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**Of Mice and Men and Other  
Irregular Plural Forms**

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Dr. Gregory T. Papanikos  
President  
Athens Institute for Education and Research

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## **Of Mice and Men and Other Irregular Plural Forms**

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### **Abstract**

Existing studies on plural acquisition in German have relied on small samples and thus hardly deliver generalizable and differentiated results. Here, overgeneralizations of certain plural allomorphs and other tendencies in the acquisition of German plural markers are described on the basis of test data from 7394 3- to 5-year-old German and immigrant children tested with the speech and language screening instrument *KiSS* (*Kindersprachscreening*) and 476 children tested with the language test *SETK 3-5*. Classified correct and wrong answers to *KiSS* and *SETK 3-5* plural items were compared. The error patterns of immigrants corresponded to those of younger German children. Both monolingual German and immigrant children demonstrated generally the same universal frequency and phonetically/phonologically based error patterns, irrespective of their linguistic background, but with different tendencies such as overgeneralization of -s by German children only.

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## Introduction

The highly complicated plural system of modern High German is a long-standing battleground for the proponents of different grammar acquisition models stressing different constellations of factors, such as frequency, applicability, iconicity, and transparency, which influence mental processing and encoding of the plural forms (Köpcke, 1988; Korecky-Kröll & Dressler, 2009; Mugdan, 1977). This article focuses on salient features of the plural formation in the German language in monolingual German and bi-/multilingual immigrant four-year-old preschoolers.

Much attention has been paid to topics concerning plural acquisition in German, especially in monolingual native speakers. Comparative studies of dysgrammatically speaking or other linguistically impaired German children and correctly speaking control subjects have also been extensively conducted (Schoeler, Illichmann, & Kany, 1989; Veit, 1986). In these studies, however, sample sizes ranged mostly from only 10 to 20 participants (Clahsen, Rothweiler, Woest, & Marcus, 1992; Korecky-Kröll & Dressler, 2009). The findings from these small-scale studies are hardly generalizable and are unable to reliably detect differences between subgroups.

Some studies on plural acquisition in bilingual children have recently been published (Marouani, 2006; Wegener, 1994) which mostly opted for case studies or longitudinal designs. The results might thus be of heuristic, but not of parametric value. For instance, Korecky-Kröll and Dressler (2009) found almost no traces of *s*-overgeneralizations (substitution of other suffixes through *-s*) in the data of the only child in their study. This led to the conclusion that the dual-route model regarding *-s* as the default plural marker should be wrong, which fits the authors' preference for the single-route models. In our studies, however, *-s* turned out to be the most widespread plural allomorph in the overgeneralizations of native German children. Therefore, large-scaled cross-sectional studies with maximally unselected samples are needed.

The present study addresses the following questions: (1) Which plural acquisition and error patterns are characteristic for four-year-old monolingual and bilingual children? (2) Do the acquisition patterns of the immigrant children correspond to those of younger native German children? (3) Are the dissimilarities in the answers of the Germans and immigrants of quantitative or qualitative nature, that is, do the immigrants acquire German plural in the same way as native speakers do, or do they tend to use some other strategies which could be traced back to their native languages? (4) Is there any evidence for the existence of a default plural marker subdividing all plural forms into regular and irregular ones: *cars* (regular, *-s* as a default marker) vs. *mice* (irregular) (Clahsen, Rothweiler, Woest & Marcus, 1992), or do children rather follow other rules based on frequency and other factors (Köpcke, 1988)?

## Methods

A series of large-scale language assessment studies was carried out in several cities of Hesse, Germany, in order to validate and to establish a norm for a new

speech and language screening tool *Kindersprachscreening KiSS* [*Screening of child language development*] (Euler, Holler-Zittlau, van Minnen, Sick, Dux, Zaretsky, & Neumann, 2010; Neumann, Holler-Zittlau, van Minnen, Sick, Zaretsky, & Euler, 2011) for four-year-old children with or without immigrant background. Children were tested either by language experts or by kindergarten teachers with an extensive battery providing sufficient information about their performance in grammar, vocabulary, articulation, phonological short-time-memory, and speech comprehension.

Apart from *KiSS*, several reference tests were conducted: speech perception, phonological memory and grammar test *SETK 3-5* (Grimm, 2001) and some others which are of no relevance here. The constellation of the test battery and also of the *KiSS* items varied from study to study, but the plural items of the *KiSS* never changed: *Apfel-Äpfel* “apple”, *Ball-Bälle* “ball”, *Auto-Autos* “car”.

The *SETK 3-5* examines, among other subtests, all plural allomorphs except the zero plural. In contrast to *KiSS*, which contains three plural items only, *SETK 3-5* is designed to test 18 such items, some of which are nonsense words corresponding to typical German phonetic-phonological rules and evoking associations with real words: (1) real words: *Fisch(-e)* “fish”, *Bild(-er)* “picture”, *Stuhl(Stühle)* “chair”, *Buch(Bücher)* “book”, *Hand(Hände)* “hand”, *Schiff(-e)* “ship”, *Glas(Gläser)* “glass”, *Gabel(-n)* “fork”, *Vogel(Vögel)* “bird”; (2) nonsense words for a wug test: *eine Ribane(-n)*, *ein Tulo(-s)*, *eine Plarte(-n)*, *ein Biwo(-s)*, *eine Tapsel(-n)*, *ein Ropf(Röpfe)*, *ein Dolling(-e)*, *eine Kland(Klände)*. Because nonce words do not allow the reproduction of memorized plural forms, the *SETK 3-5* items are of especially high value for this study, reflecting the internalized plural formation rules and strategies. The elicitation form in *SETK 3-5* corresponded to that in *KiSS*.

Results from *KiSS* tests, including classified wrong answers, were obtained by 893 children (50% Germans, 50% with immigrant background; 54% male, 46% female; age range 4;0 to 4;11 years, median 4;3). The largest immigrant groups were Turks (9%), Russians (6%), Arabs (5%), and Italians (4%).

In order to compare age effects for both German and immigrant children, 162 three-year-old children and 137 five-year-old children completed the sample of children tested internally, that is, by language experts of our department.

A database with external *KiSS* results, that is, tests administered throughout the state of Hesse by specially trained teachers of day-care centers, contained 6,144 cases (70% Germans, 51% males; age 4;0 to 4;5 years). This database did not contain all the items of the internal tests, as the external tests were a screening distilled from the internal *KiSS* test items, but it could be used as a comparison.

## Results

### *Preferred plural markers: linguistically less vs. more proficient groups*

In order to examine whether the overgeneralization patterns of the immigrants correspond to those of younger Germans, three-year-old Germans were compared to four- and five-year-old Germans.

The discrepancies in the distribution of plural markers in the error patterns in *KiSS* between three-year-olds and four-year-olds, and between four-year-olds and five-year-olds were not significant according to cross-table chi-square tests; all  $ps > .05$ . The same applies to the frequency differences in the *KiSS* test results between four-year-old Germans and immigrants. The error patterns of the Germans and the largest immigrant groups (34 Turks, 12 Russians, 15 Italians, 18 Arabs, 176 other immigrants versus 300 Germans) in the *SETK 3-5* were also rarely significant: Arabs, Italians, and Turks demonstrated with all 18 nouns the same (not significantly different, all  $ps > .05$ ) error patterns. Russian children produced significantly different results for only one item. All immigrants added together produced only three, out of maximally 18, significantly different error patterns in comparison to the Germans (items *Vogel*, *Apfel*, *Ropf*,  $ps < .05$ ).

The frequency of the zero forms was significantly lower at age five than at age three, namely, on average, 0.43 zero forms for the three-year-old Germans ( $N=105$ ) versus 0.15 for the five-year-old Germans ( $N=137$ ,  $Z=-3.78$ ,  $p < .001$ , Mann-Whitney U-test). The three-year-old Germans ( $N=105$ ) overgeneralized *-(e)n* significantly more often than five-year-olds ( $N=137$ ): 0.11 versus 0.02 ( $Z=-2.74$ ,  $p < .01$ ). Five-year-old Germans tended to overgeneralize *-s*.

The percentages of the plural allomorphs from the total number of the overgeneralizations in the *SETK 3-5* sample demonstrate the same tendencies for the groups immigrants vs. Germans, that is, *-(e)n* and zero forms are preferred by immigrants, *-s* by Germans: (1) Germans: *-er* (10 occurrences, 1% of all overgeneralizations), *-s* (237, 13%), *-e* plus umlaut (0, 0%), *-e* (172, 9%), *-(e)n* (150, 8%), umlaut (10, 1%), zero forms (1,304, 69%), (2) immigrants: *-er* (2, 0%), *-s* (62, 4%), *-e* plus umlaut (1, 0%), *-e* (98, 7%), *-(e)n* (184, 13%), umlaut (11, 1%), zero forms (1,041, 74%). However, although *-s* is the plural marker of choice for the Germans, it never clearly dominated over other plural allomorphs even in the nonsense words: on average 0.09 *s*-overgeneralizations (total number of *s*-overgeneralizations divided by the number of items not demanding *-s*) versus 0.07 other overgeneralizations (total number of overgeneralizations divided by the total number of items), without zero forms ( $N=295$ ,  $Z=-1.49$ ,  $p > .05$ ).

#### *Differences in plural errors between Germans and immigrants*

Looking for parallels between younger Germans and older immigrants, umlauting as a component of pluralization was examined first. 29% of three-year-old Germans ( $N=105$ ) and 12% of the four-year-old Germans ( $N=137$ ) used it at least once in the incorrect way in the *KiSS* plural items ( $\chi^2_{(1)}=11.02$ ,  $p < .001$ ). It could be assumed that significant differences in average numbers with respect to umlaut errors can also be found between Germans and immigrants. Indeed, on average, immigrants produced 1.3 wrong umlaut forms in *SETK 3-5* ( $N=163$ ), while the Germans produced 0.9 such forms ( $N=294$ ,  $Z=-4.22$ ,  $p < .001$ ).

It could be further assumed that younger children often produce plural forms which are non-existent in the language of adults, thus trying to verify their hypotheses concerning possible plural rules of the target language (Korecky-Kröll & Dressler, 2009). Indeed, for instance, in forms like *Röpfel* instead of



*Röpfe*, which occurred in *SETK 3-5* four times, the element *-el* was misused as a plural allomorph, even though the only meaning which *-el* has in German as suffix is the diminutive one. In *KiSS*, such forms including double plural markers (*Apfelns*) can be found in the answers of 4% of the five-year-old Germans ( $N=107$ ) and 12% of the three-year-olds ( $N=137$ ;  $\chi_{(1)}=6.35$ ,  $p<.05$ ). In *SETK 3-5*, 74% of the immigrant children ( $N=165$ ) and 62% of the Germans ( $N=295$ ) produced at least once non-existing plural forms ( $\chi_{(1)}=6.36$ ,  $p<.05$ ).

One more parallel between these groups is evident in the strong deviations from the expected answers: numerals or other quantifiers without substantives (“four” instead of “four cars”), semantically inappropriate answers (“trees” instead of “pictures”), and phonetic deformations of the items which do not allow interpretations concerning overgeneralized plural allomorphs (“tra” instead of “trees”). Altogether, 8.6% of the three-year-old Germans ( $N=105$ ) used some of these strategies of avoiding plural formation at least once in *KiSS*, whereas among the five-year-olds, these were only 2.2% ( $N=136$ ,  $\chi_{(1)}=5.08$ ,  $p<.05$ ). Such strategies were found in the answers of 20% of the four-year-old Germans ( $N=293$ ) and 33% of the immigrants ( $N=162$ ,  $\chi_{(1)}=9.44$ ,  $p<.01$ ) in the *SETK 3-5* data.

The choice of the plural allomorph depends to some extent on the gender of the nouns. Three-year-old Germans produced in *KiSS* on average 2.5 correct gender forms out of maximally four ( $N=107$ ), and four-year-old Germans produced 2.9 ( $N=446$ ,  $Z=-2.92$ ,  $p<.01$ ). Four-year-old immigrant children in *KiSS* produced on average 1.4 correct gender markers ( $N=447$ ), Germans 2.9 ( $N=446$ ,  $Z=-15.64$ ,  $p<.001$ ), which demonstrates a further parallel between younger German and older immigrant children.

The fact that the immigrant children’s command of gender is deficient should also find its reflection in overgeneralization patterns. According to our calculations based on the DeReWo corpus (Institut für Deutsche Sprache, 2009), the plural allomorph *-e* must be closely associated with masculine and neuter nouns, because in adult language only 1% of the commonly used feminine nouns is pluralized by adding *-e*, whereas 32% of the masculine nouns and 47% of the neuter nouns demand this plural suffix. German *SETK 3-5* participants, being more aware of the regularities controlled by the category of gender, overgeneralized *-e* with neuter and masculine nouns significantly more often (0.14,  $N=296$ ) than immigrant participants (0.10,  $N=162$ ,  $Z=-3.12$ ,  $p<.01$ ), whereas the difference for feminine nouns was not significant.

#### *Common features of plural acquisition in Germans and immigrants*

Further analyses of the overgeneralization patterns are meant to reveal some of the regularities common for both Germans and immigrants, but they do not imply any further comparisons between younger and older Germans.

The simplest plural rule in German demanding *-n* after a schwa in the word final position can be illustrated by comparing the correct answers for the *SETK 3-5* plural items *Ribane* and *Plarte*, which are generated according to this rule, with the correct plural forms of the items *Tapsel*, *Dolling*, *Ropf*, and *Kland*, which follow other more complicated plural formation rules. The Germans produced on average 0.5 correct answers in the first item group ( $N=293$ ) and

0.2 in the second item group ( $Z=-11.53, p<.001$ ), the immigrants 0.3 in the first item group and 0.1 in the second one ( $N=162, Z=-6.05, p<.001$ ).

The simplicity of the second rule demanding *-s* after full vowels also finds confirmation in the *SETK 3-5* data. The comparison of the means of the correct answers for the word groups “*Biwo, Tulo*” versus “*Tapsel, Dolling, Ropf, Kland*” yielded significantly different results between Germans and immigrants: (1) Germans: 0.4 correct answers for the first item group versus 0.2 for the second item group ( $N=293, Z=-8.52, p<.001$ ); (2) immigrants: 0.2 versus 0.1 ( $N=162, Z=-3.69, p<.001$ ).

One more close, yet no so obvious, association of a plural allomorph with a certain phonetic-phonological environment is the suffix *-e* following a word final consonant: *Wort > Worte* “word”: (1) Germans: 1.6 correct or wrong *e*-uses in *SETK 3-5* items ending in a consonant versus 0.4 *en*-uses ( $N=300, Z=-15.81, p<.001$ ); (2) immigrants: 1.6 versus 0.9 ( $N=176, Z=-7.49, p<.001$ ).

The schwa deletion rule, which is universally applicable and seems to be acquired before the very first actively produced plural, prohibits the occurrence of two schwas in the adjacent syllables (*Apfele, Vögele*). No deviations of this rule in the *SETK 3-5* data and only one deviation in the *KiSS* data of all the three-, four- and five-year-olds evaluated together were found.

The simplicity or, in other words, the universality or wide-ranged applicability of the plural rules as one of the dominant factors in the plural acquisition can also be illustrated by the data of the umlauting in *SETK 3-5*. Because the plural allomorph *-(e)n* is not compatible with the umlaut (as a part of plural allomorph), both Germans and immigrants overgeneralized *-(e)n* significantly more often without umlaut: (1) Germans: 0.4 *en*-overgeneralizations without umlaut versus 0.1 with umlaut ( $N=296, Z=-6.72, p<.001$ ), (2) immigrants: 0.5 versus 0.2 ( $Z=-4.45, p<.001$ ). The same applies to combinations of *-s* with the umlaut which are also impossible in the target language: (1) Germans: 0.8 *-s* without umlaut versus 0.0 with umlaut ( $N=295, Z=-10.25, p<.001$ ), (2) immigrants: 0.4 versus 0.0 ( $N=163, Z=-5.84, p<.001$ ).

The non-nominative noun forms could be mistakenly transferred into the nominative declension system, resulting, theoretically, in overgeneralizations corresponding to accusative, dative, and genitive forms, particularly because these forms are equivalent to the plural suffixes (Gen.: *des Buches = -s* “of the book”, Dat.: *mit den Händen = -(e)n* “with the hands”, Acc.: *über den Bären = -(e)n* “about the bear”). Whether *SETK 3-5* participants indeed tended to overgeneralize such forms was verified by dividing all overgeneralizations into two groups: potential non-nominative forms and all other incorrect plural forms without equivalents in the adult language. On average, immigrants produced 0.5 potential non-nominative forms and 1.0 other forms ( $N=163, Z=-4.27, p<.001$ ). The ratio in the answers of the Germans was 0.3 versus 0.6 ( $N=296, Z=-6.41, p<.001$ ).

Table 1 demonstrates that both Germans and immigrants stick to the same overgeneralization patterns (e.g., *-e > -(e)n*: *Fische > Fischen*) with some minor deviations in two ethnic groups in *SETK 3-5*.

**Table 1.** *The most frequent overgeneralization patterns in SETK 3-5, with deviations marked in bold. In brackets: number of the SETK 3-5 items which correspond to the given pattern, out of the total number of the items to be considered.*

All	Germans	All immigrants	Turks	Russians	Arabs
<i>N</i> = 494	<i>N</i> = 305	<i>N</i> = 189	<i>N</i> = 40	<i>N</i> = 14	<i>N</i> = 20
-e > -(e)n (2/3)	-e > -(e)n (2/3)	-e > -(e)n (2/3)	-e > -(e)n (2/3)	-e > -(e)n (2/3)	-e > -(e)n (2/3)
uml + -e > -e (4/4)	uml + -e > -e (4/4)	uml + -e > -e (3/4)	uml + -e > -e (4/4)	<b>uml + -e &gt; (e)n (4/4)</b>	uml + -e > -e (4/4)
-er > -(e)n (2/3)	-er > -(e)n (2/3)	-er > -(e)n (2/3)	<b>-er &gt; -e (2/3)</b>	-er > -(e)n (2/3)	-er > -(e)n (2/3)
-(e)n > -s (4/4)	-(e)n > -s (4/4)	-(e)n > -s (4/4)	-(e)n > -s (4/4)	-(e)n > -s (2/2)	-(e)n > -s (4/4)
uml > -(e)n (2/2)	uml > -(e)n /s (2/2)*	uml > -(e)n (2/2)	uml > -(e)n (2/2)	uml > -(e)n (2/2)	uml > -(e)n (2/2)
-s > -(e)n (2/2)	-s > -(e)n (2/2)	-s > -(e)n (2/2)	-s > -(e)n (2/2)	-s > -(e)n (1/1)	-s > -(e)n (2/2)

\* -(e)n and -s are used here with the same frequency

Because both Germans and immigrants demonstrate the same acquisition strategies resulting in the same overgeneralization patterns, the levels of difficulty of the plural allomorphs might also be the same. The common denominator of the plural allomorphs tested in *KiSS* and *SETK 3-5* is *-e* plus umlaut, *-s*, and umlaut. The database of the external *KiSS* tests demonstrated the following tendencies: umlaut (Germans: 68% of the correct answers, *N*=4,280, immigrants: 29%, *N*=1,864) was more difficult than *-e* plus umlaut (Germans: 84%,  $\chi_{(1)}=539.70$ ,  $p<.001$ , immigrants: 42%,  $\chi_{(1)}=389.78$ ,  $p<.001$ ), *-e* plus umlaut was more difficult than *-s* (Germans: 93%,  $\chi_{(1)}=512.48$ ,  $p<.001$ , immigrants: 67%,  $\chi_{(1)}=444.74$ ,  $p<.001$ ). In *SETK 3-5*, real words supply evidence that umlaut is more difficult than *-e* plus umlaut, whereas nonsense words reflect a higher level of difficulty of *-e* plus umlaut compared to *-s*: (1) items *Apfel* and *Vogel* were answered significantly less often correctly than the items *Hand* and *Stuhl*: (a) Germans: on average 0.9 versus 0.6 (*N*=296,  $Z=-8.65$ ,  $p<.001$ ); (b) immigrants: 0.4 versus 0.3 (*N*=162,  $Z=-4.54$ ,  $p<.001$ ); (2) items *Kland* and *Ropf* were answered significantly less often correctly than *Biwo* and *Tulo*: (a) Germans: 0.1 versus 0.4 (*N*=293,  $Z=-9.55$ ,  $p<.001$ ); (b) immigrants: 0.1 versus 0.2 (*N*=162,  $Z=-4.64$ ,  $p<.001$ ).

Taking the low scores of umlaut on the scales of iconicity, frequency, cue validity, and productivity (Köpcke, 1988) into account, one would expect very low rates of overgeneralizations of this plural marker. In our *SETK 3-5* data, such overgeneralizations accounted for only 2% of all overgeneralizations in the answers of the Germans and for 3% in the answers of the immigrants.

## Discussion

The following parallels between immigrants compared to Germans and younger Germans compared to older Germans were identified. (1) The distribution of plural allomorphs in incorrect answers is basically the same, which means that the discrepancies in the error patterns are of a quantitative and not of a qualitative nature. Yet, linguistically less proficient groups tend to overgeneralize *-(e)n*, repeat singular forms, produce quantifiers without pluralized nouns and forms strongly deviating from the rules of the target language. Linguistically stronger groups overgeneralize *-s*. (2) Although no plural allomorph can be considered to be the default plural marker universally compatible with any phonetic-phonological environment, *-(e)n* has certain features of the default plural, especially in the linguistically weaker groups, whereas *-s* possesses such features in the proficient groups. (3) The umlauting is more problematic for the linguistically weaker groups. The parallels between younger Germans and older immigrants allow to draw the conclusion that the plural acquisition patterns in both cases are basically the same.

Furthermore, the following parallels can be found in the error patterns of both Germans and immigrants. (1) The choice of the plural allomorph depends to a certain extent on the applicability (universality) of the phonetically/phonologically based rules. (2) The wrong plural forms mostly do not correspond to the accusative, dative, and genitive forms in the adult language, which means that these are not merely memorized items, but the result of actively applied rules or schemata. (3) Both Germans and immigrants stick to the following overgeneralization patterns: *-e* > *-(e)n*, umlaut plus *-e* > *-e*, *-er* > *-(e)n*, *-(e)n* > *-s*, umlaut > *-(e)n*, *-s* > *-(e)n*. (4) The difficulty levels of the plural allomorphs are universal: umlaut alone is more difficult than *-e* plus umlaut, and *-e* plus umlaut is more difficult than *-s*. (5) Both Germans and immigrants overgeneralize *-s*, *-(e)n*, and *-e*, other plural allomorphs can be encountered only sporadically.

One of the main findings of the study, the tendency to overgeneralize *-(e)n* at a young age, *-s* at a later age, and *-e* independent of age, or at least to prefer these plural markers to all other ones, has been described by a number of authors. Scupin and Scupin (1910) reported overgeneralizations of *-(e)n* at the age of three and those of *-s* at the age of five. Walter (1975) did not find *-s* in the early overgeneralizations, whereas *-(e)n* and *-e* were overgeneralized at all ages.

The *-(e)n* as the most frequent plural allomorph in the input language (Köpcke, 1988) is expected to be overgeneralized in models like Natural Morphology or Cognitive Morphology represented in the plural acquisition studies by Köpcke's schema model (Bittner & Köpcke, 2001). According to Köpcke (1988), *-(e)n* is overgeneralized frequently due to its high scores on the scales of salience, type frequency, and cue validity, *-s* due to its high scores on the first and the third ones, *-e* on the first and (moderately) on the second ones, whereas *-er* is high only on salience and umlaut is (moderately) high on cue validity.

Accounts of zero forms dominating in the answers of children are omnipresent in the literature on plural acquisition (Clahsen et al., 1992;

Gawlitzek-Maiwald, 1994; Mugdan, 1977; Schaner-Wolles, 2001). MacWhinney (1978), for instance, mentioned a strong tendency to use zero suffixes with real and especially nonsense words in any age group between 3;0 and 12;0.

The fact that the plural rules without exceptions or with very few exceptions are hardly violated even at the youngest age finds further support in the literature, as was the case with the umlauting in combination with the plural suffix *-(e)n*. According to Walter (1975), the schwa deletion rule in words like *Junge > Jungen* “boy” was never violated in any age group between 2;5 and 25;0. Wegener (1994) demonstrated, using a nonce words task, that both Russian and Turkish learners of German closely associated the nouns ending in a schwa with the suffix *-n*, which accounted for over 90% of the answers. Marouani (2006) noted that Arab preschoolers learning German seemed to disregard the plural rules associated with gender for the benefit of the simplest phonetic-phonological regularities like schwa (*-n*), full vowels (*-s*), or consonants (*-e*) in the word final position. Köpcke (1988) found that young German adults tend to use *-s* with nonsense words ending in a full vowel (69% of all answers), *-n* with feminine nouns ending in *-e* (94%) and tend to avoid plural allomorphs containing a schwa with the nouns having a schwa in the final syllable (schwa deletion rule). Schaner-Wolles (1989) pointed out that one could hardly find combinations of the umlaut with *-(e)n* in the answers of 40 two- to six-year-old Germans, ten thereof being four years old. All of these patterns, that is *-s* after full vowels, *-(e)n* after a schwa in the word final position, *-e* after consonants in the word final position, strict application of the schwa deletion rule, incompatibility of umlaut with *-(e)n*, could be verified here.

Some of the conclusions which can be drawn from the results contribute to the dispute about the psycholinguistic background of overgeneralization patterns reflected in the distribution of plural allomorphs and zero forms. The most obvious point supported by our data is that at the early stages, German L1 and L2 learners clearly abide by the frequency-based phonetic-phonologically motivated regularities extracted from the input: (1) Because *-(e)n* is the most frequent plural allomorph, followed by *-e*, children tend to overgeneralize *-(e)n* and *-e*. (2) Because the umlaut is not compatible with the plural allomorphs *-(e)n* and *-s*, one can hardly find occurrences of such combinations (e.g., *Äpfels*), both in *SETK 3-5* and *KiSS*. (3) Because the schwa in the final position requires *-n*, the full vowel requires in the overwhelming majority of the cases *-s* and a consonant requires, at least as a tendency, *-e*, these plural markers dominate with these word final sounds. (4) Because the schwa deletion rule is never violated in German, it seems to be acquired prior to the very first actively produced plural form. One of the weakest tendencies is not phonetically-phonologically, but grammatically motivated. As *-e* is closely associated with masculine and neuter nouns, and not with feminine ones, the tendency to use *-e* with masculine and neuter nouns is represented in the answers of the children who already have a certain command of the gender category.

The development of the plural system is reflected in the growing consideration of gender and applicability or compatibility of the plural allomorphs, in the transition from purely iconic plural markers *-(e)n*, *-e*, *-s* to

the less iconic markers *-e* plus umlaut and umlaut, in the transition from phonetic-phonological patterns (word final sounds, presence of the schwa in the last syllable) to a more complex system based on more subtle regularities encoded in the input.

The fact that the plural acquisition patterns are basically universal and abide by the same rules is supported by the quantitatively and not qualitatively different distribution of the plural allomorphs in the error patterns, by the same difficulty levels of the plural allomorphs, and by the same overgeneralization patterns like *-e* plus umlaut > *-e*, *-s* > *-(e)n*.

In summary, there is no evidence that monolingual Germans and bi-/multilingual children use qualitatively different pluralization strategies or tend to subdivide all nouns into regular (e.g., *cars*, *balls*) and irregular ones (*men*, *mice*). The choice of plural marker depends not of its status as default or irregular one, but on its frequency with certain phonetic/phonological environments. The tendencies demonstrated by bi-/multilingual four-year-old children correspond to the tendencies employed by three-year-old monolingual Germans in comparison with five-year-old ones. Because the time window for the first language acquisition is still open at the preschool age, children with foreign linguistic background adapt the same plural acquisition strategies that can be detected in the answers of native German children.

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