

THE EMERGENCE OF MORPHOLOGY - A CONSTRUCTIVIST APPROACH

WOLFGANG U. DRESSLER

UDK: 376.36

¹ Institut für Sprachwissenschaft, Universität Wien, Vienna, Austria

Key words: language acquisition, natural morphology constructivism, self-organisation, inflexion, derivation

A) For us linguists who deal with the acquisition of morphology in the hope of obtaining in this way new insights into the nature of morphology and of offering psycholinguists and psychologists new problems of common interest, there exist fundamental 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 (UG)? Such solutions are best known from work inspired by generative grammar. The most radical solution is embodied in the "strong continuity hypothesis" (Poeppel & Wexler 1993, Dittmar & Penner 1998), whereby the principles and constraints of UG are latent from the beginning and unfold in the acquisition of the respective internal language. UG provides constraints and triggers parametrized choices. Both external modularity (grammar vs. other cognitive modules) and internal modularity (e.g. syntax vs. morphology vs. phonology) are then considered to be innate (cf. Nølle & Adam 1999)

c) But how then can we account for the great time lags in the emergence of morphological structures across languages? Not just in regard to languages with very complex morphologies, such as Russian, where the acquisition of morphology takes longer than, e.g., in Italian. On the contrary, as Slobin (1997) has insisted, children start

earlier to acquire the rich inflectional morphology of Turkish than the very poor inflectional morphology of English.

d) And why is then "innate" morphological grammar nearly absent in certain isolating languages? This distinguishes morphology radically from other components or modules of grammar: there is and there can be no language without syntax or without segmental phonology or without prosodic phonology, but a language without any morphological grammar is easily conceivable.

e) However, if we take the opposite position and negate innateness of morphology, how then can we explain the many similarities in the acquisition of morphology in apparently all languages independent of their specific structures, and how can we explain the similar structural principles, that seem to be at work in the acquisition of morphology? And finally, how can we explain the fundamental similarities of target morphologies, despite of their enormous dissimilarities?

B) An international attempt to answer these basic and many derived questions is represented by the "Crosslinguistic Project on Pre- and Protomorphology in Language Acquisition" organized in behalf of the Austrian Academy of Sciences (cf. Dressler ed. 1997a, Dziubalska-Koaczyk ed. 1997, Gillis ed. 1998, Bittner et al. 2000). The aim of this project is to compare the acquisition of morphology in about 20 languages by

children from about 1;2 through 3;0. Emphasis is laid on synthetic morphology, i.e. word-internal morphology, whereas analytic, periphrastic constructions such as E. future and perfect tense formation lie outside the project's main focus.

Among the languages selected, there is an emphasis on morphology-rich languages, both closely related ones and genetically and typologically different ones. Closely related are 1) the strongly inflecting Slavic languages Russian, Ukrainian, Polish, Croatian, (Slovene), 2) the weaker inflecting Germanic languages German, Dutch, 3) the weak inflecting Romance languages Italian, Spanish, French (which is typologically closest to the isolating language type) on the one hand, 4) the agglutinating Finno-Ugric languages Hungarian, Finnish, Estonian (which is typologically rather inflecting) and 5) the introflecting Semitic languages Hebrew and Arabic on the other hand. Distantly related are the Indo-European languages Greek and Lithuanian. Unrelated are the predominantly agglutinating languages Bask, Turkish, Georgian, and the Mexican languages Yucateco Maya and Huichol (more polysynthetic and incorporating).

The empirical basis of this comparative project is parallel collection of longitudinal, spontaneous production data, incl. elicited production by using the same picture book (one which elicits the production of sentences, not just object nomination), plus parallel recording, transcription and coding in the CHILDES format (cf. MacWhinney 1995).

C) The epistemological approach is characterised by the use of functional explanation (cf. Dressler 1995). Functional explanation has to answer the question 'To what extent does form follow function?' In a hierarchic model of functions, the two highest functions of language are 1) its communicative function, 2) its cognitive function, both important for morphology. The main function of morphology itself is to motivate complex words and word forms in form and meaning. Moreover, word formation has the

function of lexical enrichment, and inflectional morphology the function of providing syntax with grammatical word forms. The type of functional explanation valid in morphology holds for teleonomy of function, where one abstracts from the speaker's intentions.

Thus a morphological rule X can be attributed a function F within a system S if X has a property A (or does an activity A) which 'characteristically and normally contributes to F' and if 'F is good for S (in normal circumstances), either intrinsically or because it characteristically contributes to some further good'. Here functionalism deals with function referring to 'processual aspects of language as a problem-solving device' (Seiler 1991: 64).

In order to make functional analysis an epistemologically more satisfactory enterprise, one must define dysfunctions or functional deficiencies, to which we can assign a status similar to starred sentences in generative syntax. The basic schema of a functional deficiency is:

An operation X cannot serve a function F within a system S because X does not have a property A which is necessary for X to serve F.

For this one may refer to the claim by Pinker & Bloom (1990: 774) that 'children assess how good their current grammatical system is (how expressive, efficient, well-understood, effective at attaining goals, etc.) and adjust it in directions that detectably improve functionality'.

In the early stages of language acquisition, children have no morphological grammar at all, and this lack proves to be extremely dysfunctional when the child starts to need a rapid expansion of its still very small lexical inventory. Then the two main functions of word formation (WF), namely lexical enrichment and motivation need to be served, and as a consequence productive WF explodes (e.g. compounding in German), cf. the studies by Clark (1993) on the 'filling of lexical gaps'. In other words, when children are able to identify WF rules, then they are induced to identify them as productive WFRs in order to serve

the functions of motivation and of lexical enrichment.

D) The linguistic approach is that of Natural Morphology (NM, cf. Kilani-Schoch 1988, Dressler 1999). NM distinguishes grammatical rules of morphology vs. extragrammatical operations (sometimes misleadingly called "expressive morphology"):

Principles of morphological grammar often do not hold for representatives of extragrammatical morphology, such as reduplications (e.g. mama), blends (E. smoke & fog → smog), abbreviations of different types such as auto, Fr. prof, surface analogies and back-formations, etc. Such phenomena of extragrammatical morphology generally emerge before patterns of grammatical morphology. Some examples in early child language are the Russian blend banan & ananas → bananás, surface analogies, such as G. Papagei-s (instead of adult Papagei-en) 'parrots' → Mamageis, truncations (usually considered to be merely phonological) of the type G. ládi <— Schokoláde, Marmeláde 'chocolate, jam'. For reduplications see Pačesová (1968: 64ff) and Voeykova (1997).

This temporal sequence poses a problem for adherents of innate modularity (specifically: external modularity): why is grammatical morphology, which belongs to internal language and thus to UG, absent in earliest phases of acquisition, whereas extragrammatical morphology, which is outside innate UG, is present?

A second problem is posed by NM's distinction between prototypical vs. non-prototypical morphology (cf. Dressler 1989, Dressler & Merlini Barbaresi 1994). Prototypical representatives of a component of grammar are those which serve the functions of the respective component and share its properties, thus prefixation (WF) as in E. to re-tell and inflectional suffixes, as in 3.Sg.Ind. goe-s, are part of prototypical morphology, whereas E. particle constructions, such as E. to give up, or clitics as in Fr. il va lie between morphology and syntax and are thus non-prototypical representatives of morphological grammar.

Within morphology itself we can distinguish its subcomponents or submodules of inflection, derivation and compounding. Here, e.g., the categories of case in nouns and of person in verbs are prototypical representatives of inflection, whereas plural in nouns and infinitives in verbs are not, because they are partially similar to derivation in function and structure. Or a non-prototypical representative of derivation is diminutive formation, as in E. dogg-ie.

The problem for adherents of innate modularity (specifically: internal modularity this time) is the following: 1: prototypical representatives of, e.g., inflection are clearly part of the submodule of inflection, whereas non-prototypical ones are not, i.e. they are part of the module of morphology, but although they represent transitional categories, they cannot belong simultaneously in part to the submodule of inflection and in part to the submodule of derivation.

2: How is the fact that non-prototypical representatives of, e.g., inflection generally emerge earlier than prototypical ones, compatible with the assumption of innate internal modularity? A solution to both problems will be offered below (L) with the example of diminutives.

The theory of NM consists of 5 sub-theories:

1. Subtheory: preference theory of universal markedness

This parameterized subtheory explains what is universally preferred (more natural) on each naturalness parameter? The basic assumption is that *ceteris paribus* more natural solutions are preferred, especially by children. Thus on the parameter of constructional iconicity we can establish the following naturalness scale (from most natural a to least natural e), exemplified by English adult and children's (ch) noun plurals: a. affixation: brother-s, ch. foot-s; b. affixation & modification: brethr-en, ch feet-s; c. modification: Sg. foot → Pl. feet; d. zero: sheep, fish; e. subtraction: G dial. hond 'dog' → Pl. hon.

Another parameter refers to the preference for transparent forms and meanings.

Thus E. open-er is insofar opaque, as it may refer both to an instrument and to a human agent. Both English and Italian children have been reported (Clark et al. 1986, Lo Duca 1990) have been reported to replace this ambiguous form by the more transparent compounds open-man and open-thing, respectively.

A third parameter encompasses the scale of biuniqueness (most natural), uniqueness, ambiguity (least natural) and explains why children, according to Slobin (1973), follow his principles of "surface preservation of underlying structure", "clear marking of underlying relations", and his Universal E3 "the child tends to select phonologically unique forms..."

2. Subtheory: typological adequacy

This subtheory explicates how choices on universal preference parameters are coordinated in the ideal constructs of language types. For example, the ideal agglutinating type is very iconic and transparent, whereas the ideal inflecting-fusional type is not, but has shorter, thus more manageable word shapes instead. The ideal isolating type has no grammatical morphology at all.

3. Subtheory: language-specific system adequacy

This subtheory has the aim of describing the language-specific organisation of morphological economy. The core of grammatical morphology consists of productive morphological patterns (categories, rules, classes), e.g. s-plurals and weak verbs in English. It deals with the potential system (Chomskyan competence, Saussurean language), not with accepted, institutional norms (these are dealt with by sociolinguistic ramifications of NM). As regards children, first they may produce forms which are only potential (but do not actually exist) in adult language, e.g. the Italian diminutives pescetto 'fish-DIM', mamm-etta 'mummy', which are not used in Trieste but were produced there by a child (cf. Ceccherini et al. 1997: 160. Second, productivity relative earliness vs. lateness of acquisition. For example, there is a productive neuter declension in Polish, whereas its correspondent is unpro-

ductive in Slovene. As a consequence, Polish children acquire neuter declension earlier than Slovene children (cf. Dressler et al. 1996).

If Lieven (1998) and her coauthors in the special issue of the journal *Linguistics* 36,4 (1998) on development of verbs question "rule-governed accounts of children's early grammar" and insist on a "great deal of lexical specificity" of verb acquisition, then, first of all, they mix these two levels of potential system and institutionalised norms: a rule-governed account refers to the potential system, whereas which specific verbs first show an advance in syntax and morphology rather refers to the level of language as actual institution. But second there comes the question whether potential and actual morphology start at the same time, and if not, which of the two emerges first. Our assumption is that actual morphology precedes potential morphology, i.e. children first use their first morphological forms and only later they account for the productive ones among them via rules.

E) After this sketchy overview over some basic aspects of NM, let us come back in more detail to one aspect which is central to our project, the aspect of language typology (D 2.): Dan Slobin has been the first to insist on the importance of adult cross-linguistic variation for the acquisition space of children. Thus he and a growing number of researchers after him, have indicated, for each language, "particular areas that are central to the acquisition task" (Bavin 1998: 38). Thus inflectional morphology is clearly central for Turkish children, but marginal for English children, and the different onset and pace of acquisition of morphology by Turkish vs. English children can only be explained, if we assume that children very early recognize what are the most urgent acquisition tasks for them. i.e. "even very young children are sensitive to the typological characteristics of the language" they learn (Bavin 1998: 52). And since our project of morphology tackles the greatest number of languages so far and, to a certain extent, includes all major lan-

guage types, we must pay particular attention to typological problems.

However we must avoid a wide-spread confusion in language acquisition studies: crosslinguistic investigation of language acquisition is not sufficient for a true typological study, but only a necessary condition. Thus Slobin's (1985-1999) magnificent 5 volumes on "The Cross-Linguistic Study of Language Acquisition" basically consist of two types of contributions: 1) universalist ones, 2) juxtapositions of language descriptions. Of course, valid typological studies may consist in contrasting languages or even in characterising a single language from a typological perspective. And this holds for acquisition studies as well. However, such endeavours presuppose explicit typological procedures, as have been developed in various branches of comparative linguistics, but so far rather neglected in acquisition studies. (But this would be a paper of its own).

As one typological goal of such comparisons we may attempt to compare how typically children acquire an agglutinating vs. an inflecting-fusional language. Agglutinating languages, such as Turkish, Hungarian and Finnish, show much more iconicity, transparency and biuniqueness than inflecting languages, such as Slavic languages. Let us briefly compare a fragment of the declension of the word 'room' in Turkish and Russian:

Nom.	Turk.	Russ.	Genitive	Locative
Sg.	oda	komnat-a	oda-nIn	komnat-y oda-da v komnat-e
Pl.	oda-lar	komnat-y	oda-lar-In	komnat oda-lar-da v komnat-ax

Here, Turkish only uses affixation (highest degree of constructional iconicity), whereas Russian adds nothing (zero) in the Genitive Plural. Turkish expresses Plural, Genitive and Locative in a biunique way (Nominative as the unmarked base form by zero), Russian ambiguously, i.e. each case form is different in Singular and Plural, and Number and Case are expressed simultaneously in a cumulative way. Moreover Turkish has no gender and inflection class differences, which charac-

terise inflecting-fusional languages such as Russian. As predicted by universal preferences, children typically acquire declension much earlier in Turkish than in Russian.

F) The project's developmental approach does not assume an innate morphological module but is constructivist, i.e. based on the model of self-organising processes (autopoiesis, cf. Karpf 1991, 1994; Karmiloff-Smith 1992). Children interact selectively with the environment, their selection of data from the environment is carried out on the basis of the presently available criteria. Important constructivist principles are those of pattern selection and of self-organisation:

The principle of pattern selection implies that children do not simply imitate the adult patterns they hear, but that they are selective in what they take up. One factor that clearly guides them is token frequency, i.e. at first only frequent forms have a chance of being taken up. However other principles may guide pattern selection as well. Thus many children acquiring a Slavic language or Italian have first a certain preference for nouns and verbs which have the thematic vowel [a], presumably a phonology-guided preference.

Also transparency of form is relevant in early phases of acquisition, e.g. of Italian verbs. Usually the first forms acquired are the 1. Sg. or 3. Sg. Indicative and the 2. Sg. imperative, e.g. as in:

1. Sg. am-o, sent-o 'I love/hear', 3. Sg. am-a, sent-e, 2. Sg. Imp. am-a!, sent-i!, cf. Inf. am-a-re, sent-i-re, PP am-a-to, sent-i-to

This order of acquisition does not hold, at least for some It. children, with the class:

1.Sg. fini-sc-o [finisko] 'I finish', 3.Sg. fini-sc-e [fini+e], 2.Sg.Imp. fini-sc-i!, Inf. fin-i-re, PP fin-i-to

As de Tonelli et al. (1998) have shown, the first forms of M(atteo), G(regorio) and E(lisa) are (and they are not isolated):

PP finito (M 2;5.7, G 1;8.7, E 2;1.6), sparito (M 2;2;7), but 3.Sg. pulisce (M 2;6.24), plus 1.Sg. pulisci-o [puli+o],

which is analogically modified from adult pulisc-o [pulisko], due to the model of 3.Sg., which fits well to evidence for relational comparisons by infants (cf. Goswami 1992: 104ff).

The reason seems to lie in the complicating and opacifying factor of the insertion of -sc- [sk] and of its palatal variant [+], which makes the inflection of finire in the present less transparent than that of sentire.

The last form puliscio is already an example of self-organisation, however one which is easily explainable by surface analogy or proportional analogy. No such easy explanation is possible for what Sara, the Slovene child of our project, produced for a short time in her acquisition of case forms of nouns (cf. Dressler & Makovec-Černe 1995). Slovene case suffixes end in vowels, with the exception of the Loc. Pl., which she had not yet acquired at all, and the Instr. Sg. in -om, as in:

z avtom, z avtobusom 'with the car/bus'

Although the girl was already perfectly able to produce the labial nasal -m in word-final position (e.g. in tam 'there'), she deleted (in 1;5) the same nasal in the Instr.Sg. suffix -om and thus changed z avtom, z avtobusom to aho, buho. Thus she constructed for herself the generalization that all Slovene case forms have to end in a vowel.

These examples already have implicitly answered an epistemological question, sometimes raised against constructivism: How is the freedom of applying the two principles of pattern selection and self-organisation restricted? Or, in order to cite the philosopher Paul Feyerabend, does "anything go in constructivism"?

First, the freedom of construction is linked to language functions and thus to functional explanation: thus the greater functional load (cf. Bavin 1998) of the category of case in agglutinating languages partially explains their earlier acquisition in these languages (cf. Voeykova 2001).

Second, NM supplies, already for the first phases of the emergence of morphology, with its universal preferences a tool for

calculating the degree of probability of how children are expected to proceed in constructing their grammar. Later also the mechanisms of typological and system-specific adequacy serve to restrict the freedom of construction.

G) But the clearest evidence for constructivist self-organisation comes from what I have called "blind alleys" (in Kilani-Schoch et al. 1997). This concept refers to the emergence of patterns/rules which do not represent intermediate steps towards adult ones, but go into "wrong" directions (from the adult point of view), and therefore must be given up later on, i.e. the child must give these blind alleys up, come back and make a fresh start.

The best example from within the project comes from the acquisition of the Greek subjunctive by Christos, as investigated by Christofidou & Kappa (1998): adult subjunctives are obligatorily preceded by an unstressed particle, such as /na/ which is a complementiser introducing a secondary clause (Greek has no infinitives). Such short and unstressed function words are first omitted. But in order to mark the subjunctive Christos has invented lengthening of the root vowel of the verb:

1:11.0: ['ko:pi 'kali] = adult: na kópsi portokáli '(I'd like) to cut (the) orange'

Note that Modern Greek phonology does not allow long vowels, i.e. there is no vowel quantity. Thus this particular strategy is not only not inspired by anything in the adult targets, but it even violates an elementary constraint of Greek phonology.

When Christos has given up this blind alley, he opens up a new one: reduplication, as in:

adult: na péksume 'let's play' →
pepétsume

Again there is no model for such reduplication in adult language.

Although both strategies employed during these two blind alleys violate the system adequacy of Modern Greek grammar and lead away from adult targets, they both fit

universal preferences: in the opposition between indicative and subjunctive mood, indicative is the unmarked category, subjunctive the marked category. Now both reduplication and vowel lengthening represent iconic operations for signalling marked categories. Incidentally, more than 2000 years before, Ancient Greek used vowel lengthening for signalling the subjunctive and reduplication for signalling the marked tenses perfect and aorist. Therefore such blind alleys supply good evidence both for constructivist self-organization and for the nature of restrictions on such constructivist creativity.

H) Self-organisation plays a still more central role in language acquisition: increasing complexity leads to successive bifurcations or dissociations, which gives rise to modularity or at least compartmentalisation and division of labour. In the project's approach (cf. Dressler & Karpf 1995), morphological development is divided into the 3 main phases of premorphology, protomorphology, and morphology proper ("modularised" morphology):

We can define the premorphological stage of language acquisition as 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 based on principles of naturalness and constructivism. Examples for extragrammatical morphological operations have already been given in D, for pattern selection in F. 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. As already argued before (C), 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.

I) The protomorphological phase of language acquisition can be defined as the period where the system of morphological grammar and its subsystems start to develop without having reached the status of modules and submodules. In this period children discover morphology and start to construct creatively morphological patterns: some by analogy, which may lead to new forms. A case in point is (Christofidou in Kilani-Schoch et al. 1997) Christos's creation (1;8.12) ['bume] 'fell' for adult é-pes-e (which he uses later himself at 1;9.3). This 3.Sg. ['bume] is formed from onomatopoeic [bum] with the ending of the aorist (and imperfect). Although it is perfective like an aorist, its form does not conform to Greek rules of aorist formation. Thus it must have been created in analogy to maternal é-pes-e. Similarly the Swiss French girl Sophie formed an Inf. poum-er after and alongside tomb-er 'to fall'.

Other forms can be produced by the first rules constructed by the child, many of them overgeneralised, i.e. with unrestricted productivity: i.e. the child first acquires actual morphological patterns, then, by generalisation, extracts from these actual patterns the regularities of potential, legal grammatical patterns. In this way, at first, actual morphology precedes potential morphology.

This is also the period when blind alleys are most likely to occur (cf. G). Due to individual strategies of self-organisation, also most interindividual variation is to be expected in this period, e.g. G. noun plurals: one of our children, Bernd (a late developer, cf. Vollmann et al. 1998) is more selective than the other children. At the beginning of protomorphology (2;7), he produces only -n plurals:

Schiene-n, Blume-n, fuss-n ← Füß-e,
baum-en ← Bäum-e
'rail-s, flower-s feet
tree-s'

However the two girls Katharina and Carola, investigated by Sabine Klampfer and Maria Sedlak,, are less selective and produce plural forms in both -n and -e:

Erbse-n, Blume-n, Auge-n,, Karotte-n vs.
Schuh-e, Fuß-e, Haar-e, Hund-e
'pea-s, flower-s, eye-s, carrot-s shoe-s, feet,
hair-s, dog-s'

All our children produce -s plurals much later, although according to Clahsen (1999) German children learn this default plural suffix first.

J) In order to handle the increasing morphological complexity, a primitive system of morphology dissociates from phonology and syntax. This can be illustrated with the expression of possession. As Deutsch & Ruff (1999) have shown, and independently, with longitudinal case studies, Vollmann & Bruyère (1995) for Austrian German, and Ceytlin (1997) for Russian, children first do not clearly differentiate syntactic noun phrases and morphological compounds. For example, Deutsch & Ruff's (1999) paradigmatic German example Mama Tasche may mean either the phrase 'mummie's bag' or a compound 'mummy-bag'. The later, clear distinction between the respective syntactic and morphological construction, is connected, we claim, with the dissociation of syntax and morphology. The initial, ambiguous stage is not just ambiguous in the eye of the beholder, i.e. from the perspective of the investigator, but appears to reflect the child's lack of distinction.

Next 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. Extragrammatical morphological operations, however, do not partake in both the functions of emerging grammatical systems and their emerging properties, unless by sheer (and entirely optional) analogy (i.e. accommodation in the sense of Piaget 1935).

The project ends, when modularised morphology is being elaborated on. These modules consist of prototypical morphology, prototypical syntax, prototypical phonology, and in an analogous way of the morphological submodules of prototypical inflection, prototypical derivation, prototypical compounding.

K) A crucial role in the detection of morphology by the child at the beginning of the protomorphological phase must be assigned to morphologically related forms. In a language which has rich nominal compounding (e.g. German), relations both between compounds and their bases and between compounds containing the same elements are relevant.

Thus the Viennese girl Katharina, in the transition to the protomorphological phase (2;3) starts to produce her first compounds:

Hub-schrauber, Drei-rad, Oster-hase,
Oster-eier, Hupf-ball
'helicopter, tricycle, Easter-hare, Easter
eggs, jump ball'

At the same time she also produces:

drei '3', Eier 'eggs', Ball 'ball'.

This may induce her to identify the common element Oster- 'Easter' and the right-hand head parts in Oster-eier and Hupf-ball. From 2;4 onwards she produces more similar related compounds with their parts, which allows identification of free morphemes within compounds and their potentiality of combination.

A similar step in identifying and segmenting bound morphemes is done at the same time with inflectionally related forms. The basic unit of inflection is the paradigm, defined as the set of all inflection forms of a lexical item, e.g. E. go, goes, going, went, gone. How inflectional verb paradigms are acquired in French, has been studied in a principled way by Kilani-Schoch & Dressler (2001):

It is a truism that children do not acquire a paradigm at once, unless they have already acquired adult-like mastery of a morphological system. Then, at the moment that

they learn, e.g. a new French verb (e.g. the English loan word dribbler), they can form automatically all productive categories of this verb, e.g. je dribble, nous dribblons, nous avons dribblé, etc. But before, their paradigms are incomplete, somewhat comparable to early interlanguage grammars in second language acquisition. For example, many children of many language communities do not produce 2nd plural verb forms for a long time. What is the morphological status of such incomplete paradigms? First, they represent small subsets of adult paradigms and are thus incomplete in form and also in meaning, due to relational establishment of grammatical meaning in the existing oppositions between forms. And since oppositions are incomplete, also their meanings must differ from adult meanings.

For very early phases of acquisition our first questions are: How do children start to form paradigms at all, and what evidence do we have? How do they discover that two different verb forms belong to the same paradigm? And what follows from such discovery?

Here our concept of a mini-paradigm, i.e. of the first true, but still very incomplete, thus minimal, paradigm is fundamental. We define the first "true" mini-paradigms as non-isolated sets of minimally 3 accurate and distinct inflectional forms of the same verbal lexeme produced spontaneously in contrasting contexts. Once the occurrence of "true" mini-paradigms has been established, two-member mini-paradigms may be acknowledged as well. Necessary methodological prerequisites for assessing morphological relatedness between distinct verb forms of the same lemma in the data are (cf. also Allen 1996), the 4 criteria of spontaneous production (which excludes imitations and formulaic language), articulatory accuracy, use in contrasting contexts, and recurrence.

This leads to an analysis of the development of paradigms as a gradual process with different building steps (cf. Allen 1998): a very first step consists in approximations of

different verb-forms of verb types. The second pre-paradigm step is characterized by the occurrence of isolated rote-learned forms, imitated forms, formulaic forms, context-bound forms or optional variants connected by some irregular (not rule-governed) morphotactic similarity, etc. Similar to claims made in connection with the concept of "critical mass", 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 before they can actively master how to formally mark verb inflection.

In the two French corpora of Kilani-Schoch (2000), the first evidence for a true mini-paradigm is given by the occurrence of a so-called irregular verb with 3 contrasting forms alongside with other 2-member paradigms in the same month, such as at 2;0.22 (Sophie): Inf. mettre 'to put', 3. Sg. Pres. Ind. met, 3. Sg. compound past: a mis.

However not only formal, but also semantic oppositions must be firmly established: therefore we postulate still another criterion for the establishment of true mini-paradigms: the criterion of 3 recurrent morphosemantic oppositions. This means for our example of Sophie: does she use the opposition between infinitive and 3.Sg.Pres. with at least 3 verb lemmata? And also between 3. Sg. Pres. and Past? This is the case with Sophie.

Obviously this approach has also consequences for the ongoing discussion between the lexically-specific vs. the verb-general account of verb acquisition (Tomasello 1992, Lieven 1998, Behrens 1999).

L) With the phase of modularized morphology, also the nucleus of morphosemantics is acquired, and morphosemantics becomes autonomous from pragmatic meanings, which can be illustrated with the development of diminutives:

Within WF rules, diminutive (DIM) formation is the earliest rule acquired in many languages. But, very early, simplicia and

diminutives are used interchangeably without any noticeable difference in semantic meaning. Thus, at the earliest stage, diminutive formation does not serve lexical enrichment or semantic motivation. In none of the longitudinal corpora of our project do diminutives have the semantic meaning of smallness in early phases of diminutive acquisition. For example, the Italian girl Sara (Ceccherini et al. 1997) wants to use a big broom for cleaning her interviewer's office but calls it scop-ina 'broom-DIM'. Or the Flemish child Jolien (Gillis 1997), in early phases, couples diminutivised nouns with the modifying adjective 'big/great', which is semantically incompatible, e.g.

da(t) (i)s en groot graat-je
'that is a big/great fish-bone-DIM'.

This seems to fly into the face of all claims about the contrastive use of WF, as made, e.g., by Clark's (1993) "principle of contrast" (cf. Dressler 1997b).

However, adult diminutives have in adult languages, when they are productive, also pragmatic meanings, and these are even primary, as claimed by Dressler & Merlini (1994). Some basic pragmatic meanings are attested with young children, before they acquire the semantic meaning of smallness. This holds, trivially, for the use of hypocoristic forms of names, such as Bett-y for Elizabeth, where Bett-y is clearly not a small Elizabeth. This holds also for quasi-hypocoristics, such as It. mamm-ina, mamm-etta 'mumm-y' (used like a proper name). Then there are cases where diminutives express affection, as with the Italian girl Sara:

il bagn-etto alla bambola, il giardin-etto
mio
'the bath-DIM to the doll, the garden-DIM mine'

Quite systematically, the Lithuanian girl Ruta (Savickiene 1998: 131) used "diminutive forms ... to express affection, endearment and other warm feelings ... The basic form expresses opposite and negative meanings". Similar connotations have been found in Greek children by Stephany (1997: 153, 154).

Only in the modularised phase of morphology, the morphosemantic meaning of smallness is acquired by the children of our project.

If we look closer at diminutives, then we find certain features of extragrammatical morphology, or - more precisely - we can establish the complete or partial lack of certain typical properties of morphological grammar, especially in the earliest phases of acquisition. This is especially the case with the German suffix -i whose use is restricted to child-centered speech situations and to very few additional speech situations that are derived from child-centered speech situations. Let us briefly enumerate the most important of these properties and illustrate them with German and Italian examples (cf. Dressler 1994):

1) Diminutives in many languages (including Italian) lack certain head properties: they generally maintain the gender of the simplex, e.g.:

It. il cinema 'the (masc.) cinema → il cinem-ino

This is not the case with the German suffixes -chen, -lein, -erl, which are all neuter:

der (masc.) Vater 'the father', die (fem.) Mutter 'the mother' → DIM das (neuter) Väter-chen/lein, das Mütter-chen/lein

Child-centered -i may also be masculine or feminine and thus keep gender, as in:

der Vat-i/ Pap-i 'the daddy', die Mutt-i/ Mam-i 'the mummy'

2) Diminutive formation typically is not restricted to a unitary base, but approaches the promiscuity of input typical of extragrammatical morphology (cf. Zwicky & Pullum 1987). For example, It. -in(o) may be attached to nouns, adjectives, adverbs, pronouns and interjections, but not to verbs. It. -ett(o) may be attached also to verbs but not to interjections. SouthG. -erl can be attached to nouns, verbs, adjectives (although limited), adverbs, pronouns, greetings. For child-centered -i cf.:

Gut-i gut-i, du Dumm-i! 'well well, you stupid little thing'

Bist doch g'scheit-i g'scheit-i 'But (you) are clever clever'

Da sitz-i! '(I want) to sit here!'

Nein, Wass-i, nein! 'No, water (G. Wasser) (sc. go away), no!'

3) If we scrutinize examples of child-centered G. -i (as in 2), then we find that this suffix cannot be combined with any inflectional suffix, except later on when the Plural suffix -s may follow nominal diminutives.

In addition we find within the category of diminutives, although it belongs to derivational morphology, certain properties which are atypical of derivational morphology, i.e. diminutives are non-prototypical representatives of derivational morphology (cf. Dressler 1994; Dressler & Merlini 1994):

3a) We find untypical morpheme orders in G. Kind-er-chen/lein 'child-PL-DIM' and in similar Dutch, Yiddish, Breton, Welsh, Portuguese, Romanian examples;

3b) Diminutive formation tends to be more iconic than average derivational morphology, in respect to both sound- iconicity (e.g. a preponderance of high palatal vowels) and constructional diagrammaticity (nearly only suffixing);

3c) Diminutives often have a primary pragmatic meaning (Dressler & Merlini 1994).

These properties of diminutives can be interpreted in the following way: diminutives start to be acquired at a time when there is yet no clear distinction between extragrammatical morphological operations and grammatical rules. Moreover, the distinction between inflection and derivation has not yet been developed nor are the regularities of headedness and morpheme order acquired. Neither are word classes clearly differentiated (cf. Pačesová 1968: 64ff) - which would be the condition for the application of Aronoff's (1976) unitary base constraint. This underdifferentiation may explain why small children's diminutive

formation is not a prototypical rule of either derivation or inflection, and why it is more iconic than other morphological rules. The non-prototypical and iconic properties of adult diminutive formation may then be a reflection of the early stage of acquisition. The same argument can be put forward to stress the importance of pragmatics for the meaning of diminutives. Indeed, the acquisition of meaning starts with pragmatics rather than with semantics (cf. Moerk 1977; Trevarthen 1985).

This (partial) explanation of typical properties of diminutives makes little sense in a model which assumes that many principles and/or properties distinguishing morphology from non-morphology, extragrammatical from grammatical morphology, and inflection from derivation are innate linguistic properties (e.g. in the Chomskyan sense). For, early vs. later stimulation of inborn dispositions should be without effect on their prototypical or non-prototypical elaboration in language acquisition. This explanation, however, does fit into a model of self-organising processes as in Karpf (1990, 1991), which implies that modules are not inborn but arise out of specialisation in language acquisition. Before modularisation, it is easier for the child to acquire extragrammatical and non-prototypical operations, because only modularisation renders prototypical properties of the morphological grammar module and of its submodules inflection, derivation and compounding normal.

M) Thus the answers to the initial questions (A) can be summarised, as follows: No innate autonomous morphology has to be assumed (b), which explains why cross-linguistic similarities (a, e) do not amount to full identities and why so much diversity exists (c, d). One reason for time lags in emergence (c) is different functional load of morphology. But similarity of functional needs guides children in their construction of morphology and explains similarity of formal principles (a, e).

REFERENCES

- Allen, Sh. 1996. Assessing productivity in acquisition data from polysynthetic languages: an Inuktitut example. Paper presented at the 7th IASCL congress, Istanbul.
- Allen, Sh. 1998. Categories within the verb category: learning the causative in Inuktitut. in Lieven 1998: 633-677.
- Aronoff, M. 1976. *Word Formation in Generative Grammar*. Cambridge: MIT Press.
- Behrens, H. 1999. Was mach Verben zu einer besonderen Kategorie im Spacherwerb? in J. Meibauer & M. Rothweiler eds. *Das Lexikon im Spracherwerb*. Tübingen: Francke. 32-50.
- Bittner, D., W.U. Dressler & M. Kilani-Schoch. 2000. eds. *First Verbs: On the Way to Mini-Paradigms*. ZAS Papers in Linguistics 18.
- Ceccherini, M., S. Bonifacio & E. Zocconi. 1997. Acquisition of diminutives in Italian (Sara). in Dressler 1997: 157-164.
- Ceytlin, S. 1997. Acquisition of possessive relations by a Russian child. in Dziubalska-Koaczyk 1997: 51-58.
- Clahsen, H. 1999. Lexical entries and rules of language: A multidisciplinary study of German inflection. *Behavioral and Brain Sciences* 22. 991-1013.
- Christofidou, A. & I. Kappa. 1998. Pre- and protomorphological fillers in Greek language acquisition. in Gillis 1998: 193-214.
- Clark, E. 1993. *The Lexicon in Acquisition*. Cambridge: Cambridge University Press.
- Clark, E., B. Hecht & R. Mulford. 1986. Coining complex compounds in English: affixes and word order in acquisition. *Linguistics* 24. 7-29.
- Deutsch, W. & C. Ruff. 1999. Wie Kinder Besitz sprachlich zu markieren beginnen. in J. Meibauer & M. Rothweiler eds. *Das Lexikon im Spracherwerb*. Tübingen: Francke.
- Dittmar, N. & Z. Penner eds. 1998. *Issues in the Theory of Language Acquisition*. Bern: Lang
- Dressler, W.U. 1989. Prototypical Differences between Inflection and Derivation. *Z.Phon. Sprachwiss.* 42. 3-10
- _____. 1994. Evidence of the first stages of morphology acquisition for linguistic theory: extragrammatic morphology and diminutives. *Acta Ling. Hafn.* 27. 91-108.
- _____. 1995. Wealth and poverty of functional analyses, with special reference to functional deficiencies. In Sh. Millar & J. Mey eds. *Form and Function in Language*. Odense: Odense Univ. Press. 11-39.
- _____. 1997a. ed. *Studies in Pre- and Protomorphology*. Wien: Verlag der Österreichischen Akademie der Wissenschaften.
- _____. 1997b. Zur Entstehung der Distinktivität in der Kindersprache. In: J. Perrot ed. *Polyphonie pour I. Fónagy*. Paris: L'Harmattan. 127-136.
- _____. 1999. What is *Natural* in Natural Morphology? *Travaux du Cercle Linguistique de Prague* 3. 135-144.
- Dressler, W.U., R. & D. Drazzyk, K. Dziubalska-Kolaczyk & E. Jagla. 1996 On the earliest stages of acquisition of Polish declension. in: Ch. Koster & F. Wijnen eds. *Proceedings of the Groningen Assembly on Language Acquisition*. Groningen: Centre for Language and Cognition. 185-195.
- Dressler, W. & A. Karpf. 1995. The theoretical relevance of pre- and protomorphology in language acquisition. *Yearbook of Morphology* 1994, 99-122.
- Dressler, W.U. & J. Makovec-Černe. 1995. Die ersten Stufen des Erwerbs der slowenischen Flexion: Eine Fallstudie. *Travaux du Cercle Linguistique de Prague* 1. 249-260.
- Dressler, W.U. & Merlini Barbaresi, L. 1994. *Morphopragmatics*. Berlin: Mouton de Gruyter.
- Dziubalska-Koaczyk, K. 1997. ed. *Pre- and Protomorphology in Language Acquisition*. Papers and Studies in Contrastive Linguistics 33.
- Gillis, S. 1997. The acquisition of diminutives in Dutch. in Dressler 1997: 165-179.
- _____. 1998. ed. *Studies in the Acquisition of Number and Diminutive Marking*. Antwerp Papers in Linguistics 95.
- Goswami, U. 1992 *Analogical Reasoning in Children*. Hillsdale: Erlbaum.
- Karmiloff-Smith, A. 1992. *Beyond Modularity: a developmental perspective on cognitive science*. Cambridge/Mass: MIT Press.
- Karpf, A. 1991. Universal Grammar needs organization. *Folia Linguistica* 25. 339-360.
- _____. 1994. Chaos and order in morphology (neuron watching included). In L. Tonelli and W. Dressler eds. *Natural Morphology - Perspectives for the Nineties*. Padova: Unipress. 7-20.
- Kilani-Schoch, M. 1988. *Introduction à la morphologie naturelle*. Bern: Lang.
- _____. 2000. Early verb development in two French-speaking children. *ZAS Papers in Linguistics* 18. 79-98.
- Kilani-Schoch, M. & W.U. Dressler. 2001. The emergence of verb paradigms in two French corpora as an illustration of general problems of pre- and protomorphology. in M. Voeikova & W.U. Dressler. Munich: Lincom.
- Kilani-Schoch, M., A. de Marco, A. Christofidou, M. Vassilakou, R. Vollmann & W.U. Dressler. 1997. On the demarcation of phases in early morphology acquisition in four languages. in Dziubalska-Koaczyk 1997: 15-32.
- Lieven, E. ed. 1998. *Developing a verb category*. *Linguistics* 36,4.
- Lo Duca, M.G. 1990. *Creatività e regole: studio sull'acquisizione della morfologia derivativa dell'italiano*. Bologna: Il Mulino.
- MacWhinney, B. 1995. *The CHILDES Project*. Hillsdale: Erlbaum.
- Moerk, E. 1977. *Pragmatic and Semantic Aspects of Early Language Development*. Baltimore: University Park Press.
- Nölke, H. & J.-M. Adam. 1999. *Approches modulaires: de la langue au discours*. Neuchâtel: Delachaux.
- Pačesová, J. 1968. *The Development of Vocabulary in the Child*. Brno: Universita Purkyne.
- Piaget, J. 1935. *La naissance de l'intelligence chez l'enfant*. Neuchâtel: Delachaux.
- Poeppl, D. & K. Wexler. 1993. The full competence hypothesis of clause structure in early German. *Lg* 69. 1-33.
- Savickiene, I. 1998. The acquisition of diminutives in Lithuanian. in Gillis 1998: 115-136.
- Seiler, H. 1991. *The Dimension of Oppositeness*. kup 84.
- Slobin, D. 1985-1997. ed. *The crosslinguistic study of language acquisition*. Hillsdale: Erlbaum.

- Slobin, D. 1997. The universal, the typological and the particular in acquisition. in Slobin 1985-97. v. 1-39.
- Stephany, U. 1997. Diminutives in early child Greek, a preliminary investigation. in Dressler 1997: 147-156.
- Tomaseello, M. 1992. First Verbs. Cambridge: Cambridge University Press.
- Tonelli, L., A. de Marco, R. Vollmann & W.U.Dressler. 1998. Le prime fasi dell'acquisizione della morfologia: un confronto tra l'italiano e il tedesco. In: P. Cordin et al. eds, Parallela 6. Trento: Università di Trento. 281-301.
- Trevarthen, C. 1985. Facial expression of emotion in mother-infant interaction. Human Neurobiology 4. 21-39.
- Voeykova, M. 1997. Early extragrammatical operations in the speech of a Russian child. in Dressler 1997: 37-44.
- Vollmann, R. & S. Bruyère. 1995. Über den Erwerb mentaler Strukturen am Beispiel der Possession. Grazer Linguist. Studien 43. 117-131.
- Vollmann, R., M. Sedlak, B. Müller & M. Vassilakou. 1998. Early verb inflection and noun plural formation in four Austrian children. in Dziubalska-Koaczyk 1997: 55-73.
- Zwicky, A. & G. Pullum. 1987. Plain morphology and expressive morphology. Berkeley Linguistic Society Papers 13: 339-342.

POJAVA MORFOLOGIJE - KONSTRUKTIVISTIČKI PRISTUP

SAŽETAK

Za nas lingviste koji se bavimo usvajanjem morfologije u nadi da ćemo tako steći nove spoznaje o prirodi morfologije te ponuditi psiholingvistima da zajedno s nama rješavaju nove probleme, temeljna su sljedeća pitanja: A) Kako objasniti da mala djeca usvajaju vrlo različite morfološke sustave na sličan način? B) Bismo li stoga trebali pretpostaviti da postoji velik broj urođenih, specifičnih morfoloških načela univerzalne gramatike? C) A kako da onda objasnimo velike vremenske zaostatke u pojavljivanju morfoloških struktura (npr. djece koja govore turski i one koja govore engleski)? D) A zašto onda urođene gramatičke morfologije (za razliku od izvangramatičke morfologije) gotovo da i nema u nekim izoliranim jezicima? E) S druge pak strane, zaniječemo li urođenost morfologije, kako ćemo objasniti ne samo sličnost usvajanja, nego i strukturalnih načela ciljnih morfologija?

"Međujezični projekt o predmorfologiji i protomorfologiji u usvajanju jezika" koji je organizirala Austrijska akademija znanosti (Dressler ur. 1997, Dziubalska-Kolaczyk ur. 1997, Gillis ur. 1998) predstavlja međunarodno nastojanje da se odgovori na ova temeljna te mnoga iz njih izvedena pitanja. Cilj ovog projekta jest usporediti usvajanje morfologije djece u dobi od 1;2 do 3;0 godina u dvadesetak jezika s naglaskom na sintaktičku morfologiju. Empirijski temelj ovog komparativnog projekta jest istovremeno prikupljanje longitudinalnih podataka o spontanom govoru i njihovo snimanje, transkripcija i kodiranje u sustavu CHILDES. Ovaj će se izvještaj temeljiti na dosadašnjim rezultatima do kojih su došli autor ovog projekta te njegovi suradnici u Austriji i drugim zemljama.

Moj epistemologijski pristup povezan je s funkcionalnim objašnjenjem (Dressler 1995). Primjenjen je lingvistički pristup prirodne morfologije (Kilani-Schock 1988). Naš razvojni pristup ne podrazumijeva urođeni morfološki modul, već je konstruktivistički (Karpf 1991, 1994; Karmiloff-Smith 1992). Interakcija djece s okolinom je selektivna. Važna konstruktivistička načela uključuju odabir obrazaca i samoorganizaciju: veća složenost dovodi do uzastopnih disocijacija, zbog kojih dolazi do modularnosti. Morfološki razvoj ima 3 glavne faze: predmorfologiju, protomorfologiju i "modulariziranu" morfologiju.

Predmorfološku fazu usvajanja jezika možemo definirati kao fazu u kojoj se pojavljuju morfološke operacije - i izvangramatičke (ili "izražajne") i one koje prethode kasnijim gramatičkim pravilima. Ove potonje se sastoje od napamet naučenih oblika čiji se odabir temelji na načelima prirodnosti i konstruktivizma. U predmorfološkoj fazi, nijedan sustav gramatičke morfologije još se nije disociirao od općeg kognitivnog sustava koji upravlja, među ostalim, i riječima svih oblika. Ovaj globalni sustav prestaje funkcionirati kad je djeci sve potrebije brzo širenje leksika i kad (u mnogim jezicima) širenje sintakse zahtijeva morfološko označavanje sintaktičkih kategorija.

Protomorfološku fazu usvajanja jezika možemo definirati kao razdoblje u kojem započinje razvoj sustava morfološke gramatike i njezinih podsustava, a koji ne dostiže status modula i podmodula. U ovom razdoblju djeca počinju kreativno graditi morfološke obrasce pravila, od kojih su mnogi previše uopćeni, tj. produktivnost im je neograničena. Neke od tih konstrukcija predstavljaju slijepo ulice, tj. obrasce koji ne predstavljaju prijelaz prema konstrukcijama odraslih, već vode u "pogrešnom" smjeru (sa stajališta odrasle osobe) pa ih zato kasnije moraju napustiti, tj. dijete mora početi iz početka. U ovom razdoblju također se može očekivati najviše različitosti između pojedinaca.

Kako bi se izašlo na kraj sa sve složenijom morfologijom, primitivni morfološki sustav odvaja se od fonologije i sintakse. Ovo ću ilustrirati gramatizacijom dopunjača (engl. fillers), složenica i posvojnih oblika. Nakon toga treba se pozabaviti funkcijama tvorbe riječi, dakle bogaćenjem leksika i motivacijom. To dovodi do još veće

složenosti, koja se i dalje povećava gomilanjem fleksija. Kako bi se udovoljilo različitim funkcijama infleksije i tvorbe riječi, primitivni morfološki sustav mora se disocirati, čime će nastati zasebni podmoduli infleksije i tvorbe riječi.

Izvangramatičke morfološke operacije, međutim, ne sudjeluju u objema funkcijama novonastalih gramatičkih sustava i njihovih obilježja osim pukom (i posve proizvoljnom) analogijom (tj. prilagodbom u smislu u kojem ju je vidio Piaget, 1935).

Naš će projekt biti dovršen kad se razradi modularizirana morfologija. Ti se moduli sastoje od prototipske morfologije, sintakse, fonologije te, slično tome, od morfoloških podmodula prototipske infleksije, derivacije i slaganja riječi. U ovoj fazi i morfosemantika postaje nezavisna od pragmatičnih značenja, što ćemo ilustrirati razvojem umanjenica.