	Sp	n-ini
Sandra	1;08.05	Kaputt	kaˈpʊt	pɯtʰ	S	Mon	defective	Sp	ini
Sandra	1;08.05	Krokodil	ˌkʁokoˈdiːl	ˈkɔkə	SW	Mon	crocodile	imit	SWU
Sandra	1;08.05	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmiːtaˌtat͡sn̩	SW-sW	Com	pussycat (plural)	Sp	SWU
Sandra	1;08.05	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmiːˌtatanθ	SsW	Com	pussycat (plural)	Sp	SWU
Sandra	1;08.05	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmiˈtatn̩	S-SW	Com	pussycat (plural)	Sp	SWU
Sandra	1;08.05	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmiˈtaˌt͡θə	SS-s	Com	pussycat (plural)	Sp	SWU
Sandra	1;08.05	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmeːˌdat͡θn̩	S-sW	Com	pussycat (plural)	Sp	ini
Sandra	1;08.05	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˌmiːˈdat͡sən	s-SW	Com	pussycat (plural)	Sp	SWU
Sandra	1;08.14	Benjamin	ˈbɛnjaˌmin	ˈmɛna	SW	Pcom	proper name	Sp	ini
Sandra	1;08.14	Fieberthermometer	ˈfiːbɐˌtɛɐmoˌmeːtɐ	ˈtiːbə	SW	Com	clinical thermometer	imit	SWU
Sandra	1;08.14	Fieberthermometer	ˈfiːbɐˌtɛɐmoˌmeːtɐ	ˈtipə	SW	Com	clinical thermometer	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;08.14	Fieberthermometer	ˈfiːbəɐˌtɛɐmoˌmeːtəɐ	ˈtibə	SW	Com	clinical thermometer	Sp	SWU
Sandra	1;08.14	Fieberthermometer	ˈfiːbəɐˌtɛɐmoˌmeːtəɐ	ˈtibə	SW	Com	clinical thermometer	imit	SWU
Sandra	1;08.14	Fieberthermometer	ˈfiːbəɐˌtɛɐmoˌmeːtəɐ	ˈtibə	SW	Com	clinical thermometer	imit	SWU
Sandra	1;08.14	Fieberthermometer	ˈfiːbəɐˌtɛɐmoˌmeːtəɐ	ˈpiːpəˌmʉːdi	SW-sW	Com	clinical thermometer	imit	SWU
Sandra	1;08.14	Fieberthermometer	ˈfiːbəɐˌtɛɐmoˌmeːtəɐ	ˈmʉdi	SW	Com	clinical thermometer	imit	SWU
Sandra	1;08.14	Fieberthermometer	ˈfiːbəɐˌtɛɐmoˌmeːtəɐ	ˈdibɛ	SW	Com	clinical thermometer	Sp	SWU
Sandra	1;08.14	Fieberthermometer	ˈfiːbəɐˌtɛɐmoˌmeːtəɐ	ˈbiːba	SW	Com	clinical thermometer	imit	SWU
Sandra	1;08.14	Fieberthermometer	ˈfiːbəɐˌtɛɐmoˌmeːtəɐ	ˈbibɐ	SW	Com	clinical thermometer	imit	SWU
Sandra	1;08.14	Giraffe	giˈʁafə	ˈgiɐgaˈβati	SWSW	Mon	giraffe	imit	SWU
Sandra	1;08.14	Kakao	kaˈka͡ɔ	ka͡ɔ	S	Mon	cocoa	imit	SWU
Sandra	1;08.14	Kakao	kaˈka͡ɔ	ka͡ɔ	S	Mon	cocoa	imit	SWU
Sandra	1;08.14	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;08.14	Kamel	kaˈmeːl	meːl	S	Mon	camel	imit	SWU
Sandra	1;08.14	Kamel	kaˈmeːl	mel	S	Mon	camel	Sp	SWU
Sandra	1;08.14	Kamel	kaˈmeːl	mɛl	S	Mon	camel	Sp	SWU
Sandra	1;08.14	Känguru	ˈkɛŋguʁu	ˈkækæ	SW	Mon	kangaroo	imit	SWU
Sandra	1;08.14	Krokodil	ˌkʁokoˈdiːl	bɨːl	S	Mon	crocodile	imit	SWU
Sandra	1;08.14	Miezekatze	ˈmiːt͡səˌkat͡sə	ˈmiˈtat͡sn̩	S-SW	Com	pussycat	imit	SWU
Sandra	1;08.14	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmiːkhat͡sˌɛn	S-Ws	Com	pussycat (plural)	imit	SWU
Sandra	1;08.14	Staubsauger	ˈʃt͡aʊpˌz͡aʊgəʁ	ˈtʌːgɔ	SW	Com	vacuum cleaner	Sp	SWU
Sandra	1;08.21	Benjamin	ˈbɛnjaˌmin	ˈnɛmɛ	SW	Pcom	proper name	Sp	n-ini
Sandra	1;08.21	Delfin	dɛlˈfiːn	piːnː	S	Mon	dolphin	Sp	SWU
Sandra	1;08.21	Fieberthermometer	ˈfiːbəʁˌtɛʁmoˌmeːtəʁ	ˈbiːbaˌmɯːti	SW-sW	Com	clinical thermometer	Sp	SWU
Sandra	1;08.21	Giraffe	giˈʁafə	ˈgɔxə	SW	Mon	giraffe	Sp	SWU
Sandra	1;08.21	Giraffe	giˈʁafə	ˈgafə	SW	Mon	giraffe	Sp	SWU
Sandra	1;08.21	Jaguar	ˈjaːgʊaʁ	ˈjaːwa	SW	Mon	jaguar	imit	SWU
Sandra	1;08.21	Jaguar	ˈjaːgʊaʁ	ˈjaːka	SW	Mon	jaguar	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;08.21	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	SWU
Sandra	1;08.21	Michaela	ˌmɪçaˈʔeːla	ˌmɪçəˈæːla	sWSW	Mon	proper name	imit	SWU
Sandra	1;08.21	Miezekatze	ˈmiːt͡səˌkat͡sə	ˈmiːtaˌtat͡sə	SW-sW	Com	pussycat	Sp	SWU
Sandra	1;08.21	Miezekatze	ˈmiːt͡səˌkat͡sə	ˈmiːˈtat͡sə	S-SW	Com	pussycat	imit	SWU
Sandra	1;08.21	Miezekatze	ˈmiːt͡səˌkat͡sə	ˈmiːˈtat͡sə	S-SW	Com	pussycat	Sp	SWU
Sandra	1;08.21	Pinguin	ˈpɪŋguˌin	pɨn	S	Pcom	penguin	imit	ini
Sandra	1;08.21	Pinguin	ˈpɪŋguˌin	pɨn	S	Pcom	penguin	imit	ini
Sandra	1;08.31	Apfelkuchen	ˈʔap͡fəlˌkuːxən	ˈʔapatˌkɯxŋ	SW-sW	com	apple pie	imit	SWU
Sandra	1;08.31	Ballon	baˈlɔŋ	pχɯn	S	mon	balloon	Sp	n-ini
Sandra	1;08.31	Ballon	baˈlɔŋ	pɔŋ	S	mon	balloon	imit	SWU
Sandra	1;08.31	Ballon	baˈlɔŋ	pʉːn	S	mon	balloon	Sp	n-ini
Sandra	1;08.31	Ballon	baˈlɔŋ	bɔn	S	mon	balloon	Sp	n-ini
Sandra	1;08.31	Ballon	baˈlɔŋ	ɸon	S	mon	balloon	Sp	ini
Sandra	1;08.31	Ellenbogen	ˈʔɛlənˌboːgən	ˈʔɛlaˌboːdən	SW-sW	Com	elbow	imit	SWU
Sandra	1;08.31	Fieberthermometer	ˈfiːbɐˌtɛɐmoˌmeːtɐ	ˈpiːba	SW	Com	clinical thermometer	Sp	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;08.31	Fieberthermometer	ˈfiːbəɐˌtɛɐmoˌmeːtəɐ	ˌpibaˈmudi	sW-SW	Com	clinical thermometer	Sp	SWU
Sandra	1;08.31	Giraffe	giˈʁafə	ˈkʰafə	SW	Mon	giraffe	imit	SWU
Sandra	1;08.31	Giraffe	giˈʁafə	ˈkʰafə	SW	Mon	giraffe	Sp	SWU
Sandra	1;08.31	Husar	huˈzaɐ	hɯˈθaː	WS	Mon	hussar	imit	SWU
Sandra	1;08.31	Husar	huˈzaɐ	hɯˈsaːha	WSW	Mon	hussar	Sp	SWU
Sandra	1;08.31	Husar	huˈzaɐ	hɯˈsaː	WS	Mon	hussar	Sp	SWU
Sandra	1;08.31	Husar	huˈzaɐ	hɯˈsaɐ	WS	Mon	hussar	Sp	SWU
Sandra	1;08.31	Känguru	ˈkɛŋguʁu	ˈgejʊˌχɯː	SWs	Mon	kangaroo	imit	SWU
Sandra	1;08.31	Kartoffel	kaɐˈtɔfəl	ˈtɔfl̩t	SW	Mon	potato	imit	SWU
Sandra	1;08.31	Kartoffel	kaɐˈtɔfəl	ˈtɔɸəl	SW	Mon	potato	Sp	SWU
Sandra	1;08.31	Kartoffel	kaɐˈtɔfəl	ˈkɔfəl	SW	Mon	potato	imit	SWU
Sandra	1;08.31	Kassette	kaˈsɛtə	ˈtɛk̠ə	SW	Mon	cassette	imit	n-ini
Sandra	1;08.31	Krokodil	ˌkʁokoˈdiːl	ˈkɔkəˈkʁiːl	SWS	Mon	crocodile	imit	SWU
Sandra	1;08.31	Krokodil	ˌkʁokoˈdiːl	ˌkɔkəˈdiːl	sWS	Mon	crocodile	imit	SWU
Sandra	1;08.31	Pelikan	ˈpeːliˌkan	ˈpeːjl̩ˌkan	SWs	Pcom	Pelican	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;08.31	Pelikan	ˈpeːliˌkan	ˌpɛʁiˈka͡ɪt̚	sWS	Pcom	pelican	imit	SWU
Sandra	1;08.31	Pinguin	ˈpɪŋguˌin	piŋ	S	Pcom	penguin	imit	SWU
Sandra	1;08.31	Tintenfisch	ˈtɪntenˌfɪʃ	ˈtɪtəˌpʏç	SW-s	Com	octopus	imit	SWU
Sandra	1;08.31	Tomate	toˈmaːtə	ˈmaːtə	SW	Mon	tomato	imit	ini
Sandra	1;08.31	Tomate	toˈmaːtə	ˈmaːtə	SW	Mon	tomato	imit	n-ini
Sandra	1;08.31	Zitrone	t͡siˈtʁoːnə	t͡siːnˈtɤːnə	WSW	Mon	citron	imit	SWU
Sandra	1;09.06	Ballon	baˈlɔŋ	pɔŋ	S	mon	balloon	imit	SWU
Sandra	1;09.06	Ballon	baˈlɔŋ	pɔm	S	mon	balloon	imit	SWU
Sandra	1;09.06	Eierbecher	ˈʔa͡ɪəʁˌbɛçəʁ	ˈʔa͡ɪˌbɛça	S-sW	Com	egg cup	Sp	SWU
Sandra	1;09.06	Eierbecher	ˈʔa͡ɪəʁˌbɛçəʁ	ˈʔa͡ɪaˌbɛça	SW-sW	Com	egg cup	Sp	SWU
Sandra	1;09.06	Eierbecher	ˈʔa͡ɪəʁˌbɛçəʁ	ˈʔa͡ɪəʁˌbɛça	SW-sW	Com	egg cup	Sp	SWU
Sandra	1;09.06	Ellenbogen	ˈʔɛlənˌboːgən	ˈʔɛlɛˈboːdn̩	SW-SW	Com	elbow	Sp	SWU
Sandra	1;09.06	Fieberthermometer	ˈfiːbəʁˌtɛʁmoˌmeːtəʁ	ˈpiːbʁˌmɯti	SW-sW	Com	clinical thermometer	Sp	SWU
Sandra	1;09.06	Fieberthermometer	ˈfiːbəʁˌtɛʁmoˌmeːtəʁ	ˈpeːba	SW	Com	clinical thermometer	Sp	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;09.06	Fieberthermometer	ˈfiːbɐˌtɛɐmoˌmeːtɐ	ˈbeːˌba	Ss	Com	clinical thermometer	Sp	n-ini
Sandra	1;09.06	Fieberthermometer	ˈfiːbɐˌtɛɐmoˌmeːtɐ	ˈbeːˌba	Ss	Com	clinical thermometer	Sp	n-ini
Sandra	1;09.06	Gießkanne	ˈgiːsˌkanə	ˈkisˌkanə	S-sW	Com	watering can	imit	SWU
Sandra	1;09.06	Gießkanne	ˈgiːsˌkanə	ˈkiˌkasə	S-sW	Com	watering can	Sp	SWU
Sandra	1;09.06	Gießkanne	ˈgiːsˌkanə	ˈkĭnˌkasə	S-sW	Com	watering can	Sp	SWU
Sandra	1;09.06	Gießkanne	ˈgiːsˌkanə	ˈgiːsˌkanə	S-sW	Com	watering can	imit	SWU
Sandra	1;09.06	Giraffe	giˈʁafə	ˈkʰafɛ	SW	Mon	giraffe	Sp	SWU
Sandra	1;09.06	Jonathan	ˈjonaˌtaːn	ˈnonaˌtʰan	SWs	Pcom	proper name	imit	SWU
Sandra	1;09.06	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	SWU
Sandra	1;09.06	Känguru	ˈkɛŋguʁu	ˈtɨŋʊŋʊ	SWW	Mon	kangaroo	imit	SWU
Sandra	1;09.06	Känguru	ˈkɛŋguʁu	ˈtɨŋʊ	SW	Mon	kangaroo	imit	SWU
Sandra	1;09.06	Krokodil	ˌkʁokoˈdiːl	ˌkɔkɯˈkɨːl	sWS	Mon	crocodile	imit	SWU
Sandra	1;09.06	Luftballon	ˈlʊftbaˌlɔŋ	ˈpɔŋəŋ	SW	Com	balloon	imit	SWU
Sandra	1;09.06	Mähdrescher	ˈmæːˌdʁɛʃɐ	ˈmæːdəˌbɛçɐ	SW-sW	Com	combine harvester	imit	SWU
Sandra	1;09.06	Mähdrescher	ˈmæːˌdʁɛʃɐ	ˈmeːtaˌtɛçɐ	SW-sW	Com	combine harvester	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;09.06	Michaela	ˌmɪçaˈʡeːla	ˌmɪçəˈʡeːla	sWSW	Mon	proper name	imit	ini
Sandra	1;09.06	Nagelschere	ˈnaːgəlˌʃeːʁə	ˈnakə	SW	Com	nail scissors	Sp	SWU
Sandra	1;09.06	Pelikan	ˈpeːliˌkan	ˈpeːŋa͡ʊwa͡ʊ	SWW	Pcom	pelican	imit	SWU
Sandra	1;09.06	Pinguin	ˈpɪŋguˌin	ˈgʊmi	SW	Pcom	penguin	Sp	SWU
Sandra	1;09.06	Pinguin	ˈpɪŋguˌin	ˈbʊmi	SW	Pcom	penguin	Sp	SWU
Sandra	1;09.06	Sonnenbrille	ˈzɔnənˌbʁɪlə	ˈtɔnˌpɪlə	S-sW	Com	sunglasses	imit	SWU
Sandra	1;09.06	Sonnenbrille	ˈzɔnənˌbʁɪlə	ˈtɔnˌpɪlə	S-sW	Com	sunglasses	imit	SWU
Sandra	1;09.06	Staubsauger	ˈʃta͡ʊpˌza͡ʊgɐ	ˈga͡ʊka	SW	Com	vacuum cleaner	Sp	SWU
Sandra	1;09.06	Telefon	ˈteːləˌfon	ˈtʰeːmaˌdɯ	SWs	Pcom	telephone	imit	SWU
Sandra	1;09.06	Tomatensoße	tɔˈmaːtənˌzoːsə	ˈmatəˌsːɔsə	SW-sW	Com	tomato sauce	imit	SWU
Sandra	1;09.16	Autopizza	ˈʡa͡ʊtoˌpɪt͡sa	ˈʡa͡ʊtoˌpʰitʰa	SW-sW	com	car + pizza	Sp	ini
Sandra	1;09.16	Autopizza	ˈʡa͡ʊtoˌpɪt͡sa	ˌʔa͡ʊtoˈpʰʊt͡sa	sW-SW	com	car + pizza	Sp	n-ini
Sandra	1;09.16	Autopizza	ˈʡa͡ʊtoˌpɪt͡sa	ˌʔa͡ʊtoˈpʰɪt͡sa	sW-SW	com	car + pizza	Sp	n-ini
Sandra	1;09.16	Autopizza	ˈʡa͡ʊtoˌpɪt͡sa	ˌʔa͡ʊtoˈpʰɪt͡sa	sW-SW	com	car + pizza	Sp	n-ini
Sandra	1;09.16	Ballon	baˈlɔŋ	ˌbaˈlɤː	sS	mon	balloon	imit	SWU
Sandra	1;09.16	Ballon	baˈlɔŋ	baˈlːɔm	WS	mon	balloon	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;09.16	Elefant	ˌʔeləˈfant	ˈʔelɛˈçaft	SWS	Mon	elephant	imit	SWU
Sandra	1;09.16	Fischölkapsel	ˈfɪʃˌʔølˌkapsəl	ˈfʏsˌʔøːlˌkʰapθ	S-s-sW	Com	fish + oil + capsule	Sp	SWU
Sandra	1;09.16	Kakao	kaˈka͡ɔ	kʰaˈka͡ɔ	WS	Mon	cocoa	imit	SWU
Sandra	1;09.16	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	n-ini
Sandra	1;09.16	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	n-ini
Sandra	1;09.16	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	n-ini
Sandra	1;09.16	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	ini
Sandra	1;09.16	Koala	koˈʔaːla	koˈʔaːla	WSW	Mon	koala	imit	SWU
Sandra	1;09.16	Krokodil	ˌkʁokoˈdiːl	ˌkɔkəlˈdiːl	sWS	Mon	crocodile	Sp	SWU
Sandra	1;09.16	Krokodil	ˌkʁokoˈdiːl	ˌkɔkəˈdiːl	sWS	Mon	crocodile	Sp	ini
Sandra	1;09.16	Luftballon	ˈlʊftbaˌlɔŋ	ˈlʊfkaˌtɔn	SW-s	Com	balloon	imit	n-ini
Sandra	1;09.16	Luftballon	ˈlʊftbaˌlɔŋ	ˈlʊfˌkaˌtɔn	S-ss	Com	balloon	imit	ini
Sandra	1;09.16	Salat	zaˈlaːt	ləˈlaːt	WS	Mon	salad	Sp	SWU
Sandra	1;09.16	Salat	zaˈlaːt	ˈlaləˈlaːt	SWS	Mon	salad	imit	SWU
Sandra	1;09.16	Schokolade	ˌʃokoˈlaːdə	ˌkɔkəlaˈla͡ɪdə	sWWSW	Mon	chocolate	imit	SWU
Sandra	1;09.26	Apfelkuchen	ˈʔa͡pfəlˌkuːxən	ˈʔapfəlˌkɯːxən	SW-sW	com	apple pie	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;09.26	Apfelsine	ˌʔap͡fəlˈziːnə	ˈziːnə	SW	mon	orange	imit	SWU
Sandra	1;09.26	Apfelsine	ˌʔap͡fəlˈziːnə	ˈʔapəlˌziːnə	SWsW	mon	orange	imit	SWU
Sandra	1;09.26	Apfelsine	ˌʔap͡fəlˈziːnə	ˈʔapəlˌsiːnə	SWsW	mon	orange	imit	SWU
Sandra	1;09.26	Ballon	baˈlɔŋ	baˈlɔŋ	WS	mon	balloon	imit	n-ini
Sandra	1;09.26	Ballon	baˈlɔŋ	baˈlɔŋ	WS	mon	balloon	imit	n-ini
Sandra	1;09.26	Ballon	baˈlɔŋ	baˈlɔŋ	WS	mon	balloon	imit	ini
Sandra	1;09.26	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ˈʔa͡ʊt͡çˌha͡ɪçn̩	S-sW	Pcom	squirrel	imit	n-ini
Sandra	1;09.26	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ˈʔa͡ʊt͡çˌha͡ɪçn̩	S-sW	Pcom	squirrel	imit	n-ini
Sandra	1;09.26	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ˈʔa͡ʊˌtiçən	S-sW	Pcom	squirrel	imit	n-ini
Sandra	1;09.26	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ʔa͡ɪt͡ç	S	Pcom	squirrel	imit	ini
Sandra	1;09.26	Elefant	ˌʔeləˈfant	ˌʔɛːlɛˈfatʰ	sWS	Mon	elephant	Sp	SWU
Sandra	1;09.26	Elefant	ˌʔeləˈfant	ˌʔelɛˈfatʰ	sWS	Mon	elephant	Sp	SWU
Sandra	1;09.26	Elefant	ˌʔeləˈfant	ˌʔelɛˈfat	sWS	Mon	elephant	Sp	SWU
Sandra	1;09.26	Giraffe	giˈʁafə	ˈtafə	SW	Mon	giraffe	Sp	n-ini
Sandra	1;09.26	Giraffe	giˈʁafə	ˈkʰafɛ	SW	Mon	giraffe	Sp	n-ini
Sandra	1;09.26	Giraffe	giˈʁafə	ˈkʰafɛ	SW	Mon	giraffe	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;09.26	Giraffe	giˈʁafə	ˈkʰafə	SW	Mon	giraffe	Sp	n-ini
Sandra	1;09.26	Giraffe	giˈʁafə	ˌkiɐˈkʰafə	WSW	Mon	giraffe	Sp	SWU
Sandra	1;09.26	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	ini
Sandra	1;09.26	Kamel	kaˈmeːl	kaˈmeːl	WS	Mon	camel	imit	SWU
Sandra	1;09.26	Kamel	kaˈmeːl	ˈmiːəl	SW	Mon	camel	Sp	SWU
Sandra	1;09.26	Kamel	kaˈmeːl	ˈmeːjl̩	SW	Mon	camel	Sp	n-ini
Sandra	1;09.26	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	n-ini
Sandra	1;09.26	Kaputt	kaˈpʊt	haˈpʊt	WS	Mon	defective	imit	SWU
Sandra	1;09.26	Käsekuchen	ˈkæːzəˌkuːxən	ˈkʰɛːsaˈkɯxŋ	SW-SW	Com	cheesecake	imit	SWU
Sandra	1;09.26	Kellertreppe	ˈkɛləʁˌtʁɛpə	ˈkʰɛləɐˌtjɛpə	SW-sW	Com	basement stairs	imit	SWU
Sandra	1;09.26	Kinderarzt	ˈkɪndəɐˌʔaɐ͡tst	ˈkʰinaˌʔa͡ts	SW-s	Com	pediatrician	imit	SWU
Sandra	1;09.26	Krokodil	ˌkʁokoˈdiːl	kɔˈkʰiːjə	WSW	Mon	crocodile	Sp	n-ini
Sandra	1;09.26	Krokodil	ˌkʁokoˈdiːl	ˌkɔkəˈkʰiːl	sWS	Mon	crocodile	Sp	ini
Sandra	1;09.26	Krokodil	ˌkʁokoˈdiːl	ˌkɔkəˈdiːl	sWS	Mon	crocodile	Sp	ini
Sandra	1;09.26	Leberfleck	ˈleːbəɐˌflɛk	ˈfeːkaˌʋɛk	SW-s	Com	mole	imit	SWU
Sandra	1;09.26	Miezekatze	ˈmiː͡tsəˌka͡tsə	ˈmitəˌta͡tsə	SW-sW	Com	pussycat	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;09.26	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˌmiːtəˈtat͡sən	sW-SW	Com	pussycat (plural)	Sp	SWU
Sandra	1;09.26	Muttermal	ˈmʊtəɐˌmaːl	ˈmʊtaˌmaːl	SW-s	Com	birthmark	imit	SWU
Sandra	1;09.26	Muttermal	ˈmʊtəɐˌmaːl	ˈmʊtaˌmal	SW-s	Com	birthmark	imit	ini
Sandra	1;09.26	Muttermal	ˈmʊtəɐˌmaːl	ˈhɛkəˌmal	SW-s	Com	birthmark	imit	n-ini
Sandra	1;09.26	Nackedei	ˈnakəˌd͡aɪ	ˈnakiˌn͡aĩn	SW-s	Pcom	naked child	imit	SWU
Sandra	1;09.26	Nackedei	ˈnakəˌd͡aɪ	ˈnakˈd͡aɪç	S-S	Pcom	naked child	imit	SWU
Sandra	1;09.26	Pinguin	ˈpɪŋguˌin	ˈpʊɲiˌʔ̃iːn	SWs	Pcom	penguin	imit	n-ini
Sandra	1;09.26	Pinguin	ˈpɪŋguˌin	ˈpɨŋɯˌʔiːn	SWs	Pcom	penguin	imit	ini
Sandra	1;09.26	Pinguin	ˈpɪŋguˌin	ˈpɪŋgɯˌʔi	SWs	Pcom	penguin	imit	ini
Sandra	1;09.26	Pinguin	ˈpɪŋguˌin	ˈpɪŋgɯˌʔ͡ɯɪn	SWs	Pcom	penguin	imit	SWU
Sandra	1;09.26	Pinguin	ˈpɪŋguˌin	ˈpɪŋɯˌʔiː	SWs	Pcom	penguin	imit	n-ini
Sandra	1;09.26	Pinguin	ˈpɪŋguˌin	ˈpɪŋɯˌʔiː	SWs	Pcom	penguin	imit	n-ini
Sandra	1;09.26	Pinguin	ˈpɪŋguˌin	ˈpɪŋɯʔ̃i	SWW	Pcom	penguin	imit	ini
Sandra	1;09.26	Pinguin	ˈpɪŋguˌin	ˌpɨŋɯˈʔ͡ɯɪn	sWS	Pcom	penguin	Sp	SWU
Sandra	1;09.26	Rotkäppchen	ˈʁoːtˌkɛpçən	ˈhɤtˌçɛpçən	S-sW	Com	Little Red Riding Hood	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;09.26	Tomate	toˈmaːtə	təˈmat^{h}ɛ	WSW	Mon	tomato	imit	SWU
Sandra	1;09.26	Tomatensoße	təˈmaːtənˌzoːsə	ˈmatəˌsoːdə	SW-sW	Com	tomato sauce	imit	SWU
Sandra	1;10.10	Ameise	ˈʔaːma͡ɪzə	ʔaːˈma͡ɪsə	WSW	mon	ant	Sp	SWU
Sandra	1;10.10	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ˈʔaːˌt͡çœˌt͡çən	S-ss	Pcom	squirrel	Sp	SWU
Sandra	1;10.10	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ˈʔa͡ɪt͡çəˌʁœt͡çən	SW-sW	Pcom	squirrel	Sp	ini
Sandra	1;10.10	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ˈʔaˌt͡çœt͡çən	S-sW	Pcom	squirrel	Sp	SWU
Sandra	1;10.10	Elefant	ˌʔeləˈfant	ˈʔelɛˈɸat^{h}	SWS	Mon	elephant	imit	SWU
Sandra	1;10.10	Elefant	ˌʔeləˈfant	ˌʔelɛˈfa^{n}t	sWS	Mon	elephant	Sp	SWU
Sandra	1;10.10	Fledermaus	ˈfleːdəɐˌma͡ʊs	ˈfeːdɐˌma͡ɔs	SW-s	Com	bat	imit	n-ini
Sandra	1;10.10	Garage	gaˈʁaːʒə	kaˈʁaːʑ̥ə	WSW	Mon	garage	Sp	SWU
Sandra	1;10.10	Garage	gaˈʁaːʒə	ˈkxaːʑ̥ə	SW	Mon	garage	Sp	SWU
Sandra	1;10.10	Giraffe	giˈʁafə	gʁiˈvafə	WSW	Mon	giraffe	Sp	SWU
Sandra	1;10.10	Giraffe	giˈʁafə	ˈkχafɛ	SW	Mon	giraffe	Sp	ini
Sandra	1;10.10	Giraffe	giˈʁafə	ˈk^{h}afə	SW	Mon	giraffe	Sp	n-ini
Sandra	1;10.10	Heuschrecke	ˈhɔ͡ɪˌʃʁɛkə	ˈhɔ͡ɪçˌlɛk^{h}	S-s	Pcom	grasshopper	imit	n-ini
Sandra	1;10.10	Heuschrecke	ˈhɔ͡ɪˌʃʁɛkə	ˈhɔ͡ɪçˌlɛkə	S-sW	Pcom	grasshopper	imit	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;10.10	Kamel	kaˈmeːl	piˈmeːl	WS	Mon	camel	Sp	n-ini
Sandra	1;10.10	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	n-ini
Sandra	1;10.10	Kamel	kaˈmeːl	kɛˈmel	WS	Mon	camel	Sp	ini
Sandra	1;10.10	Kamel	kaˈmeːl	ˈmeːl	S	Mon	camel	Sp	ini
Sandra	1;10.10	Kaput	kaˈpʊt	kaˈpʊtʰ	WS	Mon	defective	Sp	n-ini
Sandra	1;10.10	Kaput	kaˈpʊt	kaˈpʰʊt	WS	Mon	defective	Sp	n-ini
Sandra	1;10.10	Kaput	kaˈpʊt	ˌkʰaˈpʰɯːt	sS	Mon	defective	imit	SWU
Sandra	1;10.10	Kaputt	kaˈpʊt	kʰaˈpʰʊt	WS	Mon	defective	imit	n-ini
Sandra	1;10.10	Kaputt	kaˈpʊt	kʰaˈpʰʊt	WS	Mon	defective	Sp	ini
Sandra	1;10.10	Kaputt	kaˈpʊt	kaˈpʊtʰ	WS	Mon	defective	Sp	n-ini
Sandra	1;10.10	Kaputt	kaˈpʊt	haˈpʊtʰ	WS	Mon	defective	Sp	n-ini
Sandra	1;10.10	Luftballon	ˈlʊftbaˌlɔŋ	ˈpɛŋəˌlɔ	SWs	Com	balloon	Sp	n-ini
Sandra	1;10.10	Luftballon	ˈlʊftbaˌlɔŋ	ˈbɪŋəˌlɔŋ	SWs	Com	balloon	Sp	ini
Sandra	1;10.10	Luftballon	ˈlʊftbaˌlɔŋ	ˌblumɛˈlɔŋ	sWS	Com	balloon	Sp	SWU
Sandra	1;10.10	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmiːtəˌhœt͡sɛ	SW-sW	Com	pussycat (plural)	Sp	SWU
Sandra	1;10.10	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmitəˈtat͡sn̩	SW-SW	Com	pussycat (plural)	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;10.10	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˌmitəˈtat͡sn̩	sW-SW	Com	pussycat (plural)	Sp	ini
Sandra	1;10.10	Müllauto	ˈmʏlˌʔa͡ʊto	ˈmʏlˌʔa͡ʊtʰho	S-sW	Com	refuse lorry	imit	SWU
Sandra	1;10.10	Pinguin	ˈpɪŋguˌin	ˈpɪŋɔˌʔu͡ɪn	SWs	Pcom	penguin	Sp	SWU
Sandra	1;10.10	Rosine	ʁoˈziːnə	ʁoˈziːnɛ	WSW	Mon	raisin	Sp	n-ini
Sandra	1;10.10	Rosinen	ʁoˈziːnən	hɔˈliːn	WS	Mon	raisin (plural)	imit	ini
Sandra	1;10.10	Rosinenbrötchen	ʁoˈziːnənˌbʁøːtçən	hɔˌziːnəˈpχøːt͡çən	WsW-SW	Com	tea-cake	imit	n-ini
Sandra	1;10.10	Salamander	ˌzalaˈmandɐ	ˈziːnəˌmana	SWsW	Mon	salamander	imit	SWU
Sandra	1;10.10	Zahnpasta	ˈt͡saːnˌpasta	ˈt͡sanˌpatɕa	S-sW	Com	toothpaste	imit	SWU
Sandra	1;10.19	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ˈʔa͡ɪçˌhœçə	S-sW	Pcom	squirrel	Sp	SWU
Sandra	1;10.19	Fischölkapsel	ˈfɪʃˌʔøːlˌkapsəl	ˈfʏçølˌkʰapsəl	SW-sW	Com	fish + oil + capsule	Sp	ini
Sandra	1;10.19	Gummibärchen	ˈgʊmiˌbæːɐçən	ˈkʊmɪç	SW	Com	jelly bear	Sp	ini
Sandra	1;10.19	Gummibärchen	ˈgʊmiˌbæːɐçən	ˈgʊmɨ	SW	Com	jelly bear	Sp	n-ini
Sandra	1;10.19	Gummibärchen	ˈgʊmiˌbæːɐçən	ˈgʊmiˈbeçn̩	SW-SW	Com	jelly bear	Sp	ini
Sandra	1;10.19	Gummibärchen	ˈgʊmiˌbæːɐçən	ˈgʊmiˈbɛçə	SW-SW	Com	jelly bear	Sp	SWU
Sandra	1;10.19	Gummibärchen	ˈgʊmiˌbæːɐçən	ˈgʊmɪçˌbeçn̩	SW-sW	Com	jelly bear	Sp	ini
Sandra	1;10.19	Gummibärchen	ˈgʊmiˌbæːɐçən	ˈgʊmi	SW	Com	jelly bear	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;10.19	Krokodil	ˌkʁokoˈdiːl	ˈtiːəl	S	Mon	crocodile	Sp	n-ini
Sandra	1;10.19	Milchflasche	ˈmɪlçˌflaʃə	ˈmɪçˌflaçə	S-sW	Com	milk bottle	Sp	SWU
Sandra	1;10.19	Nebenmann	ˈneːbənˌman	ˈneːbm̩man	SWW	Com	neighbor	Sp	SWU
Sandra	1;10.19	Pinguin	ˈpɪŋguˌin	ˈpɪŋʊˌʔʊ͡ɪn	SWs	Pcom	penguin	Sp	SWU
Sandra	1;10.19	Salzstange	ˈzal͡tsˌʃtaŋə	ˈza͡ɪˌtaŋə	S-sW	Com	pretzel stick	Sp	SWU
Sandra	1;10.19	Tannenzapfen	ˈtanənˌ͡tsap͡fən	ˈtʰanəˌhapm̩	SW-sW	Com	fir cone	imit	SWU
Sandra	1;11.0	Banane	baˈnaːnə	ˈnaːnə	SW	mon	banana	imit	SWU
Sandra	1;11.0	Banane	baˈnaːnə	baˈnaːnə	WSW	mon	banana	imit	SWU
Sandra	1;11.0	Brokkoli	ˈbʁokoli	ˈpɔkʰɛˌli	SWs	Mon	broccoli	imit	SWU
Sandra	1;11.0	Butterblume	ˈbʊtəɐˌbluːmə	ˈpʊtəˌpluːmə	SW-sW	Com	buttercup	imit	n-ini
Sandra	1;11.0	Butterblume	ˈbʊtəɐˌbluːmə	ˈbʊtɐˌpəluːmə	SW-WsW	Com	buttercup	imit	ini
Sandra	1;11.0	Eichhörnchen	ˈʔa͡ɪçˌhœɐnçən	ˈʔa͡ɪçˌhøːtçə	S-sW	Pcom	squirrel	Sp	SWU
Sandra	1;11.0	Elefant	ˌʔeləˈfant	ˌʔeːlɛˈfaːtʰ	sWS	Mon	elephant	Sp	n-ini
Sandra	1;11.0	Elefant	ˌʔeləˈfant	ˌʔeːlɛˈfaːtʰ	sWS	Mon	elephant	Sp	ini
Sandra	1;11.0	Elefant	ˌʔeləˈfant	ˌʔelɛˈfatʰ	sWS	Mon	elephant	Sp	n-ini
Sandra	1;11.0	Elefant	ˌʔeləˈfant	ˌʔelɛˈfatʰ	sWS	Mon	elephant	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;11.0	Elefant	ˌʔeləˈfant	ˌʔelɛˈfatʰ	sWS	Mon	elephant	Sp	n-ini
Sandra	1;11.0	Elefant	ˌʔeləˈfant	ˌʔelɛˈfatʰ	sWS	Mon	elephant	Sp	SWU
Sandra	1;11.0	Elefant	ˌʔeləˈfant	ˌʔelɛˈfatʰ	sWS	Mon	elephant	Sp	ini
Sandra	1;11.0	Fledermaus	ˈfleːdɐˌma͡ʊs	ˈfleːtaˌma͡ʊs	SW-s	Com	bat	imit	SWU
Sandra	1;11.0	Giraffe	giˈʁafə	tçiˈtχafɛ	WSW	Mon	giraffe	Sp	SWU
Sandra	1;11.0	Giraffe	giˈʁafə	kʰiˈkʰaːvə	WSW	Mon	giraffe	Sp	ini
Sandra	1;11.0	Giraffe	giˈʁafə	giˈtχafɛ	WSW	Mon	giraffe	Sp	n-ini
Sandra	1;11.0	Giraffe	giˈʁafə	əˌʁafɛ	WSW	Mon	giraffe	Sp	n-ini
Sandra	1;11.0	Höhlendecke	ˈhøːlənˌdɛkə	ˈhøːləˌtɛkə	SW-sW	Com	cave + ceiling	Sp	n-ini
Sandra	1;11.0	Höhlendecke	ˈhøːlənˌdɛkə	ˈhøːləˌtakə	SW-sW	Com	cave + ceiling	Sp	ini
Sandra	1;11.0	Kamel	kaˈmeːl	kʰaˈmeːl	WS	Mon	camel	Sp	n-ini
Sandra	1;11.0	Kamel	kaˈmeːl	kʰaˈmeːl	WS	Mon	camel	Sp	n-ini
Sandra	1;11.0	Kamel	kaˈmeːl	kʰaˈmeːl	WS	Mon	camel	imit	SWU
Sandra	1;11.0	Kamel	kaˈmeːl	kaˈmeːl	WS	Mon	camel	Sp	n-ini
Sandra	1;11.0	Kamel	kaˈmeːl	kaˈmeːl	WS	Mon	camel	Sp	ini
Sandra	1;11.0	Kamel	kaˈmeːl	ˈkaxˈmeːl	SS	Mon	camel	Sp	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;11.0	Kamel	kaˈmeːl	ˌhaxˈkʰeːl	sS	Mon	camel	Sp	ini
Sandra	1;11.0	Kaput	kaˈpʊt	kʰaˈpʰʊt	WS	Mon	defective	Sp	n-ini
Sandra	1;11.0	Kaput	kaˈpʊt	kaˈpʰʊt	WS	Mon	defective	Sp	n-ini
Sandra	1;11.0	Kaputt	kaˈpʊt	kʰaˈpʊt	WS	Mon	defective	Sp	n-ini
Sandra	1;11.0	Kaputt	kaˈpʊt	kaˈpʰʊt	WS	Mon	defective	Sp	n-ini
Sandra	1;11.0	Kaputt	kaˈpʊt	ˈkapʰʊtʰ	SW	Mon	defective	Sp	n-ini
Sandra	1;11.0	Kohlrabi	koːlˈʁaːbi	ˌvɔʁɔˈʁabi	sWSW	Mon	kohlrabi	imit	ini
Sandra	1;11.0	Krokodil	ˌkʁokoˈdiːl	ˌtɔtɛˈtiːl	sWS	Mon	crocodile	Sp	n-ini
Sandra	1;11.0	Krokodil	ˌkʁokoˈdiːl	ˌkʊkəˈdiːl	sWS	Mon	crocodile	Sp	n-ini
Sandra	1;11.0	Krokodil	ˌkʁokoˈdiːl	ˌkɔkɛˈtiːl	sWS	Mon	crocodile	Sp	ini
Sandra	1;11.0	Krokodil	ˌkʁokoˈdiːl	ˌkɔkəˈdʁeːn	sWS	Mon	crocodile	Sp	n-ini
Sandra	1;11.0	Krokodil	ˌkʁokoˈdiːl	ˌkʰʊkətʁˈtiːl	sWS	Mon	crocodile	Sp	n-ini
Sandra	1;11.0	Michaela	ˌmɪçaˈʔeːla	ˌmɪçaˈʔeːla	sWSW	Mon	proper name	Sp	SWU
Sandra	1;11.0	Michaela	ˌmɪçaˈʔeːla	ˌmɪçaˈʔeːla	sWSW	Mon	proper name	Sp	SWU
Sandra	1;11.0	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmiːtəˌtaːtɛn	SW-sW	Com	pussycat (plural)	Sp	SWU
Sandra	1;11.0	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmiːtəˌtaˌsɛn	SW-ss	Com	pussycat (plural)	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Sandra	1;11.0	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmɪtˌhat͡sn̩	S-sW	Com	pussycat (plural)	Sp	ini
Sandra	1;11.0	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmitəˌtɛdn̩	SW-sW	Com	pussycat (plural)	Sp	ini
Sandra	1;11.0	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmitəˌtatn	SW-sW	Com	pussycat (plural)	Sp	n-ini
Sandra	1;11.0	Miezekatzen	ˈmiːt͡səˌkat͡sən	ˈmitəˌtaˌtɛn	SW-ss	Com	pussycat (plural)	Sp	n-ini
Sandra	1;11.0	Miezekatzen	ˈmiːt͡səˌkat͡sən	miˌkɛˈtɛtn	Ws-SW	Com	pussycat (plural)	Sp	n-ini
Sandra	1;11.0	Nasentropfen	ˈnazənˌtʁɔp͡fən	ˈnaːˌtʁɔfm̩	S-sW	Com	nose drops	Sp	SWU
Sandra	1;11.0	Paprika	ˈpapʁika	ˌpapapʁɪˈkaː	sWWS	Mon	pepper	imit	SWU
Sandra	1;11.0	Reißverschluß	ˈʁa͡ɪsfɐˌʃlʊs	ˈʁa͡ɪzəˌçlʊs	SWs	Com	zipper	Sp	ini
Sandra	1;11.0	Reißverschluß	ˈʁa͡ɪsfɐˌʃlʊs	ˈʁa͡ɪsəçˌçlʊs	SWs	Com	zipper	Sp	n-ini
Sandra	1;11.0	Sabine	zaˈbiːnə	saˈpiːnə	WSW	Mon	proper name	Sp	SWU
Sandra	1;11.0	Tannenzapfen	ˈtanənˌt͡sap͡fən	ˈtʰanəˌtʰap͡fm̩	SW-sW	Com	fir cone	imit	SWU
Sandra	1;11.0	Tomaten	toˈmaːtən	tʰoˈmaːtɛ	WSW	Mon	tomato (plural)	imit	SWU
Sandra	1;11.0	Wäscheklammer	ˈvɛʃəˌklaməɐ	ˈvɛçəˈklamɐ	SW-SW	Com	clothespin	Sp	SWU
Sandra	1;11.0	Wäscheklammer	ˈvɛʃəˌklaməɐ	ˈvɛçəˈklamɐ	SW-SW	Com	clothespin	Sp	ini

Wiglaf

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;05.26	Papagei	ˌpapaˈga͡ɪ	ma͡ɪ	S	Mon	parrot	imit	SWU
Wiglaf	1;05.26	Papagei	ˌpapaˈga͡ɪ	ma͡ɪ	S	Mon	parrot	imit	SWU
Wiglaf	1;07.11	Papagei	ˌpapaˈga͡ɪ	paːp	S	Mon	parrot	imit	SWU
Wiglaf	1;07.26	Delfin	dɛlˈfiːn	mɨːn	S	Mon	dolphin	imit	SWU
Wiglaf	1;07.26	Jasmin	jasˈmiːn	miːn	S	Mon	proper name	Sp	SWU
Wiglaf	1;07.26	Krokodil	ˌkʁokoˈdiːl	ˈʔɨːjl̩	SW	Mon	crocodile	Sp	SWU
Wiglaf	1;08.02	Banane	baˈnaːnə	ˈmaːnə	SW	Mon	banana	imit	SWU
Wiglaf	1;08.02	Banane	baˈnaːnə	ˈmaːnə	SW	Mon	banana	Sp	SWU
Wiglaf	1;08.02	Garage	gaˈʁaːʒə	ˈhaːʒə	SW	Mon	garage	imit	SWU
Wiglaf	1;08.02	Garage	gaˈʁaːʒə	ˈhaːdə	SW	Mon	garage	imit	SWU
Wiglaf	1;08.02	Kaputt	kaˈpʊt	pʉt	S	Mon	defective	imit	SWU
Wiglaf	1;08.02	Staubsauger	ˈʃta͡ʊpˌza͡ʊgəɐ	ˈta͡ʊto	SW	Com	vacuum cleaner	Sp	SWU
Wiglaf	1;08.06	Antenne	ʔanˈtɛnə	ˈtɛnə	SW	Mon	aerial	Sp	SWU
Wiglaf	1;08.06	Antenne	ʔanˈtɛnə	ˈtɛˈnɛ	SS	Mon	aerial	Sp	SWU
Wiglaf	1;08.06	Banane	baˈnaːnə	ˈmaːnɛ	SW	Mon	banana	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;08.06	Bananen	baˈnaːnən	ˈmaːnən	SW	Mon	banana (plural)	Sp	SWU
Wiglaf	1;08.06	Garage	gaˈʁaːʒə	ˈhasə	SW	Mon	garage	Sp	SWU
Wiglaf	1;08.06	Kamel	kaˈmeːl	ˈmeja	SW	Mon	camel	imit	SWU
Wiglaf	1;08.06	Kaputt	kaˈpʊt	bʊt̚	S	Mon	defective	Sp	SWU
Wiglaf	1;08.06	Trompete	tʁɔmˈpeːtə	ˈpeːtɛ	SW	Mon	trumpet	Sp	SWU
Wiglaf	1;08.06	Papagei	ˌpapaˈga͡ɪ	ˈpaˈpaːs	SS	Mon	parrot	Sp	SWU
Wiglaf	1;08.06	Papagei	ˌpapaˈga͡ɪ	ˈpaˌpaː	Ss	Mon	parrot	Sp	SWU
Wiglaf	1;08.06	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaːma͡ɪsə	SWW	Pcom	ant	imit	SWU
Wiglaf	1;08.06	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaːba͡ɪsɛ	SWW	Pcom	ant	Sp	SWU
Wiglaf	1;08.06	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaˈva͡ɪzə	SSW	Pcom	ant	Sp	n-ini
Wiglaf	1;08.06	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaˈmaːsə	SSW	Pcom	ant	Sp	n-ini
Wiglaf	1;08.06	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaˈmasə	SSW	Pcom	ant	Sp	n-ini
Wiglaf	1;08.06	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaˌmasə	SsW	Pcom	ant	Sp	n-ini
Wiglaf	1;08.06	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaˌba͡ɪsə	SsW	Pcom	ant	Sp	ini
Wiglaf	1;08.06	Ameise	ˈʔaːˌma͡ɪzə	ˌʔaˈva͡ɪsɛ	sSW	Pcom	ant	Sp	n-ini
Wiglaf	1;08.06	Ameise	ˈʔaːˌma͡ɪzə	ˌʔaˈva͡ɪsə	sSW	Pcom	ant	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;08.06	Ameise	ˈʔaːˌma͡ɪzə	ˌʔaˈβa͡ɪsə	sSW	Pcom	ant	Sp	n-ini
Wiglaf	1;08.06	Ameise	ˈʔaːˌma͡ɪzə	ʔaˈma͡ɪsə	WSW	Pcom	ant	Sp	n-ini
Wiglaf	1;08.06	Mülltonne	ˈmʏlˌtɔnə	ˈdɔnə	SW	Com	refuse bin	imit	SWU
Wiglaf	1;08.13	Antenne	ʔanˈtɛnə	ˈtɛnə	SW	Mon	aerial	Sp	SWU
Wiglaf	1;08.13	Banane	baˈnaːnə	ˈmænɛ	SW	Mon	banana	Sp	SWU
Wiglaf	1;08.13	Bananen	baˈnaːnən	ˈmaːnən	SW	Mon	banana (plural)	Sp	SWU
Wiglaf	1;08.13	Giraffe	giˈʁafə	ˈhafɵ	SW	Mon	giraffe	Sp	SWU
Wiglaf	1;08.13	Giraffe	giˈʁafə	ˈhafɵ	SW	Mon	giraffe	imit	SWU
Wiglaf	1;08.13	Giraffe	giˈʁafə	ˈhafɘ	SW	Mon	giraffe	imit	SWU
Wiglaf	1;08.13	Kamel	kaˈmeːl	ˈmːeːja	SW	Mon	camel	imit	SWU
Wiglaf	1;08.13	Kamel	kaˈmeːl	ˈmiːja	SW	Mon	camel	Sp	SWU
Wiglaf	1;08.13	Kaputt	kaˈpʊt	pʉt	S	Mon	defective	Sp	SWU
Wiglaf	1;08.13	Elefant	ˌʔeləˈfant	mant˺	S	Mon	elephant	Sp	SWU
Wiglaf	1;08.13	Krokodil	ˌkʁokoˈdiːl	tɵjː	S	Mon	crocodile	imit	SWU
Wiglaf	1;08.13	Krokodil	ˌkʁokoˈdiːl	ˈtɯjəˡ	SW	Mon	crocodile	imit	SWU
Wiglaf	1;08.13	Margarine	ˌmaɐgaˈʁiːnə	ˈhiːni	SW	Mon	margarine	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;08.13	Margarine	ˌmaɐgaˈʁiːnə	ˈhɪni	SW	Mon	margarine	Sp	SWU
Wiglaf	1;08.13	Margarine	ˌmaɐgaˈʁiːnə	ˈhɪni	SW	Mon	margarine	imit	ini
Wiglaf	1;08.13	Margarine	ˌmaɐgaˈʁiːnə	ˈhɪni	SW	Mon	margarine	Sp	n-ini
Wiglaf	1;08.13	Margarine	ˌmaɐgaˈʁiːnə	ˈhɪnə	SW	Mon	margarine	imit	n-ini
Wiglaf	1;08.13	Margarine	ˌmaɐgaˈʁiːnə	ˈhɪnə	SW	Mon	margarine	imit	n-ini
Wiglaf	1;08.13	Marmelade	ˌmaɐməˈlaːdə	ˈhaːda	SW	Mon	jam	Sp	SWU
Wiglaf	1;08.13	Lokomotive	ˌlokomoˈtiːvə	ˈtɪːvə	SW	Mon	locomotive	imit	SWU
Wiglaf	1;08.13	Papagei	ˌpapaˈga͡ɪ	paˈpa͡ɪ	WS	Mon	parrot	Sp	SWU
Wiglaf	1;08.13	Papagei	ˌpapaˈga͡ɪ	ˈpapːa͡ɪ	SW	Mon	parrot	Sp	SWU
Wiglaf	1;08.13	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaːma͡ɪshɛ	SWW	Pcom	ant	Sp	ini
Wiglaf	1;08.13	Ameise	ˈʔaːˌma͡ɪzə	ˈʔaˈma͡ɪsə	SSW	Pcom	ant	Sp	n-ini
Wiglaf	1;09.02	Antenne	ʔanˈtɛnə	ˈtɛn̠ə	SW	Mon	aerial	Sp	SWU
Wiglaf	1;09.02	Banane	baˈnaːnə	ˈmatnə	SW	Mon	banana	imit	SWU
Wiglaf	1;09.02	Garage	gaˈʁaːʒə	ˈhaːsə	SW	Mon	garage	Sp	SWU
Wiglaf	1;09.02	Giraffe	giˈʁafə	ˈhaf̠ɛ	SW	Mon	giraffe	Sp	SWU
Wiglaf	1;09.02	Giraffe	giˈʁafə	ˈhaf̠ə	SW	Mon	giraffe	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;09.02	Kaputt	kaˈpʊt	ˈpʊ͡ts	S	Mon	defective	Sp	SWU
Wiglaf	1;09.02	Kaputt	kaˈpʊt	əˈpʊt	WS	Mon	defective	Sp	SWU
Wiglaf	1;09.02	Johanna	joˈhana	ˈhan̠a	SW	Mon	proper name	Sp	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	piːɐ	SW	Mon	paper	imit	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	piːɐ	S	Mon	paper	Sp	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	piːɐ	S	Mon	paper	Sp	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	piːɐ	S	Mon	paper	Sp	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	piːɐ	S	Mon	paper	Sp	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈpiːjɐ	SW	Mon	paper	Sp	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈpiːhɐ	SW	Mon	paper	Sp	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈpiːɐ	SW	Mon	paper	Sp	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈpiːɐ	SW	Mon	paper	Sp	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈpiːəɐ	SW	Mon	paper	Sp	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈpiːɐ	SW	Mon	paper	Sp	SWU
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈpiːɐ	SW	Mon	paper	Sp	ini
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈpiːɐ	SW	Mon	paper	Sp	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈpiːɐ	SW	Mon	paper	Sp	n-ini
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈpiːɐ	SW	Mon	paper	Sp	n-ini
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈpiːɐ	SW	Mon	paper	Sp	n-ini
Wiglaf	1;09.02	Papier	paˈpiːɐ	ˈbiːɐ	SW	Mon	paper	Sp	SWU
Wiglaf	1;09.02	Tomate	toˈmaːtə	ˈmaːθə	SW	Mon	tomato	imit	SWU
Wiglaf	1;09.02	Tomate	toˈmaːtə	ˈmaːtə	SW	Mon	tomato	imit	SWU
Wiglaf	1;09.02	Elefant	ˌʔeləˈfant	van	S	Mon	elephant	imit	SWU
Wiglaf	1;09.02	Elefant	ˌʔeləˈfant	fanː	S	Mon	elephant	Sp	SWU
Wiglaf	1;09.02	Elefant	ˌʔeləˈfant	fant˺	S	Mon	elephant	imit	SWU
Wiglaf	1;09.02	Elefant	ˌʔeləˈfant	ˈvantən	SW	Mon	elephant	Sp	SWU
Wiglaf	1;09.02	Lokomotive	ˌlokomoˈtiːvə	ˈtiːfə	SW	Mon	locomotive	Sp	SWU
Wiglaf	1;09.02	Lokomotive	ˌlokomoˈtiːvə	ˈtiːfə	SW	Mon	locomotive	Sp	n-ini
Wiglaf	1;09.02	Lokomotive	ˌlokomoˈtiːvə	ˈtifə	SW	Mon	locomotive	imit	SWU
Wiglaf	1;09.02	Lokomotive	ˌlokomoˈtiːvə	ˈtɪfə	SW	Mon	locomotive	Sp	SWU
Wiglaf	1;09.02	Lokomotive	ˌlokomoˈtiːvə	ˈtɪfə	SW	Mon	locomotive	Sp	ini
Wiglaf	1;09.02	Lokomotive	ˌlokomoˈtiːvə	ˈti͡əfə	SW	Mon	locomotive	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;09.02	Papagei	ˌpapaˈga͡ɪ	paˈpa͡ɪ	WS	Mon	parrot	Sp	SWU
Wiglaf	1;09.02	Papagei	ˌpapaˈga͡ɪ	paˈpa͡ɪ	WS	Mon	parrot	Sp	ini
Wiglaf	1;09.02	Papagei	ˌpapaˈga͡ɪ	ˈpapa͡ɪ	SW	Mon	parrot	Sp	SWU
Wiglaf	1;09.02	Papagei	ˌpapaˈga͡ɪ	ˈpapa͡ɪ	SW	Mon	parrot	Sp	SWU
Wiglaf	1;09.02	Papagei	ˌpapaˈga͡ɪ	ˈpaˈpa͡ɪ	SS	Mon	parrot	imit	SWU
Wiglaf	1;09.02	Papagei	ˌpapaˈga͡ɪ	ˈpaˈpa͡ɪ	SS	Mon	parrot	imit	SWU
Wiglaf	1;09.02	Papagei	ˌpapaˈga͡ɪ	ˈpaˈpa͡ɪ	SS	Mon	parrot	Sp	SWU
Wiglaf	1;09.02	Ameise	ˈʔaːˌma͡ɪzə	ˌʔaːˈmasə	sSW	Pcom	ant	Sp	SWU
Wiglaf	1;09.09	Antenne	ʔanˈtɛnə	ˈtɛnə	SW	Mon	aerial	Sp	SWU
Wiglaf	1;09.09	Banane	baˈnaːnə	ˈmaːnə	SW	Mon	banana	imit	SWU
Wiglaf	1;09.09	Garage	gaˈʁaːʒə	ˈhaːsə	SW	Mon	garage	Sp	SWU
Wiglaf	1;09.09	Giraffe	giˈʁafə	ˈhaxfə	SW	Mon	giraffe	Sp	SWU
Wiglaf	1;09.09	Giraffe	giˈʁafə	ˈhafə	SW	Mon	giraffe	Sp	SWU
Wiglaf	1;09.09	Giraffe	giˈʁafə	ˈhafə	SW	Mon	giraffe	Sp	SWU
Wiglaf	1;09.09	Giraffe	giˈʁafə	ˈhafə	SW	Mon	giraffe	Sp	SWU
Wiglaf	1;09.09	Giraffe	giˈʁafə	ˈhafə	SW	Mon	giraffe	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;09.09	Kassette	kaˈsɛtə	ˈvɛtə	SW	Mon	cassette	Sp	SWU
Wiglaf	1;09.09	Johanna	joˈhana	ˈhana	SW	Mon	proper name	imit	SWU
Wiglaf	1;09.09	Papier	paˈpiːɐ	piːɐ	S	Mon	paper	Sp	SWU
Wiglaf	1;09.09	Tomate	toˈmaːtə	ˈmaːtə	SW	Mon	tomato	imit	SWU
Wiglaf	1;09.09	Elefant	ˌʔeləˈfant	vant˺	S	Mon	elephant	imit	n-ini
Wiglaf	1;09.09	Elefant	ˌʔeləˈfant	vant˺	S	Mon	elephant	imit	ini
Wiglaf	1;09.09	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	SWU
Wiglaf	1;09.09	Margarine	ˌmaɐgaˈʁiːnə	ˈhiːnə	SW	Mon	margarine	imit	SWU
Wiglaf	1;09.09	Marmelade	ˌmaɐməˈlaːdə	ˈhaːtə	SW	Mon	jam	Sp	SWU
Wiglaf	1;09.09	Lokomotive	ˌlokomoˈtiːvə	ˈtiːfə	SW	Mon	locomotive	Sp	SWU
Wiglaf	1;09.09	Papagei	ˌpapaˈga͡ɪ	paˈpːa͡ɪ	WS	Mon	parrot	Sp	ini
Wiglaf	1;09.09	Papagei	ˌpapaˈga͡ɪ	ˈvaˈpːa͡ɪ	SS	Mon	parrot	Sp	SWU
Wiglaf	1;09.09	Ameise	ˈʔaːˌma͡ɪzə	aːˈma͡ɪt͡θə	WSW	Pcom	ant	Sp	SWU
Wiglaf	1;09.09	Riesenrad	ˈʁiːzənˌʁaːt	ˈhiːsn̩	SW	Com	giant wheel	imit	ini
Wiglaf	1;09.09	Riesenrad	ˈʁiːzənˌʁaːt	ˈhiːsn̩	SW	Com	giant wheel	imit	n-ini
Wiglaf	1;09.09	Riesenrad	ˈʁiːzənˌʁaːt	ˈhiːsn̩	SW	Com	giant wheel	imit	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;09.09	Riesenrad	ˈʁiːzənˌʁaːt	ˈhiːsn̩	SW	Com	giant wheel	imit	n-ini
Wiglaf	1;09.09	Riesenrad	ˈʁiːzənˌʁaːt	ˈhiːsn̩	SW	Com	giant wheel	imit	n-ini
Wiglaf	1;09.09	Riesenrad	ˈʁiːzənˌʁaːt	ˈhiːsn̩	SW	Com	giant wheel	imit	n-ini
Wiglaf	1;09.09	Riesenrad	ˈʁiːzənˌʁaːt	ˈhiːˌsɛnt	S-s	Com	giant wheel	Sp	SWU
Wiglaf	1;09.19	Antenne	ʔanˈtɛnə	ˈtɛnə	SW	Mon	aerial	imit	SWU
Wiglaf	1;09.19	Banane	baˈnaːnə	ˈmaːnə	SW	Mon	banana	Sp	SWU
Wiglaf	1;09.19	Garage	gaˈʁaːʒə	ˈhaːsə	SW	Mon	garage	Sp	SWU
Wiglaf	1;09.19	Giraffe	giˈʁafə	ˈhaːfə	SW	Mon	giraffe	Sp	n-ini
Wiglaf	1;09.19	Giraffe	giˈʁafə	ˈhafə	SW	Mon	giraffe	Sp	n-ini
Wiglaf	1;09.19	Kaputt	kaˈpʊt	pʊt̚	S	Mon	defective	imit	SWU
Wiglaf	1;09.19	Papier	paˈpiːɐ	ˈpiːəɐ	SW	Mon	paper	Sp	SWU
Wiglaf	1;09.19	Tomaten	toˈmaːtən	ˈmaːtn̩	SW	Mon	tomato (plural)	Sp	SWU
Wiglaf	1;09.19	Tomaten	toˈmaːtən	ˈmaːkŋ̍	SW	Mon	tomato (plural)	Sp	SWU
Wiglaf	1;09.19	Elefant	ˌʔeləˈfant	vanː	S	Mon	elephant	Sp	SWU
Wiglaf	1;09.19	Elefant	ˌʔeləˈfant	fant	S	Mon	elephant	Sp	SWU
Wiglaf	1;09.19	Lokomotive	ˌlokomoˈtiːvə	ˈvɔkə	SW	Mon	locomotive	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;09.19	Lokomotive	ˌlokomoˈtiːvə	ˈtɨːɸə	SW	Mon	locomotive	Sp	SWU
Wiglaf	1;09.19	Papagei	ˌpapaˈga͡ɪ	paˈpa͡ɪ	WS	Mon	parrot	Sp	SWU
Wiglaf	1;09.19	Autoschlüssel	ˈʔa͡ʊtoˌʃlʏsəl	ˈʔaːʊtɔsəl	SWW	Com	car key	imit	SWU
Wiglaf	1;09.19	Autoschlüssel	ˈʔa͡ʊtoˌʃlʏsəl	ˈʔa͡ʊtɔsɛˡ	SWW	Com	car key	Sp	SWU
Wiglaf	1;09.19	Ameisen	ˈʔaːˌma͡ɪzə	ʔaˈma͡ɪsn̩	WSW	Pcom	ant (plural)	Sp	SWU
Wiglaf	1;09.19	Riesenrad	ˈʁiːzənˌʁaːt	ˈhiːsn̩	SW	Com	giant wheel	imit	SWU
Wiglaf	1;09.26	Banane	baˈnaːnə	ˈmaːnə	SW	Mon	banana	imit	SWU
Wiglaf	1;09.26	Giraffe	giˈʁafə	ˈhafə	SW	Mon	giraffe	Sp	SWU
Wiglaf	1;09.26	Kartoffeln	kaɐˈtɔfəln	ˈtɔfl̩n	SW	Mon	potato (plural)	imit	SWU
Wiglaf	1;09.26	Kaputt	kaˈpʊt	bʊt	S	Mon	defective	Sp	SWU
Wiglaf	1;09.26	Tomaten	toˈmaːtən	ˈmaːkŋ̍	SW	Mon	tomato (plural)	Sp	SWU
Wiglaf	1;09.26	Papagei	ˌpapaˈga͡ɪ	paˈpa͡ɪ	WS	Mon	parrot	Sp	SWU
Wiglaf	1;09.26	Staubsauger	ˈʃta͡ʊpˌza͡ʊgəɐ	ˈta͡ʊpˌsa͡ʊga	S-sW	Com	vacuum cleaner	Sp	SWU
Wiglaf	1;09.26	Staubsauger	ˈʃta͡ʊpˌza͡ʊgəɐ	ˈta͡ʊpˌsa͡ʊga	S-sW	Com	vacuum cleaner	Sp	SWU
Wiglaf	1;10.13	Banane	baˈnaːnə	ˈmaːnə	SW	Mon	banana	Sp	ini
Wiglaf	1;10.13	Ballon	baˈlɔŋ	bɔŋ	S	Mon	balloon	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;10.13	Delfin	dɛlˈfiːn	sviːn	S	Mon	dolphin	imit	SWU
Wiglaf	1;10.13	Giraffe	giˈʁafə	ˈʁafɛ	SW	Mon	giraffe	imit	SWU
Wiglaf	1;10.13	Giraffe	giˈʁafə	ˈʁafə	SW	Mon	giraffe	imit	SWU
Wiglaf	1;10.13	Kartoffel	kaɐˈtɔfəl	ˈtɔfl̩	SW	Mon	potato	Sp	SWU
Wiglaf	1;10.13	Kamel	kaˈmeːl	mɛ̆lː	S	Mon	camel	Sp	ini
Wiglaf	1;10.13	Trompete	tʁɔmˈpeːtə	ˈpeːtə	SW	Mon	trumpet	Sp	n-ini
Wiglaf	1;10.13	Indianer	ˌʔɪndiˈjaːnəɐ	ˈsʲaːna	SW	Mon	native American	imit	SWU
Wiglaf	1;10.13	Indianer	ˌʔɪndiˈjaːnəɐ	ˈsaːna	SW	Mon	native American	imit	SWU
Wiglaf	1;10.13	Elefant	ˌʔeləˈfant	fan	S	Mon	elephant	Sp	SWU
Wiglaf	1;10.13	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈka͡ɪ	sWS	Mon	parrot	Sp	SWU
Wiglaf	1;10.13	Apfelmus	ˈʔap͡fəlˌmuːs	ˈʔap͡fəlˈmuːs	SW-S	Com	apple sauce	Sp	SWU
Wiglaf	1;10.13	Ameise	ˈʔaːˌma͡ɪzə	ˈʔa͡ɪˌma͡ɪsɛː	SsW	Pcom	ant	imit	SWU
Wiglaf	1;10.13	Osterhase	ˈʔoːstəɐˌhaːzə	ˈʔoːstaˌhasə	SW-sW	Com	easter + bunny	Sp	SWU
Wiglaf	1;10.13	Staubsauger	ˈʃta͡ʊpˌza͡ʊgəɐ	ˈta͡ʊk̚ˌsa͡ʊgɐ	S-sW	Com	vacuum cleaner	Sp	n-ini
Wiglaf	1;10.13	Staubsauger	ˈʃta͡ʊpˌza͡ʊgəɐ	ˈta͡ʊˌsa͡ʊgɐ	S-sW	Com	vacuum cleaner	Sp	SWU
Wiglaf	1;10.13	Babybuch	ˈbeːbiˌbuːx	ˈpeːbiˌpɯːx	SW-s	Com	baby book	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;10.13	Brokkoli	ˈbʁokoli	ˈpɤːkiˌpʊʎːi	SWsW	Mon	broccoli	imit	SWU
Wiglaf	1;10.13	Brokkoli	ˈbʁokoli	ˈpɤpiˌkɯlili	SWsWW	Mon	broccoli	imit	SWU
Wiglaf	1;10.13	Farbkasten	ˈfaɐpˌkastən	ˈfastn̩	SW	Com	box of paints	imit	SWU
Wiglaf	1;10.13	Hammerbank	ˈhaməɐˌbaŋk	ˈhamaˌbaŋk̚	SW-s	Com	hammer bank	Sp	SWU
Wiglaf	1;10.13	Hubschrauber	ˈhuːpˌʃʁa͡ʊbəɐ	ˈxɯːpˌsa͡ʊbɐ	S-sW	Com	helicopter	imit	SWU
Wiglaf	1;10.13	Pfannkuchen	ˈp͡fanˌkuːxən	ˈpanːˌkuːxŋ	S-sW	Com	pancake	imit	SWU
Wiglaf	1;10.13	Pfannkuchen	ˈp͡fanˌkuːxən	ˈfanːkɯxə	SWW	Com	pancake	imit	n-ini
Wiglaf	1;10.13	Waschstraße	ˈvaʃˌʃtʁaːsə	ˈvasˌtasːə	S-sW	Com	car wash	Sp	SWU
Wiglaf	1;10.13	Zahnbürste	ˈt͡saːnˌbʏɐstə	ˈfaːmˈpyːɐstə	S-SW	Com	toothbrush	Sp	SWU
Wiglaf	1;10.13	Zahnpasta	ˈt͡saːnˌpasta	ˈvaːmˌpasta	S-sW	Com	toothpaste	Sp	SWU
Wiglaf	1;10.13	Sandkiste	ˈzantˌkɪstə	ˈvanstˌkɪstə	S-sW	Com	sand box	imit	SWU
Wiglaf	1;10.13	Sandkasten	ˈzantˌkastən	ˈθanˌkastn̩	S-sW	Com	sand box	imit	SWU
Wiglaf	1;10.13	Sandkasten	ˈzantˌkastən	ˈðanˌkastn̩	S-sW	Com	sand box	imit	SWU
Wiglaf	1;10.13	Sandkuchen	ˈzantˌkuːxən	ˈzʷanˌkɯxŋ	S-sW	Com	sand cake	Sp	SWU
Wiglaf	1;10.28	Bananen	baˈnaːnən	ˈmaːn̩ː	S	Mon	banana (plural)	Sp	ini
Wiglaf	1;10.28	Kartoffeln	kaɐˈtɔfəln	ˈtɔfl̩n	SW	Mon	potato (plural)	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;10.28	Kamel	kaˈmeːl	meːl	S	Mon	camel	imit	SWU
Wiglaf	1;10.28	Pullover	puˈloːvɐ	ˈlɤːfɐ	SW	Mon	pullover	imit	n-ini
Wiglaf	1;10.28	Tomaten	toˈmaːtən	ˈmaːtn̩	SW	Mon	tomato (plural)	imit	SWU
Wiglaf	1;10.28	Zitronen	t͡siˈtʁoːnən	ˈtʁoːnː	S	Mon	citron (plural)	imit	n-ini
Wiglaf	1;10.28	Elefant	ˌʔeləˈfant	ˌʔeːləˈfant˺	sWS	Mon	elephant	Sp	SWU
Wiglaf	1;10.28	Schokoladeneis	ˌʃokoˈlaːdənˌʔa͡ɪs	ˈlaːxŋ̍ˌʔa͡ɪs	SW-s	Com	chocolate ice-cream	imit	SWU
Wiglaf	1;10.28	Papagei	ˌpapaˈga͡ɪ	paˌpaˈka͡ɪ	WsS	Mon	parrot	Sp	SWU
Wiglaf	1;10.28	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈka͡ɪ	sWS	Mon	parrot	Sp	SWU
Wiglaf	1;10.28	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈka͡ɪ	sWS	Mon	parrot	Sp	SWU
Wiglaf	1;10.28	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈka͡ɪ	sWS	Mon	parrot	Sp	SWU
Wiglaf	1;10.28	Unterhose	ˈʔʊntɐˌhoːzə	ˈʔʊntaˌhɤzə	SW-sW	Com	shorts	Sp	SWU
Wiglaf	1;10.28	Scheinwerfer	ˈʃa͡ɪnˌvɛɐfɐ	ˈva͡ɪnˌvɛɐfɐ	S-sW	Com	spotlight	imit	SWU
Wiglaf	1;10.28	Scheinwerfer	ˈʃa͡ɪnˌvɛɐfɐ	ˈva͡ɪnˌvɛɐfɐ	S-sW	Com	spotlight	imit	SWU
Wiglaf	1;10.28	Schlüsselloch	ˈʃlʏsəlˌlɔx	ˈlʏsəˌlɔx	SW-s	Com	keyhole	imit	SWU
Wiglaf	1;10.28	Schneebesen	ˈʃneːˌbeːzən	ˈneːˈpɨsn̩	S-SW	Com	eggbeater	Sp	SWU
Wiglaf	1;10.28	Schokoeis	ˈʃokoˌʔa͡ɪs	ˌzɔkl̩ˈʔa͡ɪs	sW-S	Com	chocolate ice-cream	imit	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;10.28	Schokoeis	ˈʃokoˌʔa͡ɪs	ˌsɔkl̩ˈʔa͡ɪs	sW-S	Com	chocolate ice-cream	imit	ini
Wiglaf	1;10.28	Schraubenzieher	ˈʃʁa͡ʊbənˌt͡siːhəɐ	ˈva͡ʊmˌt͡siːja	S-sW	Com	screwdriver	imit	n-ini
Wiglaf	1;10.28	Badehose	ˈbadəˌhoːzə	ˈbaːdəˌhoːzə	SW-sW	Com	bathing suit	Sp	SWU
Wiglaf	1;10.28	Fahrradhelm	ˈfaːɐˌʁaːtˌhɛlm	ˈvaxatˌhɛlm	SW-s	Com	bike helmet	Sp	SWU
Wiglaf	1;10.28	Feuerwehrauto	ˈf͡ɔɪəɐˌveːɐˌʔa͡ʊto	ˈf͡ɔɪjaˌʔa͡ʊtɤ	SW-sW	Com	fire engine	Sp	SWU
Wiglaf	1;10.28	Kindersitz	ˈkɪndəɐˌzɪ͡ts	ˈkɪnasɪ͡ts	SWW	Com	child safety seat	Sp	SWU
Wiglaf	1;10.28	Windmühle	ˈvɪntˌmyːlə	ˈvɪntʰˈhyːlə	S-SW	Com	windmill	Sp	SWU
Wiglaf	1;10.28	Waschstraße	ˈvaʃˌʃtʁaːsə	ˈvasˈtʁaːsə	S-SW	Com	car wash	Sp	SWU
Wiglaf	1;10.28	Weintrauben	ˈva͡ɪnˌtʁa͡ʊbən	ˈva͡ɪnˌtʁa͡ʊpm̩	S-sW	Com	grapes	imit	SWU
Wiglaf	1;10.28	Weintrauben	ˈva͡ɪnˌtʁa͡ʊbən	ˌfa͡ɪnˈtʁa͡ʊbm̩	s-SW	Com	grapes	Sp	SWU
Wiglaf	1;10.28	Radio	ˈʁaːdijo	ˈɣaːdijo	SWW	Mon	radio	imit	SWU
Wiglaf	1;11.03	Ballon	baˈlɔŋ	tlɔŋ	S	Mon	balloon	Sp	n-ini
Wiglaf	1;11.03	Ballon	baˈlɔŋ	tlɔŋ	S	Mon	balloon	Sp	ini
Wiglaf	1;11.03	Ballon	baˈlɔŋ	plɔŋ	S	Mon	balloon	Sp	n-ini
Wiglaf	1;11.03	Giraffe	giˈʁafə	ˈxafə	SW	Mon	giraffe	imit	ini
Wiglaf	1;11.03	Kamel	kaˈmeːl	ˈmeˌjɛl	Ss	Mon	camel	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;11.03	Kaputt	kaˈpʊt	ˌtaːˈpʊt	sS	Mon	defective	imit	n-ini
Wiglaf	1;11.03	Kaputt	kaˈpʊt	pʊt	S	Mon	defective	Sp	ini
Wiglaf	1;11.03	Kaputt	kaˈpʊt	aˈbʊt	WS	Mon	defective	Sp	ini
Wiglaf	1;11.03	Elefant	ˌʔeləˈfant	ˌʔeːlɛˈfant	sWS	Mon	elephant	Sp	SWU
Wiglaf	1;11.03	Elefant	ˌʔeləˈfant	ˌʔeːləˈfant	sWS	Mon	elephant	Sp	SWU
Wiglaf	1;11.03	Mikrofon	ˌmɪkʁɔˈfoːn	ˌmɪtəˈfoːn	sWS	Pcom	microphone	imit	SWU
Wiglaf	1;11.03	Lokomotive	ˌlokomoˈtiːvə	ˌlɔkaˈtiːfə	sWSW	Mon	locomotive	imit	SWU
Wiglaf	1;11.03	Lokomotive	ˌlokomoˈtiːvə	ˌlɔkaˈti̧və	sWSW	Mon	locomotive	Sp	SWU
Wiglaf	1;11.03	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈka͡ɪ	sWS	Mon	parrot	Sp	SWU
Wiglaf	1;11.03	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈka͡ɪ	sWS	Mon	parrot	Sp	SWU
Wiglaf	1;11.03	Unterhemd	ˈʔʊntɐˌhɛmt	ˈʔʊntaˌhɛm	SW-s	Com	undershirt	Sp	SWU
Wiglaf	1;11.03	Unterhose	ˈʔʊntɐˌhoːzə	ˈʔʊntaˌhɵːsə	SW-sW	Com	shorts	Sp	SWU
Wiglaf	1;11.03	Ameisen	ˈʔaːˌma͡ɪzə	ˈʔa͡ɪˌma͡ɪsn̩	SsW	Pcom	ant (plural)	Sp	SWU
Wiglaf	1;11.03	Staubsauger	ˈʃta͡ʊpˌza͡ʊgɐ	ˈta͡ʊk̚ˌsa͡ʊka	S-sW	Com	vacuum cleaner	Sp	SWU
Wiglaf	1;11.03	Staubsauger	ˈʃta͡ʊpˌza͡ʊgɐ	ˌta͡ʊkˈsa͡ʊka	s-SW	Com	vacuum cleaner	Sp	n-ini
Wiglaf	1;11.03	Telefon	ˈteːləˌfon	ˈtʰeːləˌfoːn	SWs	Pcom	telephone	imit	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;11.13	Banane	baˈnaːnə	ˈmaːnə	SW	Mon	banana	imit	SWU
Wiglaf	1;11.13	Gitarre	giˈtaʁə	ˈgitχaχə	SWW	Mon	guitar	imit	SWU
Wiglaf	1;11.13	Giraffe	giˈʁafə	giˈʁafə	WSW	Mon	giraffe	imit	SWU
Wiglaf	1;11.13	Giraffe	giˈʁafə	giˈɣafə	WSW	Mon	giraffe	Sp	SWU
Wiglaf	1;11.13	Kassettenrecorder	kaˈsɛtənʁeˈkɔɐdəʁ	ˈsɪtn̩ˌkɔ͡ɐda	SW-sW	Com	cassette recorder	Sp	SWU
Wiglaf	1;11.13	Pilot	piˈloːt	biˈlɯːt	WS	Mon	pilot	Sp	SWU
Wiglaf	1;11.13	Indianer	ˌʔɪndiˈjaːnəɐ	ˈjaːna	SW	Mon	native American	imit	SWU
Wiglaf	1;11.13	Elefant	ˌʔeləˈfant	ˈʔeːlɛˌfan	SWs	Mon	elephant	imit	SWU
Wiglaf	1;11.13	Elefant	ˌʔeləˈfant	ˌgeːˈfan	sS	Mon	elephant	Sp	SWU
Wiglaf	1;11.13	Mikrofon	ˌmɪkʁɔˈfoːn	ˈmikɔˌfoːn	SWs	Pcom	microphone	imit	ini
Wiglaf	1;11.13	Lokomotive	ˌlokomoˈtiːvə	ˌlɔkəˈtʰiːvə	sWSW	Mon	locomotive	Sp	ini
Wiglaf	1;11.13	Papagei	ˌpapaˈga͡ɪ	papːaˈga͡ɪ	sWS	Mon	parrot	Sp	n-ini
Wiglaf	1;11.13	Papagei	ˌpapaˈga͡ɪ	ˈpapaka͡ɪ	SWW	Mon	parrot	Sp	SWU
Wiglaf	1;11.13	Papagei	ˌpapaˈga͡ɪ	ˈpapaˌka͡ɪ	SWs	Mon	parrot	Sp	ini
Wiglaf	1;11.13	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈka͡ɪ	sWS	Mon	parrot	imit	n-ini
Wiglaf	1;11.13	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈka͡ɪ	sWS	Mon	parrot	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;11.13	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈka͡ɪ	sWS	Mon	parrot	Sp	ini
Wiglaf	1;11.13	Erdbeere	ˈʔɛɐtˌbeːʁə	ˈʔætˌpeːʁə	S-sW	Com	strawberry	imit	SWU
Wiglaf	1;11.13	Eisenbahn	ˈʔa͡ɪzənˌbaːn	ˈʔa͡ɪsn̩ˌban	SW-s	Com	railway	Sp	ini
Wiglaf	1;11.13	Autofahrer	ˈʔa͡ʊtoˌfaːhʁəɐ	ˈʔaʊtoˌfaːʁəɐ	SW-sW	Com	driver	imit	ini
Wiglaf	1;11.13	Autofahrer	ˈʔa͡ʊtoˌfaːhʁəɐ	ˈʔa͡ʊtɔˌfaːʁɐ	SW-sW	Com	driver	Sp	SWU
Wiglaf	1;11.13	Scheibenwischer	ˈʃa͡ɪbənˌvɪʃəɐ	ˈva͡ɪnˌfɪsɐ	S-sW	Com	windscreen wiper	Sp	SWU
Wiglaf	1;11.13	Buchstabe	ˈbuxˌʃtaːbə	ˈbɯˌstaːbə	S-sW	Com	letter	imit	SWU
Wiglaf	1;11.13	Buchstaben	ˈbuxˌʃtaːbən	ˈpɯːstabm̩	SWW	Com	letter (plural)	imit	SWU
Wiglaf	1;11.13	Brokkoli	ˈbʁokoli	ˌbɔkʊli	SWW	Mon	broccoli	imit	n-ini
Wiglaf	1;11.13	Brokkoli	ˈbʁokoli	ˌbɔkɔˈliː	sWS	Mon	broccoli	imit	ini
Wiglaf	1;11.13	Brokkoli	ˈbʁokoli	boˌkoʷəˈli	WsWS	Mon	broccoli	imit	SWU
Wiglaf	1;11.13	Feuerwehrauto	ˈf͡ɔɪəɐˌveːɐˌʔa͡ʊto	ˈv͡ɔɪɐˌʔa͡ʊtɤ	SW-sW	Com	fire engine	Sp	SWU
Wiglaf	1;11.13	Kindersitz	ˈkɪndəɐˌz͡ɪts	ˈkɪnaˌs͡ɪts	SW-s	Com	child safety seat	Sp	SWU
Wiglaf	1;11.13	Kirchenglocken	ˈkɪɐçənˌglɔkən	ˈkiːçn̩ˌlɔkŋ	SW-sW	Com	church bell (plural)	Sp	ini
Wiglaf	1;11.13	Kirchenglocken	ˈkɪɐçənˌglɔkən	ˈkiçn̩ˌtlɔkŋ	SW-sW	Com	church bell (plural)	Sp	SWU
Wiglaf	1;11.13	Heikendorf	ˈha͡ɪkənˌdɔɐf	ˈha͡ɪkŋˌd͡ɔɐf	SW-s	Com	name of a village	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;11.13	Kofferraum	ˈkɔfɐˌʁa͡ʊm	ˈkɔfaˌʁa͡ʊm	SW-s	Com	luggage space	Sp	SWU
Wiglaf	1;11.13	Lokführer	ˈlɔkˌfyːʁəɐ	ˈlɔkˌfyːʁa	S-sW	Com	locomotive driver	Sp	ini
Wiglaf	1;11.19	Giraffe	giˈʁafə	giˈʁafə	WSW	Mon	giraffe	imit	SWU
Wiglaf	1;11.19	Giraffe	giˈʁafə	giˈʁafə	WSW	Mon	giraffe	imit	SWU
Wiglaf	1;11.19	Giraffe	giˈʁafə	giˈʁafə	WSW	Mon	giraffe	imit	SWU
Wiglaf	1;11.19	Kartoffeln	kaɐˈtɔfəln	kaˈtɔfəln	WSW	Mon	potato (plural)	imit	SWU
Wiglaf	1;11.19	Kamel	kaˈmeːl	meːl	S	Mon	camel	imit	n-ini
Wiglaf	1;11.19	Kamel	kaˈmeːl	ˈmeːjl̩	SW	Mon	camel	Sp	SWU
Wiglaf	1;11.19	Kamel	kaˈmeːl	ˈmeˌjl	Ss	Mon	camel	imit	SWU
Wiglaf	1;11.19	Kaputt	kaˈpʊt	pʊt	S	Mon	defective	Sp	n-ini
Wiglaf	1;11.19	Kaputt	kaˈpʊt	pʊt	S	Mon	defective	Sp	n-ini
Wiglaf	1;11.19	Kaputt	kaˈpʊt	pʊt	S	Mon	defective	Sp	ini
Wiglaf	1;11.19	Elefant	ˌʔeləˈfant	ˌʔeːlɛˈfant˺	sWS	Mon	elephant	Sp	SWU
Wiglaf	1;11.19	Elefant	ˌʔeləˈfant	ˌʔeːlɛˈfant	sWS	Mon	elephant	imit	SWU
Wiglaf	1;11.19	Krokodil	ˌkʁokoˈdiːl	ˌkɔkɔlˈdijɐ	sWSW	Mon	crocodile	imit	SWU
Wiglaf	1;11.19	Mikrofon	ˌmɪkʁɔˈfoːn	ˈmɪkoˌfon	SWs	Pcom	microphone	Sp	SWU

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;11.19	Mikrofon	ˌmɪkʁɔˈfoːn	ˈmɪkɔfon	SWW	Pcom	microphone	Sp	SWU
Wiglaf	1;11.19	Mikrofon	ˌmɪkʁɔˈfoːn	ˌmɪkoˈfoːn	sWS	Pcom	microphone	Sp	n-ini
Wiglaf	1;11.19	Mikrofon	ˌmɪkʁɔˈfoːn	ˌmɪkoˈfoːn	sWS	Pcom	microphone	Sp	ini
Wiglaf	1;11.19	Papagei	ˌpapaˈga͡ɪ	ˈpapaka͡ɪ	SWW	Mon	parrot	Sp	SWU
Wiglaf	1;11.19	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈkʰa͡ɪ	sWS	Mon	parrot	imit	SWU
Wiglaf	1;11.19	Busfahrer	ˈbʊsˌfaːʁɐ	ˈpʊsˌvaːʁɐ	S-sW	Com	bus driver	Sp	ini
Wiglaf	1;11.19	Fingerpuppe	ˈfɪŋɐˌpʊpə	ˈvɪŋɐˌpʊpə	SW-sW	Com	finger + puppet	imit	n-ini
Wiglaf	1;11.19	Kindergarten	ˈkɪndɐˌgaɐtən	ˈkɪnaˌgaːtn̩	SW-sW	Com	kindergarten	imit	ini
Wiglaf	1;11.19	Heikendorf	ˈha͡ɪkənˌdɔɐf	ˈha͡ɪkŋ̍ˌdɔ͡ɐf	SW-s	Com	name of a village	Sp	n-ini
Wiglaf	1;11.19	Heikendorf	ˈha͡ɪkənˌdɔɐf	ˈha͡ɪkŋ̍ˌdɔ͡ɐf	SW-s	Com	name of a village	Sp	n-ini
Wiglaf	1;11.19	Heikendorf	ˈha͡ɪkənˌdɔɐf	ˌha͡ɪkŋ̍ˈdɔ͡ɐf	sW-S	Com	name of a village	Sp	n-ini
Wiglaf	1;11.19	Kehrmaschine	ˈkeːɐmaˌʃiːnə	ˈgeːɐˌsiːnə	S-sW	Com	road sweeper	Sp	ini
Wiglaf	1;11.19	Kehrmaschine	ˈkeːɐmaˌʃiːnə	ˈgeːɐˌsiːmə	S-sW	Com	road sweeper	Sp	ini
Wiglaf	1;11.19	Kehrmaschine	ˈkeːɐmaˌʃiːnə	ˈgeːɐˌsiːmə	S-sW	Com	road sweeper	Sp	ini
Wiglaf	1;11.23	Giraffe	giˈʁafə	giˈʁafə	WSW	Mon	giraffe	imit	SWU
Wiglaf	1;11.23	Kamel	kaˈmeːl	giːl	S	Mon	camel	Sp	ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	1;11.23	Sandalen	zanˈdaːlən	daːln	S	Mon	sandal (plural)	imit	n-ini
Wiglaf	1;11.23	Salat	zaˈlaːt	ˌsaˈlaːt˺	sS	Mon	salad	imit	n-ini
Wiglaf	1;11.23	Krokodil	ˌkʁokoˈdiːl	ˌkokoˈtiːl	sWS	Mon	crocodile	Sp	SWU
Wiglaf	1;11.23	Krokodil	ˌkʁokoˈdiːl	ˌkɔkəlˈdiːl	sWS	Mon	crocodile	imit	ini
Wiglaf	1;11.23	Mikrofon	ˌmɪkʁɔˈfoːn	ˌmɪkoˈfoːn	sWS	Pcom	microphone	Sp	ini
Wiglaf	1;11.23	Mikrofon	ˌmɪkʁɔˈfoːn	ˌmɪkoˈfoːn	sWS	Pcom	microphone	Sp	ini
Wiglaf	1;11.23	Mikrofon	ˌmɪkʁɔˈfoːn	ˌmɪkoˈfoːn	sWS	Pcom	microphone	Sp	ini
Wiglaf	1;11.23	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈka͡ɪ	sWS	Mon	parrot	Sp	SWU
Wiglaf	1;11.23	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈka͡ɪ	sWS	Mon	parrot	Sp	SWU
Wiglaf	1;11.23	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈkɣa͡ɪ	sWS	Mon	parrot	Sp	SWU
Wiglaf	1;11.23	Polizeiauto	ˌpoliˈt͡sa͡ɪˌʔa͡ʊto	ˌboliˈsa͡ɪˌʔa͡ʊtɤ	sWS-SW	Com	police car	Sp	n-ini
Wiglaf	1;11.23	Autoschlüssel	ˈʔa͡ʊtoˌʃlʏsəl	ˌʔa͡ʊˈtʏsəl	sSW	Com	car key	Sp	n-ini
Wiglaf	1;11.23	Scheibenwischer	ˈʃa͡ɪbənˌvɪʃɐ	ˈt͡sa͡ɪnˌvɪsɐ	S-sW	Com	windscreen wiper	Sp	n-ini
Wiglaf	1;11.23	Brokkoli	ˈbʁokoli	ˈboˌkoːli	SsW	Mon	broccoli	imit	ini
Wiglaf	1;11.23	Brokkoli	ˈbʁokoli	ˈboˌɣoːli	SsW	Mon	broccoli	imit	n-ini
Wiglaf	2;0.11	Antenne	ʔanˈtɛnə	ˈtɛnə	SW	Mon	aerial	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	2;0.11	Ballon	baˈlɔŋ	lɔm	S	Mon	balloon	imit	n-ini
Wiglaf	2;0.11	Garage	gaˈʁaːʒə	ˈʁaːzə	SW	Mon	garage	imit	n-ini
Wiglaf	2;0.11	Giraffe	giˈʁafə	ˈkʰʁafːə	SW	Mon	giraffe	Sp	n-ini
Wiglaf	2;0.11	Giraffe	giˈʁafə	ˌkiˈʁafə	sSW	Mon	giraffe	imit	n-ini
Wiglaf	2;0.11	Kamel	kaˈmeːl	meːl	S	Mon	camel	imit	n-ini
Wiglaf	2;0.11	Kamel	kaˈmeːl	ˈmeːl	S	Mon	camel	imit	n-ini
Wiglaf	2;0.11	Hydranten	hyˈdʁantən	hʏ͡aˈdʁantn̩	sWSW	Mon	hydrant (plural)	imit	n-ini
Wiglaf	2;0.11	Hydranten	hyˈdʁantən	hʏ͡aˈdʁantn̩	sWSW	Mon	hydrant (plural)	imit	Ini
Wiglaf	2;0.11	Elefant	ˌʔeləˈfant	ˌʔelɛˈfant	sWS	Mon	elephant	Sp	n-ini
Wiglaf	2;0.11	Elefant	ˌʔeləˈfant	ˌʔɛlɛˌfant	sWS	Mon	elephant	imit	Ini
Wiglaf	2;0.11	Batterie	ˌbatɛˈʁiː	ˈpatʁiː	SW	Mon	battery	Sp	n-ini
Wiglaf	2;0.11	Krokodil	ˌkʁokoˈdiːl	ˌkɔkelˈdiːl	sWS	Mon	crocodile	Sp	n-ini
Wiglaf	2;0.11	Krokodil	ˌkʁokoˈdiːl	ˌkɔkɔˈdiːl	sWS	Mon	crocodile	Sp	n-ini
Wiglaf	2;0.11	Mikrofon	ˌmɪkʁɔˈfoːn	ˈmɪkəˈfon	SWS	Pcom	microphone	Sp	n-ini
Wiglaf	2;0.11	Papagei	ˌpapaˈga͡ɪ	ˈpapak̚	SW	Mon	parrot	Sp	n-ini
Wiglaf	2;0.11	Papagei	ˌpapaˈga͡ɪ	ˈpapaˌka͡ɪ	SWs	Mon	parrot	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	2;0.11	Papagei	ˌpapaˈga͡ɪ	ˌbapaˈka͡ɪ	sWS	Mon	parrot	Sp	n-ini
Wiglaf	2;0.11	Steckdose	ˈʃtɛkˌdoːzə	ˈstɛkˌdoːzə	S-sW	Com	power socket	Sp	n-ini
Wiglaf	2;0.11	Blumengießer	ˈbluːmənˌgiːsɐ	ˈblʊmˌgiːsa	S-sW	Com	flowers + watering	imit	n-ini
Wiglaf	2;0.11	Känguru	ˈkɛŋguʁu	ˈkæŋuˈʁuː	SWS	Mon	kangaroo	imit	n-ini
Wiglaf	2;0.11	Hammerbank	ˈhaməɐˌbaŋk	ˈhamaˌbaŋ	SW-s	Com	hammer bank	Sp	n-ini
Wiglaf	2;0.11	Heikendorf	ˈha͡ɪkənˌdɔɐf	ˌha͡ɪkŋˈd͡ɔɐf	sW-S	Com	name of a village	Sp	n-ini
Wiglaf	2;0.11	Luftballon	ˈlʊftbaˌlɔŋ	nʊfˈpɔŋ	S-s	Com	balloon	Sp	n-ini
Wiglaf	2;0.11	Luftballon	ˈlʊftbaˌlɔŋ	ˈnʊfˌpɔŋː	S-s	Com	balloon	imit	n-ini
Wiglaf	2;0.11	Radio	ˈʁaːdijo	ˈʁaːtʲo	SW	Mon	radio	imit	n-ini
Wiglaf	2;0.11	Radio	ˈʁaːdijo	ˈʁaːtʲo	SW	Mon	radio	imit	n-ini
Wiglaf	2;0.11	Radio	ˈʁaːdijo	ˈʁaːtjo	SW	Mon	radio	Sp	n-ini
Wiglaf	2;0.17	Spinat	ʃpiˌnaːt	ˈbiˌnaːtʰ	Ss	Mon	spinach	imit	SWU
Wiglaf	2;0.17	Banane	baˈnaːnə	ˈmaːnə	SW	Mon	banana	imit	SWU
Wiglaf	2;0.17	Giraffe	giˈʁafə	ˌgijaˈʁafːhə	sWSW	Mon	giraffe	imit	n-ini
Wiglaf	2;0.17	Kakao	kaˈka͡ɔ	kʰa͡ɔ	S	Mon	cocoa	imit	SWU
Wiglaf	2;0.17	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	2;0.17	Kamel	kaˈmeːl	meːʲl	S	Mon	camel	Sp	n-ini
Wiglaf	2;0.17	Kassette	kaˈsɛtə	ˈsɛtə	SW	Mon	cassette	Sp	n-ini
Wiglaf	2;0.17	Salat	zaˈlaːt	ˌsoˈlaːtʰ	sS	Mon	salad	imit	SWU
Wiglaf	2;0.17	Elefant	ˌʔeləˈfant	ˌʔelɛˈfant	sWS	Mon	elephant	Sp	n-ini
Wiglaf	2;0.17	Elefant	ˌʔeləˈfant	ˌʔeləˈfant˺	sWS	Mon	elephant	Sp	n-ini
Wiglaf	2;0.17	Schokolade	ˌʃokoˈlaːdə	ˌsokoˈlaːdə	sWSW	Mon	chocolate	imit	n-ini
Wiglaf	2;0.17	Krokodil	ˌkʁokoˈdiːl	ˌkɔkɔˈdiːl	sWS	Mon	crocodile	Sp	n-ini
Wiglaf	2;0.17	Lokomotive	ˌlokomoˈtiːvə	ˈlɔkˌtiːvə	SsW	Mon	locomotive	Sp	n-ini
Wiglaf	2;0.17	Lokomotive	ˌlokomoˈtiːvə	ˌlɔkˈtiːvə	sSW	Mon	locomotive	Sp	n-ini
Wiglaf	2;0.17	Lokomotive	ˌlokomoˈtiːvə	ˌlɔkˈtiːvə	sSW	Mon	locomotive	Sp	SWU
Wiglaf	2;0.17	Papagei	ˌpapaˈga͡ɪ	ˈbapaˈkʁa͡ɪ	SWS	Mon	parrot	imit	n-ini
Wiglaf	2;0.17	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈga͡ɪ	sWS	Mon	parrot	Sp	n-ini
Wiglaf	2;0.17	Papagei	ˌpapaˈga͡ɪ	ˌbapaˈkʰa͡ɪ	sWS	Mon	parrot	Sp	n-ini
Wiglaf	2;0.17	Brokkoli	ˈbʁokoli	ˌpʰokoˈli	sWS	Mon	broccoli	imit	SWU
Wiglaf	2;0.17	Brokkoli	ˈbʁokoli	ˌbokoˈlik	sWS	Mon	broccoli	Sp	Ini
Wiglaf	2;0.17	Fußboden	ˈfuːsˌboːdən	ˈfuːdˌbon	S-sW	Com	floor	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	2;0.17	Feuerwehrauto	ˈf͡ɔɪəʁˌveːʁˌʔa͡ʊto	ˈf͡ɔɪʁˌa͡ʊtɯ	SW-sW	Com	fire engine	Sp	n-ini
Wiglaf	2;0.17	Feuerwehrauto	ˈf͡ɔɪəʁˌveːʁˌʔa͡ʊto	ˌf͡ɔɪəʁˈʔa͡ʊto	sW-SW	Com	fire engine	Sp	n-ini
Wiglaf	2;0.17	Pinguin	ˈpɪŋguˌin	ˌpɪŋguˈʔiːn	sWS	Pcom	penguin	imit	SWU
Wiglaf	2;0.17	Paprika	ˈpapʁika	papˈʁika	WSW	Mon	pepper	imit	Ini
Wiglaf	2;0.17	Zipfelmann	ˈt͡sɪpfəlˌman	ˈt͡sɪp͡fəlˌman	SW-s	Com	point + man	imit	n-ini
Wiglaf	2;0.24	Spinat	ʃpiˌnaːt	spiˈnaːt	WS	Mon	spinach	Sp	Ini
Wiglaf	2;0.24	Banane	baˈnaːnə	ˈmaːnə	SW	Mon	banana	Sp	n-ini
Wiglaf	2;0.24	Giraffe	giˈʁafə	kiˈʁaf̠ə	WSW	Mon	giraffe	Sp	n-ini
Wiglaf	2;0.24	Giraffe	giˈʁafə	giˈʁaf̠ə	WSW	Mon	giraffe	Sp	n-ini
Wiglaf	2;0.24	Giraffe	giˈʁafə	giˈʁaf̠ə	WSW	Mon	giraffe	Sp	n-ini
Wiglaf	2;0.24	Giraffe	giˈʁafə	giˌʁaf̠ə	WSW	Mon	giraffe	Sp	n-ini
Wiglaf	2;0.24	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	n-ini
Wiglaf	2;0.24	Kamel	kaˈmeːl	meːl	S	Mon	camel	imit	n-ini
Wiglaf	2;0.24	Kamel	kaˈmeːl	meːl	S	Mon	camel	imit	n-ini
Wiglaf	2;0.24	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	n-ini
Wiglaf	2;0.24	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	2;0.24	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	n-ini
Wiglaf	2;0.24	Kamel	kaˈmeːl	meːl	S	Mon	camel	Sp	n-ini
Wiglaf	2;0.24	Kassettenrecorder	kaˈsɛtənʁeˈkɔɐdəʁ	ˈsɛtn̩ˌkχɔ͡ɐdə	SW-sW	Com	cassette recorder	Sp	n-ini
Wiglaf	2;0.24	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	n-ini
Wiglaf	2;0.24	Kaputt	kaˈpʊt	pʰʊt	S	Mon	defective	Sp	n-ini
Wiglaf	2;0.24	Johannisbeeren	joˈhanɪsˌbeːʁən	ˈhaːˌbeːɐn	S-s	Com	currant (plural)	imit	SWU
Wiglaf	2;0.24	Waggon	vaˈgɔŋ	ˈmalˈkɔŋ	SS	Mon	wagon	imit	n-ini
Wiglaf	2;0.24	Elefant	ˌʔeləˈfant	ˌleˈfant	sS	Mon	elephant	imit	n-ini
Wiglaf	2;0.24	Elefant	ˌʔeləˈfant	ˌʔeːlɛˈfant	sWS	Mon	elephant	Sp	n-ini
Wiglaf	2;0.24	Elefant	ˌʔeləˈfant	ˌʔɛleˈfan	sWS	Mon	elephant	imit	n-ini
Wiglaf	2;0.24	Elefant	ˌʔeləˈfant	ˌʔelɛˌfant	sWS	Mon	elephant	imit	n-ini
Wiglaf	2;0.24	Schokolade	ˌʃokoˈlaːdə	ˌsɔχoˈlaːtə	sWSW	Mon	chocolate	imit	n-ini
Wiglaf	2;0.24	Krokodil	ˌkʁokoˈdiːl	ˌkɔkəlˈdiːl	sWS	Mon	crocodile	Sp	n-ini
Wiglaf	2;0.24	Krokodil	ˌkʁokoˈdiːl	ˌkɔkəˈdiːl	sWS	Mon	crocodile	Sp	n-ini
Wiglaf	2;0.24	Mikrofon	ˌmɪkʁɔˈfoːn	ˈmɪkʁofon	SWW	Pcom	microphone	Sp	n-ini
Wiglaf	2;0.24	Papagei	ˌpapaˈga͡ɪ	ˈpapaˈga͡ɪ	SWS	Mon	parrot	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	2;0.24	Papagei	ˌpapaˈga͡ɪ	ˌpapaˈga͡ɪ	sWS	Mon	parrot	Sp	n-ini
Wiglaf	2;0.24	Erdbeeeren	ˈʔɛɐtˌbeːʁən	ˌʔɛˈbiːɐn	s-S	Com	strawberry (plural)	Sp	Ini
Wiglaf	2;0.24	Uroma	ˈʔuːɐˌʔoːma	ˈʔʉˌʔoːma	S-sW	Com	great grandmother	Sp	n-ini
Wiglaf	2;0.24	Staubsauger	ˈʃta͡ʊpˌza͡ʊgəɐ	ˈta͡ʊkˈta͡ʊgɐ	S-SW	Com	vacuum cleaner	Sp	n-ini
Wiglaf	2;0.24	Briobahn	ˈbʁioˌbaːn	ˈbχijˌbaːn	SW-s	Com	brio + railway	Sp	Ini
Wiglaf	2;0.24	Briobahn	ˈbʁioˌbaːn	ˌpχiːjˈbaːn	sW-S	Com	brio + railway	Sp	n-ini
Wiglaf	2;0.24	Paprika	ˈpapʁika	ˈpapχika	SWW	Mon	pepper	Sp	Ini
Wiglaf	2;0.24	Wohnwagen	ˈvoːnˌvaːgən	ˈvɤːnˌvaːgŋ	S-sW	Com	caravan	Sp	n-ini
Wiglaf	2;0.24	Regentonne	ˈʁeːgənˌtɔnə	ˈʁeːŋˌtɔn̠ə	SW-sW	Com	rain barrel	Sp	n-ini
Wiglaf	2;01.07	Giraffe	giˈʁafə	giˈʁafə	WSW	Mon	giraffe	Sp	n-ini
Wiglaf	2;01.07	Giraffe	giˈʁafə	giˈʁafə	WSW	Mon	giraffe	imit	n-ini
Wiglaf	2;01.07	Giraffe	giˈʁafə	giˈʁafə	WSW	Mon	giraffe	imit	n-ini
Wiglaf	2;01.07	Giraffe	giˈʁafə	giˈʁafə	WSW	Mon	giraffe	Sp	n-ini
Wiglaf	2;01.07	Giraffe	giˈʁafə	giˈʁafə	WSW	Mon	giraffe	Sp	n-ini
Wiglaf	2;01.07	Giraffe	giˈʁafə	giˈʁabə	WSW	Mon	giraffe	Sp	n-ini
Wiglaf	2;01.07	Giraffe	giˈʁafə	ˈgiʁafə	SWW	Mon	giraffe	Sp	n-ini

Child	Age	AD target	AD phonetic	CH phonetic	SW child	Word type	Gloss	Mode	Position
Wiglaf	2;01.07	Kamel	kaˈmeːl	kχaˈmeːl	WS	Mon	camel	Sp	n-ini
Wiglaf	2;01.07	Kamel	kaˈmeːl	kχaˈmeːl	WS	Mon	camel	Sp	n-ini
Wiglaf	2;01.07	Kamel	kaˈmeːl	kʰiˈmeːl	WS	Mon	camel	Sp	n-ini
Wiglaf	2;01.07	Kamel	kaˈmeːl	kʰaˈmel	WS	Mon	camel	Sp	n-ini
Wiglaf	2;01.07	Kamel	kaˈmeːl	kaˈmeːl	WS	Mon	camel	Sp	n-ini
Wiglaf	2;01.07	Kamel	kaˈmeːl	ˈkχamel	SW	Mon	camel	Sp	n-ini
Wiglaf	2;01.07	Kamel	kaˈmeːl	ˈkχamel	SW	Mon	camel	Sp	n-ini
Wiglaf	2;01.07	Elefant	ˌʡeləˈfant	ˌʡeːlɛˈfant	SWs	Mon	elephant	Sp	n-ini
Wiglaf	2;01.07	Elefant	ˌʡeləˈfant	ˌʡelˈfant	sS	Mon	elephant	Sp	n-ini
Wiglaf	2;01.07	Elefant	ˌʡeləˈfant	ˌʡelɛˈfant˺	sWS	Mon	elephant	Sp	n-ini
Wiglaf	2;01.07	Krokodil	ˌkʁokoˈdiːl	ˌkχɔkoˈtiːəl	sWS	Mon	crocodile	imit	n-ini
Wiglaf	2;01.07	Krokodil	ˌkʁokoˈdiːl	ˌkɔkɔˌtiːl	sWS	Mon	crocodile	Sp	n-ini
Wiglaf	2;01.07	Gießkanne	ˈgiːsˌkanə	ˈgiːskχanə	SWW	Com	watering can	Sp	n-ini
Wiglaf	2;01.07	Wasserhahn	ˈvasəʁˌhaːn	ˈvasaˌhan	SW-s	Com	water-tap	Sp	n-ini