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STUDIES IN THE ACQUISITION OF NUMBER AND DIMINUTIVE MARKING

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Table of Contents

Preface*

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The present volume of *Antwerp Papers in Linguistics* hosts the selected proceedings of the *4th Meeting of the Crosslinguistic Project on Pre- and Protomorphology in Language Acquisition* (Vienna, November 1997). This volume is the third report published by researchers involved in this international project initiated and coordinated by Professor W.U. Dressler of the University of Vienna. The previous reports were edited by W.U. Dressler *Studies in Pre- and Protomorphology* (1997) and by Prof. K. Dziubalska-Kolaczyk *Pre- and Protomorphology in Language Acquisition* (1997).

The *Crosslinguistic Project on Pre- and Protomorphology in Language Acquisition* aims at studying the acquisition of morphology in about two dozen languages, with an emphasis on languages with a rich morphology. Languages represented in the project include the Indo-European languages *French*, *Italian*, *Spanish*, *Dutch*, *German*, *Swedish*, *Lithuanian*, *Croatian*, *Polish*, *Russian*, *Ukrainian*, and *Greek*, the Finno-Ugric languages *Estonian*, *Finnish*, and *Hungarian*, Turkish, the Semitic languages *Moroccan Arabic, Palestinian*

Arabic and *Hebrew*, the Caucasian language *Georgian*, the American Indian language *Yucatec Maya*, and - last but not least - *Basque*.

The project aims at studying the acquisition of morphology from its earliest stages onwards. Young children's verbal productions are collected from very early on so as to capture the germs of the acquisition and development of morphology. The methodological underpinnings of the project are provided by the CHILDES system: all the recordings of spontaneous mother-child interactions are transcribed and coded according to the CHAT conventions in order to be able to use CLAN programs for comparative quantitative and qualitative analyses.

At present data have been collected for most languages involved in the project so that detailed language specific studies of selected topics in morphological acquisition can now be performed. The papers in this volume constitute a representative sample of such studies, with a main focus on the category of nominal number and on diminutives. In the near future other morphological categories will be scrutinized: verb morphology, case, etc. Moreover the main interest of the project, viz. crosslinguistic comparisons, is soon to be tackled, leading to fine-grained analyses of how children learning different languages acquire morphology and how this process is influences by typological differences. As such, the project carries the promise of enriching our knowledge of the acquisition strategies and knowledge sources involved in morphological acquisition in languages with a notoriously rich and in languages with a relatively poor morphology. The extremely rich data collection gathered in this project will provide the necessary diversification in a discipline that has been dominated by an emphasis on the study of data from primarily morphology-poor languages such as English and by theory formation on the basis of those languages.

Beyond descriptive aims, the project also encompasses a theory-guided study of the first stages of the acquisition of morphology. The acquisition process has been divided into three stages representing different steps towards productive morphology, viz. *premorphology*, *protomorphology* and a *morphological stage* (see i.a. Dressler (1995) Dressler and Karpf (1995) and the papers in the previous volumes mentioned above).

In the present volume ten papers are collected that specifically deal with the acquisition of number and diminutives. Stephany introduces the volume with a crosslinguistic perspective on the acquisition of nominal number. The papers by Kilani-Schoch, Sedlak et al. and Pfeiler provide a detailed study of the acquisition of number in French, Austrian German and Yucatec Maya. In the remaining papers, the acquisition of diminutives is the main topic. A general introduction to this topic can be found in Dressler and Merlini (1994). Case studies in the acquisition of diminutives are provided for Russian (Voeykova), Lithuanian (Savickiene), Finnish (Laalo), Hebrew (Ravid) and Italian (De Marco). Finally, a more general topic, viz. fillers in early language acquisition is studied by Christofidou and Kappa.

These papers are collected in a volume of working papers. The status of these papers should be evaluated in this perspective: they constitute intermediary steps in the construction of broad and fine grained picture of how children master morphology.

Finally a note of thanks is due to the department *Germaanse Taal- and Letterkunde* of the University of Antwerp (UIA) for its (financial) support that made publication of this volume possible. Special thanks go to Gilberte Maerschalk: without her feeling for practical management (required for having 'people' deal with delays caused by tables and figures that did not survive e-mail transmission), this volume could not have been delivered in time.

Steven Gillis

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A Crosslinguistic Perspective on the Category of Nominal Number and its Acquisition

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ABSTRACT

Nominal number is one of the central noun phrase categories and one of the most commonly encountered ones in the languages of the world. After considering the cognitive bases of number as it is expressed in language ('subitizing' vs. counting), a scheme for crosslinguistic comparison of nominal number in the languages of the world will be proposed. This will comprise an overview of plural-marking systems (two-, three-, and four-term systems), of differences among languages with respect to the significance of expressing number distinctions (numerality vs. transnumerality, singulative-plural marking systems vs. plural marking systems), of linguistic means for marking number (grammaticalized vs. lexicalized), and of functions of the grammatical category of number (semantic vs. syntactic). Special attention will be given to differences in nominal number marking in the languages included in the Crosslinguistic Project on Pre- and Protomorphology in Language Acquisition. Finally, some suggestions for studying the acquisition of number in a crosslinguistic perspective will be made.

1. Introduction

Nominal number is one of the central noun phrase categories and one of the most commonly encountered grammatical categories in the languages of the world (Lucy 1992: 23).

After considering the cognitive bases of the linguistic category of number, an overview of the main typological characteristics of number systems in the languages of the world will be given. On the basis of these characteristics, a framework for the crosslinguistic comparison of nominal number will be sketched. Finally, some suggestions for studying the early development of the category of number in a crosslinguistic perspective and for determining productive use of plural markers will be made.

2. Development of the concepts of quantity and number

The earliest concepts of numerical quantity are 'one-ness', 'two-ness', and 'three-ness' (Wiese 1997: 68). These concepts are limited to small, perceptually verifiable sets of elements. They are not part of the components of the concept of number proper, but precede the latter developmentally. They were shown to exist not only in children younger than three and a half years but also in higher animals and may be innate (Wiese 1997: 69). These early concepts of number are independent of language and are not based on counting, but rather on so-called 'subitizing', i.e. the rapid, effortless, and accurate grasp of sets of maximally four elements (on ´subitizing´ see the references cited by Wiese 1997: 69). Such quantities are always represented as

quantities of a certain set of well distinguished entities. They are not established by an inductive rule operating with numbers and are therefore not apprehended by counting (Wiese 1997: 70). As already pointed out by Piaget (1956), figurative characteristics of elements play an important role in this context. Wynn (1992: 220) draws the conclusion that "our initial concept of number is represented quite differently from the way the counting system represents number."

It is only in the second half of the fourth year that the early concept of quantity is integrated into a concept of number based on counting. In counting, a one-to-one relation is established between the elements of a quantified set and numerals.

Although the acquisition of number words occurring in a conventional sequence is fundamental for the development of the other components of the concept of number (Wiese 1997: 71), children usually know that numbers are used for counting some time before they know how to use them. Basing herself on work of Gelman et al., Wiese (1997: 104f.) defines five "counting principles" which must be obeyed by any procedure functioning as a counting procedure:

(1) Counting principles

- *one-one principle*: there is a biunique mapping of numerals onto elements of the counted set;
- *stable-order principle*: in this mapping the sequential order of the counting sequence is observed;
- *order-irrelevance principle*: the order in which the elements of the counted set are mapped onto the numerals is free;

- *cardinal principle*: the last number of the mapping is used to indicate the numerical quantity of the set;
- *abstraction principle*: this is a meta principle extending the validity of counting principles to arbitrary sets by positing that the principles governing the counting procedure do not specify characteristics of the counted entities.

Evidence for the *one-one principle* can already be found with three-year-olds in spite of the fact that children at this age still may have difficulties with the correct sequence of numerals. Gelman et al. (1986) therefore believe the counting principles to be innate.[1] There is, however, empirical evidence for their sequential development: The *one-one principle* seems to precede the *stable-order principle*, with the *cardinal principle* following the first two only at the age of 3;6 or even 4;0 years. The *order-irrelevance principle* is probably learned a little later than the cardinal principle (Wiese 1997: 105).

As pointed out by Wiese (1997: 109) the concepts of positive numbers (excluding fractions) develop by abstracting from concrete numbers of elements; thus, the positive number "8" represents identical sets consisting of 8 elements. The fact that the abstract concept of positive number only develops after the concept of concrete quantities has already become familiar to the child, is nicely illustrated by the following dialogue between an adult and a child of 4;1 years (Hughes 1984: 9f., quoted by Wiese 1997: 110):

(2)
Adult:	How many is two and one more?
Patrick:	Four.
Adult:	Well, how many is two lollipops and one more?
Patrick:	Three.

Adult:	How many is two elephants and one more?
Patrick:	Three.
Adult:	How many is two giraffes and one more?
Patrick:	Three.
Adult:	So how many is two and one more?
Patrick:	Six.
%com:	looks adult straight in the eye

3. Number and number systems in the languages of the world

According to the *Encyclopedia of Language and Linguistics*, the grammatical category of number may be defined as follows:

> *Where a language has grammatical resources for expressing degrees of numerosity it is said to manifest the grammatical category of number*
> (Cruse 1994: 2857)

In languages lacking a grammatical category of number, number may be marked by various quantifiers. It is more usual for languages, however, to have at least limited number marking in the pronominal system (Stebbins 1997: 12) as predicted by Greenberg's Universal No. 42:

> *All languages have pronominal categories involving at least three persons and two numbers.*
> (Greenberg 1966: 113)

Number marking fulfills several different functions: It may serve to identify referents newly introduced into discourse as well as to track referents

when subsequently mentioned. It may furthermore characterize referents in individuation (Stebbins 1997: 8). This mainly applies to humans and animates as compared to inanimates (Stebbins 1997: 9). Number marking tends to occur with more salient definite entities rather than less salient indefinites (Stebbins 1997: 9).

There are languages in which number distinctions have a high general significance and others in which they do not. While in Indo-European languages number marking is obligatorily applied to a large range of noun phrases (Lucy 1992: 72), the basic pattern in languages like Yucatec or Vietnamese is "to disregard number" (Lucy 1992: 55f.) and to apply number marking "optionally ... to a small range of noun phrases" (Lucy 1992: 71).[2] In such languages, the form of the noun unmarked for plural is not singular (as opposed to plural) but neutral with respect to the category of number, i.e. transnumeral (Biermann 1982). Wiese defines the notions 'numeral' and 'transnumeral' as follows:

> *If a noun must occur in its plural form as soon as it denotes more than one realization of the respective notion it may be called numeral. Accordingly, a noun is called transnumeral if the difference between one and many is not obligatorily marked.*
>
> Wiese (1997: 150)

In languages like the Indo-European ones, the opposition of singular and plural is limited to count nouns, i.e. nouns which are either animate or inanimate and discrete. Mass nouns, which are inanimate and nondiscrete, are transnumeral (Lucy 1992: 61). Since transnumerality does exist in languages in which most nouns are numeral, the difference between the two types of languages with and without a high general significance of number is not categorical, but rather a matter of degree.

In Yucatec, the optional plural suffix *-ó'ob* is primarily used with animate nouns (Lucy 1992: 43). Furthermore, classifiers are obligatory with quantifiers in Yucatec as well as in languages such as Korean, Thai, and Vietnamese.[3] Lucy (1992: 73) interprets numeral classifiers as serving to "specify the unit or boundedness of the referent of the lexical noun." The same is true of mass nouns in Indo-European languages which also need "unitizers" (ib.) in order to be enumerated (e.g., German *zwei Pakete Butter* 'two packages (of) butter', English *two balls of cotton*).

In number systems in which nouns are neutral with respect to number, morphologically unmarked nouns may be interpreted as expressing the mere concept rendered by the noun stem. In numeral languages, this is limited to mass nouns. There are languages, in which not only the plural, but also the singulative may be morphologically marked on transnumeral nouns. Stebbins (1997:10) calls such systems 'singulative-plural marking systems.' Thus, in Egyptian Arabic, the transnumeral form *bêD* 'egg' must be marked by the singulative suffix *-a* to refer to one egg and by the plural suffix *-ät* to explicitly refer to several of them (examples 3, from Stebbins 1997: 10).

(3) Egyptian Arabic

(a)	*bêD*	'egg(s)'
(b)	*bêD*-a	'an egg'
	egg-SING	
(c)	*bêD-ät*	'eggs'
	egg-PL	

Crosslinguistically, plural marking systems are more common than singulative-plural marking systems. It is interesting to note that also in plural

marking systems the formally unmarked singular may be semantically unmarked. This can be demonstrated by the German expression *drei Mann* 'three man:SG', in which the numeral *drei* is exceptionally constructed with a singular noun (example 4).

(4) German
Sie kamen mit drei Mann, um das Klavier abzuholen.
they came with three man:SG to the piano take
'Three of them came to take the piano.'

Plural-marking systems divide into the categories of two-, three-, and even four-term systems. Number distinctions in these are singular/plural, singular/dual/plural, and singular/dual/trial/plural, respectively (Stebbins 1997: 10). In the light of what has been said above on the cognitive foundations of the category of number, it seems to be no coincidence that the grammaticalized marking of different categories of plural is limited to small quantities subject to immediate perception (dual, trial). Large quantities, such as one hundred, a thousand, or a million, are not grammatically expressed by means of inflection but by lexical means, such as nouns.

Languages differ in the degree to which the category of number is grammaticalized. In languages with a strongly grammaticalized category of number, number marking tends to be obligatory and is even required where it is semantically redundant, as for instance with nouns accompanied by a numeral. In Modern Greek, as opposed to Turkish, the noun must be marked for plural when constructed with a numeral signifying plural (examples 5).

(5) (a) Greek

ena skili ‘a/one dog:SG’
dhio skili-a ‘two dog-PL’

(b) Turkish
bir köpek ‘one dog:SG’
iki köpek ‘two dog:SG’
köpek-ler ‘dog-PL’

In languages with a strongly grammaticalized category of number, number marking may furthermore be used syntactically for grammatical agreement. Thus, in Indo-European languages, determiners and adjectives agree with their governing noun in number (as well as gender and case) and verbs or predicative adjectives typically agree with their subjects.

There are different linguistic techniques for marking number, namely numerals and other quantifiers, particles (e.g. classifiers), reduplication, suppletion, and affixes. Languages marking number by affixation may mark number on the head of the noun phrase, its dependents, or both.

4. Nominal number marking in the languages studied in the Crosslinguistic Project on Pre- and Protomorphology in Language Acquisition

In this section, nominal number marking in the languages included in the Cross-linguistic Project on Pre- and Protomorphology in Language Acquisition will be briefly characterized.

4.1. *Two- vs. three-term systems*

Although a few of the languages included in the Project do have dual number forms, only in Palestinian Arabic the dual is used productively with all count nouns (Horesh 1997, Kaye and Rosenhouse 1997: 283). In Moroccan Arabic, the dual is no longer productive and only occurs with a very limited number of nouns (M. Elkhadiri, p.c.). In Hebrew, the dual is restricted to nouns[4] and to certain quantity expressions and dual body parts (Grether 1962: 191f., Ravid 1997). Dual forms such as *ragl-ayim* 'leg-DUAL' (= 'two legs') may also have a plural meaning ('legs') (Ravid 1997). Turkish possesses only three obsolete lexical items borrowed from Arabic which represent dual forms (Kornfilt 1997: 265). Although modern standard Lithuanian has a two-term system, some Lithuanian dialects have retained certain dual forms inherited from Old Lithuanian (Savickiene 1997). In standard Modern Greek, there are no traces of the ancient Greek dual (Mackridge 1985: 75). In Russian, noun forms used with the numerals two to four were historically dual forms, but have been reanalyzed as genitive singular forms in the modern language (M. Voeikova, personal communication).

With the exception of Palestinian Arabic, the productive number system is thus limited to the opposition of singular and plural in the languages studied in the Crosslinguistic Project.

4.2. *Numeral vs. transnumeral languages*

While the American Indian language Yucatec Maya (and most probably also Huichol[5]) and Basque are mainly transnumeral, the other languages studied are mainly numeral.

In Yucatec Maya, plural marking depends on the animacy hierarchy. In colloquial speech, inflectional marking of plural only occurs with animate nouns or with inanimate nouns used in possessive constructions with an animate possessor (see Pfeiler, this volume). In Basque, number distinctions are tied to definiteness. While unmarked, indefinite nouns are transnumeral, singular nouns marked for definiteness may have a singulative meaning (Lafitte 1962: 68).

In Palestinian (as well as in Egyptian and Moroccan) Arabic, collective nouns (such as the words for eggs, bees, chickens) may be used without being formally or semantically marked for number. Such nouns may, however, be marked for quantity by a singulative or plural suffix in contexts where the expression of quantity ('one-ness' or 'more-ness') is relevant. The plural form of such nouns must be used with numeral modifiers (e.g., Pal. Arab. *tuffa:H* 'apple:COLLECTIVE' (= 'apples'), *tuffa:H-a* 'apple-SINGULATIVE (= 'one apple'), *xams tuffaH-a:t* 'five apple-PL' (= five apples')) (Horesh 1997).

In languages belonging to the numeral type, the singular form of nouns is semantically unmarked for number. It may be used to refer to a single entity but also in a non-referential way in general statements (e.g., Mod. Greek *aftós o Éllinas kséri jermaniká* 'this the Greek knows German' (= 'this Greek man knows German'), *o Éllinas kséri ksénes ghlóses* 'the Greek knows foreign languages' (= the Greeks know foreign languages').

4.3. *Obligatory vs. optional number marking*

In languages which are mainly numeral, nominal number marking tends to be obligatory, whereas it is optional in transnumeral languages. Examples of the former type are found in genetically and typologically quite diverse languages,

such as Greek, Russian, Hebrew, Turkish, Finnish, and Georgian. An example of the latter type is Yucatec Maya where inflectional nominal number marking depends on the animacy hierarchy and number distinctions may furthermore be signaled by a variety of specific quantitative modifiers of the noun (Pfeiler, this volume).

In Modern Greek, a typical Indo-European inflectional-fusional language of the numeral type, nominal plural marking is obligatory with nouns accompanied by any plural modifier, such as a plural article, a numeral or other plural quantifier (e.g., *ta pedhi-á* 'the:PL child-PL', *tría pedhi-á* 'three child-PL', *pol-á pedhi-á* 'much-PL child-PL' (= 'the children, three children, many children')). While in Turkish, which also belongs to the numeral type, plural marking is obligatory with referential nouns, the plural suffix cannot occur with numeral modifiers and certain other quantifiers, (e.g., *beS çocuk* 'five child' (= 'five children'), *birçok çocuk* 'many child' (= 'many children'), but *bütün çocuk-lar* 'all child-PL' (= 'all children')) (Kornfilt 1997: 265f., Aksu-Koç 1997). With non-referential nouns lacking a determiner, plural marking is optional in Turkish (e.g., *Hasan Sür yazar* 'Hasan poems (= poetry) writes', *Hasan Sür-ler yazar* 'Hasan poem-PL writes') (Kornfilt 1997:266). In Georgian, much as in Turkish, nouns constructed with numerals or other quantifiers are unmarked for number (e.g., *bevri dzaghli* 'many dog' (= 'many dogs')) (Fähnrich 1986: 158; also see Omiadze 1997). In Russian, nouns modified by the numerals two to four (also when combined with higher-order numerals) are in the genitive singular (e.g., *dva dóm-a* 'two house-GEN:SG', *dvádcat'-dva dóm-a* 'twenty-two house-GEN:SG', but *p'at' dom-óv* 'five house-GEN:PL').

4.4. *Number concord*

In languages with obligatory number marking, dependents of the noun (determiners, adjectives) tend to agree with the head of the noun phrase in number. Examples are German, French, Italian, Greek, Russian, Lithuanian, Finnish, and Hebrew. In Georgian, the attributive adjective is only inflected for plural when following the noun, but not when it is preposed (Fähnrich 1986: 53f.). Number concord of the attributive adjective with the head noun is limited to the literary language, however (Omiadze 1997). In Palestinian Arabic, demonstratives only agree with the noun in number if they are preposed. With dual nouns, attributive adjectives may occur in the plural or the feminine singular (Horesh 1997). In Turkish, adjectives are not inflected for number and do therefore not agree with the noun in this respect (Aksu-Koç 1997).[6]

Number agreement of verbs with their subject may occur in all of the languages studied in the Project and is exceptionless in many of them. While in languages such as French, Italian, Greek, Russian, Finnish, and Hebrew both verbs and predicative adjectives agree with their subject in number, number agreement is limited to the verbal element of the predicate in both German and Turkish. In Turkish, number agreement of the verb furthermore depends on the animacy hierarchy and on definiteness. Agreement of the verb is obligatory with human subjects of first and second person plural, but optional with third person pronominal human subjects. Plural marking on the verb is only possible with animate and definite plural nouns "when reference is to a particularly well-known and distinct entity that can be easily presupposed" (Aksu-Koç 1997). "Since Turkish is a pro-drop language, number is marked only on the verb most of the time" (ib.). Also in Georgian, number agreement between subject and verb is governed by the animacy hierarchy. Only subject nouns

referring to animate beings and carrying the plural suffix *-eb* take a plural verb form (Fähnrich 1986: 159, Omiadze 1997). In Palestinian Arabic, number agreement of the verb with a nominal subject also depends on the animacy hierarchy insofar as, with [-human] subjects, a plural verb form - whether feminine or masculine - may be substituted by a feminine singular form. With collective nouns, even when denoting humans, the verb may also be in the feminine singular (Horesh 1997). In Yucatec Maya, verbs optionally agree with an animate subject in number (Pfeiler, this volume).

4.5. *Fusion of number with other grammatical categories*

In languages belonging to the inflectional-fusional type, nominal number marking is fused with case and/or gender. Examples are Greek, Russian, Polish, Lithuanian, German, Italian, and French (to a certain extent). In Hebrew and Moroccan and Palestinian Arabic, number is fused with gender in nouns (as well as adjectives) (Ravid 1997, M. Elkhadiri p.c., Horesh 1997). In the agglutinating languages Turkish, Hungarian, and Georgian, number and case are expressed by separate morphological markers. In Finnish, number and case marking are fused in the partitive case and fusion is generally stronger in colloquial speech than in the standard language (Laalo 1997). In Yucatec Maya, number is not fused with either gender or case (Pfeiler 1997).[7]

4.6. *Formal aspects of number marking*

Grammatical plural markers of nouns occurring in the sample of languages studied by the Project are mainly suffixes. In Moroccan and Palestinian Arabic, there is lexically determined variation between nominal plural formation by

suffixes and vowel change. Also in German (although for different reasons), vowel change is the only plural mark in some nouns (e.g., *Mutter* 'mother:SG', *Mütter* 'mother:PL'). Reduplication marginally occurs in Hebrew to express distributivity or totality (Grether 1962: 192). In Yucatec Maya, quantitative modifiers, which must be accompanied by classifiers, play a more important role for signaling number than affixes (Pfeiler, this volume).

In modern Georgian, there is no morphological variation concerning the nominal plural marker: the suffix *-eb* is used with all nouns. In Turkish, where morphophonological variation of grammatical markers is subject to vowel harmony, plural markers are phonologically determined by the feature [back] of the vowel preceding the plural marker. The distribution of the two plural allomorphs *-ler* and *-lar* is thus completely regular. In Finnish, there are different nominal plural markers with the nominative as opposed to the oblique cases and there is some morphophonemic variation of the plural suffix in the oblique cases; this is especially complex in the partitive case (Laalo 1997). In Hebrew, variation in the expression of nominal plural is based on gender (MASC *-im*, FEM *-ot*) and subject to complex morphophonological processes in the stem. The dual suffix is -a*yim* (Ravid 1997). In Moroccan and Palestinian Arabic, the form of the plural affix of nouns depends on gender (Elkhadiri p.c., Horesh 1997). The dual is formed by the suffix *-e:n* in Palestinian Arabic (Horesh 1997). In Yucatec Maya, there are two lexically conditioned allomorphs of the plural suffix, *-ó'ob* and *-al*. In inflectional-fusional languages, such as German, Greek, Russian etc., there are typically several more or less productive patterns of plural marking (fused with case marking). These patterns are partly based on gender (for German see Sedlak, Klampfer and Dressler, this volume).

In certain languages with grammaticalized nominal number, singular forms are morphologically unmarked and only plural forms may take an overt mark (e.g., German *Hund* 'dog', *Hund-e* 'dog-PL', *Mensch* 'human being', *Mensch-en* 'human beings', Turkish *köpek* 'dog', *köpek-ler* 'dog-PL', *adam* 'man', *adam-lar* 'man-PL´; Hebrew *tik* 'bag', *tik-im* 'bag-PL', *tmuna* 'picture', *tmun-ot* 'picture-PL'). Other such languages in the sample are Finnish, Georgian, and Yucatec Maya. In some inflectional-fusional languages, such as Modern Greek or Italian, both the singular and plural forms of most nouns carry markers indicating number (fused with gender and eventually case) (e.g., Mod. Greek, *o ánthrop-os* 'the man-MASC:NOM:SG', *i ánthrop-i* 'the man-MASC:NOM:PL', *i jinék-a* 'the woman-FEM:NOM:SG' *i jinék-es* 'the woman-FEM:NOM:PL'; Italian, *la cas-a* 'the house-FEM:SG', *le cas-e* 'the house-FEM:PL', *il libr-o* 'the book-MASC:SG', *i libr-i* 'the book-MASC:PL'). The same is true of Lithuanian (Savickiene 1997). In Russian, another fusional language, marking or no marking of singular or plural depends on the inflectional paradigm and on gender (e.g., *sobák-a* 'dog-FEM:NOM:SG', *sobák-i* 'dog-FEM:NOM:PL', *dom* 'house:MASC:NOM:SG', *dom-á* 'house-MASC:NOM:PL'). In German, no marking of plural is restricted to the masculine and neuter genders. According to Pavlov (1995), more than 20% of German nouns altogether are not marked for plural on the noun stem.[8] With such nouns, expression of number solely depends on the determiner. The same is true of Italian nouns ending in a stressed vowel or in *-i* (*la*/*le città* 'the:SG/PL town', *la*/*le crisi* 'the:SG/PL crisis'), a consonant (*il*/*i bus* 'the:SG/PL bus'), certain compounds, and many loan-words (Dressler 1997b). In spoken French, only a few nouns are overtly marked for plural on the stem (e.g., *cheval* 'horse:SG', *chevaux* 'horse:PL', *oeil* 'eye', *yeux* 'eyes'). With most nouns, plural is only marked on the determiner or consists in *liaison*

of the determiner with the initial vowel of the noun (e.g., *le garçon* 'the:SG boy', *les* [le] *garçons* 'the:PL boys', *les* [lez] *amis* ´the:PL friends´) (Kilani-Schoch 1997 and this volume).

5. Suggestions for studying the acquisition of number in a crosslinguistic perspective

The following questions may serve as guide-lines for studying the early development of number in view of an interindividual and crosslinguistic comparison of the results.

1. *Linguistic expression of plurality*

1.1 At what age does the child start to talk about plurality referring to two or more objects?

1.2 Are there any predecessors of nominal plurality, such as expressions meaning 'another one', 'one more' or numerals and other quantifiers?

1.3 At what age is there evidence for a plural meaning of plural forms of nouns?

1.4 Is plural marking limited to certain noun classes rather than others or is it more frequent with certain classes than others? Relevant classes might be based on grammatical gender or on categories such as animate/ inanimate, count/mass, discrete/nondiscrete, concrete/abstract, definite/ indefinite (Ceytlin 1997).

1.5 In what order does plural emerge with different parts of speech (nouns, verbs, pronouns, adjectives, or determiners)?

1.6 Is there a developmental sequence of subject-verb agreement preceding concord within the noun phrase?

1.7 Which pattern(s) of plural formation is/are first used?[9]

2. *Development of number as compared to other grammatical categories*

2.1 Is there evidence for number distinctions preceding case distinctions or vice versa?

2.2 Is case distinguished in the plural from the very outset or only later?

2.3 Does number agreement precede gender agreement?

3. Achievements and errors

3.1 Which standard and non-standard strategies for signaling plural do children employ (e.g., use of numerals for indicating plurality, reduplication instead of affixation)?[10]

3.2 In which ways are the morphophonemics of plural formation observed or violated?[11]

3.3 Which errors of omission do occur and how frequent are they?[12]

Is there evidence that in languages where number is marked redundantly on the determiner or the adjective, children at first limit its expression to the head noun?

Does the child leave a noun modified by a plural quantifier unmarked for number contrary to the grammatical rules of the language acquired?[13]

3.4 What kinds of commission errors (overmarking of plural) do occur and how frequent are they?

At what age is there evidence for the tendency of marking forms overtly and clearly so that the child overmarks nouns taking a zero allomorph?[14]

3.5 Does the child overgeneralize from the most regular, most frequent, and productive inflectional patterns only or do overgeneralizations from several inflectional patterns occur?

Is there evidence for 'inflectional imperialism' in the sense that at first one plural affix is used for all nouns, regardless of inflectional patterns based on gender classes or subclasses? In other words, are overgeneralizations due to disregarding gender distinctions so that the semantic notion of 'plural' takes precedence over formal, nonsemantic variation?[15]

4. *Evidence for productive use of number distinctions*[16]

4.1 What are the respective frequencies of use of a given noun in its unmarked form vs. the form marked for plurality?

4.2 Are both the singular and plural form of a given noun used (with a semantic difference) in the same speech event or recording session? More generally, how many nouns (types) does the child at a certain age use exclusively in the singular, exclusively in the plural, or in both numbers?

4.3 What are the longitudinal changes in the use of singular vs. plural forms of specific nouns?

4.4 At what age are there overgeneralizations or regularizations of pluralizing patterns?

4.5 Are *singularia tantum* pluralized or *pluralia tantum* singularized?

4.6 Does the child correct him-/herself after having erroneously produced a singular form where a plural form would have been appropriate or vice versa?

5. *Role of the input language*

5.1 What role does the frequency of plural noun forms in the input language play in the emergence of pluralizing patterns?

5.2 Do the nouns which the child exclusively uses in the plural commonly occur in the plural in the input?

5.3 Which language-specific characteristics of the number system may influence the development of number distinctions?[17]

Appendix

Genetic affiliation of languages included in the Crosslinguistic Project on Pre- and Protomorphology in Language Acquisition

Indo-European
Romance: French, Italian, Spanish
Germanic: Dutch, German, Swedish
Baltic: Lithuanian
Slavic: Croatian, Polish, Russian, Ukrainian
Hellenic: Greek

Uralic: Finno-Ugric
Balto-Finnic: Estonian, Finnish
Ugric: Hungarian

Turkic
Turkish

Semitic
Moroccan Arabic, Palestinian Arabic, Hebrew

Caucasian

Kartvelian: Georgian

American Indian
Yucatec: Maya
Huichol

Unaffiliated
Basque

Notes

1 For a critical discussion of Piaget's approach to the development of the concept of number see Wiese (1997: 106).
2 On number in Vietnamese see Löbel (1997).
3 See Lucy (1992: 43) on Yucatec; Campbell (1991/I: 751), Nam-Kil Kim (1987: 894) on Korean; Campbell (1991/II: 1343), Thomas John Hudak (1987: 767) on Thai; Löbel (1997) on Vietnamese.
4 Adjectives and verbs agreeing with dual nouns take the plural (Grether 1962: 191f.).
5 At least as is to be judged from the closely related language Cora (Casad 1984: 227).
6 Marking of adjectives for plural results in a shift from the category of adjectives to the category of nouns (Aksu-Koç 1997).
7 In many languages, number is fused with person and/or gender in verbs or pronouns and with tense or mood in verbs.
8 Masculines and neuters ending in *-er*, *-en*, *-chen*, or *-lein* for instance take a zero allomorph of the plural morpheme.
9 In Moroccan Arabic, plural formation by suffixation precedes 'broken plural' formation and is overgeneralized (Sbai 1997).
10 In order to clearly express the concept of plurality, a 20-month-old Moroccan boy used coordinations of singulative noun forms instead of either standard unmarked forms or forms inflectionally marked for plural (e.g., *shuf djaja w djaja w djaja* 'look chicken:SING and chicken:SING and chicken:SING' when visiting a farm with many chickens; S. Sbai, p.c.).

[11] In the speech of a Georgian child aged 1;8.20, the nominal plural suffix *-eb* was over-generalized to a demonstrative: *es-eb-i* 'this-PL-NOM' (for *es-en-i*) (Omiadze 1997).

[12] Obligatory contexts in which plural forms do/should occur may be established on the basis of the non-linguistic or the linguistic context (either the child's or the adult's utterance).

[13] E.g., German *viel-e auto* 'many-PL car 'instead of *viel-e auto-s* 'many-PL car-PL' (Vollmann 1997: 168).

[14] E.g., German *zwei onkel-s* 'two uncle-PL' instead of *zwei onkel*-0' 'two uncles'. A 2-year-old Hebrew-learning child made the numeral agree with the noun for number **Stay-im gar'in-im* 'two-PL seed-PL' (instead of *Sney gar'inim*) (Ravid 1997). In the speech of a Georgian child aged 1;8.20, redundant marking of plural on a noun combined with a quantifier was observed *(bevri shokolad-eb-i* 'many chocolate-PL-NOM' (for *bevri shokolad-i* 'many chocolate-NOM) (Omiadze 1997). The same child overextended the plural suffix to a mass noun (*q'av-eb-i* 'coffee-PL-NOM' (for *q'ava*)) (ib.).

[15] Children acquiring Hebrew may overgeneralize the *-im* suffix of masculine nouns to feminine ones (Slobin 1985:14)).

[16] Also see Dressler (1997a) and Gillis (1997).

[17] In French, reliable marking of nominal plural depends on the emergence of determiners (Kilani-Schoch 1997).

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The Acquisition of Number in French*

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ABSTRACT

This paper is a description of the acquisition of number in a French-speaking child, from its very beginning at 1;6.24 to 3;0.8. The child first expresses number lexically whereas more grammatical means for expressing nominal plural are developed only slowly. Plural verb forms appear even later (2;5), not before the number of nominal plural forms surpasses the number of singular forms in plural contexts. Moreover no evidence for morphological processing of number can be found before the end of the second year. This course of development is explained by the structure of the language to be acquired: the acquisition of number in the noun depends on the acquisition of the noun phrase which is of most importance for the expression of number in French. The acquisition of number in the verb is complicated by limited plural marking in a substantial part of French conjugation and by its co-symbolization with the category of person.

1. The grammatical category of number in French

1.1. *Obligatory expression of number*

Number is grammaticalized in French and its expression (plural) is obligatory (in the spoken language) with pronouns, determiners, with a few nouns (e.g.

SG *travail* [travaj] 'work' - PL *travaux* [travo] 'works', *cheval* [S´val] 'horse'- *chevaux* [S´vo] 'horses', *oeil* [œj] 'eye' - *yeux* [jØ] 'eyes', *boeuf* [bœf] 'ox'- *boeufs* [bØ] 'oxen', etc.), and a few masculine[1] adjectives ending in *-al* (e.g. SG *social* [sOsjal] - PL *sociaux* [sOsjo]).

Number is also obligatory with the verb. However in the first conjugation (*chant-er* [Sa$te] 'sing') and some other verbs ending in /r/ (e.g. *courir* 'run', *couvrir* 'cover', *voir* 'see', *croire* 'believe', *conclure* 'conclude', etc.), its expression is limited to the first and second persons[2] (compare 3SG *chante* [Sa$t]*'sings'*, *court* [kur] 'runs' and 3PL *chantent* [Sa$t] 'sing', *courent* [kur] 'run', with 1PL *chant-ons* [Sato], *cour-ons* [kuro$] or 2PL *chant-ez* [Sa$te], *cour-ez* [kure].

In nouns and adjectives, number is expressed by modification (called "apophony" by Mel'cuk 1993). In determiners and pronouns, number is expressed by suppletion (e.g. ART:DEF:SG MASC *le,* FEM *la* 'the' - PL *les* 'the', PRO:OBJ:3 SG *le* [l´]- PL *les* [le], stressed PRO:3 SG *lui* [l˙i]- PL *eux* [Ø]).

In verbs, 1st and 2nd plural persons are indicated by suffixes (see above) which also express person and occasionally tense (present).

Most plural marking now consists in liaison (see 1.4.): e.g. 3rd person subject pronoun: SG *il aime* [ilEm] 'he likes' - PL *ils_aiment* [ilzEm] 'they like' vs. SG *il chante* [ilSa$t] 'he sings'- PL *ils chantent* [ilSa$t] 'they sing', determiners such as the portmanteau (PREP *à* 'in, at' & ART:DEF:PL *les* 'the') *aux*[3] [o], POSS *leurs* 'their', QUANT *quelques* 'some', *d'autres* 'others', INT *quel(le)s* 'which', prenominal adjectives SG *grande amie* [gra$dami] 'great-FEM friend' - PL *grandes_amies* [gra$dzami] 'great-FEM-PL friends' vs. SG/PL *grande(s) femme(s)* [gra$dfam] 'tall woman/women'. Several linguists (e.g. Morin and Kaye 1982) consider that prenominal liaison has to be analysed as prefixation.

1.2. *Agreement*

Determiners and the few adjectives ending in *-al* (both attributives and predicatives) agree in number (and gender) with their governing noun. Most adjectives show agreement only in case of liaison (see 1.4.). Verbs agree with their subject in number (and person) depending on the conjugation class and the person (see 1.1.).

1.3. *Fusion*

Two cases of fusion occur in French determiners. However the only one relevant for the data presented in this paper is the fusion between a preposition and the definite article: PREP *à* 'in, to' & ART:DEF:PL *les* = *aux* [o], PREP *de* 'of' & ART:DEF:PL *les* = *des* [de].

1.4. *Liaison*

Liaison, i.e. pronunciation before a following vowel of certain word-final consonants which are silent in other phonetic contexts, represents morphophonological variation in the expression of number, especially with articles and pronouns which are already marked for number, e.g. *les bras* [lebra] 'the arms', *les_arbres* [lezarbr] 'the trees'; *tu les vois* [tylevwa] 'you see them', *tu les_as* [tyleza] 'you have them' [4].

Plural liaison is mainly phonologically and syntactically conditioned, more rarely lexically conditioned.

1.5. *Productivity*

There is no common, frequent or productive inflectional pattern for expressing plurality in the noun. As said above (1.1.), very few nouns (less than 50) have a plural form different from the singular. Loan words tend to be integrated and become invariable, e.g. PL *des lieds* /lid/ (not *lieder*), PL *des maximums* (rather than *maxima*). Neologisms are never marked for number. The most general locus of number information in the noun phrase is the article.

2. The early development of number in French

2.1. *The corpus*

Sophie (SOP), born in Lausanne (Switzerland) is a French monolingual girl. She has been recorded at home every ten days between 1;6.14 and 3;8.9 by her mother, in situations of play and looking at picture books. In this paper the acquisition of number has been studied until the age of 3 (data: 12'988 utterances).

The corpus has been subdivided in 7 periods according to the changes which occur in the expression of number, starting at 1;6.24 (no PL at 1;6.14), when the child seems to start to indicate plurality by referring to two or more objects (cf. 2. 1.1.).

2.1.1. *PERIOD I: 1;6.24 - 1;9.13 (8 recordings, 1'040 utterances)*

Table 1. Number and types of devices for expressing plurality in period I

- (FILL(ER)) N:SG in a PL context: 49
- PRO:NUMERAL *deux* 'two': 32
- N:PL : 9 (*chevaux* 'horse&PL')
- PRO:QUANT (invariable: *beaucoup* 'many'): 1
- DET:PL: 2
- Possible grammaticized FILLlé[5] (cf. 2.1.2): 2

Sophie has started to indicate plurality at 1;6.24 with a pronominal usage (Riegel, Pellat and Rioul 1994: 211) of numeral *deux* 'two':

(1) Sophie 1;6.24

*FAB: tu aimerais le ballon ?

%pho: tyEmrEl´balo$

%eng: would you like the ball ?

*SOP: è do e dodo a deux.

%pho: Edo ´dodo adØ

%mor: FILL|è NUM|deux FILL|e yy FILL|a NUM|deux

%eng: FILL two FILL yy FILL two

*FAB: les deux ?

%pho: ledØ

%eng: both of them ?

or a few days later after a noun:

(2) Sophie 1;7.15

*SOP: a papo [: bateau]

%pho: apapo

%mor: FILL|a N|bateau
%eng: FILL boat
*DID: un bateau oui
%pho: π$bato wi
%eng: a boat yes
*SOP: deux
%pho: dØ
%eng: two
*DID: deux bateaux
%pho: dØbato
%eng: two boats.

Since in French number has generally no overt marker on the noun and is located in the determiner, displaying an extensive syntactic ramification (Asher and Simpson 1994: 2858), the acquisition of plural is interrelated with the development of NP. In this first period, articles are rare in Sophie's language[6], thus most PL contexts[7] have a singular noun (see Table 1). The PL definite article occurs only in two isolated, rote-learned occurrences, e.g.

(3) Sophie 1;8.22
*FAB: qu'est-ce qu'ils vont faire après ?
%pho: kEskilvo$fEraprE
%eng: what are they going to do afterwards ?
*SOP: les dents
%pho: leda$
%mor: ART|les:DEF:PL N|dent
%eng: the teeth
*FAB: ils vont se brosser les dents, oui

%pho: ilvo$sbrOseleda$wi
%eng: yes, they are going to brush their teeth.

In imitation to the mother, Sophie produces the following example:

(4) Sophie 1;9.2
*FAB: là y a le hibou, les oiseaux
%pho: lajal´ibu lezwazo
%eng: there there is the owl, the birds
*SOP: dadeau [: oiseau]
%pho: dado [:wazo]
%mor: N|oiseau
%eng: bird
*FAB: oui les oiseaux
%pho: wi lezwazo
%eng: yes the birds.

This form may be described as a phonological substitution on PL liaison consonant /z/ (z --> d), reanalyzed as the initial consonant of the stem due to a false segmentation: *dadeau* [8] = *z(w)azeau* = *les_oiseaux* [lezwazo] 'the birds'.

At 1;9.13 a first plural noun form *chevaux* 'horse&PL' appears but there is no indication that it is not used for singular reference.

2.1.2. *PERIOD II: 1;9.22 - 2;2.0 (12 recordings, 2'774 utterances), subphases: a) 1;9.22 - 1;11.19 (6 rec.) , b) 1;11.29 - 2;2.0 (6 rec.)*

Table 2. Number and types of devices for expressing plurality in period II, subphase a)

- (FILL) N:SG in a PL context: 54
- PRO:NUM|*deux*: 1
- DET:NUM|*deux* +N: 2
- N:PL: 6 (*chevaux*)
- Grammaticized FILL|é+N: 1

Table 3. Number and types of devices for expressing plurality in period II, subphase b)

- (FILL) N:SG in a PL context: 48
- DET:NUM|*deux* + N: 2
- (FILL) N:PL: 2 (*chevaux, yeux* 'eye&PL')
- Reduced PORTMANTEAU PREP|*à*&ART:PL: 2
- Grammaticized FILL|é +N: 2
- DET:PL: 1

This is a long period with no important development, neither qualitative, nor quantitative, in the expression of number.

New structures are DET:NUM|*deux* +N, e.g.

(5) Sophie 1;9.22

*SOP: è deux dador [: dinosaure]

%pho: EdØdadOr

%mor: FILL|è NUM|deux N|dinosaure

%eng: FILL two dinosaurs.

Grammaticized fillers[9] appear, e.g.

(6) Sophie 1;9.22
*FAB: Maman elle mange les billes ?
%pho: mama$ Elma$Jlebi
%eng: does Mummy eat the marbles ?
*SOP: non pas é [: les] billes Maman
%pho: no$ pae [: le] bimama$
%mor: NEG|non NEG|pas FILL|é:ART:DEF:PL N|bille N:PROP|Maman
%eng: no not FILL (the) marbles Mummy.

In subphase b) 2 substitutions occur in irregular plural marking, i.e. in portmanteau *aux*, e.g.

(7) Sophie 1;11.29
*SOP: asyeux [: aux yeux]
%pho: asjØ [: ozjØ]
%mor: PREP|à LIAIS:PL|z N:PL|oeil&PL
%eng: in (the) eyes,

(8) Sophie 2;1.18
*SOP: atalettes [: aux toilettes]
%pho: atalEt [: otwalEt]
%mor: PREP|à N|toilette
%eng: to the toilet.

These reductions of PREP|*à* &ART:PL *aux* /o/ to /a/ cannot be explained phonologically: there are instances of SG *au* in the corpus, e.g. 2;0.10 *au dodo*

'to bed', 2;1.18 *à/au foot* (with self-correction) 'to football'. They seem to be rather decompositions of the fused form *aux* in (PREP + ART:PL) *à les* with omission of the article[10]. In example (7) however, the PL liaison consonant has been maintained[11] and reanalyzed as the initial consonant of the word[12].

Another instance of how the child deals with non regular plural marking (portmanteau, liaison) in this period II is a new occurrence of example (4) without the early phonological substitutions but glide deletion:

(9) Sophie 1;11.29

*SOP: a dedans zazeau [: oiseau][13]

%pho: ad´da$zazo [: wazo]

%mor: FILL|a ADV|dedans LIAIS|z:PL N|bird

%eng: FILL inside bird

*FAB: oui il va dedans l'oiseau

%pho: wui il va d´da$lwazo

%eng: yes the bird is going inside.

The singular context, i.e. the mother's reply, is a piece of evidence for a lexical reanalysis of PL liaison.

2.1.3. *Period III: 2;2.13 - 2;4.1 (5 rec., 1'775 utterances), subphases a) 2;2.13 - 2;3.9 (3 rec.), b) 2;3.22 - 2;4.1 (2 rec.)*

Table 4. Number and types of devices for expressing plurality in period III, subphase a)

- (FILL) N:SG in a PL context: 31
- PRO:NUM|*deux*: 1
- DET:NUM|*deux* + N: 1
- (FILL) N:PL: 2 (*chevaux*)
- DET:PL + N: 5

- Reduced portmanteau PREP|*de*&ART:PL: 1
- Grammaticized FILL|é +N: 14.

Table 5. Number and types of devices for expressing plurality in period III, subphase b)

- (FILL) N:SG in a PL context: 13
- Grammaticized FILL|é +N: 12
- DET:NUM|*deux* +N: 2
- DET:PL + N: 5

This period is characterized by an increase in the number of forms indicating PL: there are more DEF articles (6 against 2 in Period II), INDEF articles appear (4 tokens), grammaticized fillers become frequent (27 against 3 in period II), and non-grammaticized ones decrease: there are only a few isolated instances by the end of the period (2;3.22 2 non-grammaticized/9 grammaticized; 2;4.1 0/8). At 2;3.22 the marking of PL in PL contexts is for the first time higher in number than the non marking of PL (10 *vs*. 5 tokens).

At 2;3.9, for the first time also, Sophie uses in the same recording the PL form and the SG form of *cheval* 'horse'[14]. The forms seem distinguished according to the referent in the extralinguistic context (picture book): the SG form seems to refer to a single object whereas the PL form seems to designate many of them.

2.1.4. *PERIOD IV: 2;4.12 - 2;5.14 (4 rec., 1'534 utterances)*

Table 6. Number and types of devices for expressing plurality in period IV

- N:SG in a PL context: 18
- Grammaticized FILL|é +N: 22
- DET:PL + N: 33
- DET:NUM|*deux* +N: 5

- QUANT (invariable) +N: 2
- PRO:SUBJECT (3P *ils* ‘they’): 4 + 1 FILL
-VERB:PL: 5 tokens / 2 types (*être* ‘be’, *avoir* ‘have’)
(PL LIAISONS: 6 tokens / 3 types)

From 2;4.12 onwards, PL is expressed more often than not, i.e. the number of PL forms in PL contexts surpasses the number of SG forms (67/86 *vs.*19). And there is evidence that the child uses PL forms to refer to a plurality of entities, e.g. the following example of a DET:SG+N used in a PL context:

(10) Sophie 2;4.22

*SOP: où est papamine ? [: vitamine]
%pho: uEpapamin
%mor: PRO|où:INT V:AUX|être&3S N|vitamine
%eng: where is vitamin
*FAB: les vitamines ?
%pho: levitamin
%eng: the vitamins ?
*FAB: elles sont là dedans.
%pho: Elso$ladda$
%eng: they are there inside
*SOP: mais c’est où # euh yyy l’autre de vitamine ? [: les autres (de) vitamines]
%pho: mEsEuπlotrd´vitamin
%mor: CONJ|mais DEICT|c’est PRO|où:INT INTERJ|euh yyy PRO|l’autre PREP|de N|vitamin
%eng: but where is the other vitamin
*FAB: les autres vitamines ?
%pho: lezotrvitamin

%eng: the other vitamins ?

This error seems to be an error in the analysis of the referent: for Sophie the referent is apparently a single entity, i.e. a specific bottle containing the vitamins, distinct from other bottles of vitamins, and not a plurality of tablets: notice that there is no self-correction after the mother's reply[15]. If this description is correct, Sophie's error is an evidence that her use of SG and PL forms is referential.

The development of plural marking in period IV is further illustrated with the appearance of plural verb forms (1,6% of all verb forms), see Table 6. and example (13) below. All PL verb forms are restricted to third person present.

PL determiners become more numerous than fillers (33/22). New markers are added: PL possessive (*ses*), demonstrative (*ces*), QUANT (invariable, e.g. *un petit peu de* +N 'a little bit of', *plein de* +N 'lots of'). Remaining fillers are all grammaticized[16]. First PL liaisons occur (3 types/6 tokens, e.g. *ses*, *des*), also after grammaticized fillers, e.g.

(11) Sophie 2;4.12

*SOP: mé (l)es_aut(res) cochons

%pho: me ezot kOSo$

%mor: yy FILL|é:ART:DEF:PL:LIAIS|z:PL ADJ|autre N|cochon

%eng: yy FILL (the) other pigs.

At 2;4.12, there is a first example of number/(gender) agreement between a noun and a nominalized adjective in a (dislocated) NP:

(12) Sophie 2;4.12

*SOP: mé où les bavettes au bébé, (l)es petites ?[17]

%pho: meulebavEtobebe eptit
%mor: yy PRO|où:INT ART|les:DEF:PL N|bavette PREP&ART|au N|bébé FILL|é:ART:DEF:PL ADJ|petit-FEM
%eng: yy where the bibs of the baby, the small ones ?

and at 2;4.22 the first example of number agreement between subject pronoun and verb :

(13) Sophie 2;4.22
*SOP: é son [=? ils sont] pas écouté [//] i(l)s ont pas écouté
%pho: eso$paEkute izo$paEkute
%mor: FILL|é V:AUX|être&PRES&3P NEG|pas PP|écouter PRO|ils:SUBJ:3P V:AUX|avoir&PRES&3P NEG|pas PP|écouter
%eng: FILL (they) are not listened to [//] they didn't listen
*FAB: qui a pas écouté ?
%pho: kiapaEkute
%eng: who didn't listen ?
%com: SOP does not answer.

The first example of internal NP agreement in number (*grandes_oreilles* 'big-FEM:LIAIS|z:PL ears') occurs later at 2;5.27[18]. This delay does not mean that number agreement is acquired earlier in VP than in NP, since agreement in number within NP is limited in French to the few adjectives having a PL form and to liaison (cf. 1.2.). Consequently it is not relevant to compare subject-verb agreement and internal NP agreement.

2.1.5. *Period V: 2;5.27 - 2;7.5 (5 rec., 2'104 utterances)*

Table 7. Number and types of devices for expressing plurality in period V

- N:SG in a PL context: 13
- N:PL: 1 (*yeux*)
- Grammaticized FILL|é +N: 20
- DET:PL + N: 24
- PORTMANTEAU PREP&ART:PL + N: 4
- QUANT|*tous/toutes+les* +N 'all the': 4
- DET:NUM|*deux* +N: 4
- N:PL: 1
- PRO:PL
a) PRO:SUBJ (3P MASC *ils,* FEM *elles)*: 5
b) PRO:STR(ESSED) (1P *nous,* 3P *eux*): 7
c) PRO:DEM: 1
- LIAISON between PL ADJ and NOUN: 1
(- Other PL LIAISONS: 2)
-VERB:PL: 10 tokens, 2 types (*être, faire* 'do')

In period V, Sophie produces obligatory linguistic plural markers in almost all plural contexts, i.e. omissions of plural markers are scarce. She has first correct uses of portmanteau plural forms (4 tokens/1 type *aux* [o]/[oz]).

First isolated uses of stressed personal PL pronouns and of demonstrative pronouns occur:

(14) Sophie 2;6.14
*SOP: ceux-là, eux (g)ros
%pho: sØla Øro
%mor: PRO\|ceux-là:DEM:MASC:PL PRO\|eux:STR:3P ADJ\|gros
%eng: those, them fat.

There is also appearance of the dislocated structure (PRO|nous:SUBJ:1P PRO|on:IMPRS:SG) *nous on* 'we', typical of the oral language, where the stressed first plural pronoun *nous* is followed by the unstressed coreferential singular pronoun *on*[19]. This combination governs the SG form of the predicate.

The important development in the expression of plural during period V does not mean however that Sophie has already a morphological processing of plurality. Evidence for such a morphological processing cannot yet be found. Consider for instance 2 erroneous nominal prefixations of plural liaison /z/:

(15) Sophie 2;5.27

*SOP: là on n'a pas d-z-oreilles [: pas d'oreilles]

%pho: lao$napadzOrEj [: padOrEj]

%mor: ADV|là PRO|on:IMPRS V|avoir NEG|pas PREP|de LIAIS|z:PL N|oreille

%eng: there we don't have any ears.

*FAB: il a pas d'oreilles lui ?

%pho: ilapadOrejlˈi

%eng: he doesn't have any ears ?

(16) Sophie 2;5.27

*SOP: cassé [=? caché] r-une [: une] autre # z-oreille [: oreille].

%pho: kaserynotrzOrEj [: ynotrOrEj]

%mor: V|cacher ART|une:INDEF:FEM:SG ADJ|autre LIAIS|z:PL N|oreille

%eng: hidden another ear

*FAB: y a une autre oreille cachée là ?

%pho: jaynotrOrEjkaSela

%eng: is there another ear hidden there ?

These forms have to be analyzed as resulting from the same process of false segmentation reanalyzing a liaison consonant as the initial consonant of the stem that we have seen above in ex. (4), (7) and (9): *z-oreille = les_oreilles* [lezOrEj]. They do not evidence a morphological processing of plurality. The prefixation of the plural liaison consonant /z/ rather than the singular /n/ is maybe due to the frequency of the plural use of *oreille* in the adult language.

As to PL verb forms in period V (see Table 7), their proportion is similar to period IV (1,42% of all verb forms).

2.1.6. *Period VI: 2;7.18 - 2;10.2 (7 rec., 2'453 utterances)*

Table 8. Number and types of devices for expressing plurality in period VI

- N:SG in a PL context: 11
- N:PL: 2 (*chevaux, yeux*)
- Grammaticized FILL|é +N: 8
- DET:PL + N: 111
- PORTMANTEAU PREP&ART:PL + N: 5 (2 types)
- QUANT|*tous*+DET+N: 5
- DET:NUM|*deux* +N: 6
- PRO:PL:
a) PRO:QUANT|*tous* 'all': 3
b) PRO:SUBJ (*ils, elles* 'they&FEM'): 12 (+ 2 grammaticized FILL)
c) PRO:STR (1P *nous* (8), 2P *vous* (1)): 9
d) PRO:OBJ: 2
e) PRO:DEM|*ceux-là* 'those' 8
f) (DET) PRO:NUM|*deux*: 8
g) PRO:POSS: 1
h) PRO:INT|*lesquels* 'which&PL': 2
-VERB:PL: 31 tokens, 6 types (20 *être (AUX), 4 avoir (AUX), aller* 'go' *(1 + 1*

SEMI-AUX) , 2 dormir 'sleep', *faire* 'do', *perdre* 'loose')
(- LIAISONS: 16 tokens / 15 types + substitutions: 7)

In this period first plural object pronouns appear:

(17) Sophie 2;7.18
*SOP: vais cherch(er)[//] vais les chercher
%pho: veSErSe veleSErSe
%mor: V|aller&1S V|chercher V|aller&1S PRO|les:OBJ:3P V|chercher
%eng: (I) will look/will look for them,

as well as first interrogative and possessive (PL) pronouns, with the typical childish overmarking *mes* instead of *les* (cf. Grégoire 1947: 89-90, Clark 1985: 727), e.g.

(18) Sophie 2;8.23
*SOP: mes miennes [: les miennes]
%pho: memjEn [: lemjEn]
%mor: ART|mes:POSS:1:P PRO|mien:POSS:1-FEM
%eng: mine

Fillers disappear by the middle of the period (from 2;9.5 onwards).

The number of verb forms increases in types and tokens (see Table 8) (2,2% of all verb forms) and is no longer limited to third person present: there are 2 instances of PL second person (*aller*, imperative and *perdre*, compound past), e.g.

(19) Sophie 2;8.10

*SOP: vous avez pas perdu mon bouchon ?
%pho: vuzavepapErdymo$buSo$
%mor: PRO:2P V:AUX|avoir-2P V|perdre-PP ART|mon:POSS:1S N|bouchon
%eng: you have not lost my cork ?

Notice however that number agreement between subject and verb is not yet always observed:

(20) Sophie 2;8.23
*SOP: ils sont où Tic et Tac
%pho: iso$utikEtak
%mor: PRO|ils:SUBJ:3P V|être&3P PRO|où:INT N:PROP|Tic CONJ|et N:PROP|Tac
%eng: where are Tic and Tac ?
*FAB: hum ?
*SOP: est où Tic et Tac ?
%pho: EutikEtak
%mor: V|être&3S PRO|où:INT N:PROP|Tic CONJ|et N:PROP|Tac
%eng: where is Tic and Tac ?

(21) Sophie 2;9.5
*SOP: ses mains a pas de plongeon [: manchons]
%pho: semE$apadplo$Jo$ [: maSo]
%mor: ART|ses:POSS:3P N|main V|have&3S NEG|pas PREP|de N|manchon
%eng: his hands has no dive [: muffs].

Substitutions (mainly in /l/ but also in /d/ or /r/) in plural liaison contexts occur (7 tokens) along with accurate realizations of PL liaisons and erroneous prefixations of PL liaisons (5 tokens). Let us consider the new type of substitution in /l/ as in:

(22) Sophie 2;8.23/2;10.2
*SOP: les-l-images [: les_images]
%pho: lelimaJ [: lezimaJ]
%mor: ART|les:DEF:PL N|image
%eng: the pictures.

It certainly also results from a false segmentation (see above 2.1.5.). In this case the consonant of the SG definite article *le* is reanalyzed as the initial consonant of the stem: *les-l-images = les+ l'image*[20]. In other words these substitutions, just as well as the erroneous prefixations of PL liaisons similar to previous ones, do not yet come from any morphological reanalysis of the liaison consonant (e.g. as an inflectional prefix)[21].

2.1.7. Period VII: 2;10.17 - 3,0.8 (4 rec., 1'235 utterances)

Table 9. Number and types of devices for expressing plurality in period VII

- N:SG in a PL context = omission of DET:PL: 1
- N:SG in a PL context = SG stem: 2
- N:PL: 3 (*yeux, animaux*)
- DET:PL + N: 73
- PORTMANTEAU PREP&ART:PL + N: 5
- Decomposed PORTMANTEAU PREP&ART:PL: 4 (2 types)
- QUANT (invariable)+N: 8

- QUANT|*tous, toutes*+DET+N: 10
- DET:NUM|*deux* +N: 1
- 1 isolated grammaticized FILL|é
- PRO:PL:
a) PRO:QUANT|*tous*: 1
b) PRO:SUBJ: 13
c) PRO:STR (1P *nous* (5), 3P *eux* (2)): 7
d) PRO:OBJ: 2
e) PRO:DEM: 1
f) PRO:(DET) NUM|*deux:* 6
g) PRO:INT|*lesquel(le)s* 'which:PL': 3
-LIAISON between ADJ:PL and NOUN: 1
(- Other LIAISONS: 11 + 1 substitution)
-VERB:PL: 27 tokens, 4 types (13 *être (AUX), 12 aller (SEMI-AUX), avoir (AUX), dire* 'say')

It is only in period VII that first morphological errors occur in the expression of PL. Consider the noun:

(23) Sophie 2;11.10
*SOP: les#chevals [: chevaux]
%pho: leS´val [: S´vo]
%mor: ART|les:DEF:PL N|cheval:SG
%eng: the:PL horse.

The adult PL form *chevaux* that Sophie used in previous periods is now substituted by a form following the general invariable pattern of the French noun[22]. Sophie contrasts it with the singular in the next utterance by using the PL form of the article:

(24) Sophie 2;11.10

*FAB: oui

*SOP: et le bébé cheval

%pho: El´bebeS´val

%mor: CONJ|et ART|le:DEF:SG N|bébé N|cheval

%eng: the baby horse.

(25) Sophie 2;10.17

*SOP: c'est des journals [: journaux]

%pho: sEdeJurnal [: Jurno]

%mor: DEICT|c'est ART|des:INDEF:PL N|journal:SG

%eng: these are newspaper(s).

This type of noun overregularization in forming the plural is well documented in French child language (see, e.g. Mayerthaler 1981: 56, Clark 1985: 705). And so are the following errors on portmanteau forms *aux, des* (Clark 1985: 727):

(26) Sophie 2;10.28

*SOP: le+plus mauvais#de les [: des] champignons là

%pho: l´plymOvEd´leSa$piNo$ [: de]

%mor: SP|le+plus ADJ|mauvais PREP|de ART|les:DEF:MASC:PL N|champignon ADV|là

%eng: the worst of the mushrooms there.

(27) Sophie 2;10.28

*FAB: c'est juste les miettes ?

%pho: sEJystlemjEt

%eng: these are just the crumbs ?

*SOP: mais à les deux [: aux deux/pour les deux]

%pho: mEaledØ [: o dØ]

%mor: CONJ|mais PREP|à ART|les:DEF:PL PRO|deux:NUM
%eng: but for both
*FAB: pour les deux les miettes ?
%pho: purledØlemjEt
%eng: the crumbs for both ?

Whereas previous decompositions of portmanteau forms were rather simplifications of the target by omission of the article, in this late period they are real decompositions with full occurrence of the PREP and of the PL article. These examples can be considered as regularizations of irregular PL forms[23].

Overregularizations of period VII constitute first evidence for a morphological processing of plurality.

Other developments in this period should still be mentioned, e.g. all obligatory nominal plural contexts (132) have a plural marker (from the 2nd recording of the period onwards[24]). And plural verb-forms reach a frequency similar to the frequency in the input: 2,9% of the verb-forms in Sophie's speech *vs*. an average of 3% of the verb-forms in the mother's speech[25,26].

2.2. *Summary of the development of number in Sophie's speech*

Sophie starts to express number lexically with the numeral *deux* 'two'. She seems to use it throughout the corpus as a prototypical (lexical) plural marker. *Deux* occurs first isolated, then juxtaposed after a noun and finally precedes the noun as a determiner. This word does not seem to have a distinct numeral meaning (it is never contrasted with another numeral in the corpus[27]) but indicates plurality in general[28].

A few instances of plural noun forms (e.g. *chevaux* 'horses') appear quite early on, first in the plural only (during period I). Thus they must be rote-learned.

In comparison with the development of number in other languages (see Stephany this volume), more grammatical means of expressing number emerge slowly. This must be due to the structure of the language to be acquired. The acquisition of number in the French noun depends on the acquisition of the noun phrase which is of utmost importance for the expression of number in French. It is related to the (late) development of articles. The acquisition of number in the verb is further complicated by limited plural marking in a substantial part of French conjugation and by its co-symbolization with the category of person.

Until period IV (2;4.12 - 2;5.14), omission of determiners prevails in Sophie's speech despite first occurrences of grammaticized fillers and articles. It is only from the beginning of period IV onwards that the number of nominal plural forms surpasses the number of singular forms in plural contexts. The expression of number becomes richer with differentiation of determiners, appearance of plural verb forms, of (redundant) liaison and of agreement. There seems to be evidence that the child uses plural forms to refer to a plurality of entities.

In the next period V (2;5.27 - 2;7.5), portmanteau PL forms are used correctly. Some prefixations of PL liaisons /z/ show the segmentation problems that Sophie is facing at this phase.

Period VI is characterized by the development of PL liaisons and also by a certain indeterminacy in the use of these PL liaisons. Pronouns abound. But there is still no evidence for PL morphological rules.

It is only with period VII (2;10.17 - 3;0.8) that errors in PL forms occur, e.g. overgeneralizations which suggest that the child is now developing morphological processing of plurality.

Notes

* I would like to thank Gisèle Marguerat for her corrections of the English version of the paper.

1 On the relationships between gender and numerus, see Biermann 1982.

2 IMPRS *on* may refer to one or several persons and is not marked for number.

3 Cf. 1.5. As far as plural marking is concerned, masculine and feminine *aux* have to be distinguished: whereas the masculine indicates plural only with vowel-initial nouns, compare MASC SG *à l'homme* [alOm] 'to the man' - PL *aux_hommes* [ozOm] 'to the men' with MASC SG *au garçon* [ogarso$] - PL *aux garçons* [ogarso$] ' to the boy(s)', the feminine indicates plural anyway through allomorphy or allomorphy plus liaison: *à la, à l' - aux*, e.g. FEM SG *à la vache* [alavaS] ' to the cow' - PL *aux vaches* [ovaS], FEM SG *à l'amie* [alami] 'to the friend' - PL *aux amies* [ozami]. *Aux* is an example of gender syncretism in plural (see Biermann 1982: 241).

4 In these cases liaison is a redundant plural marker.

5 See note 10.

6 The development of articles is the following :

SG MASC INDEF	un	frequent from 1;11.29
SG FEM DEF	la	from 2;1.18
PL DEF	les	from 2;4.1/2;4.12
PL INDEF	des	from 2;4.12
SG FEM INDEF	une	from 2;4.1
SG MASC DEF	le	from 2;8.0.

7 The identification of obligatory contexts for PL depends almost entirely on the mother's interpretation of Sophie's production. Even in examples where Sophie uses markers of plural, there is no other way to be sure that these PL refer indeed to PL contexts and not to SG ones.

8 There is also a phonological deletion of the glide /w/.

[9] Grammaticized fillers are non-ambiguous phonetic approximations of morphemes, here of plural morphemes, see Kilani-Schoch et al. 1998.

[10] This process is probably improved by the frequent use of the filler /a/.

[11] If this morphological analysis is correct then a substitution z-->s has applied. However devoicing is not a common process in Sophie's phonology.

[12] This reanalysis is very common in French with this lexical item, e.g. the neologism *zyeuter* 'to look at'.

[13] Cf. Grégoire (1947: 47) for a similar example.

[14] The first isolated occurrences of the SG are recorded at 2;2.0.

[15] Instances of PL *(l)es autres* 'the others' have occurred from 2;4.12 onwards, see below.

[16] From this period onwards I thus note them *(l)es* or *(d)es*.

[17] In the standard written language this utterance corresponds to *les petites bavettes du bébé*. The use of *à* in a prepositional phrase is popular or regional. Standard French requires *de*, in this case the allomorph *du*.

[18] Note the following example that occurred earlier:
Sophie 2;5.3
*SOP: des petits n-ours [: petits_ours]
%pho: deptinurs [: deptizurs]
%mor: ART|des:INDEF:PL ADJ|petit:LIAIS|n:SG N|ours
%eng: little bears.
The PL liaison between the adjective and the noun has not been pronounced because of a false segmentation reanalyzing the SG liaison consonant /n/ of the indefinite article as the initial consonant of the noun: *n-ours* [nurs] = *un-ours* [π$nurs] 'a bear'.
First NPs with DET:SG+ADJ have occurred at 2;1.18, e.g. *un autre bib(eron)* 'another feeding bottle'. Other adjectives appear at 2;2.0 in NP without article, e.g. *petit bébé là* 'little baby there' and at 2;3.9, with grammaticized filler or article, e.g. *(l)a petite queue* 'the little tail'.

[19] The first occurrence of *on* is at 1;11.29.

[20] Singular instances of substitutions of /l/ after *un* or of insertions of /l/ in non-liaison context after *autre* support this interpretation.

[21] What has to be explained is the frequency of /l/ (definite article) rather than /n/ (indefinite article) in these substitutions. A first reason may be the generalization of the SG definite article which becomes productive from 2;8.0. Another reason may be rather phonetic: there is more phonetic similarity between /z/ and /l/ than between /z/ and /n/.

[22] In child language however, singular forms such as: *un chevau(x), un journau(x)* might occur (not in the corpus of Sophie) (cf. Mayerthaler 1981: 56, Clark 1985: 705). The children apply the pattern of unmarked SG and marked PL according to the natural principle of iconicity.

[23] Note that correct contracted forms do occur, e.g. 2;10.17 *mal aux dents* 'toothhache', 2;11.10 *à côté des pieds de Papa* 'besides Daddy's feet'. Inconsistency in the use of portmanteau forms may last until 5 and more (Clark 1985: 727).

[24] There are 3 instances of non marking of PL in PL context in the first recording of the period.

[25] Calculated on 7 recordings between 2;4.22 and 3;0.8.

[26] But number agreement between subject and verb is not always observed yet.

[27] Except once, at 2;11.10, when Sophie is answering her mother about her age. She first answers with the prototypical *two*. After the mother's insistence to get the right answer, she eventually uses the referential numeral *three*.

[28] Koehn (1994: 39) observed the same use of *deux* and *zwei* as an indeterminate PL marker in a German-French speaking child.

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The Acquisition of Number in Austrian German

A Case Study on the Early Stages

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ABSTRACT

As part of the ongoing international project on the acquisition of pre- and protomorphology in child language, this paper reports on the early acquisition of number, especially of noun plurals, in Austrian German. The data, audio-recorded spontaneous speech of an Austrian girl (age 1;6 to 3;0) named Kathi are analyzed and interpreted within the framework of Natural Morphology.

After an overview of the number system in adult German, the input of the mother and its relevance for the acquisition of number by Kathi will be discussed. Special attention will be given to the topic of productivity.

The analysis of the development of Kathi's plural production reveals that -s plurals are acquired late, and thus confirms earlier studies on the acquisition of plurals by Austrian German children. In addition, since the -s plural is the only candidate for being the overall default plural, but is less productive in colloquial Austrian German than in Northern German varieties, our findings confirm the relevance of productivity and disconfirm that of the default

status. Productive plurals are acquired earlier and occur more frequently than unproductive plurals.

1. Introduction

This paper has been written as part of the ongoing international Child Project on the Acquisition of Pre- and Protomorphology[1] (Dressler and Karpf 1995; Dressler 1997b) and represents one of the first studies dealing with the early acquisition of number, especially of noun plurals, based on spontaneous production data, in Austrian German (Schaner-Wolles 1978, 1988, Streith 1997, Vollmann 1997, Vollmann at al. 1998). The study is based on the tape-recorded data of an Austrian girl named Kathi from the age of 1;6 to 3;0; the data are analyzed and interpreted within the framework of Natural Morphology.

After an overview of the number system of adult German language (section 2), a description of the data is given (section 3). Then, the input of Kathi's mother is discussed (section 4). Finally, preliminary results of this study on the early acquisition of number by Kathi are presented (section 5).

2. The grammatical category of number in adult (Austrian) German

2.1. *The expression of number: noun-plural formation devices*

In German, the expression of number is fused with that of case and gender: completely so in articles and determiners, also in adjectives (where syncretism

prevails though), but partially in nouns: the genitive singular is *-s* with masculine and neuter gender; all other singular cases are zero. The plural of nouns is expressed, in complementary distribution, by either a suffix or umlaut, or both, or by zero. The choice is determined by gender, degree of animacy and word-final phonological shape (cf. Köpcke 1993). The dative plural suffix *-(e)n* is added to nominative plural forms which are suffixless or end in schwa or *-er*. The other plural cases have the same form as the nominative plural (see Table 1). In plurals, the expression of gender is neutralized.

Table 1: Plural formation in German

Cases	Singular			Plural		
	m.	f.	n.	m.	f.	n.
Nom.	Baum	Frau	Kind	Bäum-e	Frau-en	Kind-er
Gen.	Baum-es	Frau	Kind-es	Bäum-e	Frau-en	Kind-er
Dat.	Baum	Frau	Kind	Bäum-e-n	Frau-en	Kind-er-n
Acc.	Baum	Frau	Kind	Bäum-e	Frau-en	Kind-er
gloss	'tree'	'woman'	'child'	'trees'	'women'	'children'

Definite articles, determiners and modifying adjectives agree in number with their governing noun; verbs agree in number with their subjects.

2.2. *Productive and unproductive noun-plural patterns*

German noun plurals can be classified into productive and unproductive microclasses. Productivity here is defined as the ability to use rules with new words, that is, with loan-words, indigenous neologisms and old words which undergo class change (typically from unproductive to productive classes)

(Dressler 1997a). Note, however, that productivity is not to be equated with frequency; productivity does not necessarily include a high frequency of types and tokens.

Noun plurals meeting the following criteria are productive:

a) *-s* suffix for all genders, especially after a word-final vowel, but never after a word-final schwa or sibilant: e.g. *der Uhu* 'eagle owl', *das Kino* 'cinema', *die Pizza* 'pizza' → pl.: *die Uhu-s, die Kino-s, die Pizza-s*. Thus, despite low type frequency, the -s plural may be called the default (Clahsen et. al. 1993, 1996); its productivity is smaller in Austrian German than in Northern German, however;

b) *-(e)n* suffix for feminines, and for masculines in a word-final schwa: e.g. *die Frau* 'woman', *die Pizza, der Hase* 'hare' → pl.: *die Frau-en, die Pizz-en, die Hase-n;*

c) schwa suffix for masculines and neuters, especially after a sibilant: e.g. *das Tier* 'animal', *der Globus* 'globe', *der Jux* 'spree' → pl.: *die Tier-e, Globuss-e, die Jux-e;*

d) Umlaut may be added to c), particularly if the noun is animate and has several consonants in the stressed syllable (cf. Köpcke 1993): e. g. *der Mops* 'pug', *die Maus* 'mouse' → pl.: *die Möps-e, die Mäus-e;*

e) zero-plural (or no suffixation with schwa), if the singular ends in unstressed *-er, -el* or *-en*: e.g. *der Keller* 'cellar', *der Hebel* 'lever', *der Nachen* 'skiff' → pl.*: die Keller, die Hebel, die Nachen*

Unproductive plural types are:

- cases b) and e) cited above when under other conditions;
- pure umlaut plurals: e.g. *die Mutter* 'mother' → pl.: *die Mütter;*
- *-er* plurals with or without umlaut: e. g. *das Kind* 'child', *der Mann* 'man' → pl.: *die Kind-er, die Männ-er;*

- learned plural types.

Before we proceed with the description of data and the analysis, we want to comment briefly on the notation that we used in this paper for the coding of the German plural formation devices. Table 2 illustrates our notation system.

Table 2: Notation for coding

Formation device	Coded as	Example	Gloss
s-plural	PL1	Auto-s	'cars'
(e)n-plural	PL2	Puppe-n	'dolls'
e-plural (schwa)	PL3	Hund-e	'dogs'
e-plural + umlaut	PL4	N<u>ü</u>ss-e	'nuts'
zero-plural (Ø)	PL5	Teller-Ø	'plates'
zero-plural + umlaut	PL6	<u>Ä</u>pfel-Ø	'apples'
er-plural	PL7	Lied-er	'songs'
er-plural + umlaut	PL8	H<u>ä</u>us-er	'houses'

3. The data

For this paper, 36 recorded sessions (about 443.822 bytes) with a German monolingual girl named Kathi (short for Katharina) have been analyzed. Kathi is the second child (birth-date: 3-JAN-1992) of an Austrian couple, living in Vienna.[2] She was recorded from the age of 1;6.3 (beginning of recording: 9-JUL-1993) to the age of 3;0.17 (end of recording: 20-JAN-1995). The recordings took place in everyday situations (e. g. playing), during which Kathi's older sister Julia and, later, her younger sister Monika were usually present.

These data were collected by Kathi's mother and Brigitta Müller and were transcribed and coded according to the norms of CHILDES (MacWhinney 1991).[3] The analysis and interpretation of the data was done within the theoretical framework of Natural Morphology, as defined by Kilani-Schoch (1988), Dressler and Thornton (1996) and Dressler (1997a). For the investigation on the acquisition of number, we decided to segment the data into intervals of one month. However, it should be noted that these intervals are not totally homogenous since the number of recorded sessions within a given month differs, that is, the amount of data varies.[4] No data are available for the age of 1;7 and 2;7.

3.2. *Kathi's language development*

Before we proceed to the analysis, it is necessary to comment briefly on Kathi's general language acquisition: In comparison to other German and Austrian children, Kathi was a so-called late beginner with a formulaic approach to language, that is, nursery rhymes and songs played an important

role in her language development. Up to the age of 1;9, Kathi's communication was more or less limited to some sounds and gestures.[5] Her onset of speech can thus be dated around the age of 1;9 to 2;0. The premorphological stage sets in around the age of 1;8 and ends at 2;3. It can be further divided in 3 subphases: the first between 1,8-1;10, the second between 1;11-2;1 and the third between 2;2-2;3 (see Vollmann at al. 1998). At the end of 2;3, there is a short transition phase which is marked by an increased number of morphologically marked forms. The protomorphological phase lasts from 2;4 to 2;8 and is followed by a short transition phase. Around the age of 2;10, Kathi enters the modular stage.[6]

4. Input

In the following section, we concentrate on the input given by Kathi's mother. First, we look at the contexts for number created by her, and then at the kinds of plurals she uses.

4.2. *Contexts for number*

In her interaction with Kathi, the mother provides various linguistic and non-linguistic contexts for the plural. Since video recordings of the sessions are not available, investigation of non-linguistic contexts is limited to a few cases where notes have been taken by the investigator (Müller). We defined as linguistic contexts those utterances of Kathi's mother directly preceding utterances of Kathi. Utterances following Kathi's were not taken into account, since they often represent interpretations of what Kathi said. Analysis of the data revealed that it is further important to differentiate between obligatory

grammatical plural contexts and non-obligatory pragmatic contexts for the plural.

Especially in the first sessions, there are no obligatory grammatical contexts for number provided by Kathi's mother. Only pragmatic contexts could be found; and even these are rare early in Kathi's language development at the beginning. To be more precise, Kathi's mother creates pragmatic contexts of the following kind:

- Questions like *Was ist das?* 'What's that?', *Wer ist das?* 'Who's that?' where the extralinguistic context plays an important role with regard to number.

  Plurality within the context of yes/no-questions in her interaction with Kathi:

(1) Kathi 2;0.29
*MUT: alle tueren sind auch zu ?
%mor: DET:qn|alle N|tuer-PL2 V:S|sein-3P ?|auch ADV|zu ?
%eng: all doors are also closed ?
*KAT: ja .
%mor: ?|ja .
%engl: yes .

- Descriptions of actions that either she and Kathi do together or actions of other beings/entities:

(2) Kathi 2;0.18
*MUT: hol(e)n wir die anderen spiele auch ?
%mor: V:01|hol-1P PRO|wir DET:art:def|die ADJ|anderen N|spiel-PL3

?|lauch ?
%eng: fetch we the other games too ?
*MUT: geb(e)n wir die anderen spielsachen auch hinein ?
%mor: V:10|geb-1P PRO|wir DET:art:def|die ADJ|anderen
N:plt|spielsachen ?|lauch PTL|hinein ?
%eng: put we the other toys also in there ?
*KAT: nein .
%mor: ?|nein .
%eng: no .

In all these contexts, number is facultative. Put another way, by offering mainly pragmatic contexts, Kathi's mother leaves it up to Kathi to express number. Analysis of Kathi's utterances produced in these contexts has shown that in the early phases Kathi does not refer to plurality in her answer, while at later stages plurals appear in pragmatic contexts:

(3) Kathi 2;8.3
*MUT: ja gell deine puppen schlafen schon ?
%mor: ?|ja ?|gell DET:pro:poss|deine N|puppe-PL2
V:07|schlaf-3P ?|schon ?
%eng: yes right your dolls sleeps already ?
*KAT: da drinnen schlafen sie .
%mor: ADV|da ADV:pro|drinnen V:07|schlaf-3P PRO|sie .
%eng: in there sleep they.

4.2. *Noun plurals produced by Kathi's mother*

Analysis of the data revealed that, up to the age of 1;9, Kathi's mother does not use any noun plurals in her interaction with Kathi. When Kathi is between 1;9 and 1;11, her mother employs noun plurals, though only with a very restricted number of types. A significant increase in the usage of noun plurals by Kathi's mother is observed from the time Kathi is 2;0 onwards. This phenomenon might be explained as a form of motherese, that is, Kathi's mother seems to adapt her language to Kathi's language development. Table 3 shows the number of the types and tokens of plural nouns that Kathi's mother uses in her utterances.

As table 3 indicates, plurals ending in *-(e)n*, *-e* and with *-Ø* occur most frequently in Kathi's mother's utterances. Out of 156 noun plural types, 41% are formed with *-(e)n*, 18% are ending in *-e* without umlaut and 23% are zero-plurals. The remaining 18% are distributed over the other plural classes.

Seen from the perspective of productivity, the majority of plurals occurring in the utterances by Kathi's mother are productive: All the *s*-plurals and *e*-plurals (with and without umlaut) that she uses belong to the productive microclasses of plurals. Most of the nouns having *(e)n*-plural are feminines and thus equally meet the criteria of productivity in German. Finally, many of the zero-plurals, which are also very frequent in her utterances, can be classified as productive. In addition, a variation in the use of plural formation devices has been observed for nouns ending in *-el* or *-erl*; Kathi's mother uses equally *-n* and *-Ø* for this group of nouns (e.g. 2;5: *Stöpsel* 'plug' → pl.: *Stöpsel-n;* 2;8: *Nockerl* 'dumpling' → pl.: *Nockerl-n*), although there is a slight preference for n-ending (which is usually favored in Austrian German).

Unproductive plural formation devices, that is, plurals with a pure umlaut (2 types) and *er*-plurals with (4 types) and without umlaut (8 types), appear to a lesser extent and only with very few types during the observation period.

Table 3: Number of types and tokens of nouns in plural produced by the mother

Age	-s	-(e)n	-e	U + -e	-Ø	U+ -Ø	-er	U+ -er	Total
1;9	0/0	0/0	1/1	0/0	1/1	1/1	0/0	0/0	3/3
1;10	0/0	0/0	0/0	0/0	1/1	1/4	0/0	0/0	2/5
1;11	1/1	1/1	0/0	0/0	1/1	2/4	0/0	1/1	6/8
2;0	1/1	6/7	2/2	0/0	1/1	2/3	1/1	2/2	15/17
2;1	0/0	4/7	2/3	1/1	2/4	0/0	1/6	0/0	10/21
2;2	0/0	3/3	1/1	1/2	0/0	1/2	0/0	1/1	7/9
2,3	1/1	6/7	6/6	1/1	0/0	0/0	3/7	2/3	19/25
2;4	1/1	20/35	4/4	3/3	7/9	0/0	1/5	0/0	36/57
2;5	1/1	6/6	1/1	0/0	6/6	0/0	1/2	1/1	16/17
2;6	1/1	9/12	4/6	2/5	10/18	0/0	2/3	1/2	29/47
2;8	2/2	6/8	1/2	1/1	7/8	1/1	1/7	0/0	19/29
2;9	1/2	9/11	3/3	0/0	6/7	1/1	0/0	0/0	20/24
2;10	1/1	7/8	2/3	2/2	0/0	0/0	2/4	1/1	15/19
2;11	0/0	2/2	6/8	0/0	1/1	0/0	1/1	1/1	11/13
3;0	0/0	3/4	2/2	1/2	1/1	0/0	1/1	0/0	8/10
Total	7/11	64/111	28/42	7/17	36/58	2/16	4/37	8/12	

Key: The "total" in the horizontal column at the end of the table indicates the corrected sum of all types and tokens for each plural class; the "total" vertical column illustrates the sum of all types and tokens produced at a given age. The first figure represents the number of types , the second that of tokens.

5. The acquisition of number by Kathi

5.1. *Onset of number acquisition*

As Kathi is a so-called late beginner, acquisition of number, especially of nominal plural, is also delayed. That is, up to the age of 2;1, Kathi does not express number - except for one time when she is 1;11 where she refers to plurality in a game by using the numeral *zwei* 'two'. The first noun plural *Ei-er* 'eggs', though a rote-learned one, emerges at the age of 2;1 (Easter time!):

(4) Kathi 2;1.18:
*KAT: mami da !
%mor: N:add|mama-DIM1 ADV|da !
%eng: mommy there !
*KAT: eier !
%mor: N|ei-PL7 !
%eng: eggs !
*MUT: eier sind da !
%mor: N|ei-PL7 V:S|sein-3P ADV|da !
%eng: eggs are there!

The onset of number acquisition can thus be dated in the premorphological stage.

5.2. *Acquisition of plural classes and productivity*

One of the first noun plurals Kathi produces is a plural with *er*-suffix (2;1). There are, however, only three types *Ei-er* 'eggs', *Osterei-er* 'Easter eggs', *Kind-er* 'children' (note that *Osterei-er* is a compound of *Ei*) that Kathi uses. Other types having *er*-plurals could not be found in Kathi's utterances until the age of 3;0. In addition, these three types appear in intervals of two or more months. We therefore assume that Kathi has rote-learned these forms. The fact that Kathi's mother almost exclusively talks of *Kind-er* (the singular form appears only one time) further supports this assumption.

Plurals with *(e)n*-suffixation are observed for the first time when Kathi is 2;3 (*Birne-n* 'pears', *Blume-n* 'flowers'), that is, at the end of the premorphological phase. From this point onwards, Kathi uses the *(e)n*-ending regularly and with increasing frequency for marking the plural.

Plurals having a simple *e*-attachment (2;4: *Schuh-e* 'shoes') or *e*-attachment in combination with an umlaut (2;6: *Füße* 'feet') as well as zero-plurals (2;4: *Schlapfen* 'slippers') are acquired at the end of the premorphological phase or the early protomorphological phase and, from then on, occur with regularity.

The first *s*-plural is observed towards the end of the protomorphological phase, although it seems to be a rote-learned plural tantum (2;8: *Pommesfrites* 'chips'). Nouns demanding *s*-plurals occur regularly from then on, but they are usually not marked for number by Kathi. At the age of 2;11, a correct *s*-plural (*Zopfzangi-s* 'hair-slides-DIM') is produced and then corrected once again to a zero-ending. This suggests that Kathi is still acquiring the *s*-plural.

Plurals formed with umlaut and Ø-morpheme or with umlaut and *er*-attachment were not found in the data. In Table 4 the number of types and tokens is given for each plural class.

Table 4 shows that of the 47 plural types, 45% belong to the group of *(e)n*-plurals, 21% have *e*-ending without umlaut, 13% *e*-ending with umlaut, and 11% are *Ø*-plurals. *S*-plurals are represented by 4%, and plurals with *er*-suffix occur to 6%.

In terms of productivity, this means that the majority of plurals Kathi produces can be assigned to the productive plural microclasses; unproductive plurals are far less frequent. That is, we found that all *e*-plurals appearing in the data can be classified as productive. Most of the nouns with *(e)n*-plurals are feminines and therefore also productive (Nouns having masculine or neutral genus are mainly words ending in *-erl* or *-el*, which tend to be marked with *n*-plural in Austrian German). Equally, the microclass of *Ø*-plural consists mainly of productive plurals (only two nouns end in *-erl* which is unproductive). Unproductive plural formation devices (plurals with pure umlaut and plurals on *-er* with or without umlaut) have not been observed except for pure *er*-plural which Kathi uses for the three above-mentioned rote-learned words. Table 5 summarizes the acquisition of plural classes.

Table 4: Number of types and tokens in plural produced by Kathi

Age	-s	-(e)n	-e	U+ -e	-Ø	U+-Ø	-er	U+ -er	Total
2;1	0/0	0/0	0/0	0/0	0/0	0/0	1/3	0/0	1/3
2;2	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
2;3	0/0	2/2	0/0	0/0	0/0	0/0	2/6	0/0	4/8
2;4	0/0	2/2	1/1	0/0	1/1	0/0	0/0	0/0	4/4
			*1/1						*1/1
2;5	0/0	1/1	0/0	0/0	1/1	0/0	0/0	0/0	2/2
2;6	0/0	2/7	1/1	1/1	3/8	0/0	0/0	0/0	7/17
2;8	1/1	3/4	2/2	1/1	1/1	0/0	0/0	0/0	8/9
					*1/1				*1/1
2;9	0/0	2/2	0/0	0/0	1/1	0/0	0/0	0/0	3/3
		*1/1							*1/1
2;10	0/0	6/6	1/1	3/4	2/2	0/0	2/3	0/0	14/16
	*1/1								*1/1
2;11	1/1	2/2	3/3	2/2	0/0	0/0	1/1	0/0	9/9
	*2/4	*1/2							*3/6
3;0	0/0	5/5	2/4	1/1	0/0	0/0	0/0	0/0	8/10
	*1/1	*1/1							*2/2
Total	2/2	21/31	10/12	6/9	5/14	0/0	3/13	0/0	
	*4/6	*3/4	*1/1	*0/0	*1/1	*0/0	*0/0	*0/0	

Key: This table represents the number of types (first figure) and tokens (second figure) within one plural class produced by Kathi at a given age. Wrong plural forms are marked with an asterisk and counted separately. The "total" in the horizontal column indicates the corrected sum of all types and tokens for each plural class; the "total" in the vertical column is the sum of all types and tokens having been observed at a given age.

Table 5: Acquisition of plural classes[7]

Age	-s	-(e)n	-e	U+e	-Ø	-er
2;1	0	0	0	0	0	Eier 3
2;3	0	*Birnen 1* Blumen 1			0	Ostereier 5 Kinder 1
2;4	0	Augen 1 Blumen 1	Schuhe 1 *Hand-schuhn 1	0	Schlapfen 1	0
2,5	0	*Erbsen 1*	0	0	Schlapfen 1	0
2;6	0	Blumen 6 Schnecken 1	Jahre 1	Füße 1	Schlapfen 5(3?) Socken 1 Entchen 2	0
2;8	Pommes-frites 1	Puppen 2 *Kartoffeln 1* *Nockerln 1*	Haare 1 Filzstifte 1	Hände 1	Salz-stangerl 1? *Gelde 1	0
2;9	0	Karten 1 Musi-kanten 1 *Musikant 1	0	0	*Löffel 1*	0
2;10	*Hundi 1	Blumen 1 Mietzi-katzen 1 *Stachel-beeren 1* *Rosinen 1* *Bananen 1* Zuckerln 1	Hunde 1	Stäbe 1 Hände 1 *Nüsse 2*	Pickerl 1 Socken 1	Kinder 2 *Eier 1*
2;11	Zopf-zangis 1	Enten 1 Kugeln 1	Buntstifte 1 Schiffe 1	Hasel-nüsse 1	0	Kinder 1

	*Zopf-	*Eisen-	Sterne 1	Nüsse 1		
	pangi 1	bähne 1				
	*Zopf-	*Eisen-				
	pang 1	bahne 1				
	*Picki 2					
3;0	*Mausi 1	*Gabeln 1*	Spiel	Bäume 1	0	0
		Karotten 1	-zeuge 1			
		Malfarben 1	Pinguine 3			
		Enten 1				
		Hasen 1				
		*Elefante 1				

Key: Types written in italics are, to a high probability and at least partially, imitated; underlined words are cited from songs and rhymes; the question mark signals possible plural forms. Note, that all words were written in standard German, even if they were originally phonologically deformed (with the exception of *Zopfzangi*, *Zopfpangi*, which should be *Zopfspangi*) in order to facilitate reading.

5.3. *Semantic opposition of singular and plural*

Throughout the sessions, there are only very few types Kathi uses both in singular and plural at a given age: 2;4: *Handschuh* 'glove'; 2;5: *Erbse* 'pea'; 2;6: *Schnecke* 'snail', *Socken* 'sock', *Fuβ* 'foot'; 2;8: *Puppe* 'doll', *Hand* 'hand'; 2;10: *Kind* 'child', *Hund* 'dog', *Mietzikatze* 'pussy cat'; 2;11: *Eisenbahn* 'train', *Schiff* 'ship', *Kugel* 'ball' and *Haarspange* 'hair-grip' (which might be interpreted as the singular form that Kathi opposed *Zopfzangis* 'hair-slides-DIM'); 3;0: *Elefant* 'elephant', *Baum* 'tree' and *Hase* 'hare'. Table 6 shows the number of noun types Kathi produces a) exclusively in singular, b) exclusively in plural and c) in singular and plural.

Although the number of types in singular and plural increases slightly during the observed period, Kathi does not systematically opposes the singular form and the plural form of a given noun to each other, i. e., there is little evidence for the formation of miniparadigms.

Table 6: Number of types in singular, in plural and in singular and plural

Age	Types in SG	Types in PL	Types in SG and PL
1;6	1	0	0
1;8	(1)	0	0
1;9	1	0	0
1;10	1	0	0
1;11	6	0	0
2;0	15	0	0
2;1	23	1	0
2,2	10	0	0
2;3	46	4	0
2;4	44	4	1
2;5	33	1	1
2;6	48	4	3
2;8	60	6	2
2;9	39	3	0
2;10	50	11	3
2;11	38	5	4
3;0	40	7	3

Key: This table represents the number of types Kathi produces at a given age in singular, plural and in singular and plural. Proper names and family terms have not been included. Singular tantum and plural tantum forms have not been considered either. Phonologically deformed nouns are only counted if the target form is recognizable.

5.4. *Devices for referring to a plurality of entities*

In the process of acquiring number, Katharina uses various devices for referring to plurality.[8] In the premorphological phase (between 2;1 and 2;3), she expresses plurality either in form of the numeral *zwei* 'two', the quantifier *alle* 'all' or a noun plural (e. g. *Osterei-er* 'Easter eggs'), although the number of noun plurals is very restricted at this stage. All these forms occur only in one-word utterances.

(5) Kathi 2;2.11
*MUT: wer sitzt denn drinnen im autobus ?
%mor: ?|wer V:X|sitz-3S ?|denn ADV:pro|drinnen
PREP|in~DET:art:def|dem N|autobus ?
%eng: who sits [intensifier] in there in the bus ?
*KAT: alle .
%mor: PRO:qn|alle .
%eng: all/everybody .

Towards the end of the premorphological phase, Kathi begins to count things up to five. The first complex nominal phrases in plural emerge, consisting of a noun (N (pl)) and a definite article (DET:art:def (pl)) and of a noun (N (sg)) and a quantifier (DET:qn (pl)), respectively.

The protomorphological phase (between 2;6 and 2;8) is characterized by the usage of nominal phrases having the following structure:
a) DET:art:def (pl) + N (pl), e. g. *die Blume-n* 'the flowers';
b) DET:pro:poss (sg,pl) + N (pl), e. g. *meine Haar-e* 'my hairs';

c) DET:qn (sg,pl) + (DET:pro:poss (pl)) + N (pl), e. g. *alle Jahr-e* 'all years'.

During the transition phase (2;9) and in the early modular phase (2,10-3;0), the spectrum of nominal phrases is extended to

d) NUM + N (pl), e.g. *zwei Hund-e* 'two dogs';

e) PRO:interrogative (pl) + N (pl), e. g. *welche Nüss-e* 'which nuts'.

Furthermore, a few adjectives in predicative position occur (2;4: *Auge-n offen* 'eyes open'). Only two or three modifying adjectives have been found in a plural context in the data (3;0: *kleine Gabel-n und groβe* 'small forks and big').

5.5. *Marking of number and agreement*

In the very early phase of number acquisition (1;11-2;2), Kathi uses plurals only in one-word utterances and thus does not have to pay attention to number agreement. With the emergence of more-word-utterances from the age of 2;3 on, number agreement becomes obligatory:

(6) Kathi 2;3.24

*MUT: na was tut er giessen ?
%mor: ?|na ?|was V:S|tun-3S PRO|er V:05|giess-INF ?
%eng: hey what does he water ?
*KAT: gie@p bumen@ [: blumen] .
%mor: phon|gie N|blume-PL2 .
%eng: the flowers .
*MUT: hm # die blumen .
%mor: ?|hm DET:art:def|die N|blume-PL2 .
%engl: hm # the flowers .

As regards complex nominal phrases, from the very beginning (first appearance of a definite article in plural at the age of 2;3), Kathi always seems to mark plural correctly on the definite article. It should be observed, however, that feminine form of the definite article in the singular (*die*) is the most prominent one and coincides formally with the plural of the definite article. The possessive pronoun *mein* 'my' which she acquired at the age of 2;6 and the governing noun also agree in number. Similarly, Kathi attaches plural suffixes correctly to interrogative pronouns (2;9: *wieviele* 'how many', 2;10: *welche* 'which') and to the quantifier *alle* 'all', although the latter is observed mainly in nominal phrases cited from songs.

In contrast, subject-verb agreement in number seems to be more difficult for Kathi. Around the age of 2;4, Kathi produces her first verbal phrases in a plural context (Kathi states that the new shoes fit her), and the number of verbal phrases in plural contexts increases constantly until the end of recording. Nevertheless, for a long period, verbs are not marked for number and therefore do not agree with the subject:

(7) Kathi 2;6.12

*MUT: wozu hamma [: haben wir] denn fuesse gewaschen haeh ?

%mor: ?|wozu V:aux|hab-1P PRO|wir ?|denn N|fuss-PL4 V:08|wasch-PP ?|haeh ?

%eng: what for have we [intensifier] washed feet hm ?

*MUT: wennma [: wenn wir] jetzt in den apfelsaft hineinsteigen ?

%mor: ?|wenn PRO|wir ADV|jetzt PREP|in DET:art:def|den N|apfelsaft V:04|hinein#steig-1P ?

%eng: if we now into the apple juice get ?

*MUT: hm ?

%mor: ?|hm ?
%eng: hm?
*MUT: ha schaetzchen ?
%mor: ?|ha N:add|schatz-DIM3 ?
%eng: ha darling ?
*KAT: wo is(t) meine # lapfen@ [: schlapfen] ?
%mor: ?|wo V:S|sein-3S*agr DET:pro:poss|meine N|schlapfen-PL5 ?
%eng: where is my slippers ?
*MUT: unten stehns [: stehen sie] am boden .
%mor: ADV|unten V:S|steh-3P PRO|sie PREP|an~DET:art:def|dem N|boden .
%eng: down they stands on the ground.

Kathi seems to have difficulties with subject-verb agreement in number, especially with auxiliary verbs, up to the age of 2;8 (2;6: *da *is Blume-n drauf* 'there is flowers on it'; 2;8: *weil alle so viel Geld-e *ha* 'because all have so much money'). In sum, with regard to number, internal noun phrase agreement seems to precede subject-verb agreement.

5.6. *Case distinction in plural*

There is no evidence that Kathi differentiates cases in plural, with the exception of two utterances at the age of 2;6. These utterances contain a prepositional phrase with a preposition *auf*, which demands morphological marking of dative on the following nominal phrase.

(8) Kathi 2;6.19

*MUT: Katharinchen das darf man nicht so hinwerfen !
%mor: N:prop|Katharinchen PRO:dem|das V:mod|duerf-3S PRO|man ?|nicht ?|so V:13|hin#werf-INF !
%eng: Kathi-DIM that may one not so throw !
*KAT: so .
%mor: ?|so .
%eng: so.
*KAT: am fuesse # geht das besser .
%mor: PREP|an~DET:art:def|dem* N|fuss-PL4 V:S|geh-3S PRO:dem|das ADV|gut&CP .
%eng: on the feet # works it better .

In the above example, agreement in number and agreement in case do not correspond: Kathi refers to dative by attaching *-m* to the preposition (the preposition *auf* and the definite article are fused). This ending, however, indicates dative in singular only. In contrast, the noun is marked for number, but not for the dative. In the second example, Kathi speaks of a snail, sitting on the flowers: *isa auf da Blumen [: ist er auf den Blumen]* (2;6). Here, she uses the correct feminine dative singular form of the definite article *der* in the reduced form *da*, but attaches it to the plural noun. As regards the noun, it is not necessary for her to also express the case, since the morphemes for dative and plural coincide in nouns belonging to the *(e)n*-plural class. In both examples, Kathi obviously wants to express dative on the definite article, although she does so incorrectly.

5.7. *Selfcorrection and overgeneralization in plural production*

Already in the first stage of plural acquisition (2;3-2,6), Kathi produces one incorrect plural; from the age of 2;8 onwards, wrong plural forms occur with increasing frequency. These are on the one hand incorrect zero-plurals instead of s-plurals (**Hundi* 'doggies', **Picki* 'stickies', **Mausi* 'mousies'). On the other hand, she attaches *-e* to nouns which should have the suffix *-(e)n* (2;11: **Eisenbahn-e* 'trains', **Eisenbähn-e* 'trains', 3;0: **Elefant-e* 'elephants'). This pattern suggests that she tends to overgeneralize plurals on *-e* (both with feminine *Bahn* and masculine *Elefant*, although the recordings ended too early for substantiating this claim.

Until the age of 2;11, Kathi never corrects herself after having produced a incorrect plural form. At 2;11, she seems to notice for the first time that different endings exist for marking plural and that she used a wrong one, since she changes **Eisenbähn-e* into **Eisenbahn-e* and phonologically deformed **Zopfzangi-s* (for the diminutive *Zopfspang-i-s* 'hair-grip') with correct *s*-plural into incorrect **Zopfpangi* and **Zopfpang*.

6. Conclusions

Kathi's acquisition of nominal plural starts with a few, clearly rote-learned forms in the premorphological phase. At the end of this phase (2,3) and in the following transitional phase, plurals increase, but are restricted to many *(e)n*-plurals, several *e*-plurals, and, for the whole period during which Kathi was observed, three or rather two rote-learned *er*-plural types (since *Oster-ei* is a compound of *Ei*).

There is considerable, and apparently, reciprocal interaction and accommodation between mother and child: in the beginning, neither mother nor child produce plural forms in the observed productions. Later both prefer *(e)n*-plurals, and to a lesser extent, *e*-plurals. Evidently, however, the child's output does not depend linearly on the token frequency of plural allomorphs in the input. Thus, the mother produces nearly as many tokens of unproductive *er*-plurals as of productive *e*-plurals, whereas Kathi displays a considerable difference in the use of the two suffixes. This vouches for the relevance of productivity (cf. Dressler at al. 1996) or at least of type frequency of acquisition.

Once Kathi has reached the modular phase, analogical overgeneralizations become more frequent and the first examples of self-corrections appear. This we interpret as an indication of increased morphological awareness, of identification of plural formation rules and of their productive use. But Kathi is not yet sure about the correct adult restriction of their application. She thus overgeneralizes the *e*-plural twice to the feminine *Eisenbahn* 'train' (with feminine nouns *e*-suffixation is unproductive) and to the masculine *Elefant* where the *en*-plural is productive and where an *e*-plural is unacceptable in adult language, although structurally not completely excluded.

Confirming earlier studies on the acquisition of plurals by Austrian German children (transveral test in Schaner-Wolles 1978, 1988; Streith 1997; production data in Vollmann at al. 1997), this study suggests that *s*-plurals are acquired late. In fact, Kathi produced none, except the plural tantum *Pommesfrites*) and the form *Zopfzangi-s*, which is immediately self-corrected into an *-s*-less form (incorrect in adult German, but apparently adequate for Kathi's stage of plural acquisition). Instead, she produced incorrect zero forms, which she avoided with other plural suffixes. Since the *s*-plural is the only

candidate for the overall default plural, but is less productive in colloquial Austrian German than in Northern German varieties, our findings confirm the relevance of productivity and disconfirm the relevance of the default status.

Acquisition of number, especially of noun plural, develops in the premorphological phase. At the end of the premorphological phase (2;3) and during the following transition phase, Kathi shows an increase in the production of noun plurals. Plurals with *(e)n*-suffix (e. g. *Birnen* 'pears', *Blumen* 'flowers', *Augen* 'eyes') and *e*-suffix (*Schuhe* 'shoes') emerge, and two plurals ending in *-er* (*Kinder* 'children', *Ostereier* 'Easter eggs') are observed.

Productivity seems to play an important role for Kathi in the acquisition of noun plurals. Productive plurals are acquired earlier and occur more frequently than unproductive plurals.

Notes

[1] The Austrian studies are directed by Wolfgang U. Dressler. Funding is provided by the Austrian Academy of Sciences (Fonds zur Förderung der wissenschaftlichen Forschung.)

[2] For more detailed information on the social background of Kathi, see Müller (1997), Vollmann et al. (1998).

[3] Transcriptions of the recordings were made by Müller (according to the CHAT format); Klampfer was responsible for the automatic morphological coding of the data.

[4] One session was recorded at the age of 1;8, 1;10, 2;10, 2;11 and 3;0. There are two recorded sessions at the age of 1;6, 2;2, 2;4; 2;5; 2;8 and 2;9. Three recordings took place at the age of 1;9, 1;11, 2;1, 2;3 and 2;6. When Kathi was 2;0, four recordings were made.

[5] According to Müller (1997), this delay can be explained first by the presence of Kathi's older and rather talkative sister Julia during the recordings; second by Kathi's own shyness; and third, by her high sensibility to suprasegmental phonology and her difficulties with segmental phonology at the same time.

[6] For more detailed information on Kathi's general language development see Müller (1997), Vollmann at al. (1998).

[7] Glossary for the nouns used in table 5: *Eier* 'eggs', *Ostereier* 'Easter eggs', *Birnen* 'pears', *Blumen* 'flowers', *Kinder* 'children', *Augen* 'eyes', *Schuhe* 'shoes', **Handschuhn* 'gloves', *Schlapfen* 'slippers', *Erbsen* 'peas', *Schnecken* 'snails', *Jahre* 'years', *Füße* 'feet', *Socken* 'socks', *Entchen* 'ducks-DIM', *Pommesfrites* 'chips', *Puppen* 'dolls', *Kartoffeln* 'potatoes', *Nockerln* 'dumplings', *Haare* 'hairs', *Filzstifte* 'felt pens', *Hände* 'hands', *Salzstangerl* 'pretzel sticks-DIM', **Gelde* 'money', *Karten* 'cards', *Musikanten* 'musicians', *Löffel* 'spoons', **Hundi* 'doggies', *Mietzikatzen* 'pussy cats', *Stachelbeeren* 'gooseberries', *Rosinen* 'raisins', *Bananen* 'bananas', *Zuckerln* 'drops', *Stäbe* 'sticks', *Nüsse* 'nuts', *Pickerl*, *Picki* 'stickers-DIM', *Zopfspangis* 'hair-slides-DIM', *Enten* 'ducks', *Kugeln* 'balls', **Eisenbähne* 'trains', *Buntstifte* 'coloured pencils', *Schiffe* 'ships', *Sterne* 'stars', *Haselnüsse* 'hazelnuts', **Mausi* 'mice-DIM', *Gabeln* 'forks', *Karotten* 'carrots', *Malfarben* 'painting colors', *Hasen* 'hares', **Elefante* 'elephants', *Spielzeuge* 'toys', *Pinguine* 'penguins', Bäume 'trees.

[8] Due to restrictions of space, it is not possible to discuss all devices Kathi uses during the acquisition of number. We, therefore, focus on the nominal phrase. Other devices (like personal pronouns, demonstrative pronouns or verbal phrases) will be looked at a later point in our project.

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Acquisition of Number in Yucatec Maya*

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ABSTRACT

Yucatec Maya lexical nouns can only be separated into groups on the basis of frequency of plural inflection or concord, that is, nouns which frequently take the suffix *-o'ob* either as a direct inflection or as part of the cross-referencing bound pronoun on the verb. In everyday speech the plural inflection is noticed in animate entities or to objects in one-to-one relation to an animate possessor. Singular and plural may also signaled facultatively by a variety of specific quantitative modifiers. None of these forms either with or without numerals requires any other formal plural or singular marks in the noun phrase or the clause.

Our data from Sandi (1;9 to 2;9) show the development of number marking, as well as on the nouns on animate entities, as on verbs (first observation at the age of 1;11.9). At the same time we analyze the development of the use of the numeral modifiers, because of the importance they have in indicating Singular and Plural in this language.

1. Introduction

In Yucatec Maya noun phrases do not have overt morphological marks for the primary syntactic case relations of intransitive subject and transitive agent and patient. This information is carried out by lexical meaning, word order, and cross-referencing verb- or preposition-bound pronominal markers (Lucy 1996:42).

With respect to the grammatical category of number, noun phrases are not obligatorily marked. The same holds for gender. Therefore noun phrases are apparently neutral relative to these dimensions. Nevertheless, some lexical nouns are marked optionally for number and gender, most of them characterized by animacy. Neither of these requires agreement with other material within the noun phrase. According to Lucy (1996: 43), generally number is marked by pronouns forming part of the verb complex; agreement is not obligatory.

The noun phrase can be modified by demonstratives or by enumeration with numeral classifiers. The noun usually is not pluralized. The numeral ”one” along with the appropriate classifier can be used to indicate indefinite reference: *un-p´éel xanab* (one-inanimate shoe - ‘a shoe’).

With respect to the classification of verbs, we distinguish between transitive, intransitive and stative verb stems. On the verb complex, aspects are represented by inflectional patterning. Yucatec Maya has two sets of pronominal affixes, generally known as Set ”A” (ergative pronouns) and Set ”B” (absolutive pronouns), see Table 1. Both occur within nominal and verbal constructions. Set ”A” is characterized by prefixes, which mark agent with transitive verbs and possession with nouns, while Set ”B” is composed of

suffixes which mark patient with transitive verbs and form equational constructions with nouns. For intransitive verbs, according to the aspect, a different set of pronouns is used to express the subject: perfective and subjunctive intransitives take the absolutive pronouns, and the imperfective group of intransitives take the ergative pronouns.

In most parts of Yucatán, the first person plural form of the Set "A" (k-) is used, but in our data only the regular form (*´in-(w)- ... o'on*) is present.

In noun phrases, number can be marked by inflection, quantitative modifiers or by concord.

Table 1. Yucatec Maya bound pronoun forms

Meanings		Forms	
		Set "A"	Set "B"
Person	Number		
1st	singular	(´)in-(w)-	-en
1st	plural	(´)in-(w)- ...-o'on	-o'on
1st	plural	k-	
2nd	singular	(´)a-(w)-	-ech
2nd	plural	(´)a-(w)-...-e'ex	-e'ex
3rd	neutral	(´)u-y)-	-∅; -ih; -eh
3rd	plural	(´)u-(y)-...-o'ob	-o'ob

With respect to inflection, Yucatec Maya lexical nouns can be marked by suffixing *-oób* to the lexical noun head, so *síinik* 'ant', plus *-o´ob* yields *síinik-o´ob* 'ants'. This suffix is identical to the one suffixed to verbs to indicate third person plural complement.

The suffix is optional or facultative in that it need not be used for correct reference when a multiplicity of referents does in fact exist, but it can be used

to clarify or emphasize such multiplicity (Lucy 1996: 46). It is also syntactically optional.

Depending on the lexical items, there are few unusual cases in the formation of Yucatec Maya plurals, such as the suffix *-al*.

The plural form *-o'ob* is the productive one, hence the Spanish loan words (sometimes the plural inflectional of the Spanish lexical noun has been taken into Yucatec Maya as a neutral form) are pluralized by suffixing *-o'ob* (for example: *flores-o'ob* 'flowers').

The principal modifiers to indicate number are the quantitative adjectives and numerals. Noun phrases of the last type obligatorily involve a numeral classifier which is bound to the numeral (Lucy 1996: 48).

Here are some examples of numerical classifiers used with nouns.

Wholes:

-p'éel	'three dimensional shape' (i.e., formally and semantically unmarked)
-túul	'self-segmenting shape'

Portions of wholes:

-xet'	'piece'

Irregulars (only with "*´un-* 'one'):

-p'íit	'(little) bit's worth'[1]

Modern Yucatec Maya has about 100 classifiers (Miram 1983), of which the most commonly used are *-p´éel* and *-túul*. These morphemes can form part of a full noun phrase or, along with the accompanying numeral, stand for such a noun phrase. In this case the order is: Numeral (or equivalent) + Classifier + Lexical Noun (proper noun or equivalent).

Generally we can state that numerals in conjunction with nouns (or their equivalents) always take classifiers. Spanish numerals (only four Yucatec Maya numerals are still in use) may also be used with classifiers (Lucy 1996).

The lexical noun may be replaced by a pronominal form (in particular a suffix from Set "B") producing an equational sentence: *´óox-túul-ó'on* ''the three of us/we are three'.

The three most general classifiers in conjunction with the numeral prefix signaling "one" are:

´un-túul máak	'a man'
´um-p'éeh naah	'a house'
´um-p'íit ha'	'a little bit of water'

Following Lucy (1996:52), modification of the lexical noun by the numeral 'one' in conjunction with the classifier is the basic way of indicating Singular in Yucatec Maya.

The Numeral + Classifier construction can also be used alone without a following noun phrase as a deictic or anaphoric form: *ts'ah ten ´um-p'éeh* 'give me one'.

It is important to note that in the process of introducing a referent or signaling Singular, considerable additional semantic information will be signaled.

There are several quantitative modifiers in Yucatec Maya which do not involve numerals. In our data, we found the following which indicate that the noun phrase has a Singular meaning:

´u-láak	'another (emphasizing otherness)'
´u-heh	'another (emphasizing sameness)'

Other lexemes which indicate quantity, but without any implications for grammatical number:

lah	'all'
t-u-láak-al	'all, every one'
ya'ab	'many, much'

Number is optionally marked on the verb complex by cross referencing bound pronominal affixes. Some semantic ambiguity exists because the agreement is asymmetric. For example, because of the multiple noun phrase complements included, the transitive verb *t-u-bis-ah-o'ob* can mean 'he took them', 'they took it', or 'they took them'. According to Lucy (1996: 54), in those cases where the verb complex contains a plural pronoun, it indicates that the cross-referenced noun phrase can be construed as Plural.

Resuming, we can say that, given the pattern of facultative number marking, lexical nouns cannot be categorized on the basis of taking obligatory marking in Maya Yucatec. Singular indefinite reference is usually established by a single modifier type consisting of the numeral prefix *'un-* 'one' in conjunction with a numeral classifier. Looking for an answer as to why Yucatec Maya requires numeral classifiers and what function they serve in the grammar, Lucy suggests that semiotic functions of the system and the logic of its operation are involved. As all the lexical nouns of Yucatec Maya are unspecified as to unit since they all require supplementary marking (i.e., numeral classifiers) in the context of numeral modification, the numeral classifiers serve to specify the unit or boundedness of the referent of the lexical noun. Therefore they can be considered unitizers which supplement the meaning of the lexical noun head so that it will accept numeral modification. Yucatec Maya lexical nouns are unspecified as to unit. Lucy argues this by stating that lexical noun phrases do not require pluralization in the context of reference to a multiplicity of entities. Numeral classifiers clarify the logical or spatial perspective being applied to, or presupposed of, the noun phrase

complement. In this way, Yucatec Maya speakers achieve by means of a single grammatical formation what English speakers, for example, achieve by a combination of lexical alternation, determiners, and quantitative modifiers.

The numeral classifiers also serve pragmatic, or discourse-based functions in Yucatec Maya. Numeral plus classifier constructions (i.e., standing alone without an associated lexical noun) can also serve in deictic and anaphoric uses.

Although individual classifiers may appear and disappear within this language, the lexical structure is consistent with the obligatory unitization to indicate Singular (and specific quantitative multiples) and with the option of Plural marking.

In this study we seek to detect the early acquisition of number and (numeral) classifiers. We also try to relate Lyons' classification, characterized by the strict distinction of sortal and mensural classifiers, with Lucy's results of the psycholinguistic study in which he states that it is not the classifier alone nor the lexical noun alone that indicates animateness, but rather that such a meaning is deducible from their joint operation.

2. Acquisition of Number by Sandi

2.1. *General information*

The speech of Sandi, first-born child of a Yucatec Maya family, has been recorded since May 20, 1995, when she was age 1;9.27. In her home in Yalcobá, a village located in the eastern part of Yucatán, native Yucatec Maya is the only language spoken.

Observation for this work took place from age 1;09.27 to 2;10.30. The analysis includes data from age 1;11.09 to 2;10.30 with a total of 28 recordings (of 30, 45 or 60 minutes each), made twice a week (see Table 2).

Table 2. Summary of recordings

Recordings		
Period: 1;11.09 to 2;10.30	Number of recordings	Time recorded (minutes)
Total	103 (100%)	4200' (100%)
Selected	28 (27,2 %)	1215' (28,9%)

The recordings are characterized by a child-centered speech between the mother or the interviewer (NEF = Neifi) and the child Sand (SAN), or by playing sessions between Sandi and her cousin Armando.

2.2. *Beginning of the production of number and classifiers*

The first age at which the plurality of two or more objects is referred is at 1;11.09. This plurality was characterized by the plural suffix *-o'ob* in a noun and in a demonstrative, as well as in two types of the verb *bin* 'to go': *bin* and *xi'ik*), both with the suffix *-o'ob*.

(1) Sandi 1;11.09
*SAN: he'elo'ob ## xupi kaxo'ob .
%mor: DEM|he'el-PL finish N|kax-PL .
%eng: there-PL finish chicken-PL .

The first agreement between adjective and noun, which is not obligatory in, is found at 2;2.15:

(2) Sandi 2;2.15
*SAN: le mehentako'ob miiso'obo' .
%mor: DEM|le little|PL cat|PL|DEM .
%eng: there little-PL cat-PL-those .

Sandi begins to express number lexically with the classifier *p'éel,* which is the basic way of indicating Singular. It is presented without any numeral and without any following

(3) Sandi 2;2.15
*SAN: oxo'ntik p'éela' .
%mor: thresh|PL1|IMPF CL:INAN|DEM .
%eng: thresh-PL1 one-CL this.

2.3. *Devices used by Sandi*

As number in Yucatec Maya is marked more often by pronouns on the verb complex than by the plural suffix *-o'ob* in the noun phrase, our data show the respective increase of using plural forms on the verb complex. From the beginning of the recordings the suffix of the 3rd person plural complement *-o'ob* is optionally used to emphasize a multiplicity of referents. Only since the age of 2;5 the use of the first and second plural forms increases; both, as marking is obligatory, show a growing frequency in types and tokens. Table 3 shows us the increasing use of the verb plural suffixes since age 2;5.1, as well

as in types as in tokens. Further this table shows us the growing use of the plural suffix *-o'ob* in nouns, adjectives and demonstratives, as well as the use of the three plural verb forms. The development of the use of the classifier system (considering the distinction between numeral and mensurative classifiers) is shown on the left side of this table. The quantitative modifiers appear at 2;3 in the recordings and are used in a more complex way (for example: *ulaak ump'eel* "another one") at the end of the observed time.

(4) Sandi 2;10.18

*FIL: máax puru hanah ken a beeteh .

%eng: who is making eat always .

*SAN: ha ## puru hanah ki' beeto'on .

%mor: yes only eat|IMPF good make|PL1 .

%eng: yes only eat-IMPF good make-PL1 .

It seems that from the age of 2;8 the child has acquired the three plural verb forms, the first and the second used correctly, and the third used in a facultative way It seems that from age 2;8 the child has acquired the three plural verb forms, the first and the second used correctly, and the third used in a facultative way (see Figure 1).

Nouns are expressed during the first recordings without any inflection, but often accompanied by a demonstrative (Prefixes/Postfixes). Only from the age of 2;8 the girl increases the types and tokens (see Figure 2). Figure 2 shows the development of the plural suffix *-o'ob* in nouns and in pronouns, the first already used at age 2;0 while the pronouns are used in its plural forms only since age 2;7. Nevertheless, the data s a whole shows that verbs are more used

than nouns, with or without inflections (de León in press, Brown in press, Pfeiler and Martín in press).

Table 3

Figure 1

Figure 2

Only two adjectives have been observed in the plural form. These are *mehen* 'small' and *tia'al* 'own' (see example (2)). The lexical noun in its plural form is replaced by the demonstrative *he'el+ -'o'b*, producing the equational sentence: 'Here they are'. Table 3 shows the number of adjectives and demonstratives used by the child according age.

With respect to classifiers, it is at age of only 2;2.28 that Sandi begins to use these jointly with the numerals *kaa* 'two', *óox* 'three', but still with the function of demonstratives. Sandi uses the numeral classifier with a noun, but on only one occasion with the following word order: Noun + Numeral + Classifier: *p´éel* + Verb. It seems that the noun in this case had been topicalized.

The numeral classifier (+ animate) *túul* is used in a correct way, i.e. followed only by nouns which represent animate objects (here: chicken, ants, animals). In most cases, *túul* is used as a demonstrative or anaphoric form. Therefore we can confirm Lucy's (1996: 55) statement of the existence of a tendency in everyday speech to limit plural inflection and concord to animate entities.

(5) Sandi 2;9.13
*SAN: síinik he'el le' 'uláak 'un túulo' Mech .
%mor: ant DEIC DEM other NUM|one CLAS:ANIM:DEM Mech .
%eng: ant(s) here that other one-NUM animate-CLAS Mech .

Figure 3 shows the development of the use of the numeral (*-tuul*, *-p'eel*) and mensurative (*p'iit*) classifiers. In the data as a whole the classifiers most used by Sandi is *-p'eel*. The frequency of the numeral classifier *p'éel* (in conjunction with the numeral prefix signaling 'one') is increasing according to

age, primarily used to indicate indefinite reference and secondly used as a demonstrative form (see Figure 3). In our data the numeral prefix *(h)'u(n)(m)* 'one' is often omitted. The same omission is counted for the mensural classifier *-p'íit* 'little', which is followed by the only mass noun *ha'* 'water'.

Figure 3

When Sandi expressed numerals in Spanish, she did not use any classifier. The classifier *ooch* 'comestible' is correctly used and even followed by different nouns, at 2;8.16:

(6) Sandi 2;8.16
*SAN: tu uk'ik in wooch áarroz .
%mor: PROG|he drink|IMPF my CLASS|comestible rice .
%eng: eating he my comestible rice .

With respect to the quantitative modifiers which are not related to the grammatical category of number, Sandi, at age 2;3.26, starts to use the lexeme *uheh* 'another' (indicating sameness), but only as imitation of the mother's speech. It is not until the age of 2;6.6 that Sandi uses this lexeme by her herself.

From the age of 2;8.27 the child distinguishes correctly between both lexemes which apparently have the same meaning of 'another', but are differentiated by the character of sameness/otherness, and from 2;925 she uses *´uláak* followed by the numeral classifier *´ump'éel*, indicating 'one (NUM)+another' and used as a demonstrative form.

3. Conclusions

The data analyzed in this study cover a period of 11 months of observation. This is the speech of Sandi from age 1;11 to age 2;10. It is important to note that the recording situation is characterized by a child-centered speech between mother or interviewer and the child. Therefore, as we have already confirmed

in previous studies (Pfeiler and Martín Briceño in press), from the beginning of recording (1;9) there is a large amount of imperative verb forms, in the input as well as in Sandi´s speech. During the recording sessions using picture-books for descriptions, we noticed that the child changed the syntactic advice and expressed only isolated words in a repetitive form. Therefore those recordings were not considered in this study.

With respect to the grammatical category of Plural we can summarize that Sandi's acquisition of nouns and verbs can be divided into three periods (see also Figure 4):

Period I (1;11 - 2;3:) is characterized by the very low frequency of types and tokens of nouns and verbs expressed in plural. Most of the expressions have been mentioned by the adults during the recording, but not in the immediate linguistic context.

In the next period II (2;2 - 2;6) Sandi develops the plural forms for the first and second person. The adjective "small" is used in plural in agreement with the noun, as well as in the function of a noun.

It is only in period III (2;7 - 2;10.30) that the child begins to develop morphological processing of plurality concerning the first and second person in verbs. Use of the third person, where the referent is optionally marked, occurs only when the multiplicity of referents is emphasized.

Given the importance of classifiers in Yucatec Maya, that all lexical nouns are unspecified as to unit, this supplementary marking is required. The data show us that the child starts to use the classifier *p'éel* (+inanimate) very early, i.e. at age 2;2.15, either in combination with the numeral or without the numeral and the following noun. Until age 2;9 the child uses classifiers mostly as a demonstrative and anaphoric form.

It is only from age 2;10.18 that the child uses the numerals in conjunction with nouns correctly, i.e., that they always take classifiers. Syntax is also respected. We even find examples with the following word order: Numeral+Classifier+Adjective+Lexical Noun, for example: *´um-p´éel chan tunich* “one (+inanimate) little stone”.

The lexical nouns which indicate animateness are used with the respective classifier *túul,* as the mass noun *ha´* ”water” is accompanied by the respective mensural classifier *p’íit* ”little”.

Figure 4

In conclusion we notice an increasing use of plural marking in Sandi´s speech as she reaches the age of nearly three years in the last months of observation. Since plural marking is optional, we cannot determine if it is used correctly or not based only on a linguistic context. It is therefore necessary to take the pragmatic context into account as well.

Notes

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1 Generally numeral classifiers are divided into two groups: sortal (indicating ”whole” entities) and mensural (indicating ”measure” or ”quantity”). (Lyons 1977:463-64).

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Acquisition of Diminutives by a Russian Child: Preliminary Observations in Connection with the Early Adjectives

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ABSTRACT

The paper deals with the early stage of the acquisition of diminutives by a Russian child. The transcripts of spontaneous dialogues of the Russian-speaking boy between 1;4 and 2;00 are analyzed. Diminutive formation is viewed in connection with the acquisition of the early dimensional and evaluative adjectives. As these two processes start approximately at the same age (around 1;7), we assume that the acquisition of diminutives serves as a model for the future acquisition of abstract semantic categories such as "dimension" and "evaluation", expressed by the first adjectives.

1. Introduction

Diminutives in Russian are traditionally regarded as a productive model of word-formation, that is not regular but frequent. Diminutives are used to express smallness, non-seriousness, minimization of request, child-centered or pet-centered situation, endearment, as well as in some cases, contempt, disrespect (e.g. *doktorishka* 'doctor-DIM') or strong imposition on the speaker (for this last rare meaning compare *Razgovorchiki v stroju!* 'conversation-DIM:PL in the regime' (an order to stop speaking in the army) or *Bystren'ko!* 'ADV|quick-DIM'[1] , which is much stronger than a simplex in the same situation. One and the same form may be used in a positive and negative context depending on the pragmatic situation and the speaker's status (for example *zhenishok* 'fiancee-DIM' used by the maiden and by her mother may have quite different connotations). Most diminutive suffixes have their own preferences for different semantic nuances, however, it often happens that one and the same suffix has a negative meaning in one word and a positive meaning in another.

There are several hypothesis about the basic concept of diminutives , that could have served as a base for the entire variance of meanings at present. Mostly, smallness (or smallness + non-seriousness as in Dressler and Merlini Barbaresi 1994) or child centered (Jurafsky 1996, Wierzbicka 1984) are considered as such key meanings. Most of the scholars report that diminutivized forms occur in child- and pet- directed speech. Not going into deep details of the archaeology of meaning, we would like to describe the emergence of such forms in a productive vocabulary of a Russian-speaking child and pose a question about its function in mother-child interaction. We had observed the tape-recorded dialogues of a Russian boy Filipp from the age

of 1;04 to 2;00 compared to the session at 2;06 as a control measure. The investigation was carried out in the framework of the project „Pre- and protomorphology“ headed by W.U.Dressler[2] and the description of early diminutives is made according to the questionnaire by S. Gillis.

2. Adult target system

Diminutives in Russian are frequent and may be formed with a great variety of suffixes that precede the inflection, for example: *sestra* ‘sister’, *sestrICHKa* or *sestrJONKa* ‘sister-DIM’, formed with the help of the suffixes *-ichk-* or *-jonk-*.[3] B.V. Bratus (1969) reports that to form diminutives from nouns more than 30 suffixes may be used; there is also a big set of special suffixes for adjectives and adverbs.

The choice of suffixes depends on the gender and the phonological type of the stem. We can cite the following suffixes according to “Russkaja grammatika” (1980) (see Table 1).[4]

Table 1 (nominal and adjectival diminutive markers)

1.1. Productive nominal suffixes

Suffix (+ inflection, if any) Examples	Gender, other characteristics	Phonological characteristics
OK/IK bratOK/bratIK << brat ‘brother-DIM’	MASC;PLUR.TANTUM diminutives and hypocoristics	The second suffix changes the last

		consonant
CHIK sarajCHIK<<saraj ‘shed-DIM’	MASC	Stem ending in [j] or combination of vowel and labial or sonorant
EC xlebEC << xleb ‘bread-DIM’	MASC with a tendency for meaning disrespect/contempt	Changes the last consonant
K(A) golovKA << golova ‘head-DIM’	Usually FEM, but also MASC , COMM and PLUR.TANTUM	
C(O) slovCO << slovo ‘word-DIM’	NEUTER	
USHK(A) zverUSHKA (FEM) << zver’ (MASC) ‘beast-DIM’	FEM and MASC with (A); the stressed form of this suffix can change the gender	
EN’K(A)//INK(A)//ONK(A) djadEN’KA << djadja ‘uncle-DIM’	MASC (A); FEM, COMM and PLUR.TANT	The suffixes soften the last consonant
OCHK(A)//ECHK(A) mamOCHKA << mama ‘mother-DIM’	MASC &FEM personal names and terms of relations, hypocoristic	

1.2.Non-productive nominal suffixes

Suffix (+ inflection, if any) Examples	Gender, other characteristics	Phonological characteristics
YSHEK//ESHEK vorobYSHEK<<vorobej 'sparrow-DIM'	MASC	forms with the stem cutting
URK(A) dochURKA<<doch 'daughter-DIM'	FEM, diminutive or hypocoristic	
INK(A) slezINKA<<sleza 'tear-DIM'	FEM with a tendency to "part of a whole" meaning	

UL'(JA)//UN'(JA)//US'(JA)//
USH(A) VerUNJA//VerULJA
//VerUSHA//VerUSJA
<<Vera
	MASC & FEM personal
	names and terms of relations,
	hypocoristic	

1.3. Productive adjectival suffixes

Suffix (+ inflection, if any) Examples	Gender, other characteristics	Phonological characteristics
ON'K(IJ)//EN'K(IJ) blednEN'KIJ<<blednyj 'pale-DIM'	QUAL, nuance of a pity or minimization of quality	Softens the last consonant
OXON'K(IJ)//OSHEN'K(IJ)xoroshEN'KIJ<< xoroshij 'good-DIM'	QUAL, archaic model, positive evaluation	
US'EN'K(IJ) mal'USEN'KIJ<<	QUAL, denoting smallness	

malen'kij 'small-DIM'

The adjectival suffixes can be added to the qualitative adverbs as well, compare *bystren'ko* 'quick-DIM' from *bystro*.

We could not find any verbal diminutives except the frozen forms *spaten'ki* 'sleep-DIM' from *spat'*, *rostin'ki* 'grow up-DIM (dialect)' from *rasti*, *potjagusi* 'stretch-DIM' from *potjagivat'sja* and the verb *kushen'kat* 'eat-DIM' from *kushat'*, the usage of which is restricted to the child-centered speech. However, Bratus (1969: 56) claims that forming a limited number of verbal diminutives is not excluded.

The form of the suffix depends on the gender and on the phonological form of the stem of the simplex; often several suffixes can be used. The double diminutive are formed by adding two diminutive suffixes to the simplex, for instance *mal'chishechka* 'boy-DIM', formed with -ECH and -K from *mal'chik* (compare the simple diminutive *mal'chishka* which usually has the connotation of disrespect). Usually if there are two 'degrees' of diminutivization, the second diminutive (DIM-DIM) takes the semantic meaning of smallness, whereas the first (-DIM) one, the most common, is used only for expressive nuances. Bratus (1969) argues that three degrees of expressiveness can be distinguished in Russian diminutives, for instance, *knizhonochka* 'book-DIM-DIM-DIM'(3 degrees), *knizhonka* 'book-DIM-DIM (2 degrees), and *knizhka* 'book-DIM' (1 degree) are all derived from the simplex *kniga* 'book'. However, these forms have different meanings and the multiplication of diminutive suffixes does not imply mere intensification. As these distinctions are not especially marked and one can argue that there are not so many words for which all three degrees are present, only the single and the double

diminutive forms will be distinguished. As a rule, a diminutive has the same gender as the simplex (except the stressed suffix -USHK-(A)).

The frequency of diminutives in the adult language is a matter of individual style. Frequent usage of diminutives adds a peculiar characteristic in literary style, usually hypocrisy (like in *Gospoda Golovljovy*, a novel by I.A. Goncharov, in which the hero's language has quite a lot of diminutives). Diminutives may seem colloquial. Parents and especially grandparents often use them in child-centered speech. But there are also families that never use diminutives (e.g. young, educated people).

Productive usage of diminutives in child-centered speech is mostly restricted to inanimate nouns. Personal names and kinterms are usually not diminutivized and if they are, these are "frozen" forms. For example, *babushka* 'granny-DIM' is used only as such, whereas the former simplex *baba* 'woman' is rude. Evidence suggests that many words occur in the child's speech first in the diminutivized form for the simple reason that the simplex never occurs in the input.

Augmentatives are also formed with the help of suffixes, whereas pejoratives partly take diminutive suffixes in a special context and partly take augmentative forms, for example pejorative meaning is common for *gazetjonka* 'newspaper-DIM' and for *kozlishche* 'goat-AUGM'. The tendency for augmentatives to change gender is more outspoken than for diminutives, but the category shift can hardly be imagined in Russian.

3. Diminutives in the speech of a child

The analysis of diminutives in child Russian is based on transcripts of the tape-recorded speech of the boy Filipp from 1;04 to 2;00 (an additional recording was made at the age of 2;06). The first diminutives in the speech of Filipp emerge at about 1;06. Before that age no diminutivized words occur. In that period the child's vocabulary is restricted to 20 - 25 words. These words are usually monosyllabic without diminutive suffixes presumably due to phonological reasons. In Table 1 it can be seen that only the suffixes -K(A) and -C(O) do not change the number of syllables in the word. The second suffix is very rare and not usually found in motherese. This may explain why the first diminutive forms in the child's speech at 1;06 have the suffix -K(a). The only diminutive forms used are in fact exact repetitions. There are only a few of them, and, again, this may be attributed to the child's restrictive phonology (he prefers monosyllable words at the time).

At the age of 1;06 Filipp repeats some names of animals, which are usually diminutivized in child-centered speech. Body parts are also used in the diminutive form in child-directed speech because the hands and feet of a child are small. To express tenderness and smallness parents can use the second diminutive with 2 suffixes, but that is rather uncommon. For example: *rybochki* 'fish-DIM-DIM-PL' is uncommon and *rybki* 'fish-DIM-PL' is much more habitual than the simplex *ryba* 'fish-SG-FEM'. In this case we would rather say that the double diminutive is a real semantic diminutive, whereas the simple diminutivized form is used in the meaning of a simplex. The word *pupok* 'navel-DIM-SG' is used as such in adult speech, and the simplex *pup* 'navel-MAS-SG' sounds even rude. *Zajka* 'hare-DIM-SG' is the first form in the child's language. The simplex was never used, in the sense that it did not occur in the corpus. Also the word *ptichka* 'bird-DIM' is used in its diminutivized form both by Filipp and by his mother. The first diminutives at

1;06 are all repetitions and the simplex (non-diminutivized) form was not encountered. Table 2 gives set of possible forms for those words, in which the forms really used by Filipp are underlined.

Table 2. Repeated forms at 1;06-1;07

Age	Lemma	Gloss	Simplex	DIM-1	DIM-2	PL	DIM-1-PL
adult	zajac	'hare'	zajac	zajka	zajchishka	zajcy	zajki
1;06.01	1			1			
1;06.11	1			1			
adult	ryba	'fish'	ryba	rybka	rybochka	ryby	rybki
1;06.11	1				1		
adult	ptica	'bird'	ptica	ptichka	-	pticy	ptichki
1;06.11	1			1			
adult	noga	'foot' / 'leg'	noga	nozhka	nozhen'ka	nogi	nozhki
1;07.11	1			1			
adult	ruka	'hand' / 'arm'	ruka	ruchka	ruchen'ka	ruki	ruchki
1;07.11	1			1			

Table 2 shows that words for animals and body parts are all diminutivized. Inspection of the words' contexts does not reveal any semantic or other motivation. The child's mother often uses these words in their diminutivized form. She uses these words only as diminutives, but the child may not have an idea about the real function of the diminutive suffixes. As we noted before, he probably has no idea yet of the real dimensions of objects, or at least, he can not render it. At the age of 1;08.12 he still doubts what to answer to the

question „Which kind of?“ and demonstrates total indifference while saying ‘big’ or ‘little’, compare the forms used in (1).

(1) Filipp 1;08.12:
*MAM: zajka bol’shoj ili malen’kij?
%eng: what kind of hare is this: small or big?
FIL: bos’a
%eng: big.
*MAM: bol’shoj, razve bol’shoj?
%eng: big, is it really big?
*FIL: i mal’a *.
%eng: and little.

Thus we can hardly imagine that the child really realizes the meaning of the diminutive suffix. However, he starts to use diminutivized forms and this gives him a formal way of expressing dimensional distinctions. Already at the age of 1;07 we found the back-formation *shapa* from *shapka* ‘the cap’ which contains a “false diminutive suffix”. At the same age a period of “sporadic use“ of diminutives is noted in the Dutch-speaking child investigated by Gillis (1997). This can be regarded either as a first step in the direction of the spontaneous use or as a phonemic simplification of a cluster, since normally children start to change false diminutives into their simplex much later. The break between 1;07 and 1;08 is more than a month and in this period we see major changes. Many diminutives are used together with their simplex, which shows that the child has got a good command of using the suffixes with the inflections. We also find several DIMs from one and the same simplex. At the age of 1;08.25

Filipp already uses much more diminutive forms in parallel with their simplex (see Table 3)[5].

Table 3 displays all the diminutives from the transcript made at age 1;08.25. Diminutives amount to 18% of all nouns the child uses. A switch to the spontaneous use can be remarked with some "blind alleys" in diminutive formation. This can be illustrated by the non-normative usage of the -A inflection with a strong tendency to soften the last consonant of the stem. The

Table 3. Diminutives at the age 1;08.25

Lemma	Gloss	Simplex	DIM-1	DIM-2	PL	DIM-1-PL
jozh 2	'hedgehog'	jozh 1	jozhik 1	-	ezhi	jozhiki
Filipp 22	his name	Filipp	Filja 5	Filjusha 17	-	-
grib 2	'mushroom'	grib	gribok 1	gribochek	griby	gribki
kot 25	'cat'	kot 1	kisja* 17 kisik* 1 kotja* 6	kotishko	koty	kotiki
medved' 7	'bear'	medved' 1	misha* 6 mishka	mishutka	medvedi	mishki
mjach 6	'ball'	mjach	mjachik 6	-	mjachi	mjachiki
mysh' 5	'mouse'	mysh'	mysha* 4 myshka 1	-	myshi	myshki
nos 12	'nose'	nos 11	nosik 1	nosishko	nosy	nosiki
usy 8	'whiskers'	us	usik	-	usy 5	usiki 3
ryba 2	'fish'	ryba 1	rybka 1	rybochka	ryby	rybki
ptica 3	'bird'	ptica	ptichka 3	-	pticy	ptichki
rot 1	'mouth'	rot	rotik 1	-	rty	rotiki
ruka 1	'hand'	ruka	ruchka 1	ruchen'ka	ruki	ruchki

tendency to soften the consonant is considered to be a universal diminutive marker by Dressler and Merlini Barbaresi (1994). The -A inflection is used to form diminutives from feminine nouns and from kinterms (like *papa* 'daddy',*dedushka, deda* 'grandfather') and to form hypocoristics from

masculine personal names (often with the shortening of the stem), like *Borja* from *Boris*, *Sasha* from *Alexandr*, *Misha* from *Mixail* etc. Most of the words invented by the child at this time have -A inflection after the soft consonant (*kal'a-kal'a* he sings dancing, *mal'a* is his own word for the cat, *bal'a* he usually says chattering). This shows that such articulation is easy for him and serves as a base for word and diminutive formation.

Examples of diminutives that are used in addition to their simplex are certain words for body-parts (*nosik* 'nose-DIM', *usy* 'whiskers-DIM-PL'), animals and plants (*rybka* 'fish-DIM', **kot'a* 'cat-*DIM). At the same time Filipp starts to distinguish between big and small things, compare

(2) Filipp 1; 09:

*MAM:e~to bol'shaja kisa ili malen'kaja?
%eng: is it a big cat or a small?
*MAM:ili bol'shaja kisa?
%eng: or a big cat?
*FIL: bashaja.
%eng: big.
*MAM:a e~ta?
%eng: and this?
%com: there is a cat and a kitten on the picture.
FIL: malja malja malja.[6]
%eng: little, little, little.
%com: malen'kaja - points to the kitten.
FIL: bal'sh.
%eng: big.
%com: points to the cat.

It seems that the very first diminutives were not used to express real dimensional differences: opposing small and big objects seems to occur later. This is in agreement with the hypothesis of Dressler (1994) about the priority of pragmatic factors in the first use of diminutives. Similar evidence is presented by Ceccherini, Bonifacio and Zocconi (1997: 161) for the early use of diminutives in Italian. The first diminutives are used as direct repetitions or as the only existing names for certain objects. The real opposition of the diminutive form and its simplex accompanies the development of a cognitive mechanism of evaluation.

The mother's strategy consists in asking the child questions about sizes. Such questions emerge in her speech after 1;06 when she seems to suppose that the child is able to understand them. At this time the form of the question includes an adjective ("Is it small?" "Or big?") that enables the child to give an appropriate answer by exact repetition. The first questions of the type "What kind of?" emerge at the age of 1;07. At that time the child can hardly understand what his mother means, but she usually gives him an idea by prompting and repeating. So Filipp learns the first adjectives by repeating his mother. The first diminutives are used not because of their exceptional or prominent meaning but because they serve as the only way to denote an object. A crucial change emerges between 1;09-1;10. The percentage of tokens (24%) as well as the variety of diminutives increases. A complete listing of the child's forms is presented in Table 4.

The semantic types of diminutivized nouns in Table 4 are different from those in Table 2 and 3. Whereas in the first dialogues these were all animals, plants and body-parts, in the last table we find more nouns denoting objects, like 'sun', 'lantern', 'ball', etc. This may show that that child switched from

expressing endearment to the real evaluation of dimensions. However, this assumption may be too strong, since the nouns are used only in a diminutivized form.

The most frequent semantic types that occur as diminutivized nouns are names of animals, toys, body-parts and food. A similar observation was made by Stephany (1997: 152) for early child Greek. Names of people occur very rarely in our material 1) because most kinterms were repeated by the child during a special game, and hence we did not include them into the lists; 2) the boy has no siblings and his friend is usually called by his full name (*Ilja*) which is shorter than the possible hypochoristic (*Iljusha*). 3) The name of the family cat is a diminutive by nature, so we can not find any proper simplex for it and did not include it (*Fantik* - is his name, but the back-formation form was

Table 4. Diminutives at the age 1;9.

Lemma	Gloss	Simplex	DIM-1	DIM-2	PL	DIM-1-PL
Dom 2	'house'	dom	domik 2	domishko	doma	domiki
stol 1	'table'	stol	stolik 1	-	stoly	stoliki
kot 12	'cat'	kot	kisa 10 kotik 2	kotishko	koty	kotiki
mjach 1	'ball'	mjach	mjachik 1	-	mjachi	mjachiki
kozjol 1	'goat'	kozjol	kozlik 1	-	kozly	kozliki
xvost 4	'tail'	xvost 3	xvostik 1	-	xvosty	xvostiki
usy 2	'whiskers'	us	usik	-	usy	usiki 2
obez'jana 4	'monkey'	obez'jana	obez'janka 4	-	obez'jany	obez'janki
petux 4	'cock'	petux	petushok 4	-	petuxi	petushki
solnce 1	'sun'	solnce	solnyshko	-	-	-

				1			
fonar' 1	'lantern'	fonar'	fonarik 1	-	-	-	

never used). Stephany (1997: 153) made a similar observation about her Greek material: the children as well as the mothers that she observed used diminutives less frequently when referring to persons than when referring to objects and animals. The mother of Filipp usually uses several diminutives for the child's name (*Filippok* 'Filipp-DIM', *Filipochek* 'Filipp-DIM-DIM', *Filjusha* 'Filipp-DIM') as well as hypochoristic *Filja*. The use of his full name ("Filipp!") usually denotes that she is not happy with what he is doing and it is usually pronounced with a special intonation (falling contour). Therefore the boy also uses different diminutives referring to himself (see Table 3). The use of hypocoristics and diminutives from personal names usually means endearment and can be compared rather to the evaluative adjectives, than to the dimensional ones.

At the age of 1;09 the child continues to produce back-formations such as *kosha* 'cat' from *koshka* 'female cat' (with a "false" diminutive suffix), *shchen* from *shchenok* 'puppy' (also with the "false" diminutive suffix). There is no evidence that these forms are really productive. They can be considered as truncations, especially in the case of 'puppy' which should be always small. These truncations rather mean freedom in his use of the diminutive suffixes as a formal operation.

The number of different diminutive types increases to 42 at the age of 1;10. From the age of 2;00 onwards Filipp seems able to form diminutives productively. At 2;06 he has used about 30 different diminutive types, 51% of them are used alongside with their simplex. At this age 2 adjectival diminutives occur: *zhjolten'kij* 'yellow- DIM' from *zhjoltyj* and *belen'kij* 'white-DIM' from

belyj. Both adjectival diminutives are used together with their simplex. Both in the child's language and in the adult's language they have complex meanings ('white and small'), compare

(3) Filipp 1;11:
*MAM:cvetochki kakie, Filja?
%eng: what flowers are there, Filja?
*FIL: bein'ki a z'ojten'ki.
%eng: white-DIM and yellow-DIM.

The adjectival diminutive is used here alongside with the nominal diminutive and has the same meaning (it could even be used by analogy).

4. Diminutives in the speech of a mother

The mother's use of diminutives parallels the child's. We examined her diminutive formation at four periods: at the very beginning (1;04), at the age when a child starts to repeat some of them (1;06); at the age when he starts to use them productively (1;09) and at the age when the child demonstrates free usage of the diminutives (2;06). The distribution of mother's diminutives between the semantic groups is different: she uses more words denoting food and inanimate objects, whereas a child prefers animals. The number of different diminutive types increases from 9 at 1;04 to 17 at 1;06; to 18 at 1;09 and 33 at 2;06. She feels that he is already able to understand and form diminutives himself. In fact, the number of diminutives depends on the individual speech and mother's strategy and it is relatively high in child

directed speech. Most of the diminutives used by her up to 1;09 are nouns (we found only one adverb *tixonechko* 'quiet-DIM' at 1;09), whereas at the age of 2;06 she has used 3 different diminutivized adjectives ('yellow-DIM', 'thin-DIM' and 'gray-DIM').

The percentage of diminutives in comparison to all types and tokens was (tentatively) calculated. It appears that the percentage of diminutive types remains constant in the mother's speech (about 12%), while the percentage of diminutive tokens varies from 4% at 1;04 to 12 % at 1;06, and then drops to 7-8% at 1;09 and 2;06.

5. Conclusions

Diminutives in early child Russian occur rather early (about 1;7). There are some common traits in diminutive use and formation in child language at least for several Indo-European languages: there is a tendency for softening the stem in forming the diminutive (if it is possible in the phonological system of language); the set of the most frequently diminutivized nouns contains animals, toys, body-parts; inanimate objects and hypocoristics come later. At the early stages there are no evident contexts for their usage, whereas already at the period of "sporadic use" such contexts occur. The pragmatic reasons for their use seem more important, at least at the beginning, than the pure semantics. In any case the meaning "smallness" is very important for the child. We can appreciate the strong argumentation of Jurafsky (1996: 560-562) for taking "child(-centered)" as a basic and original concept for diminutives. However, this meaning is less relevant for the acquisition of language by a child in comparison to "smallness", since it demands a very high degree of abstraction

in all cases when a child is speaking about inanimate objects, like food or things. Another idea of Jurafsky, based on many previous studies (see the review in Jurafsky 1996: 537-541) seems more important for the acquisition processes, namely that a process of semantic change "proceeds from the real physical or spatial world to the ideational domain to create more qualitative, evaluative, and textual meanings". In the framework of this "unidirectionality hypothesis" we can assume that the first diminutives may serve as a concrete model for the acquisition of the dimensional adjectives, whereas the use of hypocoristics plays the same role for the evaluative adjectives. The fact that both the first adjectives and the diminutives occur at the same time supports this tentative hypothesis.

Notes

[1] The semantic nuance of "intensifying force" in the diminutivized adverbs is not unusual, compare the function of the form *ahorita* 'now-DIM' in Mexican Spanish reported by D. Jurafsky (1996; p. 534).

[2] The new observations on the acquisition of adjectives were supported by a Research Stipendium of A.v. Humboldt Foundation in 1998.

[3] Russian examples are given in transliteration that is usually used for the analysis of our transcripts by CLAN programmes. The system of transliteration was especially discussed at the workshop „Automated analysis of Slavic and Baltic languages" in Krakow, April 1994.

[4] We mention only those suffixes that occur in mother-child dialogues. For more information see Russkaja grammatika (1980; 208:216)

[5] The forms that do not exist in adult Russian are marked with an asterisk. The underlined forms are types and the figure is the number of tokens produced at the given age.

[6] The asterisk here marks the non-normative truncation.

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The Acquisition of Diminutives in Lithuanian

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ABSTRACT

The acquisition of Lithuanian noun diminutives is studied. The preliminary results are based on tape-recorded data of one child between 1;7 and 2;6. Quantitative as well as qualitative analyses of the acquisition of diminutives are presented and discussed. A very close parallel between the mother's and the child's use of diminutives is discovered. This study reveals that the acquisition of Lithuanian diminutives starts early and from the very beginning the child uses an important number of these forms and does so in a very qualitative way.

1. The data

The analysis is based on the recordings of one Lithuanian girl, named Ru€ta, the first-born and the only child of middle-class parents living in Vilnius. Ru€ta's speech was recorded in natural everyday situations by her mother, a

philologist. Data collection started in November 1993 when the child was 1;3.14 and was continued till February 1996 when she was 3;7. Ru€ta's onset of speech can be dated approximately around the age of 1;7. The speech was transcribed by the girl's mother according to CHILDES (Child Language Data Exchange System) format, as elaborated by MacWhinney and Snow (1990).

2. Lithuanian diminutives

Lithuanian nouns fall into two groups according to their word formation pattern: simple and formations. The latter are used more frequently. Most of the formations are derived words and only few of them are compounds.

The most frequent derivatives are those made with the help of suffixes. Nouns, adjectives, verbs as well as some other parts of speech serve as the basis for suffix derivation. The most frequent noun derivations are diminutives, which are the topic of this paper.

A diminutive is a term used in morphology to refer to an affix with the general meaning of "small", "little". The formant is a suffix which performs the function of meaning modification. Usually the suffix adds semantic features of a quantitative and/or qualitative nature.

Diminutivization is not restricted to nouns: other parts of speech can be diminutivized as well. Here we shall confine ourselves only to the noun diminutives.

The assumption is that suffixation does not cause a new concept to be formed but that an existing concept is modified. Therefore different suffixes added to the same noun only give slight stylistic changes of meaning such as endearment, pleasure or pejoration.

Diminutives are suffixed derivations of nouns denoting more or less the same item as expressed by the noun. Nevertheless diminutives in Lithuanian as in many other languages denote difference in size (more often smaller than bigger) and in emotional evaluation (ranging from highest and lowest estimation) (Ulvydas 1965: 253).

This definition of diminutives is broader than the usual one as it comprises not only meliorative diminutives (denoting smallness), but also so-called amplificatives (denoting augmentativiness) and pejoratives (denoting pejorativness). Augmentatives and pejoratives are not frequent in Lithuanian. Moreover they are difficult to detect because usually (but not always) they are formed with the same suffixes used for diminutive word formation.

Meliorative diminutives can be used ironically to denote the opposite notion of augmentativness or pejorativness in specific contexts, e.g. *Koks namelis - DIM* - dangu4 *remia* 'What a house - DIM - real skyscraper.'

The same holds for the evaluative features of meaning. Originally positive diminutives can be used to denote a negative attitude, e.g. *Koks te%velis - DIM, toks su€nelis - DIM* 'Sun - DIM takes after his father - DIM (inherits negatives traits of his father character)'.

Noun diminutives provide the largest group of suffixed derivatives. Semantically this group consists of the names of dear persons, animals, objects of everyday life. They are not restricted to the names of physical entities; nouns denoting more abstract entities can also be diminutivized.

The greatest quantity and variety of diminutives can be found in folklore and a smaller amount of diminutives is used in the emotional colloquial style.

A distinctive feature of the Lithuanian language is the morphologically unrestrictive formation of diminutives from any noun with the help of one or several suffixes at a time.

As to their meaning, diminutives are used not only to indicate the small size of an entity, but also to express various kinds of other meaning. Mostly nouns with diminutive suffixes do not express only the small size, they have affective meaning, showing that the denoted object causes positive emotions and admiration. This meaning usually can be found in the names of living beings or plants and the diminutives are used to express the speaker's sympathy, endearment, pity (Paulauskiene% 1994: 66).

The most frequent suffixes of diminutive formation are *-elis*, *-e%* (*senelis*, *senele-* 'a grandfather', 'a grandmother'), *-e%lis*, *-e%* (*dobile%lis* 'a clover', *nugare%le%* 'a back'), *-(i)ukas, -e%* (*s&uniukas* 'a dog', *gerviuke%* 'a crane'), *-utis*, *-e%* (*kis&kutis* 'a hare', *pievute%* 'a meadow'), *-ytis*, *-e%* (*brolytis* 'a brother', *mergyte%* 'a girl') and others.[1]

From the viewpoint of word formation diminutives with the suffix *-elis*,*-e%* are most frequent, but less diverse. They are derived from two-syllabic nouns while other suffixes can be added to two- or multisyllabic nouns. All the diminutives retain the gender of the basic noun.

The diminutives with the suffix *-(i)ukas*, *-e%* are more often than others used with the names of children or birds and animal offspring. In this case noun derivatives can be viewed not as diminutives with the meaning "young" but as derivatives of belonging and origin (*kac&iukas* 'a cat', *s&virbliukas* 'a sparrow', *varniukas* 'a crow') (Ulvydas 1965:268).

Diminutives with the suffix *-(i)ukas*, *-e%* most often are derived from masculine nouns. Feminine nouns are not so frequent. In standard Lithuanian the consonant immediately preceding this suffix is usually soft, though consonant pronunciation of some diminutives can have both forms, e.g. *akmenukas - akmeniukas* 'a stone', *pilvukas - pilviukas* 'a stomach', *tiltukas - tilc&iukas* 'a bridge'.

Diminutives with the suffix *-ytis*, *-e%,* though not numerous, are exclusively used in the descriptions of children or topics related to their surroundings. They also usually combine both meanings of "smallness" and "affection" for the concrete objects and persons they are used for. In contrast with the diminutives with *-(i)ukas*, *-e%*, which are mostly used for masculine nouns, suffix *-ytis, -e%* are connected to feminine nouns and retain the gender of the simplex (*duonyte%* 'a bread', *lovyte%* 'a bed', *kojyte%* 'a leg', *mamyte%* 'a mother').

There is also evidence for semantic differentiation amongst the different suffixes. The suffixes *-(i)ukas*, *-e%* and *-ytis*, *-e%* tend to be associated with a greater degree of smallness than the other diminutive suffixes.

Diminutives with the suffixes *-us&is*, *-e%, -oks&nis*, *-e%, -us&is*, *-e%*; *-e%zas*, *-ike%, -iote%* and many others (in Lithuanian there are about 80 diminutives suffixes) can be found only in folklore or dialects. Their meanings of smallness and/or affection are supplemented with more pejorative shades of meaning.

All the above mentioned diminutives contain only one suffix. Multiple diminutivization is also possible: diminutives with three, four or even more suffixes can be found. A word with six suffixes - *puodelaituke%lyte%lis* 'a cup' - is known from folk tales. Such words are rare in everyday usage. They are more common in folklore and especially folksongs.

Diminutives with two suffixes are quite common in standard Lithuanian, e.g. *dalelyte%* 'a part', *s&mogeliukas* 'a man', *te%veliukas* 'a father', *mamyte%le%* 'a mother'. Double suffixation reinforces the effectiveness of the diminutive meaning.

Many diminutivized forms in Lithuanian (as in other languages) have a tendency to acquire the status of independent lexical items, with more or less

specialized meanings, e.g. *vamzdelis* ‘a tube’, *dars&elis* ‘a kindergarten’, *ragelis* ‘a phone receiver’. Taylor (1990: 148) was right in saying that “diminutivization thus becomes an important means whereby a language can extend its lexicon.”

3. Lithuanian diminutives in child and child-directed speech

The quantitative and qualitative development of diminutives is discussed in this section. We will compare the usage of diminutives in the child’s speech and in the input language.

3.1. *Quantitative analysis*

The quantitative progression of diminutives can be noticed from the very beginning of the recordings (see Table 1).

Table 1. Quantitative development of Ru€ta’s diminutives types/tokens

Age	Types	Tokens
1;7	3	14
1;8	34	110
1;9	58	322
1;10	87	575
1;11	53	403
2;0	73	527
2;1	73	491

2;2	101	687
2;3	111	627
2;4	91	550
2;5	98	464

At first Ru€ta starts with 3 diminutives (14 tokens) and reaches a peak of 111 (627 tokens) at the age of 2;2. Thus we can say that the quantitative development was quite steady. The material reveals a few interesting facts. The usage of diminutives strongly increases in a month's time: from 14 to 110 when the child is 1;8. It is important to mention here that the spurt of the simplicia starts only a month later. When the girl is 1;8, she uses 33/223 simplex nouns and when she is 1;9 - 112/665. She chooses the diminutives instead of the simplicia for her first vocabulary formation. This preference for the diminutives does not seem to be a very common phenomenon in child language, though. Thus, Ru€ta learns a lot of words in the first two months. The increase of her vocabulary is initially due to learning diminutives and only later she adds simplex nouns.

Between ages 1;7 and 2;6 some other interesting developments are observed. We already mentioned the vocabulary enrichment in 1;8 and 1;9. Between 1;10 and 2;2 there is remarkable increase of tokens (see Table 1). This means that the girl started to recognize, to understand and to use new words independently. If we compare diminutives with the total number of nouns (types and tokens), we can see that diminutives (types) are used more or less equally - about 40% of all the nouns. But the use of wordforms increases considerably in 2;2 and remains quite high all along - between 50% and 70%. This means that up to the age of 2;6 the girl uses more diminutives than simplex nouns. Whether this is a general characteristic of the acquisition of

Lithuanian or a peculiarity of this particular girl[2] remains to be investigated: an analysis of more children's acquisition data is required.

For this child it is not very hard to explain the high percentage of diminutives. In general, mothers use a lot of diminutives in child directed speech. The frequency of diminutive usage in the speech Ru€ta's mother is surprisingly high. Figure 1 shows that when the child is 1;7, her mother uses more than 65% of the nouns are diminutives (as compared to 21% for the girl). This is the highest level in the entire corpus. When the child is 1;8 mother and Ru€ta use 50% of the nouns are diminutives and from 1;9 onwards, the child uses diminutives quite regularly - around 40% of all noun wordforms. In Ru€ta's case the process of diminutive acquisition starts very early and it reaches the level of the mother's use almost from the very beginning. Figure 1 shows the proportion of diminutives relative to the number of nouns in Ru€ta's and her mother's speech. It appears that from 1;8 onwards, i.e. onset of productive usage of diminutives, the girl uses a lot of diminutive wordforms (around 40%) and the child's relative frequency of use of diminutives is at about the same level as her mother's.

How to explain this his frequency of diminutives in Ru€ta's and mother's speech? Why do they use so many of these forms? And, why are they used so often? The mother's rate of the diminutives could be explained in terms of pragmatics. She wants to express "love", "endearment" and other warm feelings towards her child. In this respect it is hard to agree with Ferguson's famous "baby talk as simplified register" (1977: 209-235), since it is not always the case that mothers try simplify their speech (see also Pine 1994: 15-37). In the case of Lithuanian, the use of diminutives does not simplify the

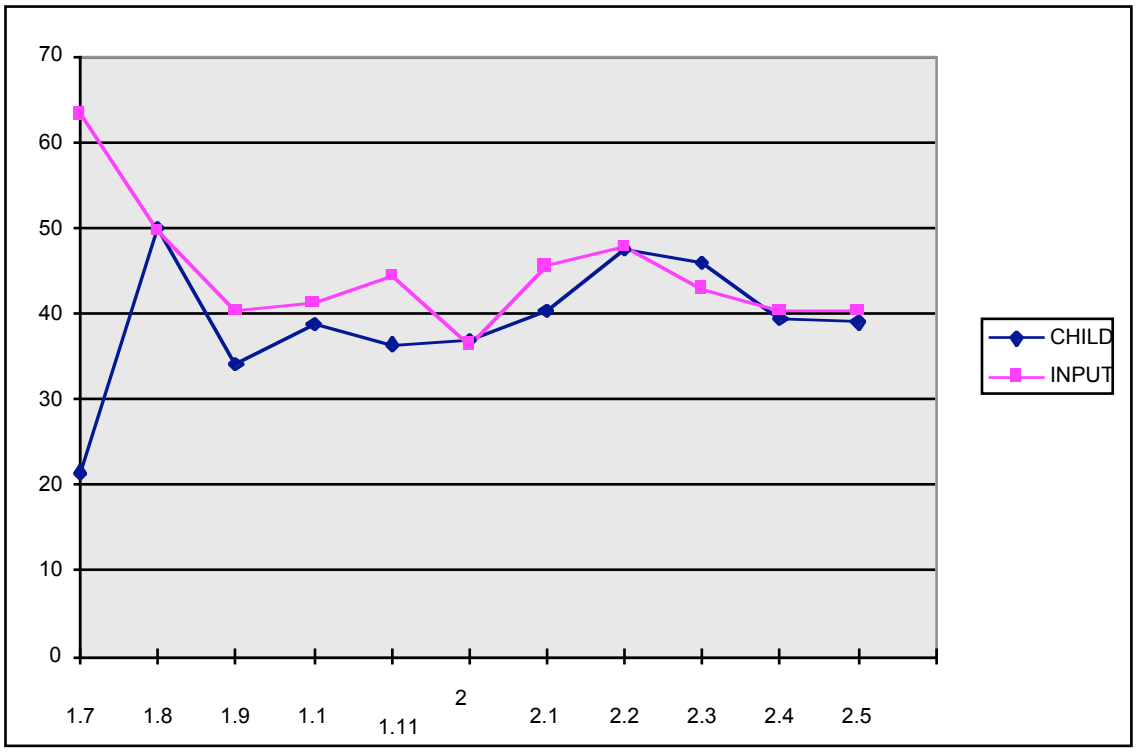

Figure 1. Percentage of diminutive tokens in Ru€ta's and her mother's speech

child's understanding of the language. In addition to their morphological complexity, diminutives are also phonetically more complicated than their simplex forms and they are much longer. So the child has more problems to pronounce the word correctly. How to explain the child's preference for more complicated words? A careful look at the Lithuanian noun declention system may be helpful in this respect. Briefly stated: there are 12 declinations (Ambrazas 1994) and all the diminutive nouns fall just in 3 declinations: one for feminine and two for masculine gender. It seems that the child tries to simplify the difficult noun declentional system and uses just three endings. This confirms Dressler and Karpf's view that the rules of derivational

morphology emerge before inflectional rules (Dressler and Karpf 1995: 99-122).

Table 2. Distribution of diminutives suffixes in Ru€ta's and her mother's speech

	Feminine			
	Child		Mother	
	Types (%)	Tokens (%)	Types (%)	Tokens (%)
ele%	9	3	18	7
e%le%	8	2	14	3
ute	27	18	24	15
aite	2	2	2	2
yte	53	76	40	74
uke	1	0	2	0

	Masculine			
	Child		Mother	
	Types (%)	Tokens (%)	Types (%)	Tokens (%)
elis	14	11	20	18
e%lis	8	4	8	4
ukas	68	80	63	65
ytis	1	1	1	1
utis	9	4	7	11
aitis	0	0	1	1

The analysis of diminutive suffixes shows that their frequency and productivity are very closely related with those in CDS. Table 2 shows the frequency of suffix (in percentages) of types/tokens in Ru€ta's and her mother's speech. The percentages are similar in the two subtables: the most frequent suffix for feminine nouns is *-yte*% and the second most frequent is *-ute*%, both in the speech of the child and the mother. The most frequent suffixes for masculine nouns are: *-ukas* and *-elis*. The other suffixes are not used very often. It is important to mention that Ru€ta starts to use not just one suffix but all of them from the beginning. Of course, some of them are very frequent and others are very rare. If we compare the frequency of the suffixes in standard Lithuanian (Ambrazas 1994) and those used in Ru€ta's and her mother's speech, it appears that the frequencies are not the same. The most frequent suffixes standard Lithuanian are *-elis*, *-ele*%.

The most frequent diminutives are proper nouns, mostly names, and especially Ru€ta. The entire scale of all possible Lithuanian diminutive suffixes manifests itself. The simplex is *Ru€ta*. The diminutives used in her speech are: *Ru€tyte*%, *Ru€tele*%, *Ru€tule*%, *Ru€tute*%, *Ru€tus&e*%, derived from the basic feminine noun and retaining the same gender. We also find a gender shift, in the case of diminutives formed with the help of masculine suffixes or when using double suffixation: *Ru€tukas, Ru€tule%lis, Ru€tute%lis, Ru€tus&is, Ru€tus&e%lis, Ru€c&iukas*. The girl does not use these masculine suffixes for self-reference, only the feminine is used then. The gender shift and double suffixation serve the purpose of diminutive reinforcement and endearment meaning.

The other important question is related to the semantic basis of diminutives and their simplex forms. Let us see, if the girl's lexicon contains words in their basic form and diminutives or words in both forms. The results

reveal that Ru€ta uses words mostly as basic (approximately 55%) or as diminutives (approximately 35%). The words she uses in both forms are not very numerous - only about 10%. This percentage would be even lower, if we analyzed the concrete examples. In most cases the words used in both forms differ in frequency. The diminutives are more frequent, e.g. *kamuolys* (5) - *kamuol-iukas* - DIM (53) 'a ball', *koja* (2) - *koj-yte%* - DIM (10) 'a leg', *nosis* (1) - *nos-yte%* - DIM (6) 'a nose', *batas* (6) - *bat-ukas* - DIM (11) 'a shoe', *le%le%* (2) - *le%l-yte%* -DIM (43) 'a doll'. An interesting fact is that basic words are mostly imitations while diminutives self-produced:

(1) Ru€ta 2;1 (MAM = the child's mother, RUT = Ru€ta, the target child)
*MAM:Taip, c&ia futbolo kamuolys.
%eng: Yes, this is a football.
*RUT: Kamuolys.
%mor: N:03:MS:CMl kamuolys: SG:NOM:kamuolys.
%pho: Kamuolys.
%eng: a ball.

This is an example when Ru€ta uses a basic form in direct imitation. In a new speech situation more often she will say the same word as diminutive:

(2) Ru€ta 2;1
*MAM:Kà Ru€tyte% pirko?
%eng: what did Ru€ta-DIM buy?
*RUT: Kamuoliukà didelá raudonà.
%mor: N:01:MS:CMl kamuoliukas: DIM:SG:ACC:kamuoliukà
ADJ:didelis: SG:MS:ACC:didelá

ADJ:raudonas: SG:MS:ACC:raudonà.
%eng: a ball - DIM big, red.

This example shows that the girl does not relate form differences to meaning differences (Clark 1993).

In cases when the word is new for Ru€ta and her mother uses it in the simplex form, the girl leaves the latter in her speech, e.g. *s&uvis* 'a fish', *bite%* 'a bee', *namas* 'a house', *saldainis* 'a candy', *mas&ina* 'a car', *balionas* 'a balloon'. But almost all these words, except *namas* - a house', changed into diminutives in a few months: for instance at 1;7 *s&uvis* (5) - *s&uvyte%* - DIM (1), and at 2;4 *s&uvis* (2) - *s&uvyte%* - DIM(5); 2;3 *balionas* (24) - *balioniukas* - DIM (1) and at 2;4 *balionas* (7) - *balioniukas* - DIM (13); 2;3 *saldainis* (26) - *saldainiukas* - DIM (1) and at 2;5 *saldainis* (11) - *saldainiukas* - DIM (11).
The next example will illustrate Ru€ta's preponderance to diminutives, and the process a diminutivization. It shows the girl's understanding of both forms (basic and derivative) as words with the same basic meaning. The first noun that was used in both wordforms was *batas* 'a shoe'. She used this word in its simplex form when she was 1;7 and used it two times independently. Later she produced: 1;8 *batas* (4) - *batukas* - DIM (2), 1;9 *batas* (1) - *batukas* - DIM (3), 1;10 *batas* (4) - *batukas* - DIM (5), 2;0 *batas* (3) - *batukas* - DIM (11).

She produces both basic and diminutive form in the same speech situation for the same referent:

(3) Ru€ta 2;1
*RUT: Turi = tuji, kamuolys, kamuoliukas, duok.
%mor: V:ture%ti| PRES:SG:2:turi = tuji
N:03:MS:CM|kamuolys: SG:NOM:kamuolys

N:01:MS:CM|kamuoliukas: DIM:SG:NOM:kamuoliukas,

V:duotil IMPER:SG:2:duok.

%eng: (you) have a ball, a ball -DIM, give (me).

(4) Ru€ta 2;2

*RUT: cia guli mes&ka = meska, mes&kiukas = mesiuka.

%mor: PROADV:LOC:DEM: c&ia = cia

V:gule%til PRES:SG:3:guli

N:06:FM:CM|mes&ka: SG:NOM:mes&ka = meska,

N:01:MS:CM|mes&kiukas:DIM:SG:NOM:mes&kiukas = mesiuka.

%pho: cia [=c&ia] guli meska [=mes&ka], mesiuka [=mes&kiukas].

%eng: Here is laying a bear, a bear - DIM.

Thus in most cases she prefers diminutives, i.e. longer words. Especially in the earlier stages she cannot pronounce the whole word properly due to phonetic difficulties, but she always pronounces the suffix, e.g. *U€tyte%, Tyte% (Ru€tyte%)*. The word's stress pattern helps to maintain the suffix and also helps to perceive it properly, because in Lithuanian the suffixes of diminutives are mostly stressed which makes them salient in spoken language.

An important observation is that suffixes are not tied to specific words: from the very beginning when Ru€ta diminutivizes a noun, she does not restrict the diminutive to a single suffix, instead, she uses several different suffixes, e.g. 1;8 - *mes&k-iukas* - DIM (5) 'a bear', *mes&k-ute%* - DIM (6), *mes&k-yte%* - DIM (1); *med-ukas* - DIM (5), *med-utis* (1) 'a honey'; 1;9 - *kac&-iukas* - DIM (1), *kat-in-e%lis* - DIM (1), *kat-yte%* (10) 'a cat'; *mas&in-e%le%* - DIM (1), *mas&in-yte%* - DIM (3); 1;10 - *arbat-e%le%* - DIM (3), *arbat-yte%* (2) 'a tea'; 2;2 - *kamuol-iukas* - DIM (84), *kamuol-e%lis* (2) 'a

ball'; *kengu€r-iukas* - DIM (31), *kengu€r-yte%* (2) 'a kangaroo'; 2;2 - *kepur-aite%* -DIM (2), *kepur-yte%* - DIM (2) 'a hat'. The fact that she uses several suffixes shows her mastery of diminutive formation. We mentioned that Ru€ta used diminutives spontaneously - not in direct imitations. A few examples will confirm that she can produce these derivatives spontaneously and in a correct form:

(5) Ru€ta 1;7

*MAM: kà tu c&ia dabar darysi?
%eng: what will you do here now?
*MAM: batukus atsegi?
%eng: are you taking your shoes - DIM off?
*MAM: kas c&ia yra, Ru€tyte?
%eng: what is this, Ru€tyte - DIM?
*RUT: batai.
%mor: N:01:MS:CM|batas: PL:NOM:batai
%pho: batai.
%eng: shoes.

(6) Ru€ta 1;8

*MAM: kas c&ia?
%eng: what is this?
*RUT: Mes&kyte% =metyte%.
%mor: N:08:FM:CM|mes&kyte%:DIM:SG:NOM:mes&kyte% = metyte%.
%pho: Metyte% [= mes&kyte%].
%eng: a bear - DIM.
*MAM: mes&kute%?

%eng: a bear - DIM?
*RUT: taip.
%eng: yes.

(7) Ru€ta 1;8
*MAM: o kas c&ia?
%eng: and what is this?
*RUT: mes&kute% = metiute%.
%mor: N:08:FM:CM|mes&kute%:DIM:SG:NOM:mes&kute% =metiute%.
%pho: metiute% [= mes&kute%].
%eng: a bear - DIM.
*MAM: mes&kute%?
%eng: a bear - DIM?
*RUT: mes&kiukas = metiukas.
%mor: N:01:MS:CM|mes&kiukas:DIM:SG:NOM:mes&kiukas = metiukas.
%pho: metiukas [=mes&kiukas].
%eng: a bear - DIM.

She can use the word in its basic form (3), though her mother uses a diminutive and she can create different wordforms with different suffixes: *-yte%, -ute%, -ukas* (4), (5). It seems that she already has a derivational rule and consequently that she can produce the simplex and the derivative forms independently. She appears to understand that the language system allows her to use different suffixes with the same word. This confirms her very early mastery of the rules of the adult language system.

3. 2. Qualitative analysis

According to Stephany (1997:150) "in order to understand the development of diminutives in child language acquisition it is necessary to study not only their morphological derivation but also their semantic and pragmatic functions". Diminutives are used more frequently in child directed speech than in adult language. In Lithuanian, as in Greek, the same "diminutives are used very frequently when talking to or referring to children, and the lexical items with the greatest flexibility in accepting diminutive forms are mostly those related, directly or indirectly, to young children" (Sifianou 1992: 158):

(8) *MAM: s&iu€re%k, ves&ime%lyje - DIM mas&yte% - DIM le%lyte% - DIM jau miega

%eng: Look, in the crib - DIM a little - DIM doll - DIM already sleeps

In child directed speech situations the suffixes of diminutives are often pragmatically motivated and "are preferentially attached to nouns referring to the child, its body parts, or even objects specifically belonging to the child" (Dressler and Merlini 1994: 224 cited in Stephany 1997: 152). Semantic categories such as toys, animals (toys), body parts, food, clothes are among those that Ru€ta diminutivizes more frequently. In contrast to what Stephany (1997: 153) reports about Greek, the Lithuanian girl studied here uses a large number of diminutive forms when referring to people (about 60% of tokens). A major part of diminutivized names consists of repetitions of the girl's own name. She uses it a lot in self-reference. This could be influenced by her mother's speech. "Children are frequently referred to, or addressed by, diminutivized forms of their full names" (Sifianou 1992:159). The mother can

use one or several different variants of the girl's diminutivized name as a standard (*Ru€tyte%, Ru€tele%, Ru€tute%*). These forms of her name are also used by relatives and friends. In addition there are very uncommon forms restricted to very specific situations (e.g. mother used *Ru€tuliukas, Ru€tus&e%lis*). But these derivatives "tend to be used only by a restricted number of closely related people, and are not usually used in self-reference" (Sifianou 1992: 158).

The recordings consist mainly of mother-daughter dialogues, so their names are the most frequently used names. There are a lot of addressforms and instances of self-reference in their speech, e.g.: *Mamyte% sako Ru€tytei* 'The mother - DIM says to Ru€ta - DIM'; *Ru€tyte, atnes&k, mamyte% pras&o* 'Ru€ta - DIM, bring, the mother - DIM is asking'; *mamyte, duok* 'mother - DIM, give'; *Ru€tyte%s puodukas* 'Ru€ta's - DIM cup - DIM'. The diminutivized names express pragmatic meanings such as love and endearment. There are some cases when these names are used in their basic forms by both the mother and the girl. This contradicts earlier statements that the basic and the derivative forms used by the girl do not differ in the meaning, appears:

(9)

a) *MAM: negalima, Ru€ta, nukrisi nuo c&ia.
%eng: don't do, Ru€ta, (you) will fall (down) from here.

b) %sit: Ru€ta fell down and crying.
*RUT: skauda.
%eng: hurts.
*MAM: neskauda, nelipk, Ru€ta, tikrai bus kampas.

%eng: doesn't hurt, don't go, Ru€ta, will be a corner.
%com: means that Ru€ta will be punished

c) *MAM: nelásk, nelásk prie rozete%s, Ru€ta!
%eng: don't touch, don't touch the socket, Ru€ta!

d) *MAM: is&barstei viskà, oi tu Ru€ta, Ru€ta.
%eng: (you) spilled everything, aha Ru€ta, Ru€ta.

In these examples there is a difference in meaning between the basic and diminutive forms. In all these utterances the mother used the girl's name in its basic form for the purpose to discipline Ru€ta (a, b, c) or to show her disappointment in her daughter (d). This implies that the diminutive forms are used to express affection, endearment and other warm feelings or in neutral situations. The basic form expresses opposite and negative meaning.

When Ru€ta addresses her mother she also uses more often diminutive forms. Nevertheless there are some utterances with a basic form:

(10) Ru€ta 2;4
*RUT: ateik cia, ateik.
%mor: V:ateitil IMPER:SG:2:ateik
PROADV:LOC:DEM:c&ia = cia
V:ateitil IMPER:SG:2:ateik.
%pho: ateik cia [=c&ia], ateik.
%eng: come here, come.
*RUT: statom, statom.
%mor: V:statytil PRES:PL:1:statom

V:statyti| PRES:PL:1:statom.
%pho: statom, statom.
%eng: let's build, let's build.
*RUT: mama, statom, mama.
%mor: N:06:FM:PR|Mama:SG:VOC:mama
V:statyti| PRES:PL:1:statom,
N:06:FM:PR|Mama:SG:VOC:mama.
%pho: mama, statom, mama.
*RUT: mama!
%mor: N:06:FM:PR|Mama:SG:VOC:mama!
%pho: mama!
%eng: mother!

(11) Ru€ta 2;5
*RUT: mama, mama, us&ris&k = ajisk mes&kiuikui = mesiukai.
%mor: N:06:FM:PR|Mama:SG:VOC:mama
N:06:FM:PR|Mama:SG:VOC:mama
V:us&ris&ti|IMPER:SG:2:us&ris&k = ajisk
N:01:MS:CM|mes&kiukas:DIM:SG:DAT:mes&kiukui
= mesiukai
%pho: mama, mama, ajisk [=us&ris&k] mesiukai [=mes&kiukui].
%eng: mother, mother, tie up the bear.

(12) Ru€ta 2;5
*RUT: mama, neus&simerk = nesimek, s&iu€re%k = s&iu€je%k!
%mor: N:06:FM:PR|Mama:SG:VOC:mama,
V:neus&simerkti| IMPER:SG:2:neus&simerk = nesimek

V:s&iu€re%til IMPER:SG:2:s&iu€re%k = s&iu€je%k!

%pho: mama, nesimek [=neus&simerk], s&iu€je%k [=s&iu€re%k].

%eng: mother, don't close (your eyes), look!

It is not hard to notice that all these situations are very similar and that they mean the same - a request to do something. The request also contains some other components: non-satisfaction, non-patience, irritation - which are negative. The girl uses imperative and special intonation for reinforcement of the negative meaning.

These differences in meaning between the basic and derivative forms were noticed only in the usage of these two names and not in the others, neither in the common nouns usage. Thus, Dressler's hypothesis is confirmed that "simplicia and diminutives are used interchangeably without any noticeable difference in meaning" (1994: 101).

Ru€ta's diminutives mostly have a pragmatic meaning, especially as forms of endearment, e.g. *s&un-iukai - DIM miega prie kengu€r-iuko - DIM* 'the dogs - DIM sleeps to the kangaroo -DIM' (2;4); *Mes&kiukui skauda kojytæ* 'the bear - DIM hurts the leg - DIM' (2;5). As hypothesized by Dressler (1994: 102) in Ru€ta's data the pragmatic meaning seems to emerge much earlier than the semantic meaning of smallness. There were no examples in the whole corpus in which a simplex noun and its corresponding diminutive have different referents. Ru€ta's data confirms Gillis' hypothesis "that in this early stage of acquisition, the child is constructing the formal operation of diminutive formation. The evidence indicates that this occurs without the semantic underpinnings of diminutive use, since if the relevant semantic dimension needs to be expressed, the child uses full lexical means to do so"

(1997: 177). The evidence comes from the girl's use of the adjective *mas&as* 'little', e.g. *Mas&a kat-yte%* - *DIM* 'a little cat - DIM' (2;3); *Mas&-iukas* - *DIM kengu€r-iukas* - *DIM* 'a little - DIM kangaroo - DIM' (2;3).

4. Conclusion

We analyzed the acquisition of Lithuanian diminutives using the data of one child between 1;7 and 2;6. The acquisition of these derivatives starts very early. The child uses a whole lot of diminutives from the very beginning and she does so in a very qualitative way (no "errors" found in the whole data).

A very close parallel between the mother's and the child's use of diminutives was discovered.

Ru€ta's data confirm that simplicia and diminutives are used interchangeably without any noticeable semantic difference (Dressler 1994: 101). In the same speech situation and for the same referent she used both simplicia and diminutives. Diminutives in Ru€ta's speech do not indicate semantic distinctions.

The primary meaning of diminutives used in child and input speech is pragmatic, expressing endearment, love and other warm feelings. In Lithuanian diminutive formation (as in others Indo-European languages) pragmatics seems to be very important. Thus the non-semantic meaning of the earliest diminutives disconfirms assumption of smallness as central meaning of diminutives (Dressler and Karpf 1995: 109).

Notes

[1] The endings of noun diminutives are: masculine gender - as, -is; feminine gender - e%.

[2] Using diminutives is typical for Lithuanian, and even more for the baby-talk, see Wojcik (1994).

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Diminutives in Finnish
Child-Directed and Child Speech

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ABSTRACT

Finnish has a morphologically marked category of diminutives, but diminutives are not very common in Finnish, at least in adult speech. Nevertheless, from the point of view of child speech and child-directed speech, diminutives in Finnish are interesting - not only from the morphopragmatic perspective which Finnish shares with other languages but also from the more language-specific morphophonemic perspective: using diminutives is one way to avoid some more or less complex morphophonemic alternations, because the Finnish diminutives have usually a more simple and transparent inflection pattern than the simplex words from which these diminutives have been derived.

In the Finnish derivation morphology there is much variation in the marking of diminutives: there is no single diminutive element. Most of the Finnish diminutives are formed by normal affixation, but in some cases the stem is shortened and an affix-like element is attached.

Two-syllabic diminutives ending in -U and -O are numerous in Finnish child language and in nursing language, and these diminutives belong to the inflectional most simple stem-type of Finnish. For example, when from the word *käsi* : *käde*/*n* : *kät*/*tä* :

käte/en ‘hand’ (nominative, genitive, partitive and illative forms, respectively; suffixes are separated by “/” from the stem) is formed the diminutive *känny*, all the stem alternations are eliminated, and the corresponding case-forms are simply *känny* : *känny/n* : *känny/ä* : *känny/yn*.

The empirical material includes some overextensions at the onset of productive diminutive formation. The observed child has some own diminutive types but most diminutives used by the child are also common in the child-directed speech of adults.

1. Introduction

Finnish has a morphologically marked category of diminutives, but diminutives are not very common in Finnish, at least in adult speech, especially if compared with Italian (Ceccherini et al. 1997), Greek (Stephany 1997) or Dutch (Gillis 1997). Nevertheless, from the point of view of child speech and child-directed speech, diminutives in Finnish are interesting - not only from the morphopragmatic perspective which Finnish shares with other languages (Dressler and Merlini Barbaresi 1994: 144, Stephany 1997: 147 - 148) but also from the more language-specific morphophonemic perspective: using diminutives is one way to avoid certain more or less complex morphophonemic alternations, because the Finnish diminutives usually have a more simple and transparent inflection pattern than the words from which these diminutives have been derived.

2. Diminutive formation in Finnish

In the Finnish derivational morphology there is much variation in the marking of diminutives: there are many different diminutive elements. Finnish is an

agglutinative language, and most of the Finnish diminutives are formed by normal affixation, but in some cases the stem is shortened and an affix-like element is attached. There are also some diminutive compounds, e.g. *pikkumies* 'little man, boy' from *mies* 'man' and *pikkubussi* 'minibus' (cf. *bussi* 'bus'). In most cases, Finnish diminutives are nouns derived from other nouns, but there are also some adjectives. Diminutives are frequently formed with the following suffixes:

a) *-nen* e.g. *kala* 'fish' -> *kalanen* 'little fish'; *kirja* 'book' -> *kirjanen* 'booklet'; *kukka* 'flower' -> *kukkanen* 'little flower'; *tyttö* 'girl' -> *tyttönen* 'little girl'.

This is the most productive diminutive suffix in Finnish; it can be attached to most noun stems (but not for example to the few monosyllabic stems). Especially in this derivation group, many diminutives have been lexicalized, e.g. *lehti* 'leaf; newspaper, journal' -> *lehtinen* 'leaflet'.

b) *-kkA*

1. *-(U)kkA* (mostly denominal nouns, NOUN -> NOUN) e.g. *nenä* 'nose' -> *nenukka*; *lehti* 'leaf' -> *lehdykkä* 'little leaf', *perä* 'back' -> *perukka*, *pohja* 'bottom' -> *pohjukka*, *puola* -> *puolukka* 'lingonberry', *pyöreä* 'round' -> *pyörykkä* 'the little round one', *ressu* ' unfortunate' -> *ressukka* 'unfortunate', *soppi* 'corner' -> *sopukka* 'little corner'

2. *-(i)kkA* (mostly NOUN -> NOUN) e.g. *kanta* 'base' -> *kannikka* 'crust', *lude* 'bug' -> *lutikka*, *musta* 'black' -> *mustikka* 'bilberry', *peni* 'dog' (archaic) -> *penikka* 'whelp, pup', *vasa* 'fawn' -> *vasikka* 'calf'

3. *-AkkA* (ADJECTIVE -> ADJECTIVE) e.g. *kalpea* ‘pale’ -> *kalvakka* ‘somewhat pale’, *puna* ‘red color’ -> *punakka* ‘red-faced’, *ripeä* ‘rapid’ -> *rivakka* ‘quick, vigorous’

c) *-kAinen* (= *kkA* + *inen*; mostly ADJECTIVE -> NOUN) e.g. *ainoa* ‘the only one’ -> *ainokainen* ‘the (dear) only one’, *kaunis* ‘beautiful’ -> *kaunokainen* ‘the beautiful one’, *keiju* ‘fairy’ -> *keijukainen*, *lapsi* ‘child’ -> *lapsukainen* ‘dear/little child’, *lyhyt* ‘short’ -> *lyhykäinen* ‘short’, *pieni* ‘little’ -> *pienokainen* ‘little child’

d) *-ke* e.g. *haara* ‘branch’-> *haarake* ‘little branch’, *kieli* ‘tongue, string’ -> *kieleke* ‘projecting part’, *lahti* ‘bay, gulf’ -> *lahdeke* ‘cove’, *linna* ‘castle’ -> *linnake* ‘fort(ress)’, *niemi* ‘cape’ -> *niemeke* ‘little cape’, *saari* ‘island’ -> *saareke* ‘little island’

e) *-O* e.g. *emä* ‘mother (archaic)’ -> *emo* ‘dam’, *jänis* ‘rabbit’ -> *jänö*, *käki* ‘cuckoo’ -> *käkö*, *tytär* ‘daughter’ -> *tyttö* ‘girl’ (also some adjectives, e.g. *iso* ‘big’ <- *isä* ‘father’)

f) *-U* e.g. *kissa* ‘cat’ -> *kisu* ‘puss, little cat’, *kulta* ‘gold/dear’ -> *kultu* ‘the dear one’, *peukalo* ‘thumb’ -> *peukku*, *poika* ‘boy’ (inflection stem *poja-*) -> *poju*, *porsas* ‘pig’ -> *possu* ‘little pig’; also some adjectives: *pikku* (cf. *pikkarainen*) ‘little’, *virkku* (cf. *virkeä*) ‘fresh, frisky’

There are also other, less productive diminutive suffixes. One of them is the *-Ut* of archaic-lyrical derivatives with some diminutive color, e.g. *kuu* ‘moon’ -> *kuuhut*, (from the stem **lyhä-* ->) *lyhyt* ‘short’, *ohut* ‘thin’, *pehmeä* ‘soft’ -> *pehmyt*, *päivä* ‘day’ -> *päivyt*, *veli* ‘brother’ -> *veljyt*, *yö* ‘night’ -> *yöhyt* (this type is no longer productive). Another is *-(i)kkO*, which is used mostly in other derivatives than diminutives (typically collective nouns) but also in some diminutives, e.g. *lammikko* ‘puddle’ (derived from the word *lampi*

'pond') and *suukko* 'kiss' (<- *suu* 'mouth'). A third is *-li*, e.g. *ukko* 'old man' -> *ukkeli* 'little old man'.

As one can see from the examples in e) and f) above, *-O* and *-U* are not merely such typical suffix elements which are simply added to the end of the stem, but the stem is often shortened and modified in connection with the suffixation, as in *kissa -> kisu*, *peukalo -> peukku*, and *porsas -> possu*. This way of forming diminutives could also be interpreted as a change of stem-type: the most transparent Finnish inflection type with a minimum of stem alternations and no variation in suffix morphology consists of two-syllabic stems with a labial final vowel, and the forming of diminutives by shortening and transferring to the simplest stem-type makes the inflection of the new derivatives as easy as possible.

In some cases there are two diminutive variants, one derived with *-U* and another derived with *-(U)kkA*, e.g. *nenukka* and *nenu* (both from *nenä* 'nose'), *kännykkä* and *känny* (both derived from *käsi* 'hand').

Two-syllabic diminutives ending in *-U* and *-O* are numerous in Finnish child language and in motherese, and these diminutives belong to the most transparent inflection type of Finnish regarding stem alternations. The diminutive form may be much more transparent than the simplex word. For example, when from the word *käsi* : *käde/n* : *kät/tä* : *käte/en* 'hand' (nominative, genitive, partitive and illative forms respectively; suffixes are separated by "/" from the stem) is formed the diminutive *känny*, all the stem alternations are eliminated, and the nominative, genitive, partitive and illative forms are simply *känny* : *känny/n* : *känny/ä* : *känny/yn*.

Occasionally, diminutives belonging to other stem types than *O*- and *U*-stems are formed in Finnish motherese by truncation and accompanying sound modification, e.g. *hevonen* 'horse' > *heppa*.

The base categories diminutivized are mostly nouns, but sometimes diminutive nouns are formed from adjectives (e.g. *pyörykkä*, *mustikka*, *ainokainen* and *kaunokainen* above). There are also a few diminutive adjectives (cf. the examples in b3 above). Some verbs formed with the derivative element *-ele-* (actually a suffix for frequentative verbs) also have a diminutive-like nuance with the meaning component of non-seriousness, e.g. *elää* 'to live' -> *elellä : elelee* (infinitive : 3rd person Sg.Present) 'to pass one's days', *puhua* 'speak, talk' -> *puhella : puhelee* 'to chat'.

In typical adult Finnish diminutives are not common, but they are used more in intimate speech and especially in child-directed speech.

Almost all diminutive formations in Finnish have a positive meaning component but at least *naikkonen* (from *nainen* 'woman') has a pejorative meaning.

3. Morphophonological aspects of Finnish diminutives

There are many stem alternations in Finnish. The most important of these alternations are grade alternation of stops (e.g. in the strong grade k, in the weak grade four variants depending on the phonetic environment) and alternations of bilabial vowels before the suffix *i*; the bilabial stem-final vowel is in most cases dropped when the *i*-suffix is added. By using diminutives one can avoid many morphophonological alternations, because most diminutives in child language and motherese belong to the simplest and most transparent stem

types. For example, the word *poika* 'boy' has the weak inflection stem *poja-* (e.g. genitive singular *poja/n*; the loss of k is one form of grade alternation, and in syllable-initial position the i is changed to j), and in the plural the final a is lost: *poik/i/a* 'boys' (partitive plural) : *poj/i/lta* (ablative plural). The corresponding diminutive is *poju* without any stem alternations, and the corresponding forms are *poju : pojun : poju/j/a : poju/i/lta*.

In the group of lexemes denoting to body parts there are diminutives which are linked to each other by phonetic family resemblance, namely they all have stems ending in nasal consonant + U:

(1) *nenu* 'little nose' (derived from *nenä* 'nose'
simmu 'little eye' (derived from *silmä* 'eye'; the consonant cluster *-lm-* is simplified to *-mm-*)
känny 'little hand' (derived from *käsi* 'hand')

For both *simmu* (<- *silmä*) and *känny* (<- *käsi*), the change of final stem vowel from bilabial to labial and the accompanying simplification of stem formation is quite relevant, because both words are *plurale tantum*. In Finnish the plural nominative is formed by adding the suffix *t* to the singular stem but all other plural cases are formed with the *i*-suffix, and word stems with an bilabial final vowel have such complex plural paradigms as

(2) *silmät : silmissä* (plural nominative and inessive of *silmä* 'eye')
kädet : käsissä (plural nominative and inessive of *käsi* 'hand')

whereas the words with labial final vowel have such plural paradigms as *simmut : simmuissa* and *kännyt : kännyissä*. In this more transparent inflection type, the plural oblique stem is formed by simply adding the plural suffix *i* to the singular stem, and the plural stem is *simmui-* (which is easily segmented to *simmu + i-*).

Stem type simplifications are typical of Finnish child language. The nouns formed this way are also used in nursing language and this may intensify their diminutive color. The simplification of stem type is a functional strategy for using words in different forms without morphophonological difficulties, as in *känny* and *simmu*.

4. A case study

The material for this case study was collected by the author from his daughter's speech. The daughter's name is Tuulikki, and she was born the 28th of June 1991.

Tuulikki does not use very many diminutives but she seems to use diminutive formation as a useful device to truncate words to two-syllables (e.g. *heppa* < *hevonen*) or to transform words to a morphophonologically easier stem-type (e.g. *simmu* < *silmä*). At the end of her second year, Tuulikki started to produce her own diminutive formations, which were individual neologisms: canonical four-syllabic words ending in *-(l)iini*. Before this very productive type, she used some other diminutives.

The first diminutives of Tuulikki until the age of 1;8 were all acquired as such from the child-directed speech of adults. The parental names *äiti* 'mother'

and *isi* 'father' are among the very first words of most children; from these two, the form *isi* consists of *isä* 'father' and the diminutive suffix *i*.

The following words have a diminutive color, and they are all based on the child-centered speech of adults. The age mentioned in connection with the words refers to the first occurrences in Tuulikki's speech:

(3) 0;8 *isi* 'father'
0;10 *avva*, phonetically simplified from motherese *hauv(v)a* 'bowwow' (an onomatopoeic word; the word for 'dog' in adult Finnish is *koira*)
1;4 *eppa* (from motherese *heppa*, derived from *hevonen* 'horse')
1;5 *timmu* (< *simmu*, derived from *silmä* 'eye')
1;6 *posu* (< *possu*, derived from *porsas* 'pig'); *heppa* (cf. 1;4 *eppa* 'geegee')
1;7 *essu* (<- *esiliina* 'apron')
1;8 *massu* 'tummy' (<- *maha* 'stomach'); *pottu* (<- *potaatti* 'potatoe'); *vamppi* (phonetically simplified by assimilation from motherese *varppi*, which is based on *varvas* 'toe')

In her speech before the age of 1;10, Tuulikki used only the two initial syllables of most word-forms. This way of reducing longer wordforms to two syllables is a common strategy in the speech development of many children acquiring Finnish (Laalo 1994). This shortening tends to trochaic wordforms which are favored by the Finnish stress pattern: the main stress is always on the first syllable. Many children acquiring other languages have also been

observed to truncate word-forms to trochaic two-syllables (Wijnen et al. 1994, Gerken 1994, Jusczyk 1997: 107-108, 186-187, 225, Aksu-Koç 1997: 132).

Some wordforms of four syllables, mostly compounds, consisting of two trochaic parts are also typical for the two-syllabic period of Finnish infants (Räisänen 1975: 256, Laalo 1994: 431). This prosodic pattern of wordforms consisting of more than one trochaic part was also characteristic of the first diminutive formations made by Tuulikki herself - these diminutives were at the same time her first neologisms.

At the age of 1;8 Tuulikki used some very special compound-like diminutive formations for three fingers. The model for these formations is the diminutive of *peukalo* 'thumb', namely *peukaloputti*, and the other three were formed by simply adding the element *putti* to the names of the other fingers. These other three fingers are *pikkurilli* 'little finger', *etusormi* 'forefinger' and *keskisormi* 'middle finger' (the fifth finger, which had no diminutive with *putti*-ending, is the three-syllabic *nimetön* 'nameless' and does not fit the trochaic pattern). The diminutives *pikkulilli-putti*, *etutommi-putti* and *kekkitommi-putti* are examples of overextensions, Tuulikki's first individual type of spontaneous diminutive formations; an element with no denotative meaning, used as a diminutive element but normally attached only to the word *peukalo* 'thumb' was segmented and attached to the names of other fingers. These three neologisms ending in *-putti* can be regarded rather as compounds than as derivatives.

Tuulikki's most productive type of individual spontaneous diminutive formations was the type of four-syllabic word-forms ending in *-(l)iini*. She started to produce them at the age of 1;10, and especially during that month this type was extremely productive. In order to attain these canonical diminutives Tuulikki might sometimes simply add the *liini*-element to the

simplex, e.g. *kissa* 'cat' -> *kissaliini* 'pussycat', *pesu* 'washing' -> *pesuliini* and *kärryt* 'wagon' (plurale tantum in Finnish) -> *kärryliinit*. But often the neologisms were formed in a special way so that the combination of the base and the derivative element was modified to fit the trochaic pattern, e.g.

(4) *kiisseli* 'thickened fruit juice' -> *kiisseliini*
meloni 'melon' -> *meloniini*
rypäle 'grape' -> *vypäliini*
banaani 'banana' -> *banaliini*
peruna 'potatoe' -> *penuliini*
porkkana 'carrot' -> *ponkkaliini*
tomaatti 'tomatoe' -> *tomaliini*
paperi 'paper' -> *papeliini*
tiski 'the dishes' -> *tikkaliini* (cf. the verb *tiskata* 'to do the dishes')

The above examples of Tuulikki's *liini*-diminutives are all from the age of 1;10. This diminutive type has some possible models, above all the motherese diminutives *vauveliini* (<- *vauva* 'baby'), *pupuliini* 'little dear bunny' (<- *pupu* 'bunny'), *tuhmeliini* 'the little mischief' (<- *tuhma* 'naughty'), perhaps also the colloquial variant of the name *Nikitin*, namely *Nikitiini* (the name of Tuulikki's own doctor); these motherese words were used much in the adult speech directed at Tuulikki. The *-liini*-diminutives are not formed by so simple an analogy as *putti*-diminutives; rather, Tuulikki established her own diminutive affix, which she initially used very frequently. Later on the productivity of this

type weakened, but still in the age of 6;2 Tuulikki derived a *liini*-diminutive of her newborn little brother Tuomas, namely *Tuomasliini*.

The third individual diminutive type used by Tuulikki was established as an analogical formation. In intimate speech, two variants of Tuulikki's name were used, namely *Tuuti* and *Tuutikki*. She segmented the *kki*-element and used it in her own diminutive formations based on *äiti* 'mother' and *isi* 'father':

(5) Tuulikki 2;2
*TUU: hyvä *äitikki* hyvä *Tuutikki* hyvä *isikki*.
%eng: good mother-DIM good Tuuti-DIM good father-DIM.

(6) Tuulikki 2;4
*TUU: niilen nimi oli *Tuulikki* ja *äilikki* ja *isikki*
%eng: their name was Tuulikki and mother-DIM and father-DIM

5. Conclusion

Finnish has many kinds of diminutive formations. In this article, a selection of the most productive diminutive suffixes was presented. It was pointed out that the diminutives used in child-centered speech in particular have a more simple and transparent inflection than the words from which these diminutives have been formed.

The child observed, Tuulikki, started with diminutives formed by shortening and stem-type simplification which are also typical of the child-centered speech of adults. From the age of 1;8 onwards, Tuulikki established

some individual diminutive derivation types which seem to be at least partly based on adult models but which she used very productively.

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Diminutive *-i* in Early Child Hebrew

An Initial Analysis*

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ABSTRACT

Diminutive forms in Hebrew derive from two sources: one is foreign borrowing of (mostly) Russian, Judeo-Spanish and Yiddish suffixes (e.g. *-le* in *motkale* 'sweety'). Another is internal to Hebrew (Avineri 1964). Modern Hebrew employs two productive mechanisms for deriving diminutive nouns and adjectives: suffixation (e.g. *kos* 'glass', *kos-it* 'wineglass') and reduplication (e.g. *kaxol* 'blue', *kxalxal* 'light blue'). According to Bolozky (1994) the most productive diminutive marker in Hebrew is *-on* (e.g. *barvaz*-on 'little duck'). In this paper, diminutive forms are studied in the speech of 8 Hebrew-speaking children between the ages of 1;2 and 3;03. The analysis shows clearly that none of the children productively uses any of the diminutive devices productive in adult speech. Instead, they all use frozen and complex diminutive forms suffixed by *-i*. The paper proposes two types of diminutive forms in Hebrew: primary and complex, and discusses possible reasons and implications of this distinction.

1. Introduction

The first morphological markers to emerge in Hebrew are inflectional markers of gender and number (Berman and Armon-Lotem 1997, Berman 1985, Ravid in press). At the same time, around age two, children's speech displays a single marker which may be considered derivational, the diminutive suffix *-i* as in *xatúli* 'cat-DIM', *masaíti* 'truck-DIM'. This paper presents an initial analysis of diminutive *-i* in early child Hebrew.

2. Diminutive devices in Hebrew

Diminutive forms in Hebrew derive from two sources. One is foreign borrowing, mainly from languages with dominant diminutive systems such as Russian, Yiddish and Judeo-Spanish (Sagi 1997). Foreign-suffixed diminutives take both non-native and native bases, for example Russian *-chik* (e.g. foreign-based *ponchik* 'doughnut-DIM [baby's nickname]', native-based *s‡amenchik* 'fat-DIM') and Judeo-Spanish *-íko* (e.g. native-based *kofíko* 'monkey-DIM') (Avineri 1964; Bolozky 1994). The main function of these loan diminutives is to express familiarity, informality and endearment in child-directed and child-centered speech (Dressler and Merlini-Barbaresi 1994, Stephany 1997). They are not, however, productive beyond certain frozen forms (e.g. *s&amenchik* 'fat-DIM' is an extant word but **razechik* is impossible[1]); and are moreover restricted within the ethnic groups that make up Israeli society.

2.1. *Suffixation*

Hebrew also has native diminutive forms with the general meaning of "smallness" rather than endearment. These fall into two structural classes: suffixed stems and reduplications (Avineri 1964). There are two productive diminutive suffixes in Hebrew: Feminine *-it*[2] (e.g. *sak* / *sakit* 'sack / plastic bag') and masculine *-on* (e.g. *gé s&er* / *gi s&ron* 'bridge / little bridge'). Both of them linearly attach to given noun and adjective bases. Many of the forms created by the attachment of these suffixes predictably and transparently express a smaller object or a lesser amount of the property, e.g., *pax* / *paxit* 'bin / small can', *mapa* / *mapit* 'tablecloth / napkin'; *dégel* / *diglon* 'flag / small flag'; or a deprecatory, informal, familiar sense, e.g., *tipes&* / *tips&on* 'fool / little fool' (compare Dressler and Merlini-Barbaresi 1994, Stephany 1997). However, two facts indicate that *-on* and *-it* go beyond mere depreciation in amount, formality or seriousness, and are clearly derivational in nature: One is the fact that they both serve numerous semantic purposes, such as indicating instruments (*xalal* / *xalalit* 'space / spaceship', *mexona* / *mexonit* 'machine / car', *safa* / *sfaton* 'lip / lipstick', *tiyul* / *tiyulon* 'stroll / stroller'), as well as other meanings such as collective nouns and periodicals. Both are, in fact, the two most productive suffixes in Hebrew (Nir 1993). Secondly, note the unpredictable meanings of diminutivized nouns in Table 1, taken from Bolozky (1994) and Nir (1993). They all share the feature of 'smaller than the base form', but their meanings are far from the simplex 'small [base]':

Table 1: Nouns suffixed by diminutive -it *and* -on

Base form	Gloss	Base + suffix	Gloss
		-it	
ka&s	straw	*kas&it*	drinking straw
tav	note	*tavit*	tag
mapúax	bellow	*mapuxit*	harmonica

aron	cupboard, closet	*aronit*	locker
kruv	cabbage	*kruvit*	cauliflower
		-on	
gan	kindergarten	*ganon*	nursery school
sahar	moon	*saharon*	crescent moon
pakid	clerk	*pkidon*	beaurocrat
gag	roof	*gagon*	roof-rack
max&sev	computer	*max&sevon*	pocket calculator

2.2. *Reduplication*

Reduplication is a nonconcatenative morphological process in which some part of the base - consonants and vowels, syllables, morphemes, or the whole word - is repeated to the left, to the right, or inside the base, e.g., *Agta ulu / ululu* 'head/s'. It is a productive and varied process in many of the world's languages (Spencer 1991: 150-156). In Hebrew, however, it is a minor[3] process in two senses: first, it differs from the major word-internal morphological processes - nonlinear and linear affixation - in that it uses material from the base itself as an extra morpheme instead of joining together two morphemes. Second, left-to-right reduplication is generally restricted in Hebrew to diminutive expression in nouns and adjectives[4], e.g., *xatul / xataltul* 'cat / kitten', *sagol / sgalgal* 'purple / purplish' (Nir 1993). It takes a variety of forms, including repeating the last stem consonant (compare *kal / kalil* 'light / very light'), none of which is really productive except for what is considered today a nominal pattern $CCaC_1aC_1$ to be combined with an interdigitated consonantal skeleton *e.g., zkankan* 'sparse beard' from *zakan* 'beard' (Bolozky 1994, Nir 1993).

Bolozky (1994) and Sagi (1997) claim that the unmarked or default manner of forming novel diminutives in Modern Hebrew speech and literature

is suffixation by *-on* or its feminine counterpart *-ónet*, e.g., *tipa* / *tipónet* 'drop / small drop', *dira* / *dirónet* 'apartment / small apartment'. According to Bolozky, *-on* / *-ónet* also serve to express affection or depreciation (*metuka* / *metukónet* 'sweet-Fm / little sweety'), as in other languages (1994: 55).

3. Diminutive formation in early childhood

Dressler (1994) and Dressler and Karpf (1995) demonstrate that extragrammatical operations such as the formation of diminutives characterize early children's productions in the absence of morphological rules before the emergence of the morphological module. This is because child language relies at this stage on general cognitive rather than specifically grammatical knowledge. Support for this claim is found in analyses of the acquisition of a number of languages. Clark (1985: 741) summarizes a variety of sources to show that children acquiring Romance languages are able to modify nouns by diminutive and augmentative suffixes early on, although it is only by age four and upwards that they are able to properly diminutivize nonce words. For English, Clark (1993: 146-7) notes that diminutive *-ie* was one of the earliest suffixes to appear in the speech of Damon at 2;0. Describing the acquisition of Japanese, Clancy (1985: 451) reports that "the earliest and by far the most common form of self-reference was nickname+*-chan*, the diminutive suffix".

It seems that children growing up in languages rich in diminutive devices acquire them early on. Recent evidence is provided in three studies on the acquisition of diminutives in three such diminutive-rich languages. Ceccherini, Bonifacio and Zocconi (1997) show that diminutive formation is one of the first morphological operations acquired by Sara in Italian, and that she uses a

variety of diminutive suffixes productively before 2;4. Gillis (1997) shows a sporadic use of Dutch diminutives in the speech of Jolien from 1;7-2;0, and a steady 20% occurrence of diminutivized nouns from 2;1 onwards. And the Greek children Mairi and Spiros also use diminutives productively in the speech from age 1;9 onwards (Stephany 1997).

Although diminutive formation in Hebrew is not as central, nor as rich and varied as in some of these languages, diminutive devices constitute an established and well-documented part of Modern Hebrew morphology in both speech and literary expression (Sagi 1997). Moreover, the two structures which express diminutives in Hebrew - linear suffixation and reduplication - are expected to be accessible to children early on; reduplicated syllables are typical of "baby talk" (Berman 1985), while Israeli children are initially able to access linear affixation before non-linear formation (Berman 1995). This paper presents an initial attempt to find out which diminutive device is favored by children acquiring Hebrew.

4. The data

Data from eight normally developing, native Hebrew-speaking children was surveyed for this study: Matan (M) and Doron (F), dyzygotic twins (aged 1;11-2;05) (see Ravid, in press for details); Hagar (F) (1;07-3;03); Leor (M) (1;09-3;0); Lior (F) 1;05-3;01); Sahar (1;02-1;05); Sivan (F) (1;11-5;06); and Smadar (F) (1;06-2;04).

4.1. *Matan and Doron (1;11-2;05)*

The first analysis was performed on the production data of the twins Matan and Doron. A total of 1476 utterances was recorded in 12 sessions every two weeks for 6 months. Table 2 lists every diminutive type which appeared at least once in each of the 12 recordings, with MLU and number of utterances per recording session.

The majority of the 21 diminutive forms in Doron's and Matan's speech do not appear in the Hebrew structural inventory described in Bolozky (1994). They are all - except for four - suffixed by *-i*. There are 7 diminutive noun types in Doron's recordings, and 14 in Matan's. Of these, three are shared by both children: the children's names and their older sister (Re'ut). The twins' diminutive inventory consists of three *i*-classes: One is self- and kin-endearing reference (e.g., *Doroni, Re'uti*), common in both Hebrew child-directed and child-centered speech and used extensively by adults participating in the conversation. However, caregivers address the children using foreign and reduplicated diminutive forms to which the twins react appropriately but do not use to refer to themselves except in the last recording, e.g., *Matanchuk, Chinchuk, Dindush, Dindale, Doronik, Doronile*. The parents also address the

Table 2

Table 2 Part 2

children using hypocoristic forms and expose them to forms with other diminutive suffixes which are not repeated by the children, e.g. *metukónet* 'sweety-DIM-Fm' from *metuka* 'sweet-Fm', *katanchik* 'little-DIM', and Yiddish *pickale* 'tiny one'. A second type of diminutives in the twins' speech includes frozen and semi-frozen forms such as *dubi* 'teddy' from *dov* 'bear', *xatuli* 'cat-DIM', *moceci* 'pacifier-DIM' (compare Gillis 1997). Of these, the only non-*i*-suffixed forms are rote-learned "frozen" *traktoron* 'desert buggy', from *traktor* 'tractor' suffixed by *-on,* and Yiddish *kneydale* 'dumpling'. The third class of truly productive *-I* diminutives appears spontaneously in Matan's speech at age 2;01 and 2;04 respectively. In all three cases, he attaches the suffix to nouns already suffixed by *-it*: *masaiti* 'truck, DIM', *xipu&siti* 'beetle-DIM', and *sakiti* 'plastic bag-DIM'. He also refers to himself in the last recording as *matanchuk ha-xamudi* 'Matan-DIM the-cute-DIM'. Doron has a single productive diminutive in her last recording: *makati bum* 'blow-DIM boom' from *maka* 'blow'. None of the productive diminutives occurs in the adults' child-directed speech: they use the conventional nondiminutivized forms *xipu&sit* 'beetle', *maka* 'blow', or else these forms do not occur at all in the caregivers' child-directed input.

Two tentative conclusions arise from the analysis of the twins' transcripts: One, that diminutives are available early on to young Hebrew-speaking children both as rote-learned forms as well as in spontaneous production; and that the early diminutive device in Hebrew is *-i.*

4.2. *Diminutives in the speech of Hagar, Leor, Lior, Sahar, Smadar and Sivan*

The transcriptions of six additional children in the age range 1;02-3;03 were surveyed for diminutive forms.

Hagar 1;07-3;03. 37 diminutive types were counted in 35 recording over 21 months. 34 of them were suffixed by *-i*, consisting of the same three classes observable in the twins' productions: (1) given names (*hagari, ruti, tami, s&auli, bindi*), including toys, e.g., *leycani* 'clown-DIM'; (2) Frozen and semi-frozen diminutives, e.g., *dubi* 'teddy', *moceci* 'pacifier-DIM; and (3) productive *i*-suffixed diminutives. Hagar uses diminutives productively from her first recording as evidenced by the spontaneous alternation between non-suffixed and suffixed forms in the following examples:

(1) Hagar 1;07
*HAG: yam holxim le^yami .
%mor: sea go-Prs-Pl-Imp to-sea-DIM
%eng: beach, we're going to the beach

The word yam 'sea', in the meaning of 'seaside, beach', appears twice in the same utterance by the little girl overjoyed by the prospect of going to the beach, the second occurrence suffixed by *-i*.

In a recording made when Hagar was 2;01, the word *bakbuk* 'bottle' occurs in four consecutive utterances, with and without the suffix *-i*:

(2) Hagar 2;01
*HAG: ten ta^babuki [: et ha^bakbuki]
%mor: give-Msc the-bottle-DIM
%eng: give (me) the bottle
*HAG: nafal ha^bakbuk .
%mor: fell-Msc the-bottle
%eng: the bottle has dropped

*HAG: noisa [: ani roca] [*] bakbuki .
%mor: want-1st-Fm bottle-DIM
%eng: I want the bottle
*HAG: larim [: leharim] [*] et ha^bakbuk .
%mor: to-pick up the bottle
%eng: to pick up the bottle

Hagar uses two non-*i* diminutives suffixed by *-on: xamudon* 'cute-DIM' (2;04) and *santeron* 'chin-DIM' (2;10). One foreign diminutive suffix *-chik* appears in her speech: *zanavchik* 'tail-DIM' (1;09). She also adds a double diminutive *-on, -i* to the childish *kaki* at 2;07: *kakiyoni* 'kaki-DIM-DIM'. Hagar's caregivers do not use either *xamudon* or *kakiyoni*: in the transcribed sessions she is the only one to produce them. Even her use of *santeron* 'chin-DIM' is not a simple repetition of a word she has just heard, as evidenced by the following dialogue between Hagar and her mother who is guiding her in drawing a picture of herself (free translation with morphological marking of crucial aspects):

(3) Hagar 2;09
*MOT: ax&sav, tagidi li Hagari, ma yes& mitaxat la^, tistakli, ma yes& mitaxat la^pe?
%eng: now tell me Hagari, what is there under the, look, what is there under the mouth?
*HAG: ma?
%eng: what?
*HAG: santeron.
%eng: chin-DIM.

*MOT: santeron eyfo ha^santeron s&el Hagari?
%eng: chin-DIM where's Hagar-DIM's chin-DIM?
*HAG: hine po.
%eng: there it is here.
*MOT: tecayri.
%eng: draw.
*MOT: yofi ze ha^santeron s&el Hagari.
%eng: this is Hagar-DIM's chin-DIM

The rest of the dialogue makes it clear that Hagar's mother makes regular use of the diminutive suffix *-on* in her child-directed speech:

*MOT: gam le Hagar yes& cavar?
%eng: does Hagar have a neck too?
*MOT: as tecayri le Hagar et ha^cavar s&el Hagar.
%eng: so draw Hagar's neck.
%sit: HAG is drawing.
*MOT: eyx hu nir'a, ha^cavaron?
%eng: how does it look, the neck-DIM?

While these *-on* diminutives may not be entirely productive in Hagar's speech, their occurrence in the data correlates with the child's early productive usage of *-i* compared with the twins, yielding forms such as *gamali* 'camel-DIM' alongside with *gamal* 'camel' (2;0) and *yans&ufi* 'owl-DIM' (2;09).

Leor 1;09-3;00. Leor has few diminutive types in his productions, only 9 types in 34 recordings over 16 months, including the teddy and the predictable self-addressing as *Leori*. One notable exception is the occurrence of *xor* 'hole'

as diminutive *xori* at age 2;07. However, Leor makes innovative and productive use of the colloquial Hebrew terms for grandparents: *safta* 'grandmother' and *saba* 'grandfather'. In the following examples, Leor alternately uses regular and diminutivized forms of 'granny': *safta* and *i*-suffixed *safti,* which is not at all a conventional way of referring to grandma in Hebrew:

(4) Leor 2;0

*LEO: safti toridi .
%mor: granny-DIM take-down-Fm
%eng: Granny take (it) down
*LEO: axat s&tayim ve safta ba .
%mor: one two and granny comes-Msc
%eng: one two and granny is here

(5) Leor 2;05

*LEO: ima nas'a ba^oto s&el sati .
%mor: mummy went-Fm in-the-car of granny-DIM
%eng: Mummy went in granny's car
*LEO: safta yavi [: tavi] [*] et ze la^hacaga .
%mor: granny will-bring-Msc-Acc it to-the-show
%eng: Granny will bring it to the show

Note that *safti* 'granny-DIM' is used only to refer to Leor's own grandma, rather than to other grandmothers. In the following examples from ages 2;07 and 2;08 respectively, Leor is referring to a grandmother's house in two contexts - his own grandmother, and to Red Riding Hood's grandmother:

(6) Leor 2;06

*LEO: ze ba^bayt s&el safti .

%mor: it in-the-house of Granny-DIM

%eng: it's in Granny's house

*LEO: safta s&oxevet ba^bayit .

%mor: Granny lying-Fm in-the-house

%eng: Granny's lying down at home

Leor sometimes refers to his grandfather as *saba* 'grandpa' and *sabi* 'grandpa-DIM', but most of the time he uses the term *sabiyon* or *saviyon,* which consists of the stem *saba* doubly suffixed by *-i* and *-on*[5]:

(7) Leor 2;04

*LEO: loh laga'at safti ve doda Orly ve sabi, loh lingo [: laga'at] [*], loh lingo [: laga'at] [*] .

%mor: not to-touch Granny-DIM and aunt Orly and Grandpa-DIM not to-touch not to-touch.

%eng: don't touch, Granny and aunt Orly and Grandpa, don't touch, don't touch

(8) Leor 2;07

*LEO: *bo nikra le^sabiyon, boi tikrei le^sabiyon* .

%mor: come-Masc call-1st-Pl to-Grandpa-DIM-DIM come-Fm call-2nd-Fm to-Grandpa-DIM-DIM

%eng: let's call Grandpa, call Grandpa

*LEO: bo titen li yad nagid s&e saba loh ykax otxa, bo .

%mor: then come-Masc give-Masc to-me hand say-1st-Pl that Grandpa not will-take you-Masc come-Masc

%eng: so give me your hand let's say that Grandpa won't take you come
*LEO: boi sabyo [: Sabyon] [*] ykax otanu .
%mor come-Fm Grandpa-DIM-DIM will-take us
%eng: come on Grandpa will take us
*LEO: saba, Sabyon loh ykax otanu .
%mor: Grandpa Grandpa-DIM-DIM not will-take us
%eng: Grandpa Grandpa won't take us

Lior, 1;05-3;01. Lior has 22 diminutive types in her vocabulary, recorded over a period of 19 months. As is already clear from the findings of the other children, most (16) of her diminutive forms are *-i*-suffixed, including children's names (*luki*, *nicani, har'eli*, but not herself), frozen and semi-frozen forms shared by all other children surveyed (*xamudi* 'cute-DIM', *bakbuki* 'bottle-DIM'). Lior makes clearly innovative use of *-i* in various forms. By age 2;01, she is able to alternate the regular and diminutivized forms of *xatul* 'cat':

(9) Lior 2;01
*LIO: aval litgalech [: lehitagalech] [*] xatuli .
%mor: but to-slide cat-DIM
%eng: but slide kitty

*LIO: hine xatul, hu s&ote s&oko .
%mor: here cat he drinks choco
%eng: here's a cat he's drinking chocolate milk

At the same time she attaches the suffix *-i* to the adjective *xam* 'warm, hot' and uses both *xam* and *xami*, an unconventional form which never appears in adult usage. By 2;02, Lior adds the suffix *-i* to the already diminutivized *dubon* 'teddy' (compare also *dubi*, both from *dov* 'bear'[6]).

(10) Lior 2;02

*LIO: doni duboni, yes& lo xerev .

%mor: doni teddy-DIM has to-him sword

%eng: Donny the teddy he's got a sword

Lior has a particularly rich diminutive inventory for addressing and referring to her baby brother, Nitsan. She refers to him as *nican, nicani,* and also by a variety of minor foreign diminutive suffixes such as *-us&, -ku*:

(11) Lior 2;05

*LIO: *boxe, boxe ve ha^tinok Nicanus&* .

%mor: crying crying-Masc the-baby *nican*-DIM

%eng: baby Nitsan is crying and crying

(12) Lior 2;08

*LIO: Nicanku eyn lexa yetus&im Nican .

%mor: *nican*-DIM not-have to-you-Masc mosquitoes *nican*-DIM

%eng: Nitsan there are no mosquitoes on you Nitsan'

Sahar, 1;02-1;05. Sahar started talking around one year, and in the period covered in the available transcriptions his productions were mostly single words. Sahar's data provides a window on the early learning and use of *i*-diminutives by the child in interaction with his caregivers. In the four months

of transcription surveyed, Sahar produced three diminutive types, all suffixed by *-i,* and all used by his caregivers: *bufi* (a storybook character), *ami* ('food and water'), and *ituli* [*xituli*] 'diaper-DIM'. The first example is a conversation Sahar has with his father:

(13) Sahar 1;2.12
*ADI: eyfo bufi ?
%eng: where is Bufi?
*SAH: bufi.
%eng: Bufi
%sit: Sahar points at Bufi
*ADI: ta'ase tova le^bufi.
%mor: do petting to-bufi
%eng: pet Bufi

Sahar and his mother talk about his diaper:

(14) Sahar 1;4.06
*SAH: ituli [: xituli]
%mor: diaper-DIM
*MEI: xituli xituli meod ratuv.
%mor: diaper-DIM diaper-DIM very wet
%eng: diaper diaper is very wet

In the next example, both Sahar and his mother use his generic word *ami* for food, in this case, a bagel (in other cases it was used for coffee and for a muffin):

(15) Sahar 1;5.26

*MEI: xazarta ?
%eng: you're back?
*SAH: ken.
%eng: yes
*MEI: hayita ecel aba ?
%eng: you were with Daddy?
*SAH: ami.
%eng: food-DIM
*MEI: lakaxta et ha^ami s&elxa ?
%eng: did you take your food-DIM?
*MEI: bo elay.
%eng: come to me
*MEI: le'an ata olex ?
%eng: where are you going?
*SAH: ami.
%eng: food-DIM
%sit: sahar is crying.
*MEI: eyfo ha^ami ?
%eng: where's the food-DIM?
*MEI: aba axal lexa ?
%eng: did Daddy eat it?
*SAH: ken.
%eng: yes
*MEI: ata roce exad xadas& ?
%eng: would you like another one?

*SAH: ke [ken].
%eng: yes
*MEI: s&e ima titen lexa od beygale ?
%eng: would you like mummy to give you another bagel-DIM?
*SAH: e.
*MEI: ma ata roce ?
%eng: what do you want?
*SAH: o [od] ami.
%eng: more food-DIM
*MEI: od ami ?
%eng: more food-DIM ?
*SAH: ken.
%eng: yes

Smadar, 1;07-2;04. Smadar produced 27 diminutive forms over a period of 10 months, of which 25 were *i*-suffixed. In addition to attaching *-i* to household items (e.g., *xituli* 'diaper-DIM'), to people and pet names, she attaches it to the word *teyp* 'taperecorder' to yield *teypi* at 1;11. Her use of this diminutive suffix is innovative and productive, and she extends it to the modifying adjective in the NP in an unconventional way which makes it clear she is using diminutives to express sympathy, attachment, intimacy and pleasure (Dressler and Merlini-Barbaresi 1994):

(16) Smadar 2;01
*SMD: hayinu ba^gan s&a'as&uim ha^gadoli, ve ve sixaknu ba^ ba^xol, ve hitgalas&nu ve hitgala s&nu, ve az nasanu

%mor: were-1st in-the-garden play the-big-DIM and and played-1st-Pl in-the-sand, and slid-1st-Pl and slid-1st-Pl and then drove-1st-Pl
%eng: we were in the big playground, and and we played in the sand and we slid and slid, and then we drove

*SMD: ze gamadi ha^katani !
%mor: this dwarf-DIM the-little-DIM
%eng: this is the little dwarf

At the same age she produces an ungrammatical *-i* form, *praximi* 'flowers-DIM'.

Sivan, 1;11-5;05. Sivan was recorded sporadically over a long period. She is the only child in the database in whose transcriptions we are able to observe transit from childish *-i* into more mature diminutivization when morphological knowledge is well established after age 4. In Sivan's recordings between ages 1;11-5;05 there are 32 diminutive types, six of which do not end with diminutive *-i*. Of these, five were used by adults at home, e.g., the reduplicated form *tiptipa* 'drop-DIM' (cf. *tipa* 'drop'), foreign-suffixed *ponchik* 'doughnut' referring to her baby brother, and the family-lect reduplicated *gufgifuf* 'body-DIM' (cf. *guf* 'body'). One recording at age 4;7 indicates a spurt of unconventional diminutivized nouns such as *iguli* 'circle-DIM', *kaduri* 'ball-DIM' and *baloni* 'balloon-DIM', and even ungrammatical *neroti* 'candles-DIM'[7]. At age 2;07 she adds the suffix *-i* to the already diminutivized conventional *barvazon* 'duck-DIM', but by 5;05 she has clearly mastered both *-i* and *-on*, as evidenced by the double diminutive *arnavoni* 'rabbit-DIM-DIM', and by the unconventional form *cfarde'on* 'frog-DIM'.

5. Discussion

This paper has made an initial attempt to characterize diminutive formation in early child Hebrew. Previous work in the field has shown that cross-linguistically, diminutive forms occur early on in child language development, at a period when morphosyntax is not yet well-established and morphological operations are almost completely absent (Clark 1993, Dressler 1994, Gillis 1997). One reason for this is obviously the fact that diminutives and hypocoristics frequently occur in early child directed speech or "baby talk" and are particularly suitable to conveying the intimate, playful atmosphere of endearment and attachment typical of a caregiver / child relationship (Stephany 1997). In addition to being pragmatically appropriate, diminutives have a special status in morphology as a derivational operation that induces no category change beyond the shift from X to "small X" (e.g., *pil* / *pilon* 'elephant / baby elephant') and "falls midway between inflection and derivation" (Anderson 1982; Spencer 1991:197). As such, diminutives may serve as a bridge between the obligatory, regular, grammatical operations of inflection, and semantically and structurally unpredictable derivation (Dressler and Merlini-Barbaresi 1994). This exploratory survey of diminutives in early child Hebrew, though by no means exhaustive, has a number of implications.

The general findings of this paper are the following: Diminutives occur in the speech of Israeli children in their second and third year both as "frozen", rote-learned forms and in productive, innovative expression. However, these forms do not constitute part of the adult diminutive inventory described in the literature for Hebrew (Avineri 1964, Bolozky 1994). Within this age bracket, children do not spontaneously produce foreign, reduplicated or linear *-it* and -

on diminutives. The overwhelmingly favored option among Hebrew-speaking toddlers is *-i* suffixation of nouns (and sometimes adjectives too - see Ravid and Nir in press). This split between conventional adult diminutive devices and children's favored devices has both a semantic and structural motivation and reflects that difference between juvenile and mature word formation.

Diminutivization by *i* may be regarded as a transient pathway into word formation in a number of senses. All children's *i*-diminutives refer to prototypical nouns - people, animals and concrete, countable objects. The semantic change in *-i*-suffixed forms such as *xituli* 'diaper-DIM' is negligible; it almost amounts to calling it 'my dear diaper to which I am very much attached'. This inflection-like change is non-varying and predictable, and it can be applied to any singular noun without any of the restrictions of derivation. Moreover, as noted by Gillis (1997: 168), diminutives are gender-neutral: *i* is equally applicable to masculine and feminine nouns and adjectives. In contrast, as we have seen above, mature diminutivizers are typical derivational constructs in their unpredictable scope, non-automatic semantics, and shared domain with other suffix meanings (Bolozky 1994). For example, *tiyulon* from *tiyul* 'stroll' could in principle refer to a short stroll, but it is in fact a baby stroller. The linear suffixes *-on* and *-it* are gender-sensitive in scope and take only gender-appropriate bases (*-it* takes only feminine bases, *-on* takes masculine bases and changes to *-ónet* on feminine bases).

In fact, *-i* diminutivization is more pragmatic than semantic in taking the child's specific point of view and familiar context into account: *i*-suffixation is context-bound in the sense that it applies to a particular item in a class rather than to a whole - for example, Leor referred to any grandma (such as the one in Red Riding Hood) using the general *safta*, and reserved the diminutivized form *safti* to his own grandmother. All innovative productions of *i*-diminutives are

restricted in the same way and are in fact semantically underextended (Barrett 1995): *masaiti* 'truck-DIM' is not any truck but my own valued toy, and even the big-DIM playground in Smadar's description is a specific, familiar playground. Diminutivization by *-i* may be called a *personalizing* device, taking the diminutivized item "under the wings" of the interlocutor. This is probably why *i*-suffixed diminutive nouns are not pluralizable: while many of them are proper names to begin with (*miryami, puzi, mushi*), others acquire a unique proper-noun denotation with the attachment of *-i,* e.g., *barvazi* 'duck-DIM', *pili* 'elephant-DIM', and the plural counterparts are ungrammatical. In contrast, *barvazon* and *pilon*, the conventional terms for a small duck and a small elephant are ordinary common nouns, and are pluralizable: *barvazonim, pilonim*. Even as diminutivized items, they are not personalized and made unique.

Structurally, too, *i*-diminutivization is marked as a juvenile strategy. Adult diminutive suffixes, like Hebrew nominal suffixation in general, are stress-assigning, and as a result the stem may undergo morphophonological changes. These include vowel deletion (*sagur* / *sgura* 'closed / Fm'), vowel change (*ken* / *kino* 'nest / his nest'), stop / spirant alternation (*kaf* / *kap-it* 'spoon / teaspoon'), *t* insertion or deletion (*sakit* / *sakiy-ot* 'bag / s'), and full stem change (*kélev* / *kalb-on* 'dog / puppy'. Diminutivization by *i*, in contrast, leaves the original stem stress intact, and therefore makes no stem changes, e.g., *leycan* / *leycáni* 'clown / clown-DIM', *gamad* / *gamádi* 'dwarf / dwarf-DIM'. Preserving the original structure and stress pattern of the nominal stem is an early, well-attested childhood strategy in Hebrew (Ravid 1995).

The second adult diminutivizing device, reduplication, is not accessible to Hebrew-speaking children in their second and third year. Reduplication is a minor structural mechanism uniquely restricted to diminutive formation which

differs markedly from the three major structural options that children are exposed to - nonlinear and linear affixation, and compounding. Although reduplication is a universal phonological process in baby talk, it is not really a viable morphological option in Hebrew.

6. Conclusion

This paper presents an exploratory analysis of diminutives in Hebrew child language. There are two classes of diminutives in Modern Hebrew: primary and complex. Adults can access a variety of foreign diminutive suffixes as well as two native morphological diminutive-forming devices: linear suffixation by *-it* and *-on*, and reduplication, both of which are complex structurally and semantically and require knowledge of the behavior of other domains of derivational morphology. Complex diminutives are conspicuously absent in early child Hebrew. The only productive diminutivizing device up to 3 years of age is the structure-preserving suffix *-i* which creates personalized, semantically underextended diminutives. This class of primary diminutives is accessible to Hebrew-speaking children from early on due to a combination of its simplex semantics and form.

Notes

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[1] Although it may be the case that it is only the negative pole that may be diminutivized (R. Berman personal communication).

[2] Sometimes the suffix *-it* appears as *-iya*, originally as the result of backformation from plural *-iyot*, e.g., *ugiya* 'cookie', originally *ugit* 'small cake' from *uga* 'cake' (Ravid 1995).

[3] Thought historically well-established, deriving from Mishanic Hebrew, spoken in the Second Temple era (Avineri 1964).

[4] Reduplication in the verbal system is enabled in extracting consonantal skeletons from words and creating a new root by reduplicating the third and last consonant, e.g. root *?-v-r-r* in *ivrer* 'brought fresh air in' from *avir* 'air; root *t-x-n-n* in *tixnen* 'planned' from *toxnit* 'plan'. The result is not diminutive, although the process originally carried a diminutive function (Sagi 1997).

[5] The word *savyon* refers to the flower ragwort, very common to the end of the winter in Israel.

[6] The bound form of *dov* 'bear' is *dub-* as in *dubim* 'bears', which appears in Lior's vocabulary at the same time.

[7] This, however, can be explained on the grounds that *nerot* 'candles' are perceived as the basic form (see discussion in Ravid 1995).

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The Acquisition of Diminutives in Italian

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ABSTRACT

Italian has a rich morphopragmatic system of diminutives, elatives and augmentatives with suffixes and interfixes. The more productive suffixes are *-ino*, *-etto*, *-uccio*. Although the pragmatic value of diminutives and augmentatives is similar their semantic value is the opposite, [small] vs. [big]. Diminutives have both a semantic and a pragmatic value.

Diminutives are the only derivational pattern children acquire from the very early phase of language acquisition. This category is very productive in the adult language especially in child centered situations, i.e. used with children and towards children.

Our date are taken from a corpus of recordings of an Italian child (Matteo) in a period that goes from 1;4 to 3;4. Since the very beginning the child shows a consistent number of diminutives that parallels that of the mother. He plays with the suffixes creating words he never heard in the input showing examples of back formation from false diminutives like *viola* from *violino*.

Pragmatic meaning is the first to be acquired by the child, this is shown by the use of the same word both simplex and diminutive referring to the same object and by the prosody the accompanies its use. Only with the emergence of the augmentative he starts to acquire the semantic notion of smallness as opposed to its counterpart.

As the child reaches the morphological phase he starts to express speech acts through the means of diminutives and to acquire a metalinguistic competence in an adult-like fashion.
Our findings show that the process of acquisition is coherent with the feature of the morphological system of the language acquired and with the input provided by the caretakers.

1. Introduction

Diminutives are one of the first derivational pattern children acquire from the very early phase of language acquisition. This category is very productive in the adult language especially in child centered situations.

Our date are taken from a corpus of recordings of an Italian child (Matteo) in a period that goes from 1;4 to 3;9. Since the very beginning the child shows a productive use of diminutives playing with the suffixes showing examples of back formation from lexicalized diminutives.

Pragmatic meaning is acquired before semantic meaning by the child, this is showed by the interchangeable use of both simplex and the diminutive referring to the same object and by the prosody the accompanies its use. Only with the emergence of the augmentative he starts to acquire the semantic notion of smallness.

As the child reaches the morphological phase he starts to express speech acts through the means of diminutives and to acquire a metalinguistic competence in an adult-like fashion.

From a comparison with the adult's production we notice a close parallelism in the development of diminutives, their variants and the categories which constitute their landing-sites.

2. Description of the adult language

Italian diminutives are included in the rich paradigm of augmentatives (*-one*), elatives (*-issimo*), pejoratives (*-accio, -ucolo*, *-astro*) and attenuatives (used with adjectives, *-occio*).

There are several suffixes forming diminutives: *-ino*, (with interfixes *-ic-ino, -ol-ino-*), *-etto, -uccio, -ello* with interfixes *-ic-ello, -er-ello, -uzzo, -ic-uolo, -ucolo* (with pejorative value), *-otto, -occhio* (with an endearing value). The most common and widely used diminutives are *-ino* and *-etto*. More than one suffix can be attached to a base: *albergh-ett-uccio* 'hotel-dim-dim'. After the application of a suffix is not always the case that the intermediate word is an existent word: *cagna* → **cagn-ol-o* → *cagnolino* 'dog-dim'.

Almost all categories can be diminutivized: nouns end adjectives are the most common bases used with diminutives but adverbs (except those ending in *-mente* as *dolcemente* 'sweetly') and some verbs can be diminutivized. Interjections can also be diminutivized to a certain extent. Some numerals can undergo diminutive formation: *un miliarduccio, un milioncino* 'a billion -dim', 'a million -ino'.

The suffixes *-ino* and *-uccio* can be recursively attached to a base as in *attimino-ino-ino*, 'moment-dim'.

One of the structural characteristics of diminutives is that they do not change the category of the base and its morphosyntactic features: an animate noun remains an animate noun [[giornale]N -ino]N ('magazine'), the same holds for the gender. They have nevertheless some head properties in that they can change the inflection class, i.e. nouns go from the irregular class of the masculine and feminine nouns to the most stable class of the masculine or feminine nouns: *il poeta* → *il poetino* 'the poet', la tribù → la tribuina 'the

tribe'. The can also take up word status: *ne vorrei una fettina (di torta) proprio ina!* ("I would like a slice (of cake) just *dim"*) (Dressler and Merlini 1994).

The only allomorphic rule is the insertion of the affricate /c/ before the diminutive suffixes *-ino*, *-ello* if the base ends with *-one/a* as in *leone* → *leoncino* 'lion', *mascalzone* → *mascalzoncello* 'scoundrel'.

As to the productivity of the various suffixes, *-ino* and *-etto* are the most used ones. A recent quantitative research of the diminutives (and alteratives in general) in a corpus of 500.000 spoken words of the Italian language has registered the *-ino* suffix as the highest number of diminutives with the 63% of the whole corpus vs. the 18% of the *-etto* suffix. The most frequent category is the masculine singular.

3. Semantics and pragmatics of diminutives

The denotative meaning of diminutives[1] can be derived by the notion of *smallness* although many authors have emphasized their connotative value with the meanings *graciousness, tenderness,* or rather with their emotional value.

As underlined by Dressler & Merlini (1994) diminutives can downgrade the dimensional properties of some adjectives and nouns like *grandina* 'big-ina', *stradina* 'street-dim', or it can indicate the poor value of something like in *vinello* 'wine-dim' which indicates that it is not a good quality of wine. Diminutives are also used to indicate the denotative meaning of reduction of precision like with noun of quantity as in *kiletto* 'kilo-dim', or *oretta* 'hour-dim', which can be used to mitigate a request because in fact the time of waiting can be much longer than the given one.

Dressler and Merlini (1994) elaborate and discuss a series of pragmatic meanings of diminutives assuming a general morphopragmatic meaning *non-serious*. This is a feature that is used as a strategy to downgrade or reduce the responsibility of the person in relation to a linguistic act (like an offer or a request) or its illocutionary strength: *Potrei chiederti un piacerino?* "Could I ask you a favor-dim?

Another strategy of downgrading is used to express a sort of negative politeness in order to minimize the imposition on the addressee (Dressler and Merlini 1994). In a fruit shop that is about to close: *ha qualche ciliegina rimasta?* ''Do you have any blueberry-dim left?' "where diminutive may contribute to expressing the speaker's pessimism about obtaining the desired fruit" (Dressler and Merlini 1994).

Diminutives are mostly used in child centered speech situations or in love centered situations that have a metaphorical relation with the child world[2]. The use of diminutives in the adult language is blocked by the presence of lexicalized diminutives as in *postina* 'mail collector' which cannot mean 'little post office'.

4. Methodology

Data are from the boy Matteo from the age of 1;4 to the age of 3;9. Recordings were made once a week and later twice a month. Audiorecordings were made during interactions mainly with the mother and other caretakers (the father and a friend of the parents). Interactions consisted in daily routines: breakfast, play situations and reading picture books. The mother did not stimulate the production of the child in a specific way other than proposing situations for

talking, therefore child's production is entirely spontaneous. Diary notes were taken for the months lacking audiorecordings.

Transcriptions were done in Chat format. Elaboration with Clan and Morf were done with the help of the CNR of Pisa (Giuseppe Cappelli ran file checking). Transcripts were checked by the author of this paper both with the program and manually. For a better manipulation of the data recordings were divided per month.

5. Quantitative aspects

The quantitative aspects involve the onset of diminutive formation in relation to both the production of the simplex and the total number of word types. In other words a calculation of the total number of word types without diminutives and of diminutives occurring with the simplex and by themselves

Table 1. Matteo's diminutives relative to total number of nouns and word types

Age	Total number of diminutives relative to total number of nouns		Diminutive types relative to noun types	
	Nouns	% Dim	Nouns	% Dim
1;4	16	12.5	15	13.3
1;6	5	60	5	40
1;8	64	19.5	48	6.25
1;10	94	21.2	66	19.6
2;1	23	0	13	0
2;2	93	10.7	68	11.7

2;3	55	23.6	37	29.7
2;4	48	27	35	25.7
2;5	24	20	19	10.5
2;6	146	12.3	97	13.4
2;7	79	13.9	54	11.1
2;8	36	8.3	28	7.1
2.9	75	1.3	39	2.5
3.1	84	3.5	50	4
3;2	74	4	40	3.3
3;3	67	1.4	39	2.5
3;4	117	2.5	60	5
3;5	87	10.4	43	13.9
3;6	231	9	107	12.1
3;7	76	7.8	54	5.5
3;8	110	8.1	56	10.7
3;9	207	3,8	101	5.9

was run. Furthermore a comparison with the adult's occurrences of diminutives has been analyzed.

As far as the development of diminutives is concerned, Table 1 and Figure 1 shows that in the very first period there are some tokens which increase around 1;10 and maintain constant except for the sessions that go from 2;9 - 3;4. The same picture is shown for the types, although we have to point out that the frequency of types is as important as the frequency of tokens for the evaluation of productivity. We have in fact a fairly high number of different types especially in the sessions that go from 2;2 to 2;7. From the diary notes

we also notice that this is a period of major productivity in terms of types of diminutives, as we will see in the qualitative analysis.

As is shown in Figures 2a, 2b and 2c the relative low number of diminutives used along with their simplex until 2;6 (Figure 3) suggests that the child may not have acquired the semantic distinction of the diminutive from its base. But as we will show later the simple cooccurence of both forms is not always a sign of acquisition of their semantic or pragmatic meaning[3]. Despite the low number of cooccurence of diminutive and simplex (e.g. in Figure 2c, age 3;8-3;9) we can definitely attest the acquisition of a metalinguistic awareness of many of the pragmatic strategic uses of diminutives by Matteo. Only with a qualitative analysis of the word forms used by the child we can elaborate hypotheses on the acquisition of meaning by the child.

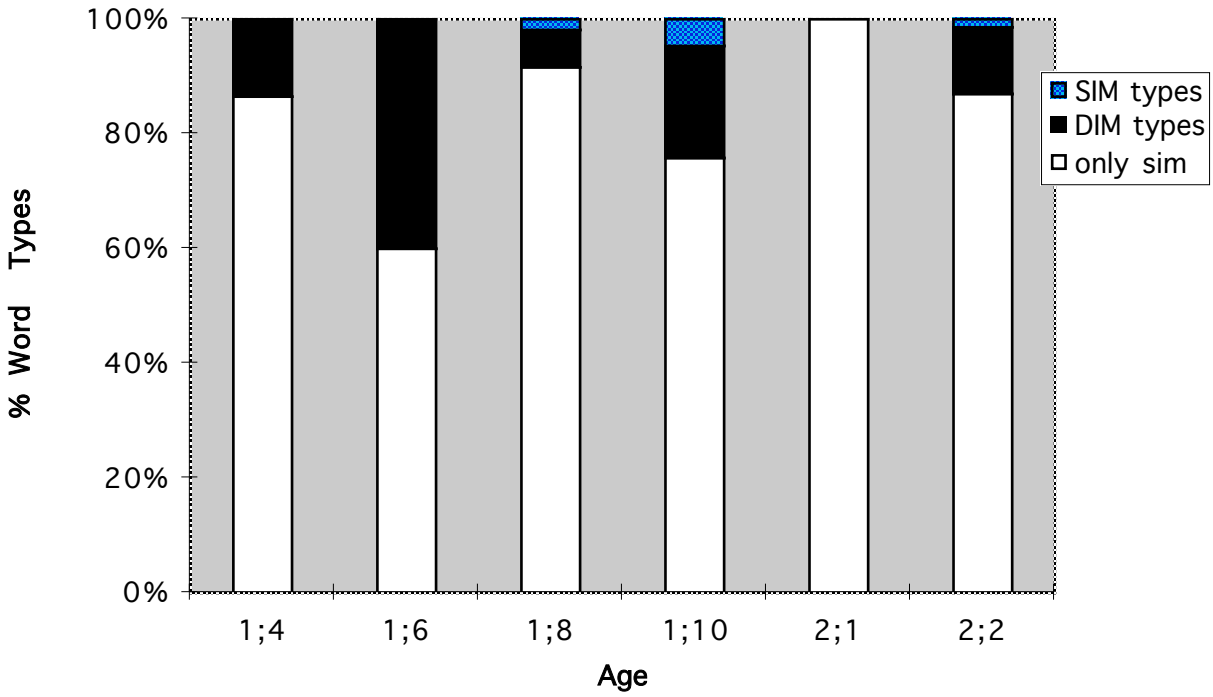

Figure 2a. Matteo's diminutive types, simplex types and both relative to total number of word types

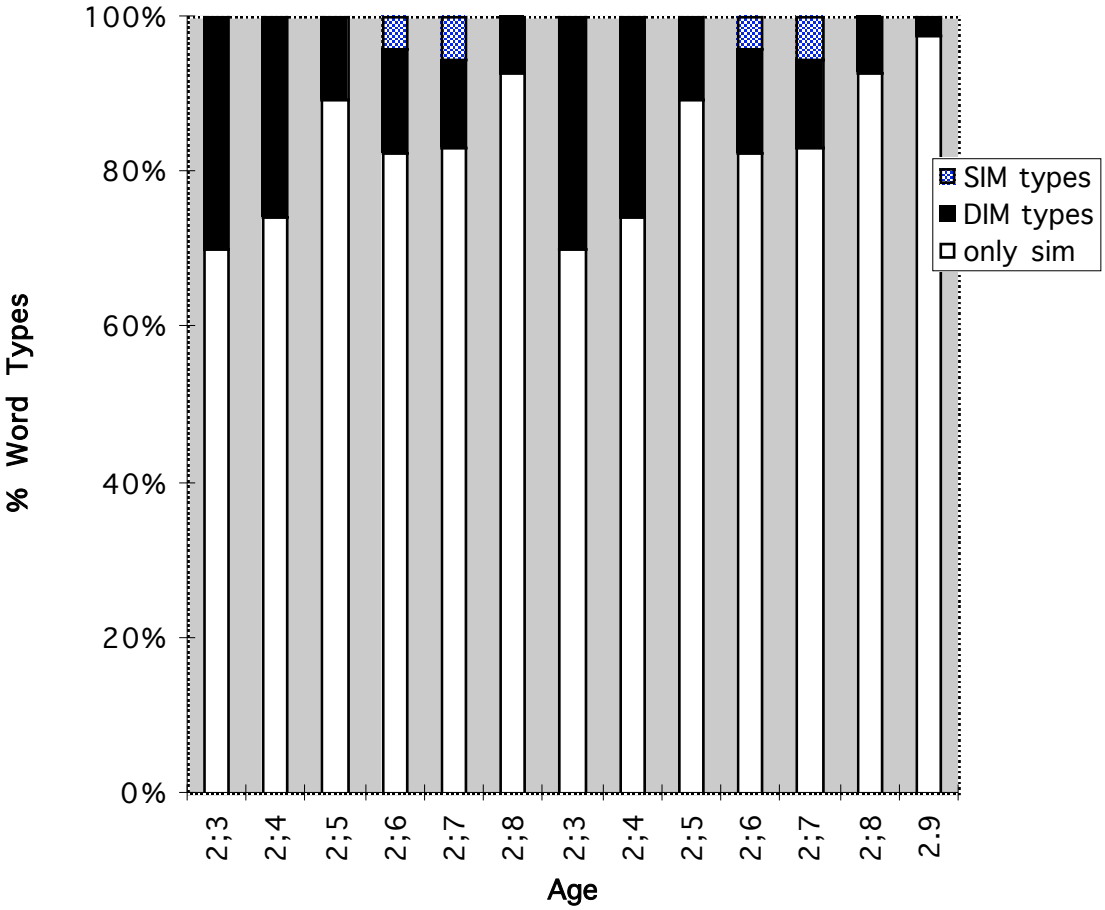

Figure 2b. Matteo's of diminutive types, simplex types and both relative to total number of word types

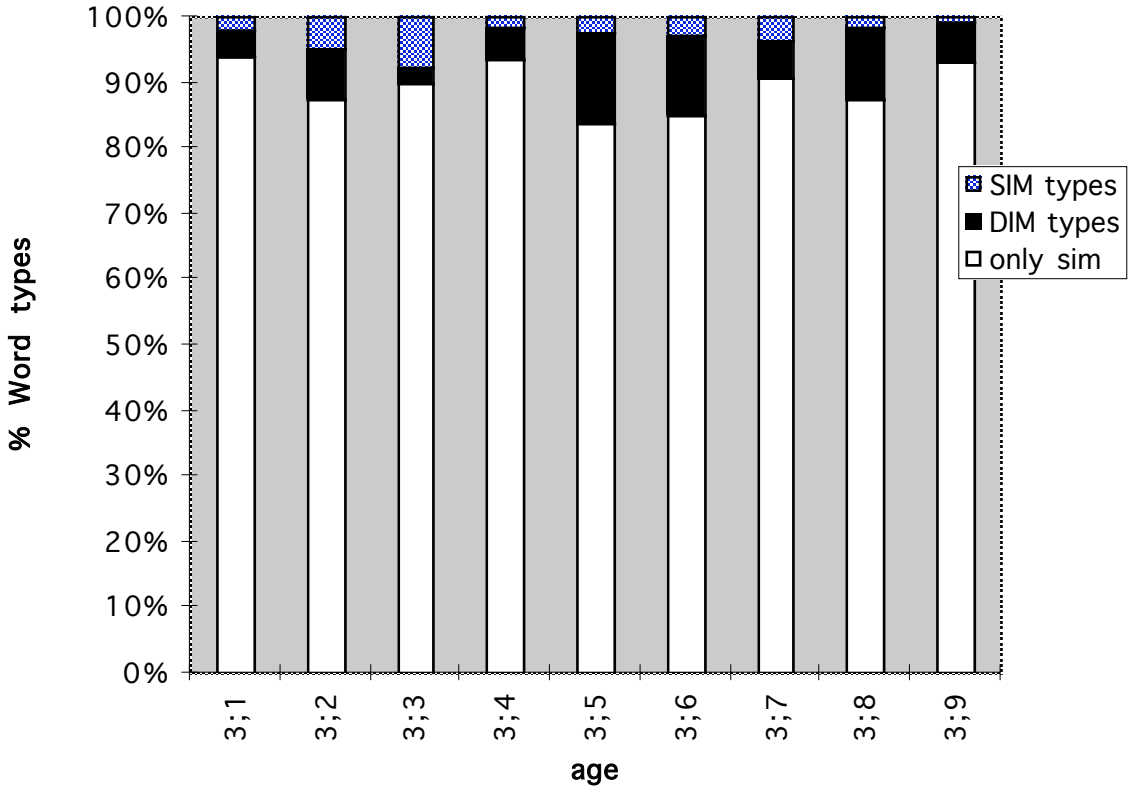

Figure 2c. Matteo's diminutive types, simplex types and both relative to total number of word types

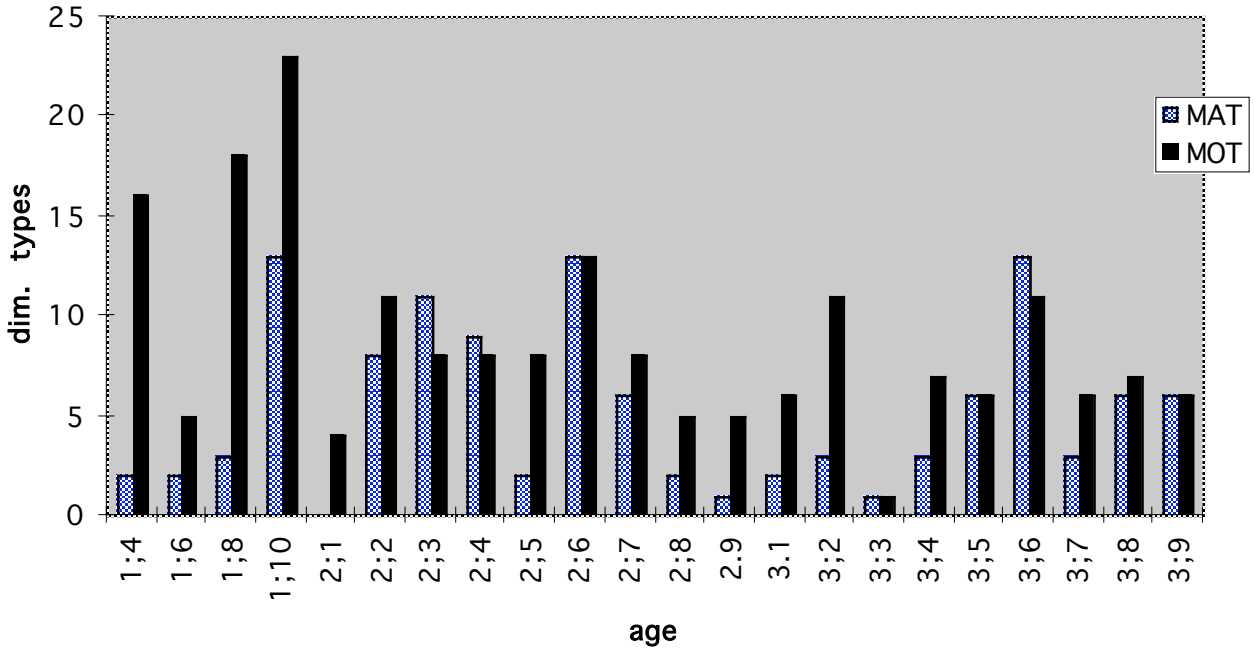

Figure 3. Development of diminutive types in Matteo and the mother

Figure 3 shows the percentage of diminutive forms used by the mother and the child. Although the adult's production is always higher than that of the child, starting from 2;2 to 2;7 it parallels that of the mother although in the other sessions diminutive production is not excessively below the adult's level.

The same parallelism is observed in the productions of the diminutive suffixes used by the mother and Matteo as shown in Figure 4. The most used suffix is *-ino*, which also the one that is generally preferred in the adult language (see section 1).

Comparing the categories of both the child's and the mother's language, in Table 2, we notice that there is a similar preference for the categories chosen as landing-site of diminutives. As Dressler and Merlini (1994) point out the landing-site is pragmatically motivated in that diminutives are generally

attached to nouns referring to the child, his body parts or objects and toys belonging to the child (see also Stephany 1997). In this case we notice that the mother makes large use of terms referred to toys (animals) and animals. The same holds for Matteo. From diary notes we also have more types referring to body parts. For the inanimate category, terms are often referred to the child world such as: *bacini* 'kisses-dim', *letterine* , a word that refers to a toy as well as an abstract entity like the letters of the alphabet; the same holds for *numerini* 'numbers-dim'.

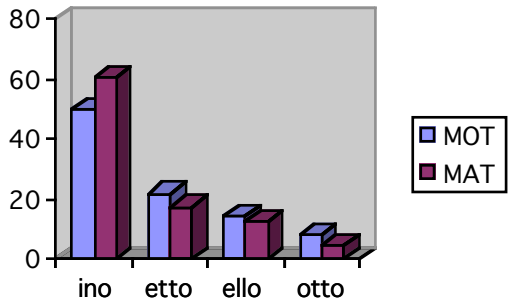

Figure 4. Percentage of the number of diminutive forms for Matteo and the mother

Table 2. Diminutive types and tokens in Matteo and the mother in relation to the main word categories.

	Matteo		Mother	
	Types	Tokens	Types	Tokens
food	5	9	1	4
body parts	9	22	1	1
animals	25	124	24	79
inanimates	25	65	15	25
toys	20	52	7	14
humans	9	30	6	15
abstract	16	53	15	31

6. Qualitative aspects

As we have seen in the previous section diminutive use starts from the very beginning of the child's production. Most of this diminutives are rote learned and are repetitions after the mother's production. From 2;2 diminutive formation seems to be productive. The child begins to play with the suffixes and to overgeneralize its use: *golfino* (now a lexicalized form) → *golfetto*, which is never produced in the input. The same holds for *guantino* 'glove-dim', together with *guantetto*. Although he produces from this age onwards a relatively high number of diminutives he has not acquired the difference in meaning with the simplex yet. This is also very clear when we tested the child:

*MOT: Matteo come fa il cane grande?

%eng: Matteo how does the big dog do?
*MAT: bau!
%com: with a high tone of voice
*MOT: e come fa il cane piccolo?
%eng: and the dog-dim?
*MAT: 0
%com: silence
*MOT: e il cane piccolino?
%eng: and the small dog?
MAT: bau!
%com: with an acute sound

This example shows that the child recognizes the meaning 'small' only when it is expressed with the analytic form.

Acquisition of diminutives is also shown by examples of backformation, i.e. the derivation of simplex from lexicalized diminutives: *viola* ← *violino* 'violin', or from opaque diminutives *cagno* (non-existent word instead of *cane* 'dog') ← *cagnolino*.

In this period he also uses diminutivized forms to refer to adults, as the word *manine* to refer to adult's hands. As far as the pragmatic meaning is concerned we suggest that he begins to use diminutives with a sort of pragmatic meaning as it is shown by the intonations and the kind of gestures that accompany the production of diminutives meaning tenderness and endearment.

After 3;0 a higher number of diminutives occurs and he starts using augmentatives in opposition to the diminutives as following example shows:

*MAT: mamma quello è un barbone
%eng: Mummy that is a poodle-aug
*MOT: perché dici che è un barbone?
%eng: why do you say it is a poodle-aug?
*MAT: perché è un barboncino grande
%eng: because it is a big poodle

Actually the word *barboncino* 'poodle' is a false diminutive and the term *barbone* means 'a beggar' or 'a long beard' (although it is seldom used to indicate the same dog because the homonimy with the lexicalized term blocks its use). The child analyzes the word as *barba* plus -one the first time, and plus *-ino* the second time (the augmentative suffix), and he metalinguistically explains this difference of meaning.

For the production of the simplex along with the diminutives we start noticing a difference in meaning although he mostly uses the diminutivized adjective *piccolina* with the noun that perhaps adds pragmatic meaning to the noun phrase: *una lumachina piccolina* 'a little-dim snail-dim'. We have to point out that it is very often the case that the mother uses this double diminutive.

From 3;8 onwards the child begins to produce diminutives in a wider range of situations very closely matching those of the adult, as in child centered speech situations (with the younger brother). For pragmatic reasons he starts to diminutivize categories that are impossible to diminutivize in the adult language, such as some adverbs like *tuttino* 'all-dim', *moltino* 'much-dim', *semprino* '*always-dim'*. He also starts to reiterate the suffixes: *buon-in-ino* 'good-dim-dim, or with two different suffixes: *piccol-ett-in-ino* 'small-dim-dim-dim'.

As to pragmatic strategies he shows to have acquired the strategy of politeness (see session 3) in requests as in *puoi darmi quella pallina un attimino soltantino?* 'can you give me that ball-dim just-dim a moment-dim', when he asks a friend for a ball. (Note that the adverb *soltanto* cannot be diminutivized in adult language.)

7. Conclusion

As shown in previous research the acquisition of diminutives is one of the first morphological patterns children acquire. For Matteo this also holds: diminutives emerge in the very early phases (1;4) although they are systematically and spontaneously used starting from 1;8-1;10 and start to be productive from 2;2.

From our data the semantic meaning of smallness seems to emerge later than the pragmatic meaning (see Ceccherini et al. 1997, Dressler 1994). Words like *acquetta* 'water-dim', *mammina* 'mother-dim' or *bagnetto* 'bath-dim' are not compatible with a semantic interpretation of smallness. In addition we found prosodic elements important in evaluating the pragmatic meaning of diminutives.

Diminutives and simplicia are used interchangeably without any difference in meaning in the early stages of language acquisition. Later on we have noticed that a sort of pragmatic meaning is attached to the diminutivized words and that this represents a general attitude the child shows towards his interlocutor (especially the mother). He feels he is the center of the mother's world and diminutives are the way through which he underlines the affectionate and emotional character of the interaction.

The semantic meaning of smallness emerges with the acquisition of the semantic meaning of augmentation. In this case we observed a pertinent usage of diminutives and their simplex, the first being applied to semantic denotation of smallness or child-centered situations.

Another important factor that we analyzed is the influence of the input on child's production of diminutives. The data show a parallelism between the child's and the mother's production. This parallelism can be noticed in the development of diminutives and their variants which reflect those of the mother. A look to the categories as landing-sites of diminutives shows that Matteo's production as well as that of the mother is pragmatically motivated by situations and objects directly related to the child and his world.

Notes

[1] As Dressler and Merlini (1994) point out some adjectives do not diminutivize their dimension such as *corto* 'small'. Their diminutivized counterpart does not convey the meaning of less short instead of 'shorter'.

[2] For a detailed description of the morphopragmatic uses of diminutives see Dressler and Merlini (1994) and De Marco (1998).

[3] Children do not necessarily relate difference of form to difference of meaning as stated by Clark (1993).

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Pre- and Protomorphological Fillers in Greek Language Acquisition

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ABSTRACT

The function of fillers in two Greek acquisition corpora (children: Christos 1;9 - 2;2 and Sofia 2;0-2;9) is traced and their relation to the development of grammatical morphemes and functors (like modal particles, negation particles and definite articles) is investigated. There is a period in the development of both children during which they use reduplication first as a mechanism for rendering trisyllabic words and then as a filler for the preverbal modal particle *na* for some of the subjunctive functions (sometimes for negation and for the definite article also).

The data favor an intergrating analysis (Veneziano and Sinclair 1996) of word external and word internal fillers for a certain period in children's development since both children employ the same mechanism of reduplication for filling both word external and word internal syllables in successive - and for a while overlapping - periods.

The findings support a distinction between a premorphological phase and a protomorphlogical phase, in agreement with the position of Dressler and Karpf (1994) and Kilani et al. (1998) since there are clear indications for the development of one and the same mechanism is first exploited as word structure preserver (premorphology) and later exploited as a formal

sign (instead of the modal particle *na*) for certain morphosyntactic functions (subjunctive, function of request) besides the prosodic ones (transition/protomorphology).

1. Introduction

In this paper we trace the function of fillers in two Greek acquisition corpora (children: Christos and Sofia) and investigate their relation to the development of grammatical morphemes (i.e. negation particles, definite articles and mainly modal particles), as well as their relevance to the theoretical framework of Dressler and Karpf (1995).

According to Kilani-Schoch et al. (1998) "fillers are means of replacing unanalyzable grammatical material of adult speech such as articles, determiners, clitics, auxiliaries and other function words in children who first rely on prosodic and phonological structure to build grammatical hypotheses."

Although fillers are discussed at length in the literature, the approaches to this phenomenon differ considerably. Peters and Menn (1993) assign primitive grammatical awareness to the use of fillers from the moment of their appearance, assuming that there is a kind of systematicity in what they fill, i.e. they fill grammatical morphemes; in Peters (1996) the fillers that are analyzed stand for 'catenative verbs'.

Kilani-Schoch et al. (1998) also claim that fillers replace "unanalysable grammatical material" but, according to Dressler and Karpf (1995), they differentiate between a pre- and protomorphological (and later a modularized) phase, drawing a line between a rather phonological mechanism of prosody structure preservation, on the one hand and the emergence of a kind of grammatical systematicity, on the other, as far as the use of fillers and their function is concerned (see also Kilani-Schoch and Dressler 1997).

Veneziano and Sinclair (1997) avoid the term 'filler' and speak of additional (word - external) vs. non- additional (word - internal) elements that replace either a monosyllabic functor before a monosyllabic word or the first syllable of a disyllabic word. They argue that in the early stages of language acquisition there should be no differentiation between elements that replace adult-like functors and elements, which replace syllables of adult-like plurisyllabic words (cf. Kilani-Schoch and Dressler 1997).

If we correctly understand the authors mentioned above there are some common points between Kilani-Schoch et al. (1998) and Veneziano and Sinclair's (1997) assumptions, since both emphasize the discrimination between a period in which fillers have a mere prosodic function (cf. premorphology in Kilani-Schoch et al, see also Dressler and Karpf 1995) and a period in which fillers have a grammatical (morphological/syntactic) function (cf. protomorphology in Kilani-Schoch et al. where in the third phase of modularized morphology fillers occur rather rarely). On the other hand, Peters and Menn (1993) deal in particular with children's rendering of grammatical morphemes (or 'catenatives' in Peters 1996) and in Kilani-Schoch et al. (1998), no evidence of word internal fillers is presented - i.e. both works do not examine parallel filler-strategies for replacing the first syllable of a word - in order to preserve the prosodic structure - besides word external elements, whereas Veneziano and Sinclair do. Kilani-Schoch and Dressler (1997) also use the term 'lexical fillers' for the fillers that stand for the first syllable of a word.

1.1. *Reduplicative fillers*

Our Modern Greek data (henceforth MG) favor the integrating approach of Sinclair and Veneziano (1997) (see also Kilani-Schoch and Dressler 1997, and Christofidou and Kappa 1997), since we also have strong indications that Christos and Sofia employ in rather successive periods, the same filler mechanism, viz. reduplication, as replacement i) of both word initial, non-grammatical syllables and ii) of word external/grammatical monosyllabic morphemes.

The elements considered as fillers in the literature are mostly vocalic elements (cf. Kilani-Schoch et. al 1998); in some cases they are also realized as consonantal elements (cf. Peters 1996) and rarely as CV-structures (cf. Kilani-Schoch and Dressler 1998). As mentioned, Christos and Sofia realize fillers mostly as a CV-structure and specifically as a CV reduplicative structure which leads to a rather differentiated picture of fillers in MG.

According to Dressler and Karpf (1995:102f.), reduplication belongs to extragrammatical operations (like blends, truncations, etc.), which appear already in the premorphological phase of acquisition. The child often uses reduplication for referring to an object by imitating its characteristic noise, for instance in MG [tu-tu] instead of *aftokinito,* 'car'. In our corpus it will be shown that reduplication is also used as a filler. Later, schwa fillers also appear, but they stand only for word external morphemes.[1]

In our opinion the following arguments allow us to consider the reduplicative CV-structure as filler preceding a word or in word initial position:

i) It appears that in Greek child language the CV-syllable structure is highly respected and is always preferred to the V-syllable structure, thus onsetless syllables are avoided. Greek children 'repair' onsetless syllables by filling in the empty onset position by copying the consonant of the syllable

which follows, for instance Sofia (see Kappa 1997) produces the adult word [eðo] ‘here’ as in (1).

(1) Sofia 2;0
*SOF: dedo
%phon: dedo
%mor: ADV|edho
%eng: here

Reduplicative syllables serve as a mechanism of prosodic/syllabic structure preservation of the adult form, by Christos (2). The child realises a trochaic foot (for the purposes of the Greek stress system) and tries to preserve the rest of the syllabic shape of the adult form by means of reduplication. Sofia employs the same mechanism as Christos and sometimes uses a repetitive reduplication in order to render the structure of the adult word (3).

(2) Christos 1;11.0
*CHR: mamano
%phon: mamano
%mor: N|aeroplano-NEUT:SG
%eng: airplane

(3) Sofia 2;0
*SOF: pepepeta
%phon: pepepeta
%mor: N|petaludha-FEM:SG
%eng: butterfly

ii) The reduplicative fillers in MG seem to behave like other kinds of fillers, as far their distribution and function is concerned, i.e. they occur in the same positions (preverbal/prenominal and in word initial position) and exercise the same functions (word-structure preservation, placeholders for grammatical morphemes etc.).

Our data also favor Dressler and Karpf's (1995) distinction of pre- and protomorphology, since the function of fillers in our corpus can be differentiated according to their occurrence in the premorphological or protomorphological phase, exactly like the vocalic fillers in data from other languages (see Kilani-Schoch and Dressler 1997, Kilani-Schoch et al. 1998).

2. Presentation of data

Our data are based on the recordings (and diary notes) of two Greek monolingual children, Christos and Sofia. Christos has been recorded from the age of 1;7 to the age of 4;0, but the period which concerns us here is from 1;9.24 to 2;0.16.

The collection of Sofia's data began when she was 1;10 (diary notes and recordings) and is still ongoing at present (April 1998). The period which concerns us is from 2;0 till 2;9.15.

We analyze these two corpora together because of the similarities they exhibit in the development of fillers and their strong tendency to reduplicate.

Similarities between the two children:

i. They try to preserve the number of syllables of an adult word. They do not seem to have problems with disyllabic words, but for trisyllabic/plurisyllabic they employ reduplication for a certain period.

ii. For a certain period in the acquisition they use, quite systematically, reduplication for rendition of the modal particle *na*.

2.1. *Christos*

From 1;9.24 to 1;10.9 Christos uses reduplication as a strategy in order to preserve the trisyllabic structure of adult words. He preserves the trochaic foot (the unmarked case in MG) and uses reduplication to fill in the unstressed syllable position, i.e. the first syllable of the adult word, provided it is unstressed. It seems that this kind of reduplication is prosodically motivated.

Out of 80 words Christos uses during this period, 24 are target trisyllabic words (43 tokens) and 2 words with 4 syllables (2 tokens). Out of these 26 plurisyllabic words he realizes 11 of them with a truncated first syllable (18 tokens) and 5 of them show reduplication (8 tokens). Five of them are realized as trisyllabic (more adult-like in 10 tokens) and 5 words are realized as trisyllabic words exhibiting consonant harmony (in 9 tokens). Target words with more than three syllables are also realized as trisyllabic via the same mechanisms (4).

(4) Period A: 1;9.24 - 1;10.9

adult words:		80
	trisyllabic	24/80
	tetrasyllabic	2/80

realizations		
truncation	11/26	43%
reduplication	5/26	19%
consonant harmony	5/26	19%
adult-like	5/26	19%

From 1;10.18 till 1;11.10 Christos uses 92 words, 37 of which are target trisyllabic words (60 tokens) and 8 are tetrasyllabic (14 tokens). Of these 45 plurisyllabic words he realizes 5 via truncation of the first syllable (in 5 tokens) and 16 via reduplication (in 25 tokens). Twenty are realized as trisyllabic (more adult-like in 40 tokens) and 4 words are realized as trisyllabic via consonant harmony (in 4 tokens). The reduplicative realizations take precedence over the truncated ones: reduplications increase from 19% to 35.5%, while the truncations decrease from 43% to 11% (5).

(5) Period B: 1;10.18 - 1;11.10

adult words:	92	
trisyllabic	37/92	
tetrasyllabic	8/92	
realizations		
truncation	5/45	11%
reduplication	16/45	35.5%
consonant harmony	20/45	9%
adult-like	4/45	44.5%

For a short while during the period from 1;10.24 till 1;11.10, Christos uses reduplication for rendering the definite article. This happens only with 4 types

(4 tokens). Thus we assume that the strategy is rather phonologically driven without any grammatical awareness involved and soon Christos abandons this effort. It is of interest, however, that for the first time Christos uses reduplication as a filler in order to render word external syllables, i.e. prenominal functors, (see (6)).

(6) Christos 1;11.0
*CHR: popota
%phon: popota
%mor: DEF|*i-FEM:SG N|focia-FEM:SG
%eng: the seal

Between 1;10.24 and 1;11.0 two forms with vowel lengthening appear in order to express the subjunctive function of request and then disappear (i.e. the forms *koopi* and *kooni* instead of *na kopsi* 'to cut', *na sikoni* 'to get up' (3 tokens). This blind alley (see Kilani-Schoch et al. 1998, cf. "false start" in Peters and Menn 1993) is soon abandoned but it seems to be the precursor of another not adult-like strategy that Christos begins to employ systematically during period C (9), (see (13)) in which reduplication is used quite systematically to render the modal particle *na*.

(7) Christos 1;11,0
*CHR: koopi (porto)kali
%pho: koopi kali
%mor: MDL|*na V|kovo-PFV:SUBJ:*2S N|portokali-NEUT:AKK:SG
%eng: (I would like you) to cut the orange

Vowel lengthening appears once as well for rendering the article between 1;10.24 and 1;11,10. Christos tries to render the form *i focia* 'the seal'. He first makes up the form *voota* (8) and immediately afterwards uses the reduplicative form *popota* (see 6). The same pattern - vowel lengthening first and reduplication later - is applied systematically to render the subjunctive functor '*na* + verb' in period C (see 9).

(8) Christos 1;11.0
*CHR: voota
%pho: vota
%mor: DEF|*I-FEM:SG N|focia-FEM:SG
%eng: the seal

From 1;11.13 till 2;0.16 Christos uses 42 target trisyllabic words (occurring in 70 tokens) and 10 target words with more than 3 syllables (in 25 tokens). Of these 52 plurisyllabic words he realizes 14 via truncation of the first syllable(s) (in 22 tokens) and 5 via reduplication (in 10 tokens). Twenty eight of them are realized as trisyllabic words (more adult-like in 50 tokens) and 3 tetrasyllabic target words are realized as tetrasyllabic words (adult-like) for the first time (in 3 tokens). Two trisyllabic words are realized as trisyllabic words via consonant harmony (in 2 tokens). During this period the more adult-like realizations increase from 44.5% to 59.5% (i.e. 54%+5.5%) and take precedence over the reduplicative realizations which decrease from 35.5% to 9.5%. Truncation increases once more (27%), apparently owing to the large number words with more than 3 syllables (see 9). The disyllabic forms with truncation amount to 9.5% and the trisyllabic forms with truncation amount to 17.5%.

Between 1;11.13 and 2;0.16 Christos uses, for the first time, reduplication for rendering the subjunctive functor *na* in order to achieve the function of a request (one of the target subjunctive functions, see (10), (11)). In our opinion this is the main reason of the decreased use of reduplication as a structure preservation mechanism. This happens predominantly with disyllabic verbs. Only once does the trisyllabic verb form *petsume* appear instead of *na peksume* 'let's play', i.e. without any marker for *na*, but in all occurrences of the subjunctive form of *pezo* 'I play', Christos henceforth employs once again the tetrasyllabic reduplicative form i.e. *pepetsume*. The token *anicio* instead of *n'anikso* 'to open' remains trisyllabic regardless of whether or not it appears in subjunctive with the particle *na*, since the onset is vocalic.

(9) Period C: 1;11,13 - 2;0,16

adult words	52	
trisyllabic	45/52	
tetrasyllabic	10/52	
realizations		
truncation	14/52	27%
reduplication	5/52	9.5%
consonant harmony	2/52	4%
adult-like	28/52	54%
tetrasyllabic (adult-like)	3/52	5.5%

(10) Christos 1;11,13
*CHR: kakani Niko
%pho: kakani niko

%mor: MDL|*na V|kano-PFV:SUBJ:*2S
PROP|Nikos-MASC:AKK:SG
%eng: (I would like you) to draw Nick

(11) Christos 1;11,13-2;0,16
5 types: (*kakani*, *nanicio*, *kakatsi*, *pipi*, *pepetsume*),
('to do', 'to open', 'to sit', 'to get in', 'to play')
18 tokens / 22 RED, 82%
3 types: (*kani*, *peciume*, *anicio*), ('to do', 'to play', 'to open')
4 tokens / 22 ∅+Verb, 18%

Meanwhile, at the age of 1;11.27-2;0.4, for a short time during period C (9), Christos sporadically employs again fillers for definite articles: four types (7 tokens) occur with schwa as filler (12a) and 1 type (2 tokens) occurs with a prenasalised consonant as filler (12b). This shift to fillers happens due to the systematic and exclusive use of reduplication for the form *na* and its subjunctive function of request.

(12a) Christos 1;11,27
*CHR: ∂micis
%pho: ∂micis
%mor: DEF|*o-MASC:NOM:SG
%eng: (the) Mickey

(12b) Christos 2;0,4
*CHR: Nbala
%pho: Nbala

%mor: DEF|*tin-FEM:AKK:SG N|bala-FEM:AKK:SG
%eng: (the) ball

Between 2;1.2 and 2;1.22 Christos gradually achieves more adult-like forms of *na*. The data in (13) show the competition between different forms/fillers and adult-like renditions for *na* (and sometimes the future particle *tha*):

(13) Christos 2;1,2-2;1,22

1/19 ta +reduplication+Verb:	(1 type), (*ta pepetsume* '(us) to play'), 5%
1/19 a+Verb:	(1 type), (*apeci* 'to play'), 5%
4/19 na+Verb	(2 types), (*na petsume* '(us) to play') 21%
1/19 a+RED+Verb	(1 type), (*atatani* 'to do') 5%
7/19 reduplication	(6 types), (*papali* 'to take') 38%
2/19 cons. harmony	(1 type), (*papetsume* '(us) to play'), 10,5%
3/19 ta+Verb	(2 types), (*ta fame* '(us) to eat') 16%

2.2. *Sofia*

The collection of data on Sofia started when she was 1;7.10 (diary notes and recordings) up to the present. Sofia (2;0-2;5) also uses reduplication as a strategy to preserve the trisyllabic structure of the adult words. She preserves the trochaic foot (unmarked case in MG) and uses reduplication to fill in the unstressed syllable position, in this case the first unstressed syllable of the adult word. Thus reduplication seems to be prosodically motivated. At the age of 2;0 - 2;5 Sofia uses 93 words. Fifty one are target trisyllabic. Thirty five of these 51 words are produced by the child as trisyllabic by means of reduplication, 16

are produced as disyllabic truncated forms with realization of the last 2 syllables. Adult words with more than 3 syllables are produced as trisyllabic employing her favorite pattern of reduplication: 14 out of 15 adult plurisyllabic forms are realized as trisyllabic, and 1 word as plurisyllabic employing a repetitive reduplication (*pepe'peta ~ pe'peta = petaluDa*) (14).

(14) Period A: 2;0 - 2;5

adult words	93	
trisyllabic	51	
tetrasyllabic	15	
realizations		
truncation	16/51	30%
reduplication	35/51	70%
plurisyllabic as trisyllabic - reduction	15/15	

In the same period 2 types (6 tokens) are attested, in which the child possibly expresses a subjunctive function, that of ordering, but there is no emergence or sign of the subjunctive marker**.** Since this function occurs only 4 times (just one type) we assume that the use of subjunctive is not yet systematic, see (15).

(15) Sofia 2;5,23
*SOF: pini cheli
%pho: pini çeli
%mor: MDL|*na V|pleno-PFV:SUBJ:*1S N|cheri-NEUT:AKK:SG
%eng: (I am going to) wash (the) hand

Between 2;5 and 2;6.21 Sofia continues to preserve the trisyllabic structure of most target words. 107 words are attested, 58 of which are trisyllabic. Sofia uses reduplication in 37 of these 58 words. Eighteen words are truncated and are realized as disyllabic and only 2 words are realized as trisyllabic without reduplication (see (16)). Sofia's - unlike Christos' - use of reduplication decreases (only slightly) from 70% to 64%, and the number of truncations does not decrease at all.

(16) Period B: 2;5 - 2;6.21

adult words	107	
trisyllabic	58	
tetrasyllabic	-	
realizations		
truncation	18/58	31%
reduplication	37/58	64%
consonant harmony	-	-
adult-like	2/58	5%

In the same period Sofia, like Christos, uses reduplication for replacing grammatical morphemes for the first time. In the case of Sofia reduplication is used in order to render the subjunctive particle *na* for the function of *request* (17a) or *object clause* (17b). Four types (10 tokens) are attested between 2;5 and 2;6.21 with subjunctive function (see (17)). The use of reduplication as a filler for the subjunctive marker *na* may explain the decrease of reduplication for rendering trisyllabic words in period B (16), (cf. Christos' Period C (9)). The verbs in these sentences are disyllabic or monosyllabic.

(17a) Sofia 2;6.21

*SOF: ela didis titines
%pho: ela didis titines
%mor: V|erchome-IMP:2S MDL|*na V|vlepo-PFV:SUBJ:2S
N|kurtina-FEM:AKK:PL
%eng: come to see (the) curtains

(17b) Sofia 2;5.23

*SOF: telo pao titina
%pho: telo pao titina
%mor: V|thelo-IMPF:PRES:1S MDL|*na V|pao-PFV:SUBJ:1S
PROP|Athina-FEM:AKK:SG
%eng: (I) want to go (to) Athens

During the same period reduplication occurs also as a filler for the negation particle *äen* (‘not’), in 3 types (3 tokens) (18).

(18) Sofia 2;6

*SOF: mimime
%pho: mimime
%mor: NEG|*dhen V|ime-IMPF:PRES:1S
%eng: (I) am not

After the age of 2;7 Sofia gradually abandons reduplication as a filler-mechanism: out of 40 adult words, 26 are target trisyllabic. Five of them are produced via reduplication as trisyllabic (these are actually 5 ‘old’ words), 2 as

trisyllabic without reduplication, and 19 'new' words, as disyllabic truncated forms without reduplication. Reduplication decreases considerably (from 64% to 20%) in favour of truncation. In this period the child retains only the disyllabic trochaic foot of the adult word in her effort to produce the most adult-like form as in (19) period C.

(19) Period C: 2;7 - 2;9.15

adult words	40	
trisyllabic	26	
tetrasyllabic	-	
realizations		
truncation	19/26	72%
reduplication	19/26	20%
consonant harmony	-	-
adult-like	2/26	8%

Sofia, unlike Christos, seems to abandon the mechanism of reduplication as filler for *na*, and schwa fillers emerge (after the age of 2;7). Eight types (10 tokens) are attested with subjunctive function (see (20)). Six of these tokens emerge schwa as filler for *na* (see (21)). In two tokens schwa occurs in alternation with the reduplication strategy of the previous period (see (22)). Two tokens exhibit neither schwa nor reduplication.

(20) Sofia 2;7

10 tokens (8 types):

6/10 schwa as filler for *na* (60%)

2/10 reduplication as Filler (20%)

2/10 neither schwa nor reduplication (20%)

(21) Sofia 2;7
*SOF: mama ’ poti ato
%pho: mama ’ poti ato
%mor: N|mama-FEM:NOM:SG MDL|*na V|kovo-PFV:SUBJ:3S PRO|afto-NEUT:AKK:SG
%eng: mom (I would like you) to cut it.

(22) Sofia 2;7
*SOF: tola ´ dis [:tola didis]
%pho: tola ´ dis
%mor: ADV|tora MDL|*na V|vlepo-PFV:SUBJ:2S
%eng: (I would like you) to see now

3. Discussion

3.2. *Premorphology*

We assume that period A (in (4) and (14)) represents the premorphological phase (see section 1), since reduplicative fillers are motivated strictly prosodically in order to preserve the structure of a plurisyllabic word. Further supporting evidence in favor of our data classification is the absence of systematic use of any morphological markers/or fillers i.e. the children do not seem to exhibit morphological awareness. (see also the analysis of Christos’ data in Kilani-Schoch et al. 1998, cf. Kilani-Schoch and Dressler 1997).

3.2. *Transition*

According to our analysis period B (in (5), (16)) represents the transitional phase between pre- and protomorphology.

In the case of Christos we observe that reduplication as filler of the initial unstressed syllables of a word is still preferred but during the same period the reduplication strategy is also used for replacing the article. Nevertheless, this phenomenon is very limited and represents a very short interval (2 recordings 1;11 and 1;11.10). It signals, however, the onset of the reduplication strategy as a filler for a word external element and not for the initial syllable of a word. Since there are only 4 tokens of that kind, we assume that they could be the precursors of some grammatical awareness related to prenominal positions, namely the definite article.

At 1;11.0 just before he transfers the reduplication mechanism from structure preservation to the replacement of the particle *na*, Christos uses the subjunctive for the function of request using - instead of the adult-like particle *na* + verb - vowel lengthening in the verb-internal position i.e. *koopi* 'to cut' and *kooni* 'to get up', but that happens only in one recording and only with two types (there is also one type definite article + noun). It seems that although the child, during this period, already has the need to express request, he employs another strategy for the period during which reduplication is used for the structure preservation of trisyllabic words. Nevertheless, Christos seems to take the first steps toward becoming aware of the functions and forms of the Greek subjunctive.

Sofia also employs reduplication as a strategy to render the word external functors, such as the particle *na* and the negation particle. We assume that there

is a sign of morphological awareness, since she applies the strategy in the proper contexts, i.e. subjunctive function of request/object clause or negation. Since the number of occurrences in both cases is rather limited we assume that neither the use of the subjunctive nor that of negation is systematic as yet. However they seem to signal some awareness of grammatical morphemes, of their syntactic positions and possibly some of their adult-like functions. In this transitional period the first three-word utterance occurs.

3.3. *Protomorphology*

As soon as Christos manages to utter the majority of trisyllabic words without the help of reduplication he transfers his favored strategy of reduplication to the replacement of word external grammatical morphemes, that is he uses reduplication for functor *na* for the subjunctive function of request. It is of interest that he does this mostly with disyllabic words, which become trisyllabic with the addition of the monosyllabic *na*-functor via reduplication of the first syllable of the verb which follows. But he soon applies reduplication as well to the trisyllabic verb *peksume*, forming *pepetsume*. Nevertheless, this is the only type (but in many tokens) consisting of a functor plus a trisyllabic word. In this period C (in (9), (19)) no reduplication as filler for articles occurs. Perhaps the function of request was more important to the child than the definiteness, so he opted to delay the rendition of an article to the rendition of subjunctive (function of request) since Christos does not make use of other kinds of fillers at this point. Only later (1;11.27-2;0.4) Christos uses vocalic fillers for a short time in this period as precursors of the adult-like article.

Sofia gradually abandons reduplication strategy and the new words are realized as disyllabic truncated forms. Schwa appears in order to render the

subjunctive marker *na*. Thus it seems that Sofia moves from her undifferentiated reduplicative fillers to more adult-like realizations and seems to become aware of the morpheme boundaries. Unlike Christos, she differentiates her 'tools', employing schwa fillers for the subjunctive functor *na* and the truncation for trisyllabic. words. The child retains only the disyllabic foot of the adult word in her effort to produce the more adult-like form.

As expected, the transition from reduplication to schwa is gradual and we often find alternating forms in the same recording (for instance, *tola didis* ~ *tolaə dis* in (22)). One widely accepted hypothesis is that the older forms are already stored in the child's lexicon and are slower to change, whereas new forms are subject to analysis and hypothesis testing and the new parameters are likely to be applied immediately to new words. It seems that the child is first testing a new setting before fixing it. Nevertheless, this is not the case with Christos, who has the tendency to apply his new patterns gradually but to both old and new forms.

According to our analysis we assume that the use of reduplication by Christos and schwa by Sofia during this period is morphosyntactically / grammatically motivated, in contrast with the clearly prosodically motivated reduplicative fillers in the place of the initial unstressed syllable of a trisyllabic word, in the premorphological period (period A). Thus we consider this period as protomorphological (see also the analysis of Christos' data in Kilani et al, 1998).

Summarizing: In both children appears a quite extended use of a formal filler mechanism, that of reduplication, for the structure preservation of trisyllabic words and later for specific grammatical forms/functions before -mostly- disyllabic words.

There are differences in the periods and the functions for which the means of reduplication and/or schwa are used. Christos' protomorphological and systematic rendering of *na* is realized via reduplicative fillers, whereas Sofia's protomorphological and systematic rendering of *na* is realized via schwa fillers.

4. Conclusion

Our data favor an integrating analysis of word external and word internal fillers for a certain period in a child's development since both children employ the same mechanisms for filling both word external and word internal syllables in successive (only slightly overlapped) periods.

Our findings support also a separation of a premorphological phase from a protomorphlogical one, in accordance with the position of Dressler and Karpf (1995) and Kilani-Schoch et al. (1998), since there is clear indication of the development of one and the same mechanism being first exploited as word structure preserver (premorphology) and later (in both children) exploited rather as a formal sign for certain morphosyntactic functions besides the prosodic ones (transition/protomorphology). In protomorphology appear also schwa or ∅ (Sofia) and *a* or *ta* (Christos) as alternative fillers for *na*.

The differences between our data and those of other languages are the following:

i. the nature of fillers is not vocalic but reduplicative. Reduplication by nature does not represent a standard form but its form depends on the syllable which follows (very rarely in Christos' data does partial reduplication occur)

ii. the word external grammatical fillers first appear in the transition from premorphology to protomorphology. The small number of such occurrences does not allow us to assume any systematicity but nevertheless it should signal the emergence of grammatical awareness.

Thus there is a contrast to the previous literature : In our data, at the time that fillers for functors appear, there are also signs of their correspondence to certain functions. In the premorphological period prosodically triggered fillers appear only for the structure preservation of trisyllabic words, i.e. no fillers in the position of functors are attested. This results in a slightly differentiated picture of the development of fillers as in data from other languages reported by Kilani-Schoch et al. 1998, Veneziano and Sinclair (1997), Peters and Menn 1993, Peters 1996 for French, English, and German. Since our data are based upon the material collected from only 2 children, we would not like to claim at this point that these differences are language specific. In order to exclude the possibility of individual differences more data and research will be necessary.

Notes

[1] To our knowledge no filler analysis has been applied to other corpora of Greek child language.

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