

Identification of inflectional paradigms: the acquisition of the German plural

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Morphological paradigms are rarely completely homogenous or regular, but often an assembly of more and less regular subsystems or microclasses (Dressler & Karpf 1995). This is the case for the German noun plural. Following Köpcke (1998), we distinguish 8 major microclasses for the plural (see Tables 1-3 below). Crucially, these microclasses cannot be reliably predicted from the noun root. Instead, there is a cline from gender and *Auslaut*-based affixes with relatively high predicability to affixes with few phonological constraints and low predictability. The child acquiring such a language faces the tasks of (a) identifying all inflectional affixes and other processes (in the case of German *Umlaut* (vowel shift) and zero-marking), and (b) of identifying the respective representative nouns for the microclasses. The processes underlying the acquisition of these subregularities become most obvious in overregularizations (henceforth OR), which are seen as an indicator of productive processes in the acquisition of inflection.

In our presentation we will illustrate the development of the German noun plural in its microclasses with special focus on changes in the developing system. We will further investigate how these changes relate to type and token frequencies of the microclasses and of the whole noun vocabulary. With these analyses we want to test the role of frequency-based processing factors such as critical mass and entrenchment.

Analyses are based on the first 6 1/2 months of an extensive corpus of a monolingual German child who was studied from the onset of combinatorial speech. In addition to keeping a daily diary, the parents took five one-hour tape recordings a week. All data were transcribed in CHAT format. The database covers the child's development from age 1;11.15 to 2;5.30 and consists of ca. 72,000 utterances with ca. 6,700 word forms (types) and ca. 128,000 word tokens, of which about 35,000 are noun tokens. These data are unique not only in their richness, but especially in being an almost gapless record of the child's development of plural morphology in the earliest phases. This database allows us to trace in detail not only the emergence and distribution of inflectional microclasses, but also changes in the child's preferences of plural formation patterns.

Noun plurals are the first morphological affixes to systematically appear in the child's speech, and he shows a typical development from correct forms to an increase in overregularizations, indicating the productive segmentation of the plural markers. The child's overregularization patterns change frequently, often in the course of one or two weeks, as will be illustrated by data from the first two months of the investigation period. Initially, the child produces target-like plural forms and has representatives for all inflectional categories:

Table 1: Examples of plural type produced before age 2;0.7

<i>-e</i>	<i>-(e)n</i>	<i>-er</i>	<i>-s</i>	<i>-Ø</i>	<i>Umlaut</i>	<i>Uml. + -e</i>	<i>Uml. +-er</i>
<i>Punkte</i> <i>Schale</i>	<i>Tomaten</i> <i>Bauern</i>	<i>Eier</i> <i>Lichter</i>	<i>Autos</i> <i>Omas</i>	<i>Anhänger</i> <i>Löffel</i>	<i>Vögel</i>	<i>Fahrpläne</i> <i>Füsse</i>	<i>Fässer</i> <i>Bücher</i>

*During the next two weeks (until age 2;0.20), overgeneralizations are rare and limited to adding an extra marker to the -e-Plural (e.g. *Fischen* instead of *Fische* 'fish-pl');*

Busses/Bussen instead of *Busse* 'busses'). Subsequently, ORs became increasingly frequent with overgeneralization of *-(e)n* being the dominant type, spreading to more and more microclasses (Table 2, words are listed in their target class).

Table 2: Examples of plural overregularizations produced before age 2;1.0

<i>-e</i>	<i>-(e)n</i>	<i>-er</i>	<i>-s</i>	<i>-0</i>	Umlaut	Uml + <i>-e</i>	Uml + <i>-er</i>
<i>Broten</i> <i>Gleisen</i>	<i>Nudels</i>	<i>Eiern</i>					<i>Buchen</i> <i>Rädern</i>

In the next 3 weeks, both adult-like plurals and overgeneralizations became more pervasive (some 10-20% of his plural noun types are ORs). There is a change in the nature of his overregularization patterns, showing that the child has identified more plural markers, cf. Table 3:

Table 3: Examples of plural overregularizations produced between ages age 2;1.2 - 2;1.19

<i>-e</i>	<i>-(e)n</i>	<i>-er</i>	<i>-s</i>	<i>-0</i>	Umlaut	Uml + <i>-e</i>	Uml + <i>-er</i>
<i>Gleisen</i>	<i>Bette</i>	<i>Eiern</i>	<i>Luftballone</i>		<i>Äpfeln</i>	<i>Balle</i>	<i>Huhne</i>
<i>Tieren</i>					<i>Apfel</i>	<i>Glase</i>	<i>Munde</i>

Like before, the child overgeneralizes *-(e)n* to nouns of the *-e* class (*Gleise*, *Tiere*, *Signale*). But he now also overregularizes *-e*, and, in lesser type frequency, *-s*. In addition, he tends to leave out the *Umlaut* which indicates that he is generating the plural from the noun-*umlauted* singular, rather than retrieving a stored plural schema. It seems that the child in this period works by the iconicity hypothesis (cf. Bittner & Köpcke 1999) that plural nouns should be affixed. This is confirmed by several instances of affixation of nouns which should be zero-marked (*Anhängers*, *Fingers*) or should have an Umlaut only (*Äpfeln*, *Vogeln*). Despite the growing diversity in the OR patterns, *-(e)n* still serves as default: it is not only the most frequent, but also the most stable class, as other markers are only very rarely overgeneralized to the *-(e)n* class. In the subsequent months, the child's OR patterns change slightly, e.g., *-s* competes with *-n* in overgeneralizing to the zero-marked class (*Anhängers*, *Käfers*).

In addition to the changing preferences in his OR-patterns, the child also produces several plurals of the same noun at the same time. This variation shows that the developing system is quite unstable and that the child does not reliably associate plural markers with noun class. Thus the more interesting question is, what determines the child's choice of plural markers at each given point in time? Detailed analyses on the correlation of overgeneralizations with noun types (defined by target microclass) will show what leads to the abstraction of plural patterns and their OR. The child's overgeneralization patterns are basically phonologically conditioned, there is as of yet no evidence that he takes gender-based rules into account. We will also investigate what leads to the stabilization of correct forms, i.e. the child's cutting back from overgeneralizations. In particular, we will test whether ORs are more likely to occur in low-frequency classes because high frequency nouns are more entrenched, and whether the child needs a critical mass of exemplars for each microclass in order to reliably associate a particular plural marker with particular noun properties.