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**Use of Gender-Neutral Language in Respect of Role Nouns
in Austria's Media: A Corpus-Based Analysis.**

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Computational Linguistics 1

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Venice, January 15, 2022

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1. Introduction

The use of gender-neutral language is crucial in promoting equality between men and women. It aims to reduce gender stereotypes and biases in language, and ensures that language is inclusive for all individuals regardless of their gender identity. Additionally, it can be beneficial in professional contexts such as the workplace, business, and official documents by avoiding confusion or offense and promoting inclusivity and respect. Especially in the developed country Austria it is interesting to see in which way media contributes to the representation of women and men through language. One way to study the use of gender-neutral language in Austria's media is through corpus-based analysis, which involves analyzing large amounts of text data to identify patterns and trends in language use.

The Austrian Media Corpus (AMC) is an excellent resource for studying gender-neutral language in Austria's media. AMC is a large corpus of text data from various types of media in Austria, including newspapers, magazines, and websites. This corpus allows for a comprehensive analysis of language use in Austria's media and can provide valuable insights into the representation of genders in the media.

The AMC is a valuable resource for studying gender-neutral language in Austria's media. By analyzing the big amounts of text data from various types of media in Austria, this essay gives insights into the representation of different genders in the media and to identify patterns and trends in language use. Especially the detailed view in particular role nouns is from big importance.

2. State of the Art

2.2. Background theory

A research that provides the basis of this paper is a study done by Misersky in 2013 and is called "Norms on the gender perception of role nouns in Czech, English, French, German, Italian, Norwegian, and Slovak". In this research a questionnaire was spread and the participants were asked to rate on scale how many women versus men they believed were present in the social and occupational groups presented, with 0 percent indicating all men and 100 percent indicating all women. This was done with seven different languages. The results showed that many role nouns were rated as rather feminine, some as masculine and others as neuter - the role nouns

on the feminine side were illustrated close to 1, masculine close to 0 and neuter role nouns were around 0.5). For a better understanding the following table shows some of the results.

Table 3 Means (in bold), number of responses and standard deviations (in brackets and italic) for all role nouns across the seven languages (higher values represent a higher proportion of women estimated)

	Czech			English			French			German			Italian			Norwegian			Slovak			
	<i>M</i>	<i>N</i>	<i>(SD)</i>	<i>M</i>	<i>N</i>	<i>(SD)</i>	<i>M</i>	<i>N</i>	<i>(SD)</i>	<i>M</i>	<i>N</i>	<i>(SD)</i>	<i>M</i>	<i>N</i>	<i>(SD)</i>	<i>M</i>	<i>N</i>	<i>(SD)</i>	<i>M</i>	<i>N</i>	<i>(SD)</i>	
Accountants				.37	140	<i>(.14)</i>	.39	32	<i>(.17)</i>	“Bookkeeper”	.47	405	<i>(.16)</i>	.42	30	<i>(.19)</i>	“Bookkeepers”					
Acrobats	.5	38	<i>(.2)</i>	.57	144	<i>(.16)</i>	.55	31	<i>(.12)</i>	.53	38	<i>(.13)</i>	.5	393	<i>(.14)</i>	.53	31	<i>(.13)</i>	.55	28	<i>(.21)</i>	
Acupuncturists	.51	34	<i>(.23)</i>	.59	139	<i>(.17)</i>	.49	30	<i>(.17)</i>	.6	36	<i>(.15)</i>	.52	403	<i>(.18)</i>	.61	29	<i>(.14)</i>	.55	28	<i>(.18)</i>	
Administrative workers				.59	142	<i>(.16)</i>	.57	32	<i>(.11)</i>	.59	33	<i>(.15)</i>	.54	413	<i>(.17)</i>	“Secretaries”	“Office workers”					
Admirals	.08	35	<i>(.12)</i>	.25	142	<i>(.19)</i>	.16	33	<i>(.15)</i>	.16	34	<i>(.13)</i>	.17	399	<i>(.14)</i>	.17	29	<i>(.12)</i>	.09	28	<i>(.12)</i>	
Aerobics instructors	.85	37	<i>(.12)</i>	.7	140	<i>(.16)</i>	.74	28	<i>(.15)</i>	.72	34	<i>(.15)</i>	.73	401	<i>(.18)</i>	.81	30	<i>(.11)</i>	.84	29	<i>(.15)</i>	
Air traffic controllers	.29	37	<i>(.21)</i>	.32	141	<i>(.17)</i>	.32	33	<i>(.14)</i>	.29	37	<i>(.15)</i>	.45	401	<i>(.22)</i>	.26	30	<i>(.17)</i>	.28	28	<i>(.18)</i>	
Alcoholics	.4	34	<i>(.15)</i>	.41	138	<i>(.14)</i>	.36	32	<i>(.13)</i>	.39	33	<i>(.13)</i>	.35	396	<i>(.16)</i>	.35	28	<i>(.11)</i>	.32	31	<i>(.13)</i>	
Anglers	.12	36	<i>(.12)</i>	.28	140	<i>(.16)</i>	.18	31	<i>(.11)</i>	.23	35	<i>(.11)</i>	.17	391	<i>(.14)</i>	.19	32	<i>(.11)</i>	.11	29	<i>(.08)</i>	
Animators	.62	41	<i>(.16)</i>	.39	139	<i>(.13)</i>	N/A			.52	37	<i>(.1)</i>	.54	393	<i>(.13)</i>	.35	31	<i>(.13)</i>	.74	31	<i>(.14)</i>	
Antique dealers	.33	36	<i>(.14)</i>	.38	141	<i>(.16)</i>	.39	35	<i>(.17)</i>	.37	33	<i>(.12)</i>	.4	409	<i>(.15)</i>	.42	32	<i>(.17)</i>	.47	30	<i>(.16)</i>	
Apprentices	.42	33	<i>(.16)</i>	.4	138	<i>(.12)</i>	.45	34	<i>(.08)</i>	.45	35	<i>(.09)</i>	.49	397	<i>(.12)</i>	.47	33	<i>(.09)</i>	.39	29	<i>(.17)</i>	
Architects	.32	38	<i>(.15)</i>	.36	142	<i>(.14)</i>	.38	31	<i>(.13)</i>	.42	33	<i>(.15)</i>	.43	396	<i>(.14)</i>	.42	30	<i>(.13)</i>	.37	30	<i>(.15)</i>	
Archivists	.53	38	<i>(.23)</i>	.44	141	<i>(.16)</i>	.46	33	<i>(.17)</i>	.54	35	<i>(.16)</i>	.53	402	<i>(.16)</i>	.57	29	<i>(.19)</i>	.61	32	<i>(.22)</i>	
Artists	.49	36	<i>(.11)</i>	.51	141	<i>(.11)</i>	.52	32	<i>(.12)</i>	.5	32	<i>(.11)</i>	.49	400	<i>(.1)</i>	.53	29	<i>(.11)</i>	.45	30	<i>(.16)</i>	
Assistants	.71	36	<i>(.18)</i>	.65	137	<i>(.13)</i>	.58	34	<i>(.14)</i>	.65	35	<i>(.12)</i>	.62	398	<i>(.17)</i>	.63	32	<i>(.13)</i>	.69	30	<i>(.22)</i>	
Assistant chefs	.48	34	<i>(.19)</i>	.44	141	<i>(.14)</i>	.31	33	<i>(.14)</i>	.49	35	<i>(.14)</i>	.49	403	<i>(.17)</i>	.58	30	<i>(.21)</i>	.41	30	<i>(.21)</i>	
Astrologists	.41	37	<i>(.27)</i>	.37	142	<i>(.17)</i>	.52	28	<i>(.22)</i>	.44	35	<i>(.22)</i>	.45	398	<i>(.19)</i>	.5	31	<i>(.24)</i>	.3	29	<i>(.26)</i>	
Astronauts	.17	34	<i>(.13)</i>	.23	138	<i>(.15)</i>	.18	32	<i>(.14)</i>	.24	34	<i>(.14)</i>	.21	388	<i>(.14)</i>	.2	33	<i>(.12)</i>	.14	30	<i>(.13)</i>	
Astronomers	.23	39	<i>(.17)</i>	.32	141	<i>(.15)</i>	.28	31	<i>(.16)</i>	.38	32	<i>(.17)</i>	.36	394	<i>(.16)</i>	.28	32	<i>(.16)</i>	.16	31	<i>(.12)</i>	

Table 1: Excerpt of Misersky's (2013) study results

Based on that research two role nouns of each category (male-female-neuter) were chosen to work with in this project.

A theoretical book that builds the basis of this paper is the “Oxford Handbook of Computational Linguistics and Natural Language Processing” by Clark published in 2012. Especially the pages 433 to 444 are from particular importance since they specify on corpus linguistics. It provides an overview of the corpus-based analysis which will be used in this paper and is therefore very helpful.

The book introduces many important definitions of terms regarding the corpus linguistic analysis that are used in this paper. In chapter 2.3.2 these definitions can be read.

Furthermore, it is very important to state the study “Hearth and Home: Images of Women in the Mass Media” that is a research article written by Flora, C.B. et al. in 1979, in order to provide a background knowledge for the reader regarding gender-neutral language in media in the past.

“Hearth and Home: Images of Women in the Mass Media” examines the representation of women in mass media. The study focuses on how women are portrayed in different types of media, such as television, newspapers, and magazines, and how these portrayals may reinforce gender stereotypes. The study analyzed the content of selected media outlets and the role of women in it. This study is based on a content analysis of the media representation of women in the United States, where the authors analyzed the content of television programs, newspapers and magazines.

The study found that women were underrepresented in the media and were mostly portrayed in traditional gender roles such as homemaker and wife, and that their representation was limited to domestic and personal roles. The study also found that women were often portrayed in passive and dependent roles, while men were portrayed as active and independent. The study also found that media portrayals of women were often stereotypical, depicting women as emotional, nurturing, and dependent.

The study concludes that the mass media play a significant role in shaping society's perceptions of women and gender roles and that there is a need for more positive and varied portrayals of women in the media. The authors argue that the media representation of women has an impact on the way society views women and gender roles, and that a more diverse representation of women in the media could lead to a more equal and just society. These results could be considered as an important reference for understanding the background of gender-neutrality and media representation in the past and its impact on the present.

Another important paper that provides insight in the use towards gender-neutral language is “Language influences mass opinion toward gender and LGBT equality” published in 2019 by Tavis and Pérez.

This article investigates the effectiveness of using gender-neutral pronouns and words in promoting gender equality and acceptance of LGBT communities. It looks at three large-scale experiments conducted in Sweden which adopted a gender-neutral pronoun alongside traditional gendered pronouns. The research suggests that using gender-neutral pronouns reduces the prominence of males in people's minds, leading to less bias in favor of traditional gender roles and attitudes that are more positive towards women and LGBT individuals. The results also indicate that similar patterns can be observed when using feminine pronouns, and that the impact of both types of pronouns is more unconscious than deliberate.

2.3. Explanation of terms

2.3.1. Gender-neutral language

Gender-neutral language is a type of language that avoids the use of gender-specific pronouns, terms, and forms of address and instead uses gender-neutral alternatives. According to the guidelines of the European Parliament, "Gender-neutral language is a way of writing and speaking that avoids bias towards a particular sex or social gender. It is used to ensure that the language is inclusive and does not perpetuate discrimination on the grounds of gender" (2018). The main goal of gender-neutral language is to create an inclusive environment that does not marginalize or exclude individuals based on their gender identity or expression.

Some examples of gender-neutral language include using the singular "they" instead of gendered pronouns such as "he" or "she," using gender-neutral terms like "police officer" instead of "policeman" or "policewoman," and using inclusive terms like "humankind" instead of "mankind." Gender-neutral language is also about using gender-inclusive forms of address such as "Mx." instead of gendered titles such as "Mr." or "Mrs.". The idea behind this is to avoid making assumptions about a person's gender identity, and instead using language that is inclusive of all genders.

In addition, gender-neutral language is also about avoiding gender stereotypes and avoiding making assumptions about a person's role or characteristics based on their gender. This includes avoiding gendered terms such as "brave" or "assertive" to describe men and "emotional" or "sensitive" to describe women. Gender-neutral language promotes an inclusive and respectful environment, where everyone is referred to in a way that is appropriate and respectful to their gender identity.

Overall, gender-neutral language is about using language that does not perpetuate gender-based discrimination. It is about being mindful of the language we use and how it can affect people, and making a conscious effort to use language that is respectful, inclusive and promotes equality.

2.3.2. Corpus

A corpus is basically a large collection of text data. Corpora are machine readable collections of naturally occurring language data and are used for a wide range of research purposes. The term corpus should be applied to a well-organized collection of data, collected within the boundaries of a sampling frame designed to allow the exploration of a certain linguistic feature. Sampling is inescapable, so the corpus should aim for balance and representativeness within a specific sampling frame. (Clark, 2012)

"The texts in a corpus are usually selected to be representative of a specific genre or language variety, and are typically annotated with linguistic information such as part-of-speech tags or syntactic parse trees" to aid in the analysis of the language within. (V. N. Gudivada & Arbabifard, 2018, p.1). A corpus is a valuable tool for researchers, linguists and natural language processing professionals as it allows them to study patterns and trends in language, and to develop and evaluate computational models of language. It lets researchers conduct quantitative and comprehensive analysis of language, and also helps in understanding the usage and meaning of words and phrases in a specific context. It serves as a rich resource for researchers to gain insights into the structure, meaning and usage of language, which can be used in a wide range of fields such as linguistics, language education, and natural language processing.

2.4. Motivation: Importance of the use of gender-neutral language in media

The use of gender-neutral language in media is important because it addresses the issues of gender inequality and the representation of women and men in our society. Media plays a crucial role in shaping public perception and attitudes, and the language used in media can perpetuate stereotypes, reinforce bias, and exclude marginalized groups. By using gender-neutral language, media can help to challenge societal norms and stereotypes and promote gender equality.

Additionally, the use of gender-neutral language in media can help to address the issue of representation and perception of women and men. Historically, women have been underrepresented and misrepresented in media, and this has a negative impact on the perception of women in society. By using gender-neutral language, media can help to promote a more balanced and accurate representation of women and men, which can contribute to the empowerment of women and overall gender equality. For example, media outlets that use gender-neutral language can help to prevent unconscious bias in the way they report on stories,

as it allows individuals to be evaluated based on their actions or qualifications rather than their gender.

In summary, the use of gender-neutral language in media is important because it addresses the issues of gender inequality, representation, and perception in our society. It contributes to the disruption of societal conventions and prejudices, advancing gender equity and diminishing bias and prejudice. Media plays a crucial role in shaping public perception and attitudes, and by using gender-neutral language, media can help to create a more inclusive and equitable society.

2.5. Legal situation in Austria

Austria's laws regarding gender-neutral language are still evolving. However, in recent years, there has been a push for the use of gender-neutral language in government and official documents. In 2017, Austria's Constitutional Court ruled that official forms must offer a third gender option for individuals who do not identify as male or female. This ruling applies to government forms such as birth certificates and ID cards (Verfassungsgerichtshof, 2017).

In 2019, the Ministry of Justice issued a directive stating that all official documents should use gender-neutral language where possible, and that forms should be designed to be inclusive of all gender identities (Ministry of Justice, 2019). The directive also called for the use of gender-neutral terms in job titles and professional titles, such as “Vorstand” instead of “Obmann” which can be translated to "chairperson" instead of "chairman."

Additionally, Austria's parliament passed a bill in 2019, which allows people to register as "divers" on official documents if they do not identify as male or female. This law came into effect in November 2019 (Parliament of Austria, 2019). It allows individuals to choose the category of "divers" ("diverse" or "other") on official documents such as birth certificates and ID cards if they do not identify as male or female.

2.6. Linguistic explanation of German regarding genders

In the German language, articles and pronouns are word types that are not gender-neutral. German nouns have grammatical gender, which is also why it is categorized as a grammatical-gender language.

The gender of the nouns is indicated by the article used before them. This can cause difficulties as the gender of a noun is not always predictable by its meaning and they are often arbitrary. The articles are “der”, which stands for the masculine form of “the”, “die” is the feminine form and “das” is the neutral article. To illustrate the arbitrariness, the example of the

diminutive of the word “girl” is helpful. Its’ natural gender would be female, but in German language it uses the neutral article (“das Mädchen”).

As already mentioned, the pronouns are not gender-neutral either. They are the following: “er” is the masculine form for “he”, “sie” is the feminine form “she” and “es” is the neutral form for “it”.

Additionally, some professional roles and occupation titles are gendered, for example "Krankenschwester" (nurse) is feminine – its’ literal translation is “the sister of the sick” – and "Arzt" (doctor) is masculine. In this case there are no neutral options.

An important term that should be introduced regarding genders in the German language is the *generic masculine*. The generic masculine in German language refers to the use of masculine nouns, pronouns and adjectives as the default form when referring to a group of people that includes both men and women. This practice is based on the idea that men are the norm and the default, and women are the exception. For example, the phrase "der Arzt" (“the doctor” with male article) would be used to refer to any doctor, regardless of their gender. Similarly, the pronoun "er" (he) would be used to refer to a person whose gender is unknown or not specified. This practice is problematic because it reinforces the idea that men are the norm and women are the exception, and it can be exclusive and marginalizing for women. It also contributes to the invisibility of women in language and reinforces the gender stereotypes.

For this reason, many people are advocating for the use of gender-neutral language in German, which would avoid the use of the generic masculine and instead use more inclusive forms such as gender-neutral pronouns, articles, and titles.

3. Corpus analysis

3.1. Research Question and Hypothesis

Before the start of the project the statement of the research question and its hypothesis is from big importance.

- Research question: Does the frequency of the use of gender-neutral language depend on the gender stereotype the role noun is allocated to?

- Hypothesis: Gender-neutral language is more used regarding neutral role nouns than stereotypically feminine role nouns or stereotypically male role nouns.

3.2. Data

The used corpus is called Austrian Media Corpus AMC which is made possible by a cooperation between the Austria Press Agency (APA) and the Austrian Centre for Digital Humanities and Cultural Heritage (ACDH-CH). It collects the text production of the print media and completes the texts using linguistic annotation methods. Subsequently, the results are made available online as AMC in the corpus search engine NoSketch Engine. After a mail request with the description of my intended project I received credentials in order to receive access to the full version.

The AMC program provides four corpora, only one of which is used for this project. The choice was made for the corpus that contains the most tokens and offers the most recent data. The amount of words it contains is 8,806,223,211 with a total of 11,636,520,111 tokens and contains articles from newspapers, magazines and other media-formats from the year 1986 until 2021.

3.3. Approach

I limit my examination to the most popular method of gender-neutral language – the corpus of Austria’s media will be observed for splitting of particular chosen words. For this purpose, I refer to the study done by Misersky in 2013 which provides the scales of stereotypically female role nouns, stereotypically male role nouns, and stereotypically neutral role nouns. The chosen words are shown in the following table:

Role noun – English (Pl.)	Role noun - German (male & female form, Pl.)	Rating of Misersky’s research
Hairdresser	Friseure und Friseurinnen	Female – 0.78
Florist	Gärtner und Gärtnerinnen	Female – 0.79
Millionaires	Millionäre und Millionärinnen	Male – 0.32
Bosses	Chefs und Chefinnen	Male – 0.35
Patients	Patienten und Patientinnen	Neutral – 0.51
Customers	Kunden und Kundinnen	Neutral – 0.56

Table 2: Role Nouns with Miserskys' ranking

Firstly, I used the command [lemma="Kassierer" & pos="N.*" & pos!="Sg.*"] (advanced CQL search) in order to obtain all the results of the masculine noun “Kassierer” in plural. Subsequently I looked at the cooccurrences with the female plural version of it, which in this case is “Kassiererinnen” and compared the numbers of hits with the numbers of hits of the masculine nouns. The same approach was applied to the other role nouns as well.

3.4. Results

After entering all the role nouns into NoSketch Engine and comparing the values, I received the results shown in the table below.

	Role noun – English (Pl.)	Role noun - German (male & female form, Pl.)	Percent of whole corpus	Rank
N	Patients	Patienten und Patientinnen	0.0001674%	1
N	Customers	Kunden und Kundinnen	0.0001282%	2
F	Florist	Gärtner und Gärtnerinnen	0.000001066%	3
F	Hairdresser	Friseure und Friseurinnen	0.000002810%	4
M	Boss	Chefs und Chefinnen	0.000003369%	5
M	Millionaires	Millionäre und Millionärinnen	0.0000005672%	6

Table 3: Results of NoSketch Engine

The results show that the role nouns that were, according to Misersky (2013), rated as neither stereotypically female nor male were used the most in a gender-neutral way. The percentages of 0.0001674 percent and 0.0001282 percent of the cooccurrence of the masculine plural words and the belonging feminine plural words are the highest of the six tested role nouns. The particular role nouns were “patients” and “customers”. As per the ranking, this is followed by the stereotypically female role nouns, in this case “florists” and “hairdressers”, which stated a cooccurrence of 0.000001066 percent and 0.000002810 percent with the female versions. The role nouns that were the least gender-neutrally mentioned are the stereotypically male ones. These were “boss” and “millionaires” with percentages of 0.000003369 percent and 0.0000005672 percent.

3.5. Analysis and Discussion

To begin with, the research question and also its hypothesis can be answered with certainty: Yes, the frequency of the use of gender-neutral language is dependent on the stereotypicality of the role noun. The results of the study revealed that when referring to role nouns that are not strongly associated with one specific gender, such as "patients" and "customers," Austria's media used the most gender-neutral language. This outcome was anticipated, as these professions are commonly perceived as being accessible to individuals of both genders and do not carry many stereotypes. However, when the focus was on role nouns that are more strongly associated with one specific gender, the media used less gender-neutral language in comparison to the neuter role nouns.

A noteworthy discovery was that female role nouns were used in a more gender-neutral way than male role nouns. This finding requires further examination, as it suggests that female role nouns can also be occupied by men, but male role nouns are still primarily viewed as being exclusively occupied by men. This highlights once again the underrepresentation of women in the Austrian media. The lack of representation and diversity in media can have a significant impact on society's perceptions and attitudes towards women, and can contribute to the continuation of gender inequality. It's important for media organizations to make a conscious effort to promote gender equality and representation in their coverage, by featuring women in leadership roles and highlighting their contributions in various fields, and providing a more diverse representation of women with different backgrounds, ethnicity and abilities. This can be done easily by generally using a gender-neutral language and it can help to challenge stereotypes and promote a more inclusive and equitable society.

4. Summary

The study found that role nouns that are not stereotypically associated with one gender, were used in a gender-neutral manner the most in Austria's media. Stereotypically female role nouns were used in a gender-neutral way less often, and stereotypically male role nouns were used the least in a gender-neutral way. This suggests that the use of gender-neutral language is dependent on the stereotypical association of the role noun, and that female role nouns are more likely to be seen as being occupied by both genders than male role nouns, this indicates that there is a lack of representation of women in the media which.

To improve the reliability of the results, a follow-up study could include a larger sample of role

nouns in the analysis, as the connection of the role nouns and the use of gender-neutral language can thus only be assumed.

Additionally, a similar study could be conducted by analyzing political texts, such as speeches, rather than focusing on Austria's media. One could differentiate the parties and thus get an insight in their different principals.

Furthermore, the research would be interesting to do with another or more languages. As we know, the participants of the study by Misersky (2013) rated role nouns as being related to either women or men, and these ratings are dependent on the language used. It would be interesting to investigate the impact of these different ratings on the use of gender-neutral language in other languages. This would even go one step further, since the comparison of these results with the results of the research of this paper would also give important insight in the actual amount of influence language has on societies of the perception of women and men.

To sum up, the use of gender-neutral language has a significant impact on shaping people's perceptions and attitudes. Furthermore, media has an immense power to influence society's representation and understanding of both women and men. Given these factors, it is crucial to consider the implications of language choices in media and the role it plays in perpetuating or challenging gender stereotypes and inequalities. Therefore, it is my hope that Austria's media will increasingly adopt the use of gender-neutral language in their coverage and representation of individuals in various roles and professions. By doing so, media has the potential to play a key role in promoting gender equality, challenging stereotypes, and creating a more inclusive and equitable society. The use of gender-neutral language is not just a matter of political correctness, but it can also help to change the way people think and act towards gender equality.

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