

Words of change: The increase of gender-inclusive language in German media

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Everyday observations seem to indicate an increase in gender-inclusive language (GIL) in Germany; however, previous research on the prevalence of GIL suggests that it is a marginal phenomenon. Moreover, from a theoretical side, an increase in GIL seems unlikely because of the cognitive challenge language change holds, the existence of multiple GIL variants, and the antagonistic environment that Germany poses for language change. This study empirically measures the use of GIL in five media sources in Germany. Over four million articles from 2000 to 2021 are analysed using the IDS Deutscher Referenzkorpus (DeReKo), supplemented by an in-depth analysis of 500 newspaper articles scraped in 2021. A fine-grained analysis along the dimensions of political orientation of the outlet, type of GIL, and author's gender is conducted. In addition to observing an unexpectedly rapid increase in GIL, two different trends are identified: whilst non-binary inclusive forms of GIL are increasingly used in the left-leaning newspaper, GIL that adheres to a binary notion of gender is favoured in the mainstream and right-leaning media. This sheds light on how difficult behavioural change can occur.

Introduction

Marlies Krämer did not have an identity card for six years. The reason: she refused to sign as the ‘Inhaber’ (holder [masc.]) and insisted that she be addressed as the ‘Inhaberin’ (holder [fem.]) (Berstecher Barrero, 2021). Only in 1996, after much lobbying, the wording of the German national ID card changed to include both the feminine and masculine forms of the word ‘holder’ (it now reads: ‘Unterschrift der Inhaberin/des Inhabers’ (Bundesrat, 1996)). Since then, however, her efforts to challenge non-inclusive language in everyday bureaucracy have been less successful.¹

While few citizens challenge their gender classification as Krämer has done, language is an important feature of our everyday lives that allows us to communicate and interact with the social world around us. Since the first academic critiques of masculine generics were made (e.g., Trömel-Plötz, 1978; Pusch, 1979; Silveria, 1980), many scholars have investigated the male bias of the generic masculine, that is, that the mental representations evoked upon hearing a generic masculine term tend to be male, rather than female or neutral (Stahlberg, Sczesny and Braun, 2001; Irmen,

2007; Gygax *et al.*, 2008). This masculine bias has been found in many different languages (e.g., Kaufmann and Bohner (2014) for Spanish in Chile; Bojarska (2011) for Polish; Gygax *et al.* (2008) for French and German; and Redl (2021) for Dutch).

Mental representations elicited through different recall exercises indicate that using gender-inclusive language (GIL) (such as explicitly naming both feminine and masculine versions of a person noun) can increase the mental representation of women (Stahlberg and Sczesny, 2001; Irmen, 2007; Gygax *et al.*, 2008; Hansen, Littwitz and Sczesny, 2016). Not only mental representations are influenced by GIL but also attitudes, preferences, and perceptions (Stout and Dasgupta, 2011; Vervecken, Hannover and Wolter, 2013; Horvath and Sczesny, 2016). Moreover, the extent to which gender features in a language correlates with country-level gender equality (Prewitt-Freilino, Caswell and Laakso, 2012) and with individual attitudes towards gender equality (Liu *et al.*, 2018). Therefore, using or not using GIL does not seem to be a mere linguistic difference: GIL is potentially an equal opportunities tool.

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Only a few years ago, a leading expert on GIL, Professor Gabriele Diewald, stated in an interview: ‘It will take a long time for gender to become part of everyday language’ (own translation) (Olderdissen, 2019). This statement mirrors the existing empirical research on the prevalence of GIL: there is an increase in GIL, but it remains a marginal phenomenon (Adler and Hansen, 2020; Krome, 2020, 2021). However, based on everyday observations, change seems to be happening much more quickly.² This is puzzling because adapting language to be gender-inclusive is difficult due to three factors. First, it is cognitively challenging. Automatic processes need to be broken and mental lexicon/grammars need to be adapted and changes need to be applied to many different person nouns. Second, the environment in which change is to happen is antagonistic—not everyone sees language change favourably and change has been difficult in the past. Third, the existence of multiple different types of GIL may hamper its use and potentially involve a coordination problem. These, to some extent conflicting observations, lead to the need for a more systematic evaluation of the degree to which gender-inclusive language has been adopted.

This paper documents an unexpectedly rapid change in the use of GIL. It traces the use of multiple types of GIL across 4.4 million articles in four newspapers and a news magazine in Germany from 2000 to 2021 using the Deutscher Referenzkorpus from the Leibniz Institute for the German Language (Leibniz-Institut für Deutsche Sprache, 2021, 2022). This is supplemented by an in-depth analysis of 500 articles that were scraped from the same sources in autumn 2021.

Newspapers were analysed because they are social institutions, and, therefore, are assumed to reflect the language of their readers (Bell, 1995; Silverblatt, 2004). If the language in newspapers is changing, it is assumed that this is not unique to newspapers but representative of a wider societal change. Moreover, newspapers allow large scale retrospective analysis across a time span that surpasses what is available on social media.

Beyond the specific case of GIL, this study provides insights into how difficult behavioural change takes place. These insights may potentially be transferred to other social problems, such as behavioural change when it comes to health, ecology, or climate change. GIL lends itself to the study of behavioural change as it is an easily tractable phenomenon. By analysing existing text, behaviour can accurately and reliably be traced back in time and measured without researcher interference. Change can be quickly visible due to high-publication frequency.

Therefore, the second research question is: under what conditions does difficult behavioural change take place?

Previous studies on behavioural change have employed experiments and agent-based modelling. Amato *et al.* (2018) specifically study language change when there are two competing variants. They find that when language change occurs from the bottom up (as is the case with GIL), it takes place much more slowly than when there is formal or informal support. Ye *et al.* (2021) model how social conventions form when individuals’ trend-seeking behaviour and inertia are taken into account. Like Centola *et al.* (2018), they find that at a threshold point of 25 per cent social change is triggered. This means that when 25 per cent of the population adopt Behaviour B (instead of Behaviour A), a critical mass is reached at which point the rest of the population rapidly switches from Behaviour A to Behaviour B. This is also referred to as the tipping point (Centola *et al.*, 2018). Extending Centola *et al.* (2018), they determine that a threshold between 19 per cent and 25 per cent can also suffice, if, besides a ‘committed minority’, there are ‘explorers’ (Ye *et al.*, 2021:p. 8). Both these models only consider binary choices, whereas the present case involves a much wider array of choice using real data.

Germany was selected as a case study because there is room for change, yet change is not matter-of-fact. In terms of gender equality, Germany more or less scores at the European average (European Institute for Gender Equality, 2022). Thus, it is gender-equal enough to make the idea of using GIL a possibility, but not gender-equal enough to make change expected. Moreover, contradictions are present: since 2018 a third gender (called ‘diverse’) has legally existed in Germany (Bundestag, 2018), which has created an incentive for GIL. Simultaneously, looking at how previous linguistic change has occurred, namely the Orthographic Reform of 1996, Germany appears to be resistant to language change (Johnson, 2002; Feiereisen, 2018). German was chosen because it is a grammatical gender language (Gygax *et al.*, 2019), meaning that person nouns are gender marked. For example, a male researcher is a ‘Forscher’, whereas a female researcher is a ‘Forscherin’. It is common practice to use the masculine form generically, that is, to refer to mixed groups or cases where the gender of the person(s) referred to is unknown, although this is not a grammatical rule (Diewald, 2018). In tandem, the German language and Germany as a country presented a case where change is possible, yet not matter-of-factor or necessarily expected. Thus, it is an excellent context in which to study the conditions under which a difficult behaviour may be adopted in antagonistic circumstances.

GIL is not unique to German. Numerous other languages follow the same grammatical structure as German and thus face similar problems regarding gender-inclusivity (e.g., Italian, Czech, and Polish (see the Supplementary Material in [Gygax et al. \(2019\)](#)). In Europe, the first critiques of the generic masculine were made in different countries in the 1970s and 1980s (e.g., [Sabatini \(1986\)](#) in Italy, [Papadopoulos \(2022\)](#) for an overview for Spain). As [Sulis and Gheno \(2022\)](#) recently said, GIL and the surrounding debates have largely been evolving separately within each country, despite facing similar problems.

The focus in the present research is on one specific aspect of GIL: using person nouns that refer to women and men or all genders, or that are gender neutral (processes referred to as feminisation and neutralisation respectively, see [Gabriel, Gygax and Kuhn \(2018\)](#)). Nouns are just one potential dimension of linguistic sexism and even languages that are not grammatically gendered may still be linguistically sexist along dimensions different to the one discussed here ([Pauwels, 2003](#); [Formanowicz and Hansen, 2022](#)).

Different approaches to modifying person nouns to be gender inclusive exist, both within and between languages. For instance, German: using typographical symbols such as an underscore, colon, or asterisk; Spanish: using an asperand (@) or an x; French: using the interpunct (·). A key distinction is whether the person noun is inclusive towards women, or also towards non-binary people. It is especially the latter that depart from official orthography rules and spark debate within national contexts.

In order to unleash its potential as an equalising tool, the current use of GIL needs to be understood; doing so includes mapping changes in the use of GIL and conducting a fine-grained analysis to understand where which type of change is happening. This knowledge may help accelerate the use of GIL and harness its potential as an equal opportunities tool. Moving beyond Germany and GIL itself, this research can provide insights into how difficult behavioural change takes place, which can potentially be transferred to changing other linguistic behaviour, such as changing racist language, but also addressing other social problems more broadly. Looking at how change happened, even when it was difficult and not expected, provides insights into behavioural change more generally.

How frequent is gender-inclusive language in Germany?

A handful of previous studies have investigated how frequently GIL is used. For example, [Krome \(2020, 2021\)](#) and [Adler and Hansen \(2020\)](#) measure how often certain words (e.g., *student* or *worker*) appear

in GIL within different general corpora. The general indication is that whilst there is an increase in GIL, its overall usage remains low. One type of non-binary inclusive language (the gender star) seems to be becoming more widely used. Yet, the focus on single or select words is problematic because [Schröter, Linke and Bubenhofer \(2012\)](#) indicate that the acceptability, commonality, and own usage of the generic masculine (GM) can vary between different words.

A different branch of studies has analysed GIL in job advertisements ([Cieszkowski, 2015](#); [Antidiskriminierungsstelle des Bundes, 2018](#); [Dargiewicz, 2021](#); [Krome, 2021](#)). The authors tend to report that a large percentage of job advertisements are gender-inclusive. However, many of the advertisements are classed as inclusive because they include ‘m/w’ or ‘m/w/d’ behind a masculine role noun (to indicate that male, female, and diverse people are included).

Yet, [Horvath and Sczesny \(2016\)](#) suggest that using the masculine generic and adding ‘w/m’ or ‘m/w’ does not necessarily counteract the male bias in the way that GIL (specifically, word pairs) does (in their case when assessing the perceived fit of women in leadership positions). Are then the advertisements really gender-inclusive or are they merely ensuring that the official criteria are met. The General Act on Equal Treatment (*Allgemeines Gleichbehandlungsgesetz*) requires job advertisements in Germany to be gender neutral ([Antidiskriminierungsstelle des Bundes, 2018](#): p. 4). There is some use of non-binary inclusive language, yet it remains uncommon (9 per cent use gender star in the heading and 15 per cent use the gender star in the main text ([Krome, 2021](#)).

This is mirrored in university documents: GIL overall is high, but non-binary inclusive language (gender star) is low. Analysing university documents from three Berlin universities in 2017, [Acke \(2019\)](#) reports that 85.5 per cent of the references towards a person were gender-inclusive (word pairs or neutral forms). However, the non-binary inclusive gender star only occurs twice (0.4 per cent). In contrast to the previously mentioned studies that look at text that already exists, [Koeser, Kuhn and Sczesny \(2015\)](#) experimentally measured the use of GIL and find its usage to be low, even in conditions that nudge people towards GIL (specifically the feminine–masculine pair form) by reading a text that includes GIL ([Koeser, Kuhn and Sczesny, 2015](#): p. 355).

While different text categories have been investigated, the focus is rarely on variations within one context. One exception is [Burnett and Pozniak \(2021\)](#), who analyse university brochures in Paris and see a difference in usage according to political orientation, however, they analyse only the lemma ‘student’, which is, as previously mentioned, potentially problematic. Taking

the different contexts into account is important, as Würschinger (2021) warns that high-frequency counts do not necessarily mean high diffusion as certain terms (in this case, GIL) may be used a lot by only one small community.

To sum up, previous studies tend to find low levels of GIL. Although the most recent studies indicate that the use of GIL has increased, especially in the use of the gender star, GIL is still seen as a marginal phenomenon. Three gaps can be identified: the limitation to the analysis of a single or a handful of role nouns; the lack of differentiation between contexts within one text category; and the types of GIL considered. These gaps are addressed in the present study, which measures the use of different types of GIL for an unlimited number of person nouns in newspapers with different political orientations.

Why is using gender-inclusive language difficult?

Changing language to be gender-inclusive is difficult because it is cognitively challenging, the change takes place in an antagonistic environment and different competing variants exist. Using language is automatic; we learn words and store them in our mind and draw upon them when we need them to express ourselves, without thinking about which word to use or how to say it (Levelt, 1994; Aitchinson, 2012). If we want to change the words we use, for example, to make them gender-inclusive, we need to stop automatically using them and instead think not just about what we say, but how we say it. This makes using gender-inclusive language cognitively challenging - it requires the repeated adaption of an automatic process.

Antagonistic context

A further difficulty is the antagonistic environment of language change in general and GIL specifically. The German context is particularly interesting because language is often seen as part of cultural heritage and has previously been resistant to change (Feiereisen, 2018). The cultural heritage argument is invoked against the use of GIL (Deutsche Presse Agentur GmbH, 2021), as well as to explain why GIL has sparked emotional debates in Germany (Simon, 2022). The Orthographic Reform of 1996 exemplifies the resistance to language change in Germany. Following a series of failed attempts, the German orthography rules established in 1901 were reformed in 1996. This change in spelling and punctuation rules affected sound-letter correspondence, formation of compound words, hyphenation, capitalisation, punctuation, and word splitting at the end of a line (Heller, 1996). The following sentences illustrate these changes:

Old rules: Es ist essentiell, daß Du Halt machst, und heute mittag was ißt, bevor die Flußschiffahrt beginnt.

New rules: Es ist essenziell, dass du haltmachst und heute Mittag was isst, bevor die Flussschiffahrt beginnt.

(It is essential that you stop and have lunch today before the river cruise begins.)

The reform faced considerable resistance and was revised in 2004 and in 2006 (Heller, 2004; Güthert, 2006) because of widespread disapproval, even though it was estimated to only affect less than 0.5 per cent words (beside the reform of the ß) (Bundesverfassungsgericht, 1998). The resistance even included a constitutional challenge (Johnson, 2002).

Concerning GIL specifically, a study by YouGov (2020) shows that there is a general awareness of the importance of GIL (25 per cent of participants (24 per cent of men and 26 per cent of women) indicated that GIL was important). Thus, there is some support for GIL, but it is by no means a majority. This is also demonstrated by provocative headlines such as 'Is that still German?' (own translation) on the cover of *Der Spiegel* on 6 March 2021, referring to the use of a specific type of GIL (the gender star).

To specifically explore behavioural change in antagonistic circumstances, the frequency of GIL is traced in three different political contexts: a left-leaning newspaper, three mainstream newspapers/news magazine, and one right-leaning newspaper. The different sources constitute more and less favourable conditions within the broader antagonistic context.

Political orientation was chosen as the varying factor because there is reason to believe that more left-leaning contexts may use GIL more (Adler and Hansen, 2020; Burnett and Pozniak, 2021; Gustafsson Sendén, Bäck and Lindqvist, 2015). This allows the exploration of whether potentially a pocket of favourable attitude within a wider antagonistic environment may kick-start a change in behaviour in the wider context.

There is, of course, the question of whose political orientation is reflected: the newspaper's, the journalist's, or the reader's. For now, it is not important to establish why behaviour may differ, but only whether it differs between these environments. Specifically, it is expected that GIL will be highest in the left-leaning newspaper. Of interest is whether change can also be observed in the mainstream newspapers and the right-leaning newspaper.

Competing variants

Finally, multiple types of GIL exist. This may be problematic, as having too many choices is linked to cognitive overload and may create coordination problems.

The paradox of choice refers to how having many options can be overwhelming (Schwartz and Ward, 2004). Whilst the concept originates in consumer studies, it has also been applied to other areas. For example, in the study of voting behaviour, Cunow *et al.* (2021:p. 9) report a negative link between the number of candidates and voting behaviour. Thus, more choice is not always beneficial. Coordination is especially important for language which has the central aim of communicating with others: coordination is required to ensure mutual understanding. Indeed, the diversity of GIL and corresponding lack of coordination on which type of GIL to use is a justification of not using GIL (Deutsche Presse Agentur GmbH, 2021). The German Orthographical Council has also justified not endorsing a specific type of GIL by emphasising the importance of ‘ensuring uniformity of the written language in the German-speaking world’ (own translation) (Rat für deutsche Rechtschreibung, 2021). Thus, the presence of different types of GIL may hamper the spread of GIL. Here, it is of interest to see whether one variant of GIL can become dominant. Previous research indicates that the dominant variant is likely to be the gender star.

Methodology

Behaviour and newspapers

As previously mentioned, newspapers were studied as it is assumed that they reflect wider social changes. Behavioural change is understood as the change from using generic masculine forms to using GIL. This is assumed to take place on the individual author level rather than as across-the-board decisions enforced by editors. However, it is recognised that journalists are acting within the context of a specific newspaper/news magazine. All media sources analysed here, apart from *Die Welt*, have published their position on GIL. *Süddeutsche Zeitung*, *Der Spiegel*, and *Die Zeit* support using pair-forms and neutral forms, rather than the gender star or the colon. *taz* explicitly sets no guidelines on GIL. *Der Spiegel* goes into more detail here, stating that texts will not be edited to be gender-inclusive and the guidelines do not apply to everyone (see [Supplementary Material, Section 5.2](#)).

Selection of media sources

Media sources were chosen to represent mainstream media (in the form of newspapers of record), plus a left-wing and a right-wing newspaper. *Die Zeit*, *Der Spiegel*, and *Süddeutsche Zeitung* (SZ) were included as three of the four newspapers of record in Germany. The fourth, *Frankfurter Allgemeine Zeitung* was not available in the DeReKo. *die tageszeitung* (*taz*) was included as a most likely case: if a change towards GIL can

be observed anywhere, it should be here because it is the most favourable context: the newspaper describes itself as being ‘committed to social justice’ (own translation) ([taz info, nd](#)) and thus might be more willing to use GIL. In contrast, *Die Welt* was chosen as a less likely case due to its conservative orientation. Details on the political orientation of each newspaper/news magazine are included in the [Supplementary Material \(Section 5.1\)](#).

The time frame was determined by data availability: from 2000 onwards, there is coverage for all five newspapers and news magazines. Analysis for the full range of years per source is included in the [Supplementary Figure S6](#) and indicates that no effect (e.g., around the time of the first critiques of language) has been overlooked by only considering data from 2000 onwards.

Accessing the articles

There were two data sources for each newspaper or news magazine. The first source was the IDS Korpora Deutscher Referenzkorpus (DeReKo) (Leibniz-Institut für Deutsche Sprache, 2021, 2022), which contains textual data from a range of sources (Kupietz *et al.*, 2010). A unique dataset was built by accessing the DeReKo (Leibniz-Institut für Deutsche Sprache, 2021, 2022) through the web application COSMAS II (Leibniz-Institut für Deutsche Sprache, 1991–2022). The process of accessing the archive and executing searches for GIL within the selected media sources was automatized using Selenium in Python (see [Supplementary Material, Section 1](#)). Pattern matching word endings allowed nearly all lemmas to be included. The DeReKo data includes keywords-in-context, not full articles. There is a differentiation between *Der Spiegel* and the online platform *Spiegel Online*.

The second data source was articles from October 2021 that were scraped from the respective websites of the five media sources (n.b. the data on *Die Welt* were scraped retroactively). These data were added to analyse full articles, so counting the frequency of generic masculine and neutral forms was possible (the GIL forms are discussed in the next section). In total, a random selection of 100 articles per media source was analysed using the qualitative analysis software MAXQDA.

Types of gender-inclusive language

The type of GIL varied between the two data sources. For the DeReKo data, 10 different forms of GIL are measured ([Table 1](#)). GIL was identified based on word endings using automatization making it impossible to measure the use of neutral forms or the generic masculine. Data cleaning ensured that only true forms

Table 1 Types of gender-inclusive language measured in DeReKo data

Type of GIL	Example
Binary feminisation	
Pair form (masc–fem.)	Forscher und Forscherin
Pair form (fem–masc.)	Forscherin und Forscher
Slash	Forscher/in
Slash Dash	Forscher/-in
Dash	Forscher-in
Capital-I	ForscherIn
Bracket	Forscher(in)
Non-binary inclusive language	
Star	Forscher*in
Colon	Forscher:in
Gap	Forscher_in

of GIL were analysed (see [Supplementary Material, Section 1.3](#)).

In contrast, for the scraped newspaper articles all person nouns were manually identified and categorised according to (i) whether it would have been possible to use GIL, (ii) whether GIL is used, and (iii) which GIL is used. More details on the process of hand-coding the scraped newspaper articles are provided in the [Supplementary Material \(Section 3\)](#). Hand-coding the articles allowed the identification of generic and neutral forms, as well as more uncommon and unusual forms of GIL.

The different types of GIL fall into two categories: binary feminisation (BF) and non-binary inclusive (NBI) language. In binary feminisation, language is gender-inclusive because it refers to women and men. Non-binary inclusive language goes beyond this, referring to all genders.

Measuring frequency

For the DeReKo data, frequency is measured in per million words (pmw), a relative frequency measure that enables the comparison of frequencies across different corpora of different sizes. The scraped newspaper articles offered the possibility of calculating how many times GIL was used relative to how many times it could have been used. This measure is a conservative measure as all ambiguous cases were included as possible cases (i.e., if it was unclear whether the reference is generic or specific or whether a person or an institution was referred to). In some cases, this ambiguity even hampered understanding (see [Supplementary Material, Section 3](#)). The two measures are not directly comparable, as different types of GIL were included (see [Section 6.1](#)).

Results

To begin with, the overall use of GIL is reported. This is then broken down into the different types of GIL across all media sources, overall use in each media source, and different types of GIL in each media source. Finally, GIL use is disaggregated by gender.

Gender-inclusive language in general

The first data source is the Deutscher Referenzkorpus (DeReKo), which contains 4,446,268 texts from 2000 to 2021 for the five media sources (*tax* = 1,071,028; *Der Spiegel* = 131,936; *Spiegel Online* = 709,745; *SZ* = 1,234,175; *Die Zeit* = 156,522; *Die Welt* = 1,142,862). [Figure 1](#) shows the overall frequency of GIL within this corpus. Within these texts, 382,626 instances of GIL were identified. 375,225 instances remained after removing reader letters (which are analysed in the [supplementary material, Section 6.3](#)) from the data. Between 2000 and 2015 GIL fluctuated between 150 and 200 pmw. From 2015 onwards, an increasingly steep increase is visible, culminating at just over 800 pmw in 2021.³ The line indicates an exponential increase in the use of GIL: it has nearly doubled within just two years. Taking a look at the article level supports this: 19.5 per cent of all articles use some form of GIL in 2021, compared to 8.7 per cent in 2019. In terms of percentage of use, GIL is used in 16.5 per cent of possible cases ([Table 2](#)).

Variation between types of gender-inclusive language

GIL in Germany is not one single type but is fragmented into different ways that a word can be made gender-inclusive. Three different trends are visible in [Figure 2](#). A sharp increase in the star form (e.g., ‘Forscher*innen’) is visible from 2016 onwards. In 2020, the gender star was used just under 250 times pmw. However, from 2020 onwards it begins to decline. By 2021, it has been surpassed by the feminine–masculine pair form (e.g., ‘Forscherinnen und Forscher’), which reaches around 270 pmw in 2021. A third form that has rapidly increased is the colon form (e.g., ‘Forscher:innen’), which emerged in 2018. The Capital-I form (e.g., ‘ForscherInnen’) has experienced quite some fluctuation over time, declining from 2000 until 2008, when it began to increase again. It seems that since 2019 it has been declining again. The other types of GIL have very low frequencies. [Figure 3](#) shows the share of each type of GIL, revealing that not all types are increasing at the same rate. In 2014, the gender star starts to be used, and this rapidly increases in use, but it seems like the colon is rapidly becoming popular: in 2020 and 2021, the use of non-binary inclusive (NBI) language is roughly the same,

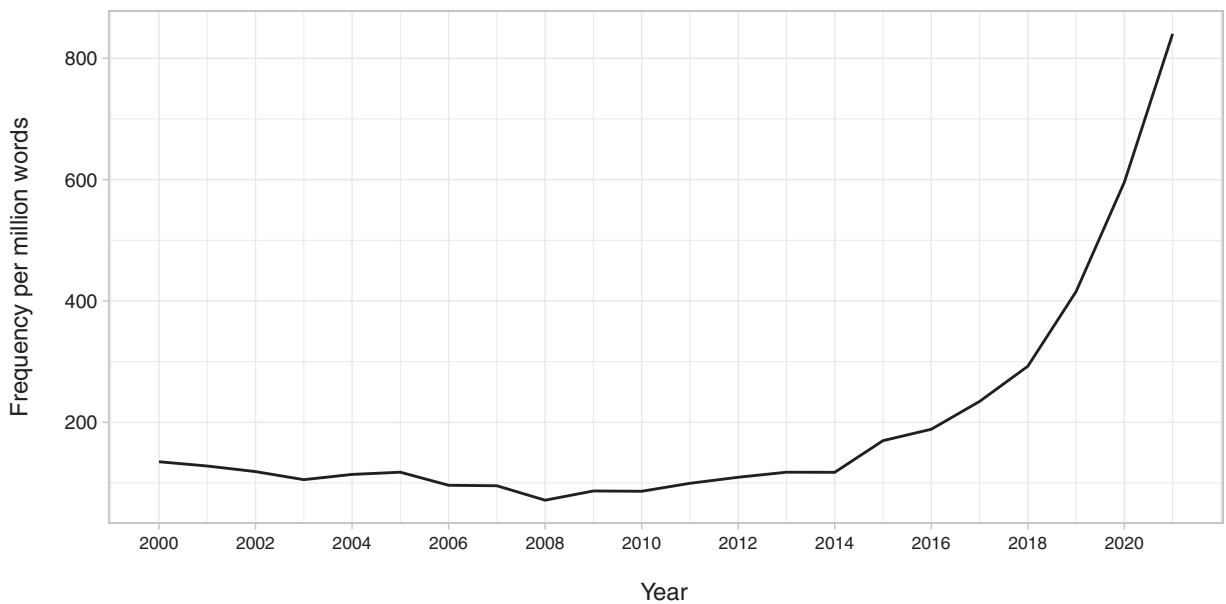


Figure 1 Frequency of gender-inclusive language from 2000 to 2021. Data: DeReKo

Table 2 Proportion of gender-inclusive language 2021

Language category	Frequency	%
Generic	2,689	72.71
Gender-inclusive	625	16.5
Ambiguous	384	10.38
Sum	3,698	100

Data: Scraped articles 2021.

but the share of the colon is greater than that of the star. The underscore (gender gap) briefly featured from 2010 onwards, but after initial incline disappeared again.

At the article level, in 2021, 4.2 per cent of articles used the gender star, 3.9 per cent used the colon, 9.9 per cent used the fem.–masc. pair form. Simply distinguishing between NBI language and binary feminisation (BF), 7.9 per cent articles used some kind of non-binary inclusive language, compared to 12.5 per cent of articles that used binary feminisation.

The data from the scraped articles (Table 3) reveals that the generic masculine is used in 71.9 per cent of possible cases and thus is still the dominant form. The most prevalent types of GIL are the colon form, the neutral form, and the pair-form (fem–masc.) which each make up 4–5 per cent.

Variation by media source

When the overall use of GIL is broken down by media source, a clear difference between the left leaning *taz*

and the other media sources becomes visible (Figure 4). Until 2014, the use of GIL was relatively stable at around 500 pmw for *taz* and practically non-existent in the other media. From 2014 onwards an exponential increase in GIL in *taz* is visible: it climbs to nearly 3,000 pmw in 2021. For the other media sources, an increase in GIL is visible from around 2019. Whilst overall use of GIL is low compared to the level in *taz*, a rapid increase is visible from 2020 to 2021. For example, in *Spiegel Online*, the use of GIL more than doubled and the use is comparable to how it was in *taz* before the change took off there. The right-leaning newspaper, *Die Welt*, has the lowest use and slowest increase. Table 4 shows the percentages of usage per possible case. The highest use is visible in *taz*, which used GIL in 36.25 per cent of possible cases, whilst it is lowest in *Die Welt*, which used it in 3.8 per cent of possible cases.

Few articles used GIL in 100 per cent of possible cases (Figure 5). It does not seem to be the case that if an article uses GIL, it does so consistently. Instead, there are more articles that use some GIL. The within-article distribution of GIL varies between the media sources: *taz* has the most even distribution and has the most articles that always use GIL. It is followed by *Der Spiegel*, where there are also more articles with higher levels of GIL. *Die Welt* has the most skewed usage: most articles used very little, if any, GIL.

The left-leaning newspaper seems to lead the change, but change is also happening in the other newspapers (even if it is slowest in the conservative newspaper).

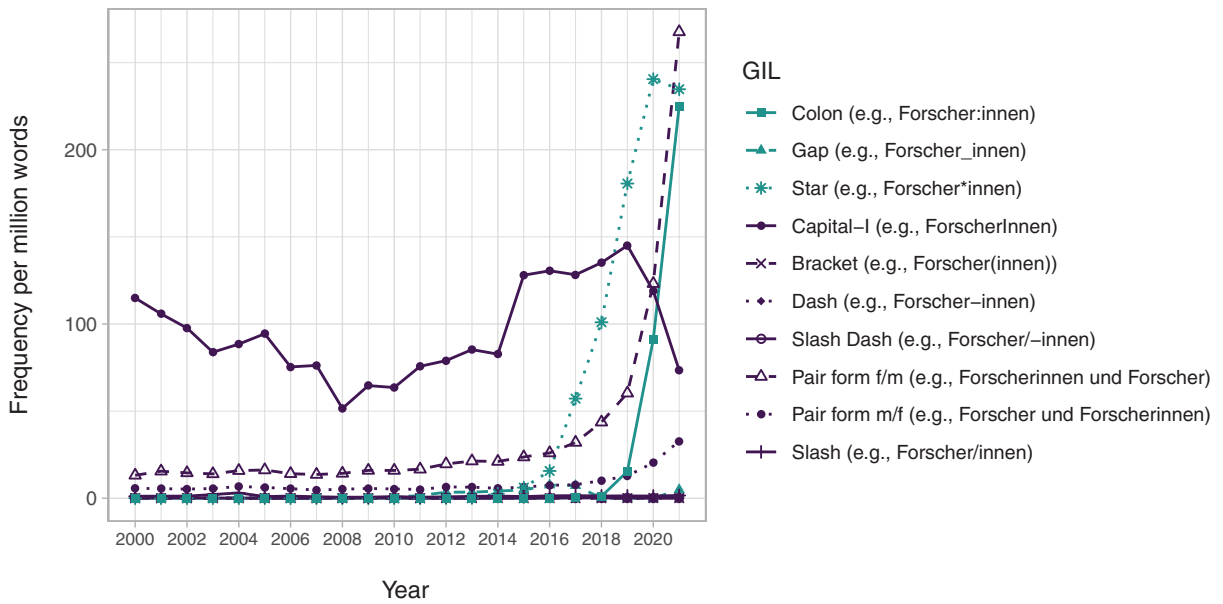


Figure 2 Frequency of different types of gender-inclusive language. Data: DeReKo

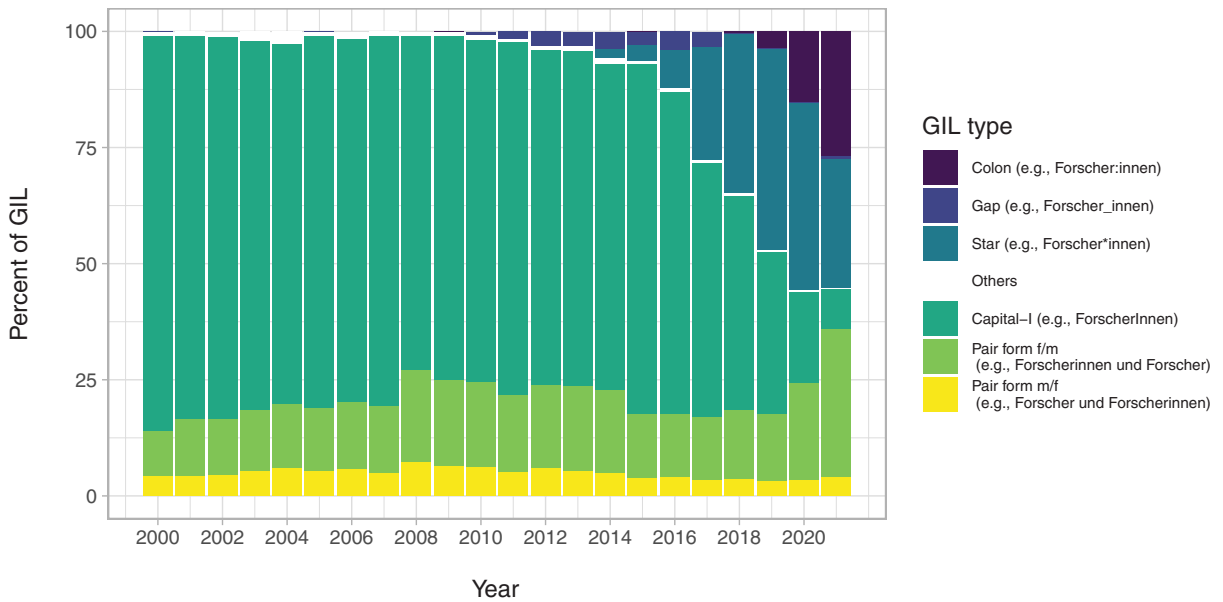


Figure 3 Share of different types of gender-inclusive language 2000–2021. Data: DeReKo

Taking into account when and how quickly the increase in GIL begins in combination with frequency of GIL within each article, it seems that that more and more people are gradually beginning to use GIL. The more recent the increase in GIL, the more skewed the distribution of GIL is per article.

Variation by type of GIL and media source

Distinguishing between types of GIL within each media source reveals two different trends. [Figure 6](#) indicates a rapid increase in the frequency of two types of GIL in *taz*: the star form and the colon form. The frequency of the star form began to increase from 2016 onwards,

Table 3 Use of gender-inclusive language in percent of possible cases 2021

	Frequency	%
Generics		
Generic feminine	30	0.81
Generic masculine	2,659	71.90
Binary feminisation		
Capital-I	27	0.73
Slash Dash	1	0.03
Pair form (fem–masc.)	167	4.52
Pair form (masc.–fem.)	38	1.03
Non-binary inclusive		
Colon	163	4.41
Star	44	1.19
Gap	4	0.11
Inclusive neutral	181	4.89
Ambiguous cases		
Feminine	4	0.11
Masculine	313	8.46
Institution or person?	67	1.81
Sum	3,698	100

Data: Scraped articles

reaching around 1,600 occurrences pmw in 2020 and dropping to just below 1,500 pmw in 2021. The colon form is a newer type of GIL with rapid growth: it emerged in 2018 and by 2021 it was nearly as frequently used as the gender star (1,400 pmw). A third prominent form seems to be the capital-I form, which had consistently been above the other forms of GIL at between 300 and 800 pmw until mid-2018, at which point it was replaced by the gender star as the most common form of GIL and has since been declining.

In the other media sources (Figure 7), there is a markedly lower level of GIL usage. Especially the gender star has a very low frequency. Instead, the pair form (feminine–masculine) shows a more frequent usage. However, its frequency is still below that of the gender star in the *taz* (just over 400 pmw in *Spiegel Online* 2021, which is the highest frequency within all the four mainstream news sources). An increase in usage is visible from roughly 2015 onwards.

At the article level in 2021, 35.2 per cent articles in *taz* used non-binary language, compared to around 1 per cent or less in the other media sources (Figure 8). Here, binary feminisation was much more prevalent in the mainstream media and lowest in *Die Welt* at 5.8 per cent.

Whilst the generic masculine is still the most common form, its prevalence varies between the newspapers (Table 5): it is highest in *Die Welt* (83.75 per cent) and lowest in *taz* (53.46 per cent). In the latter, the colon form, which was previously identified as the most common type, is used in 17.49 per cent. *Der Spiegel* is the newspaper that has the second highest level of

GIL at 21.48 per cent overall, however, rather than the colon form, it is the feminine–masculine pair form (e.g., ‘Forscherinnen und Forscher’) that is the most frequent type of GIL at 8.31 per cent here. Like *Der Spiegel*, the other two mainstream media sources have a higher frequency of the feminine–masculine pair form. In *Die Welt*, GIL is used the least: it is used in 3.8 per cent of possible cases.

A further notable form of GIL, which is only measured in the scraped articles, is the inclusive neutral (e.g., ‘Forschende’). It is the second most-common type of GIL in *taz* at 7.48 per cent. Frequency is low in *Süddeutsche Zeitung* with 3.03 per cent, where it is the only type of non-binary inclusive language used. It is lowest in *Die Welt* at 2.3 per cent, where it is nonetheless the most common form of GIL.

By distinguishing between types of GIL within each media source, two different trends can be discerned. On the one hand, there is an increase in binary feminisation, as embodied by the feminine–masculine pair form. This is most visible not only in *Der Spiegel* but also in *Die Zeit* and to a lesser extent *Süddeutsche Zeitung* and *Die Welt*. On the other hand, there is a rapid increase in non-binary inclusive language, especially the colon, in the left-leaning newspaper *taz*. A slight increase in the colon form is also visible in *Der Spiegel*.

Variation by gender of author

Looking at the use of GIL by gender reveals a gendered pattern: a higher percentage of women authors used GIL compared to men authors. In the scraped articles, 324 individual authors were identified. Using first names as an indication of gender, 113 are classed as women and 211 as men. Overall, at the author level, 50.4 per cent of women used some type of GIL, compared to 44.5 per cent of men. Breaking down use by media source, a higher percentage of women used GIL in *taz*, *Die Zeit*, and *Der Spiegel*, whereas in *Süddeutsche Zeitung* and *Die Welt*, the percentage of men who used GIL is higher (Figure 9). Considering the category of GIL used indicates that a higher percentage of women used non-binary inclusive language (20 per cent of women compared to 10 per cent of men), whereas a higher percentage of men used neutral language (26 per cent vs. 19 per cent of women), or binary feminisation (41 per cent of men vs. 38 per cent of women) (Figure 10).

The DeReKo data show the distribution of GIL types used by author gender. A dictionary approach was used to approximate gender for a subset of single-authored articles for which an author name could be identified (see Supplementary Material, Section 4). Author gender was identified within *Die Zeit*, *Die Welt*, *SZ*, and *taz*. For 2021, the gender of 1,942 authors was identified: 43 per cent were classified as women and 57

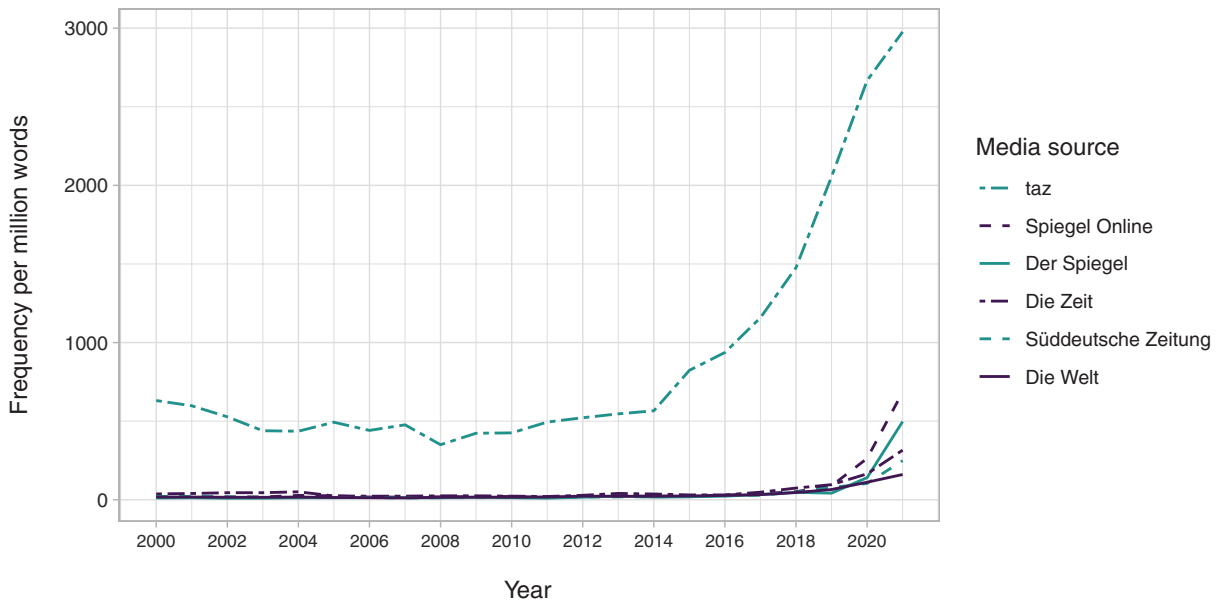


Figure 4 Frequency of gender-inclusive language by media source from 2000 to 2021. Data: DeReKo

Table 4 Frequency of gender-inclusive language types by newspaper 2021

Language category	taz	Süddeutsche Zeitung	Der Spiegel	Die Zeit	Die Welt
Generics	53.46	78.52	71.35	76.59	83.75
Gender-inclusive	36.25	8.47	21.48	13.67	3.8
Ambiguous	10.3	13.01	7.17	9.74	12.44
Sum	100	100	100	100	100

Data: Scraped articles

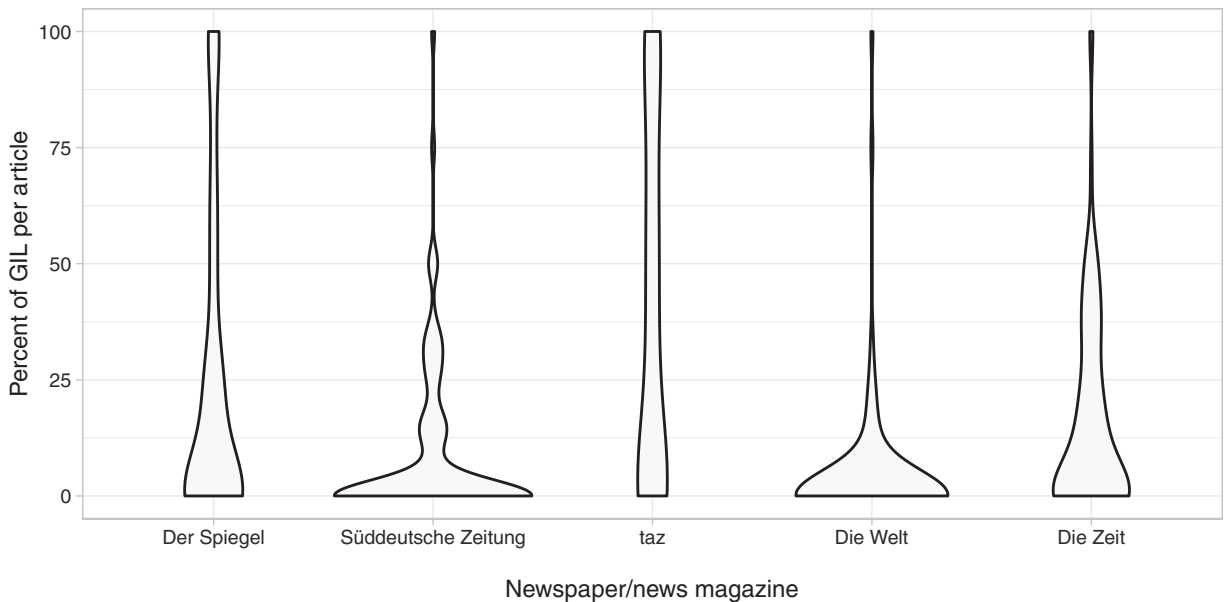


Figure 5 Proportion of gender-inclusive language per article per media source 2021. Data: Scraped newspaper articles

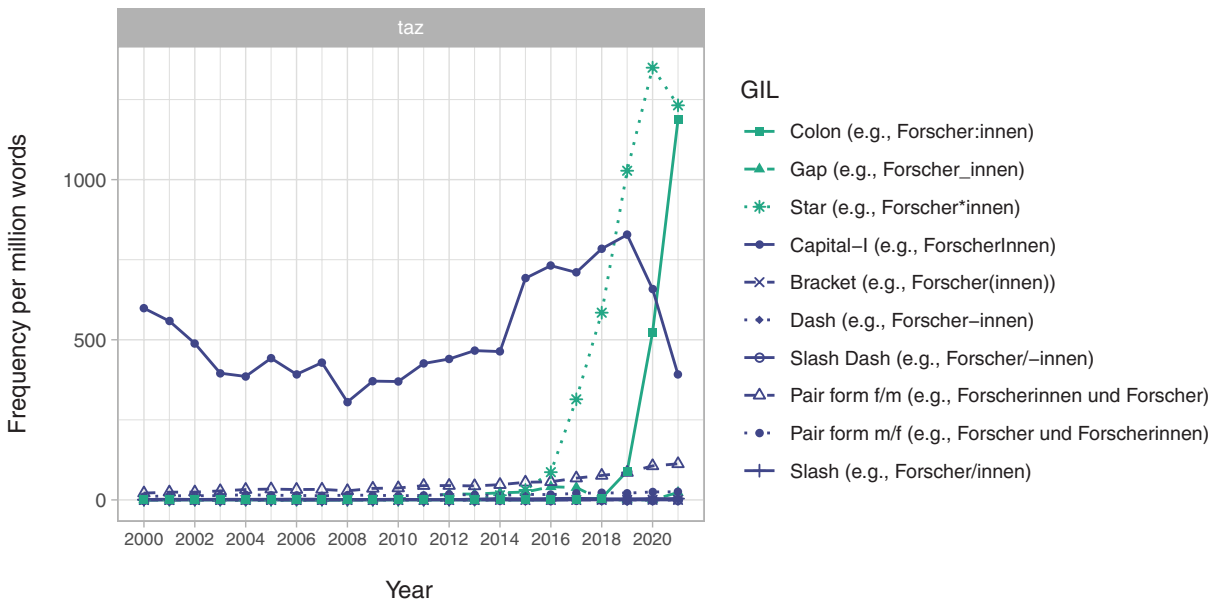


Figure 6 Frequency of gender-inclusive language types 2000–2021, taz. Data: DeReKo

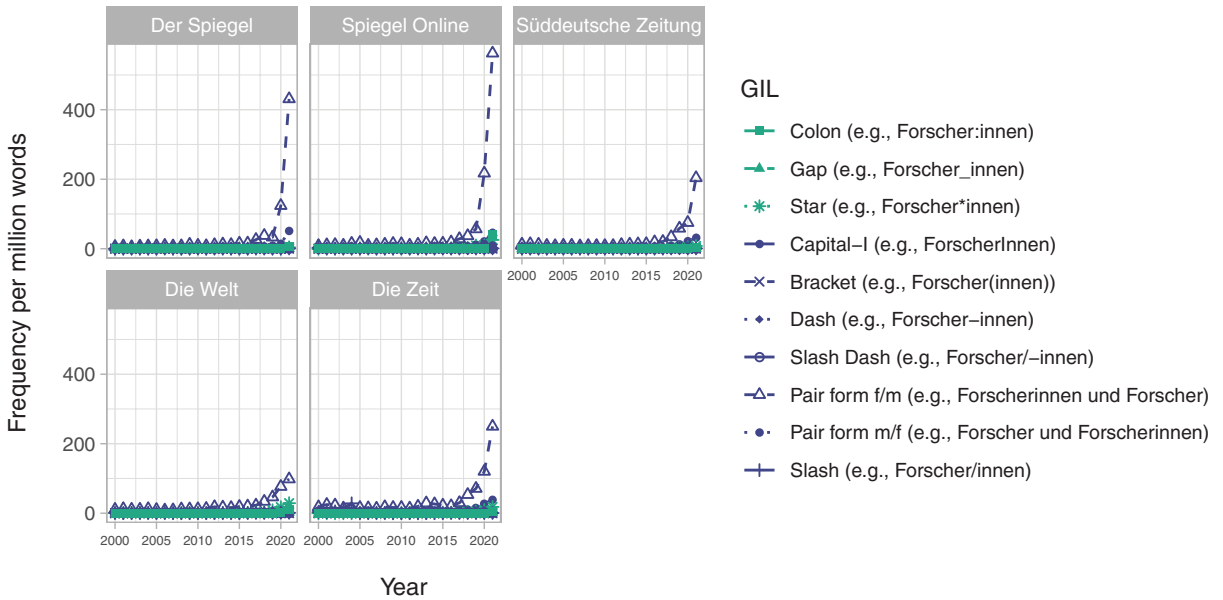


Figure 7 Frequency of gender-inclusive language types 2000–2021, other media sources. Data: DeReKo

per cent as men. About 49.3 per cent of women used only binary feminisation (BF), 26.5 per cent used only non-binary inclusive (NBI) language and 24 per cent used both (Figure 11). Breaking this down by newspaper shows the highest percentage of men and women using both types of GIL in *taz*, with a slightly higher percentage of women using NBI than BF (Figure 12). Surprisingly, in *Die Welt*, it is a higher percentage of men using both forms.

Discussion

The results indicate a sudden and rapid take-off of GIL in the space of a few years, despite no clear trigger event. In other words, a rapid change took place even though it was theoretically unlikely. When different political contexts are considered, two distinct patterns emerge. Whilst non-binary inclusive forms of GIL that do not conform to official orthography rules are the most dominant form of GIL in the left-leaning

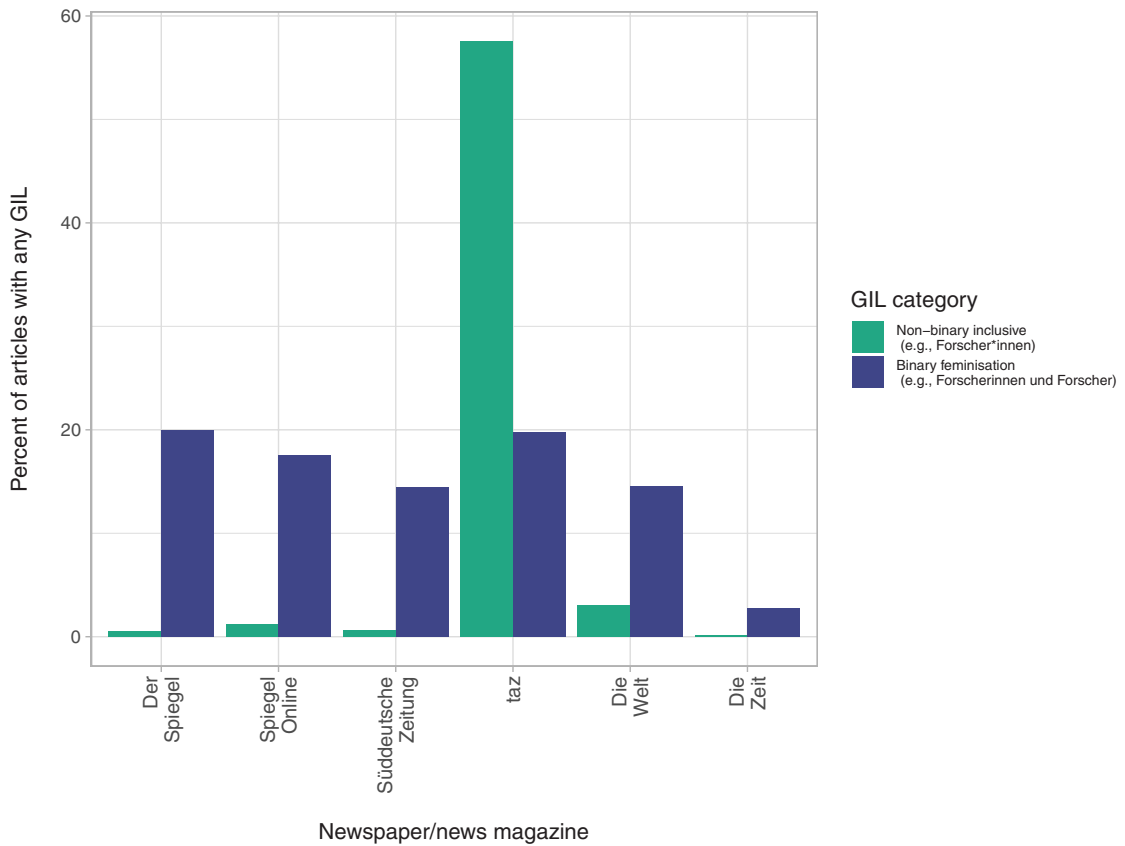


Figure 8 Percentage of articles that use gender-inclusive language 2021. Data: DeReKo

Table 5 Proportion of gender-inclusive language by media source 2021

	taz	Süddeutsche Zeitung	Der Spiegel	Die Zeit	Die Welt
Language type	%	%	%	%	%
Generics					
Generic fem.	0.71	0.61	0.51	1.97	0
Generic masc.	52.75	77.91	70.84	74.62	83.75
Binary feminisation					
Capital-I	3.81	0	0	0	0
Slash Dash	0	0	0.13	0	0
Pair forms					
Fem.–masc.	1.13	4.54	8.57	6.37	1.02
Masc.–fem.	0.71	0.91	1.92	1.16	0.29
Non-binary inclusive					
Colon	17.49	0	4.35	0.46	0.15
Star	5.08	0	0	0.93	0
Gap	0.56	0	0	0	0
Inclusive neutral	7.48	3.03	6.52	4.75	2.34
Ambiguous cases					
Fem. ambiguous	0	0.15	0	0.35	0
Masc. ambiguous	8.18	11.8	6.91	6.84	9.37
Institution or person?	2.12	1.06	0.26	2.55	3.07
Sum	100	100	100	100	100

Data: Scraped articles

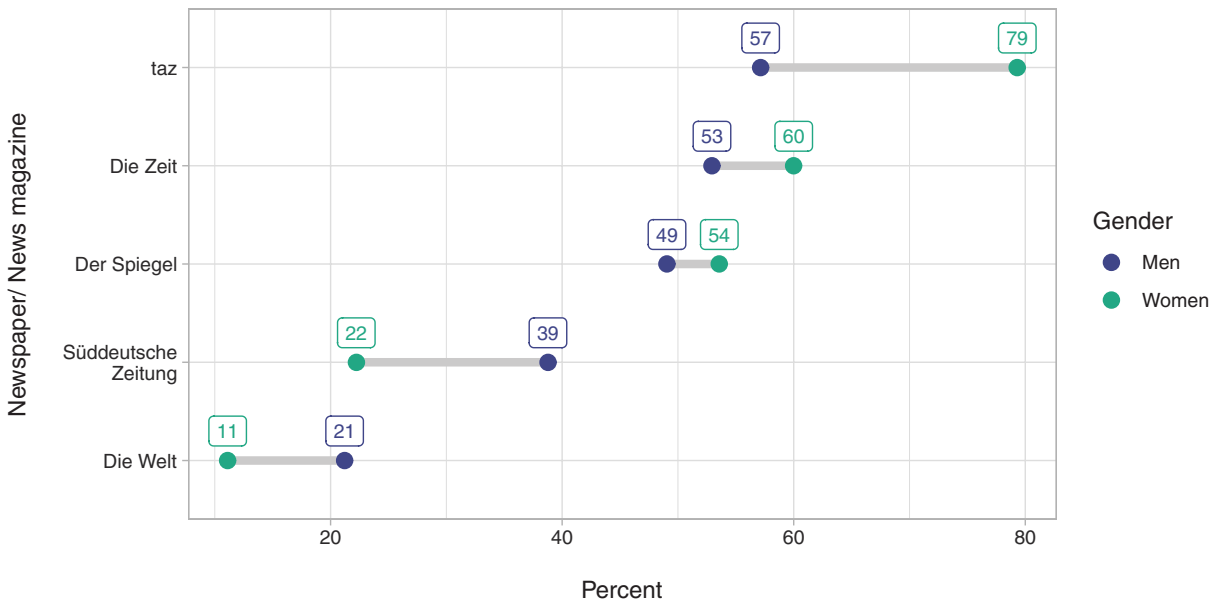


Figure 9 Percentage of authors who use gender-inclusive language by gender and media source 2021. Data: Scraped newspaper articles

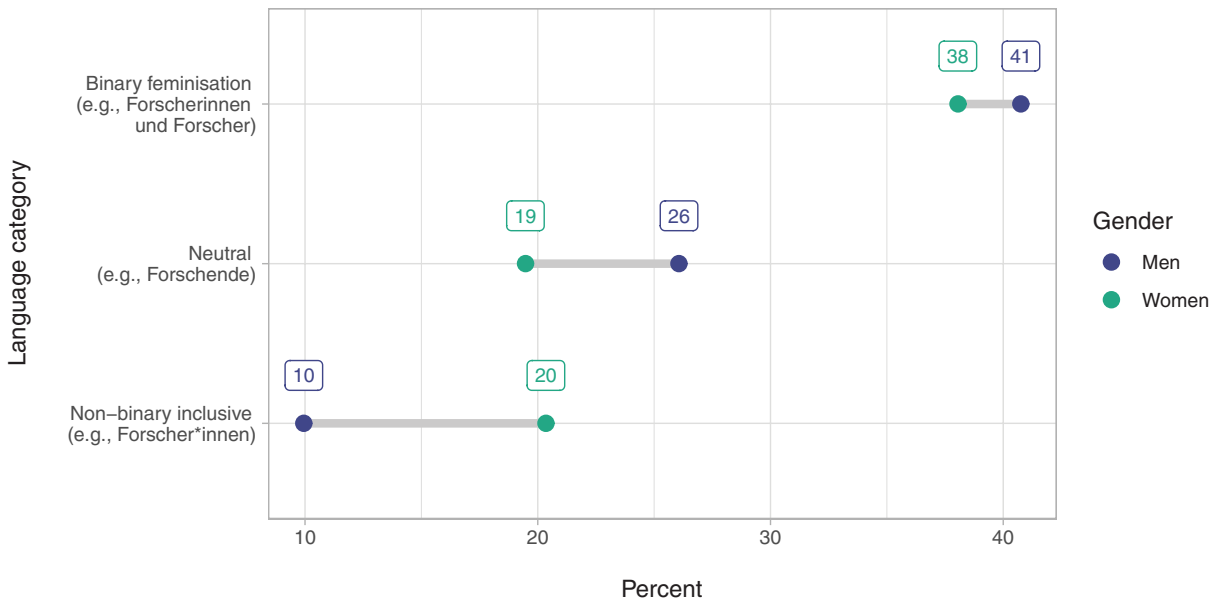


Figure 10 Percentage of authors who use gender-inclusive language by gender and gender-inclusive language category 2021. Data: Scraped newspaper articles

newspaper it is the word-pair (fem-masc.) adhering to a binary gender that dominates in the other newspapers. GIL use is lowest in the right-leaning newspaper.

It would be easy to believe that the increase in GIL is due to top-down recommendations for a certain type of GIL. As mentioned above, the mainstream newspapers support binary feminisation and neutralisation, but not

GIL that uses typographical symbols. The big *but* here is: these positions were published *after* an increase in usage is visible. One exception is *Die Zeit*, who already in 2018 published its position, around the time the increase in GIL begins. *Der Spiegel* and *Süddeutsche Zeitung* published their position in 2021, when the change in GIL is already visible. Therefore, the formal

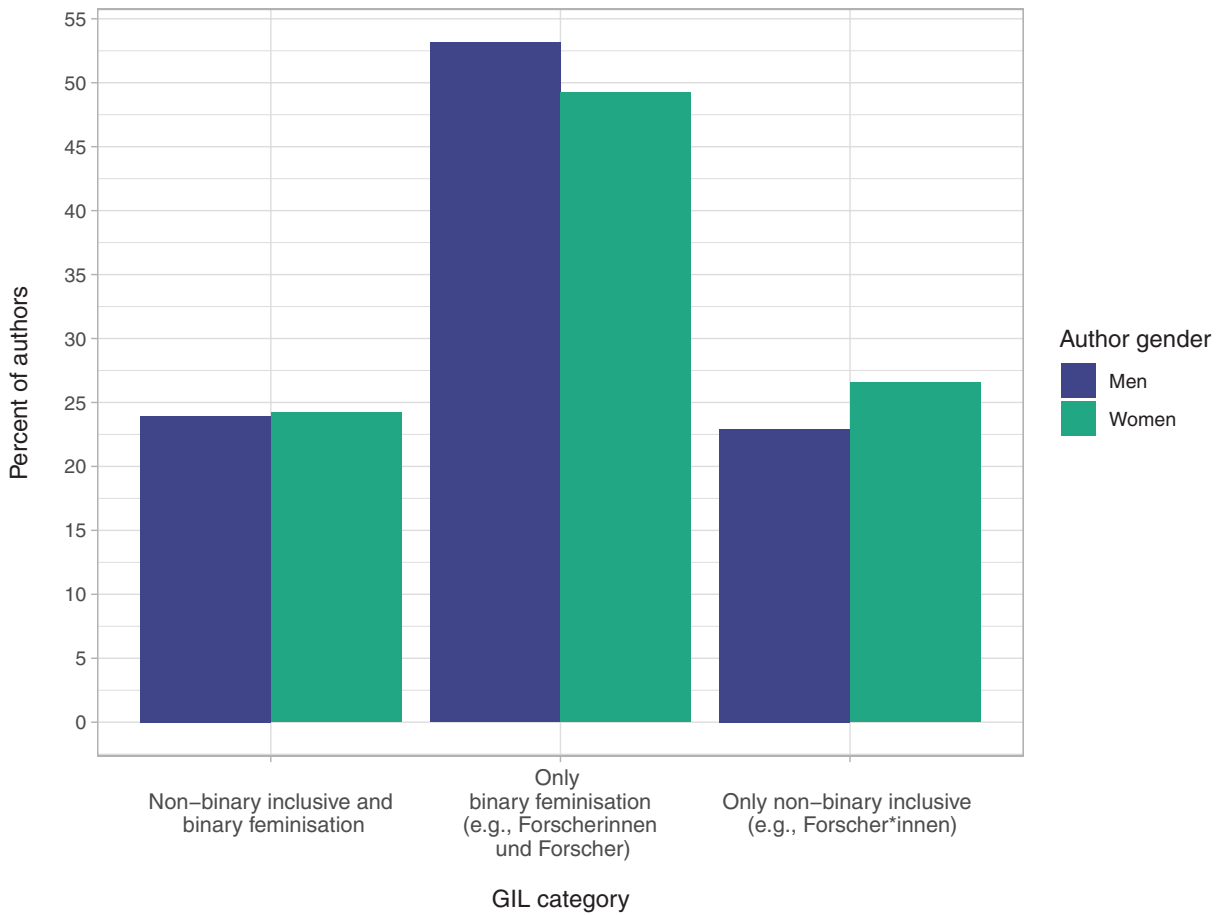


Figure 11 Distribution of gender-inclusive language use by author gender 2021. Data: DeReKo

position taking could have been a reaction to the increase in usage. In other words, a bottom-up change was recognised and strengthened from the top. Without access to internal decision-making processes, this cannot be determined, but is an intriguing question for future research. Moreover, there does not seem to be a link between editorial change and changes in GIL use as change is visible even without editorial change in *Die Zeit* (see [Supplementary Material, Section 5.4](#)).

A second observation in support of bottom-up change is the inconsistency of GIL use at the article level. This contradicts the notion that text is edited to be gender-inclusive. Inconsistent use also indicates that text is not edited before publication to reflect a desired attitude. In addition, the trends found in the newspapers are mirrored in the reader letters (see [Supplementary Material, Section 6.3](#)), indicating that there is a wider societal change that is not limited to journalists' behaviour. This theoretically unlikely and rapid change can be understood

by identifying three likely conditions conducive for change: the possibility of incremental adoption, the possibility of low-threshold adoption and the presence of a strong innovator. Looking at the distribution of GIL use per article reveals that adopting GIL is not an all-or-nothing approach: it can be incrementally introduced and expanded. Thus, the cognitive challenge is potentially reduced by only applying it in a few cases and then, as one gets accustomed to it, expanding it to more instances. Moreover, building on the notion that the use of the GM varies between person nouns ([Schröter, Linke and Bubenhöfer, 2012](#)), one could start using GIL on the words where it is easier and then slowly expand the usage. It is also reasonable to assume a positive feedback loop that contributes to reducing the cognitive challenge of using GIL: The more GIL is used, the more familiar one becomes with it, thus subsequent use becomes easier. This is the previously mentioned 'societal habituation effect' (own translation) ('gesellschaftlicher Gewöhnungseffekt') ([Simon,](#)

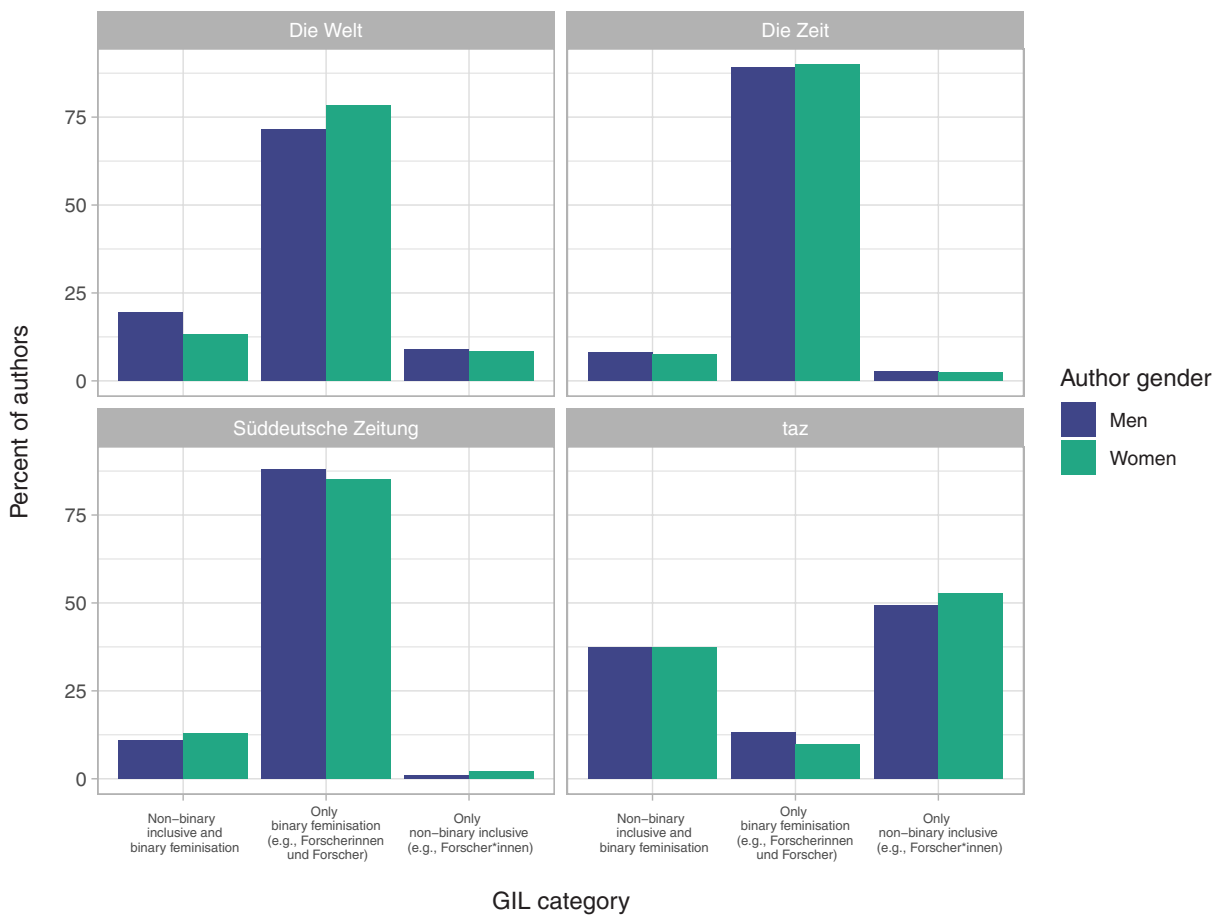


Figure 12 Distribution of gender-inclusive language use by author gender and media source 2021. Data: DeReKo

2022:p. 17). The idea of increased exposure leading to increased usage is supported by the linguistic literature (Blythe and Croft, 2021).

Second, low-threshold adoption is possible. Two different types of GIL have developed in different contexts. In the more social justice-oriented condition of *taz*, more controversial forms of GIL prevail, whereas in more mainstream conditions, a more conservative form of GIL that does not break official orthography rules, dominates. Whilst this is not the most inclusive type of GIL as it conforms to a binary notion of gender, it does reflect an increasing awareness of the necessity for GIL that could, over time, pave the way for an increase in non-binary inclusive language. *taz* also previously used a binary type of GIL that was then replaced by non-binary inclusive GIL.

Third, *taz* might act as a role model amongst the media sources. It is the innovator that is paving the way for change. By having one producer of texts not

follow the formal rules, other producers may also be more likely to depart from the rules. Again, there is the potential for a positive feedback loop here: the more people choose not to follow the rules, the more additional people are likely to do the same. Here, not the individual is seen as the actor, but the newspaper. This follows the logic of the s-curve known from the diffusion of innovation literature, which, following Blythe and Croft (2012) also applies to language change. In language change, a driving force behind which variant wins out is how each variant is weighted (Burnett and Pozniak, 2021:p. 294).

It remains to be seen whether the use of non-binary language, especially the colon, will spill over to the other media sources and how GIL will develop in the future. GIL may not be the default (yet), but a striking increase is visible, despite no formal endorsement. This means that despite difficult conditions, changing language is possible: GIL can be designed and applied. Previous types of GIL have not experienced the same level

and breadth of adoption as is visible in recent years. The increase in GIL is not only a linguistic phenomenon but also a social phenomenon. The linguistic behaviour change signals a change in attitudes: greater visibility of women and equality between women and men but also the recognition that gender is not binary, as indicated by the rise and increase of non-binary language. Using GIL does not automatically increase tangible gender equality as such, but it increases representation and may lay the foundation for a more gender-equal future.

On a more abstract level, the case of GIL shows that changing behaviour can succeed, even in adverse conditions. Despite the cognitive challenge involved, different variants competing and an unfavourable environment change is visible. Women tend to use GIL, especially non-binary forms, more than men. If there is the intention to further increase the use of GIL, it might be worth considering why there is a gendered dimension (do men not see the need for GIL? do they feel threatened by it?) to then know how to best tackle it. This, of course, assumes that GIL is desirable. Future research should also consider unfavourable consequences of GIL (e.g., whether there is an association between the rise of GIL and political behaviour, such as voting for far-right parties). Moreover, future research could take a closer qualitative look at how GIL is used. *Die Welt* has a relatively high use of non-binary inclusive language that comes as a surprise but could be explained by a sarcastic or critical use of GIL, which would still result in its use.⁴ This warrants further investigation. Another avenue of further research is to investigate how authors' behaviour changes between their publications in different newspapers.

Notes

1. She sued a German bank for only referring to her as 'Kunde' (customer [masc.]) and not 'Kundin' (customer [fem.]) ([Bundesgerichtshof, 2018](#)).
2. For example, Spotify, a popular music streaming platform speaks of 'Künstler*innen' not 'Künstler' (artists); the iOS 15 update for iPhones refers to 'Freund:innen' not 'Freunden' (friends); the Duden, the main German dictionary, and grammar guide, changed its online edition to include full definitions for the feminine forms of role nouns—previously the entry would simply read 'female form of ...'.
3. There is a slight drop in 2005 and subsequent increase in 2009, which are both election years. However, it was verified that this cannot be due to 'Kanzlerin' (chancellor [fem.]) being falsely picked up as GIL, or that there is an increased use of the words 'chancellor' or 'candidate' in GIL.
4. Several instances of this were observed during hand-coding.

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Supplementary Data

Supplementary data are available at *ESR* online.

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