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Gender, Register and the Multilingual Repertoire: Lexical Versus Grammatical Features in Namibian German

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Abstract

The present study investigates gender differences in the use of Namibian German versus Standard German in multilingual German-speakers raised in Namibia. Based on data from the *DNam* corpus of spoken Namibian German, the study compares the frequency of use of Namibian-German lexical and grammatical variants and their Standard German equivalents in male versus female speakers. For the use of lexical features, clear gender differences emerged, with male speakers producing significantly more specific Namibian German variants than female speakers. For grammatical features, however, no gender differences were found. The observed gender differences for lexical features were significantly stronger in informal than in formal communicative settings. The results are discussed in relation to theoretical accounts of the role of gender in language use.

Keywords

register, gender, multilingualism, language contact, Namibian German

Highlights

- Lexical vs. grammatical features: Gender differences appear for lexical, but not grammatical features.
- Contextual dependency: Gender differences emerge only in informal communicative situations, underlining the importance of register as a factor in research on gender differences.
- Theoretical implications: Results support Labov's claim that males prefer non-standard forms, demonstrating its applicability to some language-contact settings and showing lexical features carry greater social meaning than grammatical ones.

Gender effects in language use have been extensively investigated in both variationist sociolinguistics and social psychology since the 1960s. However, gender effects in *multilingual language contact situations*, especially in countries with a multilingual habitus such as those in Sub-Saharan Africa or South Asia, have rarely been studied (Meyerhoff & Birchfield, 2019, p. 247). Multilingualism in such countries is characterised by extensive language contact and constitutes the norm. This societal macro-context may influence the role of gender in the stratification of linguistic variants. Furthermore, it may influence the manner in which gender interacts with other potential indexical signs, such as the formality or informality of the communicative situation.

Namibia, a country in Sub-Saharan Africa, is highly multilingual, with thirteen officially recognised national languages. These include eight Bantu languages, two Khoisan languages, and three Indo-European languages. This study focuses on the small, but vital German-speaking community in Namibia, which consists of approximately 20,000 speakers of all ages (Riehl & Beyer, 2021; Shah & Zappen-Thomson, 2018). German has been spoken in Namibia for almost 200 years and still holds a high prestige (Ammon, 2015), despite its roots in German colonial rule from 1884 to 1915 and the atrocities associated with it, including genocide. This is in contrast to Afrikaans, which is used as a lingua franca, and whose overt prestige has declined since Namibia gained independence from South Africa in 1990, due to its association with the Apartheid regime. However, Afrikaans still has covert prestige within Namibian society, while English has gained overt prestige as the sole national language since independence (Stell & Dragojevic, 2017, p. 182). German is often used as an in-group language, while Afrikaans and English serve as lingua francas in conversations with members of other ethnic groups (Leugner, 2023). Most members of the German-speaking community also speak Afrikaans and English in addition to German but rarely speak any of the other national languages (Shah & Zappen-Thomson, 2018; Zimmer, 2019). These speakers learn German primarily at home from parents and other family members, while Afrikaans is first learned in equal parts at home and school, and English is mostly learned at school (Leugner, 2023, pp. 52–62).

Unlike other German language islands, Namibian German is still closely related to Standard German used in Germany (Zimmer, 2019). However, as a result of extensive language contact, Namibian German differs from Standard German[1] in the sense that it contains a range of specific Namibian German words and grammatical structures, the majority of which entered Namibian German as loans from English, Afrikaans, or other languages. In their everyday language use, speakers of Namibian German use both the Standard German and Namibian German variants, for example the Namibian German *toe* 'then' and its Standard German equivalent *dann* 'then'. As a result, during language production, speakers of Namibian German are frequently faced with a choice between whether to produce a specific Namibian German variant or its Standard German equivalent. The present study investigates to what extent such choices in language production are affected by the gender of a speaker. For instance, consider example sentences (1) and (2) from the *DNam* corpus (Korpus Deutsch in Namibia 'German in Namibia'; Zimmer et al., 2020; see section "Data"), a corpus of transcribed contemporary spoken Namibian German:

(1) un dann **is** der **autofahrer** halt einfach weggefahrn [NAM028W1]
and then is the car.driver PART simply away.driven
'and then the driver of the car simply drove away'

(2) un dann der **oukie** in sein amarok **hat** nix gemacht [NAM172M2]
and then the man in his amarok has nothing made
'and then the man in his amarok did nothing'

In (1), a female speaker uses the Standard German noun *Autofahrer* to refer to the driver of the car. This noun serves as the subject of a main clause with the verb *is* in second position (V2 sentence). In (2), on the other hand, a male speaker describing the very same situation instead uses the Namibian German *oukie* 'man' to refer to the driver, and produces a sentence with a non-standard constituent order, with the verb *hat* 'has' in third position (V3 sentence), which prominently occurs in Namibian German. Note, however, the speaker's gender is not the only difference between the two examples. Example (1) occurred in a formal situation, whereas (2) occurred in an informal situation. Previous research suggests that there are systematic register differences between informal and

1) In this paper, the term "Standard German" is used to refer to the perceived standard of German in Germany. The perception of the Standard German language varies depending on the specific variety of German being considered. For example, there are notable differences between the German used in Germany and the German used in Austria. The use of Standard German to refer to the standard in Germany should not be understood as if it were a monolithic standard; rather, it should be regarded as a frame of reference for the variation in Namibian German. Previous research suggests that the formal register of Namibian German differs slightly from the Standard German in Germany (e.g., Kellermeier-Rehbein, 2016; see section "Register differentiation in Namibian German").

formal spoken German in Namibia (Sauermann et al., 2023; Wiese & Bracke, 2021), which may interact with the gender effect. As a result, research on gender effects in language production must necessarily take into account properties of the communicative situation, such as whether an utterance occurred in a formal or informal setting.

Previous research on gender effects in Namibian German has primarily focused on *lexical* choices in language production, for instance, by comparing how often words that are specific to Namibian German (i.e., loan words adopted from other languages due to extensive language contact) occur in male versus female speech (Bracke, 2021; Radke, 2021; Zimmer, in press). However, as illustrated by the syntactic structure of examples (1) and (2) above, linguistic variation in Namibian German is not restricted to the lexical level. Instead, Namibian German also contains a number of grammatical phenomena which are specific to Namibian German (for an overview, see Shah, 2007; Wiese et al., 2017; Zimmer, 2021). To take this into account, the present study extends this line of research by systematically comparing gender effects for lexical and grammatical phenomena.

In sum, the present study examines the possible influence of gender on lexical and grammatical choices made during the production of Namibian German sentences, specifically in relation to its interaction with a) register and b) the influence of different linguistic levels. The study analyses both informal and formal subcorpora of the DNam corpus (Zimmer et al., 2020), contrasting the frequency of loans with six different linguistic features, ranging from lexicon/grammar interface to syntax, all of which are subsumed under the category of 'grammar'.

Theoretical Background

Empirical Studies on Gender Effects in Language Use

With regard to general gender differences in language use, a considerable body of empirical research has systematically compared male versus female speech, for a range of different linguistic phenomena. For instance, Newman et al. (2008), in a study comparing 14,000 text samples from male and female speakers of English, found profound gender differences, with texts from female speakers containing significantly more words related to social processes and male speakers instead producing significantly more words related to properties of inanimate objects and impersonal topics. Leaper and Ayres (2007), in a meta-analytic study comparing male and female speech, found small but significant gender effects for talkativeness, affiliative speech, and assertive speech.

A substantial number of studies have investigated Lakoff's (1975) claim that male language is relatively more assertive, while female language is more tentative and polite. Leaper and Robnett (2011), in a meta-analysis comprising a total of twenty-nine studies investigating Lakoff's claim, indeed found a small but significant gender effect, with more tentative language in female than in male speech. Specific linguistic phenomena aside, Labov (1990, and much subsequent work), based on a review of several empirical studies investigating the use of standard vs. non-standard linguistic forms by men and

women, argued that men are less affected by negative social stigmas attached to the use of non-standard linguistic features than women. Men thus, at least in linguistically stable situations, produce a higher frequency of non-standard linguistic features than women.

The studies mentioned so far have all investigated general gender effects independent of the specific communicative situation. However, there is at least some evidence that properties of the communicative situation may modulate gender effects. For example, Reid et al. (2003) investigated gender differences in elicited conversations between male and female students, and experimentally manipulated the saliency of gender. When gender was highly salient, profound differences in language use emerged, with female speakers producing substantially more tentative language than male speakers. In contrast, when gender was not salient and a shared student identity was made salient instead, the observed gender effect disappeared, with male and female speakers producing equal amounts of tentative language.

Gender Effects and Sociolinguistics

How are gender effects in language use explained at a theoretical level? In variationist sociolinguistics, gender differences are considered to be related to the theoretical construct of *social meaning* (e.g., Gal, 2023; Labov, 1993, 2010; Ochs, 1992; Silverstein, 2003). Such theoretical accounts assume that meaning is socially situated[2]. Utterances, in addition to their immediate *pragmatic meaning*, also convey *social meaning*, for instance information about properties of the speaker, the interlocutor, and their social relationship. Information about gender is considered part of social meaning. As Gal (2023) describes, social meaning is conveyed through signs which are either part of the utterance itself (such as gender-marked pronouns, high pitch accent, or words that are used predominantly by female speakers) or of the surrounding situation (such as gestures, posture, or clothing). In a conversation, the interlocutor must differentiate the variant of the sign in an utterance from other possible linguistic options. For example, the interlocutor must notice that the speaker used the Namibian German *Trolley* even though the alternative Standard German equivalent *Einkaufswagen* could have been used instead. Subsequently, the social significance of this sign should be determined. The relationship between a sign and its associated meaning is contingent upon the circumstances in question (Gal, 2023). In relation to gender, this means that information about a speaker's gender and its role in the current social context is included in specific signs, which are then inferred by the interlocutor.

With regard to the process of deriving social meaning, Labov (1993) suggests a distinction between lexical and phonological versus grammatical features, with only the former carrying social meaning and displaying social stratification. This is supported by research on diverse linguistic features and contexts, which showed the same distinction

2) See, for example, Eckert (2012) for an in-depth review of the three waves of sociolinguistics.

(e.g., Labov, 2001; Levin et al., 1994; Trudgill, 1986). Other research suggests a more nuanced picture of the influence of social meaning conveyed through grammatical features (e.g., Acton & Potts, 2014; Levon & Buchstaller, 2015; Levon & Fox, 2014; Moore, 2020; Sauermann et al., 2023).

Based on research on variation in language contact, several authors have proposed hierarchies of linguistic features (Matras, 2009; Wiese et al., 2022). Matras (2009, especially pp. 58–59 and 310–314) argues that the use of overt features (phonological or lexical features) is consciously controllable and influenced by sociolinguistic factors such as gender or language prestige, whereas the use of abstract features (grammatical features) is less consciously controlled and thus it is less easy to distinguish and to derive indexicality. The *Social Salience Hierarchy* proposed by Wiese et al. (2022) assumes that different types of noncanonical (for instance, Namibian German) linguistic features differ with regard to the salience of the social meaning they carry. The account distinguishes between several types of linguistic features, and puts them in a hierarchical order according to how salient the conveyed social meaning is. Crucially for our purposes, the account assumes that social meaning is relatively more salient for lexical features (such as the Namibian German borrowing *trolley* 'shopping cart' versus its Standard German equivalent *Einkaufswagen* 'shopping cart') than for grammatical features (such as noncanonical word order, e.g., nonstandard placement of negation).

Gender Effects and Language Contact

Most studies have addressed gender effects in Western linguistic communities with a largely monolingual habitus. While gender effects also occur in multilingual communities and settings (e.g., recent migration), the picture is not as clear-cut. In a recent literature review, Meyerhoff and Birchfield (2019) highlight several points regarding language contact and gender stratification: Mainly, gender stratification in language contact shows unpredictable effects, often incompatible with principles of gender and language variation/change in monolingual speech communities. In multilingual settings with a high degree of language contact, individuals do not adopt gendered stances or attitudes as often or as consistently as in monolingual speech communities. However, when they do, they tend to rely on different sets of linguistic features, and the speech communities assign gendered labels to those features. Also, social factors other than gender are of greater practical importance in language contact contexts. Additionally, Meyerhoff and Birchfield (2019) also points towards a discrepancy between findings from qualitative versus quantitative studies in this field: Qualitative studies show ample evidence of gender effects or rather on individual speakers of speech communities attributing certain language use as gendered. However, quantitative studies, in contrast, struggle to find evidence that gender is a significant predictor of variation in language contact or show inconsistent effects.

Gender Effects in Namibian German

A small number of recent studies have investigated loan word use in Namibian German (Bracke, 2021; Radke, 2021; Zimmer, in press). While these studies did not primarily focus on gender effects, they report additional supplementary analyses that are potentially relevant with respect to gender effects in Namibian German. Bracke (2021), in a study based on data from the *free speech* subcorpus of the *DNam* corpus (see section "Data" for further information on the subcorpora), found a general preference for English over Afrikaans loan words. Also, adolescents produced a higher frequency of loan words than adults. Interestingly, the results also revealed differences between particular male and female speaker groups: While female adolescents preferred English loan words, male adults instead showed a higher frequency of Afrikaans loan words than English loan words. A similar pattern was also found by Radke (2021) for computer-mediated communication in Namibian German expats: Male speakers were more likely to use Afrikaans loan words than female speakers. For English loan words, in contrast, no gender effects occurred. Additionally, other-language male nominal vocatives, also referred to in the literature as brocatives[3], such as *Oukie* (the Namibian-German equivalent of *dude*) occurred predominantly in data from male speakers, who used them to signal belonging as well as referential multimodality. Finally, loan word use in Namibian German was also investigated in a recent study by Zimmer (in press). The main results for loan word usage in general differed from those found in the other two studies, with Zimmer reporting a preference for Afrikaans over English loan words. However, additional supplementary analyses again revealed differences between particular speaker groups which are potentially informative with regard to gender effects. Women between 20–49 used substantially fewer loan words than men in the same age bracket. In addition, for both male and female speakers, the frequency of loan words changed with age: In male speakers, the frequency of loan words substantially increased between age 20 and 39, but decreased again afterwards. Women, in contrast, showed a decrease in loan word use between the age of 20 and 49. Zimmer explains the trajectory in the male data with reference to an increasing need to express male gender identity linguistically and to differentiate themselves from women, while the decrease in loan word use is explained through shifts in language attitudes among women following childbirth.

Register Differentiation in Namibian German

Unlike German as a minority language in the USA, where its use is typically limited to informal settings, German in Namibia is used in both formal and informal contexts. In formal contexts, German is present in a multitude of written and spoken situations

3) The term *brocative* was coined by Urichuk and Loureiro-Rodríguez (2023) to describe vocatives such as *bro* (short for *brother*) often used by and when addressing male speakers. In the context of Namibian German, vocatives in other languages, such as Afrikaans or English only appear as brocatives and never as female nominal vocatives.

in Namibia: signs, media, and schooling. Especially in Windhoek and Swakopmund, German is present in public spaces, for instance, in the form of store signs and official signs. German media presence in Namibia includes the German newspaper *Allgemeine Zeitung*, as well as German-speaking radio programs and television broadcasts (Shah & Zappen-Thomson, 2018). Church services in German are offered by several churches, and German-speaking societies offer a variety of activities. German also plays a major role in education, with fourteen public and private German-speaking schools. These schools offer courses in *Deutsch als Muttersprache* (*DaM*; German as a mother-tongue) and other subjects in German from Grade 1–4. The highest number of students[4] with DaM attend the private *Deutsche Höhere Privatschule* (DHPS). DHPS offers the option to earn the *Deutsche Auslandsabitur*. German is used informally in written (e.g., through the use of social media or messages; Leugner, 2023; Radke, 2021) and spoken communication throughout the day by speakers. To a large extent, these speakers use German as a home language and to communicate with friends (Leugner, 2023). Thus, German permeates both formal and informal contexts in Namibia.

Speakers of Namibian German show systematic register differentiation between formal and informal registers. Both Sauermann et al. (2023) and Wiese and Bracke (2021) examined loan words from English and Afrikaans, choices of existing words in new contexts, and variations in word order in two corpus studies of the DNam corpus and two correction experiments (Sauermann et al., 2023; Wiese et al., 2022). The most clear-cut register differentiation is seen in the lexicon in the two corpus studies, where speakers use loan words, such as *oukie* 'man, dude', *tannie* 'woman, aunt' or *bra* 'brother' almost exclusively in informal registers. Features at the interface of lexicon and grammar, such as *weh kriegen* 'to hurt' (3), and word order variation, such as the position of the negation particle *nicht* (4), show less differentiation.

(3)	hat	die	nich	**weh**	**gekriegt**	[NAM091W1]
	has	she	NEG	hurt	get-PP	
	'didn't she get hurt'					

(4)	die	müssen	**nicht**	hier	laufen	[NAM034M1]
	they	must	NEG	here	run	
	'they mustn't run here'					

4) 677 pupils with DaM attend the DHPS. The second highest number of students with 364 attend the Delta-Schule (Delta school) in Windhoek and 154 pupils attend the Privat Schule Swakopmund according to a statistic by the Arbeits- und Fördergemeinschaft Deutscher Schulvereine in Namibia 'Support Association of German School Societies in Namibia`.

The findings from the correction tasks in Sauermann et al. (2023) suggest that formal and informal registers are more notably defined by the use of lexical material of non-German origin, rather than by the selection of existing words or variations in word order. Notably, individual features within each category exhibit varying degrees of influence. The presence of Namibian German-specific traits in formal settings and the absence of corrections for certain characteristics support the notion of a Namibian German-specific formal register (Kellermeier-Rehbein, 2016).

The results align with aspects of the Social Salience Hierarchy (Wiese et al., 2022). However, the studies reported in Sauermann et al. (2023) reveal variations within the categories, suggesting that factors such as the degree of perceptual salience of a linguistic feature (for instance, how much a particular unusual word order sticks out) may interact with how salient the social meaning conveyed by this feature is.

The Present Study

The key goal of the present study is to investigate to what extent existing findings on gender effects in largely monolingual settings can be generalised to language use in multilingual settings characterised by a high degree of language contact. The use of Namibian German, which requires speakers to frequently make choices between the production of a Namibian German-specific variant or its Standard German equivalent, constitutes an ideal setting to investigate this question. As previous research suggests that properties of the communicative situation, such as to what extent the situation is formal or informal in nature, potentially modulate gender effects, gender differences in language use are systematically compared for formal versus informal communicative situations in the present study. To achieve this, the study relies on the *Language Situation* (*LangSit*) subcorpora of the *Deutsch in Namibia* 'German in Namibia' corpus (*DNam*, Zimmer et al., 2020) as its data basis. The two *LangSit* subcorpora consist of elicited spoken event descriptions based on the Language Situation Method (Wiese, 2020): Speakers of Namibian German were shown a picture story of a car accident and were asked to spontaneously describe this event. Crucially, each speaker produced two such descriptions, one in a formal setting (describing the accident to a teacher) and one in an informal setting (describing the accident in a conversation with a friend). Unlike in typical corpus analyses, the fact that the *DNam* corpus contains both formal and informal descriptions of the same event elicited from the same speaker allows for a systematic comparison of potential differences between the formal and informal register in spoken language, in which individual properties of speakers and of the described events are systematically controlled.

It is conceivable that Standard German features possess higher prestige, while non-standard Namibian German variants can be used to emphasise belonging with other Namibian German speakers. Following this rationale, Namibian German variants are expected to be used primarily in informal communicative situations irrespective of gen-

der. With respect to gender effects, if it is indeed the case that, as suggested by Labov (1990, and much subsequent work), men are less affected by the prestige of linguistic features than women, male speakers should show a higher frequency of both lexical and grammatical Namibian German variants than female speakers in both formal and informal communicative situations (Hypothesis 1). Note, however, that formal social situations may demand that speakers, irrespective of their gender, rely on a formal linguistic register, as predicted by the Social Salience Hierarchy by Wiese et al. (2022). This may potentially override gender differences in formal situations. If so, the results should show a significant two-way interaction between gender and register, with male speakers producing more Namibian German features in informal situations, but no Gender difference in formal situations (Hypothesis 2). Finally, with regard to possible differences between lexical and grammatical features, lexical features are more explicit and possess a higher degree of salience (e.g., Levon & Fox, 2014). Thus, lexical choices in language use are potentially more conscious in nature. Grammatical features, in contrast, are more implicit and less salient. Therefore, for grammatical features, the choice between a Namibian German variant and its Standard German equivalent may be relatively more automatic in nature. If this is the case, the results should show a significant two-way interaction between gender and category, with a stronger gender effect (i.e., male speakers producing more Namibian-German features than female speakers) for lexical than for grammatical features (Hypothesis 3).

Data and Method

Data

The *DNam* corpus is accessible online through the '*Datenbank für Gesprochenes Deutsch*' (DGD, database for spoken German). The corpus consists of four sub-corpora: interviews, free speech, elicited formal speech (LangSit formal), and elicited informal speech (LangSit informal). It contains a total of 211,761 words from 115 speakers of Namibian German. Each data point consists of a single word annotated for a variety of linguistic properties, such as its phonological transcription (e.g., *gekricht* 'gotten'), its transcription in standard spelling (e.g., *gekriegt* [gəˈkriːkt] instead of *gekricht* [gəkʀˈɪçt]), the corresponding uninflected base form of the word (e.g., for *gekricht*, the infinitive form *kriegen* '(to) get', also referred to as a *lemma*) and part-of-speech (e.g., for *gekricht*, past participle of a verb). The corpus also includes metalinguistic information about each speaker, such as biographical data or the speaker's language background.

The *LangSit* subcorpora consist of 49,235 tokens in 4 hours, 41 minutes, and 33 seconds of transcribed audio data from the same 103 speakers in both subcorpora, and an additional eight speakers who appear in only one of the subcorpora. Out of the 111 speakers from Namibia, 49 identified as female and 62 as male. The age range of the

speakers was between 14 and 75 with a mean age of 23.92 years and a standard deviation of 15.58. The majority of the speakers (N = 77) were adolescents aged between 14 and 18. Additionally, the corpus contains data from four other speakers who grew up in Germany; these were not included in the analyses.

Method

The data points for the analysis were extracted from the DNam corpus in DGD version 2.13. To obtain data for the 'lexical features' category, all adjectives, adverbs, nouns, particles, discourse markers and verbs were extracted from the corpus. Each data point was subsequently coded as either Namibian German or Standard German. In cases of doubt, the annotators checked whether the word was listed in a Standard German dictionary (such as *Duden online*). For words existing in both Standard German and English (which could either constitute a Standard German word or a specific Namibian German word which entered Namibian German as an English loan word), such as 'hospital', the annotators examined the phonetic properties of the produced utterance, for instance whether the pronunciation of 'hospital' followed Standard German ([hɔspiˈtaːl]) or English ([ˈhɒspɪtl̩] or [ˈhɑːspɪtl̩]) pronunciation standards. In addition, all data points which were coded as Namibian German were also annotated for the word's language of origin (Afrikaans, English, or other).

For the 'grammatical features' category, a total of six different Namibian German grammatical features that occurred in the corpus were identified:

1. *weh kriegen* 'to hurt oneself' vs. *(sich) verletzen 'to hurt oneself'*
2. *sicher machen* 'to make sure' vs. *sicherstellen* 'to make sure'
3. Main clauses with verb-third position vs. main clauses with verb-second position
4. Subordinate clause with V2 after matrix clause with negation particle *nicht* vs. main clauses with verb-last position after a matrix clause with negation particle *nicht*
5. Position of the negation particle *nicht* after the finite verb in front of the object vs. position of the negation particle *nicht* after the finite verb and the object
6. Non-canonical bare noun phrases vs. canonical noun phrases

For each of these grammatical features, a 'Namibian German' variant and a set of corresponding 'Standard German' equivalents (as mentioned above) were defined. For instance, the Namibian German variant 'weh kriegen' was paired with its Standard German equivalents '(sich) verletzen' or 'weh tun'. Similarly, the Namibian German variant 'sicher machen'[5] was contrasted with the Standard German equivalents 'sicher gehen' and

5) The Duden contains verb *sicher machen* with the meaning *etwas absichern* ('to secure something'). However, sicher machen in this specific sense was not attested in the subcorpora used for the analysis, only the Namibian German homonym was used by speakers.

'sicherstellen'. Main clauses with the verb in the third position (V3 clauses) were paired with main clauses with the verb in the second position (V2 clauses).

The data for the 'grammatical features' category were obtained through a corpus search for these six Namibian German features and their Standard German equivalents. To identify V3 clauses, a corpus search was conducted for adverbs followed by nouns or personal pronouns. A second query was then used to narrow down the matches by searching for finite verb forms that follow the first query. Long pauses (> 0.5 seconds) between adverbs and nouns were removed as they can be considered a restart of the utterance (Couper-Kuhlen & Selting, 2018). Main clauses with verb-second clauses were extracted by searching for a finite verb followed by a noun or personal pronoun and sorted manually.

To identify word order variation in subordinate clauses after matrix clauses with negation, I searched for the embedding verbs described in Freywald (2016a, 2016b) followed by the negation particle *nicht*. I found hits for the embedding verbs *sagen* 'to say', *hoffen* 'to hope', *glauben* 'to believe', and *erinnern* 'to remember', and sorted them manually into both variants (verb-second and verb-last).

The negation particle *nicht* is a crucial element for another extracted grammatical feature. It is placed after the finite verb but before the object (e.g., *mag nicht seine Musik* 'does not like his music') or after the verb and the object (e.g., *mag seine Musik nicht* 'does not like his music'). In German, negation can have a wide or narrow focus, which is realised through intonational patterns. Utterances with a narrow focus, specifically on the object, and utterances with verb-negation-object word order were excluded as they are standard in German (Helbig & Buscha, 2001, p. 545).

Noun phrases were extracted by searching for nouns in the subcorpora and manually sorted into non-canonical bare noun phrases and canonical noun phrases, which include noun phrases with determiners as well as canonical bare nouns.

All data points from both the lexical and grammatical categories were subsequently annotated for 'variant (Namibian German vs. Standard German)', which served as the dependent variable in the analysis, 'category (lexical vs. grammatical)' and 'register (formal vs. informal)', which were included in the analysis as within-speaker independent variables, and 'speaker gender' as a between-speaker independent variable.

Analysis

The results were analysed with binomial generalised linear mixed effects regression models (GLMER) with lme4 Version 1.1-31 (Bates et al., 2015) in R Studio (RStudio Team, 2020). For each data point, the model predicted 'variant (Namibian German vs. Standard German)' as a binary dependent variable. The model included 'register' (formal vs. informal), 'category' (lexical features vs. grammatical features), and 'gender' (female vs. male), and their interactions as centred fixed predictors. As suggested by Barr et al. (2013), the initial model contained a maximal random-effects structure, with random intercepts and

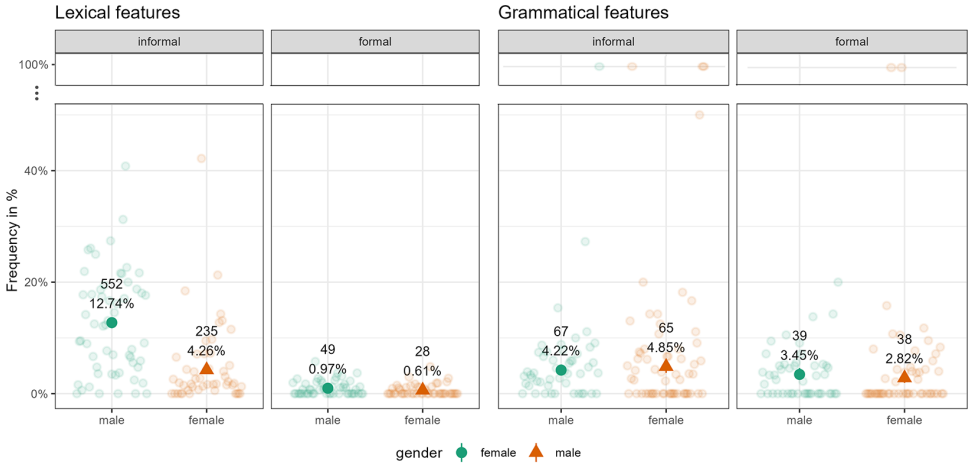
random slopes by speaker for each predictor included in the model. The random-effects structure was subsequently simplified as part of a stepwise procedure, to determine the most complex model which reached convergence. The final model contained register, gender, category, and their interactions as fixed effects, and a random intercept as well as random slopes for register and category per speaker. Any significant interactions were explored further through additional post-hoc models (Table 2 and Table 3). All plots were done with ggplot2 (Wickham, 2016).

Results

The analysis is based on 24,870 data points of lexical and grammatical features from a total of 111 speakers. The forty-nine female speakers contributed 51.52% (12,812 data points) of all data points, with the remaining 48.48% (12,058 data points) of the data produced by the sixty-two male speakers. The data points were almost equally distributed across the formal and informal conditions, with 48.63% (12,095 data points) from the 'LangSit formal' and 51.37% (12,775 data points) from the 'LangSit informal' subcorpora. Across all conditions, speakers showed a substantial general preference in favour of Standard variants (95.69% of the data; 23,797 data points) and dispreferred NAM-variants (4.31%; 1,073 data points). Figure 1 shows the percentages of Namibian German variants by gender, register, and category.

Figure 1

Relative Frequencies of Namibian German Variants by Gender, Register, and Category, in %, as Well as Distribution of Individual Speakers and the Token Count N



The results from the regression model, summarised in Table 1, revealed a significant main effect of gender (p = .02**, Z = -3.08, SD = 0.10), with male speakers producing significantly more Namibian German (N = 707; 5.84%) features than female speakers (N = 366, 2.86%), supporting Hypothesis 1. Additionally, the model also showed significant main effects of category (p < .001***, Z = 4.68, SD = 0.25) with significantly more Namibian German features for lexical (N = 864; 4.44%) than for grammatical phenomena (N = 209, 3.86%) and register (p < .001***, Z = 10.03, SD = 0.51) with significantly more Namibian German features used in informal (N = 919, 7.20%) than in formal situations (N = 154, 1.27%). In addition to these main effects, the model also revealed three significant two-way interactions. Firstly, between register and gender (p = .022**, Z = -2.29, SD = 0.14) with male speakers producing significantly more Namibian German features than female speakers in informal (N = 619, 10.91% vs. N = 300, 4.22%), but not in formal communicative situations (N = 88, 1.37% vs. N = 66, 1.16%), supporting Hypothesis 2. Secondly, a significant interaction between category and gender (p < .001***, Z = 3.82, SD = 0.62), with male speakers (N = 552, 12.74%) producing significantly more Namibian German lexical features than female speakers (N = 235, 4.26%), but no such gender difference (N = 49, 0.97% vs. N = 28, 0.61%) with regard to grammatical features in line with Hypothesis 3. Thirdly, category and register showed a significant two way interaction (p < .001***, Z = -7.94, SD = 0.1), with a stronger effect of category in informal (N = 787, 7.99% for lexical items vs. N = 132, 4.55% for grammatical items), than in formal situations (N = 77, 0.80% for lexical items vs. N = 77, 3.10% for grammatical items).

Table 1

Binomial Generalized Linear-Mixed Effects Model With Lexical and Grammatical Features: variant ~register category *gender +(1+ register + category|speaker id)*

Predictor	Odds Ratio	*SE*	95% CI	*Z*	*p*
(intercept)	0.03	0.00	0.02 – 0.03	-44.42	**< .001*****
register (formal vs. informal)	3.80	0.51	2.93 – 4.94	10.03	**< .001*****
category (lexicon vs. grammar)	1.87	0.25	1.44 – 2.42	4.68	**< .001*****
gender (male vs. female)	0.62	0.10	0.45 – 0.84	-3.08	**.002****
register x category	0.19	0.04	0.13 – 0.29	-7.94	**< .001*****
register x gender	0.58	0.14	0.36 – 0.92	-2.29	**.022***
category x gender	2.54	0.62	1.57 – 4.09	3.82	**< .001*****
register x category x gender	1.59	0.62	0.74 – 3.40	1.19	.235
$N_{speaker}$			111		
observations			24,870		
marginal R^2 / conditional R^2			0.220 / 0.361		

Note. Significant p values are marked in bold.
*p < .05. **p < .01. ***p < .001.

To explore the significant two-way interaction between gender and category in more detail, additional post-hoc analyses were conducted separately for lexical and grammatical features.

Lexical Features

The post-hoc analysis for lexical features contained a total of 19,464 data points, 4.40% of which (864 data points) were coded as Namibian German variants. Of these, 787 tokens were from the informal condition and 77 from the formal condition. The data points were relatively evenly distributed across male (9,369 tokens, 48.14%) and female speakers (10,095 tokens, 51.86%), as well as across the formal (9,615 tokens, 49.40%) and informal (9,849 tokens, 50.60%) registers. The model again predicted 'variant' (Namibian German versus Standard German) as a dependent variable, and contained 'register', 'gender', and the interaction between the two as centred fixed predictors. The results from the post-hoc model are shown in Table 2.

Table 2

*Binomial Generalized Linear-Mixed Effects Model for Lexical Features: variant ~register *gender + (1+ register| speaker id)*

Predictor	Odds Ratio	*SE*	95% CI	*Z*	*p*
(intercept)	0.02	0.00	0.01 – 0.02	-33.57	**< .001*****
register (formal vs. informal)	0.12	0.03	0.08 – 0.18	-9.84	**< .001*****
gender (male vs. female)	2.54	0.52	1.70 – 3.79	4.54	**< .001*****
register x gender	0.42	0.15	0.21 – 0.84	-2.46	**.014***
$N_{speaker}$			105		
observations			19,464		

Note. Significant *p* values are marked in bold.
*$p < .05$. ***$p < .001$.

The model showed a significant main effect of gender ($p < .001^{***}$, Z = 4.54, *SD* = 2.54), with male speakers (*N* = 601, 6.41%), producing significantly more Namibian variants than female speakers (*N* = 263, 2.60%). Additionally, the model also revealed a significant main effect of register ($p < .001^{***}$, Z = -9.84, *SD* = 0.12), with significantly more lexical Namibian German variants in informal (*N* = 787, 7.99%) than in formal speech (*N* = 77, 0.80%) and a two-way interaction between register and gender ($p < .014^{*}$, Z = -2.46, *SD* = 0.15), with male speakers producing more Namibian variants than female speakers in the informal (*N* = 552, 12.74% vs. *N* = 234, 4.26%), but not in the formal condition (*N* = 49, 0.97% vs. *N* = 28, 0.61%), again supporting Hypothesis 2.

Grammatical Features

The post-hoc analysis for grammatical features was based on 5,406 data points. 3.87% of these (209 data points) were Namibian German variants. The model analysis was conducted in the same way as for lexical features, with the model predicting 'variant' (Namibian German versus Standard German) as a dependent variable, and 'register', 'gender', and the interaction between the two included as centred fixed predictors. The results from this analysis are shown in Table 3.

Table 3

*Binomial Generalized Linear-Mixed Effects Model for Grammatical Features: variant ~register *gender + (1+ register|speaker id)*

Predictor	Odds Ratio	*SE*	95% CI	*z*	*p*
(intercept)	0.04	0.00	0.03 – 0.04	-31.83	**< .001*****
register (formal vs. informal)	1.88	0.33	1.14 – 2.47	2.63	**.008***
gender (male vs. female)	1.02	0.18	0.72 – 1.44	0.11	.912
register x gender	0.71	0.23	0.38 – 1.32	-1.09	.277
$N_{speaker\_id}$			111		
observations			5,406		

Note. Significant *p* values are marked in bold.
*$p < .05$. ***$p < .001$.

Unlike the post-hoc analysis for lexical features, both the main effect of gender ($p = .912$, $z = 0.11$, $SD = 0.18$) and the interaction between gender and register ($p = .277$, $z = -1.09$, $SD = 0.23$) were non-significant. This confirmed that the significant two-way interaction observed in the main omnibus model reflects a significant effect of gender for lexical features (with male speakers producing significantly more Namibian German variants than female speakers), but no gender effect for grammatical features (see omnibus model above).

Discussion

The main goal of the present study was to investigate gender effects in Namibian German. Specifically, male speakers were predicted to produce more Namibian German variants than female speakers. Indeed, and as predicted in Hypothesis 1, the results for lexical features showed a significant main effect of gender, with male speakers producing more Namibian German variants than female speakers. However, as predicted in Hypothesis 2, the results also showed a significant two-way interaction between gender and register, with profound gender differences in informal, but no such differences in

formal communicative situations. This suggests that gender effects in language use are specific to particular (in this case, informal) communicative situations. One possibility to explain this finding is to assume that formal situations, irrespective of the gender of a speaker, may impose more severe restrictions on the accepted linguistic repertoire to use in such situations. Gender as a concept may thus be perceived as less relevant by speakers of Namibian German in the given situation, which would lead to linguistic choices in language use being less affected by the gender of a speaker.

With respect to Hypothesis 3, as shown by the observed significant two-way interaction between gender and category, gender differences did not occur universally for all types of linguistic features, but were instead largely specific to the lexical domain, with male speakers producing significantly more Namibian German-specific lexical features than female speakers. For grammatical features, in contrast, no such gender differences were observed. This finding is consistent with the claim that lexical features are more salient, and that lexical choices in language production are therefore more affected by conscious decisions. Grammatical choices (such as the choice between placing the head verb in the second or third position within a sentence), in contrast, may be largely determined automatically by the formulator, and do not involve conscious decisions by the speaker. In sum, the observed interactions highlight that gender effects in language use are not universal in the sense that they always occur for all linguistic phenomena and irrespective of the surroundings but are instead specific to particular linguistic domains and communicative situations. The LangSit method, used to collect the corpus data for this study, has been shown in previous research (Wiese, 2020) to elicit naturalistic speech. However, it remains an experimental method. While this approach allows for a more comparable corpus, it may influence the lexical and grammatical features used by speakers, compared to a fully natural communicative setting.

Finally, effects directly related to the hypotheses aside, the results also showed a significant two-way interaction between category and register, with all speakers (irrespective of their gender) producing considerably more Namibian German lexical features in informal than in formal situations, but only slightly more Namibian German grammatical features in informal than in formal situations. This suggests that the use of Namibian German lexical features is more affected by the communicative situation than the use of Namibian German grammatical features. This interaction is consistent with the claim that lexical decisions are relatively more conscious and strategic than grammatical decisions, and therefore more affected by whether the situation is formal or informal and is in line with previous research (Sauermann et al., 2023; Wiese & Bracke, 2021; Wiese et al., 2022).

With respect to what might drive the significant gender effect for lexical features in the informal register, one possibility is that the observed gender differences are the result of differential societal expectations for male and female speech. Specifically, female speakers may be faced with a societal expectation to use "proper" language, while male

speakers may instead be expected to signal belonging and emphasise their connection to the linguistic community. With regard to this issue, note that previous studies on Namibian German (Bracke, 2021; Radke, 2021; Zimmer, in press) claim that Namibian German lexical features constitute a salient marker for informality, maleness, and signal belonging. Male speakers may therefore use more Namibian German lexical features than female speakers to meet the societal expectation for male speech.

While the present study examined gender effects for a unique type of linguistic choice which is specific to linguistic communities in multilingual language contact situations (i.e., the choice between specific Namibian German features and their Standard German equivalents), and which has previously only rarely been investigated, the observed gender effect nonetheless fits well with Labov's (1990) classical claim that, with respect to linguistic features that are subject to conscious awareness, male speech is characterised by a higher frequency of non-standard forms than female speech. In this respect, the results indicate that Labov's claim for linguistic choices in largely monolingual settings (for instance, the choice between a non-standard casual term such as *guy* and its standard equivalent *man*) can be generalised to linguistic choices in language contact situations. The differential findings for lexical versus grammatical features are also largely consistent with Labov's (1993) claim that only lexical, but not grammatical features carry social meaning.

At a theoretical level, the observed selective gender effect for lexical phenomena in informal situations can also be discussed with reference to the theoretical concept of *gender performativity* in linguistic behaviour. For instance, Meyerhoff (2015), adapting Butler's earlier work for linguistic behaviour, suggests that gender can be conceptualised as a performative social construct, with an individual's gender identity being expressed in a performative way in the utterances that an individual produces. Following this rationale, it is conceivable that informal communicative situations provide individuals the necessary freedom to engage in such performative acts, while formal situations are considerably more restrictive with respect to the expected linguistic behaviour in such settings. Also, such performative acts may mainly affect linguistic features which are both salient and subject to a higher degree of conscious control. This may explain why the observed gender difference is selective to lexical phenomena and informal situations.

With regard to how the present study relates to previous research on gender effects in Namibian German (Bracke, 2021; Radke, 2021; Zimmer, in press), the results corroborate the key finding that male speech in informal situations contains a higher frequency of Namibian German lexical features than female speech. Note, however, that all previous studies have focussed on lexical features only, and have specifically investigated speech in informal situations. The results from the present study indicate that this finding cannot be generalised to grammatical features or to formal speech.

Finally, with respect to the fact that no gender effects occurred for grammatical features in the present study, an important methodological issue deserves to be dis-

cussed. The six Namibian German grammatical features investigated in the present study were necessarily quite heterogeneous in nature, and ranged from specific multi-word constructions such as *weh kriegen* to abstract syntactic features such as V3 sentences. Thus, while no significant gender effect occurred for grammatical features in general, it is at least theoretically possible that gender differences exist for particular grammatical features. However, while it is in principle possible to conduct separate analyses for each grammatical feature, the fact that there are very few data points for any single grammatical feature in the corpus makes it impossible to detect any statistically significant effects in such analyses. Nonetheless, it deserves to be mentioned that the data for specific grammatical features showed potentially interesting non-significant trends for particular grammatical features. For instance, the results for the '*Neg + V2*' feature showed a numerical trend towards a gender effect. While this analysis is based on only 26 data points in total, and therefore does not allow for any conclusions, it is at least theoretically possible that gender effects exist for specific grammatical features, but did not emerge in our analysis because the six grammatical features were grouped in the present study. In this respect, the significant interaction between gender and category in our main analysis should not be interpreted as conclusive evidence against gender effects in the grammatical domain.

Conclusion

The main results from the present study is that lexical choices in language production between specific Namibian German variants and their Standard German equivalents are affected by the gender of the speaker in informal, but not in formal communicative situations. This finding indicates that Labov's (1990) classical claim that male speakers produce more non-standard forms than female speakers can be generalised to linguistic choices in language-contact situations. The results also suggest that gender effects in language use are at least considerably more substantial in the lexical than in the grammatical domain and that such differences can be overwritten by the linguistic demands of formal communicative situations.

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Ethics Statement: Ethics approval was not required for this study as it relied exclusively on previously collected and publicly accessible corpus data from the *Deutsch in Namibia* corpus 'German in Namibia' (*DNam*; Zimmer et al., 2020), available via the Datenbank für Gesprochenes Deutsch 'Database for Spoken German (DGD) at https://dgd.ids-mannheim.de.

Data Availability: The dataset and codebook for the analysis are available via OSF (see Schulte, 2024).

Supplementary Materials

The dataset, a codebook and analysis code for the study are available on OSF (see Schulte, 2024).

Index of Supplementary Materials

Schulte, B. (2024). *Gender, register and the multilingual repertoire* [Data, codebook, code]. OSF. https://osf.io/xev3d

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