Development of Verb Inflection in
First Language Acquisition

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A Cross-Linguistic Perspective

edited by

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Introduction

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1. Pertinent issues in recent studies on child language acquisition

Two related controversies have been hotly debated in the field of language acquisition: How do children acquire grammar? When do children acquire grammar? Positions in this ongoing discussion do not only depend on basic assumptions on the nature of grammar, of language, of acquisition, etc. but also on how emergence of grammar is identified. Does it take place with the emergence of word-class distinctions or functional elements such as function words and affixes or with the appearance of certain word-order patterns or of spontaneous use of specific constructions?

The approach of the contributions to this volume concurs with most other contemporaneous approaches in assuming that grammar comes into existence with relevant generalisations over individual words and word forms. But, again, there is controversy about when and how we may identify generalisations in a child's linguistic output. Probably all models of acquisition take for granted that acquisition starts with item-based learning.[1] The transition from such item-based rote learning to pattern- or rule-based learning is then generally connected to the accumulation of some critical mass of relevant structures (cf. Marchman and Bates 1994; Caselli, Casadio, and Bates 1999; Elsen 2002). But there is much controversy on how this happens in detail and on how quantitative spurts and qualitative changes are best accounted for: how is the way paved for them, how do they proceed and how are they accomplished? All of these questions as to how and when this transition occurs are closely interconnected.

The contributors to this volume share the assumption that the acquisition of grammar is not determined by the existence of innate grammatical (or at least morphological) parameters which are set at a certain point in maturation or by critical-mass accumulation. However, one has to explicate the relevant steps in the child's process of generalising and abstracting

over the input and intake and of extracting abstract patterns or rules. Recently, Tomasello (1992, 2001) has insisted on a long duration of item-based learning and has argued against the postulation of early generalisations. Particularly in regard to syntactic and morphological alternations, Tomasello assumes a protracted, imitative accumulation of item-based structures which not earlier than at the age of four years may give way to a dominant generalising learning mechanism.

For early phases of acquisition, Bowerman (1976), Langacker (1988), Bybee (1985, 1995), Tomasello (2000a) and others propose a usage-based model of grammar. This model is also meant to account better for language-specific differences in early acquisition than models which focus on rule acquisition and early grammatical generalisations. Slobin (1997, 2001) follows these proposals at least partially and assigns greater relevance to early language-specific diversity than in his earlier model of the language-making capacity (Slobin 1985). In Slobin (2001), he modifies his thesis of a universal set of early grammatical concepts and of the dominant role of semantic bootstrapping in the process of form-function mapping by assuming a "combination of thinking for speaking and typological bootstrapping...which seems to guarantee that language-specific form-function patterns will be established and maintained by the learner" (Slobin 2001: 285).

Usage-based models proceed from the assumption that "the units of language with which people operate are not presupposed or prejudged" (Tomasello 2000a: 78). Thus, in language acquisition, grammar does not start necessarily with establishing target-like categories. This is a decisive difference to most generative approaches. It is rather assumed that grammar or target grammatical categories and structures can be constructed or reconstructed in a stepwise way. This implies that unexpected and non-target-like forms may emerge as results of a child's abstractions and hypotheses (cf. below on blind alleys). Furthermore, this does not preclude the possibility that hypotheses on form-function mapping may be of a universal or, at least, very general nature. For linguistic capacities develop in connection with joint attentional skills of child and care-taker. These skills are apt to establish interaction-encompassing background frames (Tomasello 1988) and are linked to reasoning from the very beginning.

The grammatical domain which develops very early and first approaches target-like structures in linguistic categorisation is phonology. Development of syntax and morphology, at least after the one-word (or one-element) phase, presupposes a decomposition of the sound chain into

units from sentences (or utterances) over words to syllables and phonemes (or even other phonological units, cf. Dziubalska-Kołaczyk 2002). All these units, however a theory defines them, and a sufficient number of their representatives and properties must be categorised for morphology and syntax to develop. Moreover, it is assumed that children very early start to differentiate word classes (cf. section 4 and e.g. Lieven 1998; Vihman 1999; Behrens 2001; Tomasello 2001). Consequently, early learning, which is primarily imitative of course, does not preclude abstractions and generalisations over the input and the child's own repertoire.

An acquisition model which explicitly assumes children's reanalysis of their own output as the main driving force of linguistic development is Elbers (2000) with its "output as input hypothesis". Another acquisition model which integrates item-based learning and processes of generalisation is Karmiloff-Smith's (1992) model of "representational redescription". The central point and process type of this model is a cyclic reiterative process of successive abstraction over acquired linguistic representations in each domain and beyond single domains. This process of redescription applies both to item-based representations and to representations abstracted from them. This model is constructivist and thus similar to the equally constructivist model of "self-organisation", as developed, inter alia, by Karpf (1991), Dressler and Karpf (1995). Children, in their intake and uptake interact selectively with their linguistic environment, based on their present repertoire and the properties of the input, in particular the parameters of saliency and naturalness. This interaction leads to pattern selection both on the paradigmatic axis (i.e. selection among competing structures) and on the syntagmatic axis (selection within the sound chain). The more children advance, the more actively they may engage in the construction of their patterns (self-organisation in the strict sense), including the formation of non-target-like hypotheses, when they construct so-called blind alleys which lead away from the adult targets and which children have to give up soon afterwards. It has been shown that children may start to engage in such "wrong" hypotheses very early on (e.g. reduplicative structures in Greek, Lithuanian and Russian verb inflection; cf. Dressler 1997a, Kilani-Schoch et al. 1997).

All of these conceptions deliver good arguments for looking for processes of grammaticisation from the earliest acquisition phases onwards. Despite the seemingly great variation in acquisition, especially in its constructivist interpretation, results of research in grammar since Edward Sapir and Roman Jakobson, followed by Dan Slobin's arguments on

"thinking for speaking" (Slobin 1997) encourage acquisitionists not to abandon the thesis of universal points of departure in the acquisition of language and grammar. On the one hand, different grammars represent in their essential components different solutions for the same problems of language production and receptive processing (cf. Seiler's both universalist and typological work on linguistic operations as problem solving devices 1978; 1986, 2000). The same speech act and its semantic and syntactic structuring can be materialised by different means and structural elements cross-linguistically and even within each language. For example, Krifka (1989, 1992) demonstrated such variations with complementary means of coding cumulativity and quantification of events (ongoing vs. completed events in final analysis) within verb- vs. noun-phrases. Or for instance Gil (1991) showed how number of nominal referents may be symbolised even outside nouns and noun phrases (cf. also Dressler 1968). On the other hand, particularly early phases of language acquisition are characterised by species-specific conditions that guide perception of the world and its verbal rendering. The above-mentioned joint attentional skills and the establishment of frames for communicative interaction and for first grammaticisable notions (cf. Slobin 1985) are in part subject to universal conditions. Therefore, at first, language-specific differences in language acquisition might regard primarily and predominantly formal means rather than the construction of functional grammatic distinctions. As a consequence we do not assume that the acquisition of grammar starts with the establishment of target-like language-specific categories. Rather we think of successive processes of differentiation and of constructive dissociation of universal base conditions into language-specific categories.

One aim of the research presented in this volume is to look for possible universal points of departure in language acquisition in the realms of verb inflection and for how language-specific structures emerge. Morphology and particularly verb inflection offer a promising area for such investigations, because both emerge later than phonology, and the acquisition of its core is achieved by the age of three years of age, even for languages with relatively poor morphology on the one hand and for languages with very rich morphology on the other. This relatively short period facilitates longitudinal research as compared to syntactic processes, as they have been investigated so far in item- or usage-based approaches. Even more than previous studies which appear to assume the same learning mechanism for syntax and morphology (cf. Akhtar and Tomasello 1997; Pine, Lieven, and

Rowland 1998), we will differentiate between morphological and syntactic generalisations, and focus on the first.

2. Studies on the acquisition of verb inflection

Due to the importance of the verb and its relevance for clause structure, the acquisition of the inflectional properties of the verb is a traditional object of investigation in child language research. However, most work has been done on the acquisition of aspect-tense inflection (for an actual overlook cf. Weist 2002) and correlations of semantic classes of verbs and inflectional types (cf. Bloom, Lifter, and Hafitz 1980; Slobin 1985; Shirai and Anderson 1995; Wittek 2002) as well as on word order properties of inflectional types (cf. Jordens 1990; Meisel 1992; Poeppel and Wexler 1993; Wijnen 1998). The emergence of paradigmatic relations between inflectional forms and the order of inflectional contrasts has been much less studied as a topic of its own in the past decades. Only a comparatively small sample of languages, most of them belonging to the traditionally investigated language families, has been considered.[2] However, it is fair to say that a cross-linguistic perspective on the early emergence of verb inflection and paradigm construction is still lacking and that our insights in the processes of paradigm and category (re)construction are still only preliminary.

Considering models dealing with the acquisition of inflection and paradigm construction in detail, mainly three concepts can be distinguished: the dual-mechanism model of Pinker, Marcus and colleagues, the connectionist models established by Marchman, Plunkett, and others, and the net-work model of Bybee which is closely related to usage-based models (cf. Langacker 1988; Tomasello 2000a).

The dual-mechanism model (Pinker and Prince 1992; Clahsen 1999), establishes two qualitatively different structural levels for the processing of regular vs. irregular inflecting forms. Regular forms are generated from a base form via the operation of a symbolic rule, whereas all irregular forms are stored in the lexicon. The strong distinction between the two domains raises the question how (over)regularizing of irregular forms in child and adult language can be explained. Bybee (1995) also criticises the central role the model assigns to token frequency in establishing productive patterns or default rules. Marcus et al (1992), Clahsen (1997), Clahsen, Aveledo, and Roca (2002) have discussed these critiques. One of the re-

sults has been to reduce reliance on token frequency. However, several critiques against the model have not been answered satisfactorily. First of all, these are the adequacy of two qualitatively different levels in the lexicon and in morphological processing, second, the specific claims on defaults made in the model, cf. the panel discussions on Clahsen (1999).

The notion of "miniparadigm", which is central for the investigations of this volume, has been first used by Pinker (1984) within the framework of Lexical Functional Grammar. He proposed a progression from word-specific to general paradigms as "a process whereby the child first creates word-specific miniparadigms and only later abstracts the pattern of inflection contained within them to create general inflectional paradigms" (1984: 180). This process is assumed to be guided by innate learning devices including the stepwise enrichment of paradigm complexity by adding new values and new dimensions. In Pinker's view miniparadigms are sets of hypothesised feature equations entered into the grammar and appended to entire words. However, Pinker leaves it unclear how and when the child arrives at creating equations, i.e. by which steps and processes the child extracts the right hypotheses, and what the first miniparadigms exactly mean in the development of morphology.

Bybee's net-work model (1988) takes type frequency as the main criterion for the emergence and productivity of a pattern. Patterns emerge by net-work connection of semantical and phonological properties of single word forms. Productivity is further dependent on the restrictedness of a pattern. On the contrary, lexical strength, i.e. token frequency of a certain form, is responsible for the power of the net-work connections the form exhibits. The higher the lexical strength of a certain form, the more it tends to be stored separately, with only less or no involvement in net-work patterns, and the higher is the potentiality of separate semantic/functional developments. Bybee argues that forms with high token frequency will be learned early and by rote-learning. It follows from the model that general inflectional patterns emerge through accumulation of types of certain connections. In contrast to the dual-mechanism model, in the network model all morphological properties and processes are part of the lexicon, no separate rule component nor any different levels of processing are assumed. The model proposes two types of schemas serving morphological structure. Source-oriented schemas "are generalisations over pairs of basic and derived forms", i.e. they determine which patterns are applicable to a certain (base) form. Product-oriented schemas "are generalisations over sets of complex or 'derived' forms" (Bybee 1995: 430), i.e. they describe the pro-

totypical formal properties which express a certain grammatical function. It follows from these twofold schemas that the production of a certain form is determined by the properties of the base form and by the expected formal properties of the output form.

Also the connectionist models reject the assumption of a separate or specific component of abstract rules. Formal generalisations emerge from the accumulation of individual lexical patterns. Various connectionist models simulate acquisition processes of the learning of certain inflectional contrasts quite well, based simply on weights of frequency and distribution of input features and their connections (cf. Plunkett and Juola 1999). However, morphosemantics, i.e. the meaning of inflectional categories, and the relation of inflection to syntax have been nearly completely neglected so far (with the exceptions of Cottrell and Plunkett 1994; Plaut and Gonnerman 2000). This lacuna is paradoxical, because there exist many connectionist studies on the acquisition of word meaning (e.g. Dorffner 1992; cf. MacWhinney 2000), and because acquisition of morphology is considered to be a special instance of lexical learning. Moreover, most connectionist models lack the notions of lexical entry (but see MacWhinney 2000) and paradigm, which the authors of this volume, like all morphologists, consider to be indispensable.

Far from denying their important findings on the acquisition of inflectional morphology, we find in the recent usage-based and connectionist approaches a rather restricted focus on inflectional development. All of them primarily deal with single inflectional contrasts and are merely form-oriented in their analyses. The construction of paradigms in form and meaning has not been investigated so far. The grammatical concepts represented by the forms acquired, their internal hierarchy, their correlation with cognitive principles, and their impact on the order of acquisition are still open questions. There is only little knowledge on the grammatical distinctions the child assigns to contrasting inflectional forms. The first steps into grammar, i.e. the beginning of its detection, is even less known up to now.

In section 1, we already criticised that, in our view, within usage-based models the emphasis on language-specific and item-specific aspects in the acquisitional process tends to restrict attempts towards finding out common or universal conditions of language acquisition. The proponents of this model not only negate innate modules but apparently any innate and specifically linguistic predispositions which even emergentists accept, e.g. Karmiloff-Smith (1992). Their assumption of an excessively long period of rote-learning of verb-specific inflectional forms (cf. Tomasello's 1992

verb-island hypothesis), in our view, undervalues young children's capacity for morphological generalizations. However, we agree with Tomasello (2001: 183–184) that it belongs to the outstanding questions of child language research "how do children select what they need from all the language they hear", "on what basis do children make analogies or form schemas", and we would add: what are the universal steps and operations on the way from pragmatic to grammatical and finally adult-like interpretation of the input. Cross-linguistic evidence from typologically similar and different languages promises to advance our knowledge about the emergence and development of grammatical categories, on their interplay, and of possible conditioning factors. This volume is meant to contribute to this goal.

3. The pre-/protomorphological approach to the emergence of verb inflection

The present volume provides the fruits of a long-term cooperation of the authors on this topic. The theoretical and organisational core of this research has been the "Crosslinguistic Project on Pre- and Protomorphology in Language Acquisition" coordinated by Wolfgang U. Dressler in behalf of the Austrian Academy of Sciences. The project intends to answer basic questions such as:

A) How can we explain that young children appear to acquire very different morphological systems in similar ways but with great time lags in the emergence of morphological patterns (e.g. Turkish vs. English children)?

B) How can we explain not only the similarity of development but also of structural principles of target morphologies without assuming a sizable number of innate morphological principles of universal grammar?

C) But why is then hypothetically innate grammatical morphology (as opposed to extragrammatical morphology, see below) nearly absent in certain isolating languages as well as in early stages of language acquisition?

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

the Meso-American languages Yucateco Maya and Huichol. The perspective is more typological than crosslinguistic in that its agenda is to set up comparative schemes which allow to distinguish between similarities in typologically distinct languages and differences in typologically similar languages. Furthermore we strive for differentiating between typological dependency and system-specific (Wurzel 1984; Dressler et al. 1987) adequacy in morphological development.

The epistemological approach of the project is characterised 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 and the model of self-organisation of developing systems (cf. Kilani-Schoch 1988; Dressler et al. 1987; Dressler 1997b, 1999; Dressler and Karpf 1995). Moreover, this model distinguishes gradually prototypical vs. non-prototypical morphology (cf. Dressler and Merlini Barbaresi 1994): prototypical verbal categories are person, number, tense, mood and voice, whereas most of the 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.

In studying language acquisition, we make a distinction between grammatical morphological rules vs. extragrammatical operations (of "expressive" morphology), as represented by young children's onomatopoetic reduplications, truncations and fillers. We assume (cf. Dressler 2001) that typologically relevant morphological distinctions concern only morphological grammar and not extragrammatical operations, such as onomatopoetic reduplication in premorphology (cf. in this volume Russian, Finnish, French, German, Lithuanian[3]). According to the concept of language types as ideal constructs which are more or less approached by actual languages (cf. Skalička 1979; Dressler et al. 1987; Kilani-Schoch 1988), 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:[4]

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

The acquisition of verb inflection is in focus since 1998. Since 2000 there exists a close cooperation with the project "Syntactic Consequences of the

Acquisition of Morphology" at the Zentrum für Allgemeine Sprachwissenschaft, Typologie und Universalienforschung in Berlin (ZAS = 'Research Centre for General Linguistics, Typology and Universals'). In this project, the investigation of the emergence of verb inflection in Russian, German and English is the starting point for a comparative study of simultaneous syntactic acquisition processes. In September 2000, a workshop at ZAS in Berlin allowed to elaborate a first review of joint work done within both projects on verb inflection and to prepublish the results in the ZAS Papers in Linguistics (ZAS-PiL 18). For the present volume, the contributions to the ZAS volume have been thoroughly reworked and enriched, and completely new chapters on Dutch, Greek, Italian and Turkish have been added. This volume presents the state of research of both projects on the emergence of miniparadigms in thirteen languages (with two varieties of German) and its relevance for the acquisition of verb morphology.

We define a true miniparadigm as corresponding to a non-isolated set of minimally three phonologically unambiguous and distinct inflectional forms of the same lemma produced spontaneously in contrasting syntactic or situative contexts in the same month of recordings (cf. Kilani-Schoch and Dressler 2002, Kilani-Schoch this volume). We expect children to abide by these criteria progressively in their development. In other words we hypothesise several successive steps or paths to miniparadigms during which the children evolve towards an ever less partial and vague detection of morphological alternations. The papers of the volume show that the building of miniparadigms can be described as a slow extension and development of verb forms up to a point where some qualitative change may occur. It is as if the children tried successive approximations until they had enough experience for starting to actively construct morphology. This process appears to be related to a lexical growth although not directly derivable from it.

Among typological differences in the early emergence of verb forms and of verb morphology, the following appear to bear on the relative approximation of verb systems to the morphology-rich ideal inflecting vs. the ideal agglutinating vs. the ideal isolating type, which is devoid of inflectional morphology and, a fortiori, of morphological grammar.

1. Morphological richness (as defined by the amount of productive morphology), characteristic of languages approaching the ideal agglutinating and inflecting types, should make children more aware of the importance of morphology. Thus, they should detect morphology earlier than children acquiring languages poorer in morphology (cf. Slobin 1985).

2. Due to the greater quantity of paradigm members in languages with richer morphology, in strongly agglutinating and stronger inflecting languages miniparadigms as a result of paradigm construction should emerge earlier and occur more frequently than in weaker inflecting languages.

3. Morphological richness, thus heterogeneity, might induce children to be more selective in the forms they produce, by paying more attention to the functional context of the forms they take up and produce. In contrast, morphological poverty might render them less sensitive to morphological heterogeneity. Thus children acquiring a strongly agglutinating or a strongly inflecting language should confuse forms less often than children acquiring a weakly inflecting language. However, selectivity is also subject to interindividual variation.

4. Agglutinating languages have a greater preference for a) constructional iconicity, b) morphotactic transparency, c) biuniqueness than (at least strongly) inflecting languages. Therefore, agglutinating Turkish a) has no modifications such as ablaut and umlaut (Germanic languages), gradation (Finnish), palatalisations (Slavic and Romance languages), which all decrease the degree of constructional iconicity, b) has nearly no morphonological rules which make inflection less transparent in inflecting languages and also in Finnish, c) has no allomorphy or cumulative morphology, as they are rampant in inflecting languages. For example, Turkish has just one suffix for each case and for plural, which are signalled separately, e.g. nom.sg. *ev* 'house', loc.sg. *ev-de*, nom.pl. *ev-ler*, loc.pl. *ev-ler-de*, whereas in Russian, case, number, and gender are signalled simultaneously and with different allomorphs in different inflection classes, e.g. nom./acc.sg.msc. *dom*, dat./loc.sg.msc. *dom-u* vs. nom.sg.fem. *kniga*, acc.sg.fem *knig-u*, gen.sg.fem. *knig-i*, dat.sg.fem. *knig-e*. These are further properties which should facilitate acquisition of morphology, including the establishment of miniparadigms, in Turkish as opposed to less agglutinating Finnish and to inflecting languages.

5. In a seemingly paradoxical contrast, homophony (as opposed to biuniqueness, see Kilani-Schoch and Dresssler 2000, 2001) has been proposed as a possible factor for favouring the emergence of verb forms in early phases of the acquisition of inflecting languages. The reasoning goes as follows: if there is ambiguity (instead of biuniqueness or, at least, uniqueness), much opacity (instead of morphotactic transparency), and less constructional iconicity, then homophonous forms (including syncretisms) are easier to handle in the earliest phases of mor-

phology acquisition, because they occur in more environments than heterogeneous forms and are thus more usable. (Note that 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, as in English, French, German, than in other languages. Furthermore, this would explain the presence of a root-infinitive stage in the three above-mentioned languages (Pierce 1992; Wexler 1994) vs. the absence in other languages (cf. Phillips 1995).

Our developmental approach does not assume an innate morphological module but is constructivist (cf. section 1), i.e. based on the model of self-organising processes (autopoiesis, cf. Karmiloff-Smith 1992; Karpf 1991; Dressler and Karpf 1995). Children interact selectively with the environment, their selection of data from the environment (first intake, next uptake, 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: pattern selection means that the child selects some forms in some contexts due to token frequency and saliency (cf. Bates and MacWhinney 1987). Self-organisation means that children do not merely imitate input elements, but construct themselves their patterns in reaction to the intake, i.e. in uptake and production. This constructive character of acquisition becomes evident in overgeneralisation and particularly when children enter blind alleys (s. above section 1). Self-organisation also means that increasing complexity of the inventory leads to successive dissociations of more global systems into more specific, complementary systems, which gives rise to modularity or at least compartmentalisation (as division of labour).

According to Dressler and Karpf (1995), we divide morphological development into the three main phases of premorphology, protomorphology, and morphology proper (or modularised morphology).[5] The three phases assumed here are based on 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 the increasing 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.

4.   From pre- to protomorphology in verb inflection

Verb inflection does not emerge at once but in many steps. As we argue in this volume, the most relevant ones are the steps towards inflectional contrasts and miniparadigms. In agreement with many psycholinguistic studies (see section 1.), we take for granted that some sort of accumulation process is necessary for the emergence of (proto)morphology and that this process progressively renders other learning mechanisms mandatory, i.e. both mechanisms which are already at work in other domains or which are new.[6] Recall, however, that we argue for pattern selection and not merely for

item storage already at the beginning of language development (see section 1. and 3.).

What we try to do in this volume is to look further into some more controversial aspects of this general learning mechanisms. The first aspect encompasses the link between morphology and other components on the one hand, between the emergence of verb morphology and other morphological subsystems, on the other. The problem is to find out what is the driving force in the development of morphological processing. What are the interconnections between morphological, lexical and syntactic development and what depends on what? Within morphology, where processing seems to emerge simultaneously in several areas, we ask whether this emergence represents a switch from absence to presence of morphology rather than a gradual, continuous process.

Another problem is how to measure the accumulation process, i.e. what kind of categories should be analysed and which comparisons should be undertaken. This is dealt with in detail by Gillis (Dutch) and by Klampfer (German) in this volume. Cumulative overviews of the child's verb lexicon (especially new verb-lemmas vs. new verb-forms) by Gillis allow a quantitative delineation of phases without any real verb spurt. Klampfer focusses on lexical diversity and demonstrates that the emergence of verb morphology is related also to an increase rather than to a spurt in lexical diversity. Also the other contributions take the modelling of growth and the critical mass hypothesis as basic questions and provide relevant data. A lexical verb spurt is presented for the German (Bittner), Spanish (Aguirre), Russian (Gagarina), Croatian (Katičić), Italian (Noccetti), and Turkish (Aksu-Koç and Ketrez) children. In Greek (Christofidou and Stephany), Finnish (Laalo), Lithuanian (Wójcik), Yucatec Maya (Pfeiler), French (Kilani-Schoch), and English (Gülzow) children, it is rather a steady accumulation of verb lemmas which has been found.

This leads us to the role of the input for acquisition and to the nature of the input dependency (Gallaway and Richards 1994, Richards 1994). Current research is still far from solving this complex question which now extends to what the source of input for analysis actually is, either production or comprehension (Elbers 2000). The results obtained in this volume are modest but relevant in that they concord with the findings of previous studies (Gillis and De Houwer 1998; Wijnen, Kempen, and Gillis 2001) which provided evidence against a straightforward correlation between input frequency and order of development.

Finally, it appears throughout the volume that the transition from lexical processing to morphological patterning is not an automatic consequence of lexical learning but results from an active construction by the child (cf. Karmiloff-Smith 1992). Instead of a continuous quantitative build-up of rote-learnt inflectional forms, some sort of detection mechanism of the morphological principles of form-meaning distinctions and of morphological segmentation seems to take place at one particular point of development, after a period of successive attempts and approximations. In other words, we are induced to assume a turning-point between premorphology and protomorphology.

If this assumption is correct, it entails that the detection mechanism is sufficiently general to apply wherever possible, i.e. in every domain or area of morphology. To that extent pre- and protomorphology have to be considered as local and global, i.e. they can be, and actually should be, limited first to microdomains, but more or less rapidly, depending on target-morphology and on individual factors, changes in one domain lead to changes in other domains. As to the problem where morphological processing is likely to emerge first, we propose that detection of morphology starts in the morphologically richest domain.

In the Natural Morphology approach of language acquisition, following MacWhinney (1978), we distinguish between pattern extraction (not to be confused with pattern selection in premorphology), illustrated by examples of surface analogies, i.e. analogies based on concrete forms, and more abstract rule extraction, e.g. in the establishment of verbal classes. In this volume, focussed on the detection of verb inflection, we are concerned with pattern extraction only, whereas rule extraction is a matter beyond our scope.

One of the central issues in the contributions to this volume are the acquisitional processes of the transition between premorphology and protomorphology. Our previous research and the contributions to this volume support the following assumptions on main developmental steps:

In premorphology, we typically observe one rote-learnt form per verb lemma (cf. Tomasello 1992; Vihmann 1999), which may be a base-form, e.g. infinitive (basic inflected form) or 3.Sg.Pres. in languages where this is the base form, either inflected with a person marker (e.g. Dutch, German) or just with the stem vowel (e.g. Lithuanian, Croatian, often in Spanish and Italian) or totally uninflected (e.g. Turkish, French). Alternatively, these first verb forms may be child-specific: either due to phonological change, i.e. prosodic reduction to a monosyllabic or bisyllabic form or segmental

simplification or substitution, incl. reduplication (e.g. Finnish). The present contributions support the hypothesis that input frequency of a certain word form is a crucial parameter for early rote-learning (see Bybee 1995; Gillis this volume, also on the co-occurrence of further parameters). But no knowledge of morphological categories can yet be attributed to these forms. Furthermore, it is very likely that even word class distinctions are not yet present in this early phase. Verbs, verbal prefixes, abverbials, and nouns can equally be used in order to refer to the same situation, request or desire (cf. Aksu-Koç and Ketrez; Gillis; Gülzow; Laalo; Pfeiler; Bittner this volume; Tomasello 1992).

Particularly in the earliest phases predicative functions may be expressed by extragrammatical means, as, for instance, by sound imitations and traditional or creative onomatopoeia, including onomatopoetic reduplications. Thus young children have a rich repertoire of means for expressing predication, before they dispose of appropriate verb forms. But even when they have such forms of specific verbs expressing a specific pragmatic or morphosemantic sense, they may use simultaneously for the same sense non-verbs instead of verb forms with other verb lemmas. However, a more systematic investigation of such asymmetries among verb lemmas would be required in order to think of avoidance strategies and have evidence for the precedence of morphosemantics over morphotactics in the emergence of miniparadigms.

We consider such predecessors of verbs as non-verbs, which serve the predicative function in a format which is exceptional or even absent in adult speech. Trivially these forms emerge in the one-element phase where, usually polyfunctional, holophrastic protowords (cf. Gillis and De Schutter 1986) have (also) a predicative function. Most of the contributions to this volume give specimina of such early predecessors (cf. Aksu-Koç and Ketrez; Gagarina; Gillis; Gülzow; Laalo; Wojcik this volume). Without any attempt at exhaustiveness, the occurrence of the following types of predecessors can be stated:

a) adverbs such as "away", often difficult to distinguish from verbal particles (separable verb prefixes in Dutch and German),
b) deictics or other attention getting/directing forms,
c) onomatopeia, which can replace verbs or nouns,
d) fillers for monosyllabic verbs,
e) fillers, reduplications and other self-created items which all do not exist in the target language, and which preserve the prosodic pattern of the target verb structure. Finally, and most frequently,

f) nouns, which are at first often difficult to differentiate from verbs (see Gillis; Pfeiler this volume), parallel to the difficulty of disentangling predicative and nominative functions. These predicative nouns may be base forms, e.g. in existential sentences, or case forms representing, e.g., the direct object of not-expressed transitive verbs or the indirect object of verbs of giving (cf. Aksu-Koç and Ketrez; Gagarina this volume). Later there occur more complex structures where the verb is missing alongside verbal constructions.

The development towards morphological analysis and pattern recognition seems to be undissociable from a quantitative enrichment of lexical, syntactic and morphological structures. The mostly reported processes which can be regarded as general features of a period of transition towards proto-morphology are the following:

Syntactic development: although syntactic processes have not been investigated in detail, most of the authors hint at a remarkable correlation between the onset of morphological development and the evolution of syntactic processes. First of all, overcoming the one-word stage seems to be a prerequisite for morphological development. Even in the morphologically rich languages such as Finnish, Turkish, Russian and Lithuanian, the enrichment of syntactic complexity precedes or parallels qualitative changes in verb inflection. Emergence and regular use of overt subjects appears to be a syntactic precondition. Gillis (for Dutch) emphasises a spurt in the use of (the suppletive) auxiliaries at the onset of the development of person-number inflection with regular inflecting verbs. The latter is confirmed by the studies on Yucatec Maya (Pfeiler), English (Gülzow), Standard German (Bittner, see also Bittner 2002), and Spanish (Aguirre). Furthermore, als already mentioned above, some authors register an increase in lexical diversity with respect to word classes in general, insofar as different types of nouns, verbs, and also functional words (or fillers instead) enter the child's lexicon (cf. Klampfer, Noccetti, Gillis, Aksu-Koç and Ketrez).

Morphological development: all authors report an increase in inflectional types within a relatively short period. At the same time, many of the investigated children extend the use of one of the inflectional types they had already used in premorphology (cf. Aksu-Koç and Ketrez, Klampfer, Katičić, Gillis, Bittner, Christofidou and Stephany, Aguirre, Pfeiler). Thus, an increase and/or a change in the type of errors or overgeneralizations appear. Some authors concur in considering this to imply the selection of a default form of the verb itself, i.e. an early form-function generalisation (Aguirre; Bittner; Christofidou and Stephany; Gülzow; Katičić). Accom-

panied by the syntactic developments described above, finite verb forms replace erroneous non-finite ones. With some of the investigated children, target finite forms occur for the first time (cf. Klampfer on Austrian German; Gillis on Dutch, where this seems to be child-specific; Gülzow on English, where this is explained by typological conditions). A second (sometimes a third) inflectional type of the same lemma is going to be used regularly for a small group of verbs. These first contrasting inflectional pairs still probably consist of rote-learned forms, mainly a non-finite or base form vs. a finite form. When certain types of inflectional contrasts become numerous with different verbs, precursors of two- and three-member miniparadigms emerge. For Dutch, a different syntactic use of finite and non-finite forms is proposed and discussed (Gillis). Where they exist in the target language, the emergence or increasing use of auxiliaries result in first productions of analytical verb constructions.

As Kilani-Schoch, Noccetti, and Gagarina emphasise, the transitional period is determined by the presence of features of both the pre- and the protomorphological phase. Its main characteristics are the quantitative enrichment of morphological diversity by rote-learning and the emergence of very first generalisations on morphological structures. Some children accompany the transition from pre- to protomorphology with a spurt in the verbal lexicon (reported for the Lithuanian, Italian, and Spanish child, both of the French children, the Berlin German child, two of the Russian children). With other children, a more continuous enrichment in verb lemmas and new inflectional structures has been reported (cf. for the Dutch, Croatian, Turkish, and Yucatec child, the Munich German child (Bittner), and the Russian children). Obviously, the occurrence or non-occurrence of a lexical verb spurt is a child-specific aspect of development. Both types of development are compatible with a critical-mass account of the detection of morphology. Klampfer invented a way to measure the amount of miniparadigms per attested lemmas. Although not all authors employed this calculation, it can be hypothesised that the critical-mass of verb lemmas (necessary for allowing the detection of morphological patterns) varies in relation to the criteria: morphological richness, uniformity and transparency of the target inflectional system. The children acquiring Turkish, Russian, Finnish and also Spanish exhibit comparatively lower amounts of verb lemmas at the onset of protomorphology than the children acquiring German and English for instance.

The transition period ends by a turn from mere quantitative enrichment of the child's actively used morphological structures towards a new quality

characterized by grammaticisation (Stephany 1985) and the onset of pattern recognition.

Protomorphology starts when the first target-like inflectional contrasts become regular and when the respective forms are employed with (the majority of the) new lexemes. Furthermore, at this turning point, the verb and the subject phrase are going to be established as obligatory parts of the utterance. On the one hand, the grammatical system is now dissociated into a noun and a verb domain (or at least a predicate and an argument domain) enclosing specific types of grammatical structures. On the other hand, a morphological and a syntactic component or module with morphological forms and syntactic positions starts to develop. All authors of this volume agree that both emergence of inflectional contrasts (at the noun or the verb level) and of morphology-determined substitutions are the overt and relevant morphological features for the onset of protomorphology.

In some of the corpora investigated for the volume (cf. Croatian, Spanish, German, French (one child), Yucatec-Maya), the emergence of "true" miniparadigms, i.e. paradigms fulfilling the above-mentioned criteria (cf. section 3.), is simultaneous with the onset of protomorphology, whereas in others it occurs either before (e.g. in the morphology-rich languages Finnish and Lithuanian but also in Dutch and in one German child), or after this onset (Turkish, Greek, Russian, Italian, one French child and English). We do not know yet what these differences exactly mean and why it takes more time for some children, e.g. in one and the same language, to reach this point. More research on more children will help to answer this question. But these preliminary findings indicate relative mutual independence of our two notions of protomorphology and miniparadigm and highlight the methodological reliability of the 3-member miniparadigm criterion, i.e. that the children in fact dispose over a sufficiently large number of stored miniparadigms as they can be expected to appear within limited corpora. Analogies, which are another evidence for the detection of morphology, typically emerge in parallel to, or after, the emergence of true miniparadigms.

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 miniparadigms 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 the other 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 such as typological parameters, productivity, iconicity, or transparency, etc. must be made responsible for early vs. late emergence of different morphological patterns. Although only single children are studied in the present papers and child-specific developments cannot be excluded, the importance of those parameters can be easily grasped by a comparison of the time intervall between the emergence of the first verbs and of the first true miniparadigms. Detecting and (re)constructing true miniparadigms takes only two to four months for the children who acquire the languages which possess the morphology-richest and at the same time most transparently organised verb systems, i.e. Turkish, Finnish, Russian and Croatian. The same process takes the children who acquire Yucatec Maya, Italian, French (one of the two), Dutch, German, and English double time or even more. Not surprisingly, among the latter are the languages with less transparently organised verb inflection, especially with a high amount of syncretisms or homophonies in basic morphological categories (most in French, least in Italian).[7]

The evidence that the languages of this volume provide for the relevance of the criterion of miniparadigms for the acquisition of morphology, is not only cross-linguistic. We hope to get hold of both general, if not universal, characteristics of the acquisition of verb morphology, and of typological ones, insofar as there is pertinent diversity in our sample among languages which approach the inflecting-fusional, the agglutinating and isolating language type.

Notes

1. Cf. MacWhinney (1978); Slobin (1985); Pinker (1984); Bybee (1991); Tomasello (1992); Karmiloff-Smith (1992); Dressler and Karpf (1995); Dressler et al. (to appear).
2. E.g. Pinker (1984); Bybee (1991); Marcus et al. (1992); Behrens (1993); Clahsen and Rothweiler (1993); Caselli et al. (1993); Pizutto and Caselli (1994); Mueller Gathercole, Sebastián, and Soto (1999); Ragnarsdóttir, Simonsen, and Plunkett (1999); for languages of other language families see e.g. Stephany (1985); Smoczyńska (1985); Toivainen (1997); Berman and Armon-Lotem (1997); Allen (1998).
3. Filler-like reduplications in Greek and Lithuanian are a later phenomenon.

4. 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).

5. For other tripartite models see MacWhinney (1978), Gentner and Markmann (1997) and Tomasello (2000b), and for the discussion of phases Berman (1986)

6. Cf. Pinker (1984); Marcus et al. (1992); Bates, Dale, and Thal (1995); Behrens (1999); Elman et al. (1996); Maratsos (1999); Mueller Gathercole, Sebastián, and Soto (1999); Elbers (2000); MacWhinney (2000); Tomasello (1992, 2001).

7. A middle duration of time has been found for the children acquiring Spanish, French (one of the two), and Greek. No time calculation is possible for the Lithuanian child, because the onset of verb use is not attested in the data and miniparadigms are present shortly after the onset of recording.

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Specific terms used in common by the contributors to the present volume

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.

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

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

Macroclass: a macroclass is the highest, most general type of inflectional class, which comprises several classes or (sub)classes and 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.

Miniparadigm: a miniparadigm is a non-isolated set of minimally three phonologically unambiguous and distinct inflectional forms of the same lemma produced spontaneously in contrasting syntactic or situative contexts in the same month of recordings.

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 the target morphology are acquired and structurally differentiated (i.e. compartmentalised) into verbal vs. nominal inflection vs. word formation.

Morphological productivity: We make a sharp differentiation between morphological productivity and recurrence, frequency or generality of a form (as "productive" is often used in acquisition studies). Productivity, as the core of morphology, is the capability of a morphological pattern or rule to apply freely to new forms. Hence it is not relevant in the earliest phases of morphological development.

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 extragrammatical (or "expressive") ones and precursors of later grammatical rules. These precursors consist of rote-learned forms whose selection is assumed to be 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 do not show recurrent inflectional contrasts with other forms of the same lemma are regarded as rote learned.

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

Token: every occurence of any 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.

Early verb development in one Spanish-speaking child

Carmen Aguirre

0. Introduction

This paper studies the acquisition process of Spanish verbal morphology in a monolingual child. The study examines the first 50 verb lemmas and covers the period from age 1;7 to 1;10. During this period the child enters the proto-morphological stage and builds the first mini-paradigms.

The data shows that this Spanish child follows two main stages during the verb acquisition process:

1. A pre-morphological stage in which verbs are only acquired as lexical elements.They are treated as structureless words and become the main element in the development of thematic and semantic relations. Grammatical features and meaning linked to verbal morphology are still absent. This pre-morphological stage lasts until 1;8 in our data.

2. A morphological stage in which verb suffixes begin to be analyzed as separate units. At this stage, the relationship between form and meaning begins to be established and the categories linked to the verb (tense, aspect, agreement, mood etc.) begin to be acquired. At this moment, the first mini-paradigms appear, which suggests that the acquisition process of verb morphology has started. At 1;9, the child enters the proto-morphological stage.

1. Description of Spanish verbal morphology
1.1. Productive categories

- Non-finite forms: infinitive, gerund and past participle.
- Finite forms represent five verbal categories: Tense: present, past and future.
- Mood: indicative, subjunctive, conditional and imperative.

- Aspect: perfect and imperfect.
- Person: 1, 2 and 3.
- Number: singular (s) and plural (p).

Indicative mood patterns with four simple tense categories: one present, one future and two past tenses: perfect and imperfect. 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 singular and one for the second person plural. There are also two grammatical periphrases commonly used: the continuous present (*estoy comiendo* 'I am eating') and the periphrastic future, which is used much more than the synthetic one, *voy a comer* 'I am going to eat').

1.2. Spanish base and verbal suffixes

Normally, the base of a Spanish verbal form is a stem (the root plus the thematic vowels: *a, e* or *i*). Therefore, verbal forms consist of:

$$[\text{ROOT} + \text{THEMATIC VOWEL}]_{\text{STEM}} + \text{SUFFIX}_1 + \text{SUFFIX}_2$$

The first suffix (suff_1) carries tense, mood and aspect information. The second suffix (suff_2), the agreement suffix, refers to person and number. Changes in the thematic vowel also have a morphosemantic value.

1.3. Verb macroclasses

There are two macroclasses, signaled by the thematic vowels (*a* vs. *e / i*):

1st macroclass   *cantar*   'to sing'
2nd macroclass   *temer*   'to be afraid'   /   *partir*   'to leave'.

The first macroclass (*-ar* verbs) has the highest type frequency (more than 90% of verbs). It is the only productive class.

The degree of congruity of the different classes is very high: the *er/ir* macroclass does not differ much from the dominant macroclass *ar*. Most of the tense, aspect, mood markers (suff_1) and the agreement markers (suff_2) are superstable markers (Dressler et al. 1987) because they hold throughout the conjugation.

Microclassses are mainly formed by alterations in the root. There are only some cases of alterations in suffixes in the case of verbs like *dar* 'give', *estar* 'be' (1s *doy*, *estoy* instead of **do*, **esto*), in the strong perfects (*anduvo*, *supo* instead of **andó*, **sabió*) and participle (*hecho*, *abierto* instead of **hacido*, **abrido*) and in the short imperatives (*sal*, *ven*, *di* instead of **sale*, **vene*, **dice*)

Spanish verbal morphology is highly iconic (Dressler et al. 1987), firstly because the most frequent and semantically least marked categories are encoded featureless (pres, 3s, and imp) and secondly because suffixes are more or less the only markers. There is almost no syncretism; homophony is rare (e.g. 3s.pres.ind and 2s.imp are homophonous).

1.4. Model paradigms (*cantar* 'to sing', *temer* 'to be afraid' and *partir* 'to leave')

Present

SG	1	canto	temo	parto
	2	cantas	temes	partes
	3	canta	teme	parte
PL	1	cantamos	tememos	partimos
	2	cantáis	teméis	partís
	3	cantan	cantaron	parten

Simple perfect past

SG	1	canté	temí	partí
	2	cantaste	temiste	partiste
	3	cantó	temió	partió
PL	1	cantamos	temimos	partimos
	2	cantasteis	temisteis	partisteis
	3	cantaron	temieron	partieron

Imperative

SG	2	canta	teme	parte
PL	2	cantad	temed	partid

Analytic past perfect (auxiliary + participle)

SG	1	he	cantado / temido / partido
	2	has	cantado / temido / partido
	3	ha	cantado / temido / partido
PL	1	hemos	cantado / temido / partido
	2	habéis	cantado / temido / partido
	3	han	cantado / temido / partido

Suppletives

Ser 'be': soy, eres, es, somos, sois, son.
Ir 'go': voy, vas, va, vamos, vais, van.

2. Data base

2.1. General data base

This study is based on the longitudinal spontaneous speech data of one Spanish boy, Magín.[1] This boy is the third and youngest child of a couple living in Madrid. The mother, who was the researcher, recorded him regularly in everyday situations. Data collection started at 1;7, when he was beginning to build up two-word utterances and it ended when the child was 2;7. Table 1 shows the period under study.

Table 1.   Investigated data of Magín

Age	MLU (in words)	Time of recordings (in minutes)	Number of analyzable utterances
1;7	1.2	30	182
1;8	1.4	60	392
1;8.15	1.4	45	234
1;9	1.8	30	105
1;9.15	1.7	60	310
1;9.27	1.7	60	477
1;10	1.8	90	748
1;10.16	2.0	60	350
1;10.20	2.0	45	278
1;10.27	2.3	60	366

3.   Magín's verbal production
3.1.   Quantitative data of verbal production

Table 2. 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 analyzed utterances)[2]

Age	Lemma	New Lemma	Types	Tokens	Tokens %	Morph. Errors	Errors %	Analyzed Utter.
1;7	8	8	13	81	44	21	26	182
1;8	25	19	33	206	33	57	28	626
1;9	35	12	57	278	31	49	18	892
1;10	58	24	108	677	38	90	13	1742

The phases during this period are:

> Pre-morphology: 1;7 – 1;8
> Proto-morphology: 1;9 – 1;10

Proto-morphology begins with the emergence of the first verbal mini-paradigms.

3.2.   The pre-morphological stage
3.2.1.   Emergence of the first verbal forms

As shown in the table above, Magín uses a high percentage of verbs from the very beginning. As he enters the two-word stage at 1;7, we find that almost 40% of the utterances produced include a verb and a lot of these utterances consist of just a verb. At this moment Magín's MLU is only 1.2 and most of the expressions are one-word utterances.

Before the first tape was recorded, there were diary notes made of the first words acquired by Magín in the one word-stage. At the very beginning he uses only a few words. Some of them are verbs. At 1;4 he employs *ma* for *quema* 'it burns' in any dangerous situation or *apapa*, for *apaga* 'switch off!', when he wants to switch the light on or off. 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'. He seems to have amalgamated the verb *beber*, which he has truncated to *be*, with *agua*, possibly taken from the frequent adult question addressed to the child: *¿quieres beber agua?* 'do you want to drink water?'. At 1;6 he em-

ploys *quere* and *quero* (3s and 1s, respectively of 'want') and the imperative *quita* 'keep away'.

The high number of verbs documented in the data from the very beginning (see table 2) shows that predication is essential in Magín's first verbal communication and he does not have any problem in using verbs to make these predications.[3] This characteristic of Magín's early acquisition of verbs explains why we find almost no precursors of verbs made with onomatopoeic elements or with nouns. Only one onomatopoeic element, created by the child, is found: *ufu*. He employs it like an imperative when he wants to blow up a balloon; but it appears at 1;9, when the child is already in the proto-morphological stage.

Word combinations and context adequacy indicate that Magín knows about the meaning of the verbs. At the same time, the syntax begins to develop and the child uses the small set of verbs that 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 nominal phrases:

Verb + Object
| (1) | *Nariz moja.* | 'nose wet' | (1;8.15) |
| (2) | *Zapato toma.* | 'shoe take' | (1;8.15) |

Subject + Verb
| (3) | *Agua quema.* | 'water burns' | (1;7) |
| (4) | *Mamá cae.* | 'mummy falls down' | (1;7) |

3.2.2. Emergence of verbal categories

Table 3. Emergence of verbal categories (number of tokens)

Age	Pres. Ind.	Imp.	Inf.	Past Part.	Ger- und	Synth. Perfect Past	Anal. Perfect Past	Pres. Subj.	Pres. Progr.	Im- perf. Past
1;7	28	13	23					7		
1;8	94	56	24	25		1		8		
1;9	199	12	16	29		7	14	1		1
1;10	414	101	97	29	5		20	11	2	

Repetitions and frozen forms have been excluded from the analysis in all the tables.

Table 4. Development in the use of grammatical persons (number of tokens per month)

Age	Utter.	Present forms (tokens)						Past forms (tokens)					
		Singular			Plural			Singular			Plural		
		1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
1;7	182	1		25			2						
1;8	626	4		62			28						
1;9	892	27		113	15		45			8/14			
1;10	1742	45	1	299	24		32			–/17			

In the 3s column, the first number corresponds to the synthetic past and the second number to the analytic past. In the 3p column, almost all the occurrences correspond to the forms *no (es)tán* and *se van*. Most of them are agreement errors. Not taking these forms into account, we only have a single 3p form at 1;8, seven at 1;9, and nine at 1;10.

At the pre-morphological stage (1;7 and 1;8), Magín uses mainly three verbal forms: 3s.pres.ind, 2p.imp and infinitives (see tables 3 and 4). The verbal form most often employed is the 3s.pres.ind. Twelve verb lemmas appear in this form (*quema* 'it burns', *cae* 'it falls down', *pincha* 'it pricks', *moja* 'it wets', *sabe* 'he knows'). Imperatives are also very much employed. We find eight verb lemmas in imperative form (*abre* 'open', *echa* 'throw', *quita* 'take away'). Magín uses also six verb lemmas in infinitive form. They appear very often with the preposition *a*, as it normally appears in adult speech when addressing the child to give an imperative meaning (*a mir* – instead of adult *a dormir* – 'to sleep', *abrir* 'to open', *ver* 'to see').

Magín also uses:

First singular present forms with 3 verb lemma: *quito* 'take off' and *pongo* 'I put it', but they are always used with imperative value and *quemo* 'I burn'.[4]

3s.pres of subjunctive forms: *abra* 'open (subjunctive)' and *eche* 'throw (subjunctive)', that are always employed instead of the imperative, and one correct use of the subjunctive *de* 'give' in the imperative negation (*no de*[5] 'give not').

Two verbs in the 3p.pres form[6], *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 plane'). These two forms are used to express non-existence.