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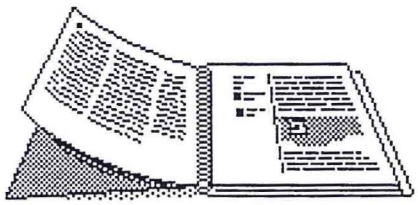

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First Verbs: On the way to Mini-paradigms

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Introduction

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1. Remarks on aim and origin of the presented papers

This 18th issue of ZAS-Papers in Linguistics consists of papers on the development of verb acquisition in 9 languages from the very early stages up to the onset of paradigm construction. Each of the 10 papers deals with first-language developmental processes in one or two children studied via longitudinal data. The languages involved are French, Spanish, Russian, Croatian, Lithuanien, Finnish, English and German. For German two different varieties are examined, one from Berlin and one from Vienna. All papers are based on presentations at the workshop 'Early verbs: On the way to mini-paradigms' held at the ZAS (Berlin) on the 30./31. of September 2000.[1] This workshop brought to a close the first phase of cooperation between two projects on language acquisition which has started in October 1999:

a) the project on "Syntaktische Konsequenzen des Morphologieewerbs" at the ZAS (Berlin) headed by Juergen Weissenborn and Ewald Lang, and financially supported by the Deutsche Forschungsgemeinschaft, and

b) the international "Crosslinguistic Project on Pre- and Protomorphology in Language Acquisition" coordinated by Wolfgang U. Dressler in behalf of the Austrian Academy of Sciences.

The main research goal of the Berlin Project is to argue for the importance of the acquisition of the verb and of its (basic) grammar for the development of language-specific structural properties, especially the order of verb-governed arguments as well as its impact on the acquisition of case assignment. The hypotheses are based on functional and constructivist approaches (cf. Dressler & Karpf 1995, Karmiloff-Smith 1992, Tomasello 1992) and will have a critical look at the respective results in the frame of generative linguistics (cf. Wexler 1994, Weissenborn 1990, Clahsen 1988).[2] A central and typically early acquired feature of verb grammar is agreement. Agreement provides direct relation to one of the verb-governed elements, the subject. Thus the first step in project work had been to analyse the acquisition of early verb inflection and its impact on the acquisition of the subject and its structural properties. Finding out unambiguous correlations in these acquisition processes requires crosslinguistic examination. The project itself is concentrated on three languages which differ typologically in the respective structures: English, German, and Russian. Cooperations like the one presented in this volume give the possibility to broaden the typological horizon.

The international project on pre- and protomorphology aims at a theory-guided comparative analysis of longitudinal data sampled from about age 1;2 to 3;0. It encompasses nearly two dozen, predominantly morphology-rich languages among the Indo-European, Finno-Ugric

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[1] The workshop had been prepared in tight cooperation of the two project members. The authors would like to thank especially Natalia Gagarina (Berlin) and Sabine Klampfer (Vienna) for their contributions to the methodological and theoretical guidelines of the workshop.

[2] For a first study on correlations of the acquisition of verbs, pronominal forms, and subjects cf. Bittner (2000).

and Semitic language families, plus Bask, Georgian, Turkish, and the Meso-American languages Yucateco Maya and Huichol. The project tries to answer basic questions such as:

A) How can we explain that young children appear to acquire very different morphological systems in similar ways?

B) Should we, therefore, assume a sizable number of innate, specifically morphological principles of universal grammar?

C) But how then can we account for the great time lags in the emergence of morphological structures (e.g. with Turkish vs. English children)?

D) And why is then hypothetically innate grammatical morphology (as opposed to extragrammatical morphology) nearly absent in certain isolating languages?

E) On the contrary, if we negate innateness of morphology, how then can we explain not only the similarity of development, but also of structural principles, of target morphologies?

The approach towards answering such questions is based on Natural Morphology and constructivism or compatible approaches (cf. the volumes edited by Dressler 1997a, Dziubalska-Kolaczyk 1997 and Gillis 1998). So far publications have focused on declension of nouns (for number and case) and on diminutive formation. Thus this volume is the first to focus on verbs.

Both projects are interested in the development of verb inflection, in typological research and in modeling and explaining the developmental processes in the framework of functional theoretical concepts. Thus it proved useful to combine forces. By looking at the emergence and acquisition of verb inflection we aim to shed more light on the first grammatical steps in language development and in the process of constructing grammar.

One of the central theoretical questions is: in which respect could we think of language development as divided into a pre-grammatical (pre-morphological), proto-grammatical (proto-morphological) and a grammatical (morphologically productive) phase? The more concrete question in analysing the data has been what is common (universal) and what is different (language specific) in the development of verbs and verb inflection up to the emergence of the first recurrent inflectional contrasts or, in other words, up to the emergence of the inflectional paradigm of the verb in the analyzed languages.

Part 2 of the introduction will give a short description of the theoretical base of our research, part 3 will give definitions of the grammatical terms used in common.

A necessitiy of the first phase of our cooperation was to determine the methodological guidelines of common research. Anybody involved in language-acquisition or typological research knows both the importance of common methodology of data analyses, in order to make the developmental processes comparable, and the difficulties involved in getting several researchers (who deal with different languages) to agree on strictly parallel working procedures. Discussion on this common base is still going on and probably will be virulent up to the end of our joint work. The main purpose of the first phase, however, has been to arrive at a detailed analysis of verb-inflection development in each language under discussion, particularly in regard to the following aspects:

- prerequisites for acquiring paradigmatic contrasts
- order of emergence of inflectional categories
- development from rote learning to morphological generalizations and productive use of morphological rules or patterns
- demarcation of the assumed phases of pre- and protomorphology

Despite the fact that these points have been discussed by all contributors of this volume, each of them has given special attention to some methodological or theoretical aspects. For some

of the investigated languages the question arises whether the lemma or a special part of the lemma should be considered as the relevant base for inflection in child language and what the consequences for the assumption of mini-paradigms will be (cf. Gagarina for Russian, Wójcik for Lithuanien, Bittner for German). Klampfer discusses possibilities of a more qualitative than a quantitative determination of true mini-paradigms as well as methodological tools to measure the lexical and morphological development in a comparable way. Special emphasis on pre-morphological processes in developing inflectional distinctions have been given by Aguirre and Laalo. The importance of rote learning and its typological determination by the input as well as by child specific strategies are discussed by Kilani-Schoch and Aguirre. Also Katičić is confronted with this question by the striking emphasis of her Croatian child on auxiliaries and suppletive verb forms. The importance of both general pragmatical and typological conditions in the order of emergence of inflectional categories come to light when comparing especially the papers on the typologically most different languages (cf. Pfeiler on Yucatec Maya, Laalo on Finnish and Guelzow on English). Kilani-Schoch and Bittner discuss assumptions on the developmental steps from rote learning to productive morphology. Both of them favour an explanation which assumes a gradual and progressive development in morphological generalisation.

2. Theoretical background of the contributions

The epistemological approach of the cross-linguistic project is characterized by the use of functional explanation (cf. Dressler 1995). The linguistic approach is either based on, or at least compatible with, the model of Natural Morphology (cf. Kilani-Schoch 1988, Dressler et al. 1987, Dressler 1997b, 1999, Dressler & Karpf 1995), with its distinction of grammatical morphological rules vs. extragrammatical operations (of "expressive" morphology), as represented by young children's onomatopoetic reduplications, truncations and fillers. Moreover this model distinguishes gradually prototypical vs. non-prototypical morphology (cf. Dressler & Merlini Barbaresi 1994): prototypical verbal categories are person, number, tense, mood and voice, whereas non-finite categories are non-prototypical. On the level of universal preferences, the parameters of iconicity, morphotactic and morphosemantic transparency, indexicality, and (bi)uniqueness are the most relevant.

According to the concept of language types as ideal constructs which are more or less approached by actual languages (cf. Skalička 1979, Kilani-Schoch 1988, Dressler et al. 1987), we can provisionally assign the languages of this volume to a gradual continuum between two ideal language types, as far as verb morphology is concerned:[3]

1) agglutinating type <---> inflecting type: Finnish - Yucateco Maya - the other languages
2) inflecting type <---> isolating type: Lithuanian - Russian - Croatian - Spanish - Yucateco Maya - German - French - English.

Our developmental approach does not assume an innate morphological module but is constructivist, i.e. based on the model of self-organising processes (autopoiesis, cf. Karmiloff-Smith 1992, Karpf 1991, Dressler & Karpf 1995). Children interact selectively with the environment, their selection of data from the environment (first intake, then output) is carried out on the basis of the criteria available in each phase. Important constructivist principles are those of pattern selection and of self-organisation: increasing complexity leads to successive

[3] Note that the nominal and the verb system may behave very differently in typological variation, e.g. French is very isolating in the noun (even more so than English), but weakly inflecting in the verb (here English is more isolating).

dissociations of more global systems into more specific, complementary systems, which gives rise to modularity or at least compartmentalisation (as division of labour).

We divide morphological development into the three main phases of premorphology, protomorphology, and morphology proper (or modularised morphology), with the following theoretical claims:

a) We can consider the premorphological phase of language acquisition as the phase before the detection of grammatical morphology. Extragrammatical (or "expressive") morphological operations and precursors of later grammatical rules consisting only of rote-learned forms occur. The selection of grammatical precursors is based on principles of naturalness and constructivism. In the premorphological phase, no system of grammatical morphology has yet become dissociated from a general cognitive system that handles, inter alia, words of whatever form. This global system becomes dysfunctional, when children are in growing need of a rapid expansion of their lexical inventories and when (in many languages) expanding syntax needs morphological marking of syntactic categories.

b) During the protomorphological phase of language acquisition, children detect and reconstruct or construct creatively morphological patterns of analogies or of first rules. In order to handle theincreasing morphological complexity, a primitive system of morphology dissociates from phonology, syntax and the lexicon. In this period also most interindividual variation is to be expected.

c) In the first phases of morphology proper (also called "modularised morphology" by those who believe in a modular compartmentalisation of adult language), the child's systems approach qualitatively, if not quantitatively the adult models. In passing over to this stage, the two main functions of word formation, namely lexical enrichment and motivation need to be served. This leads to ever greater complexity, paralleled and even more increased by the accumulation of inflectional devices. In order to serve the different functions of inflection and word formation, the primitive morphological system must dissociate, giving rise to separate submodules of inflection and word formation. In this way morphology becomes modularised. Hence morphology proper initiates when the basic language-specific properties of target morphology are acquired and structurally differentiated (i.e. compartmentalised) into verbal vs. nominal inflection vs. word formation.

3. Brief definitions of central terms used in the contributions

The following alphabetically ordered terms are used in common by all contributors to the present volume.

Extragrammatical operations: extragrammatical operations are operations which resemble morphological rules but whose only unifying property is that some principle of morphological grammar is violated

Frozen forms or ***formulaic forms*** are a subset of rote-learnt, contextually/situationally bound, morphologically non-distinctive forms (cf. Kilani-Schoch, this volume, for further citeria)

Isolated paradigm: an isolated paradigm is a paradigm which differs morphologically or morphonologically from all other paradigms.

Lemma: with the term lemma we assign the abstract base of a lexical entry, i.e. the correlation of (specific) lexical meaning with (specific) phonological material which create the lexical sign.

Macroclass: a macroclass is the highest, most general type of inflectional classes, which comprises several classes or (sub)classes or microclasses and whose nucleus is prototypically a productive microclass.

Microclass: a microclass is a set of those paradigms which share exactly the same morphological and morphonological generalisations

Mini-paradigm: a mini-paradigm is an incomplete paradigm corresponding to a non-isolated set of minimally 3 accurate and distinct inflectional forms of the same verbal lexeme produced spontaneously in contrasting contexts = incomplete paradigm.

Modularised morphology: Morphology proper (also called "modularised morphology" by those who believe in a modular compartmentalisation of adult language) initiates when the basic language-specific properties of target morphology are acquired and structurally differentiated (i.e. compartmentalised) into verbal vs. nominal inflection vs. word formation.

Paradigm: a paradigm comprises all inflectional forms (types) of one lemma.

Premorphology: The premorphological phase of language acquisition is the phase where morphological operations occur - both extra-grammatical (or "expressive") ones and precursors of later grammatical rules. These precursors consist of rote-learned forms whose selection is based on principles of naturalness and constructivism.

Protomorphology: The protomorphological phase of language acquisition is the phase where children start to construct creatively morphological patterns of analogies and of first rules. In this period also most interindividual variation is to be expected.

Rote learned forms: early inflectional forms which don't show recurrent inflectional contrasts with other forms of the same lemma are regarded as rote learned (cf. Kilani-Schoch, this volume).

Token: every occurence of a form of a lemma is counted as a single token.

Type: a type is a grammatical form of a lemma, i.e. an inflectional form in our investigation.

Steps: the term steps is used here to refer to successive segments of development within one grammatical (sub)system as opposed to phases which hold for several systems

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Early verb development in one Austrian child[1]

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0. Introduction

The purpose of this paper is to trace the early development of verbs (first 50 verb lemmas) in one Austrian child. The paper focusses on verb morphology, and especially on the emergence of first verb paradigms.

1. (Austrian) German verbal system

German is a 'weakly inflecting' language (cf. Dressler 1997a) with moderately rich verb morphology. Austrian German is even weaker inflecting than Standard High German.

1.1. Grammatical categories

German verbs encode the grammatical categories of person, number, tense, mood and voice. There exists no grammatical verbal category of aspect in German.

Person (1st, 2nd, 3rd) and number (sg, pl) are expressed fusionally by verbal suffixes (and by subject pronouns which are obligatory unless there is ellipsis, or if the noun renders a 3rd person pronoun superfluous). The following table (tab. 1) gives an overview of the suffixes used in the present indicative and in the imperative. Parentheses and slashes indicate possible alternations in colloquial Austrian German.

	PRES. INDICATIVE		**IMPERATIVE**	
	Sg.	**Pl.**	**Sg.**	**Pl.**
1st Pers.	spiel-(e)	spiel-(e)n[2]		spiel-(e)n wir! / -ma!
2nd Pers.	spiel-st	spiel-t / -ts	spiel-∅!	spiel-t! /-ts!
3rd Pers.	spiel-t	spiel-(e)n		

Table 1: Person and number marking in the present indicative and imperative: the weak German verb *spielen* 'to play'

Within the category tense, spoken Austrian German distinguishes between present, future, perfect, and pluperfect. In contrast to Northern German varieties, the synthetic preterite is unproductive in spoken Austrian German (except for the verb *sein* 'to be'). The present is formed synthetically. Perfect, pluperfect and future tense are expressed by periphrastic constructions, i.e. by combination of Aux (*haben* 'to have', *sein* 'to be') + PP (e.g. *er hat gespielt* 'he played / has played') and Aux (*werden* 'to become') + INF (e.g. *er wird spielen* 'he

[1] Written by Sabine Klampfer after discussion with Wolfgang U. Dressler. We would like to thank Dagmar Bittner and Marianne Kilani-Schoch for their comments on an earlier version of this paper. The present study is supported by the "Fonds zur Förderung der wissenschaftlichen Forschung" (Project number P13681-SPR).

[2] In cases in which verb forms of the 1. Pl. are directly followed by the colloquial subject pronoun *ma*, the alternations observed in the imperative hold also for the indicative.

will play') respectively. Within the category mood, spoken Austrian German distinguishes between indicative, imperative and conditional (= conjunctive II), the last one being formed analytically in Standard Austrian German (e.g. *ich würde spielen* 'I would play'), and synthetically in some Austrian dialects (e.g. *[i ʃpy:ɬat]*). Passive voice is expressed by the construction Aux (*werden* 'to become' for the event and *sein* 'to be' for the stative passive) + PP (e.g. *es wird gespielt* 'it is played').

1.2. Inflectional classes and productivity

Following Bittner (1996: 83-109), Dressler (in prep.) proposes a subdivision of the German verb – according to different patterns of stem vowel change (Umlaut (U), Ablaut (A)) and weak vs. strong inflectional properties of category symbolization - into (at least) 15 different inflectional microclasses. This classification established for the adult language appears however to be too detailed for the study of child language. For example, in spoken Austrian German, children are hardly ever exposed to preterite forms (except for the verb *sein* 'to be' and for fairytales) and therefore children before the age of 3;0 are rather unlikely to make distinctions between microclasses which differ by the use of Ablaut in the preterite. Collapsing microclass distinctions which are of little relevance for small Austrian children, German verbs may thus be grouped into the following classes (cf. Klampfer, Maillochon, Bassano & Dressler 1999, Dressler & Klampfer 2000); the forms given are Inf., 3. Sg. Pres.Ind., 1.Pl. Pres.Ind., 2.Sg. Imp., PP:

Class 1: weak verbs e.g. *spielen, schauen*
spielen 'to play': *er spielt, wir spielen, spiel!, gespielt*
Class 1': weak verbs (+A) e.g. *brennen, senden*
brennen 'to burn': *es brennt, wir brennen, brenn!, gebrannt*

Class 2: strong verbs (+A) e.g. *greifen, bleiben, fließen, biegen, rinnen, singen*
bleiben 'to stay': *er bleibt, wir bleiben, bleib!, geblieben*

Class 3: strong verbs (+1U) e.g. *schlafen, fahren*
schlafen 'to sleep': *er schläft, wir schlafen, schlaf!, geschlafen*
Class 3': strong verbs (-U) e.g. *kommen, rufen*
kommen 'to come': *er kommt, wir kommen, komm!, gekommen*

Class 4: strong verbs (+2U) e.g. *lesen, geben*
lesen 'to read': *er liest, wir lesen, lies!, gelesen*

Class 5: strong verbs (+2U, +A) e.g. *quellen, brechen, stehlen, sterben*
brechen 'to break': *er bricht, wir brechen, brich!, gebrochen*

Modals: *können, müssen, wollen, mögen, sollen, dürfen; wissen*
können 'can': 1.Sg.Pres.Ind. *ich kann, er kann, wir können, gekonnt*

Auxiliaries / suppletive auxiliaries as main verbs: *sein, haben, werden; tun*
sein 'to be': 1.Sg.Pres.Ind. *ich bin, er ist, wir sind, gewesen*

Suppletives e.g. *gehen, bringen*
gehen 'to go': *er geht, wir gehen, geh!, gegangen*

Class 1 consists of German weak verbs. Class 1 (e.g. *spielen*) is the only productive verb class[3] (cf. Dressler 1997b). Subclass 1′ (e.g. *brennen*) is formed by unproductive weak verbs taking Ablaut in the PP. Classes 2-5 consist of German strong verbs.[4] Verbs of class 2 (e.g. *bleiben*) take Ablaut in the PP. Class 3 (e.g. *schlafen*) is represented by verbs displaying a stem vowel change in the 2. and 3. Sg. Pres.Ind. In colloquial speech this Umlaut may be levelled. Verbs of subclass 3′ (e.g. *kommen*) never take Umlaut. In class 4 (e.g. *lesen*), Umlaut is used in the 2.Sg. Imp. as well. Class 5 verbs (e.g. *brechen*) take both Umlaut and Ablaut.

Despite different details in their paradigms, modal verbs (e.g. *können*) share several morphosyntactic and semantic properties and thus are grouped together for the purpose of this paper. Auxiliaries and suppletive auxiliaries as main verbs are put together for the same reason. Suppletive main verbs (e.g. *gehen*) will be analyzed separately.

1.3. Other important characteristics

Another important characteristic of German verbs are separable stressed prefixes such as *weg* 'away' in the verb *weggehen* 'to go away'. In matrix clauses of the present indicative and in the imperative, they get separated from the base (e.g. *er geht weg* 'he goes away', *geh weg!* 'go away!'). Although German verb prefixes may be used to distinguish between „*Aktionsarten*" (e.g. durative *essen* 'to eat' vs. non-durative *aufessen* 'to eat up'), prefixed verb forms often bear different lexical meanings and thus will be treated as different verb lemmas.

2. The database

2.1. General data description

The present study is based on longitudinal spontaneous speech data of the Austrian girl Katharina. Katharina is the second of three children of an Austrian couple living in Vienna. She was audiorecorded in free play situations (mostly in interaction with the mother) from the age of 1;6 to 3;0, yielding 34 spontaneous speech sessions of about 30 minutes each. The data were transcribed and morphologically coded according to the norms of the international child language database CHILDES (MacWhinney 2000)[5]. For quantitative analyses of the data, the CLAN programs of CHILDES were used.

2.2. Data analyzed for this contribution

This study focusses on the period of Katharina's first 50 verb lemmas, thus covering the period from age 2;0.18 to 2;4.22 (cf. tab. 2). For the following analyses, recording sessions within one month of age have been grouped together.

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[3] Note that for German verbs, the factor 'productivity' cannot be separated from 'lemma frequency' and 'default', since the only productive verb class 1 has the highest lemma frequency and functions also as default class.

[4] In contrast to weak verbs, German strong verbs take the suffix *–en* in the PP (e.g. class 1 *ge-spiel-t* 'played' vs. class 3 *ge-schlaf-en* 'slept').

[5] Data collection and transcription was made by Brigitta Müller (and Maria Sedlak). Sabine Klampfer was responsible for the automatic morphological coding of the data (using CLAN's MOR utility) and for the creation of the full-form lexicon GER.LEX. which was used for this purpose. Thanks are due to Steven Gillis for introduction to MOR-coding.

Session	Age	Duration	Productions	Analyzed utterances[6]
kat09	2;00.18	17 min.	135	102
kat10	2;00.21	10 min.	29	27
kat11	2;00.24	10 min.	46	39
kat12	2;00.29	40 min.	215	192
kat13	2;01.04	10 min.	98	79
kat14	2;01.18	6 min.	78	63
kat15	2;01.28	17 min.	78	65
kat16	2;02.05	25 min.	96	80
kat17	2;02.11	7 min.	58	46
kat18	2;03.07	32 min.	176	147
kat19	2;03.12	30 min.	206	157
kat20	2;03.21	30 min.	174	157
kat21	2;04.10	30 min.	203	171
kat22	2;04.22	30 min.	186	164

Table 2: Katharina's longitudinal corpus: characteristics of analyzed sessions from 2;0 to 2;4

2.3. Learning strategy and demarcation of phases

In comparison with other German speaking children, Katharina's onset of speech is rather late, namely at around 1;8 - but she advances rapidly later on. In terms of Peters and Menn (1993: 745), her approach to language can be characterized as 'formulaic': i.e. she initially focusses on multisyllabic chunks of speech rather than on single words. Nursery rhymes and songs play an important role in Katharina's early acquisition phase (Müller 1997: 61ff.).

Katharina enters the protomorphological phase at about 2;3, the onset of modularized morphology can be dated around 2;9 (cf. Müller 1997: 67; Vollmann, Sedlak, Müller & Vassilakou 1997; Anđel, Klampfer, Kilani-Schoch, Dressler & Kovačević in press).[7]

In Katharina's data, the onset of protomorphology (2;3) can be said to coincide with a clear increase of verb production ("verb spurt", see also section 4.1., fig. 2). At the same time the first two-member mini-paradigms and the first overgeneralization error[8] are observed (see sections 5.2., 6.2.).[9] One month later, i.e. at 2;4, first periphrastic verb constructions appear (e.g. Mod+Inf *kann nicht a(n)zieh(e)n* 'can't put on', Perfect *is(t) umgefallen* 'has fallen over'). As to nouns, the beginning of protomorphology is characterized by an increase of plural forms. One month later, the first overgeneralization error is observed (2;4 *Handschuhn* <-- *Handschuhe* 'gloves', cf. Sedlak, Klampfer, Müller & Dressler 1998). Furthermore, the onset of protomorphology goes together with a remarkable increase of the overall lexical

[6] To qualify as an utterance, a production had to include at least one meaningful unit resembling a German word in form and meaning. Babbling, vocalizations and completely incomprehensible strings were not considered utterances. Citations (e.g. nursery rhymes and songs) and direct imitations were excluded from the analysis.

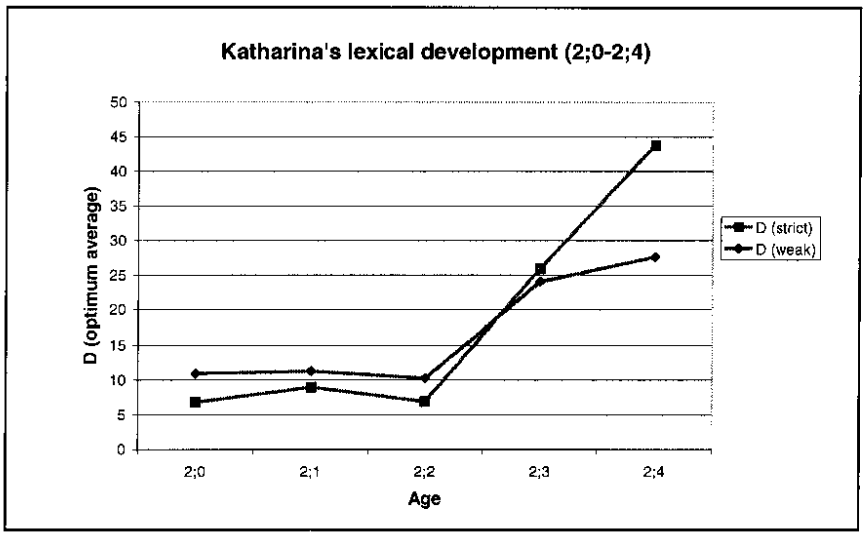
[7] Note that Vollmann et al. (1997: 65) have defined 2;3 as transition phase from pre- to protomorphology. For the purpose of this paper, this short transition phase has been included into protomorphology.

[8] As has been shown by Allen (1996), creative errors such as overgeneralizations provide the strongest evidence for the beginning morphological productivity of a child, since morphological productivity is the only adequate explanation for these types of errors.

[9] For similiar findings with a German child revealing a correlation between verb spurt and first overgeneralizations see Elsen 1998 (140-143).

diversity in the child's language (measure D[10], cf. Richards & Malvern 1999). As can be seen in figure 1, both the weak measure (i.e. all word classes), and the strict measure (paralexicals such as fillers, onomatopoetics, interjections, communicators excluded, cf. Bassano, Maillochon & Eme 1998: 502f.) of lexical diversity show a considerable increase from age 2;3 onwards. This observation further corroborates the hypothesis that there exists a close relationship between lexical and morphological development ("critical mass hypothesis", cf. Marchman & Bates 1994; Bates, Dale & Thal 1995: 120).[11]

Figure 1



Although a beginning increase of syntactic complexity is attested at the onset of protomorphology (e.g. first occurrences of Mod+Inf – constructions and periphrastic past, first advance of article and subject pronoun use), no clear syntactic spurt can be observed in this period. At 2;3 Katharina's MLU (words) is at 1,4 [SD 0,7], and will excede the level of 2 only three months later, i.e. at 2;6: MLU (words) 2,5 [SD 1,7].[12]

3. Predecessors of verbs

Before or simultaneously with the emergence of first verbs (i.e. before and at age 2;0) Katharina uses separable verb prefixes in predicative function, e.g.:

(1) 1;8 ? *we(g)* 'away' for taking away a toy donkey
1;11 *weg* 'away' for 'daddy is gone'
2;0 *da her* 'hither' for taking a toy car out of a box
2;0 *ju (= zu)* 'closed' for 'the door is closed'

[10] D is a new measure of lexical diversity developed by Brian Richards and David Malvern and recently also available within the CLAN-package (VOCD, cf. MacWhinney 2000). D is comparable to Type-Token Ratio (TTR), but is independent of sample size; it is calculated by fitting empirical data to the theoretical curve of TTR plotted against Token size. Note that the value D obtained in figure 1 corresponds to a TTR in which types equal lemmas.

[11] For the relevance of a critical mass of lexical items as possible prerequisite for the acquisition of verb semantics see Behrens 1999 (36-38).

[12] For MLU, repetitions and retracings have been excluded.

Examples of isolated use of verb prefixes can still be found at the end of the time period analyzed for this study, e.g.:[13]

(2) 2;4 *ich kanns auf Mama! (= ich kann es aufmachen Mama)* 'I can open it mum'

Other possible predecessors of verbs observed in the Katharina data are onomatopoetics (cf. also Müller 1997: 65). But all examples before age 2;0 might equally be interpreted as nominal uses. Only at 2;0 first clear examples of onomatopoetics in predicative function appear:

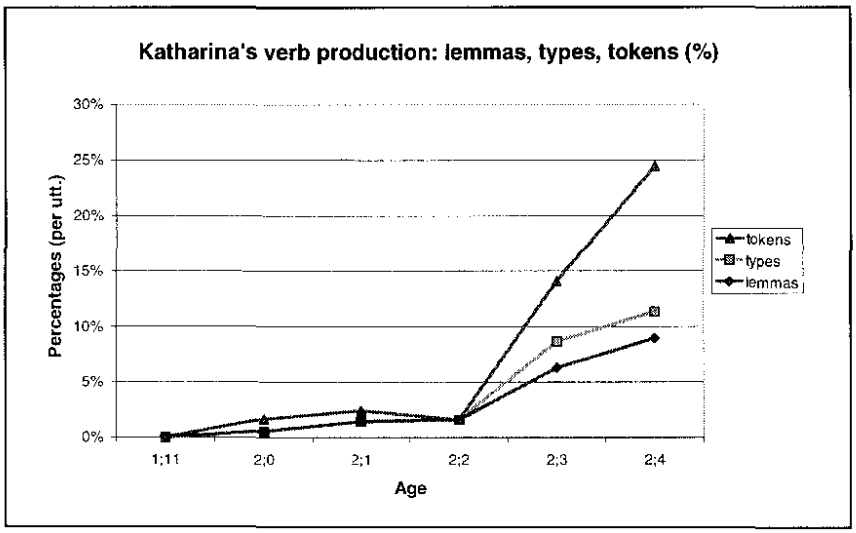
(3) 1;6 *brm* for the noise made by toy cars (or nominal for car)
1;9 *kra* for crowing (or nominal for birds)
1;10 *wawa* for barking (or nominal for dog)
1;11 *ia* for neighing (or nominal for horse)
2;0 *Kuh muh (= die Kuh macht muh)* 'the cow is lowing'

4. Emergence of verb forms

4.1. Verb production

As can be seen in figure 2, verbs start to emerge with Katharina at the age of 2;0. From 2;3 (i.e. from the beginning of protomorphology) onwards a clear increase of verb production ("verb spurt") is observed.[14] In this figure, we have distinguished a) verb lemmas (i.e. verbs as lexical entries), b) verb types (i.e. different verb forms per lemma), and c) verb tokens (i.e. occurrences for each specific verb form). Percentages have been calculated with respect to the total number of analyzed child utterances per month, and thus show the steady increase of verbs.

Figure 2



[13] Note that isolated use of separable verb prefixes such as in (1) also occurs in adult language. Examples 2 and 4 of (1) presuppose the elision of the copula *sein* 'to be', and examples 1 and 3 of (1) as well as the example in (2) the elision of a lexical verb.

[14] A finer subdivision of data into different recording sessions per month shows a first remarkable verb spurt in the first recording session of 2;3, i.e. at 2;3.7.

The respective absolute numbers are given in tables 3a and 3b. Table 3b also shows the amount of erroneous types and tokens (for error analysis see section 6).[15]

age	utterances with verbs	analyzed utterances	utt. with verbs / analyzed utt.
2;0	6	360	1,7%
2;1	5	207	2,4%
2;2	2	126	1,6%
2;3	63	461	13,7%
2;4	80	335	23,9%
Total	**156**	**1489**	**10,5%**

Table 3a: number of utterances with verbs with respect to the number of analyzed utterances

age	lemmas	types	tokens	lemmas %	types %	tokens %
2;0	2	2 *(1*)*	6 *(1*)*	0,6%	0,6%	1,7%
2;1	3	3 *(1*)*	5 *(1*)*	1,4%	1,4%	2,4%
2;2	2	2 *(1*)*	2 *(1*)*	1,6%	1,6%	1,6%
2;3	29	40 *(14*)*	65 *(17*)*	6,3%	8,7%	14,1%
2;4	30	38 *(7*)*	82 *(14*)*	9,0%	11,3%	24,5%
Total	**50**	**71**	**160**	**3,4%**	**4,8%**	**10,7%**

Table 3b: number of verb lemmas, types (incorrect types) and tokens (incorrect tokens), percentages with respect to the number of analyzed utterances

4.2. Verb categories before protomorphology

Katharina's verb production before protomorphology (i.e. 2;0-2;2) is limited to very few instances of verb forms in the 1st and 3rd person present indicative (e.g. *b(r)auchich* 'I need', *dais* 'there is') and 2nd person imperative (*schau Mama!* 'look mum!'). As can be seen in table 4a, all forms – except for one single occurrence of 3.Sg. at 2;2 (*d(r)eht (= dreht sich)* 'is turning') can be characterized as frozen (cf. section 4.4.).

Age	Pres. Ind. 1.Sg.	Pres. Ind. 2.Sg.	Pres. Ind. 3.Sg.	Imp. 2.Sg.	Total
2;0	1/5 *(1/5)*				**1/5**
2;1			1/1 *(1/1)*	1/3 *(1/3)*	**2/4**
2;2			1/1		**1/1**
Total	**1/5**		**2/2**	**1/3**	**4/10**

Table 4a: Katharina's verb categories before protomorphology (types/tokens). Frozen forms are indicated by parentheses. Incorrect forms are listed separately (cf. table 4b)

Table 4b shows the distribution of incorrect verb forms with regard to verb categories (best guess analysis). As one can see, all erroneous forms have been attributed the target category 3.Sg. Pres.Ind. (see also section 6).

[15] table 3b the term 'incorrect' refers to form errors (cf. section 6.1.) and class shifts (cf. 6.2.). Agreement errors (cf. 6.3.) have not been listed separately. The same holds for tables 4b and 5b.

Age	Pres. Ind. 1.Sg.	2.Sg.	3.Sg.	Total
2;0			1/1	**1/1**
2;1			1/1	**1/1**
2;2			1/1 *(1/1)*	**1/1**
Total			**3/3**	**3/3**

Table 4b: Distribution of incorrect verb types and tokens with regard to verb categories. Frozen forms are indicated by parentheses

4.3. Verb categories in protomorphology

At the onset of protomorphology (at 2;3, see table 5a), Katharina starts to use 1st singular forms more frequently (e.g. *hol ich* 'I go for', *ich sitze* 'I sit', *ich halt* 'I hold'). The use of 3.Sg. Pres.Ind. is still very restricted.[16] At 2;3 also the first infinitives (e.g. *schlafen* 'to sleep') and past participles (e.g. *umged(r)eht* 'turned around') appear. From 2;4 on, she uses 3.Sg. Pres.Ind. more often (e.g. *(sch)meckt* 'tastes good', *(s)pielt* 'plays', *kommt* 'comes'), and the first example of 2.Sg. Pres.Ind. *(has(t) du* 'do you have') is observed. At the same age, Katharina starts to use compound past *(is(t) umgefallen* 'has fallen over').

Age	Pres. Ind. 1.Sg.	2.Sg.	3.Sg.	Imp. 2.Sg.	Inf.	PP	Comp. Past	Total
2;3	6/10 *(2/4)*		3/5 *(2/4)*	2/4 *(1/1)*	11/14	2/2		**24/35**
2;4	9/25 *(2/10)*	1/2	8/19 *(2/2)*	1/1	6/13	1/1	1/1 + 1/1	**28/63**
Total	**13/35**	**1/2**	**9/24**	**3/5**	**15/27**	**2/3**	**1/1 + 1/1**	**45/98**

Table 5a: Katharina's verb categories in protomorphology (types/tokens). Frozen forms are indicated by parentheses. Incorrect and ambiguous forms are listed separately (cf. table 5b)

Age	Pres. Ind. 1.Sg.	2.Sg.	3.Sg.	3.Pl.	Inf.	PP	Comp. Past	Total
2;3								
incorrect			3/5		6/7	3/3	1/1 + 1/1	**14/17**
ambiguous					4/13			**4/13**
2;4								
incorrect			3/9	2/2		2/3		**7/14**
ambiguous			1/1		3/4			**4/5**
Total			**7/15**	**2/2**	**12/24**	**5/6**	**1/1 + 1/1**	**28/49**

Table 5b: Distribution of incorrect and ambiguous verb types and tokens with regard to verb categories

The distribution of incorrect and ambiguous verb forms with regard to verb categories (best guess analysis) is given in table 5b. Incorrect forms fall into the target categories 3.Sg. Pres. Ind., 3.Pl. Pres.Ind. Inf., PP and compound past. Most ambiguous forms are observed in the category of infinitives – this is due to the homophony of Inf. with 1. and 3.Pl. Pres.Ind. (for a more detailed error analysis see section 6).

[16] Similarly, 1.Sg. Pres.Ind. emerges earlier in mini-paradigms than 3.Sg. Pres.Ind. (see section 5.2.).

4.4. Frozen forms

Following the definition of frozen forms given in the Introduction to this volume, frozen forms (indicated by parentheses in tab. 4 and 5) have been further divided into (i) amalgams: in the observed period, Katharina uses amalgams of the 1. and 3. Sg. Pres.Ind., but 1st person amalgams emerge earlier and are more frequent (e.g. *brauchich* 'I need', *weissinet* 'don't know', *habschon* 'already have') (cf. Klampfer, Vollmann & Dressler 1999); (ii) regulative or phatic forms (e.g. *na geh!* 'it's too bad', *schau!* 'look', *macht nix* 'no problem'). Imitations of verb forms are rare in the Katharina corpus and have been excluded from analysis (cf. footnote 6).

4.5. Inflectional classes

The next table (tab. 6), gives an overview of the distribution of Katharina's verbs (lemmas, types, tokens) with regard to inflectional classes (cf. section 1.2.). As one can see, in the observed period, verbs of class 1 are most frequent (not only in lemma, but also in type and token frequency). For classes 1-5 the following order of emergence can be observed: class 1 (e.g. *brauchen* 'need') > class 2 (e.g. *rinnen* 'to run/flow') > class 3 (e.g. *schlafen* 'to sleep'), class 3' (e.g. *kommen* 'to come'), class 4 (e.g. *reingeben* 'to put into') > class 5 (e.g. *wegnehmen* 'to take away'). Suppletives and suppletive auxiliaries as main verbs emerge early and are relatively frequent. Modals are attested from 2;3 onwards, first auxiliaries are observed at 2;4.

Age	Class1	Class2	Class3	Class3'	Class4	Class5	Suppl	Suppl:aux	aux	mod	Total
2;00	1/1/5						1/1/1				**2/2/6**
2;01	1/1/3	1/1/1						1/1/1			**3/3/5**
2;02	1/1/1							1/1/1			**2/2/2**
2;03	11/14/22	2/2/2	5/7/10	2/2/2	3/3/3		3/8/17	2/3/5		1/1/4	**29/40/65**
2;04	11/17/32	1/1/1	3/3/4	2/2/8	1/1/1	2/2/4	3/4/8	2/3/9	1/1/1	4/4/14	**30/38/82**
Total	**22/29/63**	**4/4/4**	**5/9/14**	**3/3/10**	**3/4/4**	**2/2/4**	**4/10/26**	**2/5/16**	**1/1/1**	**4/4/18**	**50/71/160**

Table 6: Distribution of verb lemmas / types / tokens with regard to inflectional classes

Until the end of the observed period, the child can be said to use verbs of inflectional classes 1-5. But is there any evidence for the fact that the child really distinguishes these classes? A closer look at Katharina's data shows that her use of verb forms in the premorphological phase is reduced to verb forms which are the same for all five inflectional classes. Class-distinctive form use starts at 2;3, namely by the use of weak vs. strong past participles (e.g. class 1 *umged(r)eht* 'turned around' vs. class 3 *umgefallen* 'fallen over') and by the use of Umlaut in one incorrect stem form (class 3 **läf (<-- schläft)* 'sleep'). The same holds true for age 2;4. Thus, Katharina seems to use a very simplified class system, corresponding to class differences between class 1 and class 3. Distinctive features of classes 2, 4 and 5 do not yet appear in her data.

5. Emergence of mini-paradigms

One important evidence for the beginning morphological productivity of a child is the emergence of morphological paradigms. Following Kilani-Schoch & Dressler (2000), the development of verb paradigms can be seen as a gradual process involving different building steps:

5.1. "Pre-paradigm steps"

Due to the low frequency of verb forms in the premorphological phase, first examples of pre-paradigm steps occur in the Katharina data only at 2;3. The following approximations of different verb forms of verb types have been found (step a, cf. Introduction to this volume):

(4) 2;3 *schlafen* 'to sleep': Inf. *(sch)lafen* - *3.Sg. Pres.Ind. **(sch)läf, *sch(l)af*
2;3 *haben* 'to have': 1.Sg. Pres.Ind. *hab* - *3.Sg. Pres.Ind. **ha*
2;4 *passen* 'to fit': 3.Sg. Pres.Ind. *passt* - *3.Sg./Pl. Pres.Ind. **pass, *pats, *passe, *patse*

Simultaneously she also uses different verb forms of the same verb lemma, which are however either formulaic or context-bound (step b, cf. Introduction):

(5) 2;3 *essen* 'to eat': Inf. *essen* – 1.Sg. Pres.Ind. *ich esse* (no contrastive context to infinitive; both stand for *Ich will essen* 'I want to eat')
2;3 *gehen* 'to go': Inf. *geh(e)n* – 3.Sg. Pres.Ind. *geht schon* (formulaic: 'it's OK') – 2.Sg. Imp. *na geh!* (formulaic: 'it's too bad')
2;4 *machen* 'to make': 3.Sg. Pres.Ind. *macht nix* (formulaic: 'no problem') – 1.Sg. Pres.Ind. *mach ich*
2;4 *gehen* 'to go': Inf. *geh(e)n* - 3.Sg. Pres.Ind. *geht net* (formulaic: 'doesn't work')

It is intriguing that there is no time interval between first examples of pre-paradigm steps and the emergence of two-member mini-paradigms (see section 5.2.). Whereas clear examples of context-bound pre-paradigms are observed only at age 2;3, phonological approximations of different verb forms (mainly incorrect stem forms) can be found in the Katharina data until age 2;9.

5.2. Two-member mini-paradigms

First two-member mini-paradigms occur in Katharina's data at 2;3, i.e. at the onset of protomorphology.

The following table (tab. 7) lists all two-member mini-paradigms found in the observed period.[17] As one can see, the first mini-paradigms consist of oppositions between Inf. and 1.Sg. Pres.Ind. or Inf and *PP (overgeneralized), followed by oppositions between Inf. and 3.Sg. Pres.Ind or 1. and 2. Sg. Pres.Ind. The first mini-paradigms belong to inflectional classes 1, 4 and to the group of suppletives, but no class-distinctive form use can be observed: all verb forms are morphotactically transparent.

Age	lemma	infl. class	translation	form	category
2;3	holen	class 1	go for	holen	Inf.
				hol ich	1.Sg. Pres.Ind.
	reingeben	class 4	put into	reingeben	Inf.
				*rein(ge)gebt	*PP
	sitzen	suppl	sit	sitzen	Inf.
				ich sitze	1.Sg. Pres.Ind.
2;4	spielen	class 1	play	(s)pielen	Inf.
				(s)pielt	3.Sg. Pres.Ind.
	haben	suppl:aux	have	ich hab	1.Sg. Pres.Ind.
				has(t) du	2.Sg. Pres.Ind.

Table 7: Katharina's two-member mini-paradigms (2;0-2;4)

[17] Out of the five criteria for the formation of mini-paradigms (cf. Introduction to this volume) all but recurrence hold for the paradigms presented here.

5.3. Three-member mini-paradigms

In the period of Katharina's first 50 verb lemmas no example of a "true" - i.e. three-member - mini-paradigm (cf. Introduction) has been found. The first three-member mini-paradigm appears only at the age of 2;6. It consists of verb forms of the class 1 verb *machen* 'to make':

(6) *machen* 'to make': Inf. *machen* – 1.Sg. Pres.Ind. *mach ich* - PP *(g)emacht*

It is interesting to note here that the lemma *machen* is used relatively often by Katharina's mother in child-directed speech. As can be seen in table 8, the lemma *machen* is ranked in the third position of the 10 most frequent verb lemmas in Katharina's input, corresponding to 4,4% (272/6178) of all verb tokens used. The most frequent lemma in the input is the lemma *sein* (19,4%), followed by the lemma *schauen* (5,6%).[18]

frequency ranking	lemma	infl. class	translation	tokens	tokens / all verb tokens
1.	sein	suppl:aux	be	1198	19,4%
2.	schauen	class 1	look	348	5,6%
3.	machen	class 1	make	272	4,4%
4.	haben	aux	have	245	4,0%
5.	müssen	mod	must	210	3,4%
6.	haben	suppl:aux	have	182	2,9%
7	können	mod	can	163	2,6%
8.	kommen	class 3'	come	156	2,5%
9.	gehen	suppl	go	142	2,3%
10.	sagen	class 1	say	129	2,1%

Table 8: 10 most frequent verb lemmas in Katharina's input

5.4. Development of paradigm formation capacity

The following table (tab. 9) gives an overview of the number of mini-paradigms observed in Katharina's data until age 2;6 (i.e. until the emergence of true mini-paradigms).

Age	2-member mini-paradigms	3-member mini-paradigms	Paradigm values	
			P(utt)	P(lem)
2;3	3		0,7% (3/461)	10,3% (3/29)
2;4	2		0,6% (2/335)	6,7% (2/30)
2;5	5		2,1% (5/241)	12,2% (5/41)
2;6	7	2	2,5% (9/360)	14,8% (9/61)

Table 9: Frequency of mini-paradigms (2;3-2;6)

Since the number of mini-paradigms attested in one corpus depends on sample size, we propose two sample-size-independent values for investigating the development of the paradigm formation capacity in a child. The first value (P(utt)) is calculated by dividing the number of mini-paradigms by the number of analyzed utterances per month. The second value (P(lem)) sets the number of mini-paradigms into relation to the number of verb lemmas used in a given month of age. The paradigm values P(utt) and P(lem) are supposed to provide an objective base for the comparison of mini-paradigms across different corpora and languages (see also Aguirre and Katičić this volume). As can be seen in table 9, there is a remarkable spurt of P(utt) from 2;4 to 2;5. P(lem) shows a slight, continuous increase (with the exception of the value at 2;4).

[18] For input token frequency we have analyzed all child-directed utterances of Katharina's mother in the entire Katharina corpus (1;6-3;0), yielding the total sum of 487 verb lemmas and 6178 verb tokens.

6. Morphological substitutions

6.1. Form errors

The most frequent form errors in Katharina's data analyzed for this paper are incorrect stem forms. They are mainly used instead of 3.Sg. Pres.Ind. (e.g. 2;3 *das läf (<-- schläft)* 'this sleeps', *Baby puck (<-- das Baby spuckt)* 'the baby spits'). The fact that in other languages of our project true root forms do not occur in early acquisition phases, leads to comparative probabilistic evidence that these early stem forms are not true root forms (and thus morphologically conditioned), but might rather be phonologically conditioned. (Note that, until the age of 2;3, Katharina does not pronounce word-final consonant clusters such as *-kt, -st* or *-ft* which are missing in the respective stem forms. At 2;4, she starts to vary between correct and incorrect pronounciation (e.g. *pass / pats / passt* 'fit(s)')).

Other form errors in this phase are verb forms ending in shva - presumably approximations of infinitive forms – such as *vorlese (<-- vorlesen)* 'to read aloud' (2;3) and omissions of the prefix *ge-* in past participles, e.g. 2;3 *runterfallen (<-- runtergefallen)* 'fallen down'. Errors of this type are characteristic of German-speaking children (cf. also Elsen 1991; Behrens 1993; Bittner this volume).

6.2. Class shifts

Class shifts can be observed in past participles. The first class shift in PPs occurs at age 2;3, i.e. simultaneously with the emergence of two-member mini-paradigms. It's an over-generalization of the class 4 verb *reingeben* towards class 1: *rein(ge)gebt (<-- reingegeben)* 'put into'. Also later on, Katharina's overgeneralizations of PPs are mainly characterized by a class shift towards the only productive verb class 1. Interestingly, overgeneralizations are observed only with those verb classes which do not take Ablaut in the PP[19], e.g. 2;4 *weggeräumen (<-- weggeräumt,* Inf. *räumen)* 'cleared away', 2;6 *gefresst (<-- gefressen,* Inf. *fressen)* 'eaten', 2;8 *gehaltet (<-- gehalten,* Inf. *halten)* 'held', 3;0 *gewascht (<-- gewaschen,* Inf. *waschen)* 'washed'. Thus, for Katharina, minimal morphotactic transparency (identity of the root) might be a condition for analogy. The same phenomenon has been observed by Lindner (1998: 171) for German children.

6.3. Agreement errors

The most frequent agreement errors[20] observed in Katharina's data are root infinitives - possibly resulting from omission of an auxiliary or modal verb, e.g. 2;3 *Papi (sch)lafen (= Papi tut schlafen / Papi schläft)* 'daddy is sleeping'. In languages such as German and French the homophony of infinitives with other verb forms (German: 1. and 3. Pl. Pres.Ind., French: PP (in verbs of the most frequent and productive 1. macroclass), 2.Pl. Pres.Ind.) might favour their early emergence (cf. Dressler, Bassano, Klampfer, Maillochon & Sedlak 1999).

[19] Similarly, PPs with Ablaut (i.e. from verb classes 2, 5 or respective suppletives) do not occur at all in the period of Katharina's first 50 verb lemmas (see also section 4.5.).

[20] Both grammatical and contextual agreement errors (i.e. agreement with and without overt subject) have been taken into consideration.

7. Conclusion

In accordance with the definition of pre- and protomorphology (cf. Dressler & Karpf 1995, Dressler 1997c, Introduction), Katharina's verb production in premorphology is limited to very few instances of rote-learned verb forms. In this phase, the child predominantly uses isolated verb particles (presumably due to their shortness (monosyllabic), prosodic saliency (always main stress) and morphological invariability) and iconic extragrammatic operations such as onomatopoetics in predicative function. Verb categories to emerge with Katharina in premorphology are the semantically unmarked 1st and 3rd person present indicative and 2nd person imperative.

The onset of protomorphology coincides with a clear verb spurt and with the occurrence of first two-member mini-paradigms. In the same month the first overgeneralization error is attested. Thus, for the child, a certain quantity of verb vocabulary seems to be a precondition for starting to create morphology. Similarly, a remarkable increase in the overall lexical diversity (measure D) is observed at the beginning of protomorphology. In this phase, infinitives and past participles appear, followed by first instances of 2nd person present indicative and compound past. No clear syntactic spurt can be attested at the onset of protomorphology. The fact that "true" (i.e. three-member) mini-paradigms start to emerge with Katharina clearly later than the first overgeneralization errors, raises the question whether evidence for the beginning morphological productivity of a child might be provided by the occurrence of several two-member mini-paradigms as well.

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Early verb development in one German-speaking child*

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0. Introduction

This paper deals with the emergence of verb morphology in one German child up to the time mini-paradigms occur in the data. I will focus on the role of protomorphology as a transitional stage between rote learning and the productive use of morphological distinctions.

1. Verb morphology in Standard German

German is a language with a comparatively rich verb morphology. One central feature is subject-verb-agreement. Since there are some syncretisms in agreement symbolization, pro drop constructions are restricted to special contexts. The categories person, number, tense, mood, and voice are realised by verb inflection. The system of these categories encloses 144 paradigmatic positions for each verb. Paradigmatic forms can be fusional (*sag-te* 'say-' 3.sg.prät.ind.act.) or analytic (*wird gesagt werden* 'will be said' 3.sg.fut.ind.pass.).

In the present study I will concentrate on the facts of German verb inflection which are relevant in the acquisition processes in pre- and protomorphology of the child Anna.
In the investigated period of time Anna acquires the following types of verbs:
a) lexical verbs in present tense (cf. table 1 and (1))
b) *sein*-copula in present and past tense (cf. table 2 and 3)
c) modal verbs in present tense (cf. table 4)
d) past participles and analytical perfect (cf. (2) and (3))

Table 1: person-/number-inflection of lexical verbs (example: *machen* 'to do')

	singular	plural
1. person	mach-**e**	mach-**en**
2. person	mach-**st**	mach-**t**
3. person	mach-**t**	mach-**en**

Strong verbs can have a stem vowel alternation in the singular paradigm, cf.

(1) inf.: *fahren* 'to drive' 1sg: *fahre* 2sg: *fährst* 3sg: *fährt*
sehen 'to see' *sehe* *siehst* *sieht*,
geben 'to give' *gebe* *gibst* *gibt*

Table 2: person-/number-forms of *sein*-copula in present tense

	singular	plural
1. person	**bin**	**sind**
2. person	**bist**	**seid**

Table 3: person-/number-forms of *sein*-copula in past tense

	singular	plural
1. person	**war**	**waren**
2. person	**warst**	**wart**

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3. person	**ist**	**sind**	3. person	**war**	**waren**

Table 4: person-/number-forms of modal verbs (example: *können* 'can')

	singular	plural
1. person	**kann**	**könn-en**
2. person	**kann-st**	**könn-t**
3. person	**kann**	**könn-en**

Past participle in adult German is formed by the Präfix *ge-* + the verb stem + suffix *–t*. Again, strong verbs can show stem vowel alternation and/or can take suffix *–en* instead of *-t*, cf:

(2)

weak verbs				strong verbs			
machen	'to do'	- *gemacht*	'done'	*bringen*	'to bring'	- *gebracht*	'brought'
kaufen	'to buy'	- *gekauft*	'bought'	*gehen*	'to go'	- *gegangen*	'gone'

Analytical perfect (the target form of perfect tense) is formed with the present tense form of the verb *sein* 'be' or *haben* 'have' + past participle.

(3)

er ist gekommen	'he has come'	-	er hat geglaubt	'he has thought'
sie sind gerannt	'they was running'	-	sie haben geschlafen	'they have slept

With respect to productivity of inflectional classes we can restrict the description to the fact that the inflectional pattern of weak verbs is the most and at least the only productive one. Strong verbs can be divided in a range of sub- or microclasses according to their patterns of stem vowel alternation and the pattern of strong and weak forms in the set of category symbolizations of the verb, cf. A. Bittner (1995).[1] However, because Anna is not producing forms of strong verbs in other than present tense or perfect forms it is not necessary to go into more detail here. The only feature of strong verbs which is relevant in the data is the stem vowel alternation in pres.sg. This feature occurs in different classes of strong verbs.[2]

2. Data description

For the present study I analysed the first ten recordings of longitudinal data of the girl Anna covering an the age range of 1;8,10 – 2;1,13 covering 10 recordings (table 1).[3] Recordings mainly took place at Anna's home where the experimenter was playing with Anna, sometimes together with her parents. Occasionally kitchen work, dinner and other home situations are included.

Table 5: data description

number of recording	age	time of recording (in minutes)	number of analyzed utterances[4]
1	1;8,10	65	293
2	1;8,29	57	218
3	1;9,14	75	237
4	1;10,0	61	266
5	1;11,6	70	313
6	1;11,20	75	284
7	1;11,30	46	248
8	2;0,5	51	292

[1] As A. Bittner (1995) showed, diachronic facts give evidence for systematic and strongly directed step by step change of strong to weak forms.

[2] Compare the description of inflectional classes of German verbs in Klampfer (this volume).

[3] The data were audio- and partly videotaped by myself. The transcription and morphological coding with the CLAN program of CHILDES (MacWhinney 2000) was done by Franziska Bewer and Joerg von Thun.

[4] All utterances not containing at least one meaningful lexical unit resembling a German word in form and meaning as well as pure yes/no utterances have been excluded from the analyses.

9	2;0,29	94	503
10	2,0.13	89	348

Anna is the only child of a Berlin middle class family. Her parents speak Standard German with only a few phonological elements of the Berlin dialect. Since the age of 1;0 Anna regularily visited the kindergarten. Anna can be seen as an early talker and a rather segmental child. Formulaics, frozen forms and imitations are less documented in the data.

With respect to the emergence of morphology we can assume the following developmental periods in Anna's data:

Premorphology: 1;8,10 – 1;10,0
Protomorphology: 1;11,6 – 2;0,5

The transition from pre- to protomorphology between 1;10,0 and 1;11,6 is marked by the occurence of the first three member paradigms of verbs as well as by an increasing use of the bare infinitive as (unspecified) default form of the verb (cf. 4.3.2 and Table 16 for 1;11,6). Especially the latter shows that the child is overcoming the phase of using only rote learned forms. We also find development in other domains, like an increase in plural forms of nouns, the productive use of the deictic pronoun *das*, the emergence of personal pronouns and a considerable development in syntactic complexity (occurence of 2 argument utterances) can be observed.

3. Predecessors of verbs in predicative function

Anna already uses a considerable number of verbs at the beginning of the recordings - 31 lexemes are documented in the two recordings at 1;8. Extragrammatical predecessors of verbs are not (longer?) documented. What could be found in the data is a remarkable amount of verbal prefixes and adverbs replacing lexical verbs (34 instances in the first recording), cf. *ab* 'from/off', *putt* 'broken/smash', *auf* 'open/up', *weg* 'away/off'.

(4)	EXP:	das ist vom heft; von papas heft.	'this is (a part) of a notebook, of papa's notebook'
	ANN:	**ab**.	'(I want to get it) off'
	Exp:	geht nicht ab.	'(it) doesn't come off'
	ANN:	**putt**.	'(I want it to) break/(it shall be) broken'
	EXP:	das geht nicht ab.	'it doesn't come off'
	ANN:	**putt**.	'(I want it to) break/(it shall be) broken'[5]

Contrary to the increasing number of verbs (cf. (5)) the amount of pure verbal prefixes decreases in the following recordings (21 and 24 in the next two recordings).[6]

In the first three recordings the amount of one-word-utterances is still around two-thirds of all analyzed utterances. As long as the child has not acquired the production of more than one syntactical position per utterance s/he is forced to decide which one of the relevant components of the information should be expressed. In one-word-utterances only the focus of the information the child wants to express is given. In many cases an alternative choice of a verb or another lexical element will be possible. I prefer to consider one-word-utterances without verbs as an omission or drop (cf. topic drop) of the relevant verbal unit rather than as a replacement of the verb by other elements.

[5] Anna has found an old notebook of her father and tries to take off the metal fixture for the sheets.

[6] To verbal prefixes in German child language compare a.o. Vollmann et al (1997:64f), Bennis et al (1995).

4. Emergence of verbs

4.1. The data

Table 6 shows the development of verb usage by Anna from a quantitative point of view. The transition from pre- to protomorphology between 1;10,0 and 1;11,6 is accompanied by a clear spurt in the amount of utterances with verbs. From 1;11,6 on more than 50% of the analyzed utterances contain a verb.

Table 6: development of verb usage

age	number of analyzed utterances	utterances with verbs number	%	verb tokens[7]
1;8,10	293	52	17,7	45 (+ 7 imit./froz.)
1;8,29	218	76	34,8	47 (+ 30 imit./froz.)
1;9,14	237	65	27,4	53 (+ 12 imit./froz.)
1;10,0	266	86	32,3	67 (+ 19 imit./froz.)
1;11,6	313	165	52,7	144 (+ 27 imit./froz.)
1;11,20	284	147	51,8	116 (+ 36 imit./froz.)
1;11,30	248	132	53,2	92 (+ 43 imit./froz.)
2;0,5	292	150	51,4	111 (+ 41 imit./froz.)
2;0,29	523	293	56,0	277 (+ 48 imit./froz.)
2,0.13	348	209	60,0	201 (+ 25 imit./froz..)

Possibly a further developmental spurt has taken place between 2;0,5 and 2;0,29. I will discuss this later on.

The following analyses will concentrate on verb forms that could be regarded as spontaneous productions in the sense that they are not frozen or citation forms, and not imitations of verb forms of the preceeding utterance of the adult.[8] Table 7 gives the remaining number of lemmas, types and tokens per utterance.

Table 7: verb lemmas/types/tokens

age	lemmas	types	tokens
1;8,10	25	28	45
1;8,29	22	23	47
1;9,14	32	42	53
1;10,0	28	36	67
1;11,6	66	83	144
1;11,20	52	68	116
1;11,30	45	57	92
2;0,5	40	54	111
2;0,29	100	134	277
2;0,13	67	97	201

Again, one finds a spurt between 1;10,0 and 1;11,6, which is clearly not an artefact of the increasing number of analyzed utterances, cf. the equal numbers of analyzed utterances in 1;8,10 and 1;11,20 or in 1;9,14 and 1;11,30 despite of different numbers of lemmas, types and tokens, and of utterances with verbs in the respective recordings.

4.2. The premorphological phase

4.2.1. Form analysis

Inflected verbs are the first inflected forms documented in Anna's data beside a small amount of nominal plural forms (5 lemmas/10 tokens in the 1st recording). It is a well known fact that

[7] The different verbs of a periphrastic construction are counted as seperate tokens, i.e. two tokens per periphrastic construction.

[8] For definitions compare the Introduction to this volume by.

acquisition of verbs in German is characterized by an extended use of bare infinitives, i.e. of *-en* forms.[9] This holds to be true in the data of Anna, cf. table 8. However, she also uses a considerable amount of *–t* forms at the beginning of the recordings.[10] But the verb *machen* 'to do' is the only verb that shows *–t* forms beside *-en* forms since the 1st recording.

Table 8: formal analysis of verb forms (lemmas/tokens)

age	-en	-t	-∅	-e	past participle[11]
1;8,10	13/23	9/15	6/6		1/1
1;8,29	10/30	11/13	/		2/2
1;9,14	20/25	16/23	2/2	2/2	1/1
1;10,0	15/33	9/15	9/16	1/1	2/2

Most verbs are documented with only one form in this phase and a lot of them are documented merely once at all. Only 10 of the 72 verb lemmas of this phase occur in three of the four recordings.

Beside *–en* and *–t* forms pure stem forms are documented. These are rather ommissions of the word ending than inflected forms. With the only exception of *mal* (1sg.pres.ind.) 'to draw' there is no clear evidence that these forms are used as imperatives or 1sg.pres. forms, which are the target categories of these forms.

In the observed phase 6 clear past participle forms are documented: *puttemacht*, *einepullert*, *raufemach* and *iebn* 'written' (= geschrieben; infin. *schreiben*), *puttgangen* 'broken down' (= kaputtgegangen; infin. *gehen*), *mitbracht* 'brought along' (= mitgebracht; infin. *bringen*).

4.2.2. Form-context analysis

In the premorphological phase Anna uses only present tense forms of verbs and the 6 past participle forms already mentioned.

Because of uncertainty or lack of the subject element it is mostly hard to decide to which agreement category a verb form belongs. Thus in 1;8,10 only 9 out of 45 verb tokens and in 1;10,0 only 9 out of 67 are accompanied by a subject element.

Tables 9–12 represent the analyses of category contexts for each inflectional type in the premorphological period. The title of column 2 'unclear category' means there is a present form for which the agreement category can not be specified. All forms occuring in a context of order or request are counted as imperatives (column 7).[12] The past participle forms are the only forms unambiguously assigning perfectivity or resultativity (column 8 and 9).[13] There are a lot of further contexts where perfectivity is probable given in the context situation. But due to the uncertainty of decision all of these instances are counted in the present tense columns. The dark columns assign the target categories of the respective inflectional form.[14]

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[9] The occurance of bare infinitives in early verb acquisition in various languages is discussed under the term 'optional infinitive stage', cf. Wexler (1994). For German compare Clahsen et al (1993), Weissenborn (1994).

[10] Recall that *–t* is the target suffix of the 3.sg./2.pl.pres.ind.act. and as well of the past participle, cf. chapter 2. It is the most frequent suffix after *–en*.

[11] Here are counted only clear past participle forms, i.e. forms having a stem change and/or the prefixe *-ge-* or its reduced form *-e-*.

[12] Again, due to the lack of utterance context it is often hard to decide if the child uttered an order/a request or not. In column 9 only the (relatively) clear instances are counted. In case of uncertainty the form is counted as present tense form.

[13] Cf. the discussion of perfectivity and its assignment in the data in ch. 4.3.2. and 6.2., 6.3. Note that column 8 + 9 only correspond with column 6 of table 8.

[14] Deep dark = unmarked target form, light dark = marked target form.

Table 9: **-en** forms in synthetic verb constituents (lemmas/tokens)

age	present					imper. (=order)	perfect (past participle)	
	ambig	1sg	2sg	3sg	3pl		1sg	3sg
1;8,10	10/13			3/3		2/7		1/1
1;8,29	9/20	1/1		2/6	1/1	½		1/1
1;9,14	14/17	2/2	1/1	2/2		3/3		
1;10,0	11/18	3/6	1/1	1/1	2/3	¾		

Table 10: **-t** forms in synthetic verb constituents (lemmas/tokens)

age	present					imper. (=order)	perfect (past participle)	
	ambig	1sg	2sg	3sg	3pl		1sg	3sg
1;8,10	5/5			5/10				
1;8,29	4/4	1/1		6/8				1/1
1;9,14	3/5	4/4		10/14			1/1	
1;10,0	3/3	2/3		6/9			1/1	

Table 11: **-∅** forms in synthetic verb constituents (lemmas/tokens)

age	present					imper. (=order)	perfect (past participle)	
	ambig	1sg	2sg	3sg	3pl		1sg	3sg
1;8,10	2/2	2/2		1/1		1/1		
1;8,29								
1;9,14		2/2						
1;10,0	4/6	3/5		2/2	1/1	1/2	1/1	

Table 12: **–e** forms in synthetic verb constituents (lemmas/tokens)

age	present					imper. (=order)	perfect (past participle)	
	ambig	1sg	2sg	3sg	3pl		1sg	3sg
1;9,14	2/2							
1;10,0						1/1		

We can conclude that *–en* forms are spread over the entire field of the occuring category contexts whereas *–t* forms are more or less restricted to 3.sg.pres. Especially with *–t* forms often a perspective or a resultative meaning seems to be intended. Possibly they are used instead of target past participle forms. In the order of the recordings there are at least 2 – 5 – 10 – 6 instances of this case.

With respect to pure stem forms (*-∅*) and to *-e* forms it becomes obvious over time that Anna prefers the stem form to express 1.sg and imperative. The occurence of *-∅* forms in other contexts is mainly due to articulatory reductions at the word ending. Thus we find *papa guck* (=guck-t?) 'daddy looks' (no imperative!), *das hier ha* (=hab-en?) 'want this here', *aufräum* (=aufräum-en?) 'tidy up'.

Only one analytical construction is documented in premorphology: *hat kauft* 'has bought' (1;8,29). Instances of modal verbs are not documented (beside one unclear occurence of *darf* (1/3sg form of *dürfen* 'be allowed to') in 1;9,14).

4.2.3. Emergence of categories in premorphology

According to Dressler/Karpf (1995) premorphology is considered to be the phase in acquisition where the child has not started to use morphological operations of the target language but shows distinction of actions/situations by the use of specific extragrammatical forms or of rote learned forms.[15] Precursors of morphological operations are based on universal principles of grammatical symbolization like iconicity, transparency, uniformity (cf.

[15] For comparable but in parts different scenarios on this early phase, compare the assumptions of Slobin (1985:1164ff) on early mapping and grammaticizable notions, and of Tomasello (1992, 2000) on the verb island hypothesis and on imitative learning.

the introduction). As we have seen in the previous chapters Anna distinguishes between *–en* and *–t* forms of verbs in premorphology. In adult language the *–en* form only occurs as infinitive in periphrastic constructions. Anna doesn't produce periphrastic constructions in the observed phase. Nevertheless, she (like other German children) uses this form in nearly all category contexts she employs. On the other hand *–t* forms occur mainly in 3.sg.pres.ind. contexts. Whereas the *-en* form is not related to a special verb category the *–t* form seems to be related to objects that are not speaker or hearer. Thus one could conclude that *–en* is a feature for beeing a verb and that *–t* is a feature for beeing a verb in a special context. But all the forms documented in premorphology have to be assumed to be rote learned, i.e. they are not the output of a morphological operation. 57 of the 72 lemmas in premorphology are used with only one morphological form (30x *-en*, 18x *-t*, 4x past participle, 4x stem, 1x *-e* => 79%).

As long as the forms have to be categorized as rote learned we can't know if the child is aware of the grammatical content of these forms and of the respective grammatical categories. We can only register the emergence of forms in specific grammatical environments. With respect to the latter, only contexts resembling 3.sg.pres.ind. in adult language are specified in Anna's speech in premorphology. At the very end of this phase also contexts resembling 1.sg.pres.ind. correlate with the occurence of a special form, the stem form.

4.2.4. Emergence of form contrasts in premorphology

A total of 279 utterances containing a verb, 72 'selfproduced' verb lemmas and 212 'selfproduced' verb tokens are documented in the four recordings of the premorphological phase. Among these forms only 12 lemmas show different forms within the same recording and we can't preclude that all of these contrasts are a result of rote learning or unmotivated phonological variation. Table 13 gives the number of form contrasts per recording:

Table 13: number of lemmas with form contrasts

age	2 forms	3 forms
1;8,10	1	
1;8,29	1	
1;9,14	7	1
1;10,0	4	2

The dominant contrast is that between an *-en* and a *-t* form (involved in 10 cases). Only in one case no *-t* form is involved in the form distinctions. Whereas the *-en* form occurs in many cases in one word (verb) utterances with unclear category context the *-t* form mainly occurs in 1./3.sg.pres. context or in contexts where perfective meaning could be assumed, cf.

(5)	1;8,10	*machen*	?	*macht*	3.sg.pres. / past part.?	'to do'
	1;8,29	*bauen*	? / request	*baut*	?	'to build'
	1;9,14	*gucken*	?	*guckt*	?	'to look'
		machen	?	*macht*	?	'to do'
		aufmachen	?	*aufmacht*	3.sg.pres. / past part.?	'to open'
		malen	request	*malt*	past part.?	'to draw'
		pullern	1.sg.pres.	*pullert*	past part.?	'to piddle'
		aufsetzen	?	*aufsetzt*	past part.?	'to put on'
				gebt vs. *gibt*	past part.? - 3.sg.pres.	'to give'

Phonological variation due to omission of the word ending or of the past participle prefix is very probable in the distinctions of *kauft – kauf* 'to buy', *zumacht – zumach* 'to close', *einpullert – einepullert* 'to piddle'.

Since we are interested in the development up to the emergence of mini-paradigms which are defined as distinction of at least three inflectional forms we will have a closer look at the

cases with three forms of one lemma. In the whole period there are only three lemmas documented with three (or more) different forms in the same recording, cf.

(6) 1;9,14 *(ka)puttmach – (ka)puttmacht – (ka)puttemacht - mache putt* 'break down'
1.sg.pres. – 1.sg. (perf? past part.?) – 1.sg.perf. (past part.) - uncl.category

Three forms of this lemma occur in 1.sg. contexts only. The included functional distinction seems to be that between imperfectivity and perfectivity.

With the second verb the form-function-relations become more target like. However, there are instances of unclear category context with every form, cf.

(7) 1;10,0

malen	*malt*	*mal*	'to draw'
uncl. category request 1.sg.pres.	uncl. category 3.sg.pres.	uncl. category 1.sg.pres.	

The last one shows the more or less typical picture for each of the three forms at the end of the premorphological phase. However, one hardly finds clear inflectional contrasts with one and the same lemma in the data. In the case of *bauen* 'to build' the form *baut* is documented only twice. One time with an unclear category context, one time in 3.sg.pres.ind. context. The form *bau* is documented only once in whole premorphology.

(8) 1;10,0 *bauen - baut - bau* 'to build'
uncl. category - 3.sg.pres. - 1.sg.pres.?

Taking into account that inflection is determined by the verb stem in German it is reasonable to look beyond the lemma. Integrating all verb forms of one verb stem we can add *machen* (uncl. cat.) and *macht* (3.sg.pres.ind.) to the forms in (6). There are 4 different forms of the verb stem *mach-* in 1;10,0 to. Further we could add the form contrast:

(9) 1;10,0 *pullern – pullert (1;9,14) – puller – einepullert* 'to piddle'
1sg.pres.ind. - 1sg.pres.ind. - 1sg.pres.ind. – past participle (1sg)

But here again the category contexts are unclear or identical.

The analysis shows that Anna is handling all target forms of present indicative except the *-st* form in premorphology. However, their grammatical meaning still has to be discovered.

4.3. The protomorphological phase

4.3.1. Form analysis

At 1;11,6 we can observe a considerable spurt concerning the usage of verbs. 35 new lemmas are documented, cf. the occurence of new lemmas per recording:

(10) premorphological phase protomorphological phase
25 > +15 > +21 > +11 > **+35** > +19 > +22 > +15 (> **+43** > +22)

Among the new lemmas we find the first modal verbs. As well a greater number of periphrastic verb constructions occur for the first time. From now on more than 50% of Anna's utterances consistantly contain a verb (cf. table 6).

The form analyses (table 14) show that no remarkable enrichment of verb forms (types) has taken place. Only pure stem forms (-∅) occur more regularly than in premorphology. The *–e* forms and the past participle forms are used as sporadically as before. At the very end of the protomorphological phase the first *–st* form is documented. We can take it as a hint that transition to the next phase has started.

Table 14: formal analysis of verb forms in protomorphology and the transition phase to modularized morphology (lemmas/tokens)[16]

age	-en	-t	-∅	-e	past part	-st	-te
1;11,6	48/86	19/33	11/18	1/1	3/5		
1;11,20	34/58	14/29	16/23	3/3			
1;11,30	27/45	18/37	8/10	1/1			
2;0,5	25/53	16/38	10/18			1/1	
2;0,29	66/120	27/65	20/62	2/2	5/8	4/7	2/4
2;1,13	35/67	23/50	22/70	6/8	2/2	6/6	

At 2;0,29 the acquisition of verb morphology reaches a new quality. It turns out by 7 target like forms of 2.sg.pres.ind. in *–st*, by 32 periphrastic verb constructions (which is more than the dobble of all periphrastic constructions before) and by the emergence of first past forms of lexical verbs in *–te* (*woll-te* 'wanted' (3 times), *klopf-te* 'knocked'). Except of the emergence of *–te* forms this new development is confirmed in 2;1,13. It can be assumed that Anna overcomes the protomorphological phase around 2,1. The following analysis is concentrated on the development up to 2;0,5. The recordings of 2;0,29 and 2;1,13 will be analysed with respect to the emergence of inflectional categories and true mini-paradigms.

4.3.2. Form-context-analysis

The increasing number of verb lemmas (10) and tokens (table 6) in the protomorphological phase initially leads to a rapid increase of *–en* forms. These forms are still spread across the entire set of the present tense categories. Only *–en* forms of modal verbs occur without any exception in their target categories of 1./3.plural. As in premorphology *–t* forms and stem forms (-∅) occur predominantly target like in 3.sg.pres.ind. and 1.sg.pres.ind. contexts. For most cases of *–t* forms occuring in nontarget agreement contexts a perfective meaning can be assumed. Nontarget occurences of stem forms (-∅) often have a nasal, a palatal or a complex consonantal stem ending (*komm*, *mitnehm*, *puttgang*, *anguck*, *reinsetz*) which makes the (consonantal) inflectional endings difficult to articulate and to perceive.

The *-en* form without any category specification is still the dominant form. However, an increasing number of plural contexts is documented and the target function as infinitive of periphrastic forms starts to develop, cf. (13). Inflectional categories typically assigned by other forms are 1./3.sg.pres.ind. The few clear past participle forms (table 14) can still be assumed to be rote learned. Also in 2;0,29 and 2;1,13 nearly no use of the past participle prefix *ge-* could be found.

Tables 15–19 give the distribution of the forms over the target category contexts and demonstrate the extension of plural contexts and the occurence of modal verbs as the new development in this phase.

[16] Notice that the table includes all tokens in all documented verb forms, in synthetic as well as in periphrastic ones. Thus the numbers in this table don't equal the numbers in tables 15-19.

Table 15: **-en** forms in synthetic verb constituents (lemmas/tokens)

age	present								Imper. (order)	perfect (past participle)	
							modals				
	ambig	1sg	2sg	3sg	1pl	3pl	3sg	1pl		1sg	3sg
1;11,6	33/44	9/11		14/23	1/1	1/1					1/1
1;11,20	26/36	2/3	2/3	5/6		1/1			5/6		
1;11,30	15/21	3/3		5/7	3/3	2/3			4/6		1/1
2;0,5	14/27	7/8	1/1	4/6	2/2	2/3		½	3/3		

Table 16: **-t** forms in synthetic verb constituents (lemmas/tokens)

age	present								Imper. (order)	perfect (past participle)	
							modals				
	ambig	1sg	2sg	3sg	1pl	3pl	3sg	1pl		1sg	3sg
1;11,6	7/8	1/3		13/21		1/1				1/1	1/1
1;11,20	6/6	1/1		10/20							
1;11,30											
2;0,5	9/11	1/1		11/26							

Table 17: **-∅** forms in synthetic verb constituents (lemmas/tokens)

age	present									Imp. (order)	perfect (past participle)			
							modals							
	ambig	1sg	2sg	3sg	1pl	3pl	uncl	3sg	1pl		uncl	1sg	3sg	3pl
1;11,6	1/1	1/5		2/2						1/1		1/1	2/3	
1;11,20	9/12	1/1	1/1				1/1	1/1		2/3	1/2			1/1
1;11,30		1/1	1/1	1/1						2/2				
2;0,5	3/3	5/8		1/1							1/2		1/1	

Table 18: **-e** forms in synthetic verb constituents (lemmas/tokens)

age	present									Imp. (order)	perfect (past participle)	
							modals					
	ambig	1sg	2sg	3sg	1pl	3pl	1sg	3sg	1pl		1sg	3sg
1;11,6	1/1											
1;11,20	2/2			1/1								
1;11,30							1/1					
2;0,5												

Table 19: **-st** forms in synthetic verb constituents (lemmas/tokens)

age	present									Imp. (order)	perfect (past participle)	
							modals					
	ambig	1sg	2sg	3sg	1pl	3pl	1sg	3sg	1pl		1sg	3sg
2;0,5			1/1									

The rate of target subject-verb-agreement clearly increases in comparison to premorphology but it does not exceed the 50% mark. Important with respect to the emergence of verbal categories is the acquisition of the first past tense forms. Without any exception these are suppletive past tense forms of the verb *sein* 'to be' – *war/waren* 'was/were'. In the whole period we find 5 instances of these forms, cf.

(11)	1;11,20	(zu) groß waren	3pl	'were (to) big'
	1;11,30	(wer) war (e)s?	3sg	'(who) was it?
	2;0,5	da war jemand	3sg	'someone was there '
		war das xx	3sg	'was it xx'
		oma ursel war das	3sg	'this was grandmother u.'

Additionaly, the suppletive 1./3.pl.pres.ind. form of *sein* 'to be' – *sind* 'are' occurs, cf.

(12)	1;11,30	freunden da sind	3pl	'friends are here'
		da sind die (räder)	3pl	'there are they (wheels)'
		beide hochklettert sind wir	1pl	'we both are climbed up'

An important step in the acquisition of the verb is the occurence of periphrastic verb constructions. In the four recordings of the protomorphological phase 12 constructions are

documented. These are a) present tense constructions with a modal verb as auxiliary plus an infinitive form, cf.

(13)	1;11,6	soll	schlafen	3sg	'should sleep'
		kann	malen	3sg	'can draw'
		setzen	kann	3sg	'can sit down'
		hochsetzen	kann	3sg	'can sit on sth high'
		einkacken	darf	3sg	'can fill one's pants'
		müssen	ausziehen	1pl	'have to take off'
	1;11,20	gehen	muß	?	'have to go'
	1;11,30	malen	kann	3sg	'can draw'
	2;0,5	angucken	wollen	1pl	'want to look at'

and b) perfect tense constructions with a person/number form of *sein* 'to be' or of *haben* 'to have' as auxiliary plus a past participle, cf.

(14)	1;11,6	hab	hinnengeben	?	'have given away'
	1;11,20	puttgang	is(t)	3sg	'is broken down'
	1;11,30	hochklettert	sind	1pl	'are climbed up'

The order of the constituents of these constructions is target like in some of the first constructions at 1;11,6. From 1;11,20 on we find the reverse nontarget order without any exception. The difference is not due to syntactical aspects as there could be question structure or subordinated clause structure. Thus it is interesting to note that in these reversed constructions the finite verb is in the last or sometimes next to the last position whereas the infinite verb is in the first or second position of the utterance.

5. Emergence of inflectional categories

If we look at the categories the child's forms belong to the most common way is to start from the target system and to count the instances of forms resembling the respective categories. This method has been used here as well. However, as has been discussed at various places (Slobin 1985, Clahsen 1996, Tomasello 1992) we can't be sure that the child has the same form-meaning correlations in his grammar from the very beginning. Only broad cross-linguistic and very detailed research can give an answer if and how far child grammar is different form adult grammar with respect to the category system. As we know by the research of Slobin and colleagues and others as well, it is very likely that there are some semantic or pragmatic domains of child and human life that crosslinguistically tend to be lexicalized and maybe also grammaticalized early, cf. the examples for 'grammaticizable notions' in Slobin (1985:1172ff). To assign basic oppositions like these the child can only use language material available from the input. A mismatch of child and adult categories is programed.

Having in mind this problem the following tables could be read as the order of emergence of appropriate forms in the adult categories.

Table 20: target form-category-correlation with synthetic verb forms (tokens - % in relat. to utter. with verbs)

age	unclear agreem.	3.sg. pres ind.	1.sg. pres ind.	(past part.) perfect*	3.pl. pres ind.	2.sg. imp.	1.pl. pres. ind.	pret.	2.sg. pres. ind.
1;8,9	**28** – 62,2%	**10**	**2**	**1**		(1frozen)			
1;8,29	**25** – 54,3%	**8**		**2**	**1**				
1;9,14	**26** – 49,1%	**14**	**2**	**1**	**1**	(4 frozen, 1formul.)			
1;10.0	**33** – 49,3%	**9**	**5**	**2**	**3**	**1** (+3 frozen)			
1;11,6	**55** – 39,9%	**16**	**4**	**7**	**1**	(4 frozen, 1 imit.)	**2**		
1;11,20	**61** – 55,0%	**21**	**1**	**3**	**1**	**3** (+2 frozen)		**1** 3.pl.	
1;11,30	**29** – 32,6%	**26**	**2**	**1**	**5**		**3**	**1** 3.sg.	
2;0,5	**44** – 40,4%	**26**	**8**	**3**	**3**	(8 frozen)	**4**	**3** 3.sg	**1**
2;0,29	**74** – 30,2%	**56**	**19**	**4**	**3**	**3** (+4 frozen)	**2**	**3** 3.sg.	**7**
2;1,13	**56** – 26,8%	**40**	**40**	**1**	**1**	**3** (9 frozen)	**5**	**1** 3.sg.	**6**

* again I counted all forms showing a stem vowel change and/or the prefix (ge-/c-); forms with only one of these features are not completely target like; additionally, single past participle forms lack the (target) finite verb

Table 21: target form-category-correlation with periphrastic verb forms (tokens)
(pres./pret.: modal + infinitve; perf.: aux + *-t/-en* form (*past part.))

age	unlear agreem.	3.sg. pres ind.	3.sg. perfect	1.pl. pres. ind.	1.sg. perfect	1.sg. pres ind.	3.sg. pret.	3.pl. pres. ind.	1.pl. perfect
1,8.9									
1;8,29			**1**						
1;9,14									
1;10,0									
1;11,6	**1** pres. **1** perf.	**4**		**1**					
1;11,20	**1** pres.		**2**						
1;11,30		**1**	**1**		**1**				
2;0,5				**1**					
2;0,29	**3** pres. **1** perf. **1** pret.	**8**	**1**	**1**	**3**	**6**	**2**	**1**	**1**
2;1,13	**1** pres.	**2**	**1**	**1**	**4**	**5**	/	/	/

Table 22 summarizes the order of emergence of inflectional categories of the verb:

Table 22: order of the (recurrent) emergence of categories (i.e. target form-category-correlations)

age	emergence of categories
1,8.9	3.sg.pres.ind.
1;8,29	/
1;9,14	/
1;10,0	1.sg.pres.ind.
1;11,6	3.sg.pres.ind. (periphr./modal) ^ perfect (= past part.)
1;11,20	3.sg.perf.ind. (periphr.)
1;11,30	3.pl.pres.ind.
2;0,5	1.pl.pres.ind.
2;0,29	2.sg.pres.ind. ^ 3.sg.pret. ^ 1.sg.perf.ind. (periphr.) 1.sg.pres.ind. (periphr./modal) ^ 1.pl.pres.ind. (periphr./modal)
2;1,13	2.sg.imp.

6. Emergence of mini-paradigms

6.1. Data analyses

To discover the onset of the development of paradigms in language acquisition Kilani-Schoch/Dressler (2000)[17] propose five criteria to qualify an inflectional form as a potential member of a paradigm: not imitative, not formulaic, articulatory accuracy, use in contrasting contexts, recurrence. I would propose to add the criterion of stable correlation with a potential grammatical meaning to exclude cases of arbitrary or accidental use of forms from paradigm construction. Only forms which could be characterized as the default (or as the base) form are tolerated to occur in different category contexts. As also Klampfer (this volume) discusses, the criterion of recurrence of an inflectional form is a very strong criterion given a data base consisting of one recording a week or within two weeks. For German I propose to weaken this criterion to recurrence of the form-meaning-correlation with a verb of the same stem or base. Forms regarded as the onset of a paradigm should occur within a time span of four or five weeks.

This way in premorphology only the *–en* vs. *-t* contrasts of *machen* 'to do' (8), *aufmachen* 'to open', and *malen* 'to draw' (8, 10) can be regarded as candidates or precursors of mini-paradigms.

Table 23: candidates of mini-paradigms in premorphology

age	2 members	3 members
1;9,14	2	
1;10,0	3	

In the period of Anna's first 70 verb lemmas no example for a "true" mini-paradigm is documented. Only after the raise of the verb lexicon beyond the 100 lemma mark (cf. (5)) the first three member paradigm was documented. This confirms with the findings in Klampfer (this volume) for the Austrian girl Katharina.

In protomorphology we find an increasing number of candidates of mini-paradigms and the first "true" mini-paradigms.

Table 24: candidates and mini-paradigms in protomorphology

age	2 members	3 members
1;11,6	4	1
1;11,20	6	
1;11,30	3	
2;0,5	4	3

16 lemmas are involved in these potential paradigmatic contrasts in protomorphology. Almost all of them contain an *–en* vs. *–t* contrast. In the 3 member cases either a past participle or a -∅ form (1.sg.pres.ind.) is added. One contrast is of suppletive nature, the forms of *sein* 'to be' (*ist, sind, war*) create one of the 3 member contrasts in 2;0,5.

In chapter 4.3.1. I outlined the new developments in the acquisition of verb morphology observable in 2;0,29 and 2;1,13 and I proposed that the transition to a new stage in verb grammar has started. With respect to inflectional contrasts this involves the emergence of target infinitive forms in periphrastic constructions and a first remarkable amount of *–st* forms in 2.sg. Also, contexts of 1./3.pl. occur more regularly. Like in most German corpora contexts for 2.pl. don't occur at all. The development of paradigmatic contrasts in the two recordings is as follows:

[17] Cf. also Kilani-Schoch (this volume).

Table 25: candidates and mini-paradigms in transition to modularized morphology

age	2 members	3 members	4 members
2;0,29	8	3	1
2;1,13	5	6	1

In only two recordings now 17 lemmas are involved in potential paradigmatic contrasts. 3 member contrasts occur more or less regularly and the first 4 member contrast is documented. The first four member paradigm is build up by the (main!) verb *haben* 'to have/get', the second by *malen* 'to draw' which also was one of the first verbs with form contrasts.

6.2. Steps towards mini-paradigms

The (morphological) steps towards mini-paradigms we have observed in the data of Anna can be summarized as follows:

premorphological steps:

- different rote learned morphological forms in isolated use:
  - unspecified (default) form of the verb in *–en*
  - (contextual) specified forms, predominantly the *–t* form but also -∅ and past participle forms
- the specified forms are mapped to specific situative contexts
- very few and single morphological contrasts with one lemma
- no systematic correlation between the morphological forms can be assumed

protomorphological steps:

- increase of the active verb lexicon beyond 100 lemmas
- increase of subject–verb–agreement correlated with increasing use of subjects[18] and more complex utterance structures in general
- increase of verbs with the (basic) morphological contrast of *–en* vs. *–t*
- occurence of 1./3.pl. and 2.sg. contexts
- emergence of rote learned modal verbs
- emergence of rote learned periphrastic forms
- *first recurring 3 member contrasts: unspecified –en vs. –t (3.sg. or perfective meaning) plus -∅ (1.sg.) or past participle form*

steps in transition to modularized morphology:

- utterances containing subject, object and the finite verb become regular
- mastering of periphrastic perfect and periphrastic modal constructions
- emergence of past forms, differentiation of the tempus domain: present (with imperfect/perfect) vs. past
- emergence of *–st* forms for 2.sg.
- *increase of 3 member contrasts: mainly unspecified –en vs. –t (3.sg. or perfective meaning) plus -∅ form (1.sg.)*
- *first recurring 4 member contrast (-en, -t, -∅ plus -st)*

What could be concluded from this summary is

a) that the emergence of mini-paradigms can be seen as the logical result of the acquisition of (rote learned) linguistic material to communicate about different kinds of situations.

b) that mini-paradigms in Anna's grammar and perhaps in German children in general are of different nature then paradigms adults employ.

The statement in a) should provoke the question to which extent we can assume that morphological contrasts in protomorphology are meaningful. If we assume that all forms are still rote learned and stored as seperate linguistic units the emergence of mini-paradigms

[18] Since 1;11,6 subject elements occur in more than 15% of Anna's utterances, cf. D. Bittner. (2000).

happened by chance. In this case mini-paradigms would be a by-product of the acquisition of seperate forms of one lemma – and exclusively a theoretical/descriptional term. I will discuss this in chapter 7.

The conclusion in b) arises from the fact that an unspecified *–en* form is part of the morphological constrasts up to the end of the observed period. This form is not part of an adult paradigm, here *–en* is restricted to 1./3.pl.pres.ind. and to infinitives in periphrastic present constructions. Additionally, Anna is using the *–t* form different to adult language. Beside the target occurence in 3.sg.pres.ind. this form is also used in perfective contexts. The common assumption is that the *–t* form replaces the articulatory more complex past participle by phonogical reasons. It seems to me that there are some problems with this assumption. Typically Anna replaces target forms by using the *-en* form. Having this in mind it is much more surprising that Anna uses *–t* forms in perfective contexts also when the target form of the past participle ends in *–en*, cf.

(15)	(ich) auch ein geld *gebt*	← *gegeben*	'I also have given money'	(1;9,14)
	opa (=3.sg) *gebt*	← *gegeben*	'grandfather has given'	(1;11,6)
	wegschmeißt	← *weggeschmissen*	'has thrown away'	(1;11,6)
	auffreßt	← *aufgefressen*	'has eaten up'	(2;0,5)
	aufbeißt	← *aufgebissen*	'has bite open'	(2;0,5)
	runterfallt	← *runtergefallen*	'was falling down'	(2;0,29)
	ausgeht	← *ausgegangen*	'was getting out'	(2;0,29)

For these cases often overgeneralization of the *–t* past participle pattern has been assumed. But the child still hasn't acquired the target pattern. Only 6 target like past participle forms (i.e. prefix+stem+suffix) are documented. Shall we assume homonymic use of *–t* forms for 3.sg.pres.ind. and for perfectivity or is the child analyzing a unified meaning with *-t*? Clahsen (1988) proposed *–t* symbolizes intransitivity in early German. This proposal has been disproved (cf. a.o. Weissenborn 1990). However, the question if *–t* forms in this early period are of different nature than in adult language is not finally answered with the disproval of intransitivity.

We are coming back here to the question under a): Are the morphological contrasts meaningful in protomorphology? In accordance to Tomasellos approach (Tomasello 1992, 2000) this question can be reformulated as: Has the child already started to analyze word structure? Occurence of nontarget morphological forms like the above mentioned (probable) past participles can provide evidence for meaningful contrasts in protomorphology.

6.3. Analogical substitutions

The main type of non-target use of a morphological form is the already discussed use of *–en* forms. It can be assumed that the child picks up this form as the prototypical verb form from the input by frequency reasons. In adult language the *–en* form has high frequency because of its syncretistic occurence in 1./3.pl.pres., 1./3.pret. (*wir/sie sagen* 'we/they say' *wir/sie sagten* 'we/they said') and as infinitive in the very frequent periphrastic constructions with modal verbs (*kann/kannst/könnt/können sagen* 'can say') as well as in subordinate verb constructions (*er beginnt zu rennen* 'he starts to run'). The unspecified character of this form in Anna's grammar especially becomes clear in the use of *–en* forms for requests, i.e. in imperative function. The preferential use of *–en* forms can be interpreted as that Anna has acquired the difference between the concept/category of the verb and (the) concepts/categories assigned by other word classes. An *-en* form assigns that the scenario the child would like the hearer to spend attention on is one of the kind the target language specifies with verbs.

The next type of non-target use of verb forms is the occurence of *–t* forms in other than 3.sg.pres.ind. contexts (but not 2.pl.pres.ind.). It has already been discussed in 6.2. that this

probably is related to a perfective meaning of *–t* forms. Also I have discussed that relating this occurencies to phonological reduction of target past participles is doubtful. The hypothesis is the child starts to associate the *–t* form with a general meaning unifying its occurence in 3.sg.pres.ind. and in perfective contexts. Further research has to show if this can be proved. It should only be mentioned here that if one accepts the assumption of an unspecified or default verb form in *–en* in early child grammar it is also likely that the child tries to find out which meaning is correlated with other forms of verbs early.

There are only rare examples of further non-target use of verb forms. The main type is of not changing the stem vowel of strong verbs as it is appropriate in adult language. First examples have been the past participle forms given in 6.2. Of the same type are the 3.sg.pres.ind. forms:

(16)	*wascht*	← *wäscht*	'wash'	(1;9,14/1;11,6)
	gebt	← *gibt*	'give'	(1;11,6)
	eßt	← *ißt*	'eat'	(1;11,20)
	mitfahrt	← *mitfährt*	'drive with'	(1,11:20)
	auffreßt	← *auffrißt*	'eat up'	(2;0,5)
	runterfallt	← *runterfällt*	'fall dawn'	(2;0,29)

These strong verbs require a stem alternation in 2./3.prs. Also if the infinitive is not documented in the data one can assume that the child has the infinitive form of these verbs as underlying form in her/his lexicon and the non-target use is based on the universal semiotic principle of the uniformity of signs (Dressler et al. 1987). According to this principle it is more natural, i.e. presupposed that a sign stays identical in its different usages. This is confirmed by the overwelming amount of German verbs, i.e. the weak verbs which constitute the only productive class. Thus the respective non-target treatment of strong verbs is motivated by universal as well as by system specific principles.

Naturally, there are different possibilities to interprete the occurence of these substitutions. One of them is to regard them (especially the first ones) as the result of the omission of further target language material like modals in the case of *–en* forms or auxiliaries in the case of *–t* forms and to relate it to frequency and pragmatic reasons that it be just *–en* and *–t* forms occuring in the reduced verb phrases. But, in parallel to the common assumption that the child has categorized verbs vs. nouns early (i.e. before it starts to use different forms of verbs) and in parallel to the assumption of something like an optional infinitve stage in early verb acquisition (i.e. the mapping or classifying of one of the input types as 'beeing verb') the assumption that the child is able to mapp or to classify other forms of verbs to special contexts is likely and has to be proved. If one excludes this possibility one has to explain why the child can categorize the one and not the other. If one supports this way of explanation one has to show by which kind of learning processes the child is able to develop from rote learning to analysation and classification of form-meaning correlations.

7. Thoughts on the role of protomorphology in paradigm building

The discussion on pre- and protomorphology has shown that in the beginning we can't assume that the child has a grammatical understanding of inflectional forms. Rote learned verb forms are mapped to situative contexts with a relatively fixed structure, fixed for instance in time, event, and object structure. I assume that the child only step by step[19] could extract inherent features of the situative structure and correlate them with features of the mapped language

[19] Examples for a step by step differentiation of grammatical domains in language acquisition are discussed in D. Bittner (1998, 1999).

elements. There are some evidence that protomorphology is the phase in which the child finds out basic oppositions of morphological systems.

When does the child start to look beyond the single rote learned form? At the end of protomorphology (at 2;0,5) the most common contrast of *–en* vs. *–t* forms is documented as a recurrent contrast for 23,5% of the verb lemmas, i.e. for nearly every 4th lemma. This is clearly not enough to assume a productive morphological relation between both forms, especially having in mind the still high amount of (non-target) *–en* forms. Otherwise, 162 verb lemmas are documented up to 2;0,5. These are only the lemmas documented in the time of recording. Anna's active verb lexicon would clearly consist of a considerable greater number of lemmas. Additionally recurrent inflectional types have increased to 7 (cf. table 22). All in all to much to assume that all contrasting forms could still be rote learned. The question arising is what kind of verb usage lies between the sheer rote learned phase and the phase of productive morphology? Most linguists dealing with the development from rote learning to productive morphology[20] assume a phase of analogical learning. But it remains more or less open what kind of analogies we have to assume, especially in which respect these analogies differ from productive morphological processing.

I propose that we have to assume a phase characterized by accumulative learning. After sheer rote learning the child accumulates forms of the type it was becoming familiar with by rote learning. In other words the mapping of forms to special situative contexts becomes easier the more instances of the same type of mapping are stored already. For instance, the more lexemes the child has learned which end in *–en* and have a verb meaning the better s/he has access to new lexems with the same combination of features. And the more the child becomes familiar with form contrasts like the *–en* vs. *–t* (vs. -∅ ...) contrast the more s/he "expects" the same contrast with new lemmas of the same type and can extract the appropriate forms more easily from the input.[21] What probably the child is doing before s/he starts to analyse form-meaning-correlations is accumulative learning and pattern learning. This way s/he stores the necessary amount of instances of the same type ("critical mass") to change to generalization and abstraction on grammatical features of the forms and structures acquired. This order of phases is probably repeated with every new grammatical structur. Thus, after an initial phase of sheer rote learning of the very first structures we will find a coexistence of rote learned structures, accumulated structures, analogical and finally productive structures as long as the child is learning her/his language. After the first or basic dissociations of modules the processes leading to further dissociations within modules and submodules will repeat the processes of the first dissociation and will do that in different domains at the same time. Accordingly, paradigm construction is a process of repeated dissociation as long as the child has acquired the full set of paradigmatic relations.

The parallel existence of the different learning mechanisms comes to light in the processes after 2;0,5. We have found not as much a quantitative spurt but a qualitative spurt. Within three weeks the number of recurrent inflectional types is increased from 7 to 12 (cf. tables 20-22). At 2;1,13 recurrent *–en* vs. *–t* contrasts are documented for nearly 28% of the lemmas. 12% of the lemmas with this contrast show additionally the stem form (-∅) for 1.sg.pres.ind. Whereas the new inflectional types occure by rote learning and are documented by only a few instances the pattern of *–en - –t - -∅* increases by accumulative learning due to expectation of these contrasts and starts to become productive patterns of category symbolization.

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[20] Cf. a.o. MacWhinney (1978), Plunkett (1993), Dressler/Karpf (1995), Gentner/Markman (1997), Tomasello (2000).

[21] Some models of neural nets (for instance ART nets, cf. Carpenter/Grossberg 1988) contain a seperate level of nodes, which models the expectations of the learner in dealing with new input together with the value 'vigilance'. For an application on the acquisition of semantic relations in the lexicon, cf. Friedrich (2000).

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Early Development of Verb-constructions in an English-speaking child

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0. Introduction

In this paper the first results concerning the development of early verb morphology in an L1-English speaking child are presented. Adopting the framework of morphological development of Dressler (Dressler, this volume) the data of a girl from the CHILDES database, Nina of the Suppes corpus, is analysed with regard to the emergence of early verbal categories (e.g. number and person) and their appearance in a first mini-paradigm. In the sessions analysed so far the child Nina has reached an age of 2;2 when the first mini-paradigm emerges.

1. Description of verb morphology in the target language

English is a language which has lost most elements of its once rich inflectional system. All in all about ten inflectional suffixes have survived the Middle English period when most inflections were lost. Verb morphology is reduced to a few suffixes marking person, number, tense and aspect. In the absence of inflectional suffixes, the categories person and number are mainly marked by personal pronouns; English auxiliaries also mark person and number along with tense, mood and voice. The morphology of English auxiliaries is opaque and a number of syncretic forms exist. Present indicative presents the only case in which person and number are marked simultaneously by a suffix: third person singular invariably occurs with the inflection *-s* (table 1). Past tense forms are in the case of regular verbs identical with the past participle (table 2) and are marked for tense only. Some past tense forms/past participles display an opaque or suppletive morphology. Progressive aspect is constructed analytically and consists of the present participle marked by the ending *-ing* and a finite form of the verb *to be*. In the case of present progressive this is the present participle and a present finite form of the verb *to be* (table 3). In the present study only a few constructions are relevant. The child in this study used the infinitive form of verbs and the present participle which later on occurred in target like present progressive constructions. Some regular and some overgeneralized past tense forms occurred. Third person singular *-s* was used sporadically but not in a systematic way until the end of the recordings analysed in this study. Some modal and some future constructions were used which will be discussed separately. The finite forms of the verbs *to have* and *to be* are relevant for analytical tenses and are displayed in table 4.

Table 1: present indicative: *to walk*

	singular	plural
1st	I walk	we walk
2nd	you walk	you walk
3rd	s/he, it walk-s	they walk

Table 2: simple past: *to walk*

	singular	plural
1st	I walk-ed	we walk-ed
2nd	you walk-ed	you walk-ed
3rd	s/he, it walk-ed	they walk-ed

Apart from pronominal elements English noun phrases are not inflected for case. The personal pronouns of first and third person singular and plural differ in nominative and objective case. Consequently, word order is crucial for identifying the subject in a sentence. English sentences must have subjects which occur at the beginning of a sentence. Unless a sentence is passive, the most agentive member will appear in subject position. As will be explained in more detail in section 4, only imperatives and those utterances of the child which contained a verb plus a subject were considered for analysis.

Table 3: present progressive: *to walk*

	singular	plural
1st	am walk-ing	are walk-ing
2nd	are walk-ing	are walk-ing
3rd	is walk-ing	are walk-ing

Table 4: the verbs *to be* and

	singular	plural
1st	am	are
2nd	are	are
3rd	is	are

to have

singular	plural
have	have
have	have
has	have

2. Data description

The data were taken from the CHILDES database. For the present study the first fifteen recordings of the girl Nina of the Suppes corpus were analysed. In the first session of the recordings, Nina still produces a lot of one-word-utterances, but has begun to put words together in longer sequences and also uses a number of verbs. The first recording takes place at Nina's home with only her mother being present. Other sessions were taped when Nina's grandparents or some of her friends were visiting.

Table 5: age at recording and number of child utterances

number of recording	age	total number of utterances
1	1;11,16	815
2	1;11,24	572
3	1;11,29	790
4	2;0,3	739
5	2;0,10	394
6	2;0,17	272
7	2;0,24	797
9	2;1,6	584
10	2;1,15	781
11	2;1,22	700
12	2;1,29	687
13	2;2,6	758
14	2;2,12	739
15	2;2,28	716
16	2;3,5	620

3. Predecessors of verbs in predicative function

At the onset of the recordings (1;11,16), Nina is already using a number of lexical verbs. In early stages of language development, relational words such as *more*, *gone* or prepositions such as *in* and *out* can also be considered verbs as long as their conceptualization is a process and their use is as a predicate (Tomasello 1992). Often documented as predecessors of verbs these expressions still exist in the data of Nina. Only some can be discussed briefly.

Initially, *more* was used to indicate general recurrence of objects (1), food (2) and activities (3). In session 9 Nina begins to use *more* as a quantificational modifier as demonstrated by her use of it in utterances containing a 'true' verb (4). From session 10 onwards the majority of utterances containing *more* also has a verb (5)-(6).

(1)	*CHI: more rabbit.	(1;11,16)
(2)	*CHI: more cookie.	(1;11,16)
(3)	*CHI: more reading.	(2;0,3)
(4)	*CHI: my want more coffee	(2;1,6)
(5)	*CHI: my have more things in my box.	(2;1,15)
(6)	*CHI: he got more food.	(2;1,15)

If context is lacking, it is not always easy to decide if a preposition is used as a verb or not. Most utterances in which a preposition seems to be used as a verb (7a) and (8a) are constructed parallel to other utterances which are produced by Nina with a lexical verb in place of the preposition (7b), (7c), (8b), (8c). Utterance (9) was produced by Nina when she was getting up, because she wanted to go out. That prepositions are indeed conceived as verbs by children is illustrated in (10) where Nina productively uses the suffix of the present participle. The utterance was a comment of Nina at age 2;0,3 as she watches her mother taking the pieces of a puzzle out. The production of the non-target form *outing* will be discussed in section 4.2.2 since it serves as an example that Nina is capable of some morphological generalization in a phase of language acquisition when she is not yet making use of a more complex system of English verbal affixes. It is hard to say at which point Nina stops to use prepositions in place of verbs, but in the course of the recordings, examples such as (7a), (8a) and (9) become less frequent and even if an utterance is produced without a verb, the preposition tends to occur as an appropriate member of a prepositional phrase (11).

(7a)	*CHI: off Mommy	(2;0,17)
(7b)	*CHI: draw # Mommy	(2;0,24)
(7c)	*CHI: talk Mommy	(2;1,6)
(8a)	*CHI: off a eye (poking teddy's eyes)	(2;1,6)
(8b)	*CHI: pulling a bus	(2;0,10)
(8c)	*CHI: see the nail	(2;1,15)
(9)	*CHI: out up.	(1;11,16)
(10)	*CHI: Mommy's outing.	(2;0,3)
(11)	*CHI: on the chimney	(2;1,15)

4. Emergence of verb-forms

4.1 General remarks

English is a language with little morphology and thus only a few verbal inflections. Of the languages which are analysed in this volume, English represents one end of the continuum and can be characterized as an isolating rather than a synthetic type of language regarding its

verbal morphology. Throughout the discussion of the results of the present analysis, it should be born in mind that the first mini-paradigms in two children acquiring French (Kilani-Schoch, this volume), a language with almost equally poor verb inflection, were identified when the children reached an age of 2;0,22 and 1;8,10. Regarding the first emergent categories, the data of Nina will be compared to that of a child acquiring a language with a relatively rich morphology: the German child Anna (Bittner, this volume).

The main area of verbal morphology in English are the inflectional endings *-ing*, *-ed* and *-s* and the auxiliaries of the compound tenses. From the onset of the study, Nina uses two main verb forms: the root infinitive (12)-(13) and the present participle (14)-(15), a quantitative analysis can be found in table (10)-(11). The first fully inflected forms that appear with some regularity are analytical constructions with third person singular present progressive verb forms (16)-(18).

(12)	*CHI: bunny dance too.	(1;11,16)
(13)	*CHI: drink dolly.	(1;11,16)
(14)	*CHI: bunny dancing.	(1;11,16)
(15)	*CHI: drinking dolly	(1;11,16)
(16)	*CHI: he's sleeping.	(2;0,24)
(17)	*CHI: he's eating his cereal.	(2;1,6)
(18)	*CHI: he is sleeping.	(2;2,12)

As will be discussed in more detail below, the use of the present participle is at first limited to a certain verb group. Although the present participle appears almost always in target like constructions, non-target root infinitives appear just as likely[1]. It thus seems to be the case that the child's use of the present participle is still an example of rote learning and that to a certain degree the two forms are no more than optional variants at this stage. A closer look at the data will reveal that despite the similarities in the use of the two verb-forms in early stages of acquisition, even in the first sessions of the recordings the *-ing* form shows some definite signs of specification in terms of the categories person and number. For a target like use of the root infinitive a number of options are given in English. In the simple present (table 1) it is the target form for all persons and numbers but third person singular. The root infinitive is also used as both singular and plural imperative, in the future tenses and in modal constructions. Despite these numerous possibilities, use of the root infinitive is almost only target like in Nina's utterances when used as an imperative. In the first sessions of the recording she uses neither future tense nor modal constructions. Her use of the root infinitive as a form of the present indicative can also be ruled out in the majority of cases. Apart from a few verbs that cannot be used in the progressive, a closer look at the constructions involving the root infinitive will reveal that they are almost never instances of the simple present (cf. 4.2.2). It will thus be argued that in contrast to the *-ing* form which is mainly used with third person singular referents the root infinitive is used as a default form in all other cases.

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[1] The following example from the first session of recording shows that the infinitive form and the *-ing* form are used in an identical context.

*CHI: drink # Nina.
*MOT: Nina's going to drink?
*MOT: oh # is it good?
*CHI: drink dolly.
*MOT: what are you drinking now?
*CHI: drinking dolly.

For the following presentation of the results it is important to understand the criteria that were used to identify possible candidates for the first mini-paradigm. At the onset of the study the child Nina uses the *-ing* form of verbs without an accompagnying finite verb form (14)-(15). She only later produces utterances in which the present participle appears together with either a full (18) or an affixed version of an auxiliary (16)-(17). Although the very first appearances of the present participle are clear instances of rote learning (s.a.) the use of inflectional *-ing* versus the root infinitive is the first morphological contrast that is soon established in Nina's system. It will be argued that Nina's entry into English verb morphology is marked by the use of the inflectional suffix *-ing*. In the present analysis the use of the present participle will be recognized as a prestep before the appearance of first mini-paradigms. Within the phase of protomorphology the present participle begins to appear with an auxiliary which opens up the possibility of morphosemantic contrasts concerning the categories person and number and eventually tense. It will be shown that the verb-forms used in (16)-(18) are the first candidates that qualify for a position in a mini-paradigm.

Although Nina's first use of the aspectual marker *-ing* contrasts with the use of the root infinitive it does not contrast within a category as long as the auxiliary is missing. This is an important point to note since a couple of recordings pass before Nina begins to use other suffixes in any relevant numbers. It is thus possible that an English child acquires *-ing* without being aware that the suffix is part of a verbal morphological system. This is true even in the case of English where verbal morphology is reduced to only a few distinctions. Since the appearance of mini-paradigms should be an indicator of morphosemantic oppositions within the stage of protomorphology it makes little sense to argue that the child is beginning to discover paradigmatic relationships if the non-contrastive affix *-ing* is acquired in isolation. This is to say that while the verb-form used in (14)-(15) will not qualify as candidates for a mini-paradigm, the verb-form used in (16)-(17) (and (18) of course) will, since it is in theoretical contrast with other morphologically marked forms (e.g. *'m sleeping/am sleeping* or *'re sleeping/are sleeping*). As a closer look at the data will show, Nina starts off by using the *-ing* form of verbs for reference to third persons singular. A contrast to other persons and number slowly emerges as the use of *-ing* with third person singular becomes more target like through the use of agreement markers (auxiliaries) which licences morphosemantic oppositions and thus first contrasts in a mini-paradigm.

The second aspect that needs to be mentioned is that due to the lack of inflectional distinctions there are numerous syncretic verb forms in English (tables 1-3). The root infinitive for instance is used both as singular and plural imperative, appears in modal and future constructions and is used for all persons and numbers despite third person singular in the present indicative (table 1). In the present analysis verb forms were regarded as possible candidates for a mini-paradigm if they encoded different categories such as imperative versus present indicative. Syncretic forms within categories (such as first and second person singular present indicative) were not given independent status in a mini-paradigm if they collapsed two or more potential contrasts in one verb-form. In table 3 the six slots of the paradigm are filled. In the present analysis it is assumed that the child needs to learn that first person singular combines with the auxiliary *am* while third person singular combines with the auxiliary *is*. The verb forms *am walking* and *is walking* represent two possible slots in a mini-paradigm. These two instances contrast with all other cases in which the auxiliary *are* has to be used. The production of *are* would thus be counted as usage of one inflected form only. In this sense, the first paradigm which meets both the criteria of the present analysis and the framework adopted here (Dressler & Kilani-Schoch 2000) appears when the child Nina reaches an age of 2;2.

A last remark must be made concerning coding procedures. Only those utterances of Nina were coded that could be identified as imperatives or which had subjects. Even if some contextual information is given, in most cases it is impossible to decide whether utterances such as (19)-(21) are comments on what the child is doing herself or a comment on what the mother or other person is doing if no subject is mentioned. Unless the child is using non-target person references (cf. pronoun-reversing children), subjects are a reliable indicator of the categories person and number.

(19) *CHI: fit here. (1;11,16)
(20) *CHI: feed the llama. (1;11,29)
(21) *CHI: throw on Nina's hand. (2;0,10)

4.2 Premorphology

4.2.1 Formal characteristics

In the first eleven sessions of the recordings before the child Nina reaches an age of 2;2 she uses a variety of different verbs. These are mostly lexical verbs, but also some relational words and prepositions used in a predicative function. Of the inflectional endings which occurred, *-ing* is the dominant one (tables 10-13). Occasionally the child Nina uses third person singular *-s*, in the majority of cases with appropiate third person singular subjects although not always in target like constructions. The relatively high token number of third person singular *-s* (table 12) in the first session are all instances of use with the same verb and were produced in only one context. Since no other verbs with third person singular *-s* occurred in this or the subsequent sessions in any high numbers it is doubtful that the suffix is used productively.

Occasional past tense forms/past participles occurred, these were mostly examples of non-regular past formation (22)-(25). Of the verbs which were used with the suffix *-ing* all belonged to the semantic category of activity verbs in the first recorded sessions, like *to swim, to dance, to eat, to drink, to sleep.* None of these occurred only with the ending *-ing,* but also in the infinitive. Vice versa, some verbs which occurred in the infinitive were never used in the progressive form. These were predominantly change-of-state verbs like *to close, to open, to break,* achievements like *to find, to get.* Prepositional verbs like *to fall down* and *to lie down* where used in the progressive form in later sessions from age 2;1,15 onwards (26)-(27).

(22) *CHI: Nina ate my food. (1;11,29)
(23) *CHI: duck ate my food. (1;11,29)
(24) *CHI: box called a cage? (1;11,29)
(25) *CHI: Ellie gave my balloon. (2;0,3)
(26) *CHI: I sliding down. (2;1,15)
(27) *CHI: I taking something out. (2;1,29)

4.2.2 Form-function analysis

For reasons mentioned above, only imperatives and those utterances which contained a verb plus an identifiable subject were considered in the analysis. The results of the English-speaking child Nina are summed up in tables (10)-(13). Regarding the emergence of categories, three interesting observations can be made. First, tables (10)-(13) show that the vast majority of person references are first and third person singular references. Occasional usages of second person singular and third person plural are documented. Second, the child uses imperatives. Imperatives are always produced with the infinitive form of the verb, never

the *-ing* form. Third, occasional past tense references can be observed. Most of these are irregular past tense forms, often used context bound.

It has already been mentioned that the data represented in table 10 contains predominantly non-target utterances. While this is straightforward in the case of third person singular where inflectional *-s* is missing, this might not be as obvious in the case of first person singular references. The examples given in (28)-(30) show that the use of the simple present might look target like on a formal basis but seldom is in the discourse of the child. All utterances are comments on the child's activities. In many instances more than one interpretation is possible concerning the fact whether the child has just completed an action, is commenting on an ongoing action or anticipating an action. Despite these various possibilities use of the root infinitive form of the verb is not target like in any one of them.

(28) *CHI: my make a house. (2;0,10)
(29) *CHI: me eat (th)em. (2;1,6)
(30) *CHI: I slide down too. (2;1,15)

A closer look at form-function relationships within the two main verb forms used by Nina shows that there are two interesting parallels to the German child Anna's data (Bittner, this volume). The general trend of form-function pairings in table (10) and (11) can be summed up as follows: the child Nina uses two general verb-forms for present tense references, the infinitive and the *-ing* form. While both are not specified in terms of person and number, one of the two verb-forms is more general than the other, this is the infinite form of the verb. The use of the infinitive form is spread more general across person and number categories while the *-ing* form is mainly used for third person singular references. The main contrast that Nina establishes at this stage of development is a proximal - non-proximal one. While the root infinitive appears as a default form in all cases that have not yet been specified, the *-ing* form is almost entirely reserved for third person singular reference. In other words, reference to a non-proximal participant that is a member of the child's discourse and thus is neither speaker nor hearer is marked by the use of a first verbal affix: the *-ing* form of the verb.

Table 10: infinitive verb forms with subject (lemmas/tokens)

age	present					imp
	1sg	2sg	3sg	1pl	3pl	
1;11,16			6/12		1/1	5/11
1;11,24	3/3		3/9		1/1	5/10
1;11,29	4/6		16/30		2/2	3/11
2;0,3	2/3		5/13			6/7
2;0,10	9/26		6/7		1/1	2/3
2;0,17	2/4		1/2			6/10
2;0,24	4/5		10/18			11/42
2;1,6	9/10		7/10			2/3
2;1,15	20/32	4/6	10/20	1/1	1/1	9/12
2;1,22	18/45	3/6	9/14		1/3	6/17
2;1,29	15/27	6/7	13/34		1/1	9/13

A similar picture emerges in the first recordings of the German child. In the first recorded sessions, Anna also refers mainly to herself and third persons in the singular. Plurals are rare and second person reference is almost non-existent. Just as Nina, Anna mainly uses two

inflectional categories for person reference, of which one is the infinitive form of a verb and the other inflectional *-t*, which is the appropiate marker for third person singular present indicative. Anna's use of the infinitive form is more generally spread across the categories person and number and the suffix *-t* is mainly reserved for third person singular reference. While the emergence of similar categories in both the German and the English child is not surprising, it seems interesting that at early stages of acquisition there are some striking similarities in the form-function pairings of the two children. Concerning their degree of verbal inflection, German is a much richer language than English. Although the verbal system of the two languages is fairly similar in terms of structure (similar categories are marked by similar means), the mechanisms of acquisition will have to diverge at some point. Nevertheless, the children's entry into the verbal inflectional system of their languages shows some similar characteristics. Two general inflectional categories are established of which one has the form of the infinitive and is used as a default form. Since the main participants the child refers to in her discourse are first and third persons singular, both the English and the German child end up with non target structures when using the infinitive[2]. The other inflectional categories, *-ing* in English and *-t* in German, already show a tendency towards specification of third person singular. While in German this usage is the target like use of a synthetic tense, in English the child still has to acquire the agreement part of the analytical construction.

Table 11: *-ing* verb forms with subject (lemmas/tokens)

age	present				imp
	1sg	2sg	3sg	3pl	
1;11,16	1/3		3/6	1/2	
1;11,24			1/3		
1;11,29			5/29	2/2	
2;0,3	1/1		13/22	2/2	
2;0,10	1/1		3/3		
2;0,17	2/2		1/1	1/1	
2;0,24	1/1		3/8		
2;1,6			4/6		
2;1,15	1/1	1/1	4/6		
2;1,22	1/1		1/1	1/1	
2;1,29	3/4		6/13	1/1	

It should be mentioned at this point that although the child Nina has not established more than one morphological contrast in her verbal system at this stage there are clear signs that some generalization process is taking place and that the suffix *-ing* is given a morphosemantic status. Apart from the example which was stated in (10), Nina produces two more creative usages of the suffix *-ing*. The example in (31) is produced while Nina is looking at a bug that is walking on an apple, (32) while she is looking at a picture in which a dog is sleeping in a house the door of which is closed, Nina is pointing at the keyhole:

(31) *CHI: bugging.
(32) *CHI: locking.

[2] See (28)-(30) why the infinitive form used as first person singular present indicative is considered a non target formation in the English data.

Both examples involve the use of the suffix *-ing* together with what is categorized as a noun in the target system. Although it is impossible to tell what Nina's exact intended meaning is, in both cases it is quite possible to identify an event in the context that could have been intended by her. Concerning her early specification of *-ing*, the two instances are consistent with her system, both referents are third person singular.

Table 12: -s verb forms with subject

age	1sg	3sg	3pl
1;11,16		1/6[3]	
1;11,24		1/1	
1;11,29			
2;0,3			
2;0,10			
2;0,17			
2;0,24		1/1	
2;1,6			1/1
2;1,15			
2;1,22	1/1		
2;1,29			1/1

Table 13: Past verb forms with subject

age		past		
	1sg	2sg	3sg	3pl
1;11,16				
1;11,24				
1;11,29	1/1		2/3	
2;0,3			1/1	
2;0,10				
2;0,17			1/1	
2;0,24			1/13	
2;1,6	1/1		1/1	
2;1,15	2/5		2/3	
2;1,22	3/6		2/2	1/2
2;1,29				

It has already been mentioned that the first mini-paradigm which can be identified in the data of Nina is produced when she reaches an age of 2;2. As was already illustrated in tables (10)-(13), in the eleven sessions befor age 2;2 a number of categories emerge in the data of Nina. Table (14) shows a listing of both the categories which were documented in each of the sessions by Nina's use of verbs (marked by an X) and their manifestation in the first inflected verb forms (marked by two XX). Of all inflected verb forms which were considered, many were imitated or formulaic. All forms were isolated occurrences. In many instances production was context-bound. For instance, in the seventh session at an age of 2;0,24 Nina produced eleven different utterances containing the past tense from *gave*. All her utterances were organized around a special context, that of being given presents. Some examples are given in (33)-(35).

[3] These are all instances of the same verb, s.a.

(33) *CHI: Miriam gave it. (2;0,24)
(34) *CHI: Nonna gave picture lion Nina. (2;0,24)
(35) *CHI: daddy gave it my ball? (2;0,24)

It is an interesting point to note that of the categories that emerge in the premorphological phase of Nina's development, most are represented as inflected verb forms and can thus be regarded as predecessors of the first mini-paradigms. As table 14 shows, categories that emerge late will also surface later as inflected verb forms. The most striking difference between early emergent categories and inflected verb forms represented in table 14 is the mismatch concerning the category first person singular. While many references are made to herself by Nina (table 10), inflected first person singular verb forms are not used consistently (table 14). As table 11 shows use of the *-ing* form when making a first person singular reference is reduced to one or two verb types per session. This is in sharp contrst to the use of the *-ing* form with third person singular referents which appear with numerous verb types in the majority of the recorded sessions.

Table 14: emergent categories in pre-morphology

				sg			pl				modal
	PAST	PRES	FUT	1st	2nd	3rd	1st	2nd	3rd	IMP	
1;11,16	X[4]	XX		XX		XX			XX	XX[5]	
1;11,24	X	XX		X		XX			X	XX	
1;11,29	XX	XX		X		XX			XX	XX	XX
2;0,3	XX	XX		XX		XX			XX	XX	
2;0,10	X	XX		XX		XX			X	XX	
2;0,17	XX	XX		XX		XX			XX	XX	
2;0,24	XX	XX		XX		XX				XX	
2;1,65	XX	XX		X		XX				XX	
2;1,15	XX	XX		XX	XX	XX		X	X	XX	
2;1,22	XX	XX	X	XX	X	XX			XX	XX	XX
2;1,29	X	XX	X	XX	X	XX			XX	XX	

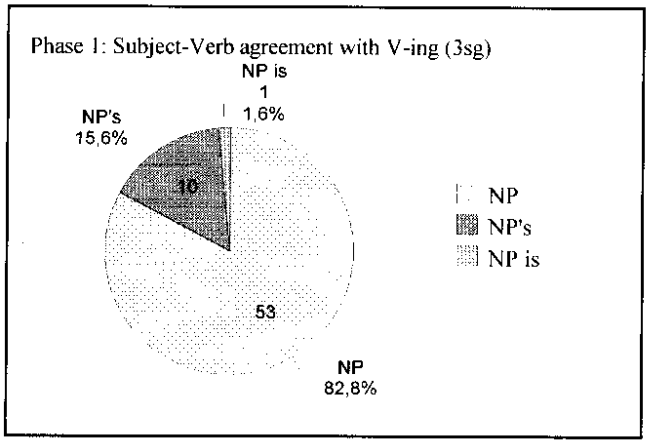
Summing up the results so far, it can be said that in Nina's premorphological phase a number of categories are established. Concerning the category of person, the dominant referents are third persons singular, followed by reference to self. If imperatives are regarded as a separate category, reference to second person singular is established last. The same trend can already be observed for plural references. Reference to third person plural is the first to be used.
In the light of what has just been said, it is an interesting question to ask what the third person singular references involving an *-ing* form exactly look like. For this purpose the recorded

[4] Many of the default verb forms in the root infinitive have a perfective meaning in the sense that an action had just been completed.
*MOT: what happened to the blocks?
*CHI: gone.
*MOT: they're gone?
*MOT: what happened to them?
*CHI: fall down. (Nina 1;11,24)

[5] Verb forms which were target like if used in the default form of the root infinitive were counted as target like inflectional forms.

sessions that correspond to premorphology in the development of the child Nina were arbitrarily divided into two phases. Phase 1 consists of the first six recorded sessions, phase 2 consists of the last five recorded sessions. Results are given in figure (1) and (2).

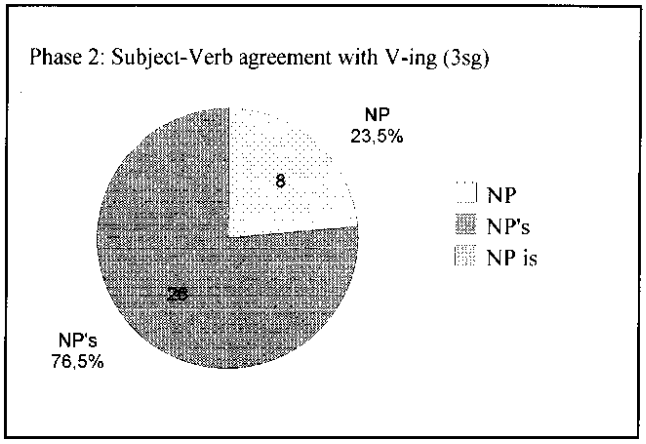
A total of 64 tokens in which Nina combined a third person singular subject with a verb-form ending in *-ing* appeared in the first six sessions of the recordings. Only a total of seven first person singular references were found (table 11). Ultimately, the usage of the present progressive has to show subject-verb agreement. Figure 1 shows which kind of subject-NPs were produced by Nina. Only a small percentage, 17,2%, appears with target-like agreement. The 17,2% are divided between ten utterances in which agreement is reached by the attachment of a suffix: in these cases *'s* is attached to the subject noun phrase. Only one utterance was found in which the present progressive is used in its full analytical form (36).



(36) *CHI: that horse is running. (2;0,3)

Subject-verb combinations involving a progressive form become more accurate in phase 2 (figure 2). Although the absolute amount of *-ing* forms decreases towards the end of phase 2 (table 11), the relative amount of target like constructions with *-ing* increases. In the majority of cases the progressive is not used fully analytical, but the finite member occurs suffixed to the subject.

Regarding the child's first steps towards the acquisition of inflectional suffixes (*-ing)* plus agreement elements (the respective auxiliary) the following trend can be observed. The child sets off by using an *-ing* form when referring to third person singular, at first these constructions involve no auxiliary. Refernces to first person singular involving the suffix *-ing* are less numerous, reference to second person is almost non-existent. The next step is the acquisition of agreement factors. At this early stage these are reduced to the affixed version of auxiliaries. First and second person references with *-ing* forms are not used together with auxiliaries at all. It could be argued that in the process of the acquisition of verbal morphology the child first concentrates on third person singular references, which are specified by the use of a verb with the suffix *-ing*. Parallel to the slowly emerging use of *-ing* with first person and finally on second person references agreement factors begin to play a role in third person singular references(figure 3). The use of the auxiliary *is* or its affixed version is established before agreement with first and second person singular references is reached.



4.3 The first mini-paradigm

The first mini-paradigm that fulfills the criteria menrtioned above occurrs in the data of Nina when she reaches an age of 2;2. At age 2;2 Nina uses a diversity of verb forms when she produces utterances with the verb *to sleep*. Nina's utterances which contain some form of the verb *to sleep* and which contribute to her first mini-paradigm will be discussed at some length here. On the one hand it can be shown that although a number of different constructions surface in Nina's grammar, she is still far from the stage of protomorphology. On the other hand it becomes clear that the trends which were established in Nina's verbal morphology before she reached an age of 2;2 become manifested and serve as a basis for further development.

The first point that needs to be mentioned is that the many occurrences of verb forms of *to sleep* are by no means coincidental in a sense that Nina happens to talk about 'sleeping' as well as other activities. Quite to the contrary, Nina spends a great deal of both session 15 and 16 talking about sleeping routines. This is due to the fact that she has had a lot of trouble going to sleep in the time of the respective recordings. It is thus not surprising that the first mini-paradigm is established with the verb *to sleep*. One could of course argue that if Nina produces three recurrent inflected forms for one verb if given enough chance to use it, the same results are theoretically possible for other verbs. Although this fact has be born in mind it is nevertheless not documented in the data.

In the sessions 13-16 of the recordings, Nina used a total of 106 utterances involving the verb *to sleep* or *to go to sleep*. Of these, 74 were either imperatives or utterances with an identifyable subject; 23 utterances were not analysed since they had no subject and 9 utterances were not analysed although they had a subject, since their meaning was idiosyncratic or opaque. Tables 15-20 show which categories were encoded by the verb forms used by Nina. Of the two numbers given, the first is the total of verb forms that occurred in the respective categories, the second is the number of those verb forms which were inflected and thus presented candidates for the formation of the first mini-paradigm[6].

Table 15: present progressive 'sleeping'

	sg	pl
1st		
2nd	1	
3rd	23/7	3

Table 16: infinitive forms 'sleep'

	sg	pl
1st	1	
2nd		
3rd	2	

Table 17: infinitive forms 'go to sleep'

	sg	pl
1st		
2nd		
3rd	2	

Table 18: going-to-future 'going to sleep'

	sg	pl
1st	1	
2nd	1	
3rd	2/2	2

Table 19: 'want to go to sleep'

	sg	pl
1st	3/3	
2nd		
3rd		

[6] The remaining utterances which are not listed in the tables are two questions and four compound constructions.

Table 20: imperatives

'sleep'	8/8
'go to sleep'	9/9
'let me sleep'	9/9

As the tables presented above show, there are several candidates which fill slots in the first mini-paradigm. These are inflected third person singular progressives as in (37), third person singular going-to-future constructions (38), three different kinds of imperatives (39)-(41) and a first person singular modal construction (42).

(37) *CHI: and the man's sleeping on the big bed. (2;2,12)
(38) *CHI: father's going to sleep in playpen # ok? (2;3,5)
(39) *CHI: you sleep # Mommy. (2,2,28)
(40) *CHI: go to sleep # Mommy. (2;2,28)
(41) *CHI: let me sleep on you # Mommy. (2;3,5)
(42) *CHI: I want to go to sleep. (2;2,28)

The most important point to note is that although the child begins to use differernt inflected forms for one verb type, in no case is a person or number contrast established within one of the paradigms. Constructions which involve an auxiliary begin to develop in the third person singular (37)-(38). Auxiliaries for other persons and number play no role at all. The only other verb forms that are used with a target like function is the infinitive form of the verb used as an imperative and a modal construction restricted to first person singular.

5 Conclusion

It could be argued that the scarcity of inflectional affixes in English considerably reduces the statistical probability of different inflectional verb forms occurring. Although there is some truth in this and it was argued above that in the case of the infinitive form it is impossible to tell whether the child is using it target like or just as a default, both tables 10-13 and tables15-20 illustrate that most categories are established a long time before they regularily become manifested in inflectional verb-forms. Although the first mini-paradigm could be identified when the child Nina had reached an age of 2;2 it could be shown that the slots which were filled did not contrast within one category. This is to say that although the child begins to use third person singular progressive forms with some regularity, she does not yet contrast them with other inflected form of the present progressive in terms of person and number. Quite to the contrary, verb forms are established independent of each other. This is an important point to note since it can still be argued that the child has not discovered English verbal morphology but is still drawing heavily on rote learned forms. From a typological perspective this is a strong argument for the hypothesis that children who acquire a language with little morphology do not use inflected forms regularily for a relatively long period of time.

Regarding the acquisition of the entire (inflectional) morphological system, an interesting aspect of Nina's morphological development is her acquisition of the personal pronouns. Budwig (1989, 1995) has shown that non-target use of *my* is produced by children acquiring English as their first language for the marking of agentivity and control. Nina's use of *my* in

subject position (43)-(44) is not given up until she reaches an age of 2;6 and the development of her syntax allows her to use structures like (45)-(46) to mark her control of a certain action.

(43)	*CHI: my do it.	(2;0,17)
(44)	*CHI: my gonna make a egg.	(2;5,28)
(45)	*CHI: you do it by yourself.	(2;10,13)
(46)	*CHI: I like to pick monkeys by myself.	(2;11,6)

Sentences (43)-(46) illustrate that Nina uses two entirely different constructions for a similar function. At early stages of language acquisition she uses non target *my* in subject position to express that she rather than anybody else wants to carry out a certain action. It should be mentioned that at the same time Nina uses *my* target like in possessive constructions. As soon as Nina's language skills have matured in a sense that she can use a target like construction for the expression of control in a certain action, namely the adverbial exclusive intensifier, her non target use of the personal pronoun *my* is given up. Regardless of the precise mechanisms of Nina's syntactical development that allows her to use structures like (45)-(46) it is an important point to note that case is not mastered by Nina before age 2;6. Parallel to the development of verbal inflections, case emerges relatively late in the data of Nina.

(47)	I feed Tim.	(50)	Ich füttern Tim.
(48)	Me feed Tim.	(51)	Mich füttern Tim.
(49)	My feed Tim	(52)	Mein füttern Tim.

Although this phenomenon must be investigated in more detail, it is an interesting correlation that a child acquiring English, a language with only a few inflections but a stable word order, will learn to use verbal and (nominal)/pronominal inflection relatively late. Word order in English makes decodation of utterances such as (47)-(49) fairly easy since the subject is to be expected sentence initial. This option is not given in German which allows objective case in the first position. Regarding parallel sentences such as English (47)-(49) and German (50)-(52), the English constructions are unambiguous and all surface in the acquisition data of children. The German sentences (50)-(52) on the other hand cannot all be interpreted as straightforward. While sentence (47) and (50) have a parallel interpretation, sentence (51) is most naturally interpreted with *Tim* being subject and *mich* being the object. The meaning of sentence (52) is not quite clear and possibly ambiguous. Neither sentence type (51) nor sentence type (52) surface regularly in the acquisition data of German children.

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Early verb development of two finnish-speaking children: a preliminary approach to miniparadigms

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0. Introduction

This paper is a preliminary overview of the early acquisition of verb inflection in Finnish. The analysis of the first verb forms concentrates on two children, but background material from other children is also used. The analysis of the first miniparadigms concentrates on one girl (Tuulikki).

1. Verb inflection in spoken Finnish

1.1. Verbal categories

The Finnish verb categories which emerge relatively early in the speech of children are:

prod. synthetic

PERSON (+ VOICE)
- ACTIVE (unmarked): 3 persons in singular and in plural (total 6); 3rd SG is the most unmarked
- "PASSIVE" = the indefinite 4th person without person distinctions (the forms of this so-called personal passive are also used in spoken Finnish – and in child language – in the function of the 1st person PL of active)

TENSE
- PRESENT (unmarked)
- PRETERITE (PAST): *i*-suffix in Standard Finnish, e.g. present *nukkuu* vs. preterite *nukkui*, present *antaa* vs. preterite *antoi*; in colloquial speech also shortening and change of the final stem vowel, e.g. present *antaa* vs. preterite *anto*, present *nukkuu* vs. preterite *nukku*; in spoken Finnish the 3rd person SG of contracted verbs -si > -s (e.g. *haukkasi* > *haukkas*), and the *s* originally belonging to the stem is now a tense marker

MOOD
- indicative (unmarked)
- imperative 2nd person SG and PL + eventually 3rd person
- conditional (isi-suffix); potential (ne-suffix)

INFINITIVES
- 1st infinitive (TA-suffix)
- 3rd infinitive (mA-suffix + case endings: illative –Vn, inessive –ssA etc.)
- eventually 2nd infinitive (Te-suffix + case endings, either inessive –ssA or instructive -n)

PARTICIPLES
- active and passive past participles (obligatory in analytic constructions)
- eventually present participles of some verbs

prod. analytic

NEGATION CONSTRUCTION: Finnish has a negation verb (stem e-, in imperative stem äl-). This verb is inflected and the main verb is in the negation form (which is identical with

the 2nd person SG imperative, e.g. *minä en nuku* 'I don't sleep', *sinä et nuku* 'you don't sleep', *hän ei nuku* 'he doesn't sleep', *me emme nuku* 'we don't sleep' etc.).

COMPOUND PAST ("perfect tense") = AUX *olla* 'to be' + the past participle of the main verb.

At first, children may use only some part of these constructions (e.g. Tuomas, Table A; 4a+b, 18c).

All these verb categories are productive. The morphologically most simple forms, indicative present SG 3 and imperative SG 2, can be regarded as the basic forms of the verb (cf. Toivainen 1980: 44).

1.2. Verb classes which Finnish-speaking children use relatively early

1.2.1. verbs with only vowel stem that ends in a **short vowel** (e.g. istu-a 'to sit', sano-a 'to say'; the A is the suffix of the infinitive); this is the most common and productive type of Finnish verbs

1.2.2. verbs with only vowel stem + the vowel stem ends in **two vowels**

a) one-syllabic verbs, e.g. *syö-* 'eat', *juo-* 'drink', *vie-* 'take away' (the past tense is in this verb class exceptional, e.g. *syön* 'I eat': *söin* 'I ate', and analogical formations are common in child language, e.g. *syöin* = simply syö+i+n); this class is unproductive

b) longer ones (the type *mestaroi-*) are acquired later; this class is weakly productive

1.2.3. contracted verbs: the vowel stem ends in two vowels, and there is also a consonant stem (e.g. *kiipeää ~ kiipee : kiivet+kää* 'climb'); analogical forms are typical for early child language, e.g. *kiipeää ~ kiipee : kiipi* instead of *kiipesi* (ex analogia *lukee : luki* or *hakee : haki* in the 1. type of verbs); this verb class is productive

1.2.4. other verbs with both a vowel and a consonant stem: the vowel stem ends in a short *e* (e.g. *tule-* 'come' : *tul+kaa*, *mene-* 'go' : *men+kää*)

1.3. Examples of the paradigms

Present indicative forms of verbs belonging to the 1. class in 1.2 above

	SG	PL
1. person	istu-n	istu-mme ~ istutaan (the latter one, "passive", is used in spoken Finnish)
2. person	istu-t	istu-tte
3. person	istu-u	istu-vat

Past tense (preterite) stem: istui- (istuin, istuit, istui etc. but in colloquial speech SG3 is *istu*)

Present indicative forms of verbs belonging to the 2. class:

	SG	PL
1. person	vie-n	vie-mme ~ viedään (the latter one is the so-called "passive")
2. person	vie-t	vie-tte
3. person	vie	vie-vät

Past tense (preterite) stem: vei- (vein, veit, vei etc.); infinitive: *viedä*

Present indicative forms of verbs belonging to the 3. class:

	SG	PL
1. person	hyppää-n	hyppää-mme ~ hypätään ("passive")
2. person	hyppää-t	hyppää-tte
3. person	hyppää	hyppää-vät

Past tense (preterite) stem: hyppäsi- (hyppäsin, hyppäsit, hyppäsi etc.); infinitive: *hypätä*

Present indicative forms of verbs belonging to the 4. class:

	SG	PL
1. person	tule-n	tule-mme ~ tullaan (this "passive" is based on the consonant stem)
2. person	tule-t	tule-tte
3. person	tule-e	tule-vat

Past tense (preterite) stem: tuli- (tulin, tulit, tuli etc.); infinitive: *tulla* (consonant stem)

2. Data description

The study is mainly based on the corpora of two children, Tuulikki and Tuomas.

Tuulikki, girl, was born 28. 6. 1991; there is available diary data from the onset of speech and recordings from the age of 1;7 onwards. Until now, transcribed recordings are

1;7 (60 + 30 min, transcribed to a large extent)	199 utterances (child speech)
1;8 (90 min, only partly transcribed)	225 utterances (child speech)
1;9 (30 min, only partly transcribed)	172 utterances (child speech)
1;10 (30 min, only partly transcribed)	68 utterances (child speech)
1;11 (60 min, transcription in progress)	(mostly diary data used)
2;1 (60 min, transcribed to a large extent)	136 utterances (child speech)

The transription process is continued during the winter 2000-2001 and will concentrate on the partly transcribed recordings in order to make them fully available in spring 2001.

Tuomas, boy, born 25. 5. 1997; there is diary data from the onset of speech and recordings from the age of 0;9. Until now, partly transcribed recordings are 1;6 (30 min) and 1;7 (30 min).

3. Predecessors of verbs in predicative function

Elements expressing actions, events and processes before adult-like verbs:

a) no replacement of verbs by fillers

b) no prefixes but e.g. *pois* 'away' (also in truncated form: *po* etc.) from the expression *mene ~ mennä(än) pois* 'go away' is used much in the same way as the English verb particle *away* (cf. partially the German prefix *weg*)

Presumably, *pois* is favoured by small children because it is short and has only one form, whereas the verb is more demanding: it is inflected in different forms and it is longer.

c) objects, especially **mass nouns in partitive** instead of their governing verbs: *vettä ~ tettä* 'water' in the meaning 'give me some water [to drink]', *pullaa ~ puuroa ~ puuvoo* etc. in the meaning 'give me some buns/porridge [to eat]';

Also **some illative forms**: *kotiin* '[let's go] home' and *syliin* '[I want to come] into the lap' (morphologically *kotiin* = koti 'home' + the illative suffix *-in*, and *syliin* = *syli* + the illat. suffix *-in*); cf. to the early illative forms of the 3rd infinitive (e.g. *syömään* 'come to eat', consisting of the verb stem *syö-*, the suffix of the 3rd infinitive *-mA-* and the illative suffix *-än*).

d) early reduplicative expressions, attested from many Finnish children: anna-anna-anna-anna ~ mam-mam-mam-mam ~ nam-nam-nam-nam 'give (something to eat/drink, used often in combination with a pointing gesture)'; more idiosyncratic: Tuulikki's *ihhaa ihhaa* (< shortened from the nursery rhyme "ihhahhaa, ihhahhaa, hepo hirnahtaa", used when riding

with a toy horse or – by the child – even when seeing a picture of a horse). The form *anna* is the 2nd person imperative of the verb *antaa* 'to give', the other reduplicative expressions are built on onomatopoetics; both *nam* 'yum yum' and *ihahaa* (imitating the voice of the horse) can occur also alone, but *mam* is not an established interjection in (adult) Finnish.

e) onomatopoetic forms, both reduplicative (cf. point d above) and others, e.g. *miau* imitating the sound of the cat, *surrur* and *prr* imitating the sounds of different machines; these onomatopoetic words are iconic in the sense that they refer directly to their referents and simultaneously indexical in the sense that they refer specifically to the sound produced by their referents

4 The first verbs and their forms of two Finnish children

(Tuulikki, girl, and Tuomas, boy; the first 50+ verbs (diary data and recordings))

Also diary data is included because the very first verb forms have not been recorded. Already in the first recordings of Tuulikki (1;7) there are many verb forms; from the recordings of Tuomas, only 1;6 and 1;7 are (partly) transcribed. The first forms to emerge are imperative singular 2nd and indicative singular 3rd. Some other form categories emerge rather early (passive, infinitives, negation verb, participles) but the 3rd form to be used productively is the preterite (past tense) 3rd person. In certain forms, the colloquial (shorter) variant is used instead of the standard variant (e.g. 20 *tippu*, 48 *kuulu*; cf. 1.a: PAST TENSE). Certain forms are shortened because of the strong trochaic tendency in Tuulikki's speech, e.g. 8 *kävele-* > *käme*.

TABLE A1: The first 50+ verbs of Tuulikki (F = a formulaic, frozen word-form)
[lemma = (strong) vowel stem]

AGE	NUMBER	LEMMA	ENGLISH	first occurrence	CATEGORY
0;10	1	katso-	look	kato [ato]	imperat SG2
1;3	2	avaa-	open	avaa	imperat SG2
1;4	3	anta-	give	anna	imperat SG2
	4	hyppi-	jump	hyppii	indicat SG3
	5	vetä-	push	vetää	indicat SG3
	6	menc-	go	mennään	passive present
1;5	7	istu-	sit	istuu [ittuu]	indicat SG 3
	8	kävele-	walk	kävelee [käme]	indicat SG 3
	9	nukku-	sleep	nukkuu	indicat SG 3
	10	pane-	put	pane [mane]	imperat SG2
	11	otta-	take	ota	imperat SG2
	11b	otta-	take	ottaa	indicat SG3
	13	pakkaa-	pack	pakkaa	indicat SG3 ('is packing')
	14	pese-	wash	pese	imperat SG2
	15	piirtää	draw	piirtää [piittää]	indicat SG3
	16	pitä-	'must' (modal)	pitää	indicat SG3
	17	potki-	kick	potkii [pokkii]	indicat SG3
	18	pumpe	(playful gymnastics)		(no suffix elements)
		(< motherese *pumperoi*; the form is shortened to the bare stem)			
	19	tanssi-	dance	tanssii [ta(a)ssii]	indicat SG3
	20	tippu-	fall	tippui [tippu]	past indicat SG3
1;6	F1	kiittä-	thanks	kiitti	a frozen past indicat SG3
	F2	boppu(u)	'the end ~ ended ~ ends'		indicat SG3

		'loppu (= valmis 'ready') ~ loppuu'			[unclear: past ~ present?]
	21	kuule-	hear	kuulen	indicat SG1
	22	hörppää-	slurp	hörppää [höppää]	indicat SG3
	23	kaata-	pour	kaataa [kaataa isi kuppi]	indicat SG3
	24	pelaa	play	pelaa	imperat SG2
	F5	syömään	eat	syömään	3rd infin. illative form
	25	yski-	cough	yskii [ykkii]	indicat SG3
	26	kaatu-	fall	kaatuu	indicat SG3
	27	ole-	be	on	indicat SG3
	28	valu-	flow	valuu	indicat SG3
		(juice along the arm)			
	29	pyöri-	go round	pyörii [pyölii]	indicat SG3
	30	hali-	embrace	halii [alii]	indicat SG3
	31	kasta-	dunk	kasta [katta]	imperat SG2
	31b	kasta-	dunk	kastaa [kattaa]	indicat SG3
		(bisquits in tea; no clear opposition: the child is speaking of her own actions)			
	32	nuuhki-	sniff	nuuhkii [nuukkii]	indicat SG3
	33	yltä-	reach	ylttää	indicat SG3
	34	halu-	want	haluu	indicat SG3
	35	leikki-	play	leikkii	indicat SG3
	36	maista-	taste	maittaa	indicat SG3
	37	sopi-	fit	sopii [topii]	indicat SG3
		(the piece of a jig-saw puzzle)			
	38	nojaa-	lean	nojaa	indicat SG3
		(backwards in the chair)			
	39	puke-	dress	pukee	indicat SG3
1;7	40	ole	to be; copula	ei ole [ei oo]	NEG SG3
		(a colloquial contracted form)			
	41	kuivu-	dry	kuivuu	indicat SG3
	42	nosta-	lift	nosta [notta]	imperat SG2
	42b	nosta-	lift	nostaa [nottaa]	indicat SG3
	43	hake-	fetch	hakee	indicat SG3
	44	työntä-	push	työntää [tyntää]	indicat SG3
	45	lentä-	fly	lentää	indicat SG3
	46	peittä-	cover	peittää	indicat SG3
	46b	peittä-	cover	peitti	past SG3
	47	puske-	butt	puskee [pukkee]	indicat SG3
	47b	puske-	butt	puski [pukki]	past SG3
	48	kuulu-	is heard	kuului [kuulu]	past SG3
	49	jaka-	divide	jakaa [kakaa]	indicat SG3
	50	pyyhki-	wipe	pyyhi	imperat SG2
	51	luke-	read	lukee	indicat SG3
	52	puuttu-	lack	puuttuu	indicat SG3
	53	mittaa-	measure	mittaa	indicat SG3
	54	paina-	press	painaa	indicat SG3
	55	seiso-	stand	seisoo [teisoo]	indicat SG3
	56	tule-	come	tulee	indicat SG3

TABLE A2: The first 50+ verbs of Tuomas
[lemma = (strong) vowel stem]

AGE	NUMBER	LEMMA	ENGLISH	first occurrence	CATEGORY
0;8	1	anta-	give	anna!	imperat SG2
0;9	2	pelaa-	play	pelaa [peeaa]	imperat SG2 vs. indicat SG3
	3	avaa	open	avaa	imperat SG2 vs. indicat SG3
		[0;9 ava(a), 1;3 auva, 1;4 avaa/ävää]			

1;0	4	e-	negation	en [em]	NEG verb indic. SG1
1;3	5	kiikku-	swing	kiikkuu	indicat SG3
	6	nukku-	sleep	nukkuu [gukkuu, kukkuu]	indicat SG3
1;4	7	kaatu-/kaata-	fall	kaa	indicat SG3
	8	keikku-	swing	keekkuu	indicat SG3
	9	luke	read	lukee [ukee]	indicat SG3
	4b	ei/e-	negation	ei ('empty')	NEG verb indic. SG3
	10	tippu-	fall	tippu(i)	past SG3
		[1;4 pippu; 1;6 pippu/tippu, 1;7 tippu]			
	F1	loppu-	end	loppu [1;6 poppu]	past SG3
1;5	11	autta-	help	auta	imperat SG2
	12	tule-	come	tule [tu]	imperat SG2
1;6	13	keikka-	swing, fall	keikkaa [keekkaa]	indicat SG3
	14	kiipeä-	climb	kiipee [kippii]	indicat SG3
	15	piirtä-	draw	piirtää [piittää]	indicat SG3
	10b	tippu-	fall	tippuu [pippuu]	indicat SG3
	16	pyyhki-	wipe	pyyhkii [pyyhii, pyhhii]	indicat SG3
	17	työntä-	push	työntää [tyttää]	indicat SG3
1;6	18	pese-	wash	pestään [pettää]	passive
1;7	19	istu-	sit	istu [ittu]	imperat SG2
	20	katso-	look	kato	imperat SG2
	18b	pese-	wash	pestä [pettä]	1st infinitive
	18c	pese-	wash	pesty [petty]	pass II partis
	21	hake-	fetch	hakee [akee]	indicat SG3
	10	autta-	help	auttaa [attaa]	indicat SG3
	22	heittä-	throw	heittää [eittää]	indicat SG3
	23	hyppä-	jump	hyppää [yppää]	indicat SG3
	19	istu-	sit	istuu [ittuu]	indicat SG3
	7	kaata-	tilt over	kaataa	indicat SG3
	24a	kaatu-	fall	kaatuu [kaatuu, kattuu]	indicat SG3
	24b	kaatu-	fall	kaatui [kaatu, kattu]	past SG3
	25	kampaa-	comb	kampaa [kaapaa]	indicat SG3
	26	karkaa-	run away	karkaa [kaakaa]	indicat SG3
	20	katso-	look	katsoo [kattoo]	indicat SG3
	27	kävele-	walk	kävelee [käjee, kävee]	indicat SG3
	28	laske-	go down	laskee [lakkee]	indicat SG3
	29	lentä-	fly	lentää [nentää]	indicat SG3
	30	lähte-	go away	lähtee [lättee]	indicat SG3
	31	mahtu-	go in	mahtuu [mattuu]	indicat SG3
	32	mene-	go	menee	indicat SG3
	33	odotta-	wait	odottaa [oottaa]	indicat SG3
	34	paukku-	slam	paukkuu [pakkuu]	indicat SG3
	35	pitä-	keep	pitää	indicat SG3
	36	rikko-	break	rikkoo [ikkoo]	indicat SG3
	37	tiskaa-	wash up the dishes	tiskaa [tikkaa, tihkaa]	indicat SG3
1;8	20b	katso-	look	katsomaan [*kattommaa*]	3rd infinit. ILL
	6b	nukku-	sleep	nukkumaan [*ukkummaa*]	3rd infinit. ILL
	32b	mene-	go	mennään	passive
	18a	pese	wash	pestään [*pehtää*]	passive
	19b	istu-	sit	istuttiin	passive past
	20b	katso-	watch	katsottiin [*katottii*]	passive past
	38	haista-	smell	haistaa [*aittaa*]	indicat SG3
	39	haukku-	bark	haukkuu	indicat SG3
	40	huuta-	shout	huutaa [*uutaa*]	indicat SG3
	41	juokse-	run	juoksee [*uokkee*]	indicat SG3
	42	jäähty-	get cool(er)	jäähtyy [*ähtyy*]	indicat SG3
	43	kaiva-	dig	kaivaa	indicat SG3
	44	puha(lta)-	blow	puhalla [*puha*]	imperat SG2
	45	kurkista-	peep, peek	kurkistaa [*kukistaa*]	indicat SG3
	46	kutitta-	tickle	kutittaa	indicat SG3
	47	kylpe-	have a bath	kylpee [*ky(y)pee*]	indicat SG3

48	kääntyy-	turn (refl.)	kääntyy [*käätyy*]	indicat SG3
49	kääntää-	turn (trans.)	kääntää [*käätää*]	indicat SG3
50	leikkaa-	cut	leikkaa [*eikkaa*]	indicat SG3
51	nauraa-	laugh	nauraa	indicat SG3
52	painaa-	press	painaa	indicat SG3
53	pomppaa-	be bouncing	pomppaa	indicat SG3
54	potkaise-	kick	potkaisee [*pokkaa*]	indicat SG3
55	aja-	drive	ajoi [*aji*]	past SG3
10b	autta-	help	auttoi [*autti*]	past SG3
22b	heittä-	throw	heitti	past SG3
30b	lähte-	go away	lähti [*ähti*]	past SG3
32b	mene-	go	meni	past SG3
7b	kaatu-	fall	kaatui [*kaatu*]	past SG3
48b	kääntyy-	turn (refl.)	kääntyi [*käänty*]	past SG3
23b	hyppää-	jump	hyppäsi [*hyppäs*]	past SG3
56	irtoa-	come loose	irtosi [*ittos*]	past SG3
57	törmää-	bump	törmäsi [*töömäs*]	past SG3

5. Emergence of verb categories and the relations between verb forms

5.1. Two basic verb forms

The imperative SG2 and the indicative SG3 forms are the first forms of verbs used by Finnish-speaking children. They can be regarded as basic forms of the verbs because they are morphologically basic (short and simple) and are used as building stones for more complicated forms to be acquired later. They are also basic from the categorial view: the 3rd person sg. indicative is semantically the most neutral verb form and it has high frequency; the 2nd person imperative can be regarded as a pragmatically basic verb form. These two forms are used accurately from the very beginning: the imperatives in requests and the indicatives in declarative sentences when speaking about ongoing action. At first, these two forms are typically not used from the same verb.

The imperative SG2 is formed by adding a final segment (realized phonetically as e.g. a glottal stop) to the vowel stem of the verb (if a consonant follows, this final segment is usually realized as a gemination of the consonant), but small children usually omit this final segment, e.g. istu, sano; syö, juo; kiipeä; tule, mene (cf. the verb groups in 1.2). The indicative SG3 is formed by lengthening the short stem-final vowel (the long final vowel remains unchanged), e.g. istuu, sanoo; syö, juo; kiipeää; tulee, menee.

The Finnish infinitives are used only later; they are morphologically more complex, formed by adding the suffix -TA (1st infinitive), -TE (2nd infinitive) or -mA (3rd infinitive).

5.2. Other verb forms

The third verb form to be used by many Finnish-speaking children is the 3rd person preterite (past tense). The very first preterite forms can be such as *tippu* 'fell' (when e.g. food or toys have fallen on the floor) or *loppu* 'end(ed)' (typically when the food has all been eaten up). Soon, different preterite forms are used accurately when speaking about actions and events that happened before the present time. There is a clear contrast between present and past, in some instances even in successive utterances, e.g. Tuulikki 1;8 *äiti hakee* 'the mother is fetching (a book) vs. *äiti haki* 'the mother fetched' (when the mother had brought the book).

Also the negation construction emerges rather early, but it is first used mostly in truncated form (only the negation verb).

The early occurrences of other verb forms are mostly isolated and rare but used in a correct way, for example Tuulikki 1;4 the passive present form *mennään* 'let's go', 1;6 the 3rd infinitive illative *syömään* 'come to eat'; Tuomas 1;6 the passive present form *pestään* 'let's wash', 1;7 the 1st infinitive *pestä* 'to wash' and the passive past participle *pesty* 'has been washed'.

5.3. Order of emergence of the inflectional categories

Both Tuulikki and Tuomas had the same order of emergence

a) between different categories

person + mood (= imperat. SG2 + indicat. SG3) > tense > voice/number (although some passive forms were used early in the function of PL1 as is usual in colloquial Finnish)

b) subcategories within categories

person (indicative): SG3 (but in imperative SG2 first) > SG1 > SG2 > PL2/3 (PL1 = passive!)

person (imperative): SG2 > (passive in the function of PL1) > PL2 > 3rd

person (indicative + imperative): SG2+3 > (passive in the function of PL1) > SG1 > SG2 > PL2 > PL3 (usually replaced by SG3 in spoken Finnish)

tense: present > preterite

voice: active > passive

Cf. the acquisition order of the verb suffixes of 25 Finnish-speaking children (based on the order of the median child, Toivainen 1980): basic forms > past tense > negation (analytic) > SG1 > passive > perfect > 3rd infinitive illative > 1st infinitive > past negation (analytic) > SG2 indicative > conditional > 2nd infinitive inessive.

6. Emergence of miniparadigms

The miniparadigms are established following the criteria of Kilani-Schoch and Dressler (2000): spontaneous production, articulatory accuracy in the suffix elements, contrasting contexts, recurrence. Only one imitated form is taken into consideration: the truncated passive *laite* (< laitetaan 'let us put') in the recording 1;7:28 of Tuulikki.

6.1. The first contrasting verb-forms of Tuulikki

The first oppositions of verb forms to emerge in Tuulikki's speech were oppositions of the two basic verb forms, the imperative SG2 and the indicative SG3:

Tuulikki	1;5 ota 'take!'	: ottaa 'takes' (diary data)
	1;7 nosta 'lift!'	: nostaa 'lifts' (diary data)
	1;7 katso [kato] 'look!'	: katsoo [kattoo] 'is looking'
	1;8 katso [kato] 'look!'	: katsoo [kattoo] 'is looking'
	1;8 ota 'take!'	: ottaa 'takes'
	1;8 tule ~ tuu 'come!'	: tulee 'is coming' (diary data)

In the contracted verbs (e.g. Tuulikki 1;3 *avaa*, 1;5 *pakkaa*, 1;6 *hörppää*, *pelaa*, *nojaa*) there is no morphological difference between the two basic forms before the children start to use the final segment (gemination ~ glottal stop) of the imperative (then: indicative -VV vs. imperative -VV'); the inflectional category of the occurrences can yet be inferred from the context.

Soon the following oppositions of verb forms emerged, namely those consisting of indicative SG3 present and preterite:

Tuulikki (1;6 [unclear:] loppu ['ready; end(ed)] : loppu(u) [length of the vowel unclear])
1;7 heittää : heitti'throws : threw' (record.)
1;7 kaatuu : kaatu 'is falling : fell' (record.)
1;7 nukkuu : nukku 'is sleeping : slept' (record.)
1;7 on : oli 'is : was' (diary data)
1;7 peittää : peitti 'covers : covered' (diary data)
1;7 puskee : puski 'butts : butted' (diary data)
1;7 vie : vei 'takes away : took away' (diary data)
1;8 antaa : anto 'gives : gave' (diary data)
1;8 hakee : haki 'fetches : fetched' (diary data)
1;8 keittää : keitti 'is cooking : cooked' (diary data)
1;8 kerää : *keri (= keräsi) 'is collecting : collected' (diary data)
1;8 laittaa : laitto 'puts : put' (diary data)
1;8 loppuu : loppu 'ends : ended' (diary data)
1;8 lähtee : lähti 'goes away : went away' (diary data)
1;8 menee : meni' 'goes : went' (diary data)
1;8 nukkuu : nukku 'is sleeping : slept' (diary data)
1;8 on : oli 'is : was' (diary data)
1;8 ottaa : otti 'takes : took' (diary data)
1;8 pitää : piti 'holds : holded' (diary data)
1;8 putoo : puto ~ putos 'is falling : fell' (diary data)
1;8 saa : sai 'gets : got' (diary data)
1;8 sanoo : sano 'says : said' (diary data)
1;8 syö : söi ~ *syöi 'is eating : ate' (diary data)
1;8 syöttää : syötti 'feeds : feeded' (diary data)
1;8 tulee : tuli 'is coming : came' (diary data)
1;8 vaihtaa : vaihto 'changes : changed' (diary data) [-ht- > -tt-]
1;8 vetää : veti 'pulls : pulled' (diary data)
1;8 vie : *viei (= vei) 'takes away : took away' (diary data)

There were also some early occurrences of negation form, 1st person singular form and the illative of the 3rd infinitive. The same verb was always used also in the indicative SG3 form.

The first negation forms were used by Tuulikki in the verb meaning 'to be, to exist' (infinitive *olla*) at the age of 1;7: *on* 'is' : *ei oo* 'is not' (colloquial variant of the negation, Standard Finnish *ei ole*), diary notes also from the age of 1;8. Together with the preterite these two forms established a three-member suppletive paradigm *on* 'is' : *oli* 'was' : *ei oo* 'is not'. At the age of 1;8 negation occurred at least in the following oppositions: *autti* 'helped' (a form based on analogy, regular form *auttoi* 'helped') vs. *ei isi auta* 'the father shall not help' (negation used in a modal context) and *putoo* 'is falling' : *ei pulo* 'does/did not fall' (truncated form of the main verb).

At the age of 1;8 Tuulikki used two variants of her playful ultimatum: *muuten suutun ~ muuten suuttuu* 'otherwise I will get angry ~ otherwise gets angry'. This seems to be a first candidate to the opposition of SG1 and SG3 indicative.

The verb *nukkua* 'to sleep' was used by Tuulikki frequently in the 3rd person indicative form. At the age of 1;8 she also tried to use the illative of the 3rd infinitive (*nukku+ma+an*), but because of the trochaic tendency she shortened the form: *ei vielä nukku* 'not yet sleep-', *ihan vielä nukku* 'quite yet sleep-' and *pankkii nukkuu* 'on the balcony to sleep' (the last form seems to represent the colloquial variant of the illative of the 3rd infinitive, *nukku+un*, where the *ma-*

suffix of the 3rd infinitive is dropped). At this age Tuulikki also used the colloquial preterite *nukku* but in the diary data there is unfortunately only one occurrence of this form.

6.2. The first true miniparadigms of Tuulikki (with at least three members)

At the age of 1;7 Tuulikki started to use three-member miniparadigms. One of them was suppletive: Tuulikki used from the verb *olla* 'to be, to exist' the 3rd person indicative *on* 'is', the colloquial variant of the negation form *ei oo* 'is not' and the preterite *oli* 'was'.

Another candidate for a three-member miniparadigm at the age of 1;7 was the verb *laittaa* 'to put'. From this verb, Tuulikki used the 3rd person indicative *laittaa* 'puts', the analogical preterite *laitti* [= laittoi] 'put' and (in an answer to a question, recorded session 1;7:28) the shortened passive form *laite* [= laitetaan] 'let's put'; here the passive suffix itself is dropped but the passive is nevertheless signalled by the change of the final stem vowel from *a* to *e* (*laita-* > *laite*). The trochaic phase of Tuulikki explains why the trisyllabic *laitetaan* 'let's put' was shortened; yet, *laite* was used as an adequate answer to the question "laitetaanko ...?" (= shall we put...?).

The first three-member miniparadigms thus emerged soon after Tuulikki had more than 50 verb forms.

At the age of 1;8 Tuulikki had several three-member miniparadigms. One type of the miniparadigms consisted from the three early verb forms: imperative SG2, present indicative SG3 and preterite SG3. These forms were frequently used from the following verbs: *anna* 'give' : *antaa* 'is giving' : *anto(i)* 'gave' and *tule* ~ *tu(u)* 'come!' : *tulee* 'is coming' : *tuli* 'came'.

These two paradigms are rather transparent, although in the first one there are certain stem alternations: grade alternation (nt : nn) and the alternation a ~ o in the final stem vowel. From the second verb, also the passive preterite was used: *tultiin* 'we came'. The passive is based on the consonant stem, which makes it less transparent.

Another type of miniparadigms consisted of active SG3 (present and preterite, both frequently registered) and passive in the function of PL1 (the passive present *mennään* was attested already at the age of 1;4, now also passive preterite and negation): *menee* 'goes' : *meni* 'went' : *mennään* 'let's go' : *mentiin* 'we went' : *ei mennä* 'we shall not go'. Tuulikki used also the SG2 imperative from this verb, but there is only one occurrence in the diary data. The paradigm is rather transparent, although the passive forms are based on the consonant stem.

A third type was the suppletive paradigm of the verb *olla* 'to be, to exist': Tuulikki used the 3rd person indicative *on* 'is', the colloquial variant of the negation form *ei oo* 'is not' and the preterite *oli* 'was'. The corresponding forms were also used from the verb *ottaa* 'to take', but the negation form *ei ota* 'does not take' was used only during the last day of the age month 1;8 and only in the context of eating. These forms (SG3 present and preterite + negation) were furthermore used from the verb *saada* 'to get; may', but the negation form belonged to the modal use of this verb (*ei saa* 'must not') and the two other forms to the meaning 'to get' (SG3 present *saa* 'gets' and preterite *sai* 'got'). One further candidate to this group of miniparadigms is *pudota* 'to fall' with the forms *putoo* 'is falling', *ei pulo* 'does/did not fall' : *puto(s)* 'fell', but the forms of this contracted verb were both truncated and influenced by analogy (cf. 7.1). These are perhaps not true miniparadigms but nevertheless they show that the SG3 negation form is getting productive.

Within the first miniparadigms, one special case was the verb *syödä* 'to eat'. At the age of 1;8 Tuulikki used very many forms of the verb *syödä* 'to eat', at least the following nine: *syö* (present indicative SG3) 'is eating', *syö!* (imperative SG2), *söi* ~ *syöi* (preterite, both regular and analogical) 'ate', *syömään* (illative of the 3rd infinitive) 'go eating', *syödään* (the present

tense of the so-called "passive") 'let's eat', *syötiin* (preterite of passive) 'was eaten', *syönyt* (past participle of active, e.g. *syönyp paljon* 'has eaten much) 'has eaten', *syöty* (past participle of passive, e.g. *syöty kaikki* 'all has been eaten up') 'has been eaten', *syödä* [tyälä] (1st infinitive, e.g. *tyälä puuvoo* 'to eat porridge'). Some of these nine forms have been registered only once or twice, but the following ones were used frequently and were registered at least three times: *syö*, *söi* ~ *syöi* (both variants), and *syödään* (passive in the function of PL1).

In sum: at the age of 1;8 Tuulikki had at least the following true miniparadigms:

1. *anna* 'give' : *antaa* 'is giving' : *anto(i)* 'gave'
2. *tule* ~ *tu(u)* 'come!' : *tulee* 'is coming' : *tuli* 'came'
3. *menee* 'goes' : *meni* 'went' : *mennään* 'let's go' : *mentiin* 'we went' : *ei mennä* 'we shall not go'
4. *on* 'is' : *ei oo* 'is not' (colloquial) : *oli* 'was'
5. *syö* 'is eating' : *söi* ~ *syöi* (both variants) 'ate' : *syödään* (passive in the function of PL1)

Further candidates for three-member miniparadigms at the age of 1;8 are *saada* (both modal use and the meaning 'to get') and *pudota* 'to fall'.

The recordings 1;9 and 1;10 are only partly transcribed; both of the short transcripts include a few three-member miniparadigms, e.g. 1;9:16 *on* 'is' : *oli* 'was' : *ollaan* 'we are' (passive in the function of PL1), 1;10:11 *tulee* 'comes' : *tule!* 'come!' : *tullaan* 'we are coming' (= passive in the function of PL1), *syö* 'is eating' : *syömään* 'come to eat' : *syödään* 'let's eat' (= passive in the function of PL1). The recording 1;11 is the next one to be transcribed; unfortunately, there is no recording from the age of 2;0. In the transcript 2;1 there are several miniparadigms of even 4 and more members: halua3, nukku3, syö3, mene4, pane4, saa4, luke5, ole7.

The number of the first true miniparadigms (with at least three members) in Tuulikki's corpus were:

1;7 1 + 1 (cf. 6.2.)
1;8 4 + 2 (cf. 6.2.)

6.3. The first contrasting verb-forms of Tuomas

The first verb of Tuomas occurring both in the present tense and in the preterite was 1;4 (and onwards) *tippu* 'fell down' vs. 1;6 *tippuu* 'is falling down' (when porridge was continuously falling from the spoon on the tablecloth). Interestingly enough, the past tense form of this verb emerged first. In other verbs the present tense emerged first:

1;7 *kaatuu* 'is falling' : *kaatu* 'fell' and
1;8 *auttaa* 'helps' : *autti* 'helped'

Another early contrast was the opposition of imperative SG2 and indicative SG3, e.g. 1;7 kato(kursiviert) 'look!' vs. kattoo(kursiviert) 'is looking'.

On the basis of diary data, the first miniparadigm of Tuomas was 1;7 kato(kursiv.) 'look!' : kattoo(kurs.) 'is looking' : katottiin(kurs.) 'was looked' (passive preterite) : kattomaan(kurs.) 'to look' (illative of the 3rd infinitive). Another candidate for an early three-member miniparadigm consisted of exceptional forms: 1;7 *pestään* 'let's wash' : *pestä* 'to wash' : *pesty* 'has been washed'. Yet these forms were rote-learned and used only in connection with the washig routines. Moreover, the passive past participle *pesty* was the only representant of this inflectional category and should thus not be counted as such an inflectional form that could be a member of a paradigm in this phase.

6.4. Miniparadigms and the emergence of categories

In the first true miniparadigms of Tuulikki the form categories that occurred were the same that also in general emerged early: imperative SG2, indicative SG3 present and preterite, passive and the SG3 negation form. The most important morphological contrasts in the first true miniparadigms were the following ones:

imperat. SG2 vs. indicat. SG3, e.g.	*anna* : *antaa* ('give' : 'gives') *tule* : *tulee* ('come' : 'comes')
indicat. SG3 present vs. preterite, e.g.	*on* : *oli* ('is' : 'was') *antaa* : *anto(i)* ('gives' : 'gave') *tulee* : *tuli* ('comes' : 'came') *menee* : *meni* ('goes' : 'went')
active SG3 vs. passive (in the function of PL1), e.g.	*menee* : *mennään* ('goes' : 'let's go') *syö* : *syödään* ('eats' : 'we are eating') *on* : *ollaan* ('is' : 'we are')
indicat. SG3 affirmative vs. negative, e.g.	*on* : *ei ole ~ ei oo* ('is' : 'is not')

The above analysis of the first miniparadigms of Tuulikki is based both on recordings and diary data. There is not as much diary data from the speech of Tuomas, and from his recordings only 1;6 and 1;7 have been transcribed, so thus far only the first contrasts can be presented:

imperat. SG2 vs. indicat. SG3, e.g.	*kato* : *kattoo* ('look!' : 'is looking at')
indicat. SG3 present vs. preterite, e.g.	*tippuu* : *tippu(i)* ('is falling down' : 'fell down')
active SG3 vs. passive (in the function of PL1), e.g.	*menee* : *mennään* ('goes' : 'let's go')
finite verb forms vs. 3rd infinitive illative, e.g.	*nukkuu* : *nukkumaan* ('is sleeping' : 'to sleep')

7. Analogical formations

7.1. The formation of the preterite (past tense)

There is only one past tense (preterite) suffix in Finnish, namely *i*. Yet there are three productive preterite types in Standard Finnish: those ending in -i, -si and -oi. In colloquial Finnish there is a fourth type: the labial final vowel of the SG3 present is shortened in preterite, e.g. *loppuu* 'ends' : *loppu* 'ended', *sanoo* 'says' : *sano* 'said'. The si-preterite is typical for contracted verbs (cf. 1.2.3).

The first types to emerge in child language are besides the colloquial one especially the i-type and the si-type. These two productive types also often expand beyond the limits of their normal use. The child usually starts from either the i- or the si-preterites but later, when the child acquires other preterite types, also they may expand beyond their normal use; this holds in some degree also to the oi-type.

As many other Finnish-speaking children, Tuulikki started from colloquial vowel shortening (*tippu* 'fell' vs. *tippuu* 'is falling') and the i-type; she used analogical variants with the latter one from the age of 1;8 on especially in contracted verbs and one-syllabic verbs:

1;5 tippu

1;6 poppu 'loppu' (BUT: this type cannot expand beyond the verb group ending in labial vowel)

1;7 peitti, puski, heitti

1;7 söi, vei

1;7(end) SELF-CORRECTION: *lunta sati / sato*

1;8 ANALOGICAL FORMS: *kerää* : *keri* (pro *keräsi* 'collected'; the anal. model is constituted by such verbs as *heittää* : *heitti*, *syöttää* : *syötti*, *pitää* : *piti* etc. – cf. 6.1), *putoo* : *puto* : *ei pulo* (pro *putoo* ~ *putoaa* 'is falling', *putosi* 'fell', *ei putoa/pudonnut* 'does/did not fall; the anal. model is *sanoo* : *sano* : *ei sano*, *nukkuu* : *nukku* : *ei nuku* etc.), *syöi*, *viei* (pro *söi*, *vei*, cf. the forms in 1;7 above)

1;9 ANALOGICAL FORMS: *kiipee* : *kiipi* (pro *kiipesi* 'climbed')

1;10 ANALOGICAL FORMS: *harjaa* : *harjo* (pro *harjasi* 'brushed')

Tuulikki also used the i-type instead of the oi-type, e.g. *laittaa* : *laitti* (pro *laittoi* 'put'). The inclination to replace the relatively rare oi-type (e.g. *laittaa* : *laittoi*) by the i-type (*laittaa* : *laitti*) where the *i*-suffix causes the deletion of the stem-final vowel, is a common phenomenon both in child language and in certain spoken variants of Finnish (e.g. many dialects).

At the age of 1;11 Tuulikki started to use s(i)-preterites, e.g. *putos* (< *putosi*) 'fell down', *pelkäs* (< *pelkäsi*) 'was afraid of', *tykkäs* (< *tykkäsin*) 'liked', *halus* (< *halusi*) 'wanted'. This new preterite type expanded to other verbs than contracted ones, e.g. 1;11 *hakes* 'fetched' (pro *haki*, SG3 present tense *hakee*), *lennäs* 'flew' (pro *lensi*, stem of the present *lentä-* ~ *lennä-*), 2;0 *auttasin* 'I helped' (pro *autoin*, stem of the present *autta-*), *hakes*, *nauras* 'laughed' (pro *nauroi*). This analogical expansion was soon weakened, but interestingly enough, in one group of verbs it not only remained but even got stronger: in the i-stems, in which the opposition of present and preterite has no overt marking in the 1st and 2nd person in Standard Finnish (e.g. *leikin* 'I play', *leikin* 'I played'). Here the analogical expansion of the *si*-preterite gives the possibility to mark the preterite forms with the *si*-element. This possibility was utilized by Tuulikki, e.g. 2;3 *leikkisin* 'I played', *poimisin* 'I picked up' (Standard Finnish *poimin*).

Similar expansion of the si-preterite also appears in certain spoken variants of Finnish (e.g. in the SW dialects).

In the same way as Tuulikki, also Tuomas started from the i-type and expanded it to certain oi-preterites, e.g. 1;8 *ajaa* : *aji* (pro *ajoi* 'drove') and *auttaa* : *autti* (pro *auttoi* 'helped'). A little later, Tuomas began to use the *s*-type in contracted verbs (1;9 *avas* 'opened', *piippas* 'peeped', *toppas* 'stopped') and favoured it in expence of other types, both in expence of the oi-type (1;9 *auttas* pro *auttoi* 'helped', *laittas* pro *laittoi* 'put'), and in expence of the i-type (1;9 *ylttäs* pro *yltti* 'reached' and *itkes* pro *itki* 'cried').

In the class of one-syllabic verbs, the normal preterite is formed by diphthong change (present *syö* 'is eating' : preterite *söi* 'ate', present *vie* : preterite *vei* etc.) or the formation of a diphthong from a long vowel (e.g. *saa* 'gets' : *sai* 'got'). These regular preterites usually emerge first in child language (e.g. Tuulikki 1;7 *söi*, *vei*), but later on many Finnish-speaking children produce more transparent (= without changes in the stem) preterite forms like *syö+i* 'söi', *vie+i* 'vei' despite of their articulatory difficulties (triphthongs instead of diphthongs), e.g. Tuulikki 1;8 *syöi*, *viei*. These analogical forms witness that the child is actively processing morphological elements.

7.2. Other early types of analogies

Typical early analogies in verb inflection are the expansion of the alternation between short final vowel in imperative SG2 and long final vowel in indicative SG3 to verbs which don't have this alternation in the standard language. One possible type of analogy is the shortening

of the final long vowel in the contracted verbs, e.g. Tuulikki 1;10 imperative SG2 *leika* (cut! pro *leikkaa*, cf. the indicative SG3 *leikkaa*), 1;11 negat. imperative SG2 *älä napa* (don't take! pro *nappaa*, cf. the indicative SG3 *nappaa*).

8. Conclusions

The productive morphological processing of verbs seems to begin with the formation of past tense forms; they are clearly contrasting with present tense forms of the same verbs. The earlier two-member miniparadigms of imperatives and indicatives may also at least partly be based on morphological processing, but they may consist of two separate rote-learned forms as well.

8.1. The protomorphological period and the demarcation of the phases

8.1.1. Onset of protomorphology

- first analogical forms: isolated analogies at Tuulikki 1;7, more systematic at the age of 1;8
- no clear verb spurt but a relatively steady increase of verb forms (this line of development might be at least partially due to the use of diary data)

8.1.2. Syntactic development: some preliminary observations

The one-word stage of Tuulikki continued till the age of 1;5. At the age of 1;5 Tuulikki used mostly 1- and 2-word utterances but at the end of 1;5 she produced some isolated 3-word utterances, e.g. *kukka kakka mane* < sukka jalkaan pane 'put the sock in the foot [illative]'. It seems that she had no clear 2-word stage.

At the age of 1;6 Tuulikki combined the subject and the predicate verb with an adverbial (e.g. *talo tähän topii* [= sopii] 'house here [illative] fits', when playing a jigsaw puzzle) but the case marking of the adverbial was sometimes defective: *kaataa, isi, kuppi* 'pour father cup' (the father is pouring tea in the cup; no illative suffix).

At the age of 1;7 suffix elements were still dropped in longer utterances, e.g. in *Puppe nuukkii* [= nuuhkii] *kissa* [= kissaa] 'Puppe [= a dog] sniffs the cat' (no object marking) and *hakee Tuuti Leego pali* [= palikan] 'fetches Tuuti [= Tuulikki] the Lego brick' (last word truncated). In both sentences there is no morphological marking of the object but both the subject and the object are well specified by the word order.

At the age of 1;8 Tuulikki used already quite clear 4-word utterances, e.g. *vesimuki(n) mukaan tarttee Tuuti* 'the water mug along needs Tuuti', *kantaa Tuuti hatun tinne* [= sinne] 'carries Tuuti the hat over there'.

8.2. Observations about the input-dependence

Certain long (= target forms have more than two syllables) forms seem to be input-dependent at least to some extent, e.g. the passive form *laite(taan)* 'we shall put' was produced as an adequate answer to the question *laitetaanko?* 'shall we put?'.

8.3. Language-specific features

8.3.1. Homophony/syncretism

In verbs of the first group (cf. 1.2.1) with a final A: the 1st infinitive is identical with the indicative present SG3 in early child language, when the final gemination ~ glottal stop of the infinitive is not yet used. In verbs of the groups 2 and 3 (cf. 1.2.2 – 1.2.3) the indicative SG3 is identical with the imperative SG2 in early child language, when the final gemination ~ glottal stop of the imperative is not yet used.

8.3.2. Non-inflected vs. inflected forms

The basic forms have very little if any morphological marking (depending on the verb class, cf. 1.2) and they are often used before other verb forms. Nevertheless, from certain verbs other forms are used first, e.g. (rote-learned) passives, infinitives and participles.

8.3.3. Nouns vs. verbs

Active morphological processing of nouns typically starts from the formation of genitive-accusatives which clearly constrast with nominatives. Active morphological processing of verbs often starts from the formation of past tense at about the same age. Even more striking is the observation that the active production of A-partitives often starts in the same time as the production of A-infinitives.

The order of acquisition of verb vs. noun suffixes: verb suffixes are marked with **bold** letters in the following list which is based on the recorded material of 25 Finnish-speaking children aged 1 – 3 years. The serial order of the suffixes is defined by the age of the median child (Toivainen 1980: 33, 44, 160 - 163): **basic forms of verbs** (= imperat 2nd or indicat 3rd), partitive, **past tense (preterite)**, **negat. construction**, adessive (adv.), illative, inessive + allative (adv.), **1st person singular**, adessive, plural -i-, genitive (attr.), **passive**, inessive, accusative, allative, **perfect 3rd singular**, **3rd inf. illative**, plural -t, genitive + PP, elative (adv.), **1st infinitive**, **preterite negative**, illative + ablative (adv.), **2nd person singular**, elative, **perfect not 3rd**, **conditional**, ablative, **2nd infinitive inessive**, ablative.

8.3.4. Synthetic vs. analytic

Synthetic inflection precedes analytic: the long analytic constructions are first shortened to their key parts, e.g. the negat. construction is realized by the negation verb only or the compound past is realized by the participle of the main verb only.

8.3.5. Competition between early verb and noun expressions

The dynamic local cases, especially illative, seem to be an alternative to certain verb forms in early child speech (c.f. *kotiin* and *syliin* in 3.c above). Pragmatically they are very near such passive forms as *mennään* 'let's go' or *syömään* 'come and eat', and they have also the same type of suffixes = vowel lengthening + *n*.

8.3.6. Causatives

Among the verbal suffix elements the first derivational element to be used productively (in the own neologisms of the child) was the causative suffix -TTA-. Tuulikki used this suffix eagerly, e.g. at the age of 2;0 she produced the following own causative derivatives:

nouseta! (= nouse+TTA+IMPERAT.SG2 = rise+CAUSAT+IMPERAT.SG2 'lift!')

juoksettaa (= juokse+TTA+INDICAT.SG3 = run+CAUSAT+INDICAT.SG3 'make run')
kaadutan (= kaatua+TTA+INDICAT.SG1 = fall+CAUSAT+INDICAT.SG1 'I make fall down')

Tuomas had at the same age (2;1 – 2;3) only one own word formed with a causative derivative element:
hypätä! (= hyppää+TTA+IMPERAT.SG2 = jump+CAUSAT+IMPERAT.SG2 'make to jump'); he used this when he wanted to be lifted as if he would make a big jump.

8.4. Typological considerations

The morphological system of Finnish is relatively rich; the early emergence of miniparadigms is expected.

Iconicity of the basic forms of the Finnish verbs: the early imperatives of the 2nd person singular end in a short vowel, which iconically reflects the limits of the scope of action (e.g. *anna* 'give' when the child wishes something to be given to her). In contrast, the 3rd person indicatives end in a long vowel, which iconically reflects the ongoing action that continues; the 3rd person indicatives could most often be accurately translated with the English *ing*-form, e.g. *nukkuu* 'is sleeping'.

References

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A case study on early acquisition of verbs in Yucatec Maya

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0. Introduction

The purpose of this study is to show the early development of verb morphology and the building of paradigms in one Yucatecan child, Sandi.

1. Verb classification in Yucatec

Yucatec Maya is a head-marking language: the verbal complex can function on its own as a complete sentential proposition (Lucy 1994:627). It is characterized by the reduction of the morphological segmentability which is the result of morphophonemic and phonotactic adaptations (Bohnemeyer 1998).

Our study distinguishes between intransitive and transitive verbs. In the verb complex, person, mood and aspect are represented by inflectional patterning. The distinction between transitive and intransitive verb roots is based on their very different inflectional suffixes.

> "Intransitive verbs are inflected by cross-reference marking for their S-arguments, transitive verbs are inflected by cross-reference marking for their A-arguments and their O-arguments. Intransitive verbs are further distinguished on grounds of other inflectional properties into active, inactive, inchoative and positional intransitives." (Bohnemeyer 1998:155).

Personal markers are expressed through "set B" and "set A"

Person	Set-B suffixes (absolutive)		Set-A clitics (ergative)	
	Singular	Plural	Singular	Plural
1st	-en	-o'on	IN(w)	iN(w) ...-o'on
2nd	-ech	-e'ex	A(w)	a (w) ...-e'ex
3rd	-Ø /-ih	-o'ob	U(y)/y	u(y)/y ...-o'ob

Table 1: Personal markers

The subject person is marked by clitics attached to the auxiliaries, but in some cases to the verbal stem. The object person is marked by a suffix, optionally followed by a subject plural marker. There are no morphological case markers.

The aspect and mood markers found in the analyzed corpus are set out in the following table in bold letters:

Status category Verb class		Imperfective	Perfective	Subjunctive	Resultative
Intransitive	Active	-Ø	-nah	-nak	-(-nah)a'an
	Inactive	-Vl	-Ø	-Vk	-a'an
	Positional	-tal	-lah	-l(ah)ak	-Vkbal /-(lah)-a'an
	Inchoative	-tal	-chah	-chahak	-a'an
Transitive	Active voice	-ik	-ah	-Ø / -eh	-a'an -mah

Table 2: partial description of Yucatec status inflection according to verb classes (Bohnemeyer 1998:221,224)

Examples of paradigms in Yucatec Maya:

a) Intransitive inactive verb:

táan u wen-el	'he is sleeping'
h ween-Ø-ih	'he slept'
ka'ah ween-ek	'he might sleep'
Imperative form: ween-en	'sleep'

b) Intransitive active verb:

táan u ts'aak	'he is curing"
(h) ts'aak-nah-ih	'he cured"
ka'ah u ts'aak-nak	'he might cure'
Imperative form: ts'aak-nen	'cure'

c) Intransitive positional verb:

Táan u ch'uy-tal	'it is hanging'
Ch'uy-lah-ih	'it hung'
Ka'ah ch'uy-lak	'it might hang'

c) Transitive verb:

táan in kan-ik	'I am learning it'
t in kan-ah	'I learned it'
ka'ah in kan-eh	'I might learn it'
Imperative form: kan-eh	'learn it'

Among the auxiliaries which are related to several aspects of transitive verbs (see table 2) the following are found in Sandi's data: progressive *táan*, the obligative *yan* and the habitual *k-*. These auxiliaries generally require the imperfective aspect marked by the suffix *-ik*, which is compatible with a variety of auxiliaries, while the perfective aspect is marked by the suffix *-ah*, and only allows the auxiliary *t-*. Although both aspect endings are found in the data, the use of the auxiliary *t-*does not appear in Sandi's case. Furthermore the auxiliary *sam* 'rather', which requires the subjunctive mood *-eh*, is the first auxiliary used by Sandi. Where no aspect morpheme appears the verb receives a subjunctive reading.

In Yucatec every intransitive verb can be derived from a transitive verb and every transitive verb can be derived from an intransitive verb. Each valency alternation is explicitly marked. In the

present data no derivation from the transitive to the intransitive[1] is found, but two derivational patterns from intransitive to transitive are registered, expressed by two different suffixes for argument extension: the suffix *-s* which encodes the introduction of a causer, and the suffix *-t* which encodes the introduction of an affected object.

The most frequent suffixes in our data are the following:

TRANSITIVE VERBS	INTRANSITIVE VERBS
-eh subjunctive/imperative mood	***-Vk*** subjunctive mood
-ik imperfective aspect	***-Vl*** imperfective aspect
-ah perfective aspect	***-Ø-ih*** perfective aspect, 3sg.
-a'an resultative aspect	

Table 3: aspect,mood and personal suffixes of Sandi's corpus

2. Data description

The data analyzed in the present study represents the age range of 1;9.27 to 2;2.27, covering 12 recordings (table 4) as part of a longitudinal study. Over three years (1995-1998) Sandi's spontaneous speech data was recorded. Sandi's family was selected from her home Maya peasant community of Yalcobá in the eastern part of the state of Yucatán, about 150 km from Mérida, the capital of the state. The selection criteria were: first born child; monolingual family.

Number of recordings	Age	Time of recordings (in minutes)	Number of analyzable utterances
1	1;9.27	60	67
2	1;9.29	60	96
3	1;10.17	60	46
4	1;10.24	60	134
5	1;11.9	45	257
6	1;11.14	45	375
7	2;0.6	45	149
8	2;0.27	45	70
9	2;1.3	45	179
10	2;1.26	45	75
11	2;2.2	45	158
12	2;2.27	45	135

Table 4: Sandi's corpus used for the analysis of her verb development

Table 5 shows the quantitative development of verb usage by Sandi. There is a constant increase of verb utterances in the whole corpus, and a highlighted increase in all areas starting at age 2;1.

[1] There are systematic ways of derivation from transitive to intransitive that lead to either inherently imperfective or inherently perfective verbs. A transitive verb becomes intransitive by the use of passive or middle voice; both operations result in the removal or demotion of the subject. The passive voice is marked by a glottal-stop insertion together with vowel lengthening, whereas the middle voice is marked by vowel lengthening combined with a high tone (Kraemer 1999:445).

Age	Analyzable Utterances	Utterances with verbs	Verb lemmas/new lemmas	Types/ *errors	Tokens	Tokens %
1;9	163	52	19	19/*3	64	39,2%
1;10	180	93	22/10	25/*4	93	51,7%
1;11	632	130	35/28	42/*9	125	19,8%
2;0	219	104	35/15	43/*3	113	51,6%
2;1	**254**	**155**	**44/11**	**60/*5**	**177**	**69,7%**
2;2	293	171	47/18	69/*4	153	52,2%
Total	1741	705	202/82	258/*28	725	41,6%

Table 5: total number of analyzable utterances, verb lemmas, types(/*errors) and tokens; percentage of tokens in relation to the total number of child utterances per month

3. Development of verb categories

Table 6 shows the overall development of Sandi's verb categories. The data from this table will be referred to throughout the remainder of this paper.

Verb endings (Grammatical Categories)	1;9	1;10	1;11	2;0	2;1	2;2
-eh (TR: subj./imp.) (*INTR: imp.)	10/27 (*3/4)	11/61 (*3/13)	19/79 (*3/7)	18/59 (*2/3)	17/106 (*1/1)	21/87 (*2/2)
-Ø (INTR: impf; TR: subj.; imp. + obj.)	7/21	6/14	11/26	13/28	22/40	18/18
-Vl (INTR: impf.)	-	1/2	3/8	3/9	7/11	6/7
-tal (INTR: impf.)	1/5	1/2	0/0	2/7	1/1	1/1
-Ø-ih (INTR: pfv.3sg.)	1/11	4/11	5/8	3/4	2/3	4/7
-ik (TR: impf.)	-	-	1/1	2/2	6/6	8/19
-Vk (INTR: subj.)	-	-	-	1/3	2/7	2/2
-mah (TR: result.)	-	-	1/1	1/1	1/1	-
-a'an (INTR/TR: result.)	-	-	1/1	-	-	3/3
-en (INTR: imp.)	-	-	-	-	1/1	1/1
-ah (TR: pfv.)	-	-	-	-	1/1	3/4
-o'ob (3pl.)	-	-	1/1	-	-	2/4

Table 6: Sandi's verb categories (types/tokens) including correct and incorrect (*) forms

3.1. First verb forms in the premorphological phase

According to the acquisition model of pre- and protomorphology (Dressler 1994), we determine age 1;10 as the end of the premorphological phase. At age 1;9 and 1;10, according to table 6, Sandi's verb forms are dominated by the suffix *-eh* (21/88), and by bare roots [*-Ø*] (13/35). Both forms are used as imperatives but some of the unmarked root/stem forms also occur with desiderative illocutions. Some of the unmarked forms at times may be hard to distinguish from the use of verb roots as nouns. In Mayan languages, many roots appear both as nouns and as verb stems. In our data this is the case with *chu'uch* 'suckle/breast' and *chi'* 'bite/mouth'. These lemmas occur only in root form.

Among the aspect suffixes, according to table 6, the perfective aspect is present with the following intransitive verbs *bin* 'go', *lúub-* 'fall', *máan* 'pass by' and *xup* 'use up', but only with the third person singular ending:*-ih: bin-Ø-ih* ('he/she/it has gone).

Two types of formal errors are found in the premorphological phase:

a) the use of the ending *-eh*: This suffix corresponds to the subjunctive/ imperative mood of transitive verbs, but Sandi also uses this suffix in intransitive verbs. This error shows a categorical underspecification which is characteristic for the premorphological phase. Here are some examples of Sandi's use: [**éem-eh*] instead of *éem-en* 'let (me) down'; [**ok-eh*] = *ok-en* 'enter'; [**koteh*] = *koten* 'come'; [**wa'al-eh*] = *wa'al-en* 'stand up'. The same error appears with the following morphological combinations: [*táat-eh*] = *ts'ah-ten (= ts'ah ti' teen)* 'give it to me' ; [*meek'-eh*] = *meek'-eh teen* = *meek'-en* 'hug me'.

b) The positional intransitive verb *kul-* 'sit down' is used by Sandi with the imperfective aspect *-tal:kul-tal* but with the imperative meaning.

The first lemmas which appear in more than one form during the period of 1;9 and 1;10 are the following:

LEMMA	TRANSITIVE VERB	LEMMA	INTRANSITIVE VERB
mach 'grasp'	*mach (root: imp.) mach-eh (imp.)	ok 'enter'	*ok (root: imp.) *ok-eh (imp.)
wach' 'open'	*wach' (root: imp) wach'-eh (imp.)	wa'al 'stand up'	*wa'al (root: imp.) *wa'al-eh (imp.)
		méek' 'hug'	*méek'-eh 'hug me' *méek'-ech 'hug me'

Table 7: precursors of mini-paradigms in the premorphological phase

The root and the ending *-eh* are the first forms to emerge as demonstrated in table 7. The alternative use of roots and the ending *-eh*, particularly of the transitive verbs, could be taken as an indicator of the beginning of paradigm formation, although both forms are used by Sandi solely with an imperative meaning. We can therefore conclude that these forms represent the precursors of mini-paradigms.

In the data of Sandi's age 1;10.24 one intransitive verb appears not only with the ending **-eh*, but also with the perfective aspect. This is: *ok* 'enter'; *ok***-eh* (imp.); *ok-Ø-ih* (3sg. pfv.).

One of the first morphological combinations in Sandi's production is the form **méek'ech* 'hug you' which she uses for *méek'-en* 'hug me' (Pfeiler y Martín Briceño 1997: 120) imitating the form of one of the most frequent utterances of Sandi's parents, consisting of *meek'*-subj.+2sg.pron. (*méek'-eh-teech*) as in the following example:

Mother Koten in méek'-ech.
come:imp. 1sg.erg hug:2sg.abs.
Come, so that I can hug you.

Comparing now the productive use of suffixes to the use of prefixes, including especially the person marking affixes cross referencing core arguments, neither these markers nor auxiliaries are present at age 1;9 and 1;10.

In conclusion, we can state that during the premorphological phase of verb development in Sandi's speech, the unmarked and unprototypical characteristics of the verb/noun roots in Yucatec Maya as well as the isolated and less marked characteristics of the imperative mood are both present in this phase, confirming the predictions of Natural Morphology.

3.2. Transition phase from pre- to protomorphology

According to table 6, at age 1;11 and 2;0 the morphological activity in Sandi's speech is increasing and new categories such as the imperfective aspect for transitive (*-ik*) and for

intransitive verbs (*-Vl*) as well as the resultative aspect for transitive verbs (*-mah*) and for both verb classes (*-a'an*), are arising. Other new verb morphological combinations are: *ts'a-ti'* 'give it to him/her' (substituting the previous incorrect form of the 2nd person singular **ts'ateh*). Also the hortative form of the irregular verb *bin* 'go' (*ko'ox* 'let's go') which is followed by the verb 'play' in this case is new. The verb ending *-eh* and bare roots still dominate as well as the incorrect use of the imperative mood in intransitive verbs such as: **kul-eh* 'sit down', or **ok-eh* 'enter'.

A new kind of error appears at this age, an analogical form of **méek'-ech* 'hug me'. Now Sandi uses **éem-ech* 'let me down' in alternation with **éem-eh* instead of *éem-en*.

At age 1;11 seven new two-member paradigms are found which are the following:

LEMMA	TRANSITIVE VERB	LEMMA	INTRANSITIVE VERB
k'aat 'ask, request'	k'áat-eh (imp.) k'áat-i' (k'áat+ti'+leti')	éem 'descend'	*éem-eh (imp.) *éem-ech (imp.)
p'o' 'wash'	p'o' (impf.) p'o'-eh (imp.)	kul 'sit down'	kul-tal (impf.) *kul-eh (imp.)
k'al 'close'	k'al-eh (imp.) k'al-a'an (result.)	máan 'pass by'	máan (impf.) *máan-eh (imp.)
		bin 'go'	bin-ih (3sg.pfv.) ko'ox (hort.)

Table 8: two-member-paradigms at age 1;11

Table 8 shows that the most frequent verb-forms used in the formation of Sandi's paradigms correspond to the same category which emerged early, namely the imperative, expressed by the root form and the ending *-eh*.

3.2.1. Emergence of three-member paradigms

The first three-member paradigm is found in the data of age 2;0.6 with the suppletive verb *bin* 'go': (tan) *bin* ((prog.) root)
bin-ih (3sg.pfv.)
ko'ox (hort.)

However, it seems that due to the irregularity of the intransitive verb '*bin*' all the three forms are memorized.

At age 2;0.27 one three member-paradigm is made up, but this time from transparent types of forms. This is the case with the already known transitive verb *mach* 'grasp':

LEMMA	TRANSITIVE VERB
mach 'grasp'	mach~mach-eh (imp.) mach-ik (impf.) mach-mah (result.)

Table 9: first three-member paradigm

Around the same age two new two-member paradigms are found: one of them is formed with the imperfective aspect of a transitive verb and the other with the resultative aspect of an intransitive verb:

LEMMA	TR. VERB	LEMMA	INTR. VERB
Haant 'eat it'	Hant-eh (imp.) Han-t-ik (impf.)	lúub- 'fall'	lúub-ich (3sg.pfv.) lúub-a'an (result.)

Table 10: new two-member paradigms at age 2;0

Bare roots still appear with the imperative and/or desiderative meaning but without the corresponding auxiliary. Furthermore the data until 2;00 lacks any personal affixes and auxiliaries.

With respect to the perfective aspects, the ending *-ih* of the third person singular of intransitive verbs still dominates but also incorrectly appears with a new transitive verb, which is *k'it* 'spill'. Could we interpret this as an overgeneralization or as the emergence of the antipassive form?

3.3. Verb categories in protomorphology

According to table 6 at age 2;1 almost all verb-forms have increased in frequency, especially the use of the imperfective aspect of transitive and intransitive verbs. Seven two-member paradigms are registered, two of them with new lemmas, which are *cha'* 'untie' (root, *-eh*) and *oks-* 'insert' (root, *-eh*). The other paradigms are formed with already aquired lemmas but with new categories, such as the imperfective aspect (*-ul*) and the subjunctive mood (*-uk*) of the intransitive verb *lúub-* 'fall'. Two three-member paradigms are found, one formed of the well- known verb *mach* 'grasp' and the other of *méek'* 'hug' with the following forms: **méek-ech* 'hug me', *méek'-eh* 'hug her/him/it and the root form **méek'-* , all of which are used incorrectly with an imperative or desiderative meaning. Only at age 2;1 Sandi uses for the first time the perfective suffix *-ah* (*pul* 'throw') in a transitive verb with the corresponding meaning (*kach-ah* 'splitted'). At the same time the auxiliary *sam* 'rather' (requiring the subjunctive mood) appears with the intransitive verbs *lúub-uk* (fall), and *wen-ek* (sleep), and as well as the auxiliary *k-* appears with the imperfective aspect *-ik* . Even the first person clitics appear which are the first and third persons singular: *in*, and *u*. During the period of 2;1 to 2;2 the number of bare roots is reduced by 14,6% (in relation to the total number of verb tokens). Table 7 shows that the most frequent **-Ø** form which corresponds to the subjunctive mood of transitive verbs, is used by Sandi in almost all cases with an imperative meaning. From age 2;1 on, the use of bare roots of transitive verbs with a subjunctive mood decreases in frequency and at the same time the use of transitive roots followed by an object becomes increasingly more frequent. The decreasing use of transitive bare roots with the subjunctive ending and the increasing use of transitive roots followed by an object indicate that the child is becoming aware of the correct usage of the imperative mood in transitive verbs.

Verb ending (gramm. categories)	1;9	1;10	1;11	2;0	2;1	2;2
-Ø (TR. subj.)	6/20	5/13	7/17	8/10	11/20	8/9
-Ø (TR. imp. + Obj.)	-	-	2/8	½	8/11	6/6
-Ø (INTR. impf.)	1/1	1/1	2/2	4/16	3/9	3/3

Table 7: grammatical categories of the unmarked verb form (**-Ø**)

With respect to the imperative mood of transitive verbs followed by a noun the number of correct combinations increases constantly. This constant increase is also found in the correct use of the imperfective aspect of transitive verbs *-ik* and of intransitive verbs (*-Vl*).

At age 2;2 nine lemmas are found in two-member paradigms of transitive verbs (these are: *báaxt-* 'play it', *hant-* 'eat it', *méek'* 'hug', *oks-* 'insert', *pul* 'throw', *púust-* 'wipe', *taas* 'bring', *ts'a* 'give', *wach'* 'untie') as well as four lemmas of intransitive verbs (*bin* 'go', *lúub-* 'fall', *k'al* 'cover' and *kul-* 'sit down' and one new intransitive, inchoative verb (*lu'unt-* 'become earth') used incorrectly with the ending *-eh* are found in the two-member paradigms.

The three-member paradigms are the following:

LEMMA	TRANSITIVE VERB	LEMMA	INTRANSITIVE VERB
il 'see'	il-ik (impf.) (1)	bin 'go'	bin (impf.) (1)
	il-eh (imp.)(20)		bin-ih (pfv.) (2)
	ko'ox il-o'ob (aux impf.3pl.) (1)		ko'ox (hort.) (1)
k'ax 'tie up'	k'ax-eh (imp.)(2)	kul- 'sit down'	kul-tal (impf.) (1)
	koten k'ax N (aux impf.) (2)		kul-ak (subj.) (1)
	k'ax-a'an (result.) (1)		kul-en (imp.) (2)
pul 'throw'	pul-ik (impf.) (2)	lúub- 'fall'	lub-ih (pfv.) (1)
	pul-eh (imp.) (2)		lub-o'ob (3rd pl. impf./pfv.) (3)
	pul-ah (pfv.) (2)		lub-uk (subj.) (1)
púust 'wipe'	púust (impf.) (1)		
	púust-eh (imp.) (3)		
	púust-a'an (result.) (1)		

Table 9: three-member paradigms at age 2;2

At age 2;2 the following auxiliaries are present in the data:

Táan (PROG)	+ Subject clitics: 1 = tin 3 = tun
Yan (COMP)	Subject clitics: 2 = yan a
Ko'ox (let's go)	ko'ox baxal 'let's play'; ko'ox xok*-eh 'let's read it'; ko'ox chuk*-eh 'let's catch'

Among the subject clitics which are identical with the possessive pronouns, the third person is the most frequent. Concerning the absolutive affixes only the first singular (*-en*) is used with the imperative meaning, for example: *han-en* 'eat'; *kul-en* 'sit down'; *ok-en* 'enter'. The second person singular *-ech* is only found in the frozen forms *méek'-ech* 'hug me' and *éem-ech* 'let me down'.

The development of the formation of two and three-member paradigms during the whole analyzed period is shown in table 10:

Age	*Number of Verb-Paradigms*	
	Two-member	Three-member
1;9	-	-
1;10	2	1
1;11	6	1
2;0	3	2
2;1	**7**	**3**
2;2	**9**	**7**
Total	27	14

Table 10: increase of two- and three-member paradigms

The two two-member paradigms of age 1;10 belong to transitive verbs and consist of bare roots and the imperative ending *-eh*. At the same age other three two-member paradigms are formed with intransitive verbs (table 7), but all of them show incorrect forms related to the imperative mood. As all of the forms have imperative or desiderative meaning, they could be defined as "frozen" mini-paradigms. There is a clear increase of paradigm formation from age 2;1 on and predominantly at 2;2. There are only 4 lemmas of the whole corpus which appear in both two- and three-member paradigms: the intransitive verbs *bin*, *lúub*, and the transitive verbs *il*, *méek'* . These lemmas are present in all recordings of the corpus.

4. Conclusion

Considering the child Sandi who we studied and whose spontaneous speech was recorded starting at age 1;9, the data shows that from this age on there is a constant increase of spontaneous and productive use of verbs. Almost 50% of the total analyzable utterances consist of verbs during the whole observed period. Therefore we can conclude that there is no verb/word spurt which could be related to the emergence of mini-paradigms.

The first verb suffix to emerge is the imperative/subjunctive suffix of transitive verbs, followed by aspect markers in both verb classes.

In comparison with the Maya Tzeltal (Brown 1998) and the Maya Tzotzil data (de León 1999) where verbs start to appear regularly with different inflectional and sometimes derivational suffixes at age 2;0, it is not until age 2;1, one month later than in both languages, that this development occurs in our data.

The period of age 1;9 and 1;10 was defined as the premorphological phase because of the presence of the frozen form *méek'-ech* and memorized verb forms which are at the same time the precursors of the first mini-paradigms (whose formation consists of verbal roots and the subjunctive/imperative ending of transitive verbs).

Over the period of age 1;11 and 2;0 we observe a strong morphological activity in new verb forms and meanings which are characteristic of a transition phase. The first three-member paradigms are formed with the suppletive verb *bin* 'go' on the one hand and the transparent verb forms of *mach* 'grasp' on the other. At age 2;1, mini-paradigms increase, there are more and more inflected forms, and the imperative begins to distinguish between both forms correctly - naming the object (root form) and without naming the object (*-eh*). However, the imperative form of the intransitive verbs *-en* in almost all recordings is used with the ending of transitive verbs. This categorical underspecification remains during the whole analyzed period of Sandi's speech.

In the protomorphological phase (2;0 to 2;2) different two- and three-member paradigms of transitive and intransitive verbs are formed. The new categories are: the resultative aspect *-a'an*, the imperfective aspect of transitives *-ik*, the subjunctive of inactive intransitives *-Vk* and positionals *-ak*, and the perfective aspect of transitive verbs *-ah*.

Among the aspect markers the imperfective of transitive and intransitive verbs is increasingly found at 2;1. The perfective aspect[2] appears over the whole analyzed period, but predominantly with intransitive verbs in the third person singular, while with transitive verbs only at the end of the observed period.

Among the total verb lemmas of the analyzed corpus, 17 belong to the intransitive verb class. Most of these latter verbs involved in the formation of mini-paradigms are active intransitives, such as *káal* 'cover', *máan* 'pass by', *bin* 'go', *éem-el* 'descend', *ok-ol* 'enter'; inactive intransitives, such as *lúub-ul* 'fall, *'wen-el* 'sleep'; or are positional verbs, such as *kul* 'sit down' and *wa'al* 'stand up'. The relatively frequent use of perfective aspect with intransitive verbs could be explained by the fact that all intransitive verbs of the analyzed corpus are inherently perfective verbs which means that the perfective aspect is unmarked, while the imperfective aspect is marked.

[2] According to the data on Quiché acquisition, the use of the aspect markers was in constant increase with little variation. The order of acquisition, independent of the 3 subjects, is the following: the perfective aspect, the progressive of intransitive verbs and the intransitive volitives of the verbs 'go' and 'come'. (Pye 1992: 254-255).

Concerning the cross-reference markers of verbal core arguments, at age 2;1 Sandy begins to produce the subject clitics, and from age 2;2 on the data shows a slow development of absolutive suffixes.

As has been seen over the length of the study the child passed from a minimal morphological activity at age 1;9 to a phase of great creative activity at 2;1 to 2;2. From the management of forms principally memorized she passed to a period of applying incipient morphological rules. Many of the errors of underspecification of verb forms in the premorphological phase as well as the frozen form *méek'-ech* and its analogical form *éem-ech* and the supposed overgeneralization of the third person singular of the perfective aspect of intransitive verbs to transitive verbs show us the process in which Sandi selects and rejects certain ways of constructing verbal mini-paradigms. At the end of this observed period it is clear how the reduction in a number of forms without inflection on the one hand and the increasing frequence and diversification of Sandi's verb inflections on the other move in the direction of modular morphology. Obviously the child will have to abandon ways such as the underspecification of the two imperative forms *-eh* and *-en* and her overgeneralizations and eventually she will take some other deadends. Subject and object markers scarcely appear in the protomorphological phase but will be fundamental in the following months, given their relationship with the transitive and intransitive natures of the verbs. Equally, the auxiliaries which are scarcely emerging will determine the expression of moods and aspects.

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Early verb development in two French-speaking children*

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0. Introduction

This paper deals with early verb development (e.g., person, tense) until the emergence of verb-paradigms in two French-speaking children.

I will show the parallelism between the two children in the gradual building of paradigms, despite considerable differences in the rate of development. Individual differences on the other hand will bring me to reconsider the broad category of premorphological rote-learnt forms which already displays some patterning in one of the children's data.

1. Description of verbs in the target language

Grammatical categories of the French verb are person (1st, 2nd, 3rd) number (sg., pl.), tense, mood (indicative and imperative in early child language) and voice. However, in the spoken language, depending on the inflectional class (see below), these categories may not be expressed by suffixes, and verbal forms may be distinguished only by proclitic markers (*je, tu, il, elle, ils, elles, on parle* /parl/ 'I, you, he, she, we speak'[1]) and by auxiliaries (see below). In other words, in the productive microclass (and in some unproductive microclasses and paradigms), the 2. Pl. is often the only form having a verb suffix (e.g. *parl-ez*):

	Present Indicative		Imperative	
	Singular	Plural	Singular	Plural
1. Pers.	parle /parl/	(parlons /parl-õ/)		parlons /parl-õ/
2. Pers.	parles /parl/	parlez /parl-e/	parle /parl/	parlez /parl-e/
3. Pers.	parle /parl/	parlent /parl/		

Table 1. Person and number marking in the Present Indicative and Imperative (1. microclass, *parler* 'speak')

Homophonic forms in the categories used by the children in pre- and protomorphology are:
a) Pres.1.Sg, Pres.2.Sg, Pres.3.Sg, Pres.3.Pl, Imp.2.Sg: /parl/
b) Inf. *parler* , PP *parlé:* /parle/ (Pres.2.Pl & Imp.2.Pl. *parlez).*

Non-finite categories (in child language) are Infinitive and PP. Infinitive is the citation form in French and is used in periphrastic constructions such as Compound Future and modal ones. Non-finite PP is part of Compound Past (see below).

Within the category tense, spoken French has 4 compound forms (Compound Past , Compound Future, and Pluperfect, Past Future, both not expected in early child language), and two synthetic

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[1] On parle instead of nous parlons.

forms less frequent in the input and rare in early child language: Imperfect (*parl-ais*)[2] and Simple Future (*parl(e)-ra*). The Simple Past (*parl-a*) is used only in fairy tales.

Compound past is auxiliary *avoir* 'have'/*être* 'be' + PP, *elle a parlé* 'she has spoken':

	Singular		Plural	
	AUX	PP	AUX	PP
1. Pers.	ai /e/	parlé /parle/	(avons /avõ/)	parlé /parle/
2. Pers.	as /a/		avez /ave/	
3. Pers.	a /a/		ont /õ/	

Table 2. Compound past

Compound Future is semi-auxiliary *aller* 'go' + Inf: *il va parler* 'he will speak':

	Singular		Plural	
	AUX	INF	semiAUX	INF
1. Pers.	vais /ve/	parler /parle/	(allons /alõ/)	parler /parle/
2. Pers.	vas /va/		allez /ale/	
3. Pers.	va /va/		vont /võ/	

Table 3. Compound Future

Isolated paradigms and unproductive classes have amplified bases and, depending on the inflectional class, vowel change, e.g.

INF	*partir*	'leave'	Sg.:	*part*	3.Pl.:	*partent*	PP:	*parti*
	/partir/			/par/		/part/		/parti/
	mordre	'bite'		*mord*		*mordent*		*mordu*
	/mɔrdr/			/mɔr/		/mɔrd/		/mɔrdy/
	venir	'come'		*vient*		*viennent*		*venu*
	/vənir/			/vjẽ/		/vjɛn/		/vəny/
	recevoir	'become'		*reçoit*		*reçoivent*		*reçu*
	/rəsəvwar/			/rəswa/		/rəswav/		/rəsy/
					1.Pl.	*recevons*		
						/rəsəvõ/		

2. Data description

My study is based on the corpora of two children from Lausanne (Switzerland): Sophie (SOP) (1;6.14 - 3;8.09, 60 recordings, 30 hours) and Emma (EMM) (1;4.13 - 2;11.3, 40 recordings, 19 hours)[3]. This study focuses on the data until the beginning of protomorphology (cf. below), i.e. until 2;0 in SOP's corpus (2978 utterances[4]), and 1;8 in EMM's corpus (1079 utterances)[5]. For the sake of comparison, however, some of the tables contain data of Emma until 2;0 (2684 utterances). Transcription and coding have been done according to CHILDES and quantitative analyses according to CLAN programs[6].

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[2] Which corresponds to imperfective aspect opposed to perfective aspect of compound past.

[3] The data of Emma are more limited than the data of Sophie. Emma has been recorded generally only twice a month and some of the recordings are very short (e.g. 1;6, 1;7, 2;0; at 1;7 diary notes are used to complement the recordings). This irregularity in the data of Emma is probably responsible for the greater heterogeneity of some of the findings on her language development.

[4] To qualify as an utterance, a production has to include at least one meaningful unit resembling a French word in form and meaning.

[5] This corresponds roughly to the first 50 verb lemmas.

[6] Thanks are due to Marc Xicoira and Martin Forst for technical help and to the University of Lausanne for financial support.

SOP can be characterized as following a prosodic (formulaic strategy in Peters & Menn 1993:745, cf. also Peters 1997: 159, Bates 1995) rather than a segmental strategy: she has massive phonological substitutions and a long and varied use of fillers (which disappear between 2;6 and 3;0).

EMM, an early talker (MLU of 2.4 already at 1;7 and of 3.3 at 1;10), is rather (cf. 3.) a segmental child (cf. Peters & Menn 1993) but favours also the imitative strategy (cf. several examples of rote-learned sequences in which she seems to play with her words and transform them in successive steps).

The phases of pre- and protomorphology correspond to the following time periods of the corpora:

	SOP	EMM
Premorphology:	1;6.14 - 1;10.4	1;4.13 - 1;7.27
Protomorphology:	1;11.19 – 2;1.18[7]	1;8.10 – 1;10.29

In SOP's corpus, protomorphology is demarcated by a syntactic spurt: 2-word utterances with verb reach almost 50% of the utterances with verb. There is also a first advance in article use and hence in the development of the noun phrase. First subject pronouns appear (cf. Kilani-Schoch & Dressler 2000a, 2000b).

In EMM's corpus protomorphology starts when articles (74% of prenominal contexts) and subject pronouns become frequent and fillers mostly preverbal. Syntax develops as well with first 3-complement utterances, dislocated and cleft sentences.

3. Predecessors of verbs in predicative function

In both children there are some verbs already from the beginning of recordings (cf. 4.). Predecessors of verbs (more important in SOP than in EMM's corpus, cf. the proportion of verbs in 4. below) nevertheless also occur, differently according to each child's language development.

There are more extragrammatical predecessors in SOP than in EMM's corpus, e.g.

a) fillers replacing main verbs, e.g 1;9. 22 *a là* for *viens là* /vjɛ̃ la/, 1;11.29 */ə/ pas* for *(je) sais pas* /sɛpa/ '(I do) not (know)', 2;0.10 *e plus* for *veux plus* and modal/semi-auxiliary verbs before an infinitive (cf. Kilani-Schoch & Dressler 2000b), e.g. 1;9.13 /atetir/ for *(je veux) sortir* /ʒə vø sɔrtir/, 1;10.16 *anir*[8] for *il va venir* /il va vənir/ (but also a few examples in EMM's corpus, e.g. 1;5.13 *è a sortir* for *il va sortir,* 1;7.27 *a venir* for *il va venir*[9]),

b) onomatopoetic forms instead of verbs, e.g. 1;9.13 *nan nan* for *mniam mniam* 'X is eating', 1;9.22 *boum le pam* for *(il) est tombé l'éléphant* 'the elefant is fallen' (only nominal examples in EMM's corpus, e.g 1;5.28 *pioupiou* for *oiseau* 'bird', 1;6.25 *wouwou* for *chien* 'dog'). In the transition to protomorphology (cf. 2.) they are replaced by verb forms, e.g. *poum* becomes *tombé/est tombé* /ɛ tõbe/ 'has fallen'.

Notice that root reduplications are almost inexistent in the corpus (cf. SOP *pepleut* for pleut 'it is raining', *dedort* for *dort* 'is sleeping'). It seems that French preference for monosyllabic

[7] There is a transition phase between pre- and protomorphology in SOP's corpus.
[8] This example is a lexical filler (cf. Kilani-Schoch & Dressler 2000b).
[9] Repetition of a first correct production.

(morphological) verbs as well as the identity between the root and the inflectional form renders this kind of phono-morphological compensation[10] unnecessary.

Both children have examples of (baby-talk) nouns without their governing semi-auxiliary, e.g. *dodo* for *fait dodo* 'sleeps' (at the very beginning in EMM's corpus), later with a prefixed filler, objects instead of their governing verbs, e.g. SOP 1;10.16 *a po(r)te* for *ouvre la porte* 'open the door', deictics (*là* 'there', *ça* 'this'), and adverbs denoting a process in predicative function, e.g. SOP 1;7.26; EMM 1;6.25 *èto/tor, ator* for *encore* /ãkɔr/ 'more, add', *dehors* /dəor/ 'outside'.

4. Emergence of verb-forms

4.1. Quantitative data

Verb spurt starts at 1;11.7 in Sophie's corpus and at 1;7 in EMM's corpus, i.e. at the turning-point between pre- and protomorphology (see 2 and Tables 4a and 4b).

SOP						
age	utterances	lemmas	lemmas %	types	tokens	tokens %
1;6	109	3	2.8%	3	9	8.2%
1;7	225	8	3.6%	8	17	7.5%
1;8	245	10	4%	10	19	7.5%
1;9	606	27	4.4%	33	95	15.7%
1;10	555	31	5.6%	34	87	15.7%
1;11.7	176	16	9.1%	16	39	22.1%
PROTO						
1;11 end	592	37	6.2%	45	129	21.8%
2;0	470	49	10.4%	63	143	30.4%

Table 4a. SOP: % of verb lemmas, types & tokens in relation to analyzed utterances[11]

EMM						
age	utterances	lemmas	lemmas %	types	tokens	%
1;4	136	5	3.7%	5	9	7%
1;5	287	21	7.3%	24	72	25%
1;6	186	10	5.4%	11	15	8%
1;7	133	21	15.8%	24	53	39.8%
(1;7 rec.only)	(103)	(16)	(15.5%)	(17)	(28)	(27.2%)
PROTO						
1;8	337	35	10.4%	49	122	36%
1;9	371	45	12.1%	52	153	41%
1;10	631	54	8.5%	84	273	43%
1;11	348	49	14.1%	71	164	47%
2;0	255	30	11.8%	41	86	34%

Table 4b. EMM: % of verb lemmas, types & tokens in relation to analyzed utterances

Categories used before the beginning of protomorphology (i.e. SOP 1;6 - 1;11.7, 266 verb tokens, EMM 1;4 - 1;7, 149 tokens) are Present Indicative Singular, Imperative, Infinitive[12], Past

[10] The notion is due to W.U. Dressler.

[11] Frozen forms (and fillers) are excluded, see Tables 8a and 8b.

[12] These 3 categories are the most important categories in spoken French and several verbs have no other forms used (Blanche-Benveniste & Adam 1999).

Participle, and lately Compound Past, plus for EMM isolated occurrence of Compound Future and Imperfect[13].

SOP							
age	Pres.Ind.Sg[14]	IMP	INF	PP	C.Past	C.Fut.	Pres.Passive
1;6	2/6						
1;7	3/7		2/3	1/2			
1;8	5/10	¼	2/4	1/1			
1;9	18/47	¾	8/23	2/11			
1;10	12/22	4/8	8/15	6/19	2/2		
1;11.7	6/11	1/3	5/16	3/3	2/2		
PROTO							
1;11 end	19/52	2/5	11/24	6/9	6/21		
2;0	24/56	5/17	14/37	7/13	9/13	1/1	2/2

Table 5. SOP: Emergence of verb categories (lemmas/tokens) until protomorphology[15],[16]

EMM								
age	Pres.Ind.Sg	Pres.3P	IMP	INF	PP	Imperfect	S.Past	S.Fut.
1;4	?1/1		1/1	2/4	?1/3			
1;5	7/14		4/12	13/32	3/10			
1;6	6/7		0	3/3	1/3			
1;7	10/20		4/6	11/17	1/4	1/1		
PROTO								
1;8	18/51	1/1	4/11	16/28	4/8	1/1	½	
1;9	16/55 +1/1 Pres.1.Sg	2/7	3/19	20/50	6/9	1/1		1/1

Table 6a. EMM: Emergence of synthetic verb categories (lemmas/tokens) until protomorphology

EMM			
age	Comp.Fut.	Comp.Past	Pres.Passive
1;4			
1;5			1/3
1;6			
1;7	1/1	1/1	
PROTO			
1;8	2/2	6/9 (1token =1.sg)	1/1
1;9	3/3	5/6	

Table 6b. EMM: Emergence of periphrastic verb categories (lemmas/tokens) before protomorphology

[13] In imitation.

[14] SOP and EMM (one isolated example in EMM's corpus at 1;9 however) do not have yet person distinction but recall that in French conjugation only suppletive verbs mark first person distinctly from 2./3. person, cf. 1.

[15] In all tables direct imitations are included: in my corpora (and especially in Emma's corpus), a verb form may alternatively appear as spontaneous or imitated without any apparent systematicity such as, e.g. imitated form first. Imitations thus deserve a specific study. Proportions are given in Tables 8a and 8b. Ambiguities are listed separately (see Table 10a and 10b).

[16] Compound Past and Compound Future forms are counted as single verb-forms of these categories.

	SOP			EMM		
	lemmas	tokens	%	lemmas	tokens	%
Pres.Ind.Sg.	32	103	46.2%	16	42	29.4%
Infinitive	18	61	27.4%	22	56	39.2%
Imperative	6	19	8.5%	5	19	13.3%
Past participle	9	36	16.1%	4	20	14%
Comp.Past	3	4	1.8%	1	1	0.7%
Periphrastic Passive	2	2	0.9%	1	3	2%
Comp.Future	0	0	0	1	1	0.7%
Imperfect	0	0	0	1	1	0.7%
Total	51	**223**		37	**143**	

Table 7. Summary of verb categories before protomorphology (ambiguities excluded)

The verb categories occurring before protomorphology are quite similar in both children. However, the two children differ strikingly as far as the number of Pres.Ind.Sg. vs. Infinitive forms is concerned: whereas SOP has a preference for Pres.Ind.Sg. forms over Infinitives, EMM has the opposite preference for Infinitives over Pres.Ind.Sg. forms. Put differently, EMM seems to have a preference for morphological forms while SOP seems to rather prefer root-forms (cf. 4.2.). The comparison between all morphological forms (Inf. + all PP, included PP of periphrastic verb-forms) and all root-forms (Pres.Ind. + Imp) does not contradict this finding: SOP has still more root-forms (54.7%) and EMM more morphological forms (57.3%).

At the onset of protomorphology, verb categories in Emma's language are more numerous and varied than in Sophie's language at the same age. This underlies the different rates of development of the two children. In EMM's corpus, plural verb forms occur from 1;8 on[17], Present 1st Sg. from 1;9, Imperfect from 1;11. Notice in addition an isolated occurrence of Simple Past (1;8) and one of Simple Future (1;9).

Although as said above EMM favours an imitative strategy, verb imitations are not more frequent in EMM's corpus than in SOP's corpus during these early periods:

SOP							
age	Pres.Ind.Sg	IMP	INF	PP	Comp.Past	Total	%tokens
1;6	2/2					2/2	22%
1;7	2/2		1/1			2/3	17.6%
1;8	4/4		2/2			6/6	31.6%
1;9	10/14	2/2	3/5	2/5		20/26	27.4%
1;10	2/2		2/4	1/2	1/1 (passive)	6/8	9.2%
1;11.7	2/2		2/2	1/1	1/1	6/6	15.4%
PROTO							
1;11 end	8/12			3/4	1/1	12/18	14%
2;0	5/7	1/1	2/2	3/3	1/1	12/14	9.8%

Table 8a. SOP: Imitations (percentages in relation to the number of verb tokens)

[17] Notice however that they are not productive before 2;2: the corpus shows either formulaic plural verb forms (*partez* "go", *attendez* "wait") or the 3rd Present Pl. form of *être* 'be' *sont* 'are' and other verb forms with family resemblance (*font* 'do', *ont* 'have').

EMM									
age	Pres.Ind.Sg	IMP	INF	PP	Comp.Past	Comp.Fut.	Imperfect	total	%tokens
1;4			2/2	2/2				2/4	44.4%
1;5	2/2	2/2	4/6	2/2				10/12	16.7%
1;6	4/4		1/1					5/5	33.3%
1;7	3/3						1/1	4/4	14.3%
PROTO									
1;8	5/12	1/1	5/5	¾	1/1 +1/1passive			18/24	19.7%
1;9	5/8		4/6	1/1	1/1	1/1	1/1	13/18	11.8%

Table 8b. EMM: Imitations (percentages in relation to the number of verb tokens)

The difference shows up rather in the number of frozen forms in protomorphology:

Premorphology	types	tokens	utterances	%
SOP(1;6-1;11.7)	7	64	1916	3.3%
EMM (1;4-1;7)	5	29	845	3.4%

Table 9a. Premorphology: Frozen forms (percentages in relation to the number of analyzed utterances)

Protomorpholoy (first 2 months)	types	tokens	utterances	%
SOP(1;11-2;0)	7	30	1062	2.8%
EMM (1;8-1;9)	9	68	708	9.6%

Table 9b. Protomorphology (first 2 months): Frozen forms (percentages in relation to the number of analyzed utterances)

No formal, class shift or agreement error occur yet in the corpus of EMM (cf. 7.). In SOP's corpus there are 3 possible number agreement errors at 1;8 and 1;9. More important in her corpus are the ambiguities between AUX (*avoir, être*) of, e.g., Compound Past, semiAUX (*avoir*, as in *avoir peur* 'be afraid') and fillers (cf. Table 10a): in SOP's corpus Present Sg. forms of *avoir* and *être* are difficult to identify due to the massive use of fillers (e.g. /a,ə, e/ *peur* 'is afraid', /a,ə, ɛ/ *beau* for *est beau* 'is beautiful', /a, ə, ɛ/ *là/ dur*, /apabe/ for CP *est tombé* or PP *tombé*, /atate/ for CP *a sauté* or PP *sauté*, etc.:

SOP	ambiguities
1;6	3 (SAUX^FILL)
1;7	5 (SAUX^FILL)
1;8	0
1;9	10 (Ind.Pres.^FILL, Ind.Pres.^Imp, PP^Inf)
1;10	21 (SAUX^FILL, CP^FILL, Inf.^PP, N^V)
1;11.7	4 (Inf.^PP, Passive^FILL)
Total	43
PROTO	
1;11 end	18 (Inf^PP, Ind.Pres^Imp, SAUX^FILL)
2;0	6 (Ind.Pres^FILL, PP^INF)

Table 10a. SOP: Ambiguities

EMM	ambiguities
1;4	
1;5	1 (PP^INF)
1;6	2 (IMP^Pres.Sg, DEICT^Ind.Pres.)
1;7	3 (Ind.Pres^FILL)
Total	6
PROTO	
1;8	2 (Inf^PP, AUX^FILL)
1;9	1 (V^CONJ)

Table 10b. EMM: Ambiguities

4.2. Distinctions among rote-learnt forms

First verb-forms of the French corpora can be divided into 3 major types (plus intermediate forms):

a) verb-forms corresponding to roots, i.e. without any inflection, e.g.
SOP, 1;6 3.Pres.Sg. *dort* 'sleeps', 3.Pres.Sg. *pleut* 'rains'
EMM, 1;5 Imp. *donne* 'give', 1;6 3.Pres.Sg *aime* 'likes'.

b) Inflected verb-forms (not before 1;8 in SOP), e.g.
SOP 1;8 Inf *donner* 'give', PP *cassé* 'broken';
EMM 1;4 Inf *sortir* 'go out', 1;5 PP *parti* 'gone';

c) frozen/formulaic forms, i.e., in terminological difference to e.g. Pine & Lieven 1993, a subset of rote-learnt, contextually/situationally bound, morphologically non-distinctive forms. A frozen form frequently occurs in one single pattern, but the constituent verb never in any other pattern; the contextual meaning of this pattern may not be clearly linked to the lexical meaning of the verb, especially if it is idiomatic, especially regulative, phatic, e.g. French *ça marche* 'I agree', German *passt* ´fits´, which can be simply substituted by 'OK, fine'. A frozen-form candidate is unlikely to be frozen, if the constituent verb emerges earlier as single verb than the frozen-form candidate, but there are exceptions: English *to go* as a main verb may emerge earlier than the adult amalgam *gonna*. Moreover, a frozen form generally constitutes a single-element utterance: if it combines with other elements, it is on a way of "defrozeness". In our corpora a frozen form is used repeteadly and is not limited to isolated examples (cf. SOP *ça marche* 'it works' not a likely candidate for frozen form). We distinguish:

i. amalgams which are always frozen forms, i.e. adult multiword combinations treated as one unanalyzed word by the child, thus morphosemantically and morphotactically opaque (even fused), e.g. SOP & EMM /alɛla/ and variants for *il/elle est là* 'he/she is there', /tɛjɛ/ and variants for *ça y est*; SOP /ewawa/ and variants for *on va voir* 'we will see', SOP *à boire* 'I want to drink';

ii. regulative or phatic forms corresponding to a single verb-form or to a verb-form plus proclitic: SOP *attends* 'wait', EMM *tu sais* 'you know', EMM *ça va* 'it's ok'. Such forms correspond to adult automatic speech and could be substituted easily by a pragmatically synonymous form of very different structure, e.g. *attends ! --> une minute !, tu sais --> eh !* (?), *ça va --> OK*[18].

iii. imitated forms, i.e. repetitions of the adult target in the next turn.

The difference between a), b) and c) is gradual. Segmentation is probably the most important difference between frozen forms and other verb-forms. Whereas root-forms and inflected forms have been segmented from the rest of the phonological word, frozen forms represent generally a whole utterance or turn and may be memorized as such. But basically these first verb productions are all rote-learnt (cf. MacWhinney 1978): in the first 2 months of recording (before 1;8 SOP and 1;6 EMM), all verbs have one single form and later on at most 2 forms (see below), in other words they are invariable and unanalysed. In Tomasello's approach this early verb development is said to be lexically-based (Tomasello 1992, Akhtar & Tomasello 1997, Lieven 1998, Pine, Lieven & Rowland 1998).

Things may be further refined however. We have, indeed, noticed already some pattern in the repartition of verb-categories among the two children (Table 5), i.e. SOP's preference for root-forms opposed to EMM's preference for inflected forms.

[18] As mentioned by Blanche-Benveniste & Adam (1999: 90), it is sometimes difficult to distinguish between a phatic and a plain use of verb forms.

Moreover, whereas nothing relevant seems to be found in root-forms and frozen forms, another pattern emerges from inflected forms. Several measures show that EMM has a strong preference for 1st macroclass (i.e. microclasses 1 and 2) types (and tokens) of Infinitive (see Table 11)[19]:

	SOP 1;8 -1;11.7				**EMM** 1;4 – 1;7			
	types	%	tokens	%	types	%	tokens	%
I. macroclass	10	56%	29	48%	19	83%	30	65%
other classes	8	44%	31	52%	4	17%	16	35%

Table 11. Bare Infinitives

The difference between Sophie and Emma's Infinitives does not appear in the input: 1st macroclass types are preferred in Emma (65% vs. 35%) and Sophie's input (60% vs. 40%). The opposite preference holds for tokens but the proportions are less similar in the two inputs: whereas Sophie's input clearly favours non-1st macroclass tokens (69% vs. 31%), Emma's input has an almost equal proportion of the 2 classes. It appears that several tokens are repetitions of the child's production and that, when putting them aside, there is a majority of non-1st macroclass tokens (51% vs. 47%) (the percentages of Sophie's input almost do not change with the same deduction: 70% vs. 30%). Non-1st macroclass finite forms are also dominant.

	SOP	**input**	**EMM**	**input**
	types	tokens	types	tokens
I. macroclass	60%	31%	65%	47%
other classes	40%	69%	35%	51%

Table 12. Infinitives in the input

The preference for 1st macroclass types and tokens of Infinitives in Emma's corpus is confirmed by the examination of the first 50 lemmas produced by the children: of the 14 infinitives occurring in Sophie's corpus 7 (50%) belong to the 1st macroclass and 7 to other classes, i.e. there is no apparent selectivity with regard to the inflectional classes; in the corpus of Emma, 13 of the 16 infinitives produced belong to the 1st macroclass (81%).

The same result obtains again with all types of inflected forms (PP, Compound Past, Infinitive, Compound Future) of the first 50 lemmas:

SOP: 54% of 1st macroclass lemmas – 46% of others

EMM: 70% of 1st macroclass lemmas – 30% of others.

EMM appears thus to be more of a morphotactic child than SOP. This difference fits with the pattern of verb-categories mentioned above (4.1.) and with morphosemantic aspects (see Kilani-Schoch & Dressler 2000c). With such morphologically conditioned selection, EMM's premorphological phase can be said to show a greater variety of patterns than SOP's premorphological phase, i.e. there is more (pre)morphology in the former.

[19] Finite forms in general do not display the same distribution: in both corpora non-1st macroclass tokens or lemmas are dominant. Recall however that Present Indicative Sg. (and 3d Pl. in the 1st macroclass and in some verbs of the 2nd macroclass) has no inflectional marking and corresponds to the simple base.

5. Syntactic usages

Forms a), b) and c) occur first (SOP until 1;9.13, EMM until 1;5.3) as single-element utterances. In EMM's corpus between 1;4.13 and 1;7.27, i.e. before the first mini-paradigms (see 6), examples of verbs used in various utterances (i.e. with different word-types) are limited to the volitive *veux* + infinitive (11 tokens/143 verb-forms), e.g.

(1) 1;5.13 *a veux aller* 'I want to go',
(2) 1;8 *veux voir les souris* 'I want to see the mice'.

At 1;8.10 however, one finds besides

(3) *a veux t' assar* for *je veux m'asseoir* 'I want to sit down'
(4) *s' est assis à côté* 'sat down nearby',

and besides

(5) /fa/ *mett(re)* for *va/veux mettre* 'will put /wants to put'

a structure with proclitic object

(6) *on le met là* 'we put it there'

and an interrogative one

(7) *t' as mis où ?* 'where did you put';

also

(8) *manger salade* 'eat salad',

and the same verb in the only example of a cleft construction with a relative clause

(9) *è Maman # qui mange* 'it's Mum who is eating'.

Sophie's data before the emergence of the mini-paradigms are richer due to the greater length of this period (6 months)[20]. It is by 1;11 (i.e. at the beginning of protomorphology and one month before the first mini-paradigms) that 2-element structures with a verbal predicate plus a nominal argument (subject or object) show a spurt[21] and reach almost 50% of the utterances with verb[22]. The preferred syntactic schema seems to be based on a basic prosodic pattern *unstressed Filler + 1 or 2 syllable(s) with final stress* (see Kilani-Schoch & Dressler 2000b), e.g. /ədo/ for F*(il y en a) deux* /dø/ '(there are) two', /ədodo/ for F*(il fait) dodo* '(he) sleeps'. It is a reduplication of this basic prosodic schema: F1+X F2+Y when X,Y are monosyllabic, e.g.

(10) (without verb) 1;11.29 *a bain a chat* for F*(le) bain* F*(le) chat = ?le chat va dans le bain* 'the cat is going in the bathtub',
(11) 1;11.29/2;0.10 /ase aso/ for F*(ren)versé* F*(le) seau* 'turned (the) bucket over',
(12) *a boit un bib* for F*(il) boit un biberon* 'he is drinking a bottle'.

When X or Y or both are dissyllabic the prenominal filler may be deleted, e.g.

(13) 1;11.19 *a papé chat* for F*(j') ai tapé (le) chat* '(I) slaped (the) cat',
(14) 1;11.29 /ɛ tjɛʃ/ *bébé* for F*(je) cherche* F*(le) bébé* vs.
(15) 1;11.29 *è che(r)che a vache* for F*(je) cherche* F*(la) vache*, or
(16) /pam atitir/ for F*(l')éléphant* F*(veut) sortir* '(the) elefant (wants to) go out'.

---

[20] And to a greater number of recordings, see note 1.
[21] In the meantime the most frequent 2-element structure is Neg *pas*+V (e.g. out of 21 2-element structures there are 12 occurrences of the type Negation +X /270 utterances at 1;9.13).
[22] 9/40 utterances with verb (22,5%) at 1;11.7 > 29/61 at 1;11.19.

The strongest tendency however seems

a) that the verb stands in the initial position independently of the syntactic status (subject or object) of the following noun, e.g.

(17) 1;11.29 *embête* SUBJ *Maman* 'Mum bothers',

(18) 1;11.19 *veux mettre* OBJ *bébé* 'want to put (the) baby',

and in the first lexical position after F1 if there is a filler, e.g.

(19) 1;11.7 *a taté* SUBJ *chein* for *(il) est caché (le) chien* 'the dog is hidden',

b) to have a preverbal filler or no filler at all (i.e. not a prenominal filler only), compare (17), (18) with (19) and (20):

(20) 1;11.19 *e chercher* OBJ /munu/ for *(je) cherche (l') ours* 'I'm looking for the bear'.

In other words these structures are syntactically rather than only prosodically determined. What they highlight is however a very restricted syntactic diversity and the absence of syntactic function for inflectional morphology. Bare infinitives are indeed often in optional variation with finite forms (see 6.).

This picture is typical for a transition between the premorphological phase of rote-learning and creative protomorphology. Thus it is not surprising that first examples of frozen forms combined with a new and free argument occur in the same period, e.g.

(21) 1;11.19 /evavar/ *agnée* for F*(on) va voir araignée* 'we will see (the) spider',

(22) 1;11.29 *e tou(r)ne a passe* for *on tourne* F*(la) page* 'we/let's turn the page'.

6. Emergence of mini-paradigms

6.1. Criteria

How do children start to form paradigms at all, and what evidence do we have? Since the occurrence of more than one verb form of a verb does not constitute in itself evidence for paradigm formation (Cf. Tomasello 1992, Behrens 1999), methodological prerequisites for assessing morphological relatedness between distinct verb forms of the same lemma in the data are necessary (cf. Allen 1996). We propose five criteria for establishing the onset of a paradigm, i.e. spontaneous production (not imitative), spontaneous production (not formulaic), articulatory accuracy, use in contrasting contexts, recurrence (cf. Kilani-Schoch & Dressler 2000c), e.g., in

SOP

(23) *chercher* 'look for': 1;11.19 *a* ʃɛʃe/ for Inf. *chercher* /ʃɛrʃe/ for *?je cherche – a cherche* for Pres.Ind.sg. *cherche* /ʃɛrʃ/ for *?je cherche* (same forms at 1;11.29 and 2;0.22)

Inf. and Pres.Ind.Sg seem to be optional variants, whereas in

(24) *mettre* 'put': 2;0.22 Pres.Ind.sg. *i met* /mɛ/ *tatalon* for *je mets pantalon* 'I put trousers on' – Comp.Past 3rd sg. *a mis* /ami/ *do* for *a mis de l'eau* 'has put some water' – *a mettre a papo* for *mettre le chapeau* 'put the hat on'

the forms represent a true mini-paradigm.

Compare also in the corpus of

EMM

(25) *appuyer* 'press': 1;7.27 sequence: *apini [//] apie [/] apie [/] apie a Papa [//] apie Papa [//] apier Papa. (apini* = ? blend of *finir*: Comp.Past 3d sg. *a fini* /a fini/ 'ended' or *appuyer*, Imp. *appuie*, *apie* = Imp *appuie*, *apier* = Inf. *appuyer*)

with a true mini-paradigm:

(26) *mettre* 'put': 1;8.10 Pres.Ind.sg *on le met là* 'we put it there' - Aux/Mod+Inf.: /fa/ *mett(re)* for *va/veux mettre* 'will put/wants to put' – Comp.Past 3rd sg. *t' as mis où ?* 'where did you put'.

Hence we define the first "true", but still very incomplete, thus minimal, paradigms as non-isolated sets of minimally 3 accurate and distinct inflectional forms of the same verbal lexeme produced spontaneously in contrasting contexts.

This leads to an analysis of the development of paradigms as a gradual process with different building steps.

6.2. Mini-paradigms: steps of development

First two forms of a verb-lemma appear at 1;8 for SOP, at 1;5 for EMM. First mini-paradigms have been considered to occur not earlier than three months later, i.e. at the end of 2;0 for SOP, and at 1;8 for EMM. In the meantime several mini-paradigm candidates (pairs or triplex of verb-forms) occur:

SOP (1;8 - 2;0.22): 16 lemmas
Unclear: 9, context-bound: 8, isolated: 4, imitations: 3, formulaic: 2[23]

EMM (1;5 - 1;8.10): 7
Unclear: 4, isolated: 2, context-bound: 2, imitations: 2, formulaic: 1/2[24].

On the basis of the criteria mentioned above, we distinguish three steps in the emergence of paradigms.

Step a. A very first step consists in approximations of different verb-forms of verb types, e.g.

SOP (1;8 - 1;9/1;10)

(27) *laver* 'wash' 1;7.26 ?Pres.Ind.Sg /awa/ for ?*lave* /lav/ - 1;9.13 ?Inf /œve/ for *laver* /lave/

EMM (1;5. - 1;6)

(28) *donner* 'give' 1;5.3 ?Inf /tate/ for ?*donner* /dɔne/ - 1;5.3 Imp *donne* /dɔn/.

In this first step the forms are also rather isolated and do not recur before at least two months.

This preliminary step is followed by a second pre-paradigm step:

Step b. The different verb forms of lemmas which occur in this second step before the first mini-paradigms, are either isolated forms, imitated forms, formulaic forms, context-bound forms or optional variants connected by some irregular (not rule-governed) morphotactic similarity, e.g.

SOP (1;9 – 2;0)

(29) SOP *essayer* 'try' 2;0.10 Imp *Maman essaie* /ɛsɛ/ 'Mum try', next utt. Inf: *non là , Maman essayer* /ɛsɛje/

EMM (1;7 - 1;8), e.g. (25) above.

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[23] The numbers correspond to verb-lemmas. There is overlapping of criteria for several verbs.
[24] All numbers are tokens.

Step c. After a slow extension of verb forms for some verb lemmas, first true mini-paradigms appear. A time interval and a sufficient number of "preparadigms", i.e. verb-specific inflected forms, seem thus to be needed by the children before they can recognize the morphological principle of related form and meaning (plus distinctivity) and can actively use formal marking of verb inflection. On the basis of the criteria presented above, we can conclude that there is no mini-paradigm before the occurrence of 3 forms of a verb[25]. In the two corpora, the first evidence for a true mini-paradigm is given by the occurrence of a non-1st macroclass verb with 3 contrasting forms along with other two-member paradigms in the same month[26]:

SOP (2;0.22)

(30) *mettre* 'put': Pres.Ind. 3rd Sg. *met* /mɛ/ - Comp.Past 3d.Sg. *a mis /a mi/* - Inf. *mett(re)* /mɛt/

(31) *partir* 'leave': 1;10.16 onw. Comp.Past 3rd.Sg. *est parti* /ɛ parti/ - 2;0.22 Pres.Ind. 3rd Sg. *part /par/*

(32) *mordre* 'bite': 2;0.22 Pres.Ind. 3d Sg. *mord* /mɔr/ - Comp.Past 3d Sg. *a mordu* /a mɔrdy/

(33) *sortir* 'go out': 2;0.10 Pres.Ind.Sg. *sort* /sɔr/ - 2;0.22 Inf. *sortir* /sɔrtir/.

The following mini-paradigm candidates do not match at least one of the criteria:

[*cacher* (unclear), *casser*@IMI, *chercher* (unclear and context-bound), *essayer* (optional var.), *laver* (unclear), *regarder* 'look' (context-bound), *sauter* (unclear), *tomber* (unclear), *venir* (context-bound), *voir* (frozen), *s'asseoir* (unclear), *boire* formulaic, unclear, PP isolated, *partir* (unclear)].

EMM (1;8.10)

(34) *mettre* 'put': Pres.Ind.2/3Sg *mets* /mɛ/ - Inf. *mettre* /mɛt/ - Comp.Past 2Sg. *as mis* /a mi/

(35) *manger* 'eat': 1;8.10 Pres.Ind.3d.Sg. *mange* /mãʒ/- Inf. *manger* /mãʒe/.

(36) *sortir* 'go out': 1;8.24 Inf. *sortir* /sɔrtir/ – Comp.Past 3d.Sg *a sorti* /a sɔrti/

vs.

[*donner* (optional variants), *marcher* (formulaic), *casser* (unclear), *attacher* (unclear and @IMI), *appuyer* (unclear/sequence), *partir* (sequence)].

In both children the first mini-paradigm with three contrasting forms coincides with the beginning of protomorphology. Moreover, in both children it is the verb *mettre* (cf. Guillaume 1927, Martinot 1998). Frequency of *mettre* in the input does not account for this finding: indeed the results of verb (lemma) frequency in SOP and EMM's inputs rank *mettre* respectively in the seventh and fifth position only[27]:

input SOP: *être, faire*, AUX|*avoir, aller*, AUX|*aller, vouloir, mettre*

input EMM: *être, faire*, AUX|*avoir*, AUX|*aller, mettre, aller, vouloir.*

In addition to structural reasons (*mettre* is more "regular" than the other verbs with high frequency), semantic and pragmatic factors must be considered: *mettre* is a "light" verb which indicates only the moving of an object by an agent without specifying manner and location and it is an important verb in situations of play. In addition this finding can be attributed to the

[25] Cf. in different context and for a different purpose Pine & Lieven (1993: 558): three instances of a construction are needed for qualifying as constructed.

[26] On the parallel establishment of recurrent morphosemantic oppositions, see Kilani-Schoch & Dressler 2000c.

[27] In the GARS's corpus of spoken French (cf. Blanche-Benveniste & Adam 1999: 101), *mettre* is not among the most frequent verbs either (less than 1000 occurrences) but is morphologically differentiated (21 categories used).

characteristics of the input language (system-adequacy). The first conjugation class - the most frequent and the only productive verb type in French - has more homophony in the categories used by the little child than the other verbs. This homophony is even increased in filler children like SOP and - to a lesser extent EMM -, where filler + stem ending in /e/ may correspond to Infinitive, Compound Past, Past Participle or Compound Future. Hence the child has first more difficulty in forming 3-member paradigms with distinct members of the 1st conjugation class than with members of other classes.

7. Morphological substitutions

7.1. Root-infinitives

By far the most frequent morphological substitutions in the period considered and in the whole corpora are root-infinitives:

SOP 1;6 – 1;11: 76 / 374 verb-forms (20%), 1;6-2;0: 113/512 (22%), Input: infinitives represent 17% of all verb-forms,

EMM 1;4 – 1;7: 49 /122 verb-forms (40%), 1;4 – 1;8: 73/245 (30%), Input : 21%.

Root infinitives may result from omission of the auxiliary or modal verb, e.g. 0aux/0mod + Inf (root infinitives):

SOP

(37) 1;9 /atetir əwɑ̃/ for *(il) veut sortir (l')éléphant* 'the elefant wants to go out',

(38) 1;11 *là Papa gicler* (= *là Papa va gicler*) 'squirt with water'

or - less frequently - occur instead of a finite form, e.g.

SOP

(39) 1;9.13 /açaçe/ for *chercher* =*(je) cherche* /ʒə ʃɛrʃ/' (I) am looking for',

EMM

(40) 1;8 *faire bobo là* (= *ça fait bobo là*) 'is hurting there'.

Root infinitives however are more of a syntactic than of a morphological type of production (cf. Phillips 1995): among other factors they may be attributed to the saliency of the infinitive in syntactic structures such as modal structures (see Wijnen, Kempen & Gillis 2000) and to the ambiguity of the preverbal position (several clitic options appear before an infinitive, e.g., semi-auxiliary *va,* prepositions *à, de,* which cannot be predicted by the form of the immediately following verb). In languages such as French and German, the homophony of infinitive with PP and plural forms also favours their occurrence.

7.2. Analogical formations and overgeneralisations

All examples of analogical formations or overgeneralisations occur significantly after the first mini-paradigms (cf. 8.). For lack of space we will consider class shift only[28].

[28] Category shifts are rare (around 5 per child) and not clearly of an analogical nature. My formulae of proportional analogy takes the most similar verbs as model but the actual model may be also another verb or an abstract pattern (minor rule).

SOP: between 2;2.0 and 2;7.18: 5 types/10 tokens + ?1
EMM: between 1;9 and 2;9: 2 types/5 tokens.

Class shifts are mainly overgeneralisations of 1st macroclass Infinitive, e.g. SOP and EMM Inf. *metter* for *mettre* 'put'[29] (cf. 6.2.), SOP Inf. *descender* for *descendre* 'go down', SOP Inf. *pompirer* for *remplir* 'fill', EMM Inf. *sorter* for *sortir* 'go out', SOP Comp.Past *a voulé* for *a voulu* 'wanted', Comp.Past *a vé* for *a vu* 'has seen', i.e. overgeneralisations based on the productive class. But there are also overgeneralizations within 2. macroclass, e.g. SOP and EMM Inf. *tiendre* /tjẽdr/ (= *tenir* /tənir/, Pres.Sg *tient* /tjẽ/) 'hold' (after Pres.Sg *éteint* /etẽ/, Inf. *éteindre* 'turn off'), SOP Comp.Past *a prendu* /a prãdy/ for *a pris* /a pri/ 'has held', i.e. not based on a productive model. The latter must be analysed as rime analogies based on phonological and prosodical similarities. The child has related verb forms of isolated paradigms (Inf. *tenir* 'hold' and *prendre* 'take') to sets of whole paradigm riming verbs, i.e. to verbs having the same phonological form except the initial sequence, e.g. *rendre, (en)tendre, descendre, (dé)fendre, vendre, pendre.* The verb *prendre* is an isolated paradigm of this set, but it rimes with its members in a great part of the paradigm (not in Pres.Pl, Imperfect and Past Participle). What seems most important here is the rime in the base form (Pres.Sg.) *prend* and in the base derived Inf. *prendre*. The childish Comp.Past *a prendu*, based on the rime between *rend* and *prend*, is derived by a minor rule coresponding to the proportional analogy: *rend: prend = rendu: x.* The overgeneralisation *tiendre* is based on a rime with the set of verbs *peindre, teindre, atteindre, éteindre, plaindre, craindre.* In the adult language the base forms with stressed nasal vowels rime: *tient* /tjẽ/ rimes with *teint* /tẽ/, *éteint* /etẽ/, *peint* /pẽ/. The riming part of the paradigm is however more limited than in the case of *prendre* since it applies only in the Pres.Sg and in the Simple Future (*tiendrai, peindrai*). The proportional analogy seems to be: *éteint: tient = éteindre: x.*

These examples demonstrate that no inflectional imperialism (cf. Slobin 1968) occurs in my corpora.

8. Conclusion

8.1. Early verb development and pre- and protomorphology

First, in premorphology, the emergence of verbs is lexical (steps 1 and 2). Premorphology is the phase in which no system of grammatical morphology has dissociated from a general cognitive system. Morphological operations are extragrammatical ones or rote-learnt precursors of later grammatical rules (cf. Dressler & Karpf 1995, Dressler 1997, Dziubalska-Kolaczyk 1997, Kilani-Schoch & Dressler 2000b).

In protomorphology the system of morphological grammar and of its subsystems starts to develop without reaching the status of modules (components) or submodules (subcomponents). The paradigm formation process starts to emerge: at the beginning it is limited to some lemmas (overlap of steps 2 and 3), and there is no across-the-board generalization. However it soon develops into an increasing number of new mini-paradigms:

[29] A similar example is mentioned by Clark (1985: 703).

SOP	new mini-paradigms (2-members or more) per total of lemmas /month	%	number of mini-p/month	paradigm values[30] P(utt)	P(lem)	P(tok)
2;0	4/49	11.4%	4	0.9%	8.2%	2.8%
2;1	9/52	19.1%	11	1.6%	21.2%	17.5%
2;2	11-12/60	20%	22	2.5%	36.7%	5.7%
2;3	14/56	25%	27	3.6%	48.2%	10.5%
2;4	14/80	17.5%	33	3%	41.3%	6.1%

Table 13a. New mini-paradigms in SOP's corpus

EMM						
1;8	7/35	20%	7	2.1%	20%	5.7%
1;9	6/45	13.3%	9	2.4%	20%	6%
1;10	14/54	25.9%	21	3.3%	39%	7.7%
1;11	6/49	12.2%	12	3.4%	24.4%	7.3%
2;0	3/30	10%	10	3.9%	33.3%	11.6%

Table 13b. New mini-paradigms in EMM's corpus

Consider also the occurrence of 3-member paradigms:

SOP 2;1: 2~3 (*sauter* 'jump', *partir* 'leave', *?faire* 'do')
2;2: 4 (*partir, mettre* 'put', *faire, voir* 'see')
2;3: 4 (*mettre, faire, voir, aller* 'go')

EMM 1;9: 3 (*pleurer* 'cry', *montrer* 'show', *tomber* 'fall', *voir* 'see')
1;10: 7 (*manger* 'eat', *finir* 'end', *mettre* 'put', *voir* 'see', *faire* 'do', *avoir* 'have', *être* 'be')
1;11: 7 (*jouer* 'play', *donner* 'give', *monter* 'go up', *entendre* 'hear', *faire* 'do', *aller* 'go', *voir* 'see').

This development will lead to morphological productivity in modularized morphology[31] (cf. Kilani-Schoch et al. 1997, Kilani-Schoch & Dressler 2000b).

The identification, during protomorphology, of morphosemantic oppositions and the establisment of mini-paradigms seems to be the precondition for identifying analogical relationships and for extending them in terms of proportional analogies. Creative morphological patterns, e.g., overgeneralizations, indeed follow two months later (from 2;2 on in SOP's corpus, from 1;10 on in EMM's corpus, see Appendix).

These observations, together with EMM's morphotactic selectivity which seems to imply that some general grouping of verbs has been already made by the child, indicate that some generalization has taken place, i.e. in protomorphology the children have started to understand the morphological principle of relating forms and meanings in regular ways.

We thus rather adopt an intermediate position with regard to the lexically specific vs. verb-general account of verb emergence (cf. Tomasello 1992, Akhtar & Tomasello 1997, Lieven 1998, Pine et al. 1998, Maratsos 1998, Behrens 1999) and see the same pattern of gradual and

[30] Since the number of mini-paradigms found in one corpus may depend on sample size, Sabine Klampfer (this volume) has proposed different paradigm values as index for the paradigm formation capacity of a child. They are calculated by dividing the number of mini-paradigms by the number of analyzed utterances (P(utt)), verb lemmas (P(Vlem)) and verb tokens (P(Vtok)) per month and thus give a sample-size independent value enabling the comparison of mini-paradigms across different corpora.

[31] Modularized morphology contains the nucleus of mature morphological grammar. Subsystems of verb and noun inflection are distinguished.

progressive (inflectional) development as observed by Allen (1998), Ninio (1999) and Mueller Gathercole et al. (1999).

8.2. Typological characteristics

A first general property of French which is weakly inflecting and approaches the isolating type is that many verb-forms do not involve any morphological operation. With regard to this criterion one may expect

a) that non-inflected (verbal root) forms, i.e. Pres.Ind.Sg or Imp, should appear first and earlier than inflected categories. This prediction is born out for SOP's data where inflected forms occur at 1;8 only, but not in the case of EMM. As said above, EMM favours inflected forms which are used from the very beginning. Individual differences hence go beyond typological adequacy;

a') that two related predictions are that inflected forms such as plural forms should emerge later than in non-isolating languages, e.g. in stronger inflecting languages (cf. Kilani-Schoch et al. 1997) and that periphrastic verb-forms should emerge earlier than in non-isolating languages;

a") that periphrastic Past and Future should emerge before their synthetic competitors. This is amply documented by any study on acquisition of French;

b) that nouns and verbs emerge simultaneously, particularly that earliest verb forms emerge as early as first nouns (but individual strategies put a strong limitation to this prediction, cf. Braunwald 1995). In other words, French morphology should not stimulate children to acquire nouns or verbs earlier than the other category. Indeed this expectation is born out in my data;

b') that earliest verb forms emerge earlier than in non-isolating, stronger inflecting languages (but that the whole verbal system becomes is acquired later than in these languages);

c) that the non-differenciation of singular and plural forms (in the 1. productive microclass) should ease reference to plural subjects. However instances of plural meaning (i.e. contextual meaning) of verb forms in this early stage are almost inexistent;

d) that tense distinctions emerge before person and number distinctions. This holds true for my data (see Tables 5 and 6). As far as tense is concerned, however, considering that early Past Participle and Compound Past are mostly used with telic lemmata (Vendler 1967) (e.g. *casser* 'break', *fermer* 'close', *tomber* 'fall', *partir* 'leave', *finir* 'end'), this first distinction between finite verb-forms (let alone Imp) could be rather characterized in terms of aspect rather than in terms of tense (but cf. Shirai & Andersen 1995). It seems nevertheless that both children extend Compound Past to activity (SOP: 2;2.13 *a léché* 'licked', EMM 1;8.24 *a pleuré* 'cried') and stative verbs (SOP: 1;11.29 and EMM 1;8.10 *t' as vu* 'you have seen') before they introduce first person distinction, i.e. the distinction between 1. and 3. person (1.Pres.Sg. = SOP 2;5, EMM 1;9) in suppletive verbs; Comp.Fut. – Present distinction is frequent at 2;4 in SOP, at 1;10 in EMM; as to number distinction, 3.Pres.Pl. is frequent later than first non-present tenses and 1.Sg. (in addition to 3.Sg.): SOP at 2;7, EMM at 2;2.

More system-specific but still typologically adequate is, e.g., the homophony between Inf. and PP in the productive 1. microclass. From this homophony one could make the hypotheses

e) that Inf. and PP would emerge earlier and with higher frequency than in languages not having this homophony (cf. Kilani-Schoch et al. 1997); but see the individual difference between SOP and EMM (Table 5);

f) that periphrastic verb-forms should emerge earlier than in isolating languages and others not having this homophony (cf. Kilani-Schoch et al. 1997);

g) that there should be analogical PP forms based on Inf. (less probably vice versa, because Inf. is less marked than PP) in unproductive microclasses and isolated paradigms. However there is only one instance in the corpus of SOP: 2;5 PQP *avait mettre* for *avait mis* 'has put'[32];

h) that since in French the only productive microclass has also the highest lemma frequency and is the default class, it is easily predictable that morphological substitutions occur exclusively in unproductive microclasses and isolated paradigms. My data are in accordance with this prediction (see 7.2.).

i) that since aspectual distinctions are not encoded separately from tense in French and are tied to the opposition between periphrastic and synthetic tense, aspectual distinctions obviously depend on the mastery of the respective tense subsystem, i.e. the opposition between imparfait (Imperfect as in Latin and in the other Romance languages) and passé composé (Compound Past).

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APPENDIX

Analogical formations

SOP

2;2.0 Inf. *metter* for *mettre* 'to put' (after 1st macroclass) Other (similar) forms of the same lemma: Inf. *mettre* /mɛt/ from 2;0.22 onwards.

2;2.0 Inf. *apir* /apir/ for *appuyer* /apɥije/ 'to press' (after 2nd macroclass ??, or phonological motivation). Other forms: 2;1.8 *pie* for *appuyer*, 2;1.18 Imp. /api/ *appuie* .

2;2.13 Past Participle *a prendu* for *a pris* 'took' (after 8.mc of 2nd macroclass, e.g. *rendre, tendre, vendre, descendre*, etc.). Other forms of the same lemma or of lemmas of corresponding microclass: 2;0.22 Inf. *?prendre*, 1;11.9 Comp.Past *a perdu* 'has lost', 2;0.22 PP *mordu* 'bitten', 2;1.8 Comp.Past *as entendu* 'has heard'

2;3.22 Inf. *descender* for *descendre* 'go down' (after 1st macroclass). Other forms: 2;0.22 Pres.Ind.Sg. *descend*, Inf. *?descendre*.

2;4.22 Inf. *p(r)omènер* /pɔmɛne/ for *promener* /pɔmne/ 'walk' (after 1st microclass of 1st macroclass), the morphonological rule of mid-vowel alternation does not apply.

2;5.3. Inf. *pompirer* for *remplir* (after 1st macroclass). No other lemma from the same microclass. Correct occurrences at 2;6.25, 2;7.18.

2;5.14, 2;5.27, 2;7.4, 2;7.18 Inf. *metter* for *mettre* (see above)

2;5.27 Comp.Past *a voulé* Maman for *a voulu* 'wanted': (after 1st macroclass or or Filler + Impf., cf. next utterance: Impf. *voulait Maman* 'wanted'.

2;6.25 Comp.Past *a vé* for *a vu* 'has seen' (after 1st macroclass). Other forms: 2;3.9 onw.: *a vu*.

2;7.18 Inf. *tiendre* for *tenir* 'hold' (after class 2, 9.mc of 2nd macroclass, e.g. *peindre, éteindre, craindre*). Other forms: 2;5.3 Inf. *tenir*, 2;2.27 Pres.Ind.Sg. *tient* 'holds', 2;2.27 Inf. *éteindre* 'turn off', 2;7.18 Pres.Ind.Sg *t' éteins* 'you turn off'.

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1;10 Inf. *sorter* for *sortir* 'go out' (after 1st microclass) (2 tokens). Other forms: from 1;4 onw. Inf. *sortir*.

2;2 Inf. *metter* for *mettre* 'put' (after 1st microclass) (3 tokens). Other forms: 1;8.10 Inf. *mettre* /mɛt/,

2;0.17 Impf *mettais*.

On the emergence of verb paradigms in one Spanish child

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0. Introduction

This paper studies the acquisition process of Spanish verbal morphology in a monolingual child. The study focuses on the period of the first 50 verb lemmas. This covers the period from age 1;7 till 1;10.

The data shows that the verb acquisition process of this Spanish child follows three main stages:

1. A lexical stage in which verbs are only acquired as a lexical element.
2. A syntactic stage in which the verb, still contemplated as a non-split word, becomes the main element in the development of thematic and semantic relations.
3. A morphological stage in which verb suffixes begin to be analysed separately. At this stage, the relationship between form and meaning starts and the functional categories linked to the verb (tense, aspect, agreement, mood...) begin to be acquired. Just at this moment, the first miniparadigms appear, which suggests that the acquisition process of verb morphology has started.

The first two stages are premorphological and cover in our child the period till 1;9. In the last stage, which begins at 1;10, the child enters the protomorphological stage.

1. System-defining properties of Spanish verb morphology

1.1. Productive categories

Non-finite forms: infinitive, gerund and perfect participle.
Finite forms represent five verbal categories: tense, mood, aspect, person and number.
Tense: present, past and future.
Mood: indicative, subjunctive, conditional and imperative.
Aspect: perfect and imperfect.
Person: 1st, 2nd and 3rd.
Number: singular and plural, for each person.

Indicative mood patterns with four simple tense categories: one present, one future and two past tenses: perfect (pretérito indefinido) and imperfect (pretérito imperfecto). Subjunctive has one tense category for the present, one for the past and one for the future (unproductive). Imperative has two forms: one for the second person of singular and one for the second person of plural. This means a total amount of 59 simple forms (115 if we add the analytic ones, the perfective couples) that the child has to learn in his acquisition process.

All these synthetic forms are imperfective (only the simple past perfect is not) and each of these paradigms has an analytical counterpart (aux + participle), which is normally perfective.

Tense category combinations have normally a single form, but one of them, the past imperfect of subjunctive has two allomorphs (*cantara – cantase*).

There are two further, very much used, grammatical periphrasis: the continuous present (*estoy comiendo* 'I am eating') and the periphrastic future, much more employed than the synthetic one, *voy a comer* 'I am going to eat').

1.2. Base and Spanish verbal suffixes

The base is a stem, integrated by the root plus a thematic vowel (a, e, i): *cantar, temer, partir.*

There are some cases of substitution (1 p.s. pres. ind -*canto*; pres subj -*cante*; 1-3 p. s. pret. ind.-*canté*)

Marker types are mostly suffixes plus a few thematic vowel substitutions. Also, zero forms occur in some unmarked categories.

As a consequence, every verbal form consists of:

[ROOT + THEMATIC VOWEL] + $SUFFIX_1$+ $SUFFIX_2$

The first suffix ($suff_1$) informs about tense (the present is the unmarked category) mood and aspect. The second suffix ($suff_2$) is the agreement suffix and refers to person and number. Changes in the thematic vowel have also a morphosemantic value.

1.3. Verb Macroclasses

2 macroclasses, signalled by the thematic vowel (*a* vs. *e / i)*

1st *cantar* **a** ´to sing` 2nd *temer* **e** `to be afraid` / *partir* **i** ´to leave`

The first macroclass (class –*ar* verbs) is the biggest one (more than 90% of verbs) and the only productive class.

The thematic vowel (TV) defines the 2 macroclasses, and the 2 classes inside the second macroclass.

The two macroclasses of verbs are very stable, none of them loses members.

So, we can conclude that the *ar* macroclass is the dominant one while the *er/ ir* macroclass is unproductive but stable.

1.4. High degree of congruity and high degree of iconicity[1]

The degree of congruity of the different classes is very high: the *er/ ir* macroclass does not differ much in their defining structural properties from the dominant macroclass *ar*

The agreement markers of person and number (NP) are superstable markers, because they hold throughout the conjugation[2], only the 2nd sg. marker is different in the pretérito indefinido of indicative (vulgar varieties and children speech add one *s* at the end and superficially regularise the paradigm- *comistes* instead of *comiste*).

Most of the tense aspect and mood (TAM) markers are superstable markers. We find only a few distinctive markers for the two macroclasses:

Imperfecto de indicativo. *ba* vs. *a (cantaba / comía)*
1 p.s. pretérito indefinido. *é* vs. *í (canté / comí)*
3 p.s. pretérito indefinido ó vs. *ió (cantó / comió)*

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[1] This morphological characterization is based on Natural Morphology (Dressler et al. 1987; Kilani-Schoch 1988)

[2] There is a case of automatic fusion in the second person plural (*i+is>is*) partís.

Presente de subjuntivo. *e* vs. *a* (*cante / coma).* That is a case of reciprocal paradigm structure conditions (Present Indicative vs. Present Subjunctive. With thematic vowel *a* vs. subjunctive *e* and viceversa)

Microclassses are mostly formed by alterations in the root. There are only some cases of alterations in suffixes in the case of verbs like *dar, estar* (1st per. sg. doy, estoy), in the strong perfects (*anduvo, supo*) and participle (*hecho, abierto*) and in the short imperatives (*sal, ven, di* instead of *sale, vene, dice)*

Spanish verbal morphology is highly iconic, firstly because the most frequent and semantically least marked categories are featureless encoded (present, 3rd per. sg and imperative) and secondly because suffixes are nearly the only markers.

There is almost no syncretism and almost no homophony.

Only 3 p. s. pres. ind. and 2 p. imperative are homophonous.

There is syncretism in the 1-3 per. sg. in pretérito imperfecto de indicativo, presente de subjuntivo, pretérito imperfecto de subjuntivo, futuro imperfecto de subjuntivo and conditional.

1.5. Paradigm models - present of indicative for the three classes

	1st *cantar* 'to sing'	2nd *temer* 'to be afraid'	3rd *partir* 'to leave'
Sg 1st	cant**o**	tem**o**	part**o**
2nd	cant**as**	tem**es**	part**es**
3rd	cant**a**	tem**e**	part**e**
Pl 1st	cant**amos**	tem**emos**	part**imos**
2nd	cant**áis**	tem**éis**	part**ís**
3rd	cant**an**	tem**en**	part**en**

1.6. Subregular and irregular verbs used by the child in this period:

Caer 'fall': caigo, caes, cae, caemos caéis, caen.
Traer 'bring': traigo, traes, trae, traemos, traéis, traen.
Dormir 'sleep': duermo, duermes, duerme, dormimos, dormís, duermen.
Venir 'come': vengo, vienes, viene, venimos, venís, vienen.
Poner 'put': pongo, pones, pone, ponemos, ponéis, ponen.
Tener 'have': tengo, tienes, tiene, tenemos, tenéis, tienen.
Hacer 'do': hago, haces, hace, hacemos, hacéis, hacen.

Estar 'be': estoy, estás, está, estamos, estáis, están.
Querer 'want': quiero, quieres, quiere, queremos queréis, quieren
Poder 'can': puedo, puedes, puede, podemos, podéis, pueden.

1.7. Suppletives

Ser: soy, eres, es, somos, sois, son.
Ir: voy, vas, va, vamos, vais, van.

1.8. Auxiliar ***haber*** (have, used in the analytic past perfect)

He, has, ha, hemos, habéis, han.

2. Data base

This study is based on longitudinal spontaneous speech data of one Spanish boy, Magín[3]. This boy is the third and last child of a couple living in Madrid. The mother, who was the researcher, recorded him regularly in everyday situations. Data collection started when Magín was 19 months old (1;7), just in the moment when he was beginning to build up two-word utterances and it finished at 31 (2;7) months. The total amount of data is 28 recorded hours with 3766 utterances.

3. Magín's verb production

3.1. Emergence of verb forms

Before the first tape was recorded, at 1;7, there are some diary notations that show the first words acquired by Magín in the one word-stage. At this moment he uses only a few words, and some of them are verbs. At 1;4 he employs *ma* for *quema* (it burns) in any danger situation or *apapa*, for *apaga* (switch of, imperative), when he wants to switch on or switch off the light. One month later, at 1;5, he begins to use the imperative *abre* (open) and a formulaic utterance *be abá* instead of *quiero beber agua* (I want to drink water). This is a context bound expression, because he employs it exclusively when he wants to drink water (*agua*). He seems to have amalgamate, with *agua*, the verb *beber* that he has truncated in *be*, and it can have been taken from the frequent adult question addressed to the child: *¿quieres beber agua?* (do you want to drink water?). At 1;6 he employs *quere* and *quero* (3 and 1 per. sg., respectively of want) and *quita* (keep away, imperative).

3.2. Quantitative data of verb production

Table 1: Number of verb lemmas, types and tokens from 1;7 to 1;10 (without repetitions and frozen forms. Percentages with respect to the number of analysed utterances [4])

Age	Lemmas	Types	Incorr types	Tokens	Incorr tokens	tokens %	Analysed utt.
1;7	8	10	2[5]	19	3	50,0%	38
1;8	15	17	1	33	2	29,4%	112
1;9	24	32		78		32,6%	239
1;10	45	65		190		42,4%	448

The incorrect types and tokens are forms that do not belong to the target language.

As we can see in the table above, Magín is a child that uses a lot of verbs from the very beginning. As he enters the two-word stage at 1;7, we find that almost 50% of the utterances produced are utterances that contain a verb. A lot of them contain just one verb. At this moment his MLU is only 1.43 and most of the expressions are one-word utterances (23 from a total amount of 38). The data show that 14 of them are integrated for just a verb while only 9 are formed by a noun or by a determinant.

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[3] The data presented in this study are included in Aguirre's PhD thesis (Aguirre 1995).

[4] To qualify as an utterance, a production has to include at least one meaningful unit resembling a Spanish word in form and meaning. Babbling, vocalizations and completely incomprehensible strings were not considered utterances. Citations (e.g. nursery thymes and songs) and direct imitations were excluded from the analysis.

[5] He uses the formulaic form *a mir*, instead of the adult form *a dormir* and the incorrect form *caye* instead of *cae*.

3.3. Verb categories before protomorphology

This stage lasts until Magín is 1;10, the moment when the first three-member miniparadigms begin to appear. Nevertheless we assume that at 1;9 the child is in a transition phase in which some two-member paradigms are produced.

The quantitative data in table 3 showed that predication is essential in Magín's first verbal communication and he does not have any problem in acquiring verbs to make these predications. This characteristic of Magín's early acquisition explains why we do not find precursors of verbs made with onomatopoeic elements or with nouns.

The first two-word combinations, at 1;7, mark the beginning of Magin's development of syntax. At that moment we find 6 predication structures with clear thematic relations among them. All of them contain a verb:

Verb + Object:
(1) *Quiero aba.* ´I want water`
(2) *Be abá.* ´drink water`
(3) *Trae a bobo.* ´bring the balloon`

Subject + Verb:
(4) *Eto pincha.* ´that pricks`
(5) *Mamá cae.* ´mum fall down`
(6) *Pipi no tan.* ´bird are not`

Predication structures increase with every recording and the sentence development that goes with it can easily explain the apparently strange decrease in the use of verbs that we find in the data (from 50% utterances with verb at 1;7 to 29% at 1;8).

The development of syntax that begins with these first two-word utterances may cause a paradoxical phenomenon. To a child, like Magín, who uses a big quantity of verbs in his one word stage it might happen that limitations in processing capacity make it very difficult to form utterances with more than two words. This leads the child to omit the verb when two other elements take part in the thematic relations. That is the case with some two-word structures at 1;8:

Locative:
(7) *Estrella, allí.* ´Star there`
(8) *Estrella arriba.* ´Star up`
(9) *Ahí a pelota.* ´There the ball`

Object:
(10) *Mi polota.* ´My ball`

Subject + Object:
(11) *Magín caca.* ´Magín shit`

Complex thematic structure:
(12) *Lo papapo, pobrecito.* ´The shoes, poor`. He wants to say something like: "poor daddy, I have hit him with the shoe".

A similar verb omission happens when a vocative element occurs in the utterance[6]:
(13) *Mamá, mi tatín.* ´Mum, my sock`
(14) *Mamá, a bolsa.* ´Mum, the bag`

[6] The same kind of omission is possible in adult standard Spanish.

At this stage the word combinations and the context adequacy indicate that he knows about the meaning of the verbs. At the same time, the syntax begins to develop and the child may use the small set of verbs he has in his repertory in thematic relations with the appropriate nouns in the appropriate context. The following examples show some multi- word utterances where the verb appears in thematic relations with some nominal phrases:

Verb + Object:
(15) *Echa, echa tatón.* ´Throw, throw stopper`
(16) *Po papapo pono.* ´The shoes I put`

Verb +Object + Locative:
(17) *Quiero agua tatita.* ´I want water small cup`
(18) *Tatita, bebe aba.* ´Small cup, drink water`

Subject + Verb:
(19) *La araña te viene.* ´The spider that comes`

The child seems to know that *quiero* (I want), or *pono* (I put) are expressions of desire and that they have to cooccur with the word denoting the desired thing.

3.3.1. Development of morphology:

At this stage, at 1;7, Magín uses infinitives such us:

A mir (instead of the adult form *a dormir*),´to sleep` (in imperative tone) and *abrir* ´to open` (in imperative tone).

Imperatives such us:

Abre ´open` and *quita* ´take away`.

Third singular present forms such us:

Quema ´it burns`, *cae* (*Mama cae.* ´It falls down, mum`) and *pincha* ´it pricks`.

Magín also uses first singular present forms such us:

Quiero (*quiero aba.*´I want water`), *quito* (*quito tatín,* with imperative meaning, ´I take off the sock`) and *pongo* (*Mamá, a pongo.* -With imperative meaning- ´Mamí, I put it.`)

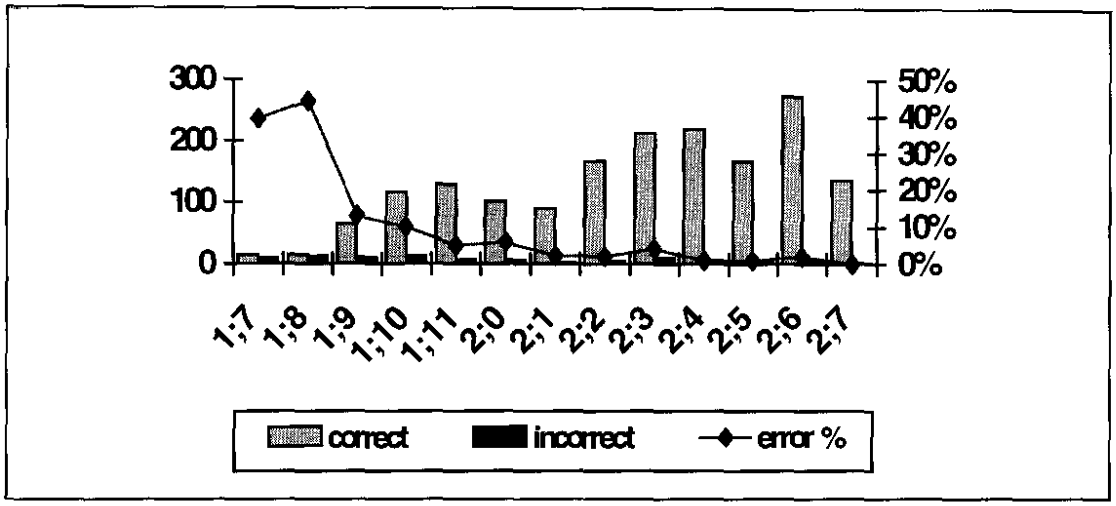
At 1;8, we also find two verbs used in the third person plural present form[7].

No tan, instead of the adult form *no están,* (*no tan e pipi.* ´Are not the bird`), and *Be van,* instead of the adult form *se van* (*be van, avión.* ´Leave, the plain`). These two forms are used to express non-existence.

Although different verbal forms have been used, morphological rules are not operative at this stage and the verbal forms produced are rote learned. In the same way, no functional categories linked to the verb (tense, mood, aspect, person and number) are present at that moment. Consequently most of the verbs are used in only one form and this gives rise to a lot of agreement errors. The rate of agreement errors is situated between 40% and 50% at 1;7 and 1;8 months old.

[7] All these occurrences of third person plural are agreement errors. The subject appears always in the singular. At that moment the child is not able to use the plural in nouns.

Figure 1. Magín: Development of agreement errors.



Some of these errors are produced in question-answer structures, where it is easy to see that the child is not able to change the person that he has heard in the question in order to arrive at the correct form in the answer:

(20) a - Mother: - ¿Te lo abro? 'Shall I open it?'
Child: - *Abro.* 'I open'

b - Mother: - ¿Que lo eche? 'Shall I throw (3 per. sg. subj.)it?'
Child: - *Eche.* 'Throw (3 per. sg. subj.)'

We can see this absence of productivity in the use of the verb forms in the difference between lemmas and types presented in table 1. At 1;7 the number of verb lemmas used by the child is 8 while the number of verb types is 10. The same difference is found at 1;8 where we find 15 verb lemmas and 17 verb types. In both cases the only verb that appears in more than one form is the verb *abrir*; all the rest of the verbs (up to 25 documented in this period) are fixed to only one form.

Magín sometimes appears to have stored just the most frequent input form; for instance, he uses the verb *dormir* (sleep) in the infinitive because his mother says often *a dormir* when she wants the baby to go to sleep. In some cases the child may pick up by chance some less frequent form and overgeneralize its usage. This is the case with the 3rd person plural *no tan* (no están 'they are not'), a frozen form that he uses to express non-existence. He has picked up this verbal form while looking at, and playing with, a drawing book together with his mother. This book was especially designed for learning the numbers, so it had many balloons, dolls, etc.

Most of the verbs used in this period are produced in present tense. But we also find, at 1;8, a change-of-state verb in past perfect form. This verb, *asustar* (frighten), is only produced in this perfect form, the auxiliary is occasionally absent, and it is always used in the third person singular:

Past perfect. (Aux. + Part.)
(21) a - *Ha tutado.* 'It has frightened'

Participle (adjectival use).
(22) a - *Avión tutado.* 'Plain (has) frightened (me)'
b - *Tutado, tutado, abé.* '(Has) frightened, frightened (me), abe'

This lack of productivity leads us to conclude that these verbal forms are still unanalyzed in this initial stage and the kind of predication that they involve is very close to adjectival predication.

3.3.2. Emergence of miniparadigms. Pre-paradigm step (cf. Kilani-Schoch & Dressler 2000)

Magín's use of verb types of the same lemma (without repetitions and frozen forms):

1;7 [8]: *Abrir,* open: imperative *abre;* pres subj. 3rd per. sg. *abra**[9]*;* infinitive *abrir**.

1;8: *Abrir,* open: infinitive *abrir*; imperative *abre;* pres ind. 3rd per. sg. *abre**.

As we can see, the verb *abrir* is the only one that appears in different verb forms. Judged from the adult targets, it appears with a lot of agreement mistakes. This shows that the child is only aware of the fact that some words have different endings. Accordingly, we find a very interesting sequence of words in the first recording session, in which Magín wants his mother to open a bag, but she does not open it. The child gets increasingly anxious and, instead of repeating the imperative form *abre* (also 3rd per. sg. indicative present) he tries to get his objective by using various forms: *abra*[10] (with imperative tone), *abrir* (infinitive), *abro*[11] (1st per. sg. indicative present).

We claim that all these different forms are rote-learnt and, therefore, part of the lexicon. Magín does not identify the suffixes as morphological elements that codify semantically and syntactically distinct categories linked to the verb (person, tense, mood...). The use of these endings in verbal forms does not reveal any procedure based on processing, that is, any procedure in which the child is applying any formation rule. So, these different ending forms are not productive, yet. In this sense we cannot consider this case as a real miniparadigm. The fact that most of the verbs are used in only one grammatical person and one single tense, together with the high level of agreement errors produced and the still poor development of syntax leads us to conclude that these different verbal suffixes are yet unanalysed.

3.3.3. Transition phase

The end of the premorphological period (1;9) can be considered as transition towards the protomorphological stage, because some two member paradigms develop but not enough morphological alternation is yet available for compelling the child to engage in morphological analysis.

Magín's use of verb types of the same lemma (without repetitions and frozen forms) at 1;9:

6 two-member mini-paradigms:

Class 1:
Pinchar (prick): pres ind. 3rd per. sg. *pincha*: pres ind. 3rd per. pl. *pinchan.*

Class 2 (er):
Romper (breake): pres ind. 3rd per. sg. *rompe*; past perfect ind. 3rd per. sg. *se ha roto.*

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[8] I have not considered the frozen forms *no tan* and *se van* that Magín uses to express non existence. Most of them are used incorrectly in plural instead of singular.

[9] The asterisk means that there is an agreement error.

[10] In this case it is possible that the child is adding, erroneously the thematic vowel *a* from the first conjugation, instead of using the appropriate thematic vowel *e,* but it is also possible that he is selecting the ending of negative imperative, the form of subjunctive *no abras.*

[11] This is a repetition. The mother has just said it before.

Caer (fall): pres ind. 3rd per. sg. *cae*; pretérito indefinido (past perfect ind. synthetic form) 3rd per. sg. *cayó.*
Querer (want): pres. ind. 3rd per. sg. *quiere**, pres. ind. 1st per. sg. *quiero.*

Class 3 :
Abrir (open): infinitive *abrir*; imperative *abre.*

Suppl.
Ir (go)*:* pres ind. 3rd per. sg..*se va* ; past perfect ind. 3rd per. sg. *se ha ido.*

At this stage, there is no evidence that the child is analysing any agreement marker in the opposition of person and number forms (*pincha / pinchan* and *quiere / quiero).* In the case of *pincha / pinchan,* both forms appear in the same situation. He used *pincha* (one word utterance), referring to a place where there are some branches that prick, except in one case where he said *pinchan.* In the case of *quiere / quiero,* the first one is an agreement mistake because he is referring to himself.

About the use of different forms with present / past (perfect)[12] opposition, we think that the child is matching the past-perfect forms with the past-perfect meaning, thus showing contrastive use in adequate contexts.

In the following examples, all produced at 1;9, we can see how the past perfect forms (in bold) alternate with present forms, of the same verb, appropriate to the context.

(23) a. *La nuna* ***se ha roto****. Mira se ha roto. Rompe, rompe.*
'The moon is broken. Look, it's broken. Breaks'
b. ***Cayó.*** 'It fell down'
c. *¡Ay! Que se cae.* 'Ouch! That it fall down' (just before falling down).

The examples with the verb *ir* (go) are more problematic because Magín alternates the past-perfect form *se ha ido* with the presents *se va, no tan* and *no ta* in order to express non-existence.

(24) a. *Roni no tan. Se* ***ha ido****.* 'Roni is not here. He is gone.'
b. *Se va cacón.* 'Snail leaves'

A more problematic question is to find out whether the child has begun to analyse the suffixes as separate elements of the verb, as exponents of syntactic categories that encode a new meaning. Our proposal is that at this step, the child learns different forms of a given verb and links them to different meanings associated with the verb (as we have seen, mainly tense at the beginning); but the child has not yet discovered that the affix is the element that conveys such meanings. In other words, he has not discovered the affix and the verb is still contemplated as a whole.

Two main reasons lead us to this conclusion. The first one is quantitative. At this stage the child has still too few examples of different verb forms for one single verb, and a sufficient amount of elements is needed for developing morphology. The second reason is qualitative. As we have seen, the person distinctions do not show that the child is really marking the subject with these different forms. In the case of tense distinctions, the child uses the contextually appropriate form. However, from the three examples that we find, one is made with the suppletive verb *ir*, another one with the strong participle *roto* that will be regularized later on in the data (*rompido*), and the last one belongs to a kind of past (pretérito indefinido, synthetic past perfect) that is not much used in oral speech in the Madrid area and will appear productively only late in the acquisition process.

[12] I do not go here into the problem of aspect before tense acquisition or viceversa.

In this sense we prefer considering this period as a transitional one.

3.4. The protomorphological stage

At this stage, the child begins to go beyond the verb meaning, as he seems to develop sentences syntactically, acquiring the functional categories Agreement and Tense.

For the first time, we find evidence that Magín is beginning to analyse the verbal suffixes as verb elements that convey information about tense and person (subject of the predication). This discovery is triggered by the lexical acquisition of the first different verb forms and, once it is produced, it also triggers the quick acquisition of the agreement morphology of Spanish and, thus, starts protomorphology with the emergence of the first miniparadigms[13].

3.4.1. Emergence of miniparadigms

Magín's use of verb types of the same lemma (without repetitions and frozen forms) at 1;10:

1 four-member mini-paradigm:

Suppletive.
Ir (go)*:* pres ind. 3rd per. sg..*va* ; pres ind. 3rd per. pl. *van*;* pres ind. 1st per. pl. *vamos*; past perfect ind. 3rd per. sg. *se ha ido.*

2 three-member mini-paradigm:

Class 2 (er):
Hacer (do)*:* pres ind. 3rd per. sg. *hace;* pres subj. 3rd per. sg. *no haga*;* pres subj. 2nd per. sg. *no hagas.*
Abrir (open): infinitive *abrir*; imperative *abre,* pres ind. 1st per. sg. *abro.*

11 two-member paradigms:

Class 1:
Duchar (shower): infinitive *a duchar*; gerund (present continous) pres ind. 3rd per. sg *se está duchando.*
Quitar (take off): imperative *quita,* pres ind. 1st per. sg. *quito*.*
Asustar (frighten): pres ind. 3rd per. sg *asusta,* pres subj. 2nd per. sg. *no asustes.*
Mojar (wet): pres ind. 3rd per. sg *moja,* bare past participle *mojado* (adjectival use).

Class 2 (er):
Ver (see): infinitive *ver*; pres ind. 1st per. sg. *veo*
Coger (take): pres ind. 1st per. sg. *cojo;* gerund *cogiendo.*
Querer, (want): pres ind. 3rd per. sg. *quiere (quere) ;* pres ind. 1st per. sg *quiero (tero).*
Poner, (put): pres ind. 1st per. sg. *pongo (pono),* imperative *pon (pon, pone)*

Class 3 (ir):
Venir, come: imperative *ven,* pres ind. 3rd per. sg.*viene.*

Suppl.
*Ser (*to be): pres ind. 3rd per. sg *es;* pres ind. 3rd per. pl *son.*

[13] A similar proposal has been developed in syntax to explain the acquisition of functional categories: the Lexical Learning Hypothesis (Clahsen & Penke 1992, Meisel & Müller 1992). Under this assumption, it is only when the child learns the lexical elements that new projections are added to existing phrase-structure representations. Clahsen, Eisenbeiss & Penke 1996 defend a "Morphological Bootstrapping". Their idea is that functional categories such as IP, AGRP, etc or syntactic features may come into the child's phrase structure as a consequence of the child's learning a regular inflectional paradigm.

Modal.
Poder (can): pres ind. 3rd per. sg *puede*;* pres ind. 1st per. sg *puedo.*

Table 2: Emergence of miniparadigms

Age	True mini-paradigms	2 members mini-paradigms	Mini-paradigms per month	Paradigm values P (utt)	Paradigm values P (lem)
1;7	-	-	-	0%	0%
1;8	-	-	-	0%	0%
1;9	-	6	6	2,5%	25%
1;10	3	11	14	3,1%	31,1%

Since the number of mini-paradigms attested in one corpus depends on sample size, we propose two sample-size independent values for investigating the development of the paradigm formation capacity in a child. The first value, P (utt), is calculated by dividing the number of mini-paradigms by the number of analysed utterances per month. The second value, P (lem), which serves as an index for the paradigm formation capacity of the child in relation to his verb lexicon: it is calculated by dividing the number of mini-paradigms by the number of verb lemmas per month. The paradigm values P(utt) and P(lem) are supposed to provide an objective base for the comparison of mini-paradigms across corpora and languages (see also Klampfer and Katičic this volume).

Our data show a real spurt in the miniparadigms emergence. At 1;9 we still do not find any true mini-paradigms (3 member miniparadigm, following Kilani-Schoch & Dressler 2000 criteria), there are only 6 verbs used in two different forms (see 3.3.2); but one month later, at 1;10, Magín has already built 3 true miniparadigms and 11 two-member paradigms.

Table 3: Emergence of verb categories (number of tokens)

Age	Pres. indic.	Impera.	Infinit.	Partic.	Gerund	Synthet Past perfect	Analyt. Past perfect	Present Subjun	Present Contin.
1;7	4	4	3					1	
1;8	7	5	4	1					
1;9	41	3	5	13		2	8	1	
1;10	123	38	13	6	2		5	3	1

3.4.2. Tense-aspect and agreement distinction in the same verb lemma

Looking at these first miniparadigms we can observe that there is not just one pattern. Regarding morphology acquisition, the child seems to be acquiring tense-aspect and agreement distinction at the same time, as well as some other distinction that does not fit these two main groups, e.g. infinitive – present, imperative – present or indicative subjunctive (only for prohibitive at this stage).

Tense-aspect distinction:

Present / past-perfect.

Ir (go):	pres ind. 3rd per. sg. *va*	-	past perfect ind. 3rd per. sg. *se ha ido.*
Romper (break):	pres ind. 3rd per. sg. *rompe*	-	past perfect ind. 3rd per. sg. *se ha roto.*
Caer (fall):	pres ind. 3rd per. sg. *cae*	-	pretérito indefinido (past perfect ind. synthetic form) 3rd per. sg. *cayó.*

Present or infinitive / Gerund (continuous present)

Duchar (shower): infinitive *a duchar* - gerund (present continous) pres ind. 3rd per. sg *se está duchando.*

Coger (take): pres ind. 1st per. sg. *cojo* - gerund *cogiendo.*

Agreement distinction:

3rd person singular – 3rd person plural

Ir (go): pres ind. 3rd per. sg. *va* - pres ind. 3rd per. pl. *van**

Pinchar (prick): pres ind. 3rd per. sg. *pincha* - pres ind. 3rd per. pl. *pinchan.*

Ser (to be): pres ind. 3rd per. sg *es* - pres ind. 3rd per. pl *son.*

1st – 3rd person singular

Querer (want): pres ind. 3rd per. sg *quiere* - pres ind. 1st per. sg *quiero.*

Poder (can): pres ind. 3rd per. sg *puede** - pres ind. 1st per. sg *puedo.*

3rd – 2nd person singular

Asustar (frighten): pres ind. 3rd per. sg *asusta* - pres subj. 2nd per. sg. *no asustes.*

Table 4: Development in the use of grammatical persons

		Present forms (tokens)						Past forms (tokens)					
		Singular			Plural			Singular			Plural		
Months	Utterances	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
1;7	38	1		3									
1;8	112	1		6									
1;9	239	10		29	1		1			10			
1;10	448	13		89	6		15			5			

Repetitions and frozen forms have been excluded from the analysis.

The development of miniparadigms is the strongest argument in support of the claim that the child is entering the protomorphological stage. But another argument that supports this claim has to do with mistakes concerning the development of agreement. During this period the child begins to use the verbal forms properly and the rate of errors decreases rapidly in this period (see figure 1).

This stage (1;10) is also very important for the acquisition of verb vocabulary. The increase in the number of verbs used is dramatic. The number of verbs (lemmas) in Magín's vocabulary is only about 19 when he is 1;7 months old, 23 at 1;8 months, 32 at 1;9 months and it reaches 60 when he is 1;10 months old[14]. In this sense, we can say that a verb spurt takes place at this stage. The MLU, in which we can see the syntactic development, increases in the same striking way, from 1.89 when he is 1;9.1 to 2.5 when he is 1;11. So, we can conclude that this moment of identification of functional categories, when verb morphology starts to develop and the child enters the protomorphological stage, is also a key moment in the acquisition of verbs (specially verb vocabulary) and syntax.

3.5. Inflectional classes

As we can see in the table below there is not a preference for the first macroclass in the first verbs acquired by the child. During the premorphological stage, there is a predominance of verbs from the *er* class. This fact is not striking: there may be few verbs in the second macroclass, but some of them are among the most frequent in Spanish. At this stage the verb

[14] Although the number of analysed utterances is much higher in the last recordings there are some diary notations that show that Magin's verb vocabulary is not higher during the time of the first recordings.

is only a lexical element and the class system has not begun to develop, thus token frequency is of paramount importance.

At the protomorphological stage, the tendency is reversed and most of the new verbs learned belong to the first macroclass. This fact leads us to think, that once class formation has started, the verbs belonging to the first macroclass are easier to acquire.

Table 5: Distribution of verb lemmas / types / tokens with regard to inflectional classes.

Age	Class 1	Class 2 (er)	Class 2 (ir)	Suppl.	Auxiliars	Modals	Total
1;7	3/3/6	3/3/4	2/4/9				8/10/19
1;8	5/5/13	7/7/12	3/5/8	1/1/2	1/1/2		15/17/33
1;9	10/10/35	11/15/31	3/6/12	2/3/6	1/1/8	1/1/1	24/32/78
1;10	28/34/86	11/20/55	6/12/49	2/5/37	2/2/6	1/2/2	45/66/190

4. Conclusions

The acquisition of the Spanish verb, in Magín, shows two main stages:
A premorphological one that lasts till 1;9 and a protomorphological one that begins at 1;10. At the premorphological stage the verbs are learned as not-decomposable lexical elements. At 1;7 they begin to be the main component in predication structures in which thematic relations are involved. At 1;10, the child enters the protomorphological stage and the verb suffixes begin to be analysed as separate elements. At that moment the morphological component starts to develop and the first miniparadigms emerge.

4.1. Premorphological stage

In this period, when the child uses verbs, he pays attention only to their lexical meaning.

The child uses an inflected form, but this form is still unanalyzed. That means that it is rote-learnt. The only category present is the verb itself, other categories linked to the verb (tense, person, mood...) are still absent.

If the child does not analyze the end of the verb as a suffix at all, we cannot make any predictions about the acquisition of verbal morphology. This is because the acquisition of verbal morphology is not taking place at this moment.

This main assumption helps us to explain why Magín normally has, at this first period, only one form for every verb. An economical consideration (perhaps also naturalness considerations), one form – one meaning, predicts that the tendency will be that the child will choose one form and only one for every verb (normally context-bound, in the first uses). Therefore different verbal forms of the same verb will not be normal and if they appear they will be context-bound or incorrect forms, as we have seen in our data.

An interesting problem appears when we want to explain why one form from the repertory rather than another is chosen by the child. In this respect, Magín's data leads us to claim that the chosen form is taken because:

a) it is the most frequent form for a particular verb in child speech;
b) it is the form "captured" by the child in a given context, and after that he fixes it;
c) it is perceptually the most salient form for a particular child

The first consideration, *a,* predicts that we will find a wide diversity of verb-forms in verb-vocabulary. This assertion is corroborated by Magín´s data (*dormir, quita, pongo...).* We also

expect that a language with rich verbal inflection, like Spanish, will show more diversity of forms in verb vocabulary at this first step than languages with poor inflection. In case of homophony, we also expect that homophonous forms are bound to appear more often than non-homophonous ones. That is the case with Magín's data in which the 3rd person singular, homophonous with the 2nd person singular of imperative is clearly the most frequently used form.

The second point, *b,* predicts that we will find differences between the children that acquire the same language. We have taken into consideration the data of only one child, but we find some strange verb forms used, like the already commented 3rd person plural of verb *estar,* that should not be expected in other children.

The last consideration, *c,* predicts that we will find differences between languages, (e.g. 3rd per sg can be very salient in Spanish phonological system because it is a disyllabic word finishing by an overt vowel, but not very salient in German because it finishes in an occlusive consonant *t*).

In summary, this period should generally be characterized by diversity among acquisition processes of different languages as well as diversity among children learning the same language.

4.2. Protomorphological stage

In this period the verbal suffixes begin to be analyzed and the construction of paradigms is gradually developed.

We hold that the entrance in this stage will be triggered and guided by the morphological characteristics of the language the child is exposed to and, hence, naturalness considerations and typological constraints may predict the acquisition process of verb morphology across languages.

The high degree of naturalness witnessed in Spanish verbal inflection leads us to predict that the protomorphological stage will begin early in its acquisition process and neither the number of errors in the same process nor the number of overgeneralizations will be very high. This prediction is corroborated by our data where the protomorphological stage develops early on, the number of errors is minimal, and overgeneralizations are sparse and occur relatively late.

Naturalness considerations acquisition paths will start with the most unmarked forms. Spanish shows a verbal form not marked at all: the 3rd per. sg. of indicative present (the same form also symbolizes, nearly always, the 2nd sg imperative form, another morphosemantically unmarked category).

This form is morphosemantically and morphotactically unmarked. The indicative present lacks suffix 1 (tense, mood and aspect suffix) as well as suffix 2 (agreement suffix). Therefore we should expect that this form will be the first one to appear. This prediction, in fact, is borne out in our data. If we examine Magín´s development of miniparadigms, we can see than in almost all of them one of the components is the 3rd per. sg. of indicative present.

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Early Verb Development in one Croatian–speaking Child[1]

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0. Introduction

This paper shows the early development of the first approximately 50 verbs found in the recorded speech production of one Croatian girl. The aim is to analyse and interpret the child's verb development in terms of the distinction of a pre- and a protomorphological phase before modularised morphology in language acquisition (Dressler & Karpf 1995). Furthermore, focus will be laid on the emergence of first verb paradigms.

1. Description of the Croatian Verbs

1.1. Grammatical Categories

The verbal system of the Croatian variety, which is acquired by the child under investigation, can be described with the following verbal categories:

person (1. 2. and 3.), number (singular and plural), mood (synthetic: indicative, imperative, analytic: conditional I and conditional II), aspect (perfective, imperfective), tense (synthetic: present, analytic: perfect, pluperfect, future I and future II), infinitive and the adjectival past participle agent[2]. Although we have no systematic evidence from the child's input regarding the frequency of the use of verbal categories, one can assume that conditional II, the optative, the patient participle and pluperfect are either not used at all or very rarely. Except for elliptic contexts, e.g. in answers to questions, infinitives and participles hardly appear without finite auxiliary verbs.

Croatian is a pro-drop language. The finite verb agrees with the subject in regard to person and number. Participles (in analytic tense forms) are marked for gender and number.

The child is acquiring an urban variant, usually referred to as Zagreb Kajkavian dialect (ZKD). This dialect differs in many respects from the Štokavian standard variant.[3] For the purposes of this work it is important to mention that the only form expressing the past is the analytic perfect. Forms of exact future (future II) have the same temporal reference as future I. They are usually used in ZKD to express future tense and not future perfect as in the standard

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[2] Standard (written) Croatian shows furthermore the following categories: imperfect (synthetic), aorist (synthetic), optative, past participle agent and adverbial participles.

[3] Works on The Zagreb Kajkavian dialect are among others Magner, Thomas (1966) and Šojat, Antun (1979).

language. In addition, it is typical for ZKD that overt pronouns in contexts which require pro-drop in the standard language do not imply emphatic interpretation.

Examples for categories which show up in the child's speech productions in the analysed period are given below exemplified by forms of the verb *gledati* (to look).

infinitive: *gled-a(-)ti*
person – number – mood synthetic:

	present indicative			imperative	
	singular	plural		singular	plural
1.pers.	*gled-a-m*	*gled-a-mo*			
2.pers.	*gled-a-š*	*gled-a-te*		*gled-a-j*	*gled-a-j-te*
3. pers.	*gled-a*	*gled-a-ju*			

Table 1. Morphological marking in Croatian synthetic moods[4].

agent past participle:

	masc.	fem.	neut.
singular:	*gled-a-o*	*gled-a-la*	*gled-a-lo*
plural:	*gled-a-li*	*gled-a-le*	*gled-a-la*

aspect: imperfective: *pre-gled-av-a-ti* (search through)
perfective: *pre-gled-a-ti*

Prefixation plays an important role in perfective formation, but it hardly has exclusively grammatical function, because it almost always also modifies the lexical meaning of the verb.

tense: synthetic: present *gledam, -aš* ... (see table 1)

analytic: future I is formed by the clitic forms of the verb *htjeti* (want) and the infinitive. Future II consists of the perfective forms of *biti* (be) and the active past participle. Perfect tense is also formed with the latter participle and clitic forms of *biti* (be).

future I

		htjeti clitic (want)	
	infinitive	sg.	pl.
1.pers.	*gledat(i)*	*ću*	*ćemo*
2.pers.		*ćeš*	*ćete*
3.pers.		*će*	*će*

Table 2. Future I formation

	SINGULAR			PLURAL		
	AUX[5] futureII	PARTICIPLE	AUX perf.	AUX future II	PARTICIPLE	AUX perf.
1.pers.	*budem*	*gledao, -la, -lo*	*sam*	*budemo*	*gledali, -le, -la*	*smo*
2.pers.	*budeš*		*si*	*budete*		*ste*
3.pers.	*bude*		*je*	*budu*		*su*

Table 3. Future II and perfect formation

1.2. Inflectional classes

Being a typical Slavic language Croatian is a fusional-inflecting language type and it is considered to be morphologically rich. The verbal inflectional system consists of many

[4] There is also 3. sg. in imperative mood, but it has no distinct inflectional form. It is formed by the particle *nek* and the indicative present forms.

[5] In ZKD auxiliary clitic forms are also used: bum(1.sg.), buš (2.sg.), bu(3.sg.), bumo(1pl), bute(2.pl.), buju (3.pl.).

distinct morphological classes.[6] Dressler et al. (1996) establish in their classification of verbal paradigms on the basis of inflectional productivity, 4 major macroclasses with productive microclasses and one recessive class with root inflection and many irregularities. In table 4 only those classes are listed, which show up in the child's production. Classes are referred to by numbers: the first number indicates the respective macroclass, the second number the class, capital letters indicate subclasses and small letters microclasses. Forms given are: infinitive, 1. sg. present indicative, 3. pl. present indicative, imperative, fem. sg. active/past participle. In the following row the plus or minus sign shows whether the respective class is productive or not.

class	inf.	1. sg.	3. pl.	imp.	part.	prod.	engl.
4/a	*gled-**a**-**ti***	*gled-**a**-**m***	*gled-**a**-**ju***	*gled-**a**-**j**!*	*gled-**a**-**la***	+	look
3/1/a	*nos-**i**-**ti***	*nos-**i**-**m***	*nos-**e***	*nos-**i**!*	*nos-**i**-**la***	+	carry
3/2/a	*vid-**je**-**ti***	*vid-**i**-**m***	*vid-**e***	*vid-**i**!*	*vid-**je**-**la***	-	see
3/3/a	*drž-**a**-**ti***	*drž-**i**-**m***	*drž-**e***	*drž-**i**!*	*drž-**a**-**la***	-	hold
1/2/a	*pi-**ti***	*pi-**j**-**e**-**m***	*pi-**j**-**u***	*pi-**j**!*	*pi-**la***	-	drink
2/1/A/a	*ski-**nu**-**ti***	*ski-**n**-**e**-**m***	*ski-**n**-**u***	*ski-**n**-**i**!*	*ski-**nu**-**la***	+	take down
2/2/a	*pis-**a**-**ti***	*piš-**e**-**m***	*piš-**u***	*piš-**i**!*	*pis-**a**-**la***	-	write
suppletive	*biti*	*(je)sam*	*(je)su*	*budi!*	*bila*	-	be
isolated	*htje-**ti***	*hoć-**u***	*hoć-**e***		*htje-**la***	-	want
root-cl	*pa-**sti***	*padn-**e**-**m***	*padn-**u***	*padn-**i**!*	*pa-**la***	-	fall down

Table 4. Verb-classes

Among all classes 4/a is the most frequent, homogenous, transparent and productive microclass, which integrates almost all loan words. Thematic vowels or consonants can be the same in present and infinitive stems as in microclass 4/a and 3/1/a or they can differ as in all other classes. In the 3/1/a microclass pres. 3.sg. and imp. 2.sg. are homophonous, e.g. *nosi* (carry 3.sg. and imp. 2.sg.).

2. Data description

Verb productions treated in this study are taken from a longitudinal corpus of a first-born girl. Antonija, the girl, is growing up in Zagreb and her input is a Croatian urban koine, also called the Zagreb (Kajkavian) dialect (see section 1). The recordings have been transcribed and coded following the norms of CHILDES (MacWhinney 2000).[7] Figures are calculated on the basis of a preliminary transcribed version of the material. The revised version will probably entail some minor changes.

In terms of age the first 50 verb lemmas appear in the transcribed material between the age of 1;6.15 and 1;10. Table 5 shows details of the Antonija corpus:

[6] Traditional classifications can, among others, be found in: Babić et al. (1991) and Težak & Babić (1992). A contrastive presentation of the Croatian inflectional classes in terms of Natural Morphology is presented in Dressler et al. (1996).

[7] The material presented here has been collected and transcribed by Draženka Blaži, the mother of the child, in the framework of the project "Psycholinguistic Aspects of the Acquisition of the Croatian Language", Department of Speech and Language Pathology (University of Zagreb). Thanks are due to Melita Kovačević and her collaborators, who supplied me with the material.

Session	Age	Duration	overall Productions	analysed utterances
AB06	1;6.15	10:58	62	48
AB07	1;7.2	12:32	77	74
AB08	1;7.15	19:03	140	107
AB09	1;7.27	12:45	120	91
AB10	1;9.15	20:55	257	205
AB11	1;10	19:37	155	150

Table 5. Data

Note, that there is a period of almost two months where no recordings were made (between 1;7.29 and 1;9.15). The column "overall productions" covers all transcribed units except for babbling, paralinguistic material (e.g. laughing) and unintelligible vocalisations.

The column "analysed utterances"[8] includes all productions but citations (e.g. nursery rhymes and songs), direct imitations and repetitions.[9] Utterances entailing formulaic or phatic forms, e.g. *znaš!* (you know!, meaning warning and displeasure), *molim (te)* (I ask (you), meaning: „please") were also excluded from the analysis.

3. Predecessors of verbs in predicative function:

Before and at the beginning of the emergence of the first verbs some predecessors of verbs appear in predicative function. At the age of 1;4.15 there are some approximations to real words of the type *bota* for *baci* (throw) and onomatopoetics, e.g. *toupa* for a doll that fell down. At the age of 1;4.15 one can observe (negated) deictics, which can be interpreted as a part of the predicate: (*ne*) *to* ((not) this) and a noun plus a deictic at 1;6.15 *teta # simo* (aunt # here). The latter utterance is expressed while Antonija is asking a woman appearing on TV to come to her. In general the data do not show any obvious recurrent replacement of verbs by neither grammatical nor extragrammatical means.

4. Emergence of verb forms

4.1. Verb production

Antonija's production of verbs in relation to the overall analysed utterances for each recording session can be seen in table 6. It shows the occurence of verbs as lemmas[10] (lexical items), types (different forms of one lemma)[11] and tokens (occurrences for each specific verb form) in absolute numbers and also in relation to the amount of all analysed utterances. Furthermore, numbers of utterances with verbs and their relation to all analysed utterances are presented.[12]

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[8] To qualify as an utterance, a production had to include at least one meaningful unit corresponding to a Croatian word in form and meaning.

[9] In cases where imitated or repeated utterances were interpreted as appropriate reactions also in regard to adult communication, e.g. answers to questions, they were not excluded from the analysis.

[10] Aspectual pairs involving different suffixation, e.g. *baciti*.perf. – *bacati*.impf. (throw) are considered as two different lemmas. Paradigmatic opposition of verbs regarding prefixes could not be found in the analysed period. Antonija used a totalof 3 prefixed verbs, but non of these stems showed up with another prefix.

[11] Erroneous forms, i.e. non-existing forms in the target language, were counted as types. Such forms are generally rare: in absolute figures there are 4 types of 4 lemmas formed by analogy, class shift and the production of the root form *bac* (throw) (see section 7).

[12] In these figures full analytic forms are counted as two verbs, i.e. they were counted as 2 items for each group.

age	lemmas	types	tokens	utt.+verb[13]	% lemmas	% types	% tokens	%utt.+verb
1;6.15	7	7	21	21	15%	15%	44%	44%
1;7.2	11	12	25	24	15%	16%	34%	32%
1;7.15	14	18	28	26	13%	17%	26%	24%
1;7.27	14	16	21	18	15%	18%	23%	20%
1;9.15	29	39	131	113	14%	19%	64%	55%
1;10.	24	30	76	67	16%	20%	51%	44%

Table 6. Lemmas, types and tokens in relation to analysed utterances

Generally, verb production remarkably increases at 1;9.15.[14] Both utterances with verbs and verbs as tokens represent more than 50% of the analysed utterances. Lemmas and types are growing at 1;9.15 only in absolute numbers. When relating lemmas and types to the analysed utterances no striking increase shows up.

This distribution can be explained with Antonija's very extensive use of grammatical verbs (copula and auxiliaries) and the occasional omissions of lexical verbs in analytic constructions (see section 4 and 5). By looking more into detail and separating grammatical from lexical verbs one can see, that the increasing token frequency predominantly regards grammatical verbs. Moreover, one can observe an increase of lexical verb tokens in relation to the analysed utterances, but it is by far not as striking. Table 7 shows the corresponding figures of grammatical and lexical verbs in relation to all analysed utterances.

	lexical verbs			grammatical verbs				lexical verbs			grammatical verbs		
age	lem.	typ.	tok.	lem.	typ.	tok.	anal utt.	lem.	typ.	tok.	lem.	typ.	tok.
1;6.15	5	5	13	2	2	8	48	10%	10%	27%	4%	4%	17%
1;7.2	9	9	14	2	3	11	74	12%	12%	19%	3%	4%	15%
1;7.15	11	14	17	3	4	11	107	10%	13%	16%	3%	4%	10%
1;7.27	11	13	17	3	3	4	91	12%	14%	19%	3%	3%	4%
1;9.15	24	31	57	5	8	74	205	12%	15%	28%	2%	4%	36%
1;10	19	21	42	5	9	34	150	13%	14%	28%	3%	6%	23%

Table 7. Lexical vs. grammatical verbs

[13] Out of all utterances with analytic constructions, 6 utterances contain more that one verb form.

[14] In the very first recording the number of utterances with verbs appears to be relatively high (44%). This could be due to methodological reasons: This early recording still had many utterances entailing babbling and unintelligible vocalisations. These were excluded from the number of analysed utterances, which increased the proportion of verbs.

4.2. Verb categories (1;6.15-1;7.27): premorphology

The first categories appearing in the corpus are provided in Table 8.

	1;6.15		1;7.2		1;7.15		1;7.27	
	lemma	token	lemma	token	lemma	token	lemma	token
1.pres.sg. indicative	1	2	2	2	2	2		
3.pres.sg. indicative [15]	4	13	8	16	7	14	9	10
2. sg. imperative	1	5	2	7	3	5	5	9
infinitive					1	1	1	1
past part+aux					1	1		
ambig. 3Sg/2Imp	1	1			2	3		
ambig.1.Pl. Imp./Ind.					1	1	1	1
root					1	1		
total	7	21	12	25	18	28	16	21

Table 8. Verb categories 1;6.15-1;7.27

First verb forms are in most cases present 3.sg. and imperative 2.sg., the former being more represented in lemmas and tokens than the latter. Forms of the 3 .sg. correspond in lexical verbs to the base form, which is the least marked form[16]: *p(r)iča* (tells), *kupa* (bathes), *g(l)eda* (looks), *čita* (reads). Verb forms in 3.sg. also show up with the affirmative enclitic and the negated copula: *(ni)je*. The forms *baci* (throw) and *p(r)imi* (grasp) are ambiguous (pres.3.sg./imp.2.sg.). They are also base forms (root+thematic *-i*) and belong to the productive microclass 3/1/a (see section 4.4.). Clear instances of imperatives occur with the verbs *čekati* (wait) and *dati* (give). The respective forms are *čekaj!* and *daj*! Antonija also uses the shortened imperative form *g(l)e!* (look) (instead of *gledaj!*) which is very frequently used in Zagreb.[17]

In present indicative 1. person marking was observed with three verbs: *bacim* (throw, 1.pers.sg.), *nisam* (not be (copula), 1.pers.sg.) and *neću* (not want, 1.pers.sg.). Other categories appear very rarely and mostly in one single lemma.

Plural can be found only with presumably formulaic and rote learnt-expressions in imperative or ambiguously imperative or indicative mood: *idemo p(j)evati* (let's sing) and *bacimo* (throw, 1.pl. pres. perfective) or (1.pl.imp.). Moreover one single analytic verb form appears, context bound 3.sg. perf. masc.: *pao je* (masc.sg. Aux,3.sg. - "he fell down").

When looking at context and meaning of these early verb forms it becomes apparent that 3.sg. forms are used also instead of other categories, e.g. 1.sg.[18] and imperative.

Examples: Situation: Antonija insists in taking her father's keys from the table.

*MOT: *ne maco ne.*
%eng: no kitty no.
*MOT: *to je tatino.*
%eng: this belongs to daddy (lit.: this is paternal).
*ANT: *(h)oće.*
%eng: want (3.sg.).

[15] The enclitic and emphatic form of the copula have been counted as two different lemmas.

[16] Also according to analyses, where *-a-* is not considered being a thematic vowel but a part of the person/ number suffix (Babić et al. 1991 and Težak & Babić 1992), the 3.sg. represents the least marked form.

[17] Besides *gle* there is also the reduced *ček* instead of *čekaj* (wait!) used in ZKD very often reduplicated (*ček-ček*!).

[18] Sometimes it is hard to decide whether the child refers to herself in the 3.sg. as many children do in this age or whether she skips the 1.sg. agreement marker. But there are also instances, where the pronominal subject is overt while the realised verb does not agree in number and person, e.g. *ja p(r)ima* (I grasp,3sg.) (see section 5).

Situation: Antonija brings a picture-book to her mother and asks her to read.

*ANT: *čita*![19]
%eng: read (3.sg.)!

Generally, Antonija's verb production's in sessions 1;6.15-1;7.27 indicate, that she is in the premorphological phase, devoid of any specific morphological activity. In this period verb forms appear to be non-analysed and rote learnt (see MacWhinney 1978 and Dressler & Karpf 1995). Lemmas show up in just one single form. Exceptions in this respect are the verb *baciti* and the negated copula (auxiliary) *ne biti* (see section 6). Suffixes marking person and number in the target language are often skipped in lexical verbs, hence replaced by 3.sg. forms. Infinitives and participles are very rare and when used they seem to be strictly context-bound.

4.3. Verb categories (1;9.15&1;10): protomorphology

Table 9 shows the verbal categories produced by the child after almost two months. The numbers in the cells are to be interpreted as lemmas / tokens. Infinitives and participles which have been produced with finite verbs (e.g. in analytic tense forms or with modal verbs) are referred to underneath their respective category.

	1. sg.	2. sg.	3. sg.	1. pl	3. pl.	fem. sg.	masc. sg.	plural	inf.
pres. ind.	9/31	6/8	7/69[20]						
+inf.	0/3								2/3
imp.		7/18			1/1				
+ inf.				½					1/2
fut.I: aux	2/21								
aux+inf.	0/9	1/1							6/10
fut.II: aux	2/2		½						
aux+part.			0/2			1/1	1/1		
perf.:aux	3/6		1/1						
aux+part.	0/5	1/1				6/6			
infinitive									1/1
part.								1/1	
total	16/77	15/28	9/74	½	1/1	7/7	1/1	1/1	10/16

Table 9. Verb categories: 1;9.15&1;10

After the long recording interval, Antonija produces more and new verb (sub)categories. In addition to 3. person, also the other persons, especially 1. singular, are used productively in singular indicative mood. Lexical verbs are marked with the respective suffixes (*-m, -š*), e.g. *zezam* (tease.1.sg.), *znam* (know.1.sg.), *nemam* (not have.1.sg.) *imaš* (have.2.sg.), *p(r)ičaš* (tell.2.sg.).

First analogical errors appear: *hoćem*[21] (want,1.sg.). The verb *htjeti* (want) has an irregular suffix (*hoć-u*) as 1. sg.-suffix in the target language. The form used by the child shows that she has identified the "theme plus *–m*" suffix as 1. sg. marking.[22]

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[19] Note that in the same session Antonija produces the full target form, (base plus final *–j*) of a phonological similar verb, which belongs to the same class: *čekaj!*

[20] Among the 69 3.sg. tokens there are 55 instances of the copula.

[21] Although *hoćem* is also used in ZKD, Antonijas mother confirmed my impression, that this form was not used in the family and by the social surrounding the child was confronted with.

[22] For similar findings in another Croatian child see Anđel et al. (in press).

All analytic forms of infinitives (fut. I) and participles (fut. II and perf.) are used productively: *ja ću bombicu popapati* (I AUX.fut.I candy.dim.akk. eat up.inf. – "I will eat up the candy"), *bude jodija* [: *rodila*] # *mama* (AUX.fut.II give birth.part.fem.sg. # mummy – "mummy will give birth") and *ja <san dobija>* [: *sam dobila*] *c(v)ijeće.* (I AUX.perf. get.part.fem.sg. flowers – "I got flowers"). Except for two instances, participles and infinitives are almost exclusively used in analytic verb forms. Gender marking on participles is in most cases feminine, presumably because the girl refers usually to herself. Though when referring to her father, in one instance, she used the masculine participle.

Plural forms are still rare. They appear with the same lemmas as in the earlier sessions and under contextually bound or dubious circumstances: *idemo p(j)evati!* (let's sing!).

Antonija's (morpho)syntactic development shows up not only in the use of analytic forms. Generally she seems to have a preference for grammatical verbs (see section 5). 55 (27%) of the 207 analysed tokens are copulas 3.sg.. Moreover, when analytic forms are elliptic, the lexical part tends to be omitted. This holds especially for future I forms, such as in:

Situation: Antonijas mother wants to have a certain pencil.

*MOT:	*hoćeš mi dati?*
%eng:	AUX/MOD.2.sg. to me give?
	»will / do you want you give me?«
*ANT:	*ne.*
%eng:	no.
*ANT:	*ja ću tebi drugu.*
%eng:	I AUX.1.sg. you,dat. one/the other
	»I will to you another«

In sum, Antonija shows new verb categories and erroneously regularised verb forms. Moreover her category substitutions and agreement errors almost totally disappear. Due to these observations one can assume that at the age of 1;9.15 Antonija is already in the protomorphological phase.

4.4. Verb Classes

The following table 10 provides an overview of the distribution of inflectional classes in Antonijas production. The numbers in the cells correspond to lemmas/types/tokens.

Class	example	1;6.15	1;7.2	1;7.15	1;7.27	1;9.15	1;10	total
4/a	*gledati, -am*	1/1/5	7/ 7/12	5/5/7	5/6/9	14/16/31	8/8/8	40/43/72
3/1/a	*nositi, -im*	1/1/1	1/1/1	2/5/6	3/3/3	4/4/4	4/4/5	15/18/20
3/2/a	*vidjeti, -im*				1/1/1			1/1/1
3/3/a	*držati, -im*					1/1/5		1/1/5
1/2/a	*piti, -jem*			1/1/1		1/1/1		2/2/2
2/1/A/a	*skinuti, -nem*						2/2/2 (1*)	2/2/2
2/2/a	*pisati, -šem*	1/1/1*		1/1/1		1/1/1	1/1/1	4/4/4
suppl.	*biti, (je)sam*	2/2/8	2/3/11	4/5/12	4/5/6	5/9/53	5/11/45	22/35/135
isolat.	*htjeti, hoću*	2/2/6	1/1/1		1/1/2	3/7/36	4/4/15	11/15/60
root-cl.	*pasti, padnem*			1/1/1				1/1/1

Table 10. Inflectional classes in Antonijas verbs

In lemmas, types and tokens throughout the analysed sessions there is a dominance of two types of classes: on the one hand suppletive and isolated paradigms, and on the other 4/a and 3/1/a, the two most homogenous and transparent classes. The preference for non-homogenous and morphotactic opaque suppletive and irregular verbs are connected with the extensive use of grammatical verbs, which have high token frequency also in the target language (copula

and modal or auxiliary (*ne*) *htjeti* ((not) want): (64% tokens / 41% types / 33% lemmas). On the other hand Antonija's lexical verbs throughout the sessions show a preference for transparent patterns. The most productive, homogenous and frequent[23] class in the target language is also the by far best represented class in the child's lexical-verb productions. 24% of all tokens 35% of all types and 40% of lemmas can be attributed to the class 4/a. The less productive, but also very transparent and frequent class in Croatian, 3/1/a, is continuously used by the child, though to a smaller extent (7% tokens/15% types/15% lemmas). At the beginning of protomorphology, when the child begins to use also infinitive and participles, these categories show up with verbs of the 4/a and 3/1/a class, which have no (present – infinitive) stem alternation, e.g. *pjevala* (sing. part.fem.sg.) and *pjeva* (3.sg.pres.) (see section 6.).

Considering the few verb forms which belong to less frequent and more opaque classes, it appears that they show up in those forms which could be forms of the 4/a and 3/1/a class: inf. *dužati* [: *držati*] (hold.2.sg.imp.), *vidi* (see.part.fem.sg.), *plakaja* [: *plakala*] (cry.part.fem.sg.) etc. On the basis of these forms alone, without any opposition to other forms which involve different bases (e.g. *drži* (hold.3.sg.pres.) and *držati* (infinitive)), there is no evidence that the child differentiates those classes from the homogenous ones.

Finally, class shifts indicated with an asterisk in table 10 also show a preference for these transparent patterns (see section 7).

5. Syntactic usage

First verb forms appear as one-element utterances. This holds for the sessions 1;6.15 and 1;7.2. At 1;7.15 and 1;7.27 Antonija has both one- and two-element utterances. Verbs with predominantly grammatical meaning, i.e. copula and auxiliary verbs are among the earliest forms. Out of 95 verb tokens (1;6.15-1;7.27), 34 (36%) are grammatical verbs.[24]

It has already been shown in section 4.2., that the context in which early verb forms appear (1;6.15-1;7.27), indicates that Antonija does not use grammatical categories according to the target language. This holds especially for the 3. sg. pres. (see section 7).[25]

In cases with an overt pronoun and a non-agreeing verb also the syntactic context shows that 3. sg. replaces other categories (in this case 1. sg.) :

1;7.15 *ja prima* (I grasp.3sg.)
1;7.27 *vidi ja* (see.3.sg. I)

At 1;9.15 Antonija's productions show that a striking syntactic development has taken place: Utterances with more than three elements appear and finite verbs show person and number agreement with overt subject-pronouns. The use of grammatical verbs increases dramatically: there are 108 (52%) grammatical verb tokens out of total 207 verb tokens in the sessions recorded in 1;9;15 &1.10. Moreover adverbs, direct and indirect object pronouns and analytic tense forms emerge in these sessions: *neću tebi dati* (neg.AUX/want.1.sg. you.dat. give - »I will not give to you«), *i ja ću ovo dužati* [: *držati*] (and I AUX.1sg. this.acc. hold - »and I will hold this«). The child also starts using constructions consisting of modal verbs and infinitives: *(h)oću (o)vako dužati* [: *držati*] (»I want hold like this«). Out of 180 analysed utterances with verbs, 23 (13%) contain verbal constructions with two overt verbs, i.e. periphrastic tenses and

[23] Unfortunately, there is no input analysis available yet. It would be interesting to control the factor of class-frequency in the target language.
[24] More details are given in Katičić (1997).
[25] For similar findings with another Croatian girl see Anđel, et al. (in press).

infinitives with finite modal verbs. Finally, at 1;10 Antonija shows the first co-ordinate clause: *nisam pevaja* [: *pjevala*] *nego sam pakaja* [: *plakala*] (»I did not sing but I cryed«).

6. Emergence of mini-paradigms

This section focusses on the child's paradigmatic form-meaning distinction on the basis of lemmas[26]. Kilani-Schoch & Dressler (2000) propose five criteria for establishing the onset of a paradigm[27]: i.e. spontaneous production (not imitative, not formulaic), articulatory accuracy, use in contrasting contexts and recurrence. Instances which fulfill these criteria are termed as "mini-paradigms", since they are already "true" but not complete paradigms. The emergence of mini-paradigms is taken to be an indicator for the fact that the child has identified morphology. In this sense the question arises, whether the emergence of mini-paradigms coincides with other factors, which indicate or which accompany the child's developmental changes.

6.1. Qualitative analysis

Following the proposed criteria we find the following true mini-paradigms (three-types of the same lemma) and furthermore also two-member mini-paradigms as candidates for true mini-paradigms in the Croatian data:

Table 11 and table 12 provide information about the child's paradigm formation activity. The first shows the emergence of true mini-paradigms, the latter two-member mini-paradigms.

In order to allow comparability of different languages and different corpora, mini-paradigms were counted per month of life. Therefore three-member mini-paradigms, which appear in a short interval but not in the same month of life were not counted as true mini-paradigms. Though, for a qualitative description, additional forms of paradigm candidates were also listed in table 12 below.

Age	Lemma	Forms	Category	Class, inf., pres. marking	English
1;7	*baciti* (?)	*baci*	3. sg.pres./2.sg.imp.	3/1/a, *–iti, -im*	throw
		bacim	1. sg. pres.		
		bacimo	1. pl. pres./imp.		
1;9	*biti*	*sam*	1. sg. pres.	suppletive	want
		si	2. sg. pres.	(clitic)	
		je	3. sg. pres.		
1;10	*ići*	*idem*	1. sg. pres.	suppletive	go
		ideš	2. sg. pres.		
		ide	3. sg. pres.		

Table 11. True mini-paradigms

[26] For the definition of lemma see section 4.1. and footnote 10.
[27] A paradigm is defined as all inflectional forms of the same lemma.

Age	Lemma	Forms	Category	Class, inf., pres. marking	English
1;9	*dati, dam*	*daj*	2. sg. imp.	4/a, *-ati, -am*	give
1;9		*dati*	infinitive		
1;9	*gledati, -am*	*g(l)eda*	3. sg. pres.	4/a, *-ati, -am*	look
1;9		*g(l)edali*[28]	part.(masc.) pl.		
1;9	*ići*	*idem*	1. sg. pres.	suppletive	go
		ide	3. sg. pres.		
1;10		*g(l)e*	2. sg. imp. (ZKD)	irregular	
1;9	*pjevati*[29]	*p(j)evati*	infinitive	4/a, *-ati, -am*	sing
1;10		*p(j)evala*[30]	part. fem. sg.		
1;9	*htjeti*	*(h)oću*	1. sg. pres.	isloated	want
1;9		*(h)oćeš*	2. sg. pres.		
1;10	*biti*	*sam*	1. sg. pres.	suppletive	be
		je	3. sg. pres.	(clitic)	
1;10	*ne biti*	*nisam*	1. sg. pres.	suppletive	not be
		nije	3. sg. pres.		

Table 12. Two-member mini-paradigms

Already in the premorphological period Antonija shows the first three-form-opposition of the same lemma. It is very dubious, whether this instance should be identified as a "true" mini-paradigm in Kilani-Schoch's and Dressler's (2000) sense. The contrastive contextual appropriateness of the respective forms of *baciti* (throw) is questionable. The child uttered them in very short intervals in a quite playful way while playing with a ball, producing also the root *bac*. Apart from this there was no other instance of morphological opposition in any other lemma in this early period.

In those sessions (1;9.15 & 1;10) where Antonija can be considered as having already entered the protomorphological stage, the various true mini-paradigms and two-member mini-paradigms show up.

The first clear mini-paradigms are suppletive verbs. In the case of the clitic verb *biti* (be) the early appearance is in accordance with Antonija's extensive use of copula and auxiliaries. On the one hand, forms of *biti* show a very high degree of opacity and irregularity throughout the whole paradigm. On the other hand, all three forms of the verb *ići* (go) show a transparent pattern.

The categories in which first mini-paradigms appear are predominantly indicative singular forms. Looking also at two-member pairs one sees the majority of forms being either 1. or 3. person. To a smaller extent, 2.sg. imperatives and infinitives are involved in paradigm formation. Categories involving both stems (infinitive and present) appear first with verbs of the most homogenous class (4/a) (see section 4.4.).

6.2. Quantitative analysis

Since the number of mini-paradigms attested in one corpus depends on sample size, we propose two sample-size independent values for investigating the development of the paradigm-formation capacity in a child. The first value (P(utt)) is calculated by dividing the number of mini-paradigms by the number of analysed utterances per month. The second value (P(lem)) sets the number of mini-paradigms in relation to the number of verb lemmas used in a given month of age. The paradigm values P(utt) and P(lem) are supposed to provide an

[28] Uttered as *g(l)edaji*.

[29] Antonija uttered at 1;7.27 *p(j)eva* (3. sg. pres.). It can be assumed that she is still able to produce this form.

[30] Uttered as *p(j)evaja*.

objective base for comparison of mini-paradigms across different corpora and languages (see also Klampfer and Aguirre in this volume).

Age	2-member mini-parad.	true-MP mini-parad.	paradigm values	
			P(utt)	P(lem)
1;6	0	0	0/48 = 0%	0/ 7 = 0%
1;7	0	1	1/272 = 0,4%	1/14 = 7,1 %
1;9	4	1	4/205 = 1,9%	4/29 = 13,8 %
1;10	2	1	3/150 = 2%	3/24 = 12,5 %

Table 13. Paradigm values

Both paradigm values, P(utt) and P(lem), increase remarkably at 1;9. P(utt) shows that the proportion of mini-paradigms grows independently of sample size. P(lem) shows the relation to the lexical production of verbs. It provides a child and language specific value. The proportional increase of mini-paradigms confirms other findings which indicate that Antonija at this age becomes morphologically active, i.e. that she is in the phase of protomorphology.

7. Morphological substitutions

7.1. Category substitution:

Category-substitution is the most frequent type of substitution that can be observed in Antonijas data. The direction of substitution is almost exclusively towards indicative pres. 3.sg. This type of substitution (omission of markers) is typical for the premorphological period (1;6.15-1;7.27).

Examples are given below:
1;6.15 *(h)oću* (1.sg.pres.)> *(h)oće*[31] (want.3.sg.pres.)
1;7.2 *gledam* (?) (1.sg.pres)> *g(l)eda* (look.3.sg.pres.)
1;7 *čitaj*! (2.sg.imp.) > *čita*! (read.3.sg.pres.)
1;7.27 *vidim (ja)* > *vidi ja* (see.3.sg.pres. I)

7.2. Analogy and class shift

After omitting the pres. 1.sg.-suffix (1;6.15-1;7.27) in the verb *htjeti* (want) Antonija starts marking 1.sg.pres. by analogy to all other verbs with the suffix *-(e)m*. From now on she produces the form *hoćem* (see section 4.3.).

Class shifts are rare in Antonija's data. In total two instances were found (see section 4.4.).

Both cases show transparent forms substituting opaque ones.

1;6.15: classes: 2/2/a > 4/a *piše* > *pisa* (write.3sg.)
1;10: classes: 2/1/A/a > 3/1/a *kucnuti* > *kuciti* (knock.inf)

7.3. Lexical substitutions

Especially in the period (1;9.15 and 1;10), when Antonija starts using periphrastic forms, the infinitive of lexical verbs is occasionally substituted by other elements, e.g. deictics:

1;10 *ja ću (o)vako* (I will that way.) The context of the latter utterance is the following: in displeasing her mother Antonija announces, that she intends to draw on the table.

[31] Phonologically similar contexts indicate that the child at that time was able to produce final *–m*.

8. Conclusion

According to the observations mentioned in the previous sections one can assume that at 1;9.15 Antonija is already in the protomorphological phase. Analogy errors (*hoću* > **hoćem*), the end of agreement errors, syntactic development, the use of more and different verbal categories and finally, the emergence of mini-paradigms indicate that the child has become morphologically active.[32] Presumably because of the long recording interval (1;7.27 – 1;9.15) no transition phase could be observed.

Regarding quantitative distribution, the emergence of mini-paradigms coincides with an increase in verb production and a syntactic spurt, but according to percentages, there is no verb spurt accompanying morphological development.

The earliest category to appear is 3. sg. pres. indicative and 2. sg. imperative. Both categories correspond to the least marked base form (root and thematic vowel) of the paradigm in lexical verbs. But, for the for 2. sg. imp., this holds only for one verb class. In indicative mood verbs in 1. pers. singular are more marked forms. They also emerge early, but are very rare.[33] The preference for the 3.sg. pres. respectively the base form shows up also in category substitutions. The latter are characteristic for Antonija's early sessions, where she is assumed to be in the premorphological phase.

Clear oppositions in person (synthetic) and tense (for all non present tenses analytic) marking appear for the first time in the same recording-session (1;9.15). Because of the lack of data for 1,5 months it is not possible to definitely find out whether both categories appear at the same time or whether one category appears before the other. The relatively early emergence of analytic tense forms could be due to the fact that the target language has synthetic forms only in present tense. The category of person is marked distinctively by the child before number. Besides semantic markedness this could be due to the fact that both categories are distinctively marked in the target language.

As regards classes, Antonija shows on the one hand many suppletive and irregular verbs. Because of their grammatical function, they are also high-token-frequency verbs in the target language. Nevertheless, Antonija's strong tendency of using grammatical verbs is atypical for child language in general. Possible reasons for this will have to be looked for in future work including also syntactic analysis. Moreover it will be of interest, whether this behaviour is child- or also language-specific.

With lexical verbs on the other hand, she shows a preference for homogeneity and transparency. The most productive, frequent and thus transparent classes in the target language (4/a and 3/1/a) are also the most frequent classes in Antonija's lexical-verb productions. Moreover, class shifts, the early emergence of forms involving both (present and infinitive) stems and their absence with verbs belonging to other, more opaque classes show the child's preference for transparency and homogeneity.

[32] Additional evidence from Antonijas development in the nominal system will be provided in future analyses.

[33] Andel et al. (in press) found a similar order of emergence in their contrastive study of the acquistion of Croatian, French and Austrian German.

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Early verb inflection in Lithuanian

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1. Adult oral verb inflection of Lithuanian

Lithuanian is a highly inflected synthetic language belonging to the Baltic branch of Indo-European languages. The only other living language belonging to this group is Latvian[1]. Baltic is closely related to Slavic.

1.1. The Lithuanian verb system[2]

The inflectional system of the Lithuanian verb is based on tense/mood distinctions: There are three moods (Indicative, Conditional, Imperative) and three synthetic tenses (Present, Past, Future[3]). Verbs are inflected for three persons and two numbers. Nominal/pronominal reference is optional. There is no number distinction in the 3rd person, and, except for participles, no gender distinction in verbs.

The markers of categories are fusional endings; in some verbs, tense is additionally marked by means of morphophonemic alternations in the stem.

Aspectual distinctions (imperfective vs. perfective and habitual in the Past) are introduced by means of prefixes and suffixes. However, there are no systematic oppositions between perfective and imperfective forms, as there are in the case of the Slavic languages, so that aspect is considered a semi-grammatical category in Lithuanian.

Non-finite categories are represented by the Infinitive and a large set of participles (declinable and indeclinable, marked for tense and voice).

1.2. Inflection

In Lithuanian there are three main conjugations in the Present and two conjugations in the Past tense (for examples of inflectional paradigms see Table A1 in the appendix). The Future tense and the marked moods (Imperative, Conditional) are derived from the Infinitive stem. Thus, normally, the three basic forms one has to know in order to construct the whole paradigm are: the Infinitive, the 3rd person Present and the 3rd person Past.

Traditionally, verbs are assigned to a conjugation class according to their stem suffix. This stem suffix is most transparent in the 3rd person forms, which consist of bare stems. In the Present tense, verbs with the stem suffix *-a* form the 1st conjugation, verbs with the stem suffix *-i* - the 2nd conjugation, and verbs with *-o* - the 3rd conjugation.

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[1] The acquisition of Latvian has been studied by Velta Rūķe-Draviņa (see Rūķe-Draviņa, 1982 for references).

[2] Authors of contemporary grammars of Lithuanian differ in their opinion as to the number of grammatical categories of the verb and to the way of classifying particular categories. Here, an approach similar to that of Paulauskienė, 1979 is taken. For a more detailed description of the Lithuanian verb system see Ambrazas e.a., 1997.

[3] Most of Lithuanian grammars include into the system of tenses the fourth synthetic tense - Past Frequentative (based on the Infinitive stem and denoting habituality). The category did not occur in the data studied.

In the two conjugations of the Past tense, verbs with the stem suffix *-o* (as in the 3rd conjugation in the Present tense) form the first (A) conjugation, and verbs with the stem suffix *-ė* - the second (B) conjugation. Verbs belonging to the 1st or the the 3rd conjugation in the Present may belong to either conjugation, A or B, in the Past. All verbs belonging to the 2nd conjugation in the Present have the stem suffix *-o* in the Past.

One can thus distinguish five major conjugational classes in Lithuanian (cf. Wójcik and Smoczyńska, 1997): 1A, e.g. *supti*, ***supa***, ***supo*** 'swing'; 1B, e.g. *kelti*, ***kelia***, ***kėlė*** 'lift, pick up'; 2A, e.g. *turėti*, ***turi***, ***turėjo*** '1. have, 2. must'; 3A, e.g. *žinoti*, ***žino***, ***žinojo*** 'know'; 3B, e.g. *daryti*, ***daro***, ***darė*** '1. do, 2. make'

Verb inflection is, in general, strikingly regular. The endings are superstable markers (cf. Dressler, 1995) - they are the same across all synthetic tenses and in the Imperative plural: 1sg - *-u*, 2sg *-i*; 1pl *-m(e)*; 2pl *-t(e)*.

In some verbs belonging to the 2nd conjugation (*mylėti* 'love'), the forms of the 2sg and the 3rd person are homophonous in the Present tense. In others (e.g. *turėti*) - the 2sg and 3rd person forms are differentiated by stress.

1.3. Verb structure

According to their stem structure, Lithuanian verbs are divided into three classes: (i) primary verbs with the structural pattern *root-ending*[4] in all basic forms (*sup-ti*; *sup-a*, *sup-o*); they may belong to conjugation 1A or 1B; (ii) secondary verbs with the structure *root+suffix-ending* (*aug+in-ti*, *aug+in-a*, *aug+in-o* 'to grow sb. or sth.'); these belong to conjugation 1A; and (iii) mixed type verbs (*dar+y-ti*, *dar-o*, *dar-ė*; *žin+o-ti*, *žin-o*, *žin+oj-o*) which may belong to conjugation 2A, 3A or 3B.

Morphophonemic modifications in primary verbs (consonant infixes and suffixes, quantitative alternations, qualitative gradations) are quite frequent.

As mentioned above, prefixation is one of the devices used to mark aspectual distinctions in Lithuanian. Moreover, prefixes often convey spatial relations (e.g. *dėti* - 'put': *pa-dėti* - 'put down'; *su-dėti* - 'put together'; *į-dėti* - 'put into'); sometimes they also modify lexical meaning (e.g. *pa-dėti* - 'help').

Verbs are negated by means of the prefix *ne-* (also *nebe-* 'no more'). Reflexivity is marked with a mobile affix *s(i)* which takes final position in simplex verbs and moves to the position directly before the root when a verb is prefixed or/and negated, e.g. *supa-si* 'is swinging', *ne-si-supa* 'is not swinging'.

In the case of reflexive forms, the use of a prefix influences the inflection. When reflexive verbs are not prefixed (i.e. when the reflexive affix is at the end of the word), the 1sg and 2sg markers of the 1st and 2nd conjugation of the Present tense, as well as the 1sg and 2sg markers of the Future tense, change from *-u* and *-i* to *-uo-* and *-ie-* respectively: Pres.1sg *sup-u* - rfl. *sup-uo-si*, Fut.1sg *sup-s-iu* : rfl. *sup-s-iuo-s*. In the plural of all moods and conjugations the markers have the long vowel *ė*: Pres.1sg *sup+a-m(e)* - rfl. *sup+a-mė-s*.

[4] Or *stem suffix* in the 3rd person.

2. The database

2.1. General data description

The source of the data used in this paper are recordings of conversations with a Lithuanian girl, Rūta. Rūta lives in Vilnius and is the only child in the family. Both parents speak standard Lithuanian without dialectal influences. The recordings were taken on a free basis without a fixed schedule, then transcribed by the mother of the child, double-checked and coded in accordance with CHILDES by the author of the paper. At the moment of writing this contribution the data taken between 1;7-2;5 have been fully processed. Over this period about 34.5 hours of recordings were collected.

Table 1. Rūta's data processed

AGE	DURATION	PRODUCTIONS (Rūta / input)	VERB TOKENS (Rūta / input)
1;7	35 min.	293 / 383	42 / 304
1;8	1h 5 min.	1018 / 1448	119 / 1156
1;9	3h 45 min	2635 / 3120	416 / 2504
1;10	4h 15 min.	2735 / 2978	897 / 2603
1;11	2h 40 min.	1590 / 1466	925 / 1196
2;0	3 h 15 min.	1796 / 2008	871 / 1553
2;1	3 h 20 min.	1776 / 1410	1291 / 1348
2;2	3 h 45 min.	1861 / 1644	1355 / 1633
2;3	3 h 45 min.	2011 / 1789	1372 / 1716
2;4	3 h 35 min.	2065 / 1467	1303 / 1292
2;5	3 h 10 min.	1809 / 1469	1074 / 1428
TOTAL	**34h 20 min**	**19589 / 19182**	**9665 / 16733**

2.2. Data portion analysed for this contribution

The data portion studied in this paper covers the period from 1;7 till 1;10 when Rūta begins the protomorphological stage of linguistic development. Over that period about 9.5 hours of recordings were taken during which the girl produced 6491 utterances[5].

The numbers in the third column of Table 2. show the number of days in the course of which the recordings were taken. It can easily be seen that both the duration of the data portions and the number of sessions differed for particular months. This fact should be borne in mind especially when analysing the results of calculations given in absolute numbers.

Table 2. Rūta's data used in the paper.

AGE	DURATION	No. of SESSIONS	UTTERANCES
1;7	35 min.	5	283
1;8	1h 5 min.	15	959
1;9	3h 45 min	19	2576
1;10	4h 15 min.	24	2673
TOTAL	**9h 40 min**	**73**	**6491**

[5] Utterance - a production with at least one identifiable unit.

2.3. Verbs singled out for the analysis

Two different kinds of methodological approaches in selecting verbs for analysis were adopted in this paper. In the sections 3-4 and 6, where the process of verb acquisition in general is discussed, we excluded from the analysis: (i) amorphous baby talk forms, onomatopoeia etc., (ii) verbs which could not be clearly identified even if their form and/or syntactic position attested that they might be predicates, and (iii) citations, nursery rhymes, songs etc. Verb forms which occurred in directly preceding utterances of adults (e.g. forms used in answer to yes/no questions, also non-reversals) are not excluded. It seems impossible to judge in advance which of them might have been imitated and which were creative uses. In the section on the emergence of paradigms (5.0.) a few additional restrictions are made.

3. The emergence of verb categories in Rūta[6]

At the age of 1;7 the only categories recorded in the girl's speech were Present tense and Imperative 2sg (see table A1 in the appendix). In the following month Rūta started using infinitives. At 1;9 Past and Future tense as well as the first participles emerged. At this time a verb spurt could be observed. Conditionals were first recorded at 1;10; however, they were used very rarely and almost exclusively in the form of 3rd person.

As far as the category of person is concerned, 3rd person and 1sg forms could be found in the first portion of the data studied. 2sg forms were recorded at 1;8 but all of them were non-reversals occurring in answers to yes/no questions. The first correct instance of 2sg was found at 1;10 but it should be emphasised that only at 2;1 the ratio of non-reversals decreased significantly (from 67% at 2;0 to 3% at 2;1). A 1pl form was used already at 1;8 (in a hortative expression) and the number of 1pl increased in the course of the following months. 2pl verbs were rare in the whole corpus.

Most frequent were 3rd person verbs which were commonly used in self-reference and in addressing the interlocutor. As shown in Table 3, most of the 3rd person forms referred to non-plural subjects. The conversations were child-oriented, so 1sg forms were more numerous in the girl's utterances than 2sg forms.

Table 3. The number of the 3rd person forms used in singular and plural contexts in Rūta's utterances.

	1;7	1;8	1;9	1;10	1;11	2;0	2;1	2;2	2;3	2;4	2;5	TOTAL	(%)
3sg	21	63	198	439	503	437	535	533	567	502	395	4193	**94,5**
3pl	0	6	10	1	12	17	34	66	43	28	27	244	**5,5**
total	21	69	208	440	515	454	569	599	610	530	422	4437	**4437**

4. Development of the verbal lexicon

4.1. Predecessors of verbs

In the first months of the data one can find a number of onomatopoeias and words belonging to the common Lithuanian baby-talk lexicon (BT)[7] used in predicative function, e.g.: *bū* 'go (by a vehicle)', *puški-puški* 'BT - wash, have a bath'; *popa* 'BT - hurts', *tepu-tepu* 'BT walk'; *babak!* 'BT fall'. Moreover, Rūta used a large number of other BT words and onomatopoeias

[6] For a more detailed analysis see Wójcik, 1998, Wójcik *in press*.
[7] See also Wójcik, 1994.

whose function is not clear (they might also be used in nominal function), e.g. *kar-kar* 'BT 1. to fly; 2. a bird', *niam-niam* 'BT 1. eat; 2. food'; *au-au* '1. bark; 2. dog'; *miau-miau* '1. meow; 2. cat' etc.

BT verbs and onomatopoeias were still present in Rūta's speech at 2;5, e.g. *padarysiu pyp* 'lit. I will do *beep*' when about to press a computer's button.

4.2. Verb production

When studying the development of the lexicon and the problems connected with the emergence of inflection in Lithuanian, one has to be aware of the role of prefixation. In Lithuanian, as mentioned above, prefixes modify the lexical and/or aspectual meaning of verbs. For a long time, however, Rūta tended to omit them or replace them with fillers (Section 6.1). Therefore, when the situation is not completely clear, it is often difficult or even impossible to establish beyond doubt what the verb the child wanted to use exactly was.

What is even more important, in the data studied prefixation did not affect inflection - the non-prefixed reflexive forms referred to in Section 1.3. were very rare in the parents' speech and practically did not occur in the girl's utterances. Thus, when dealing with the development of the lexicon and the acquisition of paradigms, in addition to the notion of lemma, the term *identical root with the same stem formations*[8] (further on abbreviated to ISF and written in CAPITALS) will be used. An ISF is defined as an abstract representation of a group of verbs sharing a common root and differing only by the presence or absence of prefixes and/or the reflexive marker. For instance, the lemmas: *mokyti* 'teach', *mokyti-s* 'learn', *pa-mokyti* 'teach for a certain period of time' represent the ISF 'MOKYTI'.

Table 4. presents the development of Rūta's active vocabulary. The calculations were done cumulatively, i.e. new items were added to those found in the earlier portions of the corpus. It can easily be seen that between 1;7 and 2;5 Rūta's lexicon developed considerably. The relatively most rapid growth of the girl's vocabulary took place till 1;11, but later on the number of new ISF and lemmas increased considerably.

Table 4. The number of ISF's and lemmas in Rūta's utterances.

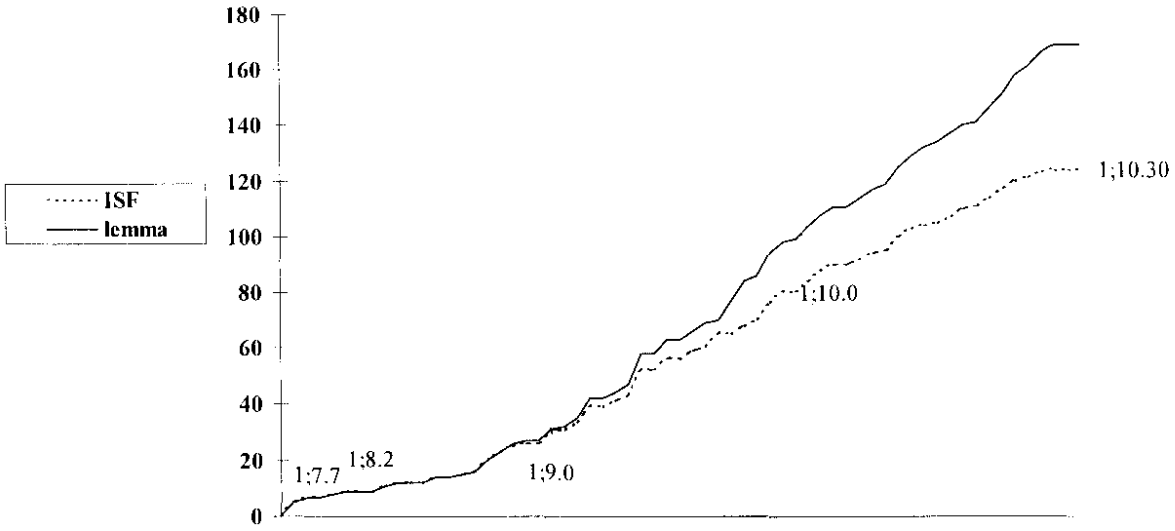
	1;7	**1;8**	**1;9**	**1;10**	**1;11**	**2;0**	**2;1**	**2;2**	**2;3**	**2;4**	**2;5**
ISF	8	26	70	116	144	165	188	213	239	254	267
LEMMA	8	27	91	167	223	275	327	380	440	482	513

A very important point of time in the development of Rūta's lexicon was the age of 1;9, when an expansion of derivational processes took place - the difference between the number of ISF's and the number of lemmas became conspicuous for the first time. In the following months the difference gradually became more salient. Their ratio is represented in Figure 1., where the results of calculations of the data coming from particular sessions recorded during the four months in question are given[9].

[8] The term was proposed by Wolfgang U. Dressler during the workshop of Pre- and Protomorphology (Berlin, 2000). In Wójcik, *in press* the term 'lemma' is used in the meaning of ISF, and the term 'lexeme' is used for 'lemma'.

[9] For the sake of lucidity only the dates of the first and last sessions are given.

Figure 1. The number of verb ISF's and lemmas in Rūta's utterances.



The end of 1;8 and the beginning of 1;9 was the point when a verb spurt could be observed. However, one has to bear in mind that at 1;9 twice the amount of data was collected when compared to the preceding month. On the other hand, the relative frequency of utterances containing a verb (last column of Table 5.) did not change considerably. Only at 1;10 the amount of utterances with verbs reached one-third of all utterances.

Table 5. The development of Rūta's verbal lexicon till the onset of protomorphology[10]

	ISF	lemmas	verb token	utterances	v/utterance
1;7	8 (8)	8 (8)	42	283	14,8
1;8	23 (26)	24 (27)	118	959	12,3
1;9	68 (70)	87 (91)	419	2576	16,2
1;10	97 (116)	131 (167)	897	2673	33,5

5. The development of paradigms

5.1. Method

When studying the emergence of inflectional paradigms we excluded from the analysis[11] the verb forms occurring in such contexts for which it might be suggested that they were not produced fully spontaneously or that they were modelled in some way on directly preceding adults' utterances. Therefore, the 3rd person verbs used in answers to yes/no questions were excluded, even though such a way of answering questions is a common phenomenon in colloquial Lithuanian. All non-reversals which occurred in analogical contexts were left out of consideration as well. However, the 1sg forms used in answer to yes/no questions asked in 2sg were analysed, since their correct use attested that the girl had mastered the category actively.

The assumption was made that if a verb form was used spontaneously at some age, it should be considered acquired when analysing the later portions of the data and recording another form of the same lemma. Thus, when constructing the list of paradigms given below, the search was done cumulatively.

[10] The columns 'ISF' and 'lemmas' present the numbers of units in particular months and cumulative results (in brackets).

[11] In addition to the instances listed in section 2.3.

5.2. Paradigms at 1;7

ISF 8, lemmas 8, verb tokens 42, utterances - 283
categories - Present: 1sg, 3rd; Imperative: 2sg

In the first portion of the data collected at this age (1;7.7) no instances of verb forms were recorded. However, during the following sessions the first instance of a two-member paradigm was recorded:

MOKĖTI 1A 'can-dynamic'

7 tokens of *(ne)moku* Pres.1sg (the first item at 1;7.14) - in answer to a yes/no question containing a Pres.2sg form;

2 tokens of *moka* Pres.3 - one fully spontaneous (1;7.18) and one classified as modelled.

Most of other Pres.3 forms were used correctly in answer to yes/no questions. The most frequent verb *miega* 'sleep:Pres.3' (15 tokens) was used also in answer to wh-questions.

5.3. Paradigms at 1;8

ISF 23 (26); lemmas 24 (27); tokens 118; utterances - 959
categories - Present: 1sg, *2sg, 3rd, 1pl; Future: *2sg (1 item); Imperative: 2sg; Infinitive

At 1;8 no instances of mini-paradigms fulfilling the criteria mentioned in 5.0 were found. An unclear instance was MYLĖTI 'love' used erroneously in Pres.3 form **mylia* 'love' in answer to a question asked in 2sg. Another form of the paradigm was *myliu* Pres.1sg.

5.4. Paradigms at 1;9

ISF 68 (70); lemmas 87 (91); tokens 419; utterances - 2576
categories - Present: 1sg, *2sg, 3rd, 1pl; Past: 1sg, *2sg, 3rd; Future: 1sg, *2sg, 3rd; Imperative: 2sg; Infinitive

As mentioned in Section 4.2.1., at 1;9 a verb spurt was observed. In the same month the first 50 verbs were recorded and the first two-member mini-paradigms appeared. Moreover, two three-member mini-paradigms were recorded, one of them (*būti* 'be') suppletive.

5.4.1. Two-member mini-paradigms

1. KALBĖTI 1A 'talk'
1 *kalba* [=*kaba*] Pres.3; 2 *kalbėti* [=*kabėti*] Inf.
2. SĖSTI 2A 'sit down'
1 *sėsk* Imp.2sg; 2 *sėst* Inf.
3. LAUKTI 1B 'wait'
1 *laukiu* [=*aatiu*] Pres.1sg; 2 *palauk* Imp.2sg;
4. NORĖTI 2A 'want'
1 *noriu* [=*noju*] Pres.1sg; 2 *(ne)nori* [=*nenionia; nenoja*] Pres.3;
5. TUPĖTI 2A 'squat'
1 *tupiu* [=*tupu*] Pres.1sg; 2 *tupi* [=*tipa*] Pres.3
6. ŽIŪRĖTI 2A 'watch, look'
1 *žiūriu* [=*ziūju*] Pres.1sg; 2 *žiūrėti* [=*ziūjėti*] Inf.;
7. EITI 1A 'walk, go'
1 *neik* neg.Imp.2sg; 2 *einam* [=*eimam*] Pres.1pl (hortative)

5.4.2. Three-member mini-paradigms

1. BŪTI 1A 'be'
1 *yra* [=*yja*] , NEG: *nėra* [=*nėja*] Pres.3; 2 *bus* Fut.3; 3 *buvo* Past.3
2. GULĖTI 2A 'lie'
1 *guliu* Pres.1sg; 2 *gulėti* Inf.; 3 *guli* [=*gulia*] Pres.3;

5.5. Paradigms at 1;10

ISF 97 (116); lemmas 131 (167); tokens 897; utterances - 2673
categories - Present: 1sg, *2sg, 3rd, 1pl; Past: 1sg, *2sg, 3rd, 1pl; Future: 1sg, *2sg, 3rd, 1pl; Conditional: 3rd; Imperative: 2sg, 1pl; Infinitive

The age of 1;10 was the point of time when the emergence of new mini-paradigms was particularly spectacular. In the data, one can find a very large amount of new two-member mini-paradigms. Moreover, many new forms of the lemmas already recorded in the earlier portions of the data emerged, which accounts for the rise of new three-and-more-member paradigms. For lack of space only the paradigms with at least three different forms are listed below.

5.5.1. Three-member mini-paradigms

1. GRIŪTI 1A 'fall'
1 *nenugriūsiu* [=*nekakūsiu*] Pres.1sg; 2 *nugrius* [=*agus*] Fut.3; 3 *nugriuvau* [=*agavau*] Past.3;
2. LIPTI 1A 'climb'
1;9: 1 *lipa* Pres.3;
1;10: 2 *lipti* [=*diti*] Inf.; 3 *lipu* Pres.1sg;
3. LUPTI 1A 'peel'
1;9 1 *lupu*;
1;10 2 *lups* Fut.3; 3 *nulupau* [=*alupau*] Past.1sg
4. MIEGOTI 1A 'sleep'
1;7: 1 *miega* Pres.3;
1;10: 2 *miegos* [=*megos*] Fut.3; 3 *miegot* [=*magot*] Inf.;
5. TEPTI 1B 'smear'
1 *patepu* [=*atepu*] Pres.1sg; 2 *patept* [=*atep*] Inf.; 3 *patepk* Imp.2sg;
6. SĖDĖTI 2B 'sit'
1;9: 1 *sėdi* Pres.3;
1;10: 2 *sėdžiu* [=*sėdu*] Pres.1sg; 3 *sėdėk* [=*tedėk*] Imp.2sg;
7. STATYTI 3B 'build; put on'
1 *statom* Pres.1pl; 2 *pastatyk* [=*patesyk*] Imp.2sg; 3 *pastatysiu* [=*pastetysiu*] Fut.1sg;

5.5.2. Larger paradigms

1. DĖTI 1A 'put' - *padėti* '1. ts. PF; 2. help'
1 *sudedu* Pres.1sg; 2 *padės* Fut.3; 3 *padėsiu* Fut.1sg; 4 *padėk* Imp.2sg;
2. EITI 1A 'walk, go'
1;9: 1 *neik*; 2 *einam*;
1;10: 3 *eini* Pres.2sg; *atėjo* [=*atejo*] Past.3; 4 *ateis* Fut.3; 5 *eiti* Inf.; 6 *eisiu* Fut.1sg; 7 *eikim* [=*eikam, eikim*] Imp.2sg;
3. VAŽIUOTI 1A 'go (by a vehicle)'
1;9: 1 *važiuos* [=*teziuos*] Fut.3;
1;10: 2 *važiuoja* [=*atioja*] Pres.3; 3 *važiuojam* [=*aziuojam*] Pres.1pl; 4. *važiuosiu* [=*vaziuosiu*] Fut.1sg; 5 *važiuosim* [=*aziuosim*] Fut.1pl;
4. DUOTI 1B 'give'
1;7: 1 *duok*;
1;9: 2 *duoda*;
1;10: 3 *duosi* Fut.2sg; 4 *duosiu* Fut.1sg; 5 *paduotas* (?) Ptc.pf.pass.; 6 *neduodu* neg:Pres.1sg;
5. ŽIŪRĖTI 2B 'watch, look'
1;9: 1 *žiūriu* [=*ziūju*]; 2: *žiūrėti* [=*ziūjėti*];
1;10: 3 *žiūrėk* [=*ziūjėk*] Imp.2sg; 4 *žiūrim* [=*ziūjem*] Pres.1pl; 5 *žiūri* [=*ziūja*] Pres.3;
6. DARYTI 3B 'do' *padaryti* 't.s. PF.', *uždaryti* 'close', *atidaryti* 'open'
1 *padaryt* [=*padyt*] Inf.; 2 *uždaryta* [=*adedyta*] Ptc.pf.pass; 3 *daro* [=*dajo*] Past.3; 4 *atidaryk* [=*atejėk*] Imp.2sg.

6. Morphological substitutions

6.1. Fillers

In the data studied, no instance of a whole verb being replaced with a filler was recorded; the occurrence of fillers instead of prefixes as well as of the reflexive affix in prefixed verbs, however, was quite frequent. Two kinds of fillers were involved in verb production:

(i) a neutral vowel *a*; e.g. Inf. **a-dėti* for *į-dėti* 'put into'; *už-dėti* 'put onto, dress'; *pa-dėti* '1. put; put onto; 2. help'[12].

(ii) reduplication: **de-dėti* for *pa-dėti*.

In the same data portions one can find forms with omitted prefix and with both kinds of fillers alongside correct forms, e.g., at 1;10 the following productions of the perfective verb *nukristi* 'fall' were recorded (adult form in brackets): (i) correct - Inf. *nukist*, *nukist* (*nukrist*), Past.3 *nukito* (*nukrito*); (ii) forms with *a*-filler - **a-kito* (*nu-krito* or *už-krito*); (iii) a form with a reduplicated syllable - **ne-ki-kisiu* (*ne-nu-krisiu*); (iv) a form with omitted prefix - **ne-Ø-kisiu* (*ne-nu-krisiu*).

Reduplicated syllables also replaced the reflexive marker *-si-* in prefixed verbs (cf. 1.3): Fut.1sg **a-ma-mausiu* for *už-si-mausiu* 'put on shoes', Past.3 **a-ki-kėlė* for *at-si-kėlė* 'get up'.

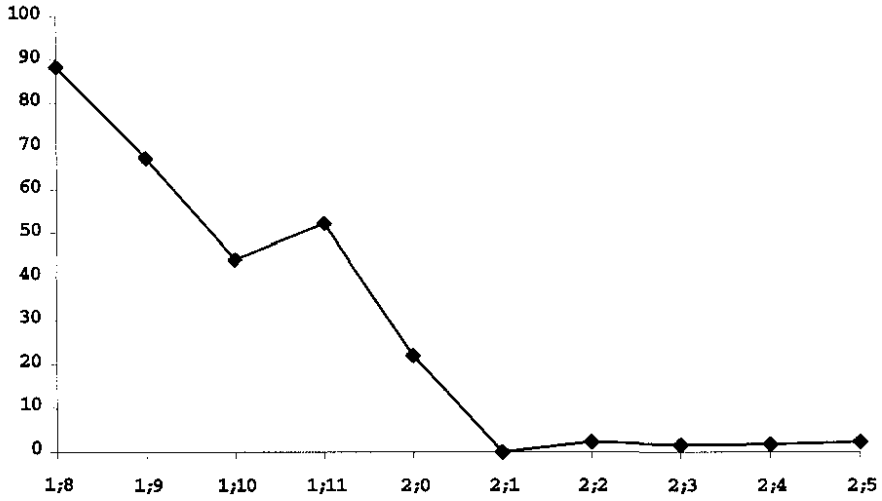
6.2. Class shifts

The most conspicuous phenomenon, as far as class shifts are concerned, is that of 2nd conjugation verbs shifting to the 1st conjugation. This could be observed, first of all, in 3rd person forms. The first items of 2nd conjugation verbs were recorded at 1;8. At this age, almost all 3rd person forms took the stem suffix *-a* instead of the expected *-i*, e.g. **noj-**a*** for *nor-**i*** 'want'; **sėd-**a*** for *sėd-**i*** 'sit'; **gul-**ia*** for *gul-**i*** 'lie'; **tup-**a*** for *tup-**i*** 'squat' etc. In the following months the relative frequency of errors decreased gradually and it became insignificant after the age of two. However, in the last portions of the processed data isolated instances of shifts still could be spotted (see Figure 2.). As mentioned above, the shifts could be found not only within the set of the 3rd person forms. Isolated errors such as 1pl.Pres. **žiujam* instead of *žiūrim* 'watch' (1;11) or 1pl.Imp. **mamaukiam* instad of *užmaukim* 'put on shoes' were also recorded.

Other kinds of shifts between conjugational classes were sporadic (limited to 2-3 items which often occurred alongside correct forms in the same portions of the data).

[12] The *a*-filler was also used instead of prepositions.

Figure 2. The proportion of shifts from the 2nd conjugation to the 1st conjugation



The explanation for the occurrence of such shifts should be sought in two factors[13]:

First, the 1st conjugation verbs constitute the largest class in Lithuanian. The relative frequency of ISF types in the input and in Rūta's utterances exceeded 70%. 2nd conjugation ISF types were the least numerous: 7% in Rūta and 4.5% in the input, and the relative frequency of the 3rd conjugation IFS was about 18% in both registers. With regard to token frequency the situation was slightly different, as most modal verbs belong to class 2A. Thus, the relative frequency of the 1st and 3rd conjugation ISF tokens was smaller than the frequency of ISF types. The ratio of 2nd conjugation ISF tokens was 15% in Rūta and 14% in the input.

Verbs belonging to the 3rd conjugation were not shifted, though. Thus, one may conclude that the relevant factor inducing the shifts was the formal similarity of the 1st and 2nd conjugations.

An additional trigger could be the fact that 2sg and 3rd person forms in the 2nd conjugation have the same endings. The child might have wanted to disambiguate these forms. However, Rūta shifted not only the lemmas in which 2sg and 3rd person are homophonous, but also those in which these categories are differentiated by stress.

Interestingly, in the data studied one can find very few instances of overregularisations involving morphohonemic alternation in primary verbs (all of them after the age of two).

7. Concluding remarks

When analysing the emergence of verb inflection in Lithuanian and comparing it with the development of inflection in other languages, one has to bear in mind that the acquisition of Lithuanian has not been thoroughly studied, and the present contribution is based on the data of one child only. Therefore, one should avoid drawing far-reaching conclusions. One should also take into concern the fact that particular portions of the Lithuanian data differ in their amount which might influence obtained results.

7.1. At 1;7 Rūta used very few lexical items. No derivational processes were involved in verb production and the only morphological categories were the Present tense and the Imperative.

[13] See Wójcik and Smoczyńska, 1997, Wójcik *in press*.

Only one two-member mini-paradigm was recorded. In the following month the situation was similar, however the first 2nd conjugation verbs emerged and the process of early pattern selection could be observed: the child shifted the 2nd conjugation verbs to the 1st conjugation, which was a strongly dominant class in the input during the whole period in question.

The age of 1;9 should be considered a point of transition from premorphology to protomorphology. At this time Rūta's active vocabulary expanded and the first prefixed verbs were recorded. Past and Present tense emerged and the first two-member mini-paradigms were found. The ratio of utterances containing a verb form was still very small.

At 1;10 the girl was at protomorphological stage. The relative frequency of utterances with verbs increased significantly. A very large number of two-member, as well as the first three-member and larger mini-paradigms were recorded.

7.2. Lithuanian is a highly inflected language, therefore one could expect Rūta to become aware of the role of morphology and to apply it earlier than children speaking languages with little morphological marking. This held true for the data studied. By the end of 1;10 almost all categories of the Indicative were represented in Rūta's speech. Not all of them, however, were productively and spontaneously used.

As far as the order of acquisition of categories is concerned, one could observe a general tendency in the emergence of unmarked categories before marked ones. The first tense to emerge was the Present tense. Past and Future forms were used by the girl two months later, and periphrastic constructions with participles (so-called 'compound tenses') did not emerge by the age of 2;6. As for the marked moods, the Imperative was frequent in the very first portions of the data, and conditionals were productively used only after the age of two.

Person distinctions emerged before tense distinctions. 3rd person and 1sg forms were recorded already at 1;7. 2sg forms were used relatively early as well, however, till the end of the second year of life most of them were non-reversal errors occurring in answers to yes/no questions.

The first form of plural emerged already at 1;8 and in the following months the number of plurals gradually increased. It has to be marked, however, that during the period under investigation they were used only in modal (mainly hortative) or modelled utterances.

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Appendix

Table A1. Inflection of the Lithuanian verb[14]

PRESENT
(inflection based on the Present stem)

	1.		2.				3.	
	supti		*turėti*		*mylėti*		*daryti*	
	singular	plural	singular	plural	singular	plural	singular	plural
1. person	sup-u	sup+a-m(e)	tur-iU	tUr+i-m(e)	mYl-iu	mYl+i-m(e)	dar+a-u	dar+o-m(e)
2. person	sup-i	sup+a-t(e)	tur-i	tUr+i-t(e)	mYl-i	mYl+i-t(e)	dar+a-i	dar+o-t(e)
3. person	sup+a		tUr+i		mYl+i		dar+o	

PAST
(inflection based on the Past stem)

	A.		B.	
	supti		*daryti*	
	singular	plural	singular	plural
1. person	sup+a-u	sup+o-m(e)	dar+ia-u	dar+ė-m(e)
2. person	sup+a-i	sup+o-t(e)	dar+e-i	dar+ė-t(e)
3. person	sup+o		dar+ė	

IMPERATIVE
(inflection based on the Infinitive stem: marker *-k(i)-*)

	supti		*daryti*	
	singular	plural	singular	plural
1. person		sup-ki-m(e)		dary-ki-m(e)
2. person	sup-k	sup-ki-t(e)	dary-k	dary-ki-t(e)

FUTURE
(inflection based on the Infinitive stem: marker *-s(i)-*)

	supti		*daryti*	
	singular	plural	singular	plural
1. person	sup-s-iu	sup-si-m(e)	dary-s-iu	dary-si-m(e)
2. person	sup-s-i	sup-si-t(e)	dary-s-i	dary-si-t(e)
3. person	sup-s		dary-s	

[14] Only the categories which will be discussed in the paper are shown.

Table A2. The distribution of verb forms in Rūta's utterances

	1;7	1;8	1;9	1;10	1;11	2;0	2;1	2;2	2;3	2;4	2;5	TOTAL
PRESENT												
1SG	7	9	40	98	58	88	87	111	145	89	102	834
2SG		3	16	22	4	1	25	56	21	81	58	287
3	21	69	169	286	348	337	363	438	373	325	277	3006
1PL		1	2	6	12	8	16	36	39	55	24	199
2PL						2						2
total	**28**	**82**	**227**	**412**	**422**	**436**	**491**	**641**	**578**	**550**	**461**	**4328**
PAST												
1SG			3	15	27	28	45	28	18	55	46	265
2SG			3	6	2	2	7	10	11	13	14	68
3			30	57	76	72	113	51	84	126	93	702
1PL				3	9	4	3	16	6	11	16	68
2PL											1	1
total	**0**	**0**	**36**	**81**	**115**	**106**	**168**	**105**	**119**	**205**	**170**	**1105**
FUTURE												
1SG			2	30	99	68	113	97	80	106	54	649
2SG		1	3	5	1		1	4	3	4	2	24
3			9	101	90	44	91	97	148	75	46	701
1PL				12	17	18	28	28	44	40	11	198
2PL												
total	**0**	**1**	**14**	**148**	**207**	**130**	**233**	**226**	**275**	**225**	**113**	**1572**
CONDITIONAL												
1SG						1					1	2
2SG											1	1
3				11	1	1	2	13	6	4	7	45
1PL								1				1
2PL												
total	**0**	**0**	**0**	**11**	**1**	**2**	**2**	**14**	**6**	**4**	**9**	**49**
IMPERATIVE												
2SG	14	28	97	146	103	92	205	176	183	181	177	1402
1PL				5	2			1				8
2PL							1			3		4
total	**14**	**28**	**97**	**151**	**105**	**92**	**206**	**177**	**183**	**184**	**177**	**1414**
INFINITIVE												
total		**8**	**37**	**75**	**33**	**57**	**98**	**137**	**129**	**99**	**88**	**761**
PARTICIPLES												
total			**2**	**19**	**40**	**30**	**34**	**11**	**17**	**9**	**19**	**181**
'galima'												
total			**3**		**2**	**18**	**59**	**44**	**65**	**27**	**37**	**255**
TOKEN	***42***	***119***	***416***	***897***	***924***	***871***	***1291***	***1355***	***1372***	***1303***	***1074***	***9664***

Early verb development in one Russian-speaking child[1]

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0. Introduction

This paper investigates the development of verbal inflection in the early stages of the acquisition of Russian. Data from tape recordings and a diary were used for this study.

1. Verb morphology in the target language

Russian is known to have 'rich' verbal morphology. The main categories are presented in Table 1[2]:

	1			2	3	
	Finite forms			Infinitive	Participle	Verbal adverb
aspect (PF and IPF)	+			+	+	+
voice (active, passive)	+			+	+	+
mood	indicative	imperative	conditional			
tense (past, present, future)	+	-	-	-	pres. and past	pres. and past
person (1^{st}, 2^{nd}, 3^{d})	+ (except past)	+ (only 2^{nd} pers.)	-	-	-	-
number (SG, PL)	+			-	+	-
gender (masc., fem.,neutr.)	+ (SG - in the past)	-	+	-	+	-

Three tenses - past, present and future - are distributed between two aspects – perfective (PF) and imperfective (IPF) – in the following way:

	PF	IPF
Past	+	+
Present	-	+
Future	+	+ (*byt'* 'to be' + main verb in the infinitive)

Forms of IPF in present and of PF in future (also the auxiliary *byt'* 'to be' in the compound future with IPF) have three persons in SG and PL (no person distinction in the past), past forms are marked for gender (only in SG) and number.

One important peculiarity of the inflectional system is the presence of two bases for the verbs. Open base (OB) (often stem-based) usually ends in a Vowel, e.g., *smotr'-e-t'* - 'to look', *igr-a-t'*- 'to play' and serves as platform to build past tense forms. Close base (CB) (often root-based) ends in consonant: *smotr'*-u - 'look-1.SG.PRES.', *igr-aj-u* - 'play-1.SG.PRES'. Forms of present/future in the indicative and imperative are constructed from this base. Alternations

[1] I would like to thank Wolfgang U. Dressler and Dagmar Bittner for their helpful comments on the earlier version of this paper. I express my gratitude to Paul Law for his suggestions concerning formulation and stylistics. All errors are mine.

[2] Participle, verbal adverb and forms in the conditional mood as well as in the passive voice do not occur in the period under our observation.

between OB and CB can be said to be an important base for constructing forms of the paradigms and inflectional classes.

Table 2: The paradigm[3] of one aspectual counterpart of the verb *obedat'*–IPF/*poobedat'*–PF 'to have lunch'. OB *obeda-/poobeda-* is presented in the table only by the last sound *..a-*, CB *obedaj-/poobedaj-* is presented by *..aj-*:

asp	infin.	imperative		present tense (for PF forms - future)						past tense				future analytical tense
		2. SG	2. PL	SG			PL			SG			PL	(only IPF forms)
				1.	2.	3.	1.	2.	3.	femin.	masc.	neutr.		
IPF	obe-da-t'	..aj	..aj-te	..aj-u	..aj-eš'	..aj-et	..aj-em	..aj-ete	..aj-ut	..a-l-a	..a-l	..a-l-o	..a-l-i	***byt'*** (inflected – 1.2.3.SG or 1.2.3.PL) + infinitive *obeda-t'*
PF	po-obe-dat'	..aj	..aj-te	..aj-u	..aj-eš'	..aj-et	..aj-em	..aj-ete	..aj-ut	..a-l-a	..a-l	..a-l-o	..a-l-i	

The traditional alternation between an OS of the infinitive and the CS of the present/future (1.SG) has been taken by us as a platform to define 45 inflectional microclasses (see Dressler and Gagarina 1999). Only four of them are fully productive:

1st (alternation between OB and CB is a/aj), *obeda -t´ - obedaj-u* 'to have dinner',
7th (with the alternation: ova/uj), *risova-t´ - risuj-u* 'to draw',
17th (with the alternation: consonant + i/consonant), *kuri-t´ - kur´-u* 'to smoke',
38th (with the alternation consonant + vowel is part of the pluriphonemic thematic suffix *nu*/consonant *n*), *prygnu-t´- prygn-u* 'to jump once'. In the data for early verbs we found lemmas from 15 different classes, as well as isolated paradigms, such as *odet´- oden-u* 'to put on clothes, shoes', *est´- em* 'to eat', *dat' – dam* 'to give' and others. The first productive class is represented by the majority of lemmas, such as *pryga -t´ - prygaj-u* 'to jump', *vkl'ucha-t' - vkl'uchaj-u* 'to switch on', etc.

The other MCs are represented only by two (rarely three) verbs (lemmas):
6th (stem alternation: y/oj) *my-t´ - moj-u* 'to wash',
9th (stem alternation: va/j) *dava-t´ - daj-u* 'to give',
11th (stem alternation: a/an (an´)) *vsta-t´ - vstan-u* 'to stand up',
12th (stem alternation: ja/j) *stoja-t´ - stoj-u* 'to stand',
26th (stem alternation: lab.-a/lab.+l') *syp-a-t´ - sypl´-u* 'to pour', *spa-a-t'- spl'-u* 'to sleep',

The following MCs were represented only by one verb:
one slightly productive MC:
2nd (stem alternation: e/ej) *bole-t´ - bolej-u* 'to be sick',
four unproductive MCs:
22nd (stem alternation: s+a/š) *pisa-t´ - piš-u* 'to write'
30th (stem alternation: de/ž) *s´id´e-t´ - siž-u* 'to sit',
32nd (stem alternation: ti/č) *krut-i-t´ - kruč-u* 'to turn',
37th (stem alternation: lab.-i/lab.+l') *krut-i-t' – kruč-u* 'to turn round'

[3] The forms of participle and verbal adverb are not given in the table.

2. Data description

We used longitudinal recordings and diary notes of one male child – Roma F., the only child in a middle-class family in St. Petersburg, where standard "Petersburg" version of colloquial Russian is spoken. The whole corpus consists of about 18,3 hours (about 1100 min) of recordings during the period from 1;01.07. till 2;11.03. For this report we used only the speech of Roma that was registered between 1;10 and 2;01 – the emergence of verbal inflection (38 lemmas). During the period 2;00 and 2;01 Roma has been recorded nine times (with an interval seven-nine days in the middle of the month) per month. Sessions were grouped into files 2;00a/2;00b and files 2;01a/ 2;01b respectively.

Table 3.0. describes the data (recordings) in the period under investigation:

age	duration	production (only for recordings)	analysed utterances[4]
1;10	57 min	200	154
1;11	133 min	612	419
2;00a	125 min	~422[5]	359
2;00b	76 min	~498	415
2;01a	60 min	~429	388
2;01b	27 min	~119	112
Total	**8 hours**	**2280**	**1847**

Beginning with the age of 2;02, when the crucial development continues, we have, unfortunately, the gap in the recordings. Hence, we considered, additionally, diary notes. Diary may help us to reproduce more or less full picture of early development of Roma's verb categories. At the age of 2;00 and 2;01 the mother carefully noted sentences, that maintain new constructions, lexical items, inflectional forms, etc. Since the aim of this paper is to trace the emergence of new verbs and their forms in the speech of Roma, we suppose that use of diary will enrich the picture of verb development. Generally, the results of the investigation of speech production in the diary do not contradict such recordings. Transcription and coding of data was done in CLAN format.

Table 3.1. describes the corpus of the diary used in this study:

age	analysed utterances
2;00	90
2;01	147
2;02	71
Total	**308**

Although the amount of data that we have in our disposal is not representative, we worked them up and, in the analysis below, we will try to show that from 1;10 to 2;01 Roma passes through a stage of premorphology and 'enters' the protomorphological phase. We suppose that the premorphological phase covers the period between 1;10 – 2;00a and the protomorphological phase – between 2;00b – 2;01b (2;02 in the diary).

3. Predecessors of verbs in predicative function

From the age of 1;05 Roma uses sound-imitations to denote different events. However, at 1;05 and a couple of months later the situations which Roma describes cannot be divided into components and it is not possible to decide, whether used sound-imitations correspond to a

[4] Interjections, citations, direct repetitions, non-comprehensible utterances were excluded from the analysis.

[5] The sign ~ shows the approximate number of utterances produced by Roma. There were some ambiguous cases, when it was difficult to decide whether the child said two separate sentences or only one sentence. We count such ambiguous cases as two different utterances.

predicate or sa subject. In this period the sentences consist mainly form one word and it is difficult to decide whether Roma used a predecessor of a verb or of a noun:

1;06.17
- am (denotes meal, process of eating) Roma answers the question: Are you going to eat?
- kkhh (imitates the sound of a moving car, answers the question: Where were you with your father?)

1;07.21
- aa-aa (used in different situations, may denote sleeping, also the sleeping dog)
- igogo [ihohó] (used in different situations; may denote a horse or the sound produced by a horse)

We also found some words that slightly resemble verbs (verb-roots) of the adult language and were used by Roma in situations of demand:

1;05.09
- adi-di (Roma approaches the TV set, points to it, tries to push buttons and looking at the mother with the intonation of a demand says: 'Adi-di!'). The mother interprets this utterance as a demand to switch on TV – *vkljuchi!* – 'switch on!'
- at'i – Roma stays at the closed door of the room, tries to open it, does not manage to do it, becomes upset and turning to his mother says: 'At'i!'. This word may resemble *otkryt'* 'to open')

Later on, after the age of 1;08 we found more sound-imitations that may be more clearly interpreted as predecessors of verbs. For example, at 1;08.12 Roma answers his mother's question: How does a cat do it?
- mjau (sound-imitation of cats).

The context set up by the mother in the last utterance determines predicative meaning of the sound-imitation used by the child.

After the age of 1;10 Roma continues to use sound-imitations (together with the verbs from the adult language) while denoting mainly telic actions with a clear perceived result, e.g., *bum, bax* were used at the same time as the verb, denoting the same action: *upast'*–PF 'to fall down'. In the present data we did not find a significant amount of sound-imitations, however, we have more evidence that some children use them for longer period and even use sound-imitations variously in order to differentiate between achievements and activities (and states) (see Gagarina 2000). Use of sound-imitations during early phases of the acquisition of inflectional morphology can be said to be a jumping-off place for some children to acquire, for example, aspectual distinctions among the verbs.

4. Emergence of verb forms

4.1. Quantitative data

First verbs emerge parallel to sound-imitations and words of "baby-talk"[6]. Almost all verbs forms are inflected, and it is easy to distinguish from the beginning between verbs of two aspects: PF and IPF. There is only a little amount of the unclear and the frozen forms in our data. Besides Roma uses a high number of infinitives in order to express his demands. Such

[6] Interesting to note that in Russian the period from the emergence of first verbs till the emergence of early mini-paradigms (MP) is relatively short (in comparison with some other languages, see articles of this volume).

infinitives coexist with correct imperatives (also during the later period). We do not think that these infinitives play any significant role in mastering inflectional morphology of verbs, and we do not have enough evidence (in our data) that these infinitives "are used to refer to the past, present and future events in Russian child speech" (see Brun, Avrutin and Babyonyshev 1999).

Table 4[7] shows the emergence and the increase of verb production:

age	analysed utterances	utter. with verbs	utter. with verbs %
1;10	154	4	2,6
1;11	419	29	6,9
2;00a	359	22	6,1
2;00b	415	50	12,0
2;01a	388	68	17,5
2;01b	112	24	21,4
Total	**1847**	**197**	**Average %: 11,08**

Beginning with the age of two (at 2;00b) one can clearly see the developmental spurt (see also Table 5 and Table 6 below). The number of utterances with verbs increases from 22 at 2;00a to 50 at 2;00b and reaches 12% of all utterances.

The more detailed Table 5 and Table 6 (and Diagram 1, Diagram 2 respectively) below demonstrate the amount of inflected lemmas[8] and tokens in relation to the amount of analysed utterances in recordings and diary:

Table 5 – recordings

age	analysed utter.	aspect[9]	lemmas	tokens	lemmas %	tokens %
1;10	154	IPF	1	1	0,6	0,6
		PF	2	3	1,3	1,9
		all verbs	**3**	**4**	**1,9**	**2,6**
1;11	419	IPF	2	2	0,5	0,5
		PF	4	27	0,9	6,4
		all verbs	**6**	**29**	**1,4**	**6,9**
2;00a	359	IPF	2	3	0,6	0,8
		PF	5	19	1,4	5,3
		all verbs	**7**	**22**	**1,9**	**6,1**
2;00b	415	IPF	7	18	1,7	4,3
		PF	10	32	2,4	7,7
		all verbs	**17**	**50**	**4,09**	**12,0**
2;01a	388	IPF	9	26	2,3	6,7
		PF	7	42	1,8	10,8
		all verbs	**16**	**68**	**4,12**	**17,5**
2;01b	112	IPF	14	20	12,5	17,9
		PF	3	4	2,7	3,6
		all verbs	**17**	**24**	**15,2**	**21,4**

[7] The double bold horizontal line in the middle of the Table demarcates pre- and protomorphological phases.

[8] Frosen forms are not included into calculations. Analytic forms are not analysed.

[9] We separately calculated PF and IPF verbs in order to create a quantitative base for further study of verbal aspect and to trace the emergence of PF and IPF verbs separately.

Table 6 – diary

age	analysed utter.	aspect	lemmas	tokens	lemmas %	tokens %
2;00	90	IPF	6	6	6,7	6,6
		PF	3	12	3,3	13,3
		all verbs	**9**	**18**	**10,0**	**20,0**
2;01	147	IPF	25	37	17,0	25,2
		PF	11	13	7,5	8,8
		all verbs	**36**	**50**	**24,5**	**34,0**
2;02	71	IPF	16	20	22,5	28,2
		PF	7	14	9,9	19,7
		all verbs	**23**	**34**	**32,4**	**47,9**

Diagram 1 corresponds to Table 5 – recordings

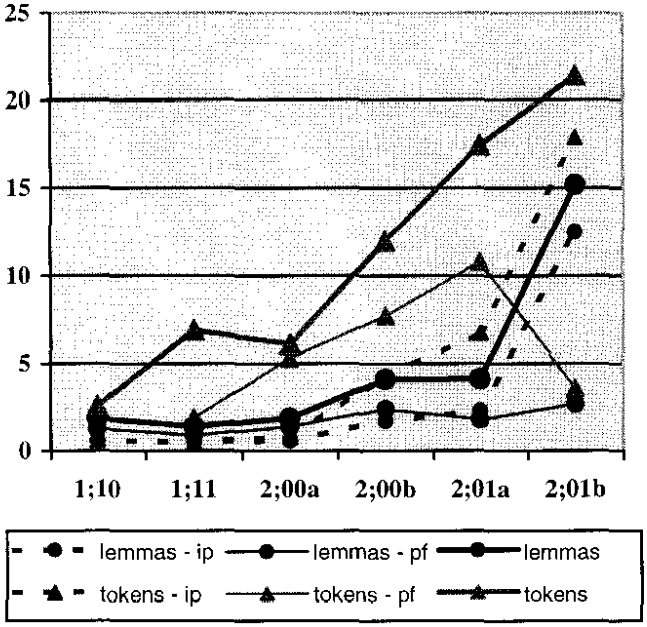
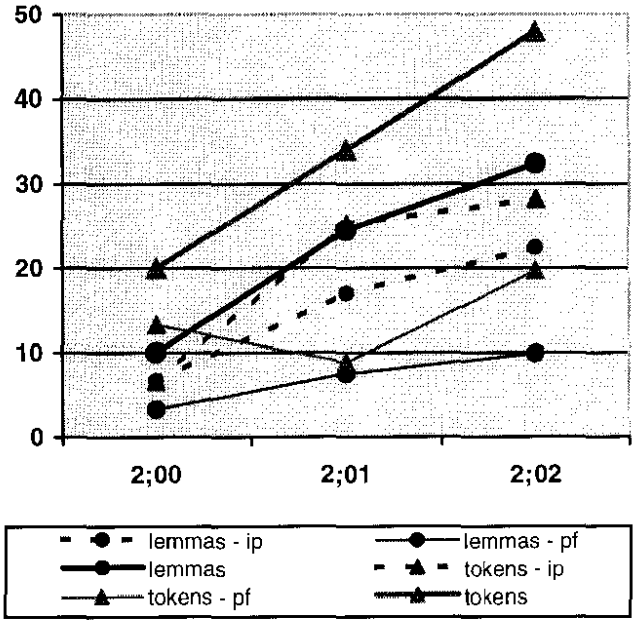


Diagram 2 corresponds to Table 6 – diary



The number of IPF verbs is lower than of PF verbs (except 2;01a and 2;01b) in the recordings (see Table 5 and Diagram 1); the situation differs in diary notes (see Table 6 and Diagram 2) where more sentences with PFs were registered. Although the morphemic structure of IPF verbs is simpler (these verbs consist mainly of a root and a thematic vowel), they are less frequent (lemmas and tokens) in our data. It seems that PF verbs are more "pragmatically important" for the child, they denote resultative actions with a clearly perceived results, which were performed or witnessed by Roma. The number of tokens of IPF verbs is two times higher than the number of lemmas. The situation differs if we compare lemmas and tokens of PF verbs: the number of tokens is four times higher than the number of lemmas.

After 2;01a the number of lemmas and tokens of both PF and IPF verbs increases more sharply.

4.2. Phases of development

We suppose that in the period under investigation Roma passes the phase of pre-morphology and enters the protomorphological phase[10]. Several processes in the development of verb inflection and changes in speech production can support this supposition.

4.2.1. Premorphological phase

We claim that the premorphological phase lasts for about two and a half months: from 1;10 to the second half of 2;00 (in the data – stretch 2;00a).

The number of produced verbs, as we see from Table 5 (Diagram 1), is slowly increasing from three at 1;10 to seven by the age of 2;00a. No signs of detecting morphological rules and process of self-construction of inflectional forms are traced. During this period six types of inflected rote-learnt forms were used, namely: infinitive, imperative (2. SG), present 3.SG and past SG.masculine, SG.feminine and PL (see Table 5.1. and Table 6.1. in Appendix).

Although at the age of 1;11 Roma used three past forms of one lemma – *upast'* PF verb 'to fall down':

upal	*upala*	*upali*
PAST.MASC.	PAST.FEM.	PAST.PL
12 times	6 times	1 time

we do not maintain, that this is a true mini-paradigm (MP) (see criteria elaborated by Kilani-Schock & Dressler 2000) (explanation see below in (6)).

Two different forms of verbs *pit'*-IPF 'to drink' (5th MC) and *spat'*-IPF 'to sleep' (26th MC), infinitive and 3.SG. occur. In order to produce these forms the child has to switch between OB and CB. Due to the small number of lemmas with two forms mainly appearing with 3.SG.present (rarely PL.), past (SG. and PL.) inflection and in the imperative, we cannot claim that such forms are really "constructed" by the child and are not rote-learnt.

During the premorphological phase some frozen forms were used: *davaj*-IPF.IMP – 'let us do soemthing', *napisan*-PF.PAST.PARTIC. – 'is/was/has been written', etc. Interesting to note that some frozen forms escaped from Roma's lexicon during the next stages of the morphological development (for example, participles), while others were used productively (for example, forms of imperative).

4.2.2. Protomorphological phase

Beginning from the age corresponding to the group of sessions united under 2;00b Roma enters, as we claim, the protomorphological phase.

At 2;00b the child uses seventeen lemmas (seven IPF plus ten PF) (see Table 5); four new types of inflected forms (IPF – past.SG and present.3.SG and PF – future.2.SG and 3.SG) (see Table 5.1. Appendix) occur. The number of lemmas that have two to four forms increase from one to seven. However, some of the verbs, as we suppose, are still strongly connected with the denoted situations (context-dependent). For example, Roma often uses two forms of the verb 'to give' *dat'*-PF.INF (two times in recordings, one time in diary) and *daj*-PF.IMP.2.SG. (five

[10] About some problems of demarcation between pre- and protomorphology see, for example, Kilani-Schock et al. (1997).

time in recordings, nine times in diary). However, this verb is used in similar situations, when Roma wants to get something or to open a box[11].

At this period first three- and four member paradigms emerge. IPF verb *kopat'* 'to dig' occurs not only in the infinitive and imperative, but also with the 3.SG inflection; the PF verb *poexat'* 'to start going by car' appears in four inflected forms: 2.SG and 3.SG of the present and feminine and masculine of the past. Roma starts to use more actively both OB and CB for constructing different inflected forms.

At 2;01b six new lemmas (five IPF plus one PF) occur, the amount of inflectional types increases to nine (forms of 1.SG and 1.PL emerge). The mother notes in the diary the emergence of the imperfective future – *budet ščitat'* 'will-3.SG count' and *budet streljat'* 'will-3.SG shoot'. Roma starts to construct analytical morphological forms. Thirteen verbs are used in two or more inflected forms. Only two verbs with one root (with and without prefixes) were registered - *exat'* 'to do by car' and *poexat'* 'to start going by car'. The prefixed verb denotes Roma's intention to start the movement. During this period two component sentences with subjects and objects in pre- and postverbal positions emerge. However, their number is not significant enough to make any conclusions.

5. Emergence of forms and categories

5.1. Emergence of forms

Table 7 Emergence and use of the infinitive and the finite forms[12]

Infinitive	Aspect	Recordings						Diary		
		1;10	1;11	2;00a	2;00 b	2;01a	2;01b	2;00	2;01	2;02
infinitive	IPF					1*	2*			
	PF									

Finite forms	Aspect	Recordings						Diary		
past. SG	PF								1*	
pres. 3.SG	IPF									
past. PL	PF		1/1				1/1			
imper. 2.SG	IPF									
	PF									
past. SG	IPF				1/1					
pres. 3.PL	IPF				1/1	1/1				
future 3.SG	PF				1/1					
future 2.SG	PF				1/1					
future 1.SG	PF					1/1				
imper. 2.PL	IPF									
pres. 1.SG	IPF									
future 1.PL	PF									
anal. future	IPF									

[11] Other children use this verb if they want something to start working or to switch on/off the light or to reach any result.

[12] Double bold line in the middle demarcates two phases: pre- and protomorphology. The sign * shows agreement errors, the figure before it shows the number of agreement errors. 1/1 means that one lemma was used only once. Dark shadow corresponds to PF verbs, and light shadow – to IPF verbs.

Infinitives are the first to occur in Roma's speech and are very 'stable', they are used along with inflected forms in the period under observation. Thus, the child uses correct imperative *vkljuchi* 'to switch on' and at the same time - infinitive *vkljuchi-t'* (which is also correct in the target language but much less frequent). Most infinitives are used in one-component utterances:

1;11 Roma tries to put on his shoe, he does not manage, turns to his mother and says:

*ROM:	Odet'	
	put on-INF	

2;00a Roma is tired and rubbing his eyes, repeats:

*ROM:	Spat'	spat'.
	sleep-INF	sleep-INF

We found one case in which the use of infinitive maybe interpreted as a general denotation of the action (in the commentaries to the recordings mother notes that Roma does not want to drink):

2;00a Roma and mother are reading a magazine. The mother points to the picture:

*MAM:	Tam	kofe	smotri
	there	coffee	look-IMP
*ROM:	Pit'		
	drink-INF		

However the mentioned case is only one in our data. Usually Roma uses infinitives in situations of demand. The use of infinitives in our data does not support ideas of Brun, Avrutin & Babyonyshev (1999), who claim that in the early stages of language acquisition children use infinitives in order to mark tense and aspect. Aspect is an 'inherent' property of a root (or stem with a prefix and a suffix) and cannot be expressed through infinitives.

There are not many agreement errors in our data (three of them are marked with the sign *), they may be seen only in two-three component utterances with overtly expressed subject (more about agreement errors see in 7.).

From the beginning of observed period (the age 1;10) Roma used inflected forms (which are either frozen or rote-learnt) as well as infinitives. Forms of ten different inflected types are presented in the data in the three sections 2;00b – 2;01b: SG.PF (masc., fem.) and PL.PF in the past, 3.SG. and 3.PL. in the present, all three persons in SG. in the future with PF verbs, SG. and PL. in the imperative and infinitive. At 2;00b one can see qualitative spurt in the occurrence of inflected forms: four new types of forms (all of them are rote-learnt, as we suppose) are registered. Repertoire of paradigmatic forms becomes richer. After 2;00 two cases of the use analytical future are registered in the diary.

Let us draw attention on the emergence of inflected forms of PF and IPF verbs. Forms of 2.SG.IMP and of infinitive of PF and IPF occur simultaneously. Regarding other inflectional forms, however, we notice slight differences in the time of occurrence of PFs vs. IPFs. Thus, PF forms with the past inflections emerge earlier than IPF and are used more often. The IPF verbs (*davat'* 'to let do smth', *exat'* 'to go by car', *prygat'* 'to jump') occur only in the protomorphological phase, starting from 2;01b. Interesting to note that from 2;00b Roma starts to use PF (which have the meaning of nearest future), but the amount of lemmas is not high, only one for each data stretch (section): at 2;00b – *poexat'* 'to go by car', 2;01a – *postavit'* 'to put, to place', 2;01b – *dat'* 'to give'.

IPF verbs are used at the beginning mainly in 3.SG. We register the first occurrence at 1;11 – *edet* 'to go by car', *kopaet* 'to dig'; such forms of 3.SG. occur during the whole period of observation in the recordings and in the diary (except at 2;00a).

Early inflected verb forms in our data can be divided into 3 groups:

a) inflected forms, e.g. *upal*-PF – 'fall down-PAST.SG.MASC.' (within a) subdivision between rote-learnt and productively constructed forms should be done),
b) infinitives, e.g. *kopat'*-IPF– 'to dig',
c) frozen forms, that constitute the small amount of the whole corpus, e.g. *ne dam*-PF – "not give–PRES.1.SG".

Due to the fact that amount of verbs and their contrastive forms is rather low (there is often only one token of one lemma) we should be cautious in claiming that Roma's inflected forms are really self-constructed and not rote-learnt. And it is rather difficult to trace the movement from "quantity to quality", we mean the detachments of the period when rote-learnt forms turned to become self-constructed.

We suppose that in order to differentiate rote-learnt inflected forms from productively used (or self-constructed) inflected forms one should take into consideration several factors, one of which is the syntactic context. I mean here the (correct) use of verbs in two- and more component sentences with (overtly expressed) subjects and objects. Additionally, the level of lexical diversity of inflected forms and independence from the extralinguistic context (in another words: diversity of denoted situations) should be considered.

5.2. Emergence of categories

When tracing the emergence of categories it is very important to consider their complex nature: grammatical meaning and formal expression (see, for example, in Russian tradition Maslov (1978): Švedova (1980), Ceytlin (1989), Bondarko (1995), etc.). For example, aspect in Russian can be said to be a "more" lexical category, than tense and more grammatical than Aktionsarten. In the description below we treat separately the emergence of the formal marking and the grammatical meaning of some verb categories.

Table 7 Emergence of categories[13]

Category	1;10	1;11	2;00a	2;00 b	2;01a	2;01b
Mood	indicative →					
	infinit.→ imperat.		imperative →			
Aspect	PF →					
	IPF →					
Tense-Aspect	cluster: past + PF →					
		cluster: present + IPF →				
				splitting of clusters: future PF (and later IPF)→		
				and later past IPF →		
Person-Number		3.SG.IPF →				
				3.PL.IPF →		
				3.SG.PF →		
				2.SG.PF →		
				1.SG.PF →		

[13] Double bold line in the table between columns 2;00a and 2;00b demarcates phases: pre- and protomorphology.

5.2.1. Mood

From 1;10 verbs occur in two moods: indicative and imperative, but during 1;10 and 1;11 no 'correct' imperatives with inflectional suffix *–i(te)* or zero suffix were used. Roma produces infinitives in the imperative meaning. First correct imperatives (with zero suffix) occur at 2;00a, for instance, *kopaj*-PF 'dig!' and *daj*-PF 'give!'. The late occurrence of the correct imperative forms can be due to the fact that in order to construct an imperative form one should switch from the OB of the infinitive to the CB of the present/future. Such morphological operation is rather complicated (the switch between an OB and a CB of the infinitive may be aggravated by the root/stem alternations, like in the infinitive *pis-a-t'* 'to write' and imperative *piš-i*, or the infinitive *otkry-t'* 'to open' and the imperative *otkroj*[14]) and cannot be produced by the child in the premorphological stage. The use by the child of the significant amount of imperatives with two types of inflectional suffixes (along with other inflected forms) may be, probably, interpreted as the sign of transition from the premorphological phase to more advanced protomorphological phase.

So, the grammatical meaning of mood occurs before the correct morphological marking.

5.2.2. Aspect (and tense)

Aspect is probably one of the most complicated verb categories, the investigation of which in adult language and in language acquisition is characterised by the set of various (sometimes even controversial) definitions and approaches (like in Icačenko 1960, Švedova 1980: 583, Verkuyl 1993, Li and Shirai 2000, etc.). Due to the lack of space and the small data corpus that is investigated here we will remark only on the emergence of PF and IPF verbs (the emergence of grammatical aspect or viewpoint aspect, see Smith 1983, 1997) and Aktionsarten[15] and leave the detailed discussion for the projected book on the acquisition of inflectional categories.

To recapitulate shortly: verbs of both aspects occur simultaneously in our corpus at the age of 1;10. First PF verbs at 1;10 and 1;11 are marked for past: *upal* 'fell down-SG.masc.', *slomal* 'broke-SG.masc.' (there is one PF verb in the infinitive: *odet'* 'to put on clothes'), while IPF verbs – for present: *kapaet* 'dig-3.SG.pres.'. PF verbs denote resultative actions, the perceived result of which was reached at the time of speech (and belong mainly to the group of achievements – in Vendler's classification). IPF verbs denote ongoing actions (that may have potential telic meaning and belong to activities or states in Vendler's classification)[16]. Such connection between inherent semantics of verbs (i.e, lexical aspect or Aktionsart) and tense marking has been reported for other languages as well (see, for example, Antinucci and Miller (1976) for Italian and English, Shirai & Anderson (1995) for English, Aksu-Koç (1978) for Turkish, Champaud et al. (ms.) for French, etc.). The study of Bloom, Lifter and Hafitz (1980) reveals that children acquiring English as their mother tongue distribute inflections – *ing*,–s and *irregular* selectively with different "semantic" populations of verbs[17].

Later, at 2;00b, when the child, as we claim, enters the protomorphological stage, connections between verbs of either PF or IPF aspect and tense marking become weaker and clusters

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[14] In the second example the verb *otkryt'* 'to open' was produces by Roma variously, sometimes correctly as *'otkroj'* , and sometimes with a phonological error*'okij'* (clustrers of consonants *'tkr'* were not produced in this period). Infinite forms of *'okit'*, *'kit'* were used in the imperative meaning.

[15] More about Aktionsarten see, for example, in Vendler 1967, Šeljakin 1987.

[16] The same tendency has been reported also for more children learning Russian as their mother tongue (see, for example, Gagarina 1997, Pupynin 1998). Controversial facts are reported in Kiebzak-Mandera (1999).

[17] In Russian this connection (in the early stages of language acquisition) should be even stronger; after all, the grammatical category of aspect determines important features of the semantics of the verb in Russian, as Rassudova (1982) noticed.

between tense and aspect split. IPF verbs attach inflectional suffix of the past: *exa-l* 'was going-SG.masc' and PF verbs are used in the future: *postavlju* 'will put-1.SG'.

The most morphotactically transparent groups of verbs that belong to Aktionsarten with the minimally expressed (by prefixes and suffixes) additional meaning comprise the early verb lexicon. These are telic verbs which denote actions, aiming to reach (successfully= a result, such as *kopat'* 'to dig', *est'* 'to eat', *stirat'* 'to wash', etc (accomplishments). Atelic state verbs are less common: *sidet'* 'to sit', *spat'* 'to sleep'. Only several verbs (of motion) with prefix *po-*, denoting ingressive meaning were produced: *poexat'* 'to start going by car', *pojti* 'to start going by foot'. No verbs with semantically "complicated" affixes, like *perečityvat'* 'to reread - iterative', *peresolit'* 'to put too much salt' or *nadlomit'* 'to break partially, not to the end' were found.

5.2.3. Person-Number

Roma (as well as other children, acquiring Russian) starts with 3.SG of IPF verbs. The protomorphological stage is characterised by the occurrence of forms of 3.PL of IPF verbs and all three persons in SG of PF verbs. Unmarked forms – 3.SG.present – are the first to occur in the data.

6. Development of MP

We will consider now the emergence of inflected forms of certain lemmas and will try to elaborate some additional criteria (to those of Dressler and Kilani-Schoch 2000) for defining MP in the languages where the existence of two bases (OB and CB) is crucial for the verb inflectional system. We suppose that the ability of children to switch between OB and CB may be an indicator of the higher level of children's mastering of the complexity (of morphological operations) of grammar. Such forms as *pit'*-IPF 'to drink' and *p'jot'*-PF 'drink-3.SG' can be, probably, considered a true MP[18]; the operation to construct these two forms is more complicated as, for example, in the case of past tense: *upal*-MASC.SG, *upala*-FEM.SG, *upali*-PL.

The first three differently inflected forms of one PF verb *upast'* 'to fall down' occur already at the age of 1;11 (see above). However, we cannot consider these forms to be the first true MP. One of the reasons would be the following: all these inflected forms were created from the OB, only by adding inflectional suffix of the past *–l* and different markers of either feminine or masculine in SG or PL: *-a, -Ø* or *–i*. At this age we do not find evidence that Roma differentiates between gender (and number). Moreover, sometimes he uses masculine and feminine endings of the verb in the wrong contexts, for example:

%sit: A wheel (neuter gender) fell down from Roma's hands
*ROM: xxx upal.
%pho: Eee pau.
fall-PAST.MASC.SG

%sit: Roma threw down a plastic tube (feminine gender) and watched it rolling:
*ROM: Upal.
%pho: Pau.
fall-PAST.MASC.SG

[18] In case the child uses forms of 3.SG of the other verbs.

%sit: Roma approaches the armchair, takes the cover (feminine gender) and throws it on the floor:
*ROM: Upali.
%pho: Apai.
fall-PAST.PL

In the observed period (during 4 months) seven lemmas were used in three forms and one lemma was used in 5 forms. Only two pairs of verbs (with the same root) which differs only by prefix *po-* were used: *exat' – poexat'* and *pit' – popit'*. The meaning of *po-* in these two cases is various: ingressive and delimitative, respectively. One pair of verbs differs by means of suffix *dat' – davat'* . However this last couple can be hardly seen as a real aspectual pair. The verb *dat'* was used for a long time as a frozen form and *davat'* – as a rote-learnt form. Both verbs are often used by the mother.

Tables 9 and 10 give the overview of the first contrastive forms (and true MPs) of verbs at the age of 2;00 and 2;01. We suppose that verbs that have two contrastive forms and first true MP (three and more forms) consist of mainly rote-learnt forms.

Table 9 Verbs, contrastive forms and early true MP at the age of 2;00:

2;00a and 2;00b	English translation	imperat.	infinitive	1. SG. PL. pres./fut.	2. SG. PL pres./fut.	3. SG. PL pres./fut.	past-m	past-f	past-PL
IPF verbs									
kopat'	to dig	+	+			SG			
pit'	to drink		+			SG, PL			
spat'	to sleep		+			SG			
PF verbs									
dat'	to give	+	+						
otkryt'	to open	+	+						
poexat'	to start going by car				SG	SG	+		+
pojti	to start going by foot						+	+	
upast'	to fall down						+	+	
vključit'	to switch on	+	+						

First contrastive forms of nine verbs occur at 2;00b. Forms of the imperative, the infinitive, the present 3.SG. and the past tense (SG. and PL.) are mainly used. Two lemmas have three forms: *kopat'*-IPF 'to dig' – the imperative, the infinitive and 3.SG, *pit'*-PF - the infinitive, 3.SG and PL and one lemma – *poexat'*PF 'to start going (by car)' has four forms - 2.PL, 3.SG and past SG.MASC. and PL. These rote-learnt forms compose the first true MPs, that occur when Roma's vocabulary consists of only twenty verbs. The members of the first MPs of IPF and PF verbs are different and are determined by aspectual distinctions of verbs. MPs of IPFs consist mainly of infinitive and present, and MPs of PFs – of imperative, infinitive and past (only by one PF verb *poexat'* forms of two different tenses occur).

At the age of 2;01 twelve lemmas with two and more different forms occur in the recordings and five lemmas in the diary (see Table 10[19]).

2;01a and 2;01b	English translation	imperat.	infinitive	1. SG. PL. pres./fut.	2. SG. PL pres./fut.	3. SG. PL pres./fut.	past-m	past-f	past-PL
IPF verbs									
davat'	come on	SG, PL	+				+		
exat'	to go by car		+*				+ #		
kushat'	**to eat**	+	+*			**# SG**			
myt's'a	to wash		+			SG			
pisat'	to do a poor		+*			SG (diary)	#		
pisat'	to write		+			SG (diary)			
pit'	to drink		+			SG			
sidet'	to sit					SG, PL			
snimat'	to put off	+	+ (diary)						
spat'	to sleep		+			SG (diary)			
PF verbs									
dat'	to give	+	+ (diary)	SG					
poexat'	to start going by car			PL			+		
pojti	to start going by foot			PL (diary)			+	+ (diary)	+
popit'	to drink a bit		+				+		
prijti	**to come**					**SG**		+	
upast'	to fall down						+	+	
vkljuchit'	to switch on	+	+					+	

At the age of 2;01 Roma used four verbs in three or more forms: one IPF verb *davat'* and three PF - *dat'*"to give', *pojti* 'to start going' and *vkljuchit'* 'to switch on'. Beginning from 2;01 PF verbs attach not only inflections of the past tense, but also person-number suffixes, thus, number and composition of the MPs gradually changes.

Due to the small sample size (and the limited number of lemmas) only the small number of the true MPs has been found.

7. Morphological substitutions

No class shifts were registered in the observed period. We suppose that class shifts in Russian occur during the later stage (of transitional morphology). The same fact has been reported by Kiebzak-Mandera, Smoczyńska, and Protassova (1997), in their investigation of the acquisition of the early stages of Russian verb morphology. They wrote that "processes of class shifts and regularizations could be observed ... well after the emergence of the basics verb system. ... In the very earliest phases of building tense, aspect and mood distinctions they were extremely infrequent and did not reveal any systematic pattern".

[19] Underlined, bold verbs are taken from the diary. If one form is taken from the recordings and another – from the diary, it is noted in the table: the word "diary" is written in the brackets. Asterisk * shows the agreement errors, and the sign # points to the correct target form. For example, for the verb *exat'* the signs mean that Roma used infinitive instead of the target form past-masculine.

It seems that in the case of Russian class shifts and over-regularizations (in constructing OB and CB forms as well as aspectual pairs of verbs) occur later than in other languages observed in this volume. The complex nature of alternations within one paradigm and in the root itself (when switching between the OB and the CB=, as well as the rich system of prefixation (with numerous Aktionsarten), probably may slow down the emergence of "creative" errors in children. Only having mastered the system of verb inflections the child starts to produce over-regularizations in root and stem alternations (while switching between the OB and the CB) and in word formation.

In the observed period only several agreement errors were found[20]. In the early sentences with subjects Roma uses infinitive instead of inflected form of 3.SG. present or past tense, for example:

*MAM:	Kogo	ty	tam	videl?
	whom	you	there	see-IPF.PAST.MASC.
*ROM:	Djadja Sergej	sobachka		kormit'
	uncle sergej	dog-NOM		feed-INF
correct verb form:				feed-**PAST**

"Uncle Sergej fed the dog"

Another example. Roma returns home from a walk,

*MAM:	Gde	ty	byl,	Roma?	
	where	you	were,	Roma	
'Where were you, Roma?'					
*ROM:	Guljat'	papa,		mašina	exat'.
	walk-INF	father-NOM.SG		car-NOM.SG	go-INF
correct verb forms:	walk-**PAST**				go-**PAST**

'Was walking with papa, was going by car'

In both cases the mother uses past tense forms in her questions. Thus, the temporal structure of the answer is in a way predetermined. The child constructs the poly-component utterances and doesnot use the "correct"-target past form (note, that Roma used already the past form of the verb *exat'*). Probably, production of the poly-component (syntactically complex) utterances aggravates the construction of the inflected forms.

8. Conclusion

When analysing our data and making comparisons with the results presented by the other authors, we noticed some peculiarities in the acquisition of the inflectional system of Russian verbs. On the one hand, at 1;10 Roma started to use verbs with different inflections, later on we registered steady increase of different inflected forms, the verb lexicon became richer, and the number of true MPs increases. On the other hand we note "stable" use of infinitives. No class shifts (they occur later), or any formations of the analogical nature occur in the period under observation. Agreement errors are also rare (infinitive instead of PRES.3.SG or PAST.MASC forms).

Almost no mistakes in the alternations between OB and CB were registered. Roma correctly spelled the different alternations in roots and stems, probably due to the fact that many forms

[20] Agreement errors are also rare in the data of Kiebzak-Mandera (1999).

were rote-learnt. The early contrastive forms that Roma uses were not only transparent (belong not only to the 1st productive MC), but also suppletive and opaque. This may, probably, confirm the fact that the majority of the inflected forms in this stage are not self-constructed.

The more detailed Table 11 below gives a qualitative and quantitative overview of the emergence of lemmas with two forms and true MPs:

	1;10	1;11	2;00a	2;00b	2;01a	2;01b	2;00 diary	2;01 diary	2;02 diary
new verb lemmas	3	5	4	8	9	10	5	13	12
MPs with two-members	-	-	2	3	5	2			
MPs with two-members: whole month	-	-	6		14				
Three, more members MPs: whole month	-	-	3		4				

The last Table 12 below shows changes in the lexicon, in the verb inflection, in the development of the syntactic context and the emergence of the true MPs during two phases:

	Premorphological phase	Protomorphological phase
lexicon	lexicon consists of about ten verbs	verb spurt, utterances with verbs consist 12% of all analysed utterancs
verb inflection	only 3.SG.IPF and PAST.PF, mainly rote-learned forms, frosen forms, 2-3 types of inflected forms	3.PL. and 1.SG.IPF and PF, PAST.IPF, analytical forms occur, 6-9 types of inflected forms
MP	no forms of one lemma (if any, they are not true MPs)	two contrastive forms of one lemma, true MPs
syntactic context	one word, very rare two-component utterances	two- and three-component utterances

In the early stages of the development of verb inflection, when rote-learnt forms prevail in the speech production, the imitative learning, as Tomasello (2000) underlines, "is a necessary and crucially important part of language acquisition". However, later, the more self-constructed inflectional forms we find in the child's speech production (and the higher will be the level of detection of morphological rules) the less important would be the role of imitative learning. In the stage of pre-morphology Roma produces mainly frozen and rote-learnt forms in the one-word utterances with the minimal variation (and the high level of transparency) of verb inflections.

Gradually, the amount of frozen forms decreases and the number and the variety of rote-learnt forms increases and reaches such critical mass which leads the child to detecting morphological operations (and rules) and to producing self-constructed inflected forms. Mastering of the grammatical rules (morphological operations) of a given language and ability to operate with them become one of the decisive factors in the further acquisition of inflectional morphology.

The emergence of frosen forms, of the first rote-learnt contrastive forms, of the self-constructed forms and of the true MPs are steps of pre-modular morphological development. These processes of development are the corner-stones underling the further acquisition and productive use of the inflectional system. And, probably, because cognitive development of children takes place along with the acquisition of system of language and the detecting of the rules of inflectional morphology, children, unlike adults learning Russian, do not have so many obstacles in learning and use of some verb categories, such as, for example, PF and IPF aspects of verbs.

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Appendix

Quantitative overview of the produced forms in recordings and diary is given in Table 5.1. and Table 6.1.

Table 5.1. Production of infinitive and inflected verb forms – recordings

age	aspect	lemma /types/ tokens	frosen forms [21]	imperat.		inf.	present (future for PF verbs)						past			
							SG			PL			SG			PL
				2. SG	2. PL		1.	2.	3.	1.	2.	3.	fem	mas	neu	
1;10	IPF	1/1/1				1/1										
	PF	2/2/3				1/1								1/2		
	all verbs	**3/2/4**	**2/6**			**2/2**								**1/2**		
1;11	IPF	2/1/2							2/2							
	PF	4/4/27	1/ 2			1/1							2/7	2/18		1/1
	all verbs	**6/5/29**	**1/ 2**			**1/1**			**2/2**				**2/7**	**2/18**		**1/1**
2;00 a	IPF	2/2/3		1/2		1/1										
	PF	5/4/19	1/11	1/5		1/2							2/3	3/9		
	all verbs	**7/4/22**	**1/11**	**2/7**		**2/3**							**1/3**	**3/9**		
2;00 b	IPF	7/5/18	1/1	1/2		5/5			4/9			1/1		1/1		
	PF	10/7/32		2/3		2/3		1/1	1/1				2/3	5/16		2/5
	all verbs	**17/8/50**	**1/1**	**3/5**		**7/8**		**1/1**	**5/10**			**1/1**	**2/3**	**6/17**		**2/5**
2;01 a	IPF	9/5/26		2/4	1/2	3/7 1*/1			3/11			1/1				
	PF	7/5/42	1/5	3/8		2/4	2/6						2/7	3/17		
	all verbs	**16/8/68**	**1/5**	**5/12**	1/2	**5/11 1*/1**	**2/6**		**3/11**			**1/1**	**2/7**	**3/17**		
2;01 b	IPF	14/4/20		1/2		6/8 2*/2			5/5					2/3		
	PF	3/3/4				1/2							1/1			1/1
	all verbs	**17/5/24**		**1/2**		**7/10 2*/2**			**5/5**				**1/1**	**2/3**		**1/1**

Table 6.1. Production of infinitive and inflected verb forms – diary

	aspect	lemma /types/ tokens	imperat.		inf.	present (future for PF verbs)						past				comp. future (IPF verbs)
						SG			PL			SG			PL	
			2. SG	2. PL		1.	2.	3.	1.	2.	3.	fem	mas	neu		
2;00	IPF	6/3/6	2/2		3/3			1/1								
	PF	3/2/12	2/10		2/2											
	all verbs	**9/3/18**	**4/12**		**5/5**			**1/1**								
2;01	IPF	22/6/33	4/4		6/10 1*/1	1/1		9/16			1/1		1/1			
	PF	11/5/13			2/7			1/1	2/5			1/1	8/12 1*/1			½, 2/2
	all verbs	**33/7/46**	**4/4**		**8/17**	**1/1**		**10/17**	**2/5**		**1/1**	**1/1**	**9/13**			**3/4**
2;02	IPF	12/3/15	6/7			1/1		5/9								
	PF	7/5/14	1/1		4/4				1/2			1/3	4/4			2/3, 2/2
	all verbs	**19/7/29**	**7/8**		**4/4**	**1/1**		**5/9**	**1/2**			**1/3**	**4/4**			**4/5**

[21] Fraction from two figures shows the number of lemmas and tokens.

First Tentative Conclusions on the early development of verb morphology*

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0. Preliminaries

In these conclusions we can deal only with some of the tentative comparative results of the workshop papers on the early development of verb morphology. The main focus is on criteria of how the child detects morphology and how this emerging morphological competence develops in its earliest phases. In view of the purpose and tentative character of these conclusions, all references will be limited to the papers of the workshop and to earlier studies by workshop participants within the "Crosslinguistic Project on Pre- and Protomorphology in Language Acquisition". Much more will be given in the projected final publication.

Although the papers have identified differences also in the premorphological predecessors of verbs, it is not yet clear whether these are only due to individual, personal differences of children and to the different onset of recordings (i.e. before or after the emergence of the earliest rote-learned verb forms) or also to cross-linguistic differences between the languages investigated. The latter possibility is rendered less probable by the assumption that typologically relevant morphological distinctions concern only morphological grammar and not extragrammatical operations, such as onomatopoetic reduplication (cf. Russian, Finnish, French, German, Lithuanian; Lithuanian reduplicated fillers are a later phenomenon).

The turning point of the children's detection of morphology is clearly well after the onset of all the project recordings. But the results are still provisional because of the small data-base of each language, i.e. the general restriction to just one or two children, the limited size of data for each child (with the exception of Lithuanian), and thus lack of control over individual intralingual variation. Still some generalizations can be proposed in hypothetical form.

We are going to present our tentative hypotheses in the following logical order:

1. emergence and development of mini-paradigms and other morphological relations which may induce the child to detect morphology.
2. morphological substitutions, analogies, overgeneralizations which may prove that a child has detected morphology.
3. questions of periodisation, based on these and other criteria, especially in reference to the demarcation of pre- vs. protomorphology.
4. generalities (candidates for universals) about the emergence of morphological categories.
5. possible typological differences, with specific reference to characteristics of the ideal inflecting vs. isolating language type.
6. outlook.

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1. Mini-paradigms and other morphological relations

The emergence of three true mini-paradigms (three-member paradigms), with the properties proposed in Kilani-Schoch & Dressler (2001) and briefly repeated in our Introduction, has been accepted as a sufficient criterion for assuming that the child can detect morphology by relating these forms to each other. Particularly in case of small-sized corpora, we suppose that the child has produced many other true mini-paradigms which we have not been able to observe.

But is the emergence of three three-member paradigms a necessary criterion? This has been doubted in the contribution on Austrian German, with the counter-proposal that a greater number of two-member mini-paradigms may compensate for the lack of three-member mini-paradigms, i.e. many two-member mini-paradigms may be sufficient evidence for the child's ability to generalise on morphological relations. In this case, the quantity of smaller mini-paradigms would compensate for the lack of a greater number of members of paradigms. Only in this case, and provided that the other criteria for true mini-paradigms hold, two-member mini-paradigms would be more than just predecessors of true mini-paradigms.

The next question concerns the formal identification of mini-paradigm members. We decided to consider the early emergence of Russian Past.Sg.Masc. *upal* 'fell', Past.Sg.Fem. *upal-a* and Past.Pl. *upal-i* as predecessor of a, and not as a, true mini-paradigm, because only one, non-prototypical verbal subsystem is involved (with adjectival inflection for number and gender), whereas three members from a prototypical subsystem, such as 1.Sg.pres. *kopaj-u* 'I'm digging', 3.Sg. *kopaj-et*, 3.Pl. *kopaj-ut*, would suffice for establishing a true mini-paradigm.

Obviously, simpler relations are easier to analyse than complex ones. For example, the relation between Russ. Inf. *kopa-t'* 'dig' and past masc. *kopa-l* allows easier identification of the categories signalled by the two inflectional suffixes than is the case with the relation between the same Inf. *kopa-t'* and the 3.Sg.pres. *kopa-j-et*, where correct identification presupposes two segmentations (present-/close-stem-formation before agreement suffix) instead of one. When such oppositions are mastered, then double segmentation demonstrates greater capacities of the child than mere simple segmentation. But when we consider only emergence (not yet acquisition or mastery) of paradigm members, then both types of oppositions are on equal level, insofar as they show that the child uses forms whose comparison leads the child to segmentation and identification of any sort. In other words, word-based morphology should emerge earlier than stem- and root-based morphology (cf. below 4).

If the mini-paradigm is suppletive, as in French Inf. [mɛtr] 'to put', Sg.pres. [mɛ], past participle [mi], then first of all, this variation can induce the child only to identify morphosemantic oppositions but not recurrent morphotactic generalisations, whereas regular relations (whether productive or unproductive) are stimuli for detecting morphotactic relations as well (obviously we can hypothesise in our project on the children's organisation of morphology only via what we have sampled of their production).

Since suppletives are the first, or prominently among the first, true mini-paradigms in French, Spanish, Croatian, German, Lithuanian, Finnish and Maya, it seems as if morphosemantic oppositions are detected earlier than morphotactic ones. No true counterevidence is presented by Russian and English, since suppletive verbs play a smaller role in Russian morphology, and in view of the small size of the English samples studied here.

Mini-paradigms (in the strict sense) consist of different inflectional forms of the same lemma. Children may be stimulated, however, to engage in morphological segmentation and identification also by a looser version of "paradigms", i.e. sets of paradigmatically related forms of the same lexeme, i.e. of lemmas which differ only by prefixes or composition. Thus

the roots and stem-forms are identical, and inflectional behaviour is identical as well. Therefore inflectional forms derived from same root with same stem formations should have very similar effects for inflectional analysis as those derived from the same lemma. Relevant instances have been found in German, Lithuanian and Russian, but not in similarly structured Croatian.

Of particular importance among lexemes, because of their morphosemantically systematic correlations, are aspectual pairs which differ only via prefixation (e.g. Russ. ipfv. *risovat'* 'to draw' vs. pfv. *na-risovat'*, which occur only later). This property is shared by perfective (and semelfactive) suffixation in Croat., Russ. *-nu-* , although the respective perfective and correlated imperfective lemmas do not form a single lexeme. Also Lithuanian and Croatian negative prefixation (preverbal *ne-*) must be mentioned here. Note that in German, stressed and separable verbal prefixes (also called particles) emerge earlier than verbs themselves, thus when they occur as prefixes combined with verbs, segmentation is easy.

Relations established by other types of word-formation (i.e. verbal derivation) emerge later and thus appear to be of less importance for the detection of morphology.

Finally, we have to mention that the concept of mini-paradigms has further implications. A first hypothesis (discussed in Kilani-Schoch & Dressler 2001) that the genesis and development of mini-paradigms may be linked to general conditions of uninflectibility in adult systems, has not been confirmed so far. But a second hypothesis by Bittner (this volume) appears to be more promising: meaning and syntactic use of components of protomorphological mini-paradigms appear to be different from those of members of complete paradigms in later, adult-like modularised morphology. This can even be deductively derived from the Saussurean thesis that the value (F. valeur) of a linguistic unit depends on the oppositions it enters within a system: children's first mini-paradigms involve less oppositions than complete, adultlike paradigms. Thus non-adultlike meanings and uses of inflectional forms in protomorphology may not be simply due to a transitional stage in syntactic or even cognitive development.

2. Morphological substitutions

Early substitutions which exhibit apparently free variation or other signs of lacking understanding of morphosemantics or of syntactic function, show lack of identification of the role of morphology. If it can be demonstrated that they are due to constructivist pattern selection, then they are highly relevant for our model of premorphology as in early Lithuanian 3.Sg. shifts and in the Berlin child's root infinitives.

For the purpose of our workshop papers, only later substitutions in protomorphology are significant, because they indicate detection of morphology.These substitutions are characterised by apparently adequate syntactic usage and apparent lack of gross deviations from adult morphological meaning.

Within our corpora, no case of inflectional imperialism has been found, not even in early Lithuanian 3.Sg. shifts.

All substitutions appear to be optional: whenever they have no counterexamples in adult-like ("correct") usage, then they are infrequent, therefore no reasonable decision can be made between optional or categorial (obligatory) character. This means that they appear to represent either errors of performance or instances of insecure competence. Thus the assumption of categorial modifications of the target system hinges on the assumption that "correct" forms

may all be rote-learned, whereas substitutions derive from children's morphological creativity, independent of whether this could be assigned to performance or competence.

Some substitutions can be classified as simplification in whatever analysis, such as the omission of the German past participle prefix ge- in both German corpora (see also below 4).

Most substitutions are instances of analogical levelling, such as (Berlin and Vienna) German replacement of strong past participles by weak ones, or French, Spanish, Croatian and Finnish substitutions. Most of the examples have in common that they represent shifts from either unproductive to productive patterns, or from non-default to default, or from less to more transparent patterns (cf. 4 below).

With the exception of French, (Berlin and Vienna) German and rare Russian root infinitives, whose interpretation is notoriously problematic (cf. Katicic 1997), substitutions within protomorphology point again to the precedence of morphosemantic over morphotactic learning. But this may be an illusion which derives from the easier identification of non-identity of children's productions with adult morphotactics than morphosemantics.

Finally we should mention that in the Russian data, analogical levelling occurs only later, after the onset of modularised morphology. A massive increase of such "errors" is reported for other project languages. These substitutions may be due to rule extraction, a matter beyond the scope of our papers.

3. Periodisation

All authors agree that the demarcation of pre- and protomorphology should hold for morphology at large, thus not separately for verbs vs. nouns, etc. This is what we expect in a model of subsequent modularisation of morphology first and of its submodules later. Of course, this cannot imply that mini-paradigms emerge everywhere at the same time, be it in productive vs. unproductive classes or in verbs vs. nouns (particularly if one subsystem is much richer than another one). The assumption is just that once children detect the morphological principles of segmentation and recurrence of form and meaning, they can apply them everywhere in morphology. As a consequence, other factors must be made responsible for early vs. late emergence of different morphological patterns.

All authors also agree that both emergence of mini-paradigms (1) and of morphology-determined substitutions (2) are crucial for demarcation between pre- and protomorphology. But, intriguingly, the relative chronological order of emergence of each of these two crucial phenomena differs from language to language.

In the French, Maya and Finnish corpora, morphological substitutions emerge clearly later than true mini-paradigms, in Russian much later (only in the modularised stage). In the Berlin German and Spanish corpus, their first occurrence coincides with the emergence of true mini-paradigms. In the Austrian German and Croatian corpora, substitutions emerge much earlier than true mini-paradigms: this has been for Austrian German - in addition to considerations of sample size - one reason for taking two-member paradigms (instead of three-member paradigms) into account (cf. 1). Thus the onset of the Austrian child's protomorphology coincides with a clear verb spurt and with the occurrence of first two-member mini-paradigms and the first overgeneralisations.

For many models of acquisition, the relation of morphological development to lexical and syntactic development is fundamental. If we start with lexical development, then a coincidence of the emergence of mini-paradigms with a lexical verb spurt has been found for the German, Spanish, Russian and Croatian children. For the Finnish, Lithuanian, Yucatec

and the Lausanne children, no verb spurt has been found, but a steady cumulative increase of verb lemmas: also such development is compatible with a critical-mass account of the detection of morphology by the child, i.e. when (s)he disposes over a critical (or sufficient) mass of verb lemmas. Also if a verb spurt precedes the emergence of true mini-paradigms, as in the Lithuanian and Yucateco corpora, this is compatible with critical-mass hypotheses.

An additional possibility of relating the detection of morphology to lexical development is to measure increase in lexical diversity, as proposed by Klampfer (this volume).

A coincidence of the emergence of mini-paradigms with a syntactic spurt has been found with the German, Spanish, Croatian and, to a moderate degree, Russian children. With the French, English and Finnish children, a syntactic spurt has come first. Both chronological constellations are compatible with models which either subordinate morphological to syntactic development or assume interdependence between them.

4. Some generalities about the emergence of morphologically expressed categories

The following conclusions are very general and do not imply that morphosemantics of the categories are adult-like.

4.1. With regard to universal preferences we may repeat the old hypothesis that in general pragmatically/semantically less marked (i.e. cognitively less complex) categories or subcategories should be easier accessible for children and thus should emerge before respective marked ones or, if they emerge simultaneously, be significantly more frequent. In accordance with this prediction, in our data, within the category number, the less marked singular forms emerge before plural forms. Within the category of person, the less marked 1st and 3rd person indicative emerge (in different mutual orders) before the 2nd person, but in the imperative, the less marked 2nd person emerges first (cf. Klampfer, Maillochon, Bassano & Dressler 1999). But there is a double markedness reversal in the 2nd Sg. Imperative: this form is less marked than both the 2nd Sg. Indicative and than the 3rd Sg. Imperative, and thus it emerges earlier. This latter relation can only be evidenced in languages like Turkish. In the languages compared here, weak support comes only from the 1st Pl. Imperative which emerges, in form and/or meaning, a) later than the 2nd Sg. Imp. (but also because in the marked plural), b) earlier than the 1st and 2nd Pl. Indicative (because the 1st Pl. Imp. is also directed towards the interlocutor(s), thus combines both persons).

Also within the category tense, the less marked present (exception: Russian), within mood, the less marked indicative and imperative, and within voice, the less marked active emerge first.

Usually these phenomena of order of emergence can be explained in other ways as well. However this does not automatically throw out the markedness explanation, first because multiple explanation is normal in social and developmental phenomena, second no competing explanation would hold for all the asymmetries for which the markedness explanation holds.

4.2. Morphotactically transparent (and thus more iconic) verb forms should be preferred over opaque ones. In accordance with this prediction, German umlaut and ablaut verb modifications emerge later than fully transparent forms without them. In the other languages similar phenomena are vitiated by the disturbing variable of high input token frequency of opaque verb paradigms (e.g. suppletive 'to be').

Hence a more telling outcome of our prediction is the direction of substitutions. Thus, before modularised morphology, in our French, German, Spanish, Finnish and Croatian corpora, generally more transparent verb forms are substituted for less transparent ones, but not vice-versa. For example, mathematically, in the partially riming verbs Fr. Inf. *prendre*, PP *pris* and *rendre*, PP *rendu*, analogical levellings of the past participle to either **prendu* or **ris* should be equally possible. However French-learning children typically produce *prendu* but never *ris*.

The preference for high morphotactic transparency also predicts that word-based morphology should be preferred to stem-based and, especially, to root-based morphology. A striking support comes from Russian reduplicative root formations of the type *beg-beg* 'run-run' from Inf. *beg-a-t'*, 3.Sg. *beg-a-j-et* (with stem-forming thematic vowel /a/), which emerge only in modularised morphology (cf. Gagarina 1997). This lateness of root morphology renders the assumption of early German root forms dubious (cf. Bittner, this volume, and Klampfer, this volume), as does phonological analysis as well.

4.3. On the parameter of indexicality (supported by the preference for optimal word shapes, i.e. for one-foot words), children start with the most natural solution of using only one affix. For example, the German language already approaches this unmarked option, insofar as no verb form has more than one inflectional suffix and unstressed true prefix. Only the PP (e.g. *ge-spiel-t* 'played', *ge-schlaf-en* 'slept') is more complex, i.e. more marked. According to this prediction, at the beginning, both the Berlin and the Vienna children often drop the prefix. Thus, Dressler and Klampfer, and Bittner also claim, against the literature, that this prefix dropping is not only a matter of phonology. The early samples of the other language corpora show as well lack of double affixation. The Russian exception of Past. Fem. *u-pa-l-a*, Pl. *u-pa-l-i* 'fell' can be considered as spurious: a) the verb never occurs without the prefix in the corpus, b) non-past forms (root /pad/) emerges only later. Thus the child may not have analysed the sequence *upal*, identical with the form for Past. Masc. In other words, detection of morphology seems to work from the periphery, i.e. first detection of inflectional suffixation, only then of presuffixal stem formation.

4.4. Several of our languages have non-inflected base forms as iconic reflections of morphosemantic unmarkedness. Thus we can predict that these forms should either precede inflected forms or, if they emerge simultaneously, be more frequent. This prediction is borne out in the relevant oppositions of English, French, Spanish, Croatian, Lithuanian, Finnish and Yucateco Maya. Moreover, no clear counterexamples occur.

5. Some typological assumptions

Among cross-linguistic differences in the early emergence of verb forms we select the following which bear on the relative approximation of verb systems to the morphology-rich ideal inflecting vs. the ideal isolating type, which is devoid of inflectional morphology (cf. Introduction).

5.1. Morphological richness, thus heterogeneity, might induce children to be more selective in the forms they produce, whereas morphological poverty might render them less sensitive to morphological heterogeneity. In accordance with this hypothesis, the Russian child rarely confuses forms, whereas the German and Swiss French children do. But this would not explain why the Lithuanian and Spanish children have many early confusions or syncretisms. Moreover the Berlin child is less selective than the Vienna child and than the two Lausanne children.

5.2. Another prediction linked to morphological richness seems more promising: due to the greater quantity of paradigm members in morphology-richer languages, in stronger inflecting languages mini-paradigms should emerge earlier and occur more frequently than in weaker inflecting languages. Earliness can be measured by the interval between first emergence of verbs vs. of mini-paradigms. This intervall is two months for the Russian child, but longer for the German, French, Spanish, Croatian children. That this intervall is slightly longer in the Lithuanian corpus is less disturbing than the much longer intervall in morphology-rich Finnish.

5.3. Homophony (but not biuniqueness, see Kilani-Schoch & Dresssler 2000) has been proposed as a possible factor for favouring the emergence of verb forms in early phases of acquisition. Now, homophony plays a bigger role in weaker than in stronger inflecting languages. This would predict that infinitives emerge earlier when they are homophonous with other verb forms. This would explain the early emergence and frequent use of infinitives in French and German, as opposed to Croatian, Lithuanian, Finnish - but Russian is problematic.

The early emergence of base forms in French, Spanish, Croatian, Lithuanian and Finnish (cf. 4.4) is also explainable by the fact that many of them are homophonous or syncretistic.

6. Outlook

These conclusions are very tentative and present many more questions than answers. But we hope that they address interesting problems and approaches towards their solution. Fine-grained acquisition studies of typologically both similar and very diverse languages such as the ones studied in this workshop appear to allow putting forward new questions or looking at old ones from a new perspective. Proceeding in our attempts to answer them is the purpose of the final publication of this workshop's papers. We intend to bring in more data, also from additional languages, to discuss them more deeply in the light of previous theoretical and empirical findings and to draw more elaborated and far-reaching comparative conclusions from a greater number of points discussed in the project papers on single languages.

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