Erschienen in: Linguistische Berichte, Heft 246 (2016), S. 171-196

Varietätenlinguistik

Methodological approaches to people's notions of spoken Standard German

Alexander Koplenig, Ralf Knöbl & Arnulf Deppermann

Abstract

This paper explores speakers' notions of the situational appropriacy of linguistic variants. We conducted a web-based survey in which we collected ratings of the appropriacy of variants of linguistic variables in spoken German. A range of quantitative methods (cluster analysis, factor analysis and various forms of visualization techniques) is applied in order to analyze metalinguistic awareness and the differences in the evaluation of written vs. spoken stimuli. First, our data show that speakers' ratings of the appropriacy of linguistic variants vary reliably with two rough clusters representing formal and informal speech situations and genres. The findings confirm that speakers adhere to a notion of spoken standard German which takes genre and register-related variation into account. Secondly, our analysis reveals a written language bias: metalinguistic awareness is strongly influenced by the physical mode of the presentation of linguistic items (spoken vs. written).

1 Introduction

This paper discusses methods to study sources of variation within standard varieties of a language. The main aim of this study is to show how judgments of the appropriacy of variants of linguistic variables depend on the situation of use.

Linguistic studies of pluricentric languages like German focus on variation tied to national political borders and provide evidence for the existence of different national (standard) varieties (see e.g. on pluricentric German Ammon 1995; Auer 2014). Consequently, the norms of national varieties are set out in endogenous codices.[1] In comparison to variation across national borders of German speaking countries, nation-internal variation of standard German has gained less attention – especially as far as spoken variants are concerned. Until

[1] The existence of endogenous codices is an established criterion for a variety's status as a "national full center" within the taxonomy of a pluricentric language (Ammon 1995).

recently, the established codices of spoken (German-)German (Mangold 2005; Krech et al. 2009) have followed a prescriptive tradition. It conceives of standard German as a homogeneous system, matching mostly just one codified orthoepic form to a corresponding written form. Codification thus adheres to the ideology that a national language does not allow for equally acceptable variants of linguistic variables (see Milroy 2001). However, if we turn to real speech events in which speakers orient to using the standard variety, empirical data from large corpora show that there is a wide range of variation in the realization of a considerable number of linguistic variables in spoken German (e.g. Deppermann, Kleiner & Knöbl 2013; see Kleiner, Knöbl & Mangold 2015 for a 'descriptive codex' that takes variation within the standard into account).

Variation in spoken (standard) German is related to different factors. One relevant aspect of variation is the "diatopic dimension" (Coseriu 1988), i.e. spatial variation of linguistic forms. In Germany, diatopic differences are most evident in local dialects, but they are still observable in standard-oriented speech as indexical hints to the speaker's origin (Kleiner 2014). Another important source of variation is the "online" (Auer 2000) production of speech in everyday interaction, which tends to reduce and fortify the articulation of so called 'weak forms', leading to both phonetic and morphological deviation from the written standard. In German as in other languages, language-internal variation is a socio-semiotic resource of verbal interaction, indexically linked to the socio-situative context of its use (Eckert 2008). Variation is both the basis and the product of verbal exchanges, or in terms of Agha (2007) of the 'enregisterment' of a language.

Reviewing both the sources and the uses of variation within the scope of standard usage, recent empirical research supports the dictum by Weinreich, Labov & Herzog (1968: 101) that it is not variation, but the "absence of structured heterogeneity that would be dysfunctional". However, it still remains a matter of debate how to approach language users' notions of a standard and their orientation to it. A usage-based approach would try to derive people's notion of a standard by looking at their factual linguistic practice, i.e., using corpus-linguistic methods to study the realization of linguistic variants in communicative events which can be considered to require the standard variety. A cognitive-oriented experimental approach, in contrast, would try to uncover people's metalinguistic notion of 'standard' by asking them to rate the appropriacy of linguistic variants in communicative contexts which require an orientation to a standard norm. In a prior study, we could show that the usage-based and the experimental approach sometimes yield discrepant results in regard to the standard-conformity of linguistic forms (Deppermann, Knöbl & Koplenig 2015). We found that differences depend on factors, such as the salience of the linguistic feature, the existence of a codified variant, and larger ideologies of properties of standard-conforming forms; the mode of the presentation of the stimulus (written vs. oral) also affected some variables.

The current paper extends this line of research:

- it presents a methodology for studying people's metalinguistic notions of a standard concerning both data collection (online-survey), methods of statistical data analysis (cluster and factor analysis) and the representation of findings,
- it uses this methodology to study how people conceive of variation within standard German depending on the situation of language use.

The study thus aims to gain further insights into how situational variation matters to people's notion of a standard and how it is structured.

2 Method

2.1 Materials and design

We constructed a total of 70 sentences representing systematic variation of 21 linguistic variables of spoken German. They belong to six types of variables: a) the indefinite article *einen/m* ('a(n)'), b) demonstrative *so einen/m*, which is a combination of the deictic particle *so* with a form of the indefinite article ('such a(n)'), c) the use of the verb *brauchen* ('to need') as a modal verb with a successive infinitive form, d) clitic combinations of verbs and pronouns, e) the particles *als* and *wie* ('than') as used in comparative constructions, and f) the superlative form *der einzige* vs *der einzigste* ('the only').

In the sentences to be rated, all linguistic variables were realized either in the way they are codified or as variants that deviate from established codices to different degrees. On a formal continuum, the variants of the above variables a)–d) range between the full form, which corresponds to norms of writing, and different reduction forms. Comparative *wie* and *der einzigste* (variables e) and f)) are forms which do not conform to the codex. They are considered stereotypical forms of spoken German, which are perceived as mistakes in writing and at school. With the exception of one regionally marked form (pronoun *mir* (<wir>, 'we')), all variants tested in the survey are geographically neutral, and they commonly occur in a range of speech events, including formal and semi-formal contexts of public and institutional speech. On the grounds of a usage based standard conception (e.g. Deppermann, Kleiner & Knöbl 2013), the variants tested belong to the spectrum of forms of spoken standard German.

Table 1 shows the variable definitions, the variants (linguistic forms and type-code, see below) and the test items (variants in sentential context) of the two main variable types, the indefinite article and the combination of deictic *so* and the indefinite article. The two variable types account for 41 of the total of 70 test items. For all variables of both types, four common types of variants along the form-continuum between codified form and most reduced form can be distinguished, i.e. the explicit forms (*(so) einen/einem*; type 1), the standard-near

reduction form with a truncated ending (*(so)ein/eim*; type 2), forms with fully realized ending, but only reduced stem (*(so)nen/nem*; type 3), and finally forms with both reduced stem and ending (*(so)n/m*; type 4).

Type of variable	**Variable**	**Variants**	**Type of variant**	**Test item (sentence)**
indefinite article	dative masculine	*einem*	1 (full form)	Die Akte gehört einem Kollegen
indefinite article	dat. m.	*eim*	2	Die Akte gehört eim Kollegen
indefinite article	dat. m.	*nem*	3	Die Akte gehört 'nem Kollegen
indefinite article	dat. m.	*m*	4	Die Akte gehört 'm Kollegen
indefinite article	nominative neuter (monocasus)	*ein*	1 (full form)	Die Zahlen könnten sich noch ein bisschen bessern
indefinite article	nominative neuter (monocasus)	*n*	4	Die Zahlen könnten sich noch'n bisschen bessern
indefinite article	accusative masculine	*einen*	1 (full form)	Er schrieb daraufhin erst einen Bericht über die Ereignisse
indefinite article	accusative masculine	*ein*	2	Er schrieb daraufhin erst ein Bericht über die Ereignisse
indefinite article	accusative masculine	*nen*	3	Er schrieb daraufhin erst nen Bericht über die Ereignisse
indefinite article	accusative masculine	*n*	4	Er schrieb daraufhin erst 'n Bericht über die Ereignisse
indefinite article	acc. m. (context: preposition/nasal)	*nen*	3	Er kam in 'nen neuen Freundeskreis
indefinite article	acc. m. (context: preposition/nasal)	*n*	4	Er kam in 'n neuen Freundeskreis
indefinite article	acc. feminine	*eine*	1 (full form)	Er braucht eine Pause
indefinite article	acc. feminine	*ne*	3	Er braucht ne Pause
indefinite article	acc. m. (numeral)	*einen*	1 (full form)	Ich habe von der ganzen Rede nur einen Satz verstanden
indefinite article	acc. m. (numeral)	*ein*	2	Ich habe von der ganzen Rede nur ein Satz verstanden
indefinite article	acc. m. (numeral)	*nen*	3	Ich habe von der ganzen Rede nur nen Satz verstanden
indefinite article	acc. m. (numeral)	*n*	4	Ich habe von der ganzen Rede nur'n Satz verstanden
demonstrative (so + indefinite article)	acc. m.	*so einen*	1 (full form)	Er hat eher nicht so einen starken Akzent

Type of variable	**Variable**	**Variants**	**Type of variant**	**Test item (sentence)**
demonstrative (so + ind.art.)	acc. m.	*so'nen*	3	Er hat eher nicht so'nen starken Akzent
demonstrative (so + ind.art.)	acc. m.	*so'n*	4	Er hat eher nicht so'n starken Akzent
demonstrative (so + ind.art.)	acc. m. (numeral)	*so einen*	1 (full form)	Es hat so einen Tag lang gedauert
demonstrative (so + ind.art.)	acc. m. (numeral)	*so ein*	2	Es hat so ein Tag lang gedauert
demonstrative (so + ind.art.)	acc. m. (numeral)	*so'nen*	3	Es hat so'nen Tag lang gedauert
demonstrative (so + ind.art.)	acc. m. (numeral)	*so'n*	4	Es hat so'n Tag lang gedauert
demonstrative (so + ind.art.)	dat. f.	*so einer*	1 (full form)	Mit so einer Bilanz wie dieser steigen die Aktien
demonstrative (so + ind.art.)	dat. f.	*so'ner*	3	Mit so'ner Bilanz wie dieser steigen die Aktien
demonstrative (so + ind.art.)	acc. m.	*so einen*	1 (full form)	Sie war in Spanien und hat dort so einen Sprachkurs gemacht
demonstrative (so + ind.art.)	acc. m.	*so ein*	2	Sie war in Spanien und hat dort so ein Sprachkurs gemacht
demonstrative (so + ind.art.)	acc. m.	*so'nen*	3	Sie war in Spanien und hat dort so'nen Sprachkurs gemacht
demonstrative (so + ind.art.)	acc. m.	*so'n*	4	Sie war in Spanien und hat dort so'n Sprachkurs gemacht
demonstrative (so + ind.art.)	acc. m.	*so* (+NULL)	5 ('special' form: non-realisation	Sie war in Spanien und hat dort so Sprachkurs gemacht
demonstrative (so + ind.art.)	dat. n.	*so einem*	1 (full form)	Mit so einem Ergebnis wie diesem steigen die Aktien
demonstrative (so + ind.art.)	dat. n.	*so eim*	2	Mit so eim Ergebnis wie diesem steigen die Aktien
demonstrative (so + ind.art.)	dat. n.	*so'nem*	3	Mit so'nem Ergebnis wie diesem steigen die Aktien

Type of variable	Variable	Variants	Type of variant	Test item (sentence)
demonstrative (so + ind.art.)	dat. n.	*so'm*	4	Mit so'm Ergebnis wie diesem steigen die Aktien
demonstrative (so + ind.art.)	dat. n.	*solch einem*	11 ('special' full form)	Mit solch einem Ergebnis wie diesem steigen die Aktien
demonstrative (so + ind.art.)	nom. f.	*so eine*	1 (full form)	Am Eingang stand so eine Frau
demonstrative (so + ind.art.)	nom. f.	*so'ne*	3	Am Eingang stand so'ne Frau
demonstrative (so + ind.art.)	acc. f. (numeral)	*so eine*	1 (full form)	Es dauert so eine Stunde lang
demonstrative (so + ind.art.)	acc. f. (numeral)	*so'ne*	3	Es dauert so'ne Stunde lang

Table 1. List of variants and test items of the two main variable types

One problem which might affect the validity of appropriacy ratings is the interaction between the content of the stimulus sentence and the linguistic variant realized (see e.g. the biasing impact of the subjects "imagery" in the study by Levelt et al. 1977; see also Newmeyer 1998: 198f.). In order to control for the effect of sentence content, all variants of a linguistic variable were integrated into the same carrier sentence (in the sense of "minimal pairs at the sentence level", Schütze 1996: 186). Furthermore, the introductory text preceding the survey instructed subjects not to focus on content of the prompts and to base their ratings only on formal properties instead. Sentence topics were restricted to the public and occupational domain, because they are central for standard-oriented speech. Examples include *Die genauen Zahlen braucht er nicht zu kennen* ('he doesn't have to know the exact figures'); *Er war der einzige Regierungsvertreter* ('he was the only representative of the government'), or *These eins ist plausibler als These zwei* ('claim one is more plausible than claim two').

In order to test whether the mode of presentation influences judgments, we designed two versions of the questionnaire: In the *written* condition, the participants received written prompts, whereas the same sentences were read aloud in the *spoken* condition (cf. the appendix for two screenshots). In order to maintain standardization in the spoken prompts (above all concerning the intonation pattern of the compared sentences), a matrix of each sentence was recorded, in which the different variants of a variable were interlaced.

2.2 Remarks on the Mode of stimuli presentation

Since the 'cognitive revolution' triggered by Noam Chomsky's focus on linguistic competence, native speakers' intuitions and metalinguistic judgments have become an accepted means to "test the adequacy of a grammar" proposed for language, i.e. to "separate the grammatical sequences from ungrammatical sequences" (Chomsky 1957: 13). Hill (1961) has started the discussion on whether the speakers' judgments would be influenced by the mode of stimuli presentation (written or spoken). Still, its effect has hardly been tested (see the discussion in Kitagawa & Fodor 2006: 348–350, and in Schütze 1996: 147 and 194). Chomsky himself has supported the view that there might be effects induced by the written or spoken mode of the stimuli (1957: 35–36; 1961: 228). Taking into account factual differences between norms of writing and speaking (e.g. Auer 2000; Biber 2006), the establishment of "the widely held belief that our judgment criteria are much stricter for written materials than for speech" (Schütze 1996: 147) is not surprising. But surprisingly, findings by Vetter et al. (1979), one of the very few studies testing biasing effects of the mediality of stimuli, do not confirm this view. In their study, a set of presentation-related variables was tested: written vs. spoken stimuli, the latter divided into stimuli either read with an intonation contour or read in a monotone fashion, and three different sets of instructions aiming at either a judgment of "grammaticality", "meaningfulness", or "ordinariness" of the stimulus sentences (see the different formulations of the instruction in Vetter et al. 1979: 572). Vetter et al. did not find overall effects of the mode of presentation. Two recent studies on the acceptance of "ungrammatical" English constructions which are common in speech ("syntactic blend" and "mismatch ellipsis", Frazier 2015; "resumptive pronouns" and "alternative if-clauses", Juzek 2015) did not find significant differences between judgments based on spoken vs. written stimuli either. In contrast, Kitagawa & Fodor (2006) find differences between aural or visual stimuli presentation in their study on the relevance of prosody to acceptability. This finding is not very surprising, since the (English) target sentences of the study were ambiguous sentences which require a non-default intonational contour (as a contextualisation cue) to be disambiguated. Interestingly, the study showed an "unwelcome outcome", which might be relevant for our study: besides the effect on the target sentences, the ungrammatical filler sentences also showed a greater acceptance when presented as spoken stimuli. These "related filler sentences" were "superficially similar to the targets in structure but did not contain the critical ambiguity" (Kitagawa & Fodor 2006: 352). The fact that the distinction between grammatical and ungrammatical filler sentences "rested on a minor morpho-phonological contrast" was the basis for the authors' explanation of the mediality effect as a result of "problems of auditory perceptibility and memory" (ibid: 357). Unfortunately, the filler sentences were not expatiated in their report, and it is unclear whether the 'ungrammatical' structure of filler sentences consisted of forms that are 'ungrammatical', but commonly used in speech – like in the case of the stimuli sen-

tences presented here in our study. This aspect of the linguistic status of the forms might also have been worth considering in order to explain the mediality effect.

To our knowledge, the effect of the mode of presentation of linguistic stimuli (written vs. spoken) on judgments of the appropriacy of forms has not yet been tested for German. Both findings in our prior study (Deppermann, Knöbl & Koplenig 2015) and the fact that codification of spoken standard German is modelled upon written standard German (see above) led us to the hypothesis that the mode of presentation of stimuli matters for judgments of appropriacy, above all in the case of test items with morpho-phonological differences, which are deviations from the codified written forms, but nevertheless frequently used in speech. More specifically, we expected that raters would be willing to judge variants belonging to type-codes 2–5 in Fig. 1 (i.e., non-codified variants) as more appropriate when presented as a spoken prompt than as a written prompt. We also expected the difference to be most prominent in semi-formal situations of use. In highly formal situations, these variants were expected to be rejected independently of mode of presentation, whereas in informal situations, they should be judged to be equally acceptable.

2.3 Participants

After a pretest in the context of an undergraduate course with promising results (19 participants, 52 sentences), we conducted a web-based survey using the online survey software UNIPARK. The survey was completed by a total of 189 subjects.

As an incentive to complete the survey, participants could enter a draw for two Amazon vouchers, worth €10 each. The survey took approximately 5 to 10 minutes to complete. It was activated from February to March 2013. At the end of the survey, the participants were asked to indicate their sex, age and the region where they had spent most of their time until the age of 16. Figure 1 summarizes the demographic results.[2]

[2] This figure was created using Maurizio Pisati's SPMAP Stata module to visualize spatial data (Pisati 2008). The German shapefile was downloaded at http://www.gadm.org [last accessed on 15/07/2014].

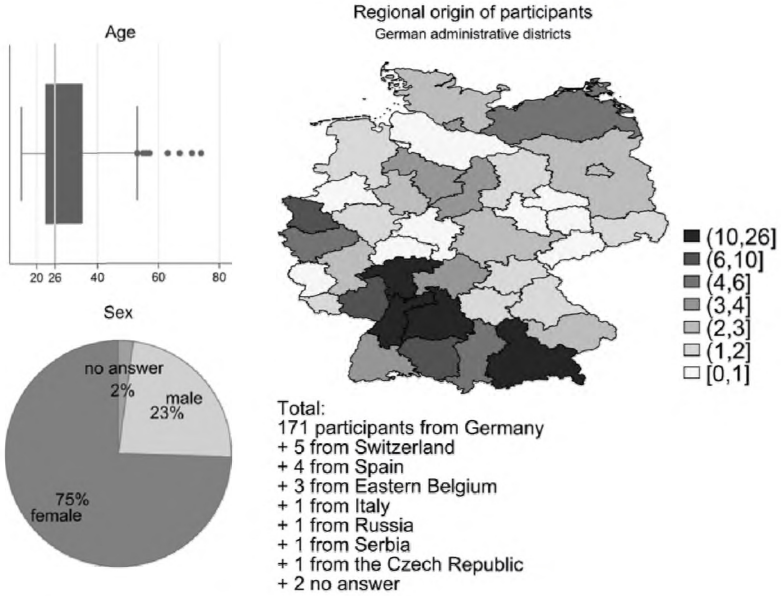


Figure 1. Demographic results

The median age of our participants is 26, roughly 75% are female. The plot on the right side visualizes the regional origin of our respondents. Darker shaded areas indicate more respondents from this district. The legend on the right side shows which intervals the colors represent. The plot shows that the majority of our respondents originate from the southern part of Germany, which is likely due to the fact that the Institute of the German language is located in the south and we distributed the survey through multiple local channels, e.g. an online platform for the distribution of empirical surveys run and maintained by the chairs of social psychology at the University of Mannheim.

2.4 Experimental procedure

The participants were informed beforehand that they did not have to decide whether a sentence was grammatically right or wrong, but to help us to find out if a certain sentence is appropriate in a certain situation of use.

Subjects were presented with a list of 13 speech situations and asked to select all situations of use in which the variant presented is usually produced ('Bitte wählen Sie alle Situationen aus, in denen die Äußerung Ihrer Meinung nach üblicherweise gemacht werden kann'; cf. Appendix A and B for screenshots of the survey):

- always ('immer')
- letter of application ('Bewerbungsanschreiben')
- job interview ('Bewerbungsgespräch')
- daily soap (TV) ('Daily Soap (TV)')
- e-mail to a new employer ('Email an einen neuen Chef')
- conversation with friends ('Freundesgespräch')
- conversation with parents ('Gespräch mit den Eltern am Esstisch')
- news broadcast (TV) ('Nachrichtensendung (TV)')
- small talk at a party ('Smalltalk auf einer Party')
- text message ('SMS')
- social media ('Social Media (Facebook, Twitter o.Ä.)')
- presentation ('Vortrag')
- never ('nie')

All participants were first randomly assigned to one of the two experimental conditions (written vs. spoken). Each participant had to judge the adequacy of 12 variables randomly chosen from the 21 variables. In a second step, a variant was randomly chosen for each of the 12 variables. Since the number of variants for each variable varies from one to five, this procedure leads to a situation where some sentences are rated more often than others. To account for this situation, we opted for a twofold strategy: on the one hand we recruited participants until every sentence was rated at least 10 times. On the other hand, we averaged ratings across participants for each sentence and for each experimental condition in order to obtain an unbiased relative measure of adequacy. For instance, a value of 0.5 for the situation *social media* in Table 2 indicates that 50 % of the respondents in the spoken condition selected this situation as an appropriate context of production for the corresponding sentence "Ich habe von der ganzen Rede nur ein Satz verstanden".

To minimize potential question order effects, we randomized the order of the 12 sentences each participant was presented with. On average, each sentence was rated 16.2 times (minimum: 11, maximum: 30). 46.6 % of the participants received spoken prompts, 53.4 % written prompts.[3]

2.5 Results and Discussion

As outlined in the preceding section, we calculated average ratings for each situation and each sentence separately for all experimental conditions (written/spoken) resulting in a dataset consisting of 140 columns (70 sentences x two experimental conditions)[4]. Table 2 shows an example of four data columns.[5]

[3] It is worth emphasizing that the varying number of sentence ratings (cf. Table 2) does not affect the validity of our experimental manipulation (written vs. spoken), since the number of variants for each variable does not depend on the experimental condition (written vs. spoken).

[4] Subjects should select either *always* or *never* or at least one of the other situations listed. Participants only selected other situations in addition to *always* or *never* in 0.88% of all cases (20 of

Sentence	Ich habe von der ganzen Rede nur ein Satz verstanden		Er schrieb daraufhin erst einen Bericht über die Ereignisse	
Number of cases	18	27	14	14
Version	spoken	written	spoken	written
Always	0.167	0.000	0.071	0.143
Letter of application	0.056	0.000	0.143	0.143
Job interview	0.111	0.074	0.286	0.143
Daily soap	0.556	0.556	0.000	0.071
Email to a new employer	0.111	0.000	0.500	0.429
Conversation with friends	0.778	0.741	0.143	0.357
Conversation with parents	0.722	0.741	0.214	0.357
News broadcast	0.167	0.037	0.643	0.357
Small talk at a party	0.667	0.593	0.143	0.214
Text message	0.389	0.333	0.071	0.071
Social media	0.500	0.444	0.071	0.071
Presentation	0.389	0.222	0.500	0.500
Never	0.000	0.185	0.000	0.071

Table 2. Excerpt of the data table. Average values are rounded to three digits only in this example.

To our knowledge, this is the first time that ratings of language users have been collected which enable us to empirically study how similar different situations of speech are conceived with respect to the adequacy of linguistic forms to be used. To get a first idea of the similarity of communicative situations in terms of the appropriacy of linguistic forms, we calculated the cosine similarity between each situation *v* and *u* using the following formula:

$$\mathrm{sim}_{uv} = \frac{\sum_{s=1}^{N} x_{su}\, x_{sv}}{\sqrt{\sum_{s=1}^{N} x_{su}^2 \sum_{s=1}^{N} x_{sv}^2}}$$

where s is one of the $N = 140$ sentences and x_{sv} denotes the average rating of this sentence for the situation v. Since the average ratings cannot be negative, the similarity ranges from 0 to 1, in which a value of 1 indicates the maximum similarity between two situations.

2268). We decided to deselect all other situations in these cases. To make sure that this decision does not alter the results presented in this contribution, we reran the whole analysis excluding those 20 cases. The results remained almost identical.

[5] Data analysis was carried out using Stata 12. Raw data and Stata do-files can be obtained upon request.

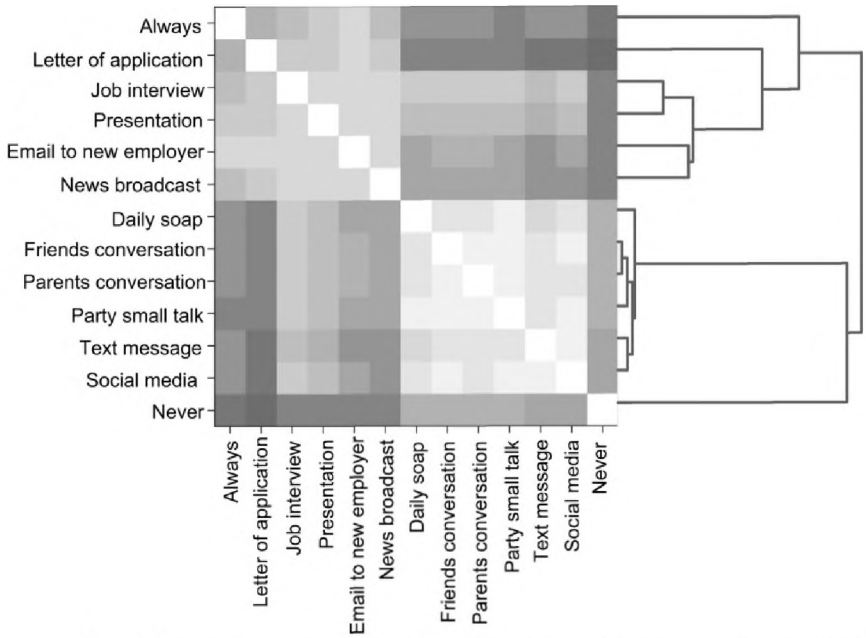


Figure 2. Hierarchical, clustered heatmap representation of the (cosine) similarity between the 13 situations ranging from 0 to 1 with higher values (lighter shades) indicating greater similarity. The tree-diagram on the right presents the result of an average-linkage cluster analysis.

The resulting values were used to compute a similarity matrix. On this basis, we conducted a hierarchical average-linkage cluster analysis. On the left-hand side of Figure 2, the similarity values are represented using gray coloring (Mander 2013). In addition to that, the dendrogram on the right-hand side summarizes the result of the cluster analysis. If we use the Calinski/Harabasz pseudo-*F* index to determine the best clustering, we find that a three-cluster solution is the most distinct grouping (Calinski & Harabasz 1974). One separate group consists of *never.* The remaining two groups can be interpreted as representing two distinct sections on the formality continuum: one group brings together genres that are more formal: *news-reading*, *email to a new employer*, *letter of application*, *presentation*, *job interview*, while the second group consists of genres that are less formal, or put differently, take place in a more colloquial context: *daily soap opera*, *text message*, *social media entry*, *small talk*, *conversation with parents*, *and conversation with friends*. Both groups contain both written and spoken modes of language use. This proves that it is not simply the medium of communication which governs the use of linguistic variants and which provides for the formality of the situation of use. Instead, the similarity grouping confirms that the difference between "conceptually literate and conceptually oral language" (Koch & Oesterreicher 1985) is most important for the appropriacy of either canonical written variants (canonicized forms, type-code 1) vs. various degrees of deviation from the codified form (type-codes 2–5). In other words,

situational features which are prototypical for written language ("conceptual literacy"), such as monologue, unknown recipients and prepared speech, favor the acceptability of codified forms and disfavor all others, while situational features which are prototypical for spoken language ("conceptual orality"), such as interaction, known recipients and spontaneous speech, increase the appropriacy of non-codified forms.

Interestingly, ratings for the category *always* (i.e., a form is considered to be appropriate in every situation of use) at first glance roughly correlate with the cluster of formal situational categories. Sentences rated adequate for the situations of this group contained mainly canonicized forms (variant type 1). This type of variant is thus considered to be most generally usable (see next Section for further details). Presumably, the conception of canonicized forms as forms fit for all purposes is based on the tradition of codification of Standard German as a homogeneous, invariant variety. However, we also see that this group quickly splits into two further sub-branches (*always* and contexts that are more formal). To ascertain whether the average ratings for the 13 speech situations reflect any underlying dimensions, we performed a factor analysis, where we used the principal component factoring method allowed for correlated (oblique) factors and rotated the solution to simplify the factor structure.

Factor analysis is an exploratory method that reduces the number of observed variables to a lower number of latent (unobserved) dimensions ('factors') that explain most of the variance found in the data. The extracted factors may be used to uncover underlying structures of the data and to identify meaningful correlations between variables (Hamilton 2013: Chapter 11). The analysis yielded three factors that account for roughly 80 % of the variance in the 13 situations. The first factor explains 54.71 % of the total cumulative variance, while the second factor explains 18.98 %. The last factor accounts for 6.88 %.[6] The factor loadings indicate both the degree of association between a factor and one of the situations as well as the direction of the relationship. To visualize the relationship between the 13 situations and three dimensions, Figure 3 shows the loadings of each situation for the three factors.

[6] This value corresponds to an eigenvalue (or standardized variance) of 0.89. This means that the third factor actually explains less than one situation's variance and is therefore not very helpful when it comes to data reduction. Nevertheless, we decided to extract this factor, since it captures an important aspect of the underlying data structure as shown in the text.

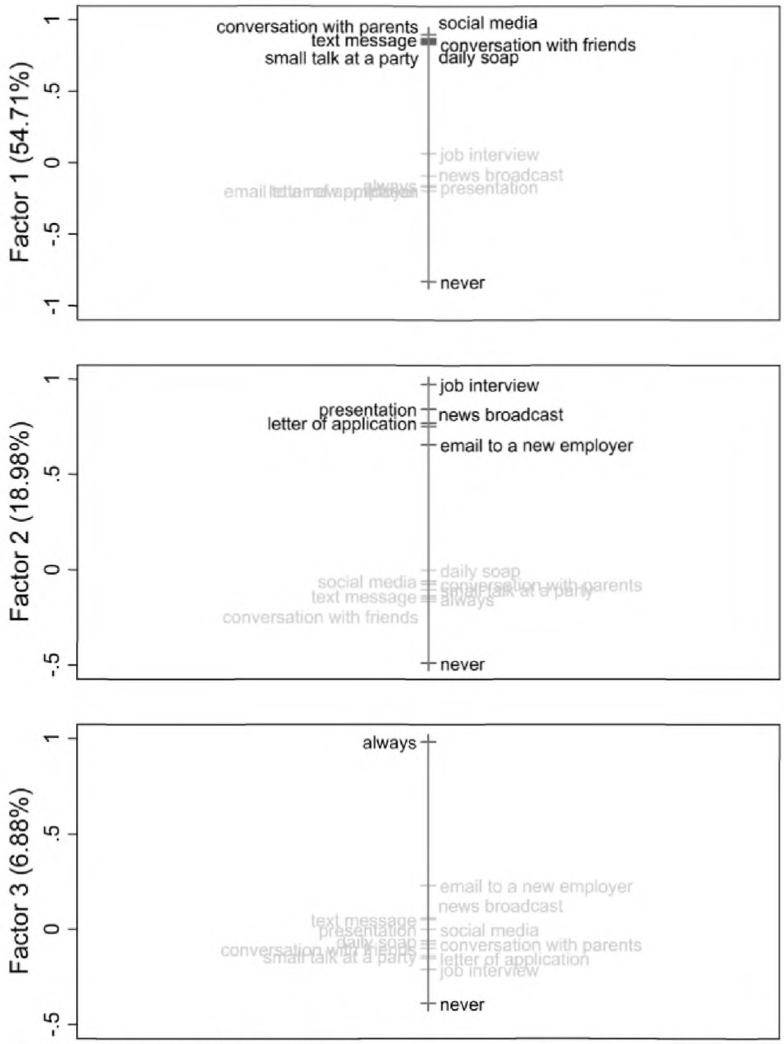


Figure 3. Loadings for factors 1–3. Loadings with an absolute value below 0.3 are printed in gray for illustrative purposes

Factor 1 mainly separates *never* from colloquial contexts. Factor 2 separates *never* from more formal contexts. Factor 3 separates *always* from *never* and from the other situations. Interestingly, the ratings for *always* do not load heavily on both Factor 1 and Factor 2 (cf. the first plot Figure 4).

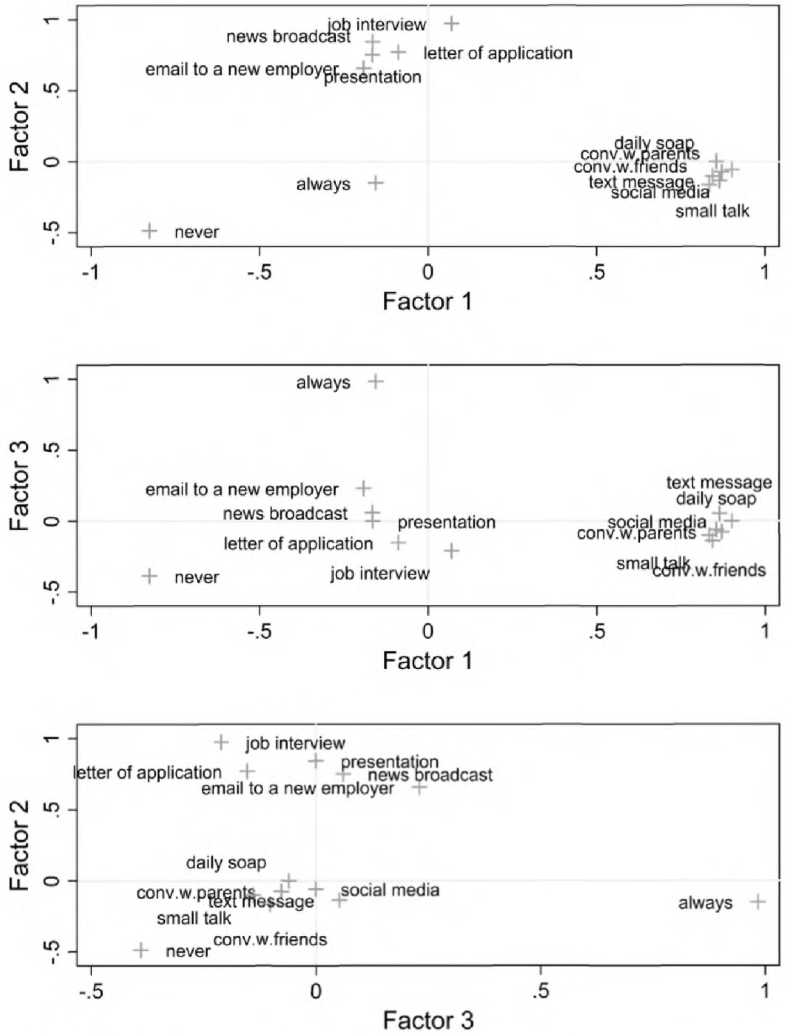


Figure 4. Combined two-dimensional loading plot for the different factors

This apparent contradiction of the cluster analysis results can be best understood if we have a look at the second and third plot of Figure 4 and the last plot of Figure 3: factor 3 separates *always* from *never* and from the other situations. Therefore, it seems more appropriate to display the data in three distinct dimensions instead of two dimensions. This explains why a factor analysis is a more appropriate method with which to simplify the data structure than the cluster analysis (cf. Figure 2) in this context.

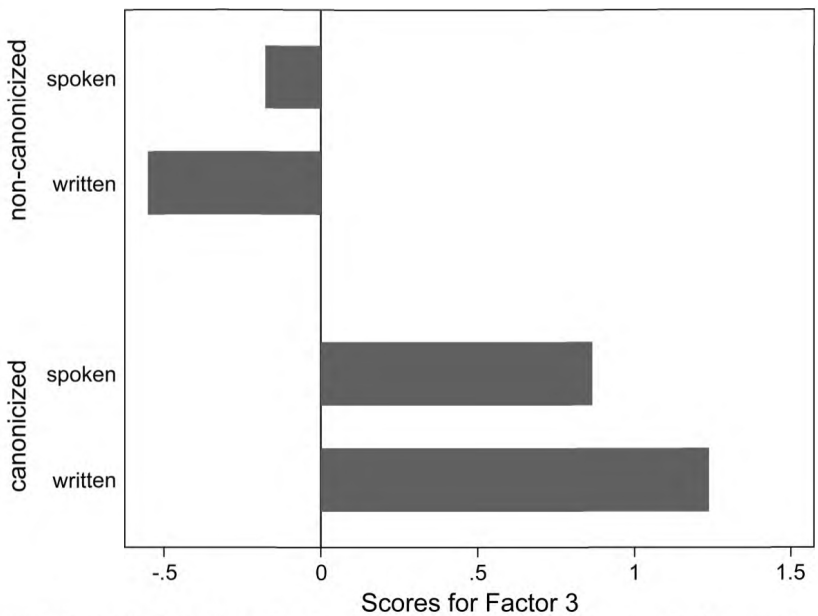


Figure 5. Scores for factor 3 as a function of the presentation mode of prompts (spoken vs written) and linguistic form (non-canonicized vs. canonicized)

Moreover, we can now use the results of the factor analysis to estimate factor scores for each sentence "by standardizing each variable to zero mean and unit variance, and then weighting with factor score coefficients and summing for each factor" (Hamilton 2013: 321). For example we may compare two sentences *s1* and *s2*. If we now look at factor 3, a higher score on this factor for *s1* means that the proportion of participants who rated this sentence as *always* appropriate is higher for *s1* than for *s2*. Therefore, from the participants' point of view, the variant realized in *s1* may be used in all communicative situations rather than the variant realized in *s2*.

Factor scores can also be used to examine effects of the two experimental conditions (spoken vs. written).[7] The first bar graph of Figure 5 shows that – on average – in the spoken condition, the sentences that diverge from the canonicized written norm tend to be rated as *always* appropriate more often. We

[7] To examine potential differences between the two experimental conditions (spoken vs. written), we conducted a two level mixed Poisson regression model. As a response variable, we chose the number of situations selected by a participant. If a participant selected *never*, we stipulated that this represents a number of zero selected situations, whereas *always* would be represented by eleven situations. Thus, our response variable is a count variable ranging from 0 to 11, indicating the number of social situations in which prompts were judged to be usable. Since we were not interested in the influence of a particular participant on the degree of appropriateness, we included random intercepts for each participant (Hamilton 2013: 387–420). The effect of the experimental condition on the number of situations was not significant ($p = .097$). Furthermore, our model does not fit the data reasonably well with a correlation between the actual and the predicted degree of appropriateness of $r = .46$.

can see from the second bar graph of Figure 5 that people tend to rate the adequacy of canonicized variants higher when presented with written stimuli. This finding seems to reflect a "written language bias" (Linell 2005) of metalinguistic awareness. Looking at the raw data, we find that the probability of a respondent rating a sentence as *always* appropriate is more than 15 times higher for canonicized forms compared to non-canonicized forms, if the stimulus is presented in the written mode. If the stimulus is presented in the spoken mode, this odds-ratio only amounts to roughly 4. Metalinguistic awareness, thus, does not seem to be independent of written vs. spoken mode.[8]

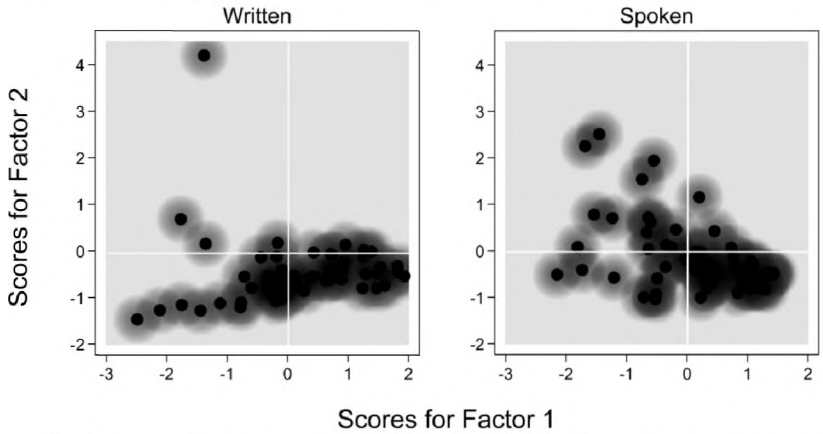


Figure 6. Bivariate density plots for non-canonicized forms as a function of the mode of presentation (written vs. spoken)

In order to study effects of the presentation mode in more detail, we investigated how the mode of presentation specifically impacts the appropriacy ratings of non-canonicized forms. Keeping in mind that high scores for factor 1 indicate acceptability in colloquial contexts, while high scores for factor 2 represent appropriateness in more formal contexts (cf. Figure 3), a bivariate density plot of

[8] This at least holds true for the linguistic phenomena tested in our survey, which above all focusses on the contrast between full canonical forms and morpho-phonologically reduced variants commonly occurring in spoken speech. In more salient, and/or less customary cases of deviations from normative, written forms as in the case of (ungrammatical) syntactic constructions, the impact of the mediality of the stimuli on appropriacy judgments might well be less important. The impact of the structural type of the test item on the effect of the stimulus mediality is a methodological issue which needs further investigations. The fact that in our study the mediality effect is less prominent with the more salient (and stereotypical) variables (the comparative construction *wie* and the superlative *der einzigste*, variables e) and f) than with the rather less salient morphophonological variables (a–d) indicates that the type of linguistic item tested does have an impact (above all in terms of salience/perceptability and (socio)linguistic/stereotypical status). In this respect, see also the findings in Vetter et al. 1979, or differences between the findings on the one hand in Kitagawa & Fodor 2006 and on the other hand in Frazier 2015, or Juzek 2015).

the distribution of the sentences for factor 1 and factor 2 again shows that the written presentation of stimuli disfavors non-canonicized forms (Figure 6).[9]

Darker spots in Figure 6 index that there are more sentences in this area of the graph. Spots in the 1st (top left) quadrant refer to forms judged to be adequate in formal situations and inadequate in informal situations. This first quadrant is populated more densely in the spoken version (right) than in the written version (left), thus showing that non-canonicized forms tend to be judged as being more appropriate for more formal speech events when presented in the spoken mode than when presented in writing. The 2nd (top right) quadrant represents forms which are adequate in all kinds of situations. The third (lower right) quadrant, which is generally the most densely populated, represents forms judged to be adequate in informal, but not in formal contexts. The forth quadrant (lower left) shows forms which are judged to be more or less inadequate in all situations.

While some of the variants are judged to be more or less adequate in more formal contexts in the spoken version of the experiment, as high scores for factor 2 reveal, this is almost never the case in the written condition. If we take a closer look at the non-canonized variants with a high score for factor 2, we see that they almost all belong to the category of articulatory reduction forms which are close to the corresponding canonized forms (type 2 variants). Most of the dark spots in the 1st (top left) quadrant are in fact ratings concerning forms of the indefinite article with an unreduced root syllable, but reduced ending syllable. For example, the sentence *Die Akte gehört eim Kollegen* ('the file belongs to a colleague') has a score of 0.70 for factor 2 in the spoken condition and -0.55 in the written condition, indicating that the form is rated as appropriate in more formal contexts only when presented as a spoken stimulus. The striking differences between the ratings of spoken and written stimuli of type 2 variants suggest that this type of variation is more salient when presented in the written mode. Furthermore – when noticed by the participants (i.e. above all when presented in the written mode) – the truncated forms of this variant type are in many cases evaluated as generally inadequate: while 21.43 % of the participants rate *Die Akte gehört eim Kollegen* as *never* appropriate in the written condition, none of the participants rated this sentence as *never* appropriate in the spoken version. In contrast, even 15.39 % of the respondents in this version think that this sentence is *always* appropriate (0.00 % in the written version).

The only instance of a type 2 variant of the two main variables 'indefinite article' and 'demonstrative' with a positive factor 2 score in the written mode of presentation is the truncated accusative form *ein* (in the sentence *Er schrieb daraufhin erst ein Bericht über die Ereignisse*, 'thereupon, he wrote a report of the events'; factor 2 score of 2.25 with the spoken stimulus, and 0.69 with the written stimulus). The difference between the ratings of the accusative form *ein*

[9] This figure was created using Maurizio Pisati's SPMAP Stata module to visualize spatial data (Pisati 2008).

and dative *eim* can most probably be accounted for by the fact that – unlike *eim* – the graphical form *ein* does exist as a canonized form. Still, *ein* canonically is not used to mark the masculine accusative case, but the nominative (masculine and neuter), and the accusative neuter. Although this variant is grammatically correct only in other cases according to normative grammars of standard German, the mere familiarity of the graphical form seems to have a priming effect on the ratings. However, like in the case of all other type 2 variants, the factor 2 scores of *ein* are higher for the spoken stimulus than for the written stimulus. In sum, the differences of ratings depending on modes of presentation seem to indicate that the participants' conception of the adequacy of the use of linguistic forms, to a certain extent, relies on canonicized graphical representations. Their norms seem to govern ratings of appropriacy of variants even if speech and not writing is an issue and although non-canonicized forms are much more likely to be accepted when presented in the acoustic mode.

The most striking outlier of the 1st (top left) quadrant of the density plots concerns the variant *solch einem* ('such a') of the variable 'demonstrative' (Figure 6). It is a combination of the non-inflected demonstrative pronoun *solch* preceding the indefinite article. This form is a highly formal, stylistically marked alternative to the use of deictic *so* and the indefinite article.[10] In the survey data, the stimulus presenting *solch einem (Mit solch einem Ergebnis wie diesem steigen die Aktien*, 'with a performance like this, stocks will rise') has a score of 4.1 for factor 2 in the written mode. In corpus data of formal spoken German, this variant is very rarely found.[11] In fact, the use of the variant is basically restricted to (formal) writing. But as the differences in the scores for factor 2 between the two modes of stimuli suggest, the recognition of the special status of this variant as a stylistically marked form of formal writing is triggered much more by the written than by the spoken stimulus. It is mainly in the written mode of representation that the canonicized form is judged to be adequate for formal situations of speaking.

The outlier at the bottom end of the factor 2 scores is also to be found in the density plot based on written stimuli (Figure 6). Again, it is a (marked) form of the variable 'demonstrative'. In the stimulus sentence *Sie war in Spanien und hat dort so Sprachkurs gemacht* ('she was in Spain and did a kind of language course there'), the indefinite article after *so* and before the noun *Sprachkurs* is not instantiated. The sentence with the non-realization of the article scores very low for factor 1 in the written version (-2.48), but is not judged unanimously in

[10] The demonstrative pronoun *solch* derives from form Old High German *solīh* (Middle High German *solich*) and is constituted by a combination of *so* and the suffix *-lich* (which derives from the Germanic noun to designate 'shape', and which is still a productive compositional morpheme to construct adjectives). Although this form is technically a codified variant, we decided not to categorize this barely used, marked form in the same way as the codex-forms of common variables.

[11] E.g. in the huge interview corpus "German today" (see Deppermann, Kleiner & Knöbl 2013), only two instances of *solch einem* are documented (compared to 245 instances of the common variant *so* + indefinte article). For the accusative case, *solch* did not even occur once in a total of 719 instances of the variable.

the spoken version (0.28). This difference can be accounted for by the fact that almost 67% of the respondents in the written condition judged this sentence to *never* be appropriate. In the spoken version, only 15.38 % of the respondents selected *never*. Many respondents selected colloquial situations, for example 84.62 % selected *conversation with friends* and 76.92 % selected *small talk at a party*. Like in the case of the type 2 variants, the striking differences between the written and spoken stimuli show that participants' recognition of forms which are typically used in speech, but not in writing, depend on the written vs. the spoken mode of the stimulus. Again, this indicates how canonical, written linguistic patterns inform the participants' mental representation of appropriacy in speech even if people regularly use non-canonical forms and consider them to be perfectly acceptable for many situations when confronted with spoken stimuli. We can conclude that at least in such cases people do not have a medium-independent awareness of the appropriacy of linguistic forms for speech. Instead, in addition to linguistic ideologies of correctness, which orient to the written standard, the cognitive salience of formal features provided by writing seems to matter here. The explicitness, distinctness and analytical availability of the representation of single linguistic (graphemic and morphological) features in writing probably alerts people to features (and their approapriacy) which seem to escape people's awareness when dealing only with the sound of speech. This finding seems to show how well-known effects of literacy (Ong 1982) and literary practices learnt in school (Scribner & Cole 1981) also impinge on everyday recognition of standard language in contemporary Western societies such as Germany.

The difference between the two stimulus types becomes even greater for the only variant which is not geographically neutral. For the stimulus sentence *Gestern haben wir einen Fehler gemacht* ('yesterday we made a mistake'), combinations of the auxiliary and the pronoun have been varied. The sentence with *haben* and the regionally marked pronoun form *mir* gets a factor 3 score of -1.70 in the written mode of presentation compared to a score of 1.24 in the spoken version. When this sentence is presented as a written stimulus, 70.59 % of the respondents judge this sentence to be *never* appropriate and no respondent chose *always*. In the spoken version, only 15.79 % selected *never*. At the same time 21.05 % selected *always*. The striking differences show that a written representation of a linguistic form which is usually not written leads people to consider the form as being inappropriate in speech, even if it is largely judged to be unproblematic when heard in the same situations. In fact, the use of the pronoun *mir* with an initial nasal is geographically restricted to the High German area (South and Middle Germany, Switzerland, and Austria). For enclitic pronouns following the nasal of the preceding verb *haben*, processes of progressive assimilation are common, and in enclitic position, the use of a nasal form of the pronoun is not restricted to dialectal speech – at least in the High German area, where the majority of the participants spent most of their life (cf. figure 1). But when confronted with a written representation of the form, the participants of

the survey only rarely recognized it as a pattern which might be common in certain speech situations.

The biasing effect of written stimuli is also obvious in the second quadrant (top right) of the density plots in figure 6. Again, the recognition of some non-canonicized, typical spoken speech forms as appropriate forms for formal speech situations is restricted to spoken prompts.[12] Accordingly, canonicized variants are rated as appropriate in formal and informal speech almost exclusively when presented in the written form. This does not merely indicate that linguistic forms become more salient when being read instead of just heard; it also suggests that the (ascribed) normative status of forms is more evident when presented in the written form, and the judgments of a form are connected to its recognition as a form which is usually written. Non-canonicized, specifically oral forms – although commonly in use – do not seem to be solidly represented as part of participants' notions of adequate speech – at least not solidly enough in order to rate oral patterns of speech on the basis of written stimuli. This would probably involve the activation of sound patterns and their transformation into a written representation as a written representation of what is adequate for speech, but not for writing. This may well be a task which is impeded by both cognitive and normative obstacles.

2.6 Concluding remarks

The analysis of judgment data is one way to access speakers' notions of appropriate speech. The data show that speakers are well aware that the appropriacy of linguistic forms is sensitive to the context of genre. Speakers adhere to a notion of spoken standard usage, which is graded and context-sensitive and which takes genre and register-related variation into account. The relatively high intersubjective convergence of the judgments among participants furthermore indicates that the established concept of context-sensitive variation is structured by shared normative notions/orientations. Basically, subjects rate the appropriacy of variants in line with two rough degrees of formality, one containing a spectrum of rather formal situations ('conceptual literacy'), while the other includes a cluster of more informal, colloquial speech situations ('conceptual orality'). The gap between the two clusters depends on the type of stimuli presenting the linguistic variants: It reduces in the case of judgments based on spoken stimuli.

In general, speakers' metalinguistic awareness is influenced by a written language bias, favoring forms which are part of the written standard. The comparison of judgments of the two different experimental conditions (written vs. spo-

[12] In fact, the small number of non-canonicized variants rated appropriate for formal and informal situation types contrasts with findings in corpus data. Deppermann, Knöbl & Koplenig (2015) show that type 4 variants of the two main variables of the survey ('indefinite article' and 'demonstrative') prevail in a large (semi-formal) interview corpus.

ken stimuli) shows that the range of appropriacy and thus the spectrum of variation within standard usage are greater for spoken stimuli. We may conclude that the mental representation of the adequacy of sound patterns and forms characteristic of spoken language – if it exists at all reliably and independently – is easily overridden by established linguistic ideologies which favor written, canonicized forms and which reject the adequacy of non-canonicized written forms – partly independent from patterns of usage (cf. Deppermann, Knöbl & Koplenig 2015). The structure of the ratings of oral linguistic forms with the striking dominance of canonicized forms might not only be due to the written language bias, linked to the still existing ideology of a functional homogeneous standard, but maybe also to a more general literacy bias involving a more analytical, detailed and explicit representation of properties of linguistic form in writing in contrast to speech.

If we try to interpret the findings in terms of a concept of spoken German standard from the language-users' point of view (see e.g. Deppermann, Kleiner & Knöbl 2013), we can conclude the following: while both corpus data and some speech-prompt based ratings show that the 'linguistic reality' of an oral standard is, to a certain extent, autonomous and independent of the written standard, speakers' reflexive notions of it are not, in particular if faced with written representations of speech. A second finding is that speakers are generally aware of a variable, enregistered repertoire of acceptable linguistic forms which includes situational and genre-related variation within standard usage. Both findings confirm that a realistic, more flexible and more differentiated concept of oral standard German is needed, which allows variation sensitive to a range of situational contexts.

Acknowledgements: We would like to thank Sandra Hansen-Morath, Simon Pröll, Sarah Signer and Sascha Wolfer for (proof-)reading the draft version of this paper and for helpful feedback. We would also like to thank the editor and two anonymous reviewers, whose thoughtful comments definitely improved this paper. The usual disclaimers apply.

References

Agha, Asif (2007): *Language and social relations*. Cambridge: Cambridge University Press.

Ammon, Ulrich (1995): *Die deutsche Sprache in Deutschland, Österreich und der Schweiz: Das Problem der nationalen Varietäten*. Berlin: Walter de Gruyter.

Auer, Peter (2000): On line-Syntax. In: *Sprache und Literatur* 85.31, 4–56.

— (2014): Enregistering pluricentric German. In: Augusto Soares da Silva (ed.), *Pluricentricity. Language Variation and Sociocognitive Dimensions*. Berlin: Walter de Gruyter, 19–48.

Biber, Douglas (2006): *University language: A corpus-based study of spoken and written registers*. Amsterdam: John Benjamins

Calinski, Tadeusz & Joachim Harabasz (1974): A dendrite method for cluster analysis. In: *Communications in Statistics – Theory and Methods* 3.1, 1–27.

Chomsky, Noam (1957): *Syntactic Structures*. The Hague: Mouton.

— (1961): Some methodological Remarks on Generative Grammar. In: *Word* 17, 219–239.

Coseriu, Eugenio (1988): Die Begriffe ‚Dialekt', ‚Niveau' und ‚Sprachstil' und der eigentliche Sinn der Dialektologie. In: Jörn Albrecht, Jens Lüdtke & Harald Thun (eds.), *Energeia und Ergon. Sprachliche Variation – Sprachgeschichte – Sprachtypologie. Studia in honorem Eugenio Coseriu. Bd. I: Schriften von Eugenio Coseriu (1965–1987)*. Tübingen: Narr, 15–43.

Deppermann, Arnulf, Stefan Kleiner & Ralf Knöbl (2013): 'Standard usage': Towards a realistic conception of spoken standard German. In: Peter Auer, Javier C. Reina & Göz Kaufmann (eds.), *Language Variation – European Perspectives IV. Selected papers from the Sixth International Conference on Language Variation in Europe*. Amsterdam: Benjamins, 83–116.

Deppermann, Arnulf, Ralf Knöbl & Alexander Koplenig (2015). Metalinguistic awareness of standard vs. standard usage: the case of determiners in spoken German. In: Winfred Davies & Evelyn E. Ziegler (eds.), *Language Planning and Microlinguistics: From policy to interaction and vice versa*. Basingstoke: Palgrave Macmillan, 165–185.

Eckert, Penelope (2008): Variation and the indexical field. In: *Journal of Sociolinguistics* 12, 453–476.

Frazier, Lyn (2014): Two interpretive systems for natural language? In: *Journal of Psycholinguist Research* 44.1, 7–25.

Hamilton, Lawrence C. (2013): *Statistics with Stata: updated for version 12* (8th ed.). Belmont: Cengage.

Hill, Archibald A. (1961): Grammaticality. In: *Word* 17, 1–10.

Juzek, Tom (2015): *Acceptability Judgement Tasks and Grammatical Theory*. PhD dissertation, University of Oxford. Retrieved from: http://tsjuzek.com/juzek_thesis_sep_2015.pdf.

Kitagawa, Yoshihisa & Janet Dean Fodor (2006): Prosodic Influence on Syntactic Judgments. In: Gisbert Fanselow et al. (eds.), *Gradience in Grammar: Generative Perspectives*. Oxford: Oxford University Press, 336–358.

Kleiner, Stefan (2014): Die Kodifikation der deutschen Standardaussprache im Spiegel der faktischen Variabilität des Gebrauchsstandards. In: Albrecht Plewnia & Andreas Witt (eds.), *Sprachverfall? Dynamik – Wandel – Variation*. Berlin: Walter de Gruyter, 273–298.

Kleiner, Stefan, Ralf Knöbl & Max Mangold (2015): *Duden 6. Das Aussprachewörterbuch, 7. Auflage*. Berlin: Dudenverlag.

Koch, Peter & Wulf Oesterreicher (1985): Sprache der Nähe – Sprache der Distanz. Mündlichkeit und Schriftlichkeit im Spannungsfeld von Sprachtheorie und Sprachgeschichte. *Romanistisches Jahrbuch* 36, 15–43.

Krech, Eva-Maria et al. (2009): *Deutsches Aussprachewörterbuch.* Berlin: Walter de Gruyter.

Levelt, Willem, J.A.W.M. van Gent, A.F.J. Haans & A.J.A. Meijers (1977): Grammaticality, Paraphrase and Imagery. In: Sidney Greenbaum (ed.), *Acceptability in Language*. The Hague: Mouton, 87–101.

Linell, Per (2005): *The Written Language Bias in Linguistics. Its nature, origins and transformations*. London: Routledge.

Mander, Adrian (2013): *PLOTMATRIX: Stata module to plot values of a matrix as different coloured blocks*. Retrieved from: http://ideas.repec.org/c/boc/bocode/s439602.html#biblio.

Mangold, Max (2005): *Duden 6. Das Aussprachewörterbuch*. Mannheim: Bibliographisches Institut.

Milroy, James (2001): Language ideologies and the consequences of standardization. In: *Journal of Sociolinguistics* 5, 530–555.

Newmeyer, Frederick J. (1998): *Language Form and Language Function*. Chicago IL: UCP.

Ong, Walter J. (1982): *Orality and Literacy*. London: Methuen.

Pisati, Maurizio (2008): *SPMAP: Stata module to visualize spatial data*. Retrieved from: http://ideas.repec.org/c/boc/bocode/s456812.html.

Schütze, Carson T. (1996): *The empirical base of linguistics: Grammaticality judgments and linguistic methodology*. Chicago: University of Chicago Press.

Scribner, Sylvia & Michael Cole (1981): *The Psychology of Literacy*. Cambridge: Harvard UP.

Vetter, Harold J., Jerry Volovecky & Richard W. Howell (1979): Judgments of Grammaticalness: A Partial Replication and Extension. In: *Journal of Psycholinguistic Research* 8, 567–583.

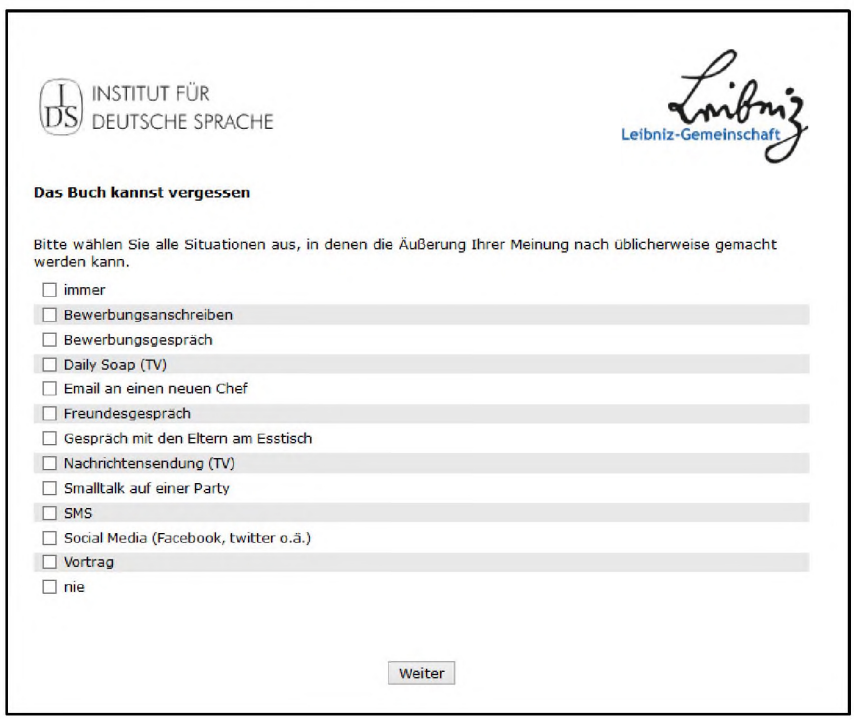
Weinreich, Uriel, William Labov & Marvin Herzog (1968): Empirical foundations for a theory of language change. In: Winfred Lehmann & Yakov Malkiel (eds.), *Directions for Historical Linguistics. A symposium*. Austin: University of Texas Press, 97–195.

Mannheim Alexander Koplenig, Ralf Knöbl & Arnulf Deppermann

Institut für Deutsche Sprache (IDS) Mannheim, R 5, 6-13, D-68161 Mannheim
E-Mail: koplenig@ids-mannheim.de, knoebl@ids-mannheim.de,
deppermann@ids-mannheim.de

Appendices

Appendix A. Screenshot of the survey (written version)



INSTITUT FÜR DEUTSCHE SPRACHE

Leibniz-Gemeinschaft

Das Buch kannst vergessen

Bitte wählen Sie alle Situationen aus, in denen die Äußerung Ihrer Meinung nach üblicherweise gemacht werden kann.

- ☐ immer
- ☐ Bewerbungsanschreiben
- ☐ Bewerbungsgespräch
- ☐ Daily Soap (TV)
- ☐ Email an einen neuen Chef
- ☐ Freundesgespräch
- ☐ Gespräch mit den Eltern am Esstisch
- ☐ Nachrichtensendung (TV)
- ☐ Smalltalk auf einer Party
- ☐ SMS
- ☐ Social Media (Facebook, twitter o.ä.)
- ☐ Vortrag
- ☐ nie

Weiter

Appendix B. Screenshot of the survey (audio version)