How far does the awareness go?
Results from a written plural preference task on analogous and non-analogous novel noun plurals in German

Peter Horn & Guido Nottbusch
Department of Primary School Education German,
University of Potsdam

1. Background

- Morphological awareness includes: Rules that describe how affixes attach to base words, including **changes to those base words** (Apel, 2014).

- The German plural system has a rich allomorphy containing six plural suffixes, three of which show supplementary **Umlaut**, i.e., a vowel alternation, which leads to a **phonological and orthographic shift of the base**:

    Frosch^{SG} [fʁɔʃ] – *Fr**ö**sche^{PL}* [ˈfʁ**œ**ʃə] (Engl., frog – frogs)

The presence of Umlaut within overt plural marking can be summarized as follows:

(1) Umlaut in 50% of the cases:

    a. N^{masc} +   *-e*^{PLURAL} (*Hund – Hunde/*Hünde*, 'dog', vs.

                                Kopf – Köpfe/*Kopfe, 'head')

(2) Obligatory Umlaut:

    a. N^{fem} +   *-e*^{PLURAL} (*Hand – Hände/*Hande*, 'hand')

    b. $N^{masc/neut}$ +   *-er*^{PLURAL} (*Wald – Wälder/*Walder*, 'forest')

2. Research Questions

We make use of the distinct Umlaut distribution to investigate:

i. Whether **regularities** of the Umlaut distribution (2a/b) have been identified implicitly and whether speakers are aware of it and can use this knowledge to treat pseudowords adequately.

ii. Alternatively, where no rules can be applied (1a), do they make use of **word-specific knowledge** (analogy strategy)?

Hypotheses

Experiment 1 – Umlaut in 50% of the cases

Condition/ Strategy	Predictions (choice of plural form with or without Umlaut)
by **Analogy** to nouns that undergo Umlaut „MascE+U"	der Durm → die Dürme/*die Durme (real word analogy: der Turm – die Türme, 'tower')
by **Analogy** to nouns that don't undergo Umlaut „MascE-U"	der Bunkt → *die Bünkte/die Bunkte (real word analogy: der Punkt – die Punkte, 'dot')

3. **Hypotheses**

Experiment 2 – Obligatory Umlaut

Condition/ Strategy	Predictions (choice of plural form with or without Umlaut)
by **Rule** and/or **Analogy** „Analog+U!"	die Praut → die Präute/*die Praute (real word analogy: die Braut – die Bräute, 'bride')
by **Rule** „NonAna+U!"	die Pfos → die Pföse/*die Pfose (no real word analogy)

4. Method

Participants

Group	N	Female/Male
Undergraduate students	106	85/21

4. Method

Materials

- For each condition of the two experiments 17 pseudowords were created.

- *Analogous items* were matched with their respective real word partner in regard to:
  (i) syllable rime and overall segment overlap with a fixed LVD of 1,
  (ii) neighborhood density at an LVD of 1,
  (iii) phonotactic probability (measured by summed bigram frequencies),
  (iv) phonetic similarity.

- *Non-analogous items* consist of legal phoneme combinations that are not noticeably complex and exhibit virtually no lexical neighbors.

4. Method

Procedure: Plural preference task (online test)

Critical item:

der Durm
○ viele Durme
○ viele Dürme

Filler item:

das Lirn
○ viele Lirne
○ viele Lirnen

Method

Procedure: Subsequent Naming task (real word association)
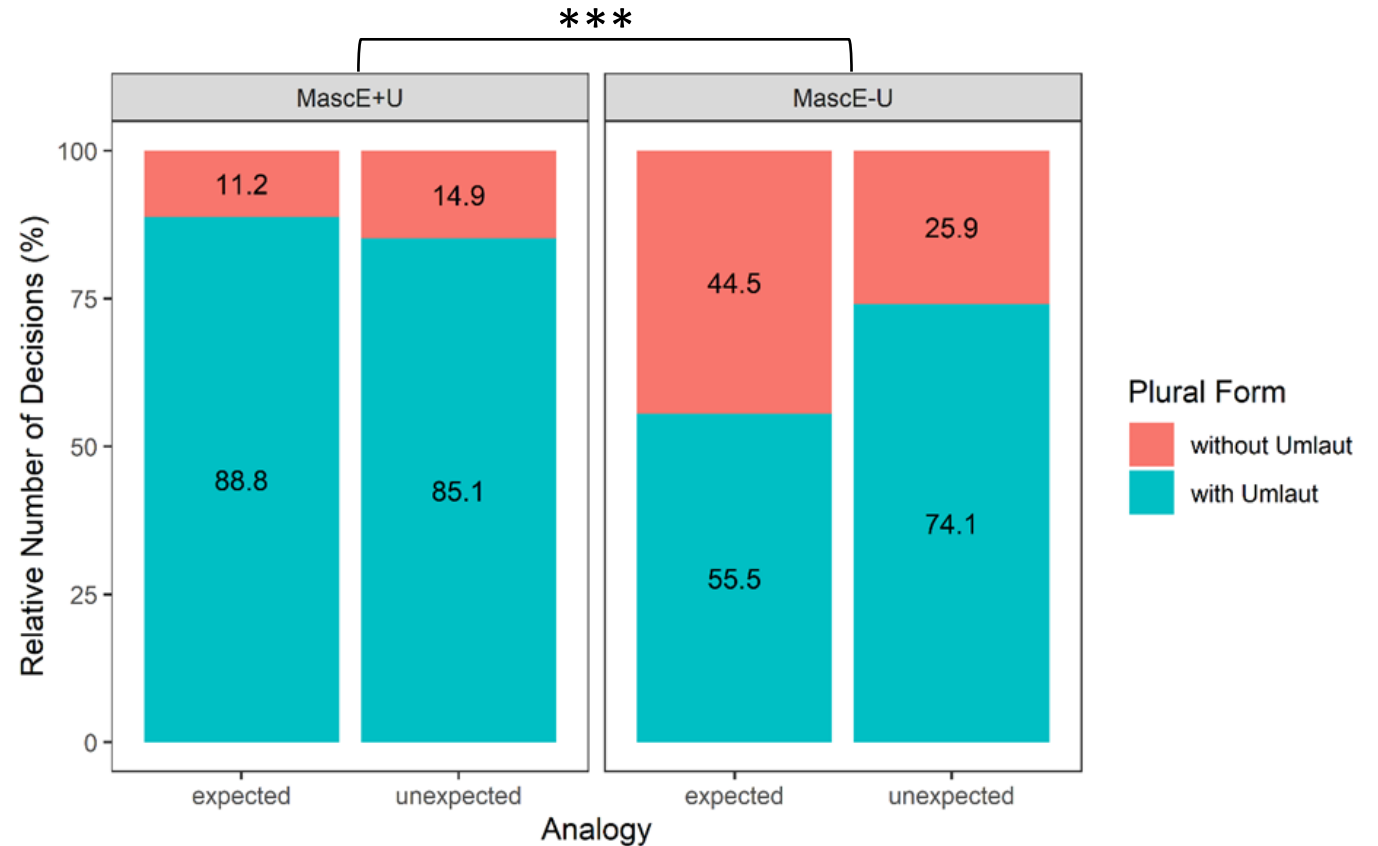
der Durm

Results: Experiment 1 – Umlaut in 50% of the cases

Table 1 - *Grammaticality judgment count per condition*

Condition	Plural form without Umlaut		Plural form with Umlaut	
	n	%	n	%
MascE+U	206	11.59	1572	88.41
MascE-U	769	43.25	1009	56.75

|	total	
	n	%
Analogy – MascE+U		
expected	1583	89.03
unexpected	195	10.97
Analogy – MascE-U		
expected	1662	93.48
unexpected	116	6.52

GLMER:plural form~cond+analogy+(1|subject)+(1|item),family=binomial(link ="logit")

5. **Results:** Experiment 2 – Obligatory Umlaut

Table 2 - *Grammaticality judgment count per condition*

Condition	Plural form without Umlaut		Plural form with Umlaut	
	n	%	n	%
Analog+U!	161	9.06	1616	90.94
NonAnalog+U!	533	31.35	1167	68.65
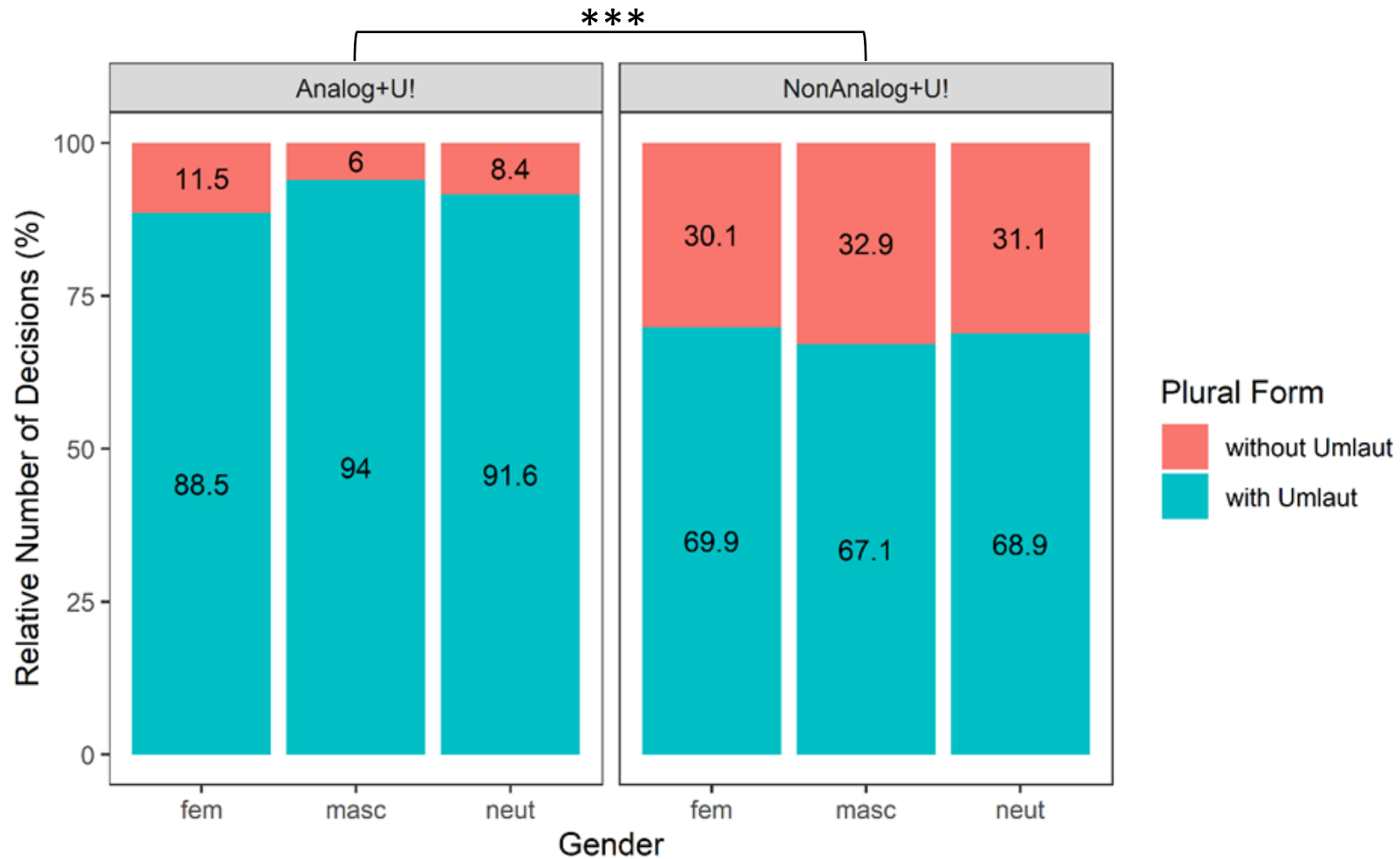
GLMER:plural form~cond+gender+(1|subject)+(1|item),family=binomial(link ="logit")

6. Conclusion

- **Speakers make analogies** between pseudowords and real words

- **Umlaut bias** that weighed even more than single-form analogies

- In the case of pseudowords that mimic real words that undergo Umlaut in plural by rule participants preferred plural forms with Umlaut over forms without Umlaut

- Results for the non-analogous pseudowords (68.65% with Umlaut) suggest that **speakers abstracted a rule of the kind [gender + suffix → +/-Umlaut]**

- We interpret these results as evidence for both, **awareness of word-specific knowledge** and of **morphological rules** including a change to the base

References

Apel, K. (2014). A Comprehensive Definition of Morphological Awareness: Implications for Assessment. *Topics in Language Disorders, 34*(3), 197-209. https://doi-org/10.1097/TLD.0000000000000019

Gallmann, P. (2022). Nomen [Noun]. In A. Wöllstein (Ed.), *Duden – Die Grammatik: Struktur und Verwendung der deutschen Sprache. Sätze – Wortgruppen – Wörter* (10th ed., pp. 697-728). Dudenverlag.

Thank You!