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Comprehension of Gender-neutral forms and the pseudo-generic masculine in German: a visual world eye-tracking study

– ‘It goes without saying’ that everyone is included?

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Abbreviations

“gen”Masc.	“generic” masculine
fem.	feminine
masc.	masculine
neutr.	neutral
GN	Gender-neutral
SG	singular
PL	plural
coll.SG	collective singular
nomin.Part	nominalised participle
subst.	nominalisation (“Substantivierung”)
person	compounds with “-person”
RefIDQ	referent identification question
CQ	comprehension question
PRO	protagonist
RoI	region of interest (in a sentence)
IA	area of interest (in a visual display)
RT	reaction time
(all)♂	(all-)male Gender
(all)♀	(all-)female Gender
♂♀	mixed Gender
w	female (“weiblich”)
m	male (“männlich”)
d	diverse
ET	eye-tracking
VW	visual world

1. Linguistics and Genus – Society and Gender – Language and the Battlefield

An idiom from the English language expresses the heart of the debate on non-sexist language best: when it goes without saying it is implied, and if women are implied in a masculine expression of reference that should include anyone, if they are "meant" as well, is the issue this work is devoted to. The popularity this opinion enjoys draws on the grammatically conventional generic function of forms that are identical with those marked for masculinity. Does it literally not have to be mentioned, is it without stating explicitly that women* are involved as referents in discourse? After this assumption has been challenged by various psycholinguistic studies, an experiment using eye-tracking in a visual world setting conducted for this thesis shall weigh in its contribution and go towards testing distinct forms in German with respect to their generic functionality.

1.1 Gender Linguistics: Connected in Socio-Political Dimensions – Merged by Feminism

The end of the second decade of the 21st century, especially the past two years, seem to have hold some achievements of the feminist agenda – achievements to increase Gender equity and to minimise discrimination, be it structural sexism or any kind of violence, against women* across all areas. Feminism, the strive for equality of humans of all Genders, dates back to times when in what has become known as the first wave of feminism, the right to vote was fought for by the suffragettes. The women*'s movement then demanded and fought for equal opportunities at the work place, tackling social roles that held women* inferior to men in the second wave[1]. Now, in a third wave, feminism aims to fight on a more intersectional level, and understands the mechanisms of discrimination as intertwined with Gender identification, sexual orientation, racism and classism, but most core issues are still being debated, discriminatory language being one of these.

In 2018/19, an acknowledgement long fought for has been conceded by the German government when the law was passed that a third Gender category named *diverse* next to *male* or *female* has become a legal option to choose[2]. Another struggle finally found its successful end in a law allowing non-heterosexual couples the right to marriage. From my perspective, some media representatives have hesitantly begun to stop framing the persistent murdering of women* as "relationship drama" or "love / family tragedy", and the term "femicide" (homicides on specifically women* – statistically an immense thread in a female* person's life[3]) as well as "sexualised" instead of "sexual" violence appeared publicly, following an outrage of female readers and activists because of the

1 Throughout this paper, women* and descriptions of femaleness will be marked with an asterisk. This has become the common orthografic contrivance to symbolically express a) that womanhood is a construct on the basis of which people are categorised, and that b) other people (the "beams" of the "star") than those read as being female belong to the social category, too (including a female, trans, inter, queer, and non-binary community, summarised in the acronym FLINT* or LGBTIQ*, cf. "Leitfaden AG Feministisch Sprachhandeln" (2014: 25) in Nübling & Kotthoff 2018: 219).
The concept of Gender will be capitalised (unless quoted) to point out the umbrella term and construct it is – an orthographic means to refer to a category that should be treated as a constructed scheme in order to emphasise that these are ultimately concepts adduced to grasp complex coherencies.

2 Legally acknowledged since December 2018. Regarding biological factors, their interplay of chromosomes, hormones, and physical characteristics is not as straightforward as a system consisting of two clearly oppositional Genders long assumed.

3 https://www.zeit.de/2019/51/frauenmorde-gewalt-partnerschaft-bundeskriminalamt, last accessed: 27/04/20.

continuous act to banalise non-consensual assault[4]. Using apposite expressions and avoiding others, and in doing so raising awareness for these issues, such as harassment, structural oppression, and invisibility in language, we might add, are significant milestones that have been reached at last, because "[a] few years ago, they were just called life" (Steinem (1983: 149 in Ehrlich & King 2005: 165). Moreover, a consciousness has re-entered the stage of public discourse that feminists have been demanding for more than 40 years now: scholars and activists alike criticised that language is no less sexist than the society that speaks it. Unlike in the early phase of "feminist" or "Gender" linguistics[5], this notion is no longer ignored by many institutions who have published guidelines on non-sexist language use, on "do's" and "don't's". In some domains, regulations have even been distributed that request to be heeded at the work place. Job advertisements have to be offered in Gender-neutral language and be open to all for several years now. A language reform is both dreaded and already happening as this thesis is still being written. And yet, the Gender pay gap (lower wages women* earn) in Germany is among the biggest, and the Gender data gap has shown how the absence of women* from scientific research of medication but also product development places people who are not male at a significantly higher risk by the mere fact that any innovation is tested primarily on men. Invisibility is no super power here, it is damage to half the population's accessibility[6].

In sum, an opening of marriage, an accusation of a connection between masculinity and lethal violence, a reform of the language we speak – all these are societal aspects reaching far into our personal lives, our personal understandings of the world we learned to know, and our personal behaviours towards these advances (these topics are hotly debated under moral commitments to "political correctness"). By the ways we speak, we generate social realities, we categorise the world, we transmit our thoughts, values, and norms, which in turn manifest themselves in language use. This communicative tool thus plays a central role in the construction as well as modification of social – and as such Gender-related – realities (Spieß et al. 2012: 10, transl. C.S.).

"The way gender is articulated", it is consequently argued for production, "shapes the world of individuals, and of the societies they live in" (Aikhenvald 2018: 1). And since we use language to formulate our arguments, our fears, our desires, our beliefs, and thereby making language another personal, controversial subject, with every speaker being affected by the language as we use it, it has become difficult to enter valid findings, a calm presentation of linguistic processes, and in general a broader view of gendered language change happening constantly, into the discussion. Nübling and Kotthoff (2018: 8) deplore the vehemently articulated subjective convictions void of linguistic foundations yet full with "aggravating shortcomings" (transl. C.S). The mostly scattered published current knowledge on gendered language is not of much help to address the robust ignorance towards linguistics in debates on Gender-sensitive language, and how could it: the grammat-

4 (remarkable yet devastating to call this an achievement)

5 When focused on sociology and queer identities, also called "Lavender Linguistics".

6 https://www.destatis.de/Europa/DE/Thema/Bevoelkerung-Arbeit-Soziales/Arbeitsmarkt/GenderPayGap.html; https://editionf.com/caroline-criado-perez-unsichtbarkeit-ist-keine-superkraft/?fbclid= IwAR0n7FkKJvT6sC16n287DyJ 5_yKaPxVTYrEwsqWqbJ8Oc8XRuSfVDBa9Pvk, last accessed 27/04/20.

ical foundations and psychological findings clash in disagreement. Somewhat surprisingly, regulations for a more Gender-fair language have been adopted, and have become operative despite the relatively sparse research on Gender-fair language (not surprising in the sense that laws sometimes bare any transparency, but that for a change those marginalised and their demands are abided).

What these facets have in common is the link to word choice, how something or someone is named, to new concepts and meanings broadened or specified. Naming matters; if Gender is nothing to be understood as binary and there is more than clearly male and female, we want to express it nonetheless; if discrimination affects mostly women*, we need to be able to name it; and if language ultimately has an effect on naming (in essence, meaning *is* naming, labelling, and the reproduction thereof), we should investigate it. This “branch” of linguistics – and of sciences connected to emancipatory perspectives like feminism – is often degraded as “uninformed” or “amateur” linguistics; interests are said to be more “ideologically” coined than scientifically. Studying the literature in this field proves: accusations there are many, and it is about time to combat the derogatory use of a linguistic research that questions of origins of societal discrimination and inequality and focusses on language asymmetries based on Gender. Crucially, it is not a separate form of linguistics, but a perspective within the research domains of language that locates and establishes ties between the subdomains.

About half of the world's languages have what is called “linguistic” or “grammatical gender” – genus – and mark certain elements according to their genus classification. As part of a language's grammar, “those aspects […] that *must* be expressed” are determined (Franz Boas (1938: 132) qtd. in Aikhenvald 2018: 4), and genus is one of them. When communicating about ourselves or others, as humans, we need lexical items “to identify people as individuals or members of various groups”, and for this purpose draw on nouns and pronouns (Hellinger & Bußmann 2003: 2). Human denotations are a particularly loaded field as they interact with extra-linguistic parameters of social characteristics like Gender[7]. They consequently have emerged as a central issue in the de-

7 Elsewhere referred to as "grammatical gender" vs "biological gender". I will refrain from reproducing these terms in my work given the deceptive notion of a biologically given, biologically identifiable, Gender (so-called “sex”), and in order to escape the terminological fuzziness of several “linguistic gender” terms below. Whoever chooses to use these terms walks into the trap of reproducing a two-way understanding of sexes in opposition, “male versus female”, which many authors are not save from when they simplify: “A female is able to bear children, a male is not. Natural Gender entails anatomical and hormonal differences, linked to concomitant physiological and psychological traits. In the day-to-day use, 'gender has just about displayed the term 'sex' […]” that was used until recently (Aikhenvald 2018: 2). Since “sex” is increasingly regarded as a classificator that is not adequately described as binary (and consequently excluding trans, inter, and non-binary identities), using Gender is more appropriate. Besides, when connected to language, “sex” and “biological/natural gender” is overwhelmingly often used to claim that societal differences are grounded in nature. Drastically neglecting a genital-oriented definition of “sex” as equivalent to Gender highlights that culturally and socially highly variable ways of acting and speaking have no enforced relation to birth (precisely, such practices have been solidified from early on that they are indeed considered “natural” viz. naturalised). On the biological domain also, the medical understanding that the diversity of human Gender expand a strict binary order (Nübling & Kotthoff 2018: 15) of anatomy, chromosomes, and hormones has spread as there exist manifold types and forms in between and beyond the extremes. Their disambiguation at birth is yet another way to (re-)create a clear-cut Gender system. Why a scientifically questionable term based on which mechanisms of discrimination are kept up is no theoretical assistance, Ortner and Whitehead (1981:1) explain as follows:

bates about language and Gender, and “constitute a basic and culturally significant lexical field” (ibid.). In language comprehension, the occurrence of a noun or pronoun triggers its immediate activation – or rather, of a candidate set of referents (that are restricted to grammatically and semantically appropriate NPs for the respective discourse unit).

Languages that have obligatory genus marking encounter difficulties when Gender of those denoted should be kept unknown or is simply irrelevant. The need for language that does not convey either one or the other Gender grammatically in a binary way due to the existence and acceptance of non-binary Genders is both undeniably relevant and at times grammatically challenging. That it is by no means impossible will be exemplified in the second chapter when various strategies for a more Gender-fair language are used. Why this is even a concern is placed in the current debate in the initial subchapters, equipped with capable terminology for the interface of a grammatical and social phenomenon. But as a starting point, chapter 2 provides prescriptively[8], coming from the grammar perspective, the German genus system including masculine and feminine markings (and markedness), as well as generic options. In a descriptive manner, the grammatically masculine "generic" is unmasked as a functionally non-(not convincingly-)generic masculine, and usage of Gender-sensitive forms is introduced. When talking about and referring to humans, we cannot ignore the stereotypes connected with a certain Gender role, and albeit often denied (e.g., by authors like Eisenberg, Gauger, or Brühlmeier in Baumann & Meinunger 2017), the second chapter will also re-establish the junction points of where genus and Gender meet. The research on generic forms and Gender-inclusive language in German from its beginnings up to today will be presented in summarised paragraphs that highlights the unisonous findings and the methodological limits of research hitherto. With a short excursion on eye-tracking in psycholinguistic research, the cornerstones of the experiment presented in this work are reconstructed accordingly and its design, methods, materials and data analyses comprise the third chapter. A presentation and discussion of results, their implications but also limitations (leading to several destinations for research to follow) finalise the thesis in the fourth chapter, which seizes upon an integration into the socio-political setting once more.

1.2 Language Planning – Language Reform – Language Change: Questioning the Status Quo

“The first stage in any reform movement is to analyse and critique what is considered to be problematic.”
Spender (1980) qtd. in Mills (2010: 83)

The most influential dictionary in German, DUDEN, first stated the grammatical cutback that usage of the masculine as generic is increasingly disapproved of in the 1998 edition (Nübling & Kotthoff

“Natural features of gender, and natural processes of sex and reproduction, furnish only a suggestive and ambiguous backdrop to the cultural organization of gender and sexuality. What gender, what men and women [or others, C.S.] are, what sorts of relations do or should obtain between them – all of these notions do not simply reflect or elaborate upon biological 'givens', but are largely products of social and cultural processes” (qtd. in Aikhenvald 2018: 3) and practices.

8 „Prescriptivism is the view that it is possible for linguists or other groups to set out the language items and usages that language users within a particular community *should* employ. Prescriptivism has often been criticised since the role of the linguists is to describe the language accurately and not to suggest how to use the language“ (Mills 2010: 94-5).

2018: 116); in the most recent edition the passage has been alleviated, alternatives are mentioned, and a recommendation on gendered language has been published additionally[9]. Moreover, dictionaries – the majority written by male grammarians – have been attested to have artificially created a grammatical male dominance, for a so-called “generic” masculine was never “innocent” in its original state (Doleschal 2002, going back to early dictionaries of the 16th century). The claim that an existing “generic” masculine co-represents women* or functions as Gender-indifferent is devoid of tradition and must be met with opposition. The “masculine entitlement of reference for humans of any Gender is the consequence of centuries of male dominance, when philosophers, professors, doctors, scientists, voters, etc. were indeed men only, simply for the reason that women were neither allowed to study nor elect” (Nübling & Kotthoff 2018: 115, transl. C.S.). What dictionaries held on to was a Gender segregation the maintenance of which served a realisation of masculinity that was most distinctly defined through dissociation of women* (so-called “othering”). “In arguing for the necessity of language reform, feminist theorists have generally assumed that language is not a neutral and transparent means of representing reality” (Hellinger & Bußmann 2003: 18f.), and why should they – attaching masculine-only labels to roles and activities that could in principle be taken by any person forms a language that thus codifies an androcentric world-view (centred around males).

Social links of Gender and language can only be sketched: the social change pushes forward a necessity to reformulate male-specific descriptions, especially those that claim to be generic despite being marked for the masculine (technically speaking, they are considered to become unmarked for the former purpose). The wish to be addressed correctly, that is, Gender (identity)-congruent, and a consciousness that a person that does not (and does not have to) fit into either category should be referred to in written and spoken language is a very profound one. It is this goal that language planning pursues: to accomplish female visibility in the German language on the one hand, and to appreciate the existence of humans other than males linguistically. Reinforced by means of non-discriminatory usage, language that refers to all humans may exploit the German grammar for generic aptness of expressions apart from the masculine.

Criticising the prescriptive ill-(in)formed usage of masculine terms as generic and treating guidelines as a valid instrument for prescription at the same time bears some bigotry, “symbolizing the dissonance between traditional prescriptions and reformed usage” with innovative alternatives (Bußmann & Hellinger 2003: 166). “However, Cameron (1995: 143) argues that: 'there is nothing trivial about trying to institutionalise a public norm of respect rather than disrespect, and one of the important ways in which respect is made manifest publicly is through linguistic choices’” (Mills 2010: 77). The objective to combat inequality, and not to conveniently maintain them, makes the difference comprehensible. In most cases, feminist linguistics legitimately and explicitly articulates its political grounds by emphasising that equal treatment of women* and men must also be realised on the level of communication for language transmits social-psychological practice by exchanging

9 https://shop.duden.de/Shop/Richtig-gendern, last accessed 27/04/20.

information (Hellinger & Bußmann 2003: 18f.). The referential function of language offers a plentitude of mechanisms of identification, with the help of which we communicate and construct Gender – and social hierarchies in being are reflected (ibid.). Interactions with Gender inequalities concern the dominance of one over other Genders. Male dominance, i.e., in a language that has been based on the male representatives foregrounding the male representations, is the source of social asymmetry, and since fighting an asymmetry entails the strive for symmetry, guidelines and hand-books are an instrument for language planning until female silencing has been overcome. It is therefore essential to manifest a notion of power that both forms the asymmetries and is needed to overcome them. An approach that essentially constitutes that “women and men are socially equal”, and hence responds to our need for harmony, misunderstands that in “being socially equal in principle and being socially equal in reality”, “[t]he former does not necessarily entail the latter” (Uchida 2005: 285). Suggestions on how to adapt language to include female and diverse Gender identities therefore “can only ever be provisional: it does not 'work' uniformly and forever because meaning is not fixed by authorities, it is ongoingly constructed in real social contexts […]” (Cameron 2005: 87). Not once in history have improvements of women*'s place in society been achieved without fighting for it. To object to grammatical rules that have been forced upon the speakers that were held inferior is consequent. Referring to a grammaticised paragraph the phrasing of which was justified with men as more important representatives of the species is illegitimate. So, in avoidance, solutions in forms of alternative terms and strategies for stipulating a better example have been proposed to replace the “masculine generic traditional” and conservative usage. (It is important to realise, though, that linguistic reform that battles discrimination goes much further than simply and excessively, replacing one word with another.)

While in 1955, unmarried women still had to file a formal request if they wished to be addressed with *Frau* (“Mrs.”) (instead of the outdated female-only status diminutive *Fräulein* (“Ms.”), which was only changed in 1972), it is official language use today. When sued to be referred to by the job description *Amtfrau* for female person, a linguistic assessment in 1984 confirmed this term to be chosen over the common male-specific masculine term *Amtmann*. The rapid effects of “-frau”-compounds usage since the 1980s, peaking in 2000s, can be seen in Nübling & Kotthoff 2018: 132). And while a female linguist and bank client's claim in an analogous legal case to be addressed as “Kundin$_{FEM.SG}$”, not “Kunde$_{MASC.SG}$”, the masculine “generic”, by the commercial institute was rejected, an all-female housing project in Berlin had their action of eviction to be postponed due to the improper reference to the women* with (in German incorrectly applied) masculine plurals[10]. Gender and language are frequently negotiated both in interactions and in court, and it supports the argument to establish reference guidelines.

Adopted from US-American feminists in the early 1970s, the international research on Gender, language, and communication has developed into a vivid field of research, producing articles, readers, hand books, conferences. Their prelude lay the foundation in Germany, where contemporary pub-

10 https://www.zeit.de/gesellschaft/zeitgeschehen/2018-03/bgh-urteil-sparkasse-gendern-formulare-gleichberechtigung, https://www.neues-deutschland.de/artikel/1132219.liebig-keine-raeumung-ohne-gendern.html, last accessed 27/04/20.

lications intend to eliminate language asymmetries that may lead to social asymmetries and discrimination. The research field of feminist linguistics that originated as the subdiscipline identified and criticised the systematic female invisibility through a “generic” masculine as well as derivations and mysogynist language use that reflect, re-enact and substantiate a patriarchic society. Focusing on German-speaking countries, such tendencies of linguistic variation and change have been observed “[a]s women started entering professions previously considered 'male only'”, when awareness of gendered asymmetries began to develop in both society and language, and when then “the question of ‘feminization’ of job titles became ripe” (Aikhenvald 2018: 201). A more inclusive language, or at least the need, appears to go hand in hand with women* becoming more and more visible in public life (ibid.: 202) – essentially depending on the state of the women*'s movement – as the absence of lexemes representing women's roles, their perceptions and experiences, clearly reveals a male-biased perspective. The lexical gaps are filled, expressions symmetricalised, and feminine forms have become more receptive “based on material from numerous domains of public usage: the print media, TV, job advertising, legal language, political language, educational language, and literature” (Bußmann & Hellinger 2003: 166) – that is, all areas that women* increasingly take part in and continue to shape their output. Unlike Hellinger and Bußmann's publications declare, Gender-related language reform is not a mere reaction to imbalances in male-female relationships (ibid.; Hellinger & Bußmann 2003: 18f.) but to a broadened, less dichotomous, less “natural[ised]” understanding of Gender identity[11]. Rather, women* and non-binary people no longer accept power enforced by male dominance – economically, socially, linguistically. What causes an androcentric world to topple is that Gender identities and the roles they take become more fluid.

Crucially, socio-political background impacts the campaigns to raise awareness of socially marked linguistic pitfalls, of patriarchal and sexist realities that render women* inferior and/or invisible. Generally speaking, feminist movements initialised ambitions of language change as one core aspect of demonstrating and deconstructing acts of sexism, and against all anti-feminist objections, have been supported by language planning methods such as the publications of guidelines and recommendations for non-discriminatory language (so far mainly issued for institutions), which “identify areas of conventional language use as sexist and offer alternatives aiming at a gender-fair (and symmetric) representation” (ibid.) of all human beings. This explains the emergence of public discourse on gendered language to a large extent as a reaction to the feminist critique of language. Primarily, to change language use often times simply encourages alternative vocabulary choice. Ongoing changes at the level of grammar regarding so-called “generics” thrive for variation away from the standard masculine forms in German (among many other languages) used generically in the area of reference with personal pronouns and nouns denoting humans which must otherwise be marked to include women*. Concerning the options to address someone (and the question of how to do so correctly), feminist linguistics have (had) an enormous interest on how humans are

11 The assumptive perspective that an increasing awareness of sexist structures pervading all social layers should be defined on the basis of men’s position again is questionable (they ascribe it to some conflict-causing change in relationships between women* and men, not in privileges and power imbalances per se).

categorised in language, which is where societal changes may shape genus variations as will be illustrated later. One of many strategies is to replace masculine generics with Gender-balanced expressions or Gender-neutral forms. The lexical field of personal reference has been in motion for decades now as those affected by not being contained in the controversial referential terms (and perhaps not intended to be meant) argue against linguistic negligence of Gender identities. During third wave feminism, the law passed for the third entry in civil registry as diverse Gender acknowledges a struggle long fought and enters Gender identities beyond of heteronormative binary Genderism into public discourse. Meanings and expressions are being debated, created, criticised. Trends in language reform should accordingly take the legal acknowledgement of non-binary existence to the actual realisation of the non-binary grammatically.

Having adumbrated the goals and workings of language planning and reform approaches, it should be noted that regulations for Gender-neutrality in German are promoted in absence of reliable research (as will be reported below). Moreover, "[a]cceptance of the recommendations varies between two extremes: discouraged usage where non-discriminatory alternatives are rejected and sole officials usage where these have become the norm" (Bußmann & Hellinger 2003: 167). Yet in spite of all publicly noticeable reluctance, lingo-political propositions have had a determining influence and have fuelled public discourse, and already led to seizable effects in terms of language change (Nübling & Kotthoff 2018: 13), most remarkably amongst terms in the economic sector and terms of address that this thesis uses as experimental materials.

Occasionally devalued as scientifically biased, this thesis should concede upfront that feminist linguistics pursue a lingo-political interest (Pusch, one of the most important representatives of this field, stated that this science is "partisan" in that it does not just satisfied describes but criticises and assesses its findings and eventually targets the change of the (linguistic) system in the direction of a thorough de-patrification and partial feminisation of human languages (Pusch 1990: 23, referenced in Nübling & Kotthoff 2018: 13, transl. C.S.). This being the case, Gender linguistics voices language criticism (Spieß et al. 2012: 13), which does not go unnoticed: "Of course it [non-sexist language] has its enemies, and very vocal they are too […]" (Cameron 2005: 155). Marking research coming from a perspective of Gender equality as ideologically partisan while regarding research ignorant of Gender inequalities as "standard" is outstanding, and quite apparent part of the androcentrism outlined. The equal treatment of women*, men, and every human being, *is* a political call that needs to be realised, among others, on the level of communication, and as such, "[m]ost guidelines explicitly articulate their political foundation" (Bußmann & Hellinger 2003: 166). Gender-neutral language is therefore included in this work as a legitimate means of reference.

1.3 Terminology: Re-Labeling for Clarification

Depending on the perspective taken, *Gender* as an umbrella term is put up with various definitions and terms that cover certain aspects of Gender, sometimes overlapping, other times to be differentiated. The literature that was consulted for this work had no consensus either, so while some ter-

minology was used by a number of publications, other authors decided to make use of another, principally reflecting the disciplines they are borrowed from. Gender studies is an academic field that works *interdisciplinary* as Gender affects humanity (thus, human sciences) on a large scale and a multitude of layers. So, understanding the “nature” of Gender is central to many disciplines, and this results in quite a terminological richness of the topic, which might make it difficult in the beginning to tell the various definitional approaches apart.

For different purposes, different definitions of the concept can be applied, and mean distinct things, i.e., convey different meanings, albeit interconnected. With respect to this thesis, a social and a linguistic definition is of interest; and to avoid confusion, the several “Gender” descriptions will not be used interchangeably, but disentangled below. Whilst Aikhenvald (2018: 213) tells apart three faces of (capitalised) Linguistic, Natural, and Social Gender to refer a) to the feature many languages employ as reflecting the division of grammatical units into noun classes, b) to the notion of “sexes” that animates are classified into, and c) to the “social implications and norms of being a man or a woman (or perhaps something else)”. These multifaceted concepts interact; they “are inextricably linked […] like a chain of elements feeding into each other”, and require some in-depth clarification. The grammatical dimension of the term that is concerned with the structure of language and classifies lexical items, potentially marked accordingly, which can be reflected in their form and agreement will be called *genus* throughout. Scientifically appropriate, the Latin origin highlights the grammatical function, and although I render it useful to create a terminological overlap of grammatical and social “gender” in order to point out the interface (like Aikhenvald's labels surface), it is more purposeful for reasons of clarity to use distinct expressions. When describing interfaces between linguistic genus in words denoting humans with a particular Gender, the synonymous use is too misleading, too indiscriminating to capture the phenomenon’s ramification.

Uchida (2005: 290) criticises, too, that “[t]he problem of how to conceptualise gender has so far been dealt with in most language research in a too simplistic way. This comes from a superficial view of sex – the categories of females and males are seen as prelinguistic variables [...] biologically assigned to individuals at birth – and a failure to recognize that gender is in fact a social construct […]”. By citing how a “natural” Gender conceptualisation is basically misused to infer social Gender stereotypes of behaviour created on the same basis of “nature”, this definition becomes redundant (Aikhenvald 2018: 3). Pitfalls of the term “natural gender” are that the discriminatory experiences of diverse and queer individuals are left out, like the biologistic assumption of an inescapable predetermined fact forces upon humans a system of assimilation or else oppression.

Ehrlich and King (2005: 174) pointedly summarised the incompatibility of a naturalising Gender idea of two differentiated “sexes”, and introduce a feminist approach to linguistics:

> “Biological determinism is the most prevalent example of this kind of thinking: women's biology, particularly women's reproductive biology, is used to justify women being relegated to the home. In other words, the invocation of 'nature' has been one way of rationalizing a whole range of social practices that oppress women. In a similar way, the representation of language as having a ‘natural order’ exemplifies the way in which 'nature' is invoked to maintain language practices that demean and diminish women”.

The social role, from birth onwards lifelong omnipresent, performed and day in day out practised is the Gender role which is able to extend the binary by arching over more than two Genders. Any rigid dichotomous system that presupposes a "biological" basis is not adequate to cover representations of Gender that are beyond the limits of two distinct categories. Moreover, stereotypical behaviours and codes changing over time therefore stress that Gender, just as society (and *with* society) is changeable – and reversible (Nübling & Kotthoff 2018: 14). Instead of a "natural(ising)" reference to Gender, Gender identity will be meant whenever a person's Gender is of importance – be it female, male, diverse or any Gender preference that exceeds or is in between the binary categorisation[12]. As social Gender is projected onto humans, an identity perspective allows to subjectivise the experiences and roles that influence people's position in a society that is structured by the Gender they are ascribed to. In many cases, this may conform to the classification at birth, but most recently, the third option for classification as diverse has been implemented in Germany for a reason. Gender-neutrality of language offers a concept to refer to non-binary people.

A sociocultural, psychological, philosophical and generally anthropological angle that treats Gender as a social rather than a biological reality captures best that how we are dressed and addressed is a form of labelling by which females learn to obey sets of rules (Uchida 2005: 290). A person identified as a man or woman* is expected to behave like one, or, like associated social implications of being a woman* or man expect them to. In terms of language, such attributions are often used in a similar fashion like grammatical specificity: "female-specific" or "male-specific" when inapt to be uniquely used for the respective Gender (of these two) in order to contribute to the construction of the experienced class of "humanness". Nonetheless, I will continue to use it as valuable descriptive tools that fits the (binary) experimental design[13].

Whereas a definition like the one cited above is better able to draw attention to the notion that the [three] faces of Gender interact by "having a general term encompassing every aspect of gender classification [which] helps bring together, and highlight their commonalities and the ways in which they may influence each other" (Aikhenvald 2018: 5), which "alerts us to the existence of an overarching concept behind it, spanning linguistic expression, social aspects, and biological features" (ibid.), this paper will avoid the ambiguity of the term Gender and, for the sake of linguistic correctness and as an opportunity to mark the field in which the expression of Gender in language then indeed does "reflect and shape Social Gender stereotypes, associations, and attitudes, in their relationship to" Gender identification (ibid.), I propose to refer to the grammatical feature as *genus*, markedly involved "in syntax-dependent concord, and form class […] of the morphophonology of

12 Who belongs to which Gender in this thesis' understanding will be what humans identify themselves as. Female Gender does include everyone who identifies as a women*, but will mostly focus on those socialised as females (this relates to society's expectations on girls and women*, social practices and norms conveyed by this categorisation learned and performed throughout life, and stereotypical behaviour both internalised and confronted with). Participants stated their Gender identity accordingly.

13 Because stimuli are depicted in a stereotypical way, the Gender assignment exploits participants' ability to categorise the concepts [female], [male], or mixed. Crucially, I "do not wish to imply that the terms [...] correspond to a binary objectivist view that categorizes people neatly into female and males" (Hellinger & Bußmann 2003: 8), and a less dichotomously narrow stimulus presentations is aspired to in future designs.

individual lexical items" (Harris 1991: 29). Concerned with the structure of language, genus categorises pronominal items according to their form, and the form of pronouns, adjectives etc., which agree with the noun (class). Aikhenvald (2018: 11) herself states why "Linguistic Gender" may not be the most suitable term because it "has been used in a number of contradictory ways": for languages without overt genus agreement, i.e., languages like English that do not mark this feature within a noun phrase, some scholars (among others, Scholten in Baumann & Meinunger 2014)[14] have been mislead to claim that such languages have "no gender" and should consequently be "less prone to gender inequality" - "forgetting about the pronouns 'she', 'he', 'it'", and ignoring stereotypical Gender inferences of role nouns, anaphoric and cataphoric agreement of reflexives, and more. I conclude that a fuzzy definition of Gender, and of the aspect of genus cues and personal Gender inference that is meant in each occasion of personal reference, invites critics to (purposefully (Pusch 2014) misinterpret an analysis on linguistic features affecting Gender. In the domain of personal nouns where both may fall together, this is crucial. As early as thinking of a way to grasp the fine and intertwined aspects of Gender, this work's theoretical basis was in need of a new application of distinguishable terms in order to fit what is to be transmitted: Thus, genus is used for the grammatical domain – yet in case of pronouns, nouns denoting humans, role nouns and the like, it cannot be strictly separated from a socio-psychological understanding of Gender. Consequently, throughout this thesis I have chosen to keep a terminological distinction between female, male, or diverse for social Gender (and semantic implications), and masculine, feminine, or neutral (not to be matched with a third Gender) for grammatical genus. The realisation of feminine or masculine genus on a lexical item denoting a male, female, or diverse person carries a semantic conceptualisation of Gender, because with respect to items classifying humans there is no "ungendered" understanding of a genus-marked lexical referring expression. The conceptualisation of humans contains their appearance – Gender being among the primary characteristics. *Lehrerin* (teacher$_{FEM}$) instantly and exclusively creates reference to a female person teaching. Being cautious with the correct terminology of the genus of a language and its effect on the reference to and representation of human Gender will become more obvious in the subsequent pages.

Gender Linguistics steps in where we associate male referents with masculine grammar features and female ones with feminine features, asking for potential reference of a classificatory genus marking to the Gender of a denoted person. In light of the fact that almost all expressions for women* are feminine, and those for men masculine, a connection between genus and Gender, between the linguistic feature and the social reality, cannot be denied. As we permanently use nominal denotations of one of these genus classes, we replicate the Gender differences and order therein (Nübling & Kotthoff 2018:61). The reinforcement of Gender asymmetry in language manifests itself in the exclusive usage of masculine-marked grammar to refer to female, male, and other

14 Commentaries like these have entered journalistic publications. Concluding – in the quite egocentric way *we* are accustomed to a grammatical Gender system – that there should consequently be no Gender inequality socially, is short-minded and void of any understanding of the multi-faceted phenomenon. Of course, Gender inequality can exist even though a language spoken in a society has other or fewer means to express such inequality linguistically. This is a matter of power, not of grammar (alone).

persons likewise. In most languages with “genus-variable” forms (which could take another genus and refer to other gendered entities then), this predefinition of a generic built from the masculine form “is the traditional [...] practice in cases of gender-indefinite reference” (Hellinger & Bußmann 2003: 3). To illustrate what has come under fire and is scientifically no longer steadfast (as the current state of research documents) the traditional, prescriptive practice that requires the use of masculine genus formations to denote humans of all, of any Gender as a generic, the “generic” masculine (abbreviated ‘gen’Masc.) is placed in quotations or paraphrased with pseudo-/ quasi-generic attributes. This notation has been considered scientifically more appropriate by the fact that studies have not proven an unconditional genericity (reported under 2.3). With reference to the grammatical form, masculine generics is used as well (as opposed to conceptually more convincing generics). “False generics” have gained this status due to their associations with maleness, i.e., male representations they preponderantly evoke in our minds, outweighing evenly gendered images of humanness. The prescription of so-called “‘generic’ masculines” involves an asymmetry of an “unmarked” masculine expression the choice of which is applied as Gender-indifferent for humans[15]. Because the masculine forms share their function with the generic and the male-specific reference, the term “male generics” has found its way into some publications and highlight the non-female inference it transports (Hellinger & Bußmann 2003). The same researchers, Bußmann and Hellinger (2003: 161), as some of the sharpest critics of this grammatical convention even did not go so far as to speak of the phenomenon as anything but “generic readings of personal masculines”, thereby implicating a generic function the masculine is supposed to be equipped with. Placing males in the centre of both grammar and communication is an act of androcentrism and is suspected to carry a male-biased primary interpretation, which may then “create referential ambiguities and misunderstandings”, and even lead to an invisibility of women* due to being unmentioned and formal disregards of feminine forms.

Adopting a multidimensional view broadens the linguistic representation of Gender to the questions of Gender construction in different domains of communication and situation – a development that helped establish new methods and approaches to the subject matter as Gender can be researched as one of many social variables closely linked (Spieß et al. 2012: 13). A definition not forced to a binary, narrow-minded thinking is a crucial precondition for an investigation of Gender-neutrality: it shows the diversity Genders can take, more adequately placed on a continuum from female to male as extremes, encompassing opposites, allow for blurry lines of boundaries and non-correspondence to dichotomous categories. No matter how appreciative we are of Gender identities that may extend pigeon holes and challenge us to think outside the box, we should at least be able to find names to accept, include, and crucially address and talk *to* diverse Gender identities, not just about. If not, the effect is unequal representation and discriminatory language based on someone’s

15 Another aspect of linguistic asymmetry is “the fact that masculine/male pronouns occur three times as frequently as the corresponding feminine/female pronouns in some languages” like English (Hellinger & Bußmann 2003: 10) – in spite of roughly more than 50% of a female share in humanity that should in principle be equally distributed and named when referred to.

Gender – sexist language. There are problems with language usage that is inaccurate or insensitive, or “offends people we are trying to reach” and eventually “it ceases to be an effective tool for communication” (Doyle 2005: 149). Feminist Gender linguistics set out to scrutinise to what extent expressions we take for granted are available and applied for Gender-sensitive language, what features are seen to reflect inequality, and what effects these may bring. The opposite, non-sexist language, any attempt to stop making women* and non-males invisible and any deliberate step against Gender inequality expressed through language is thus subsumed as inclusive language (though there are many other types of non-discriminatory language, and “truly inclusive language would attempt to include all groups that are marginalised by the presumption of a norm that is [W]hite, male, heterosexual, middle class”, ibid.). The major concern still is that sexist language can be and is used to discriminate against women* – basically, anything other than male – not only by excluding them linguistically, because “rendering women's presence and achievements invisible” and deny the expression of social participation and agentive roles (ibid.: 150) but also by being a means of transport for stereotypes, keeping harmful roles alive. In this view, Gender linguistics connects to socio-political agenda in order to address and attack present problems of discrimination, harassment, violence, and economic inequality of female and other-than-male people. Linguistic invisibility is one facet of discrimination and may lead to interlinked effects of occupational invisibility ergo economic inequality (ibid.).

The strategy to include both the female and male form pairwise and equally distributed has more recently been referred to as “Gender-fair” language (abbreviated GFL by Sczesny et al. 2016); some may prefer to adhere to “Gender-balanced” language, which is more focused on its core meaning of balancing the opposed (in a binary way) forms. This is one aspect of Gender-inclusive language, namely one that wants to include particularly those usually under-represented with the help of explicit reference. GFL in the sense of this work covers any linguistic endeavour – for there are many and will steadily become more – that accepts the existence of more than two Genders and discerns androcentric usages, viz. misogynist practices and thus aims to reduce linguistic discrimination based on Gender. Language formulated in a way that backgrounds Gender linguistically by using forms that despite their grammatical marking (genus) refer to people of any Gender, actually fairly, is called Gender-neutral language (GNL). Gender-neutrality embraces the truly Gender-indifferent meaning of expressions that do not (wish to) specify referents' Gender(s) and will accordingly be applied to mixed Gender groups and groups of unknown Gender alike. Linguistic Gender-neutrality thus reflects a semantic, not the grammatical genus neutral category.

Inherent to this distinction is an opposition that is often discussed in feminist context as well between “doing Gender”, highlighting and explicitly mentioning femininity, and “undoing” it, the lowering of explicitness of one Gender in particular (e.g., Nübling & Kotthoff 2018). This concerns how to overcome sexist inequality: invisibility is often accompanied by discrimination, yet visibility marks the “deviation”. As a rule of thumb, it seems to have emerged, where people belonging to a Gender category are invisible, placing their Gender in focus is used to increase awareness,

whereas where a Gender is being discriminated and underprivileged because of that membership, the urge is usually to background Gender (cf. to achieve parity in occupations, one could hire someone who is not cis-male[16] by addressing women* vs. hire someone irrespective of Gender).

1.4 Psycholinguistic Research of a Language-Society-Phenomenon: Motivations and Questions

The motor of my motivations will bear some resemblance with the current state of research outlined in the next chapter due to the limits of studies on the issue until today. What we have seen so far is that several recommendations are in circulation towards a less sexist language and that this would imply to fathom the masculine forms used generically as problematic since women* and non-male humans in general are presumably not equally represented by these.

What has also become tangible is the necessity to come up and bring forward devices that enable us to linguistically – and grammatically visibly – include women* explicitly in order to overcome mechanisms of women*'s discrimination, be it c/overt sexism, misogynist actions, and to refer to people outside the binary construction of Gender, i.e., those who legally fall under the category diverse, who identify as neither male nor female, at least not in the given narrow dichotomous categories, and who might not, and have the right to not, feel included in and meant by the phrase *Sehr geehrte Damen und Herren* ("Dear Sir or Madam").

As compassionate feminists, anti-sexist and queer activists, and of course linguists who have been eager to promote their research on the so-called "'generic' masculine" become finally represented in our more or less immediate environments, academically, in newspapers, on the internet, recommendations and regulations spread out, institutionally and publicly. These are supposed to steer the weighting towards a balance in language that is missing, hence deemed competent to solve issues of inequality via language. Given the foundational research they can draw from, a debate as such has developed yet has not been followed by the amount of research (or interest?) it deserves, except for about a dozen experimental studies on German. Bußmann & Hellinger (2003: 161, with most publications at the same pitch) arrive at this realisation, too, and lament:

> "By implication, the observation of variability in the use of personal nouns, the mere existence of a large number of guidelines for the equal linguistic treatment of women and men, as well as the ongoing public debate on reformed language use, suggest that also for German, generic readings of personal masculines are no longer taken for granted. However, surprisingly few empirical studies are available for German."

Assumedly, the fact that this field of research is not institutionalised in Germany so far (rather, Gender studies are attacked by conservatives) contributes to research lagging behind compared to English. Over and over will this work have to point to limits in research and knowledge of these phenomena on German. But even on a smaller (but increasing) scale, in an interdependency, what the guidelines recommend and the rising awareness of the alternative expressions contribute to a change: the sheer option to use Gender-balanced or Gender-neutral language increases the recognition of Gender-exclusive or even sexist language; a positive outcome of female linguistic vis-

16 A term for identifying with the Gender assigned to at birth, a correspondence between the Gender someone identifies and is identified with.

ibility – already. Still, the validity of forms of GNL remains controversial. While it is regarded not as "clumsy" (Mills 2010: 2006) as pairwise expressions that name both forms, some alternative variants receive the most judgmental affront about an artificial and "damaging" language. Moreover, centuries of practised Gender differentiation, inequalities and hierarchies have not only coined the language system, but also impacted our language behaviour (Nübling & Kotthoff 2018: 13), and now call for linguistic observation of a cognitive mechanism. Psycholinguistic methods that aim to illuminate online processing of language in presence of Gender categories. Whereas a spectrum of qualitative, interpretative, methods have been employed, quantitative measurements to investigate gendered language processing in German are a rarity. A major concern of this thesis was with the concomitant missing reference point for what effects to be expected, or replicated. First and foremost, this study aims to invite both students and researchers regardless of the profoundness of their experience to combine eye-tracking, visual world, and gendered language comprehension, and to not be instantly intimidated by a sophisticated method and analysis or ample data to handle, and to appreciate the advantage to obtain information about how people process genus and Gender information while they need to decipher the visual world around them.

The tenacious distinction of Gender loses relevance in view of Gender concepts and consciousness: the rising acknowledgement that diverse individuals exist seems self-defeating to invoke two-Gender-system – what are the choices German has to offer? Is a GN form an effective realisation of the "loss of contour" of the proliferation of liberation that socially dissolves the classical binarism of ♀ or ♂? With respect to the asymmetries elaborated on in the introductory section, can they be identified in the area of nominal reference to humans in German and can they be altered or even overcome when providing GNL as an alternative? At the outset of the present experiment was to find empirical evidence for the claim that GNL is more inclusive as is presumed by the guidelines of non-sexist language. By means of comparison, the project also asked for the impact of the masculine as the default genus choice on their gendered interpretation. Processing a generic masculine is alleged to quickly and predominantly activate male human beings. When contrasted with clearly inclusive objectives, can a masculine form reduce or does it strengthen its referential force to the male Gender? On a parallel note, it was of major interest if masculine expressions are perceived as bias-free such that our thinking is equally free of bias, justifiably generic, as claimed by German grammar and grammarians. Ultimately, what needs to be determined is the form that qualifies best as generic (expedient genericity): can expressions in the masculine abstract from Gender and enhance balanced representations, and can GN variants do so, too, or even better?

2. Genus and Gender Complexities and Strategies under Grammar Aspects

"Among the structural characteristics of Modern German (as compared to other Germanic languages) are the [...] relatively well preserved and productive inflectional system with four cases (nominative, genitive, dative, accusative), three grammatical genus classes (feminine, masculine, neuter), two numbers (singular and plural) […]" (Bußmann & Hellinger 2003: 142-3) – features that all interact and bestow an allomorphemic "engima" German has become (in)famous for. To create a theoretical basis, formal-conceptual interconnections are introduced and exemplified with terms that are feminine or masculine or neutral, and transmit a female or male or inclusive, specific or generic denotation. Based on these, morphological and syntactic strategies which may be employed in German in order to specify or abstract from referential (human) Gender as well as their interactions with cognition are discussed.

2.1 German Genus System and Generic(s)

On nouns, German applies a two-way nominal classification that structures the entire lexicon consistently – any noun belongs to 1) a declination class and 2) takes one of three grammatical genera, marked in particular ways distinguishable from one another (exceptional cases of double or multiple class membership are not ruled out, but rare (ibid.: 5). Declination class membership is generally indirectly marked on nouns and manifests itself in the number and case inflection, visible on affix morphology, allomorphy, and articles used for the respective nouns. Genus class membership is inherent to any noun, and although it might not be overtly visible, it is expressed unambiguously on genus-marked elements such as articles or pronouns. The way genus sits on said categories behaves in a "parasitic" way (Nübling & Kotthoff 2018: 62).

German divides the intra-language classification system of linguistic genus to categorise entities; in the first place grouping nouns, where unlike most Romance languages, it has retained a three-genus-system, not reduced to two ("common") genera such that besides feminine and masculine, there is neutral genus. Like other grammatical categories, genus imposes formal properties and partly semantic implications (cf. number). Each noun in these genus class languages belongs to one (sometimes more than one) class, but overall, genus membership is fixed.

Based on the defined overlay of grammatical and semantic considerations, this paper follows Hellinger and Bußmann's (2003: 5f) distinction between grammar and semantics in "genus" ("gender", they call it) languages: "This distinction is also motivated by our interest in the linguistic representation of the categories 'male' and 'female'", with considerable correspondence between the class membership and lexical/referential gender in the field of animate/personal nouns". In the class of nouns denoting humans, their core semantic properties frequently distinguish between men and women, and their formal features typically serve to differentiate. Some pervasive associations between genus and cognition are described in the next paragraphs. At this point, it is elementary to the paper to clarify that only nouns of the personal domain will be of interest[17]. They

17 I will not discuss lengthy the various classes into which German nouns can be classified, neither the feminine plants and trees, masculine beverages, neuter superordinates (Mills 2008) – this has been done elsewhere

constitute a fascinating field of research as genus class is limited, whereas Gender as a social identity may be unlimited, yet genus often conforms to Gender in nouns denoting humans. German groups different sets of genus forms on nouns, and those referring to humans (man, woman*, person) are no exception. What makes them exceptional is that their Gender falls into the corresponding genus set: “class membership is anything but arbitrary in animate/personal reference” (ibid.).

The noun inherent classificator genus is not semantically loaded for inanimate nouns (*die*$_{\text{FEM}}$ *Tasse, der*$_{\text{MASC}}$ *Becher, das*$_{\text{NEUTR}}$ *Glass* – “the cup”, “the mug”, “the glass”), it does however contribute to the meaning of animate nouns with respect to their animacy (as well as grades of animacy, see Nübling & Kotthoff 2018: 73) and Gender (*die*$_{\text{FEM}}$ *Frau / der*$_{\text{MASC}}$ *Mann / das*$_{\text{NEUTR}}$ *Kind* – “the woman” / “the man” / “the child”). This principle to assign feminine terms to female human beings and masculine for those who are male is one of the most reliable and productive rules, one of high validity but also one of the most complex relations between human realities and grammatical rules. When it comes to personal nouns, it cannot be stated that there is no semantic basis for genus assignment at all, as it has often been. The semantic rationale to group nouns reveals a principle according to which masculine and feminine Genus “mark the terms for male and female adults (in human and large parts of animal species), and neuter is assigned to non-[Gender]-specific and juvenile terms” (Aikhenvald 2018: 24 in reference to Zubin & Köpcke's 1986 seminal study). Accordingly, the form of a noun (and its properties) plays a role in genus choice and can often be predicted from morpho-phonological criteria, since derivational affixes are associated with a particular genus, e.g., nouns containing the suffix *-ung* (on inanimate nouns) or *-in* (for female-specific feminine animate nouns). In these cases, animacy and Gender are predictable from the noun’s categorisation and stringent marking. The famous definition of genus by Hocket (1985: 231) therefore reads: “Genders are classes of nouns reflected in the behavior of associated words” (qtd. in Nübling & Kotthoff 2018: 70). Derivational structures of suffixation are complicated by minor morphological agglutinations in German, where genus and number can be combined into a single affix. Indefinite articles categorise the noun in terms of its genus, too (*ein*$_{\text{MASC}}$, *eine*$_{\text{FEM}}$). Grammatical means for the linguistic categorisation of nouns are abundant in the language, affixes and articles among the primary tools by which in turn genus on the noun can be inferred. German as a morphologically complex language exhibits agreement and requires concord of genus-marked elements. Pronominal anaphoric genera, the major function of which is to establish reference, are distinguished in third person only, which is frequently the case in Indo-European and grammatical genus languages.

Typically, language with grammatical genus possess a large number of devices of overt genus marking, by suffixation, adjectival and pronominal inflection, and determiner congruency.

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with much more cautiousness and obsession, or let me say, diligence.

For interests in genderisation of objects, bearing fascinating interactions themselves, consult Aikhenvald (2018: 126ff.) for a review on a crosslinguistic German-Spanish comparison where articles differ in the respective language, mental representations of objects revealing physical features and influencing their design, gendered avenues to metaphors and name recall, and more “anecdotal evidence point[ing] towards a certain metalinguistic awareness of gender” (ibid.: 128).

The paradigm shall expose the many possible markings in one utterance.

SG	MASC	FEM
DEF	***Der** Lehr**er**, **der seine** Klasse …*	***Die** Lehrer**in**, **die ihre** Klasse …*
	seit dem letzten Schuljahr unterrichtet, ist krank geworden.	
	“The$_{MASC / FEM}$ teacher$_{MASC / FEM}$ who$_{MASC / FEM}$ is teaching his/her class since last year, ...”	
INDEF	***Ein** neu**er** Lehr**er**, mit **dem** ...*	*Ein**e** neu**e** Lehrer**in**, mit **der** ...*
	die Klasse noch nie Unterricht hatte, wurde vorgestellt.	
	“A$_{MASC / FEM}$ new$_{MASC / FEM}$ teacher$_{MASC / FEM}$ with whom$_{MASC / FEM}$ the class ...”	
PL	*<u>Die</u> Lehr**er**, <u>die</u> <u>ihre</u>*	*Die Lehrer**innen**, <u>die</u> <u>ihre</u>*
	Klassen mehrmals pro Woche unterrichten, führen die Belehrung durch.	
	“The teachers$_{MASC / FEM}$ who are teaching their classes several times a week, ...”	

The selection of appropriate inflectional endings is a formal property determined by the grammatical genus of the noun (Bußmann & Hellinger 2003: 146). The concomitant elements that express noun genus establishes a syntactic relationship between a noun’s genus class and its satellite elements, that is, those constituents within noun phrases (determiners, adjectives, pronouns) but also outside noun phrases (primarily anaphoric pronouns) "agree" with the noun, showing morphological variation according to the noun's grammatical genus (as well as number and case). Whenever noun genus re-appears on agreeing modifiers, or personal and other pronouns (which are variable in genus, i.e., they adapt to the choice of [feminine / masculine / neuter] values) is a morphological-syntactic process called congruency, one of the most important requirements that triggers agreement with other word classes and forces to mark a range of elements according to genus. So even if “class membership is not consistently marked on the noun itself, it is overtly evident from (singular) dependent elements, primarily articles and pronominal forms” (ibid.: 143). Crucially, features of genus distinctions do not accompany nouns in the plural. “[i]n the plural, these word classes show no gender distinctions”. Many languages have fewer genus distinctions in plural than in singular, underlining the notion of a higher indifference in accumulation of entities, viz. groups. In German, genera are not distinguished in plural number determiners and modifiers.

2.1.1 Genus Forms and Gender Impacts

Although nouns do not necessarily carry explicit markers, among the field of personal referential terms, they generally do. Most nouns denoting humans carry genus overtly marked on the noun and its article, indicating their agreement in human Gender features [+/- female] with the noun. Explicit markers of genus class membership and categorised human Gender membership in German are suffixed to the nouns and associated elements (*die Witwe*$_{FEM}$ – *der Witwer*$_{MASC}$ “widow-er”; *der*$_{MASC}$ *Flugbegleiter*$_{MASC}$ – *die*$_{FEM}$ *Flugbegleiterin*$_{FEM}$ “steward-ess”). Agreement is the very tangible process of a process of associating a particular word or phrase with a particular real-word entity (referent), and resolving reference, figuring out who the entity denotes. Gender-related linguistic questions ultimately integrate systematic aspects with realistic language use. Human reference reminds us that both perspectives cannot be isolated. With respect to animate nouns, morphological and

phonological features are not the only principles to determine genus. Meaning meets – and predetermines – form in personal nouns, both work together to assign referent Gender. The combination of meaning-based and form-based principles is only partially at work here, and in the overwhelming majority it is outplayed by semantics, because the Gender of humans is unequivocally based on semantics and conceptual notions of someone's Gender category – and genera follow and keep the Gender categorisation. Nouns denoting females are feminine, and those denoting males are masculine, we have seen. The conceptual referent of *die Lehrerin* does not "become" female because genus class determines it to be so, but because the female referent is denoted with female-specific feminine-marked form. Unlike formally distinctive genus class membership indications, it is highly probably to derive a personal noun's genus from the gendered features inherent to its meaning. Not infrequently, genus "docks" onto the semantic meaning of a noun (Nübling & Kotthoff 2018: 70) and is governed (as well as governable) by referential Gender. Genus class may be shifted on these conceptual grounds.

Conceptual Gender: Lexical, definitional, referential Gender and differential genus. Apparently, semantic Gender properties (of the noun concept) and the lexical, definitional or referential gendered concept of a nominal element tend to affect agreement. From here onwards, we focus on Gender as a feature of an animate noun denotation. Since the noun forms themselves contain the specification of the respective feature, this has been called lexical Gender and "relates to the property of non-linguistic maleness or femaleness as encoded in a noun's lexical meaning". Thus, terms may be lexically marked as female-specific or male-specific (Bußmann & Hellinger 2003: 147). For a group of human nouns, genus choice can be based entirely on this meaning, not morphologically expressed but part of the noun's definition: the greatest variety of examples is to be found in kinship and address terms or titles (*der Herr, der Sohn* "the mister", "the son" are male-specific, *die Dame, die Tochter* "the lady", "the daughter" female-specific, while *die Person, das Kind* "the person", "the child" are said to be unspecified for Gender: indifferent). Due to the category being an essential part of the noun's definition, this strategy to mark genus and derive gendered properties is known as definitional Gender ("king" vs. "queen"). In some cases, the noun form remains unmarked and unchanged, symmetric for both referent Genders (*der*$_{\text{MASC}}$ / *die*$_{\text{FEM}}$ *Alte* – "the old (one)", note that the indefinite determiner yields an asymmetric marking again *ein*$_{\text{MASC}}$ / *eine*$_{\text{FEM}}$ *Abgeordnete*$_{\text{FEM}}$ / -r$_{\text{MASC}}$ – "a delegate$_{\text{FEM / MASC}}$"). This differential genus of a form is indicated by grammatical means to make a referent's Gender explicit through assignment of feminine, masculine, and in some cases neutral genus by determiners that indicate genus specification without altering the base form. In these cases the satellites alone would bring forward gendered meanings for singular personal nouns which are derived from adjective (like the nominalised present participle of *abordnen*, *abgeordnet*, above), exemplifying how genus class membership is to be altered depending on referent Gender. Here, genus is assigned fairly transparent according to meaning; the marking on articles unambiguously decodes Gender. When the genus of a noun can vary depending on conceptual aspects the versatility of how genus may express someone's Gender becomes clear.

Using NPs (in which Gender is conveyed lexically) as referring expressions (which are in agreement with genus) is one of the most essential methods to communicate someone's Gender – speakers and listeners have a particular referent in mind based on the form they encountered to exploit cues.

Another strategy to indicate Gender lexically is the adjectival modification in which specification may be achieved by the accompanied specific "female" or "male" attribute of a Gender-indefinite plural nominal (see above), i.e., to emphasise Gender of plural nominalisations (weibliche / männliche Beschäftigte – "female / male employees", specified for Gender because *Beschäftigte* does not give Gender away).

Besides syntactic and morphological devices, this area of word formation is particularly sensitive to lexical genus-specification via derivational means of "-mann" / "-frau"-compounds that convey animacy and Gender, especially so in occupational and functional terms constructed from gendered referent elements added to an activity, role, or job in straightforward compounding strategies. Word formation strategies then transmit this information of features: *Putzfrau* vs. *Hausmann* "cleaning woman" vs. "homemaker (male)", *Geschäftsfrau* vs. *Geschäftsmann* "business woman" vs. "business man", but *Geschäftsleute* "business people").

This clear-cut classification is suspended for nouns that should be usable for any human being regardless of Gender – in a generic reference to anyone. On a formal level, generic expressions of masculine genus carry masculine anaphoric markers. Contrary to a purely formal view of a grammatical feature indicated there, Hellinger and Bußmann (2003: 13) believe that agreement is "taking on symbolic functions" in forms of semantic and social information added to the discourse. In the field of generics, asymmetries in forms of genus conflicts are abundant when the coordination of feminine and masculine nouns result in specifically masculine elements in anaphoric relations, or when agreement conflicts occur in the case of singular "generic" masculines which anaphorically relate to a preceding female-specific feminine. This can be affected by word order, referent precedence and specificity:

Erfolgreichster Mitarbeiter im Laden ist die neue Kollegin.

"The most successful$_{MASC}$ employee$_{MASC}$ of the shop is the$_{FEM}$ new$_{FEM}$ colleague$_{FEM}$."

Die neue Kollegin ist eine hilfsbereite Mitarbeiterin.

"The$_{FEM}$ new$_{FEM}$ colleague$_{FEM}$ is a$_{FEM}$ helpful$_{FEM}$ employee$_{FEM}$."

Die neue Kollegin ist die erste von rund 30 Mitarbeitern, die die Dienstkleidung kritisiert.

"The$_{FEM}$ new$_{FEM}$ colleague$_{FEM}$ is the$_{FEM}$ first of about 30 employees$_{MASC}$ to criticise the uniform."

Die neue Kollegin ist nicht die einzige unter den Mitarbeiterinnen, die nicht hineinpassten.

"The$_{FEM}$ new$_{FEM}$ colleague$_{FEM}$ is not the$_{FEM}$ only one among the employees$_{FEM}$ who it didn't fit."

What we come across in this example is the observation that generic agreement tends to affect German grammar in different ways and generally favours masculine-marked coordination, leaving the feminine agreement as "non-obligatory", "irregular" and specifying femininity. Any example presented before was an instances of the informative load features carry.

Harris' (1991) argument that morphemes are scattered in all three forms in the various word classes leads to his conclusion that these are not genus classes but precise forms. In German, social-grammatical violations as in *das Mädchen* ("the$_{NEUT}$ girl") take a neutral article for a female Gender concept – the diminutive ("-chen") demands the noun to be neuter in agreement (like "-lein" as well, nouns containing these suffixes are always of neuter class) and covers the otherwise mostly corresponding feminine notion: semantic correspondence of Gender *Das Mädchen*$_{NEUT}$ / *Sie*$_{FEM}$ *ging mit ihren*$_{FEM}$ *Eltern mit* vs grammatical correspondence of genus *Das Mädchen*$_{NEUT}$ / *Es*$_{NEUT}$ *ging mit seinen*$_{NEUT}$ *Eltern mit.* I expect that speakers of German would judge anaphoric feminine pronoun *sie* ("her", instead of *sein* – 3rd person singular neuter) to refer to aforementioned *Mädchen* acceptable or at least no crude violation, since the *conceptual* Gender agreement is in place. Known as *semantic agreement*, on the domain of personal reference anaphora follows the meaning of a noun rather than its form[18]. In actual language usage, it is increasingly observable hence accepted to use anaphoric reference of *ihre Eltern* ("her$_{FEM}$ parents" instead of "its$_{NEUT}$ parents"), so its lexical-semantic specification for [+female] drives agreement, and the choice is referentially motivated. If a grammatical genus form mismatches semantic Gender, then Gender appears to actively override the form in order to specify referential Gender features. Lexemes that express themselves Gender as their category of referential indication draws from the extra-linguistic social reality manifest that nouns of personal reference carry the property of meaning features of femaleness or maleness.

Referential Gender contributes the crucial component that relates linguistic expressions to the social information; the concept of the word's denotation identifies a referent as fe-/male, diverse, or Gender-indefinite.

In grammatical genus languages, the complex interface between grammatical classification and referential specification "obtain[] for the majority of personal nouns, with typical Gender-related asymmetries" (Hellinger & Bußmann 2003: 8). The numerous options for the derivation of personal nouns from nominal, verbal, or adjectival stems by suffixing "-ler", "-er", "-ent"/"-ant", "-ist", "-or" all yield grammatically masculine forms that take masculine agreement (Lehrer). German tends to the formation of corresponding feminine nouns to denote the female counterparts of these referents by "-in" suffixation added to masculine nouns (*Lehrer+in*).

What can be observed here is the development of a feminine / non-feminine *opposition*: the feminine-suffixed forms stick out, the correlate denoting female reference being more elaborate to build and consequently marked for Genus as the masculine term constitutes the base form (unmarked, or zero variant realisation) from which any other is derived. Known as linguistic markedness, the markedness for feminine expressions extends the formal nature to what is called functional markedness that relates to their usage (not their surface) when the two distinctive kinds do not

18 Indeed, "[i]n a recent study, Braun and Haig (2010) found a subclassification on pronominal anaphoric choice and "showed that speakers tend to favour the feminine pronoun *sie (*and not the neuter pronoun *es*) for older girls (18 years of age), and the neuter pronoun for 2- to 12-year-olds who have not yet attained the status of 'woman'". This unveils the influence of feature formation, like reproduction and fertility, on lexical usage.

have the same status. Feminine nouns are used in one "restricted, specifiable situation" – namely, when female humans are referred to – "with the unmarked term being used in all other circumstances" (Aikhenvald 2018: 25-6) that mark the "norm". The process of derivation of feminine-marked nouns is a well-established, productive pattern, and despite (or because?) of its derivation from male terms, "it is an indispensable means of achieving female visibility" (Bußmann & Hellinger 2003: 153)[19].

Unlike the radically coined term "Suffragette", someone advocating equal rights to vote for all (both) Genders as the derived form of "suffragist", other similar suffixes that derive female terms like "-euse" / "-esse" (parallel to English "-ess") are judged as derogatory and increasingly avoided, viz. transformed into regular "-in"-suffixation devoid of diminutive overtones, after their meanings had shifted to not just counterparts but status-inferior terms for the same professions (but see (Aikhenvald 2018: 89-90, e.g., "governess" ≠ "governor"). The context of diminished meanings is standard for the young female person *Mädchen* ("girl"), rendering diminution next to Gender inflection one of the main processes for female reference[20].

Incongruent references of grammatically masculine (intended generically) referentially female nouns that take feminine pronominalisation are used already, for example, when Pusch (2014: 24) observes that a woman is titled "der Partner" ($\text{the}_{\text{MASC.}}$ $\text{partner}_{\text{MASC.}}$), and is probably well accepted despite the grammatical-conceptual mismatch. "Only in principle is such markedness independent of grammatical [genus]. For the implications extend the grammar" (Hellinger & Bußmann 2003: 8); lexical Gender is the determinative parameter in the structure of genus use to convey referent properties. In generic forms, the specificity is considered to be resolved for the sake of an extension of meaning to include anyone of any Gender into the denotation while the surface form remains the same. The incongruency between lexical or referential Gender and genus highlights that systematic aspects cannot be isolated from Gender-related linguistic questions, but are mutually dependent perspectives.

Generics in German take forms that have no marking, or rather, the "default" marking, and are consequently masculine – all of them, irrespective of conceptual Gender characteristics. For German and the many other more or less familiar languages, using the unmarked, or better, masculine norm as default implies it is used as an indefinite to refer to humans of unknown – or any Gender. This is a characteristic of a generic expression, which is supposed to be Gender-inclusive or to abstract from Gender specifications as Gender-neutral or Gender-indifferent in opposition to the Gender-definite and specific variants.

Critically, it is also used to refer to a group of mixed Genders, and moreover, to any group consisting of some male referents, even only one. With the homonymy of the masculine genus, the non-

19 German literature refers to the inflection of a female-specific counterpart to a masculine lexeme which have a limited referentiality to non-male referents as "Movierung", congruently highlighting the movement character.

20 Humans for whom the feature [+male] applies (especially [+young]) would strongly object to be referred to with this word: due to the referential Gender contained in the lexical specificity "a gendered message is nevertheless transmitted: the expression has explicitly derogatory connotations"(Hellinger & Bußmann 2003: 9), and the negative attitude transmitted by the diminutive becomes obvious.

generic male-specific use is available for a male-only group, whereas the feminine form refers exclusively to a group consisting of females*. As soon as a male referent is included in the group denotation, the masculine form has to be applied – a prescription, a grammatical "trick(ery)" that has been imputed to render all the women* of a group, even when being the majority, invisible. Lexical insignia, like a morphological tag for women* (Nübling & Kotthoff 2018: 136), in the plural only hold for female-only groups: feminine genus suffixation is not applied even when women* are in the majority, even 99%, of a group with at least one male member. Based on what has been introduced in this section on nominal human denotations, it can be argued that masculine personal generics are yet another instance of semantic Gender agreement – by implication, the masculine (un)marked forms would carry referential assignment of male Gender. Given the definite inclusion of male but questionable inclusion of female or other identities in the reference, I will use male-marked, not the common *un*marked terminology to highlight the demands that a truly unmarked form should satisfy, and to shift the emphasis from a non-female-but-male-inclusion to the male- vs. female-marked opposition. Gender-neutrality, as opposed to the specified variants, would thus be treated as not marked for a predominant Gender.

2.1.2 The (specific) trouble with the masculine

(Non-)markedness touched upon the topic of a functional overlap of masculine personal nouns, which when used Gender-indifferently or Gender-specifically are not differentiated formally. A "generic" expression and the same form explicitly referring to men (and men only) are a type of syncretism of the masculine. Thus, using the masculine referential nominal and pronominal terms for reference to both (or all) Genders as well as for male Gender, causes ambiguity in meaning. What is being challenged is that lexical implications hence bear the risk to be male-biased, to resonate as male even in the generic intention.

Recall that the function of a genuinely generic masculine should enable forms of grammatically masculine nouns and pronouns to refer to people of unknown Gender, whose Gender is not relevant, which mean to include male and female and diverse Gender, or by which a general predicate should be conveyed (statement from Klann-Delius (2005: 26) phrased by Nübling & Kotthoff 2018: 91). An utterance like *Jemand, der an der Schule unterrichtet, ist ein Lehrer* "Someone$_{MASC}$ who teaches at schools is a$_{MASC}$ teacher$_{MASC}$" should consequently be able to refer to teachers of any Gender. The controversy revolving around the allegedly "gen"Masc. connects to the genus complex, to questions if masculine personal reference expressions can suspend and extend their referentiality that their Gender-specific interpretations carry, e.g., if the interpretation of "ein Xer" ("a/n X" where X is a generic noun) can be overarching Genders and have men and women* and others alike associated with it.

Male-As-Norm principle, Othering, Prototype Theory. Under certain conditions, the use of masculine personal nouns as generics has been shown to fail and evoke unintended associations (basically confirming a male-specific reading of grammatically masculine nouns regardless of their generic intention), where "gen"Masc. reveal their male bias in contexts where the statement of a) a

subsequent female presence or b) the modification of stereotypically male attributes (like traditionally male garments) shifts the interpretation of the preceding masculine noun towards definitely male-specific. Inspired by the plethora of examples in Bußmann and Hellinger 2003: 158 and Nübling and Kotthoff 2018, I list utterances that would elicit non-generic revelations of a masculine.

Ein Lehrer ging mit Kollegen$_{\text{MASC.PL}}$ *essen.* vs. *Ein Lehrer ging mit Kolleginnen*$_{\text{FEM.PL}}$ *essen.*

"A teacher had dinner with colleagues$_{\text{MASC}}$." vs. "A teacher had dinner with colleagues$_{\text{FEM}}$."[21]

Die Lehrer$_{\text{MASC.PL}}$ *an unserer Schule tragen Krawatte und Anzug.*

"The teachers$_{\text{MASC}}$ at our school wear tie and suit."

A generic form that is contextually transformed into its selective syncretism, like in cases when "workers may take their wives along" (Nübling & Kotthoff 2018: 97, 98) can be tracked in acceptability tests: *Viele Geflüchtete, haben Probleme, die Arbeitszeugnisse hier anerkennen zu lassen und dadurch Schwierigkeiten, eine Anstellung zu bekommen, um bald Frau / ?Mann / *Mensch und Kind den Familiennachzug zu ermöglichen.* "Many refugees have problems […] and difficulties […] to make family reunification with their wives / ?husbands / *humans and children possible." (A parallel asymmetric pattern of common phrases where non-males are singled out from the generic is in news reports, which regularly speak of "survivors, some of which were women / and many women and children", as if they could not be considered subjects in their own right, Cameron (2005: 84) notes and postulates that despite the reverse structure of "some X, two of them men" is not ungrammatical and since there is no reason why this is not an instance we encounter just as often, it is a key observation of a masculine generic dictated by a male predominance. The moment a [+female, -male] feature is separated from a "generic" masculine leaves the [+male] extension only. Defining "men" as a human being who is not a woman* nor a boy, while women* are the adult female human being follows the concept of "othering", by which we "establish a norm and constitute deviations as 'others' which re-defines the norm" (Aikhenvald 2018: 113 in reference to Samuel Johnson, in his 1755 classic dictionary & 1828 Webster dictionary. Eickenhoff (2012: 201) found that for the same definitional reason such works regularly though inconsistently define *Akademikerin*$_{\text{FEM}}$ "academic$_{\text{FEM}}$") with the typical description *weibliche Form von Akademiker*$_{\text{MASC}}$ "fe-

21 Nübling and Kotthoff (2018: 94ff.) debunk the masculine generic (to meet colleagues when in fact you meet female colleagues) as a lie in this example. Many cognitive-linguistic falsifications with the help of puns or Gender-specific switches have an essential presumption of a heterosexual normativity, because otherwise the twist would not work out that the counterpart to a linguistically or mentally represented male human is a woman* (and vice versa), and that it is this circumstance that clashes the expectations, stereotype roles or anatomy. Thanks to repetitive performativity it must be assumed that such examples do serve the delegitimation of masculine generics (viz. the unmasking of an underlying male-specific interpretation). At the same time, however, this implication does a disservice to Gender diversity insofar as homosexuality and non-binary Gender identity are dismissed for such examples as out of question and absurd (same Gender marriage is not meant, but the notion of people = male is inherent and prefers the male-specific reading when reference is established to "Americans of higher status have less chances to have a [...] wife". Moreover, feminist pieces of work like to start off with a linguistic riddle about a surgeon and their kid that stems from the non-genus-language English and is simply (or quite brutely) transferred into German to prove how "gen"Masc fails.
I would like to appeal to the readers to be aware that the studies quoted take two Genders for granted, "both" Genders. Since this notion is not shared by the author, testing Gender-neutral forms as well as providing the option for participants to identify as a diverse or a self-described Gender is a first step to counter this binary assumption.

male form of 'academic$_{MASC}$'")[22]. Pusch (2014: 25) adds evidence from Wikipedia which deliberately lists categories of "musician" for men and "musician | woman" for, well, female musicians.) When reference is established to women* following a noun introduced as a generic, contexts that are introduce a female cenceptualisations violate the MAN(male as norm)-principle. One of the few counter examples are, e.g., "people stopped working when they got married", which in fact means that primarily the female partners give (gave) up their (lower-paid) jobs, and not stating the social asymmetry explicitly veils history and/or reality (Mills 2010: 50, 51 with reference to Eckert & McConnell-Ginet 2003: 244).

Nübling and Kotthoff (2018: 210) blame the lack of genus marking in plural generics to open a vacuum for the male-as-norm principle, confirmed by several pieces of language use evidence. These may be subsumed under heteronormativity acceptability judgments; they are more subtle yet revealing under the assumption of binary Gender order of families, marriages, …

Apparently, the so-called generic masculine is selective, and the predominant male-specific reading must be overcome, mostly with types of reassurance that reveal it is not fully generic, and additional information that is often provided in order to ensure a generic interpretation of the masculine. Its generic meaning is so weak, it is increasingly specified for Gender, and therewith undermining genericity: *Als Student – egal ob männlich oder weiblich* "As a student$_{MASC}$, whether male or female". Masculine nouns used generically can be sub-specified for male and female members, but cannot refer to women alone; simply, because a corresponding feminine noun to refer to female Gender is available (lexical blocking).

die weiblichen Studenten "the female students$_{MASC}$" / ?*die männlichen Studenten "*the male students$_{MASC}$, but: **die weiblichen Kolleginnen* "the female colleagues$_{FEM}$" (the lexical addition to have a personal noun modified by the female-specific adjective "female" is not available for the feminine) / **die männlichen Kolleginnen* "the *male colleagues$_{FEM}$".

Corpus studies could show how often generics are specified to include women* as well as accompanied with modified *weibliche X* ("female X"), because the original term refers to the male group only. Any of these genericity tests that fail or require additional attributes or confirmative reference prove: the inconclusiveness or indecisiveness when a "generic" masculine is intended, and when a masculine form should be specific, messes with meanings. Therefore, Antje Schrupp postulates that the problem is not the limited "generic" usage of masculines, but that the masculine form is not specific enough in cases where only male reference is intended[23]. Doubt is called forth whether the

22 Regarding translations and glosses, I will not use a format of referring to genus-marked *Studenten* (students$_{MASC}$) as "male students", because strictly speaking in use of a "generic" masculine the specifically male translation is incorrect (and could mean "students" alike), and because there is a productive structure in German conveying this exact meaning (*männliche Studenten* – "male students$_{MASC}$": "male students*".* Note that *weibliche Studenten* – "female students$_{MASC}$": "female students" is acceptable, too, regardless of the feminine plural *Studentinnen* – "students$_{FEM}$": "female students" that should occupy this lexical spot thoroughly if the generic would suffice indeed to entail a subgroup of 'female students'. The observation that it does not underlines the stipulated hyperonymy). Both are in actual usage (examplified above), and differ as outlined in the translations just compared, thus taking different functions (with the attributes putting emphasis on the group's Gender conformity.

23 https://antjeschrupp.com/2018/03/14/sprache-es-geht-nicht-um-das-mitgemeintsein-von-frauen/, last accessed 27/04/20.

different masculines, specific or generic, all-male or all-Gender, are under command in cases where two usages are official and may be correct, solely depending on *intention*. Indeed, it has been demonstrated in many ways, first of all by Pusch (1984, 27ff.), that what we frequently encounter are "pseudo-generic" masculines that all of a sudden tilt in a very specific reading – and hence fuel the assumption that the initial mention was not Gender-inclusive and not meant to be to begin with. Anaphoric reference from "gen"Masc. that expose e.g., teachers *als Väter ...* ("as fathers ..." to pick up the topic, and introduce included referents) turn out non-generic.

The issue we deal with is thus either the incapability to differentiate a genuinely generic from a Gender-specific masculine form, or that the masculine forms, nouns, their articles, are in fact not decoupled from their specific reference in situations that should be Gender-overarching – or both, each being a consequence of the other. In general, "[s]uch examples illustrate an increasing insecurity concerning the interpretation of personal masculines" (Bußmann & Hellinger (2003: 160).

Still, the ungrammatical overapplication of generically intended masculines for female-only groups frequently strikes our attention (remember the "Liebig34"-example, or pregnancy- and menstruation-related contents discussed with *jeder, der ...* ("everyone$_{MASC}$ who$_{MASC}$" – not to exlcude trans identities but to underline the misleading male representations entailed, cf. [5]). Masculine singular forms for which a generic or Gender-specific interpretation is not clear fail to agree with Gender-indefinite antecedents by the feature of [Gender]. Pusch (2014: 118-9, transl. C.S.), who deems German a men's language, calls these instances the "fulfilfment of the patriarchy's over quota"[24]: *Wer (von den Kunden) hat seine Menstruationstasse verloren?* ("Who (of the clients$_{MASC}$) lost their$_{MASC}$ menstruational cup?", the possessive being homophonous with the masc. form that translates as "his").

After all, masculinity as default grammar, male Gender as norm for referential terms, comes down to the (semantics) prototype theory: a prototype of a species is more readily in mind and, in a metonomy-like fashion stands for the entirety of the species or groups of it. By implication, specifically and effortfully including women* linguistically to make sure to include them conceptually also means that "women are always defined by their gender, whereas men are permitted to pass themselves off as generic human beings with no gender" (Cameron 2005: 84)[25]. Even though some authorities argue that "the word still retains the primary meaning 'human being', […] we must admit that in actual use it is often unclear whether man refers to people in general or to men only" (Aikhenvald 2018: 113); the examples have illustrated that in discourse elements, the concourse of specific and generic meaning is resolved in favour of a dominantly male concept of terms. This has been identified as contradictory to linguistic Gender "mainstreaming", efforts taken on equality, be-

24 This claim is also based on the observation that in German, grammatical rules are already overridden to the benefit of the "gen"Masc, overapplication mainly due to the principle of using masculines generically. Some sentences surprise us with a masculine instead of the expected feminine: "Die Algarve punktet mir seinen vielen Stränden […]"; "Die erlangte Ritterschaft hat seinen Preis" (Pusch 2014: 31).

25 It excels on the noun „man" as a synonym for "human", i.e. "mankind" in English. The debate on the German indefinite pronoun "man" has been attacked repeatedly (read more in Nübling & Kotthoff 2018) and will not be outlined here. conceptual, lexical and grammatical uncovered as man$_{EXK}$ by S. Wurmbrand (2018): https://homepage.univie.ac.at/susanne.wurmbrand/Susi/ewExternalFiles/frau.pdf, last accessed 27/04/20.

cause women* – recipients in general –, cannot know with certainty if they are meant by the expression and must deduce for any masculine personal reference they encounter whether they might be in- or excluded. Men, on the other side, are always included and are devoid of this cognitive extra task. A masculine meaning “sticking” to the forms that are intended to be generics “may be seen as inherently sexist”, because in such non-parallel treatment of female and male subjects, “they automatically reflect the assumption that the male of the species represents the species itself” (Aikhenvald 2018: 113 with reference to McConnell-Ginet 1979: 77), and by this very “are reflections of an underlying gender belief system, which in turn creates expectations […], [which] will prevent a genuinely generic interpretation of gender-indefinite personal nouns” (Hellinger & Bußmann 2003: 10). To conclude, grammatically masculine generics are able to systematically conceal women*'s potential and actual presence, and on top of that places the burden on them and other recipients to continuously re-evaluate if they are meant in a precise situation that occurs in a “generic” discourse or not.

Another problem in the above a *Lehrer* (“teacher$_{\text{MASC.SG / PL}}$”) example with genus marking and Gender interpretation occurs with the grammatically masculine base form from which the feminine forms need to be derived to denote female referents of teaching: *Lehrer* (base form) → *Lehrerin* (Gender-inflected form). While the masculine expression is or has been understand as either “generic” or male, the feminine clearly denotes females who teach. Which form to use for teaching staff of diverse Gender?

In a binary Gender understanding, the referential feature specification either carries [+male] or [+female], at the same time implying men are [-female] and women* [-male], once again illustrating how othering contributed to definition and identification of Gender: if someone is not A, they must be B, and for this type of German generics in the masculine, A X B holds, with B being a “version” of A (and B X A not yielding a generic). Feature theory is quite capable to explain in-/acceptances among language reforms. Similarly, critics of sexist language postulate that generic masculines (which prescriptively are supposed to contain [+male, +female] do not express or are underspecified for the feature [+female] – whereas conservative critics of language change claim this to be true (find the analogy to the number feature in Bodine 2005: 126). The feminist analysis of inclusivity of those who are not included in masculine- or feminine-marked referential expressions is strongly supported by a linguistic understanding of markedness and prototype recall and the pragmatic effects of reinterpretation in cases of exclusion from a generic. At the heart of the matter, the grammatical genus overlaps with the lexically encoded Gender information; hence a male dominance is apprehendend following the predominance of masculine nouns and pronouns.

2.1.3 Strategies and Promoted Solutions towards a more Inclusive Language

Neither activists nor (psycho)linguists aware of above exclusionary side effects are willing to continue the traditional masculine generic prescription after its revelation of (questionable) inclusive intention that effectuates a male-dominant conceptualisation of a representation in consequence. Feminist linguists and linguist feminists introduce the counter-strategy to a male-biased interpreta-

tion of personal nouns that aim for the visibility of those meant *and* meant to be included. Equality of group constellations and Genders in mental representations of plural nouns should be achievable for unknown or freely composited sets of individual people. For this purpose, various recommendations have been and still are proclaimed, and are partly being implemented in language use. Systematic alternations are concerned with morphology, the lexicon, and their interactions, first and foremost on the pro-/nominal domain and masculine "generics", instances of Gender-dependent genus inflection and hence, terms of personal, social, occupational roles. Strategies trusted as a solution differ conceptually to enhance, counteract or background (implicit) Gender information, which correspond to distinct grammatical mechanisms of genus assignment for lexical Gender.

2.1.3.1 *"Engender" with Gender-balanced alternatives: Femininisation, Pair Forms, Splitting*

"[I]t is better to be named and to be visible in language, even if there are connotations of triviality."
Pauwels (2003: 558) in Mills (2010: 84)

The double syncretism has granted the "generic" masculine a comparison with a dilemma induced by toponomy and hyperonomy, for instance when "America" should refer to both South and North America, but often means only the latter (or USA, in fact), which consequently led to the strategy to make the under-referred southern continent more visible in language use (Nübling & Kotthoff 2018: 97). This comparison is useful to increase an understanding why the unmentioned react more profoundly, and why those not affected (because never excluded in generic reference, i.e., men) have a hard time detecting the discrimination in language: it is exactly because they are not affected (Stefanowitsch 2018: 36f. in ibid.: 121).

In a feature-based explanation, forms that "engender", that is, add overt Gender features to enhance inclusivity, pertain to specification for female Gender [+female] with reference to a particular individual or group that carries this feature. In German, this is achieved by using the extremely productive marking via feminine suffixation of derivational "-in" called femininisation, by which masculine forms are transformed into feminine ones[26]. Female linguistic visibility goes with formal and conceptual addition of features. Their presence, their inclusion in a denotation (more drastically, their existence) is made explicit by personal feminines ending accordingly for female reference, like *Bundeskanzlerin* ("chancellor$_{FEM}$") (Hellinger & Bußmann 2003: 12), is usually not carrying negative connotations and attachable to loanwords as well (ibid. 167). The mental representation in which a woman* can be imagined and conceptualised is hence evoked through Gender-specific markedness. This has been adduced to solve problems of (a)symmetry described earlier: sided to masculines, pairwise expressions are created to make contexts Gender-fair. Duplications in a split reference are known to gain exactly this balance (reported under 2.3). The resulting dual form (*Lehrer-*

26 In its most extreme application, the constant and deliberate use of femininised forms in each occasion of referential expressions, a generic feminine, so to speak, has originally been suggested ironically: Pusch (2014: 86, 98) proposed a "correction" in a principle of rotation, simply replacing the masculine "generic" status in an endeavour to "train men in empathy" on what it actually feels like to be "meant" implicitly while never knowing for sure if one ("man(n)") really is. She must be pleased to see Universities and City Councils half a century later attempt to expand the referential range and adopt a generic feminine, hitherto occasionally used in pro-feminist contexts.

innen$_{FEM}$ *und Lehrer*$_{MASC}$ – "teachers$_{FEM}$ and teachers$_{MASC}$") consists of two Gender-specific forms (the strong Gender-specific interpretations has been shown by Nissen 2013: 109).

The use of feminine word formation processes to derive female referential Gender is not an issue under debate, albeit sometimes falling victim to the above-mentioned masculine-default overapplication (*Sie*$_{FEM}$ *ist der*$_{MASC}$ *neue Lehrer*$_{MASC}$ – "she$_{FEM}$ is the new teacher$_{MASC}$").

Substrategies to engender personal reference expressions are i) femininisation, the feminine marking via suffixation or use of a feminine differential genus (*die*$_{FEM.SG}$ *Betreuerin*$_{FEM.SG}$, *die*$_{PL}$ *Betreuerinnen*$_{FEM.PL}$ – derived from *der*$_{MASC.SG}$ *Betreuer*$_{MASC.SG}$ "the caretaker$_{FEM}$", or die$_{FEM.SG}$ *Abgeordnete* vs. *der*$_{MASC.SG}$ *Abgeordente* "the$_{FEM./MASC}$ delegate") and ii) splitting, the parallel usage of feminine with masculine word pairs (or vice versa). To ensure terminological clarity, femininisation as a strategy will be understood as the explicit marking of a form for female reference, i.e. *die Leiterin* in SG. or *die Leiterinnen* (PL.) when those who "lead" are women*, and as such the counter strategy to masculine generics (and basically the correct application of grammatical rules for female-specific referential Gender). (Most literature summarises both strategies under instances of femininisation whenever feminine markings occur. The co-ordination of a lexically female-specific feminine noun and a male-specific masculine noun are therefore considered instances of a feminising strategy (Bußmann & Hellinger 2003: 154), but will be presented separately.[27]) Split and pair forms are treated as Gender-balancing terms since both, the feminine and masculine form, refer specifically to their respective gendered referents.

A small group of nouns in the occupational field does not derive feminine counterparts via said suffixation (anymore) but "-frau"-compounding, like *Geschäftsfrau* ("business woman")[28].

Driven by the existence of a feminine marking to derive noun forms to be used in a parallel fashion to the masculine form, German has gone the way to balance Gender specifically out. Whilst Gender-balancing was barely accepted as a final solution in 2012, mainly because of the mandatory word pairs that repeat the word in its feminine derivation appear inconvenient, Okamura states (2012: 414), it has now become standard in official contexts and the phrase of politeness to co-ad-

27 "Another reason to distinguish these two is the imbalance femininisation alone may cause: Another example of this would be the use of "waiter" and "actor" to refer to both males and females, in order for women not to have to use the less prestigious terms "waitress" and "actress". However, this leads to invisibility for women, and some theorists argue that it is better to develop terms specifically for women, but which are not negatively inflected" (Mills 2010: 84). It is therefore not considered an option for terms that are suffixed into a derogatory meaning.

28 Terms that contain the job of the person who does it were first introduced for men, typically, e.g. *der Kaufmann* ("the$_{MASC}$ salesman"), and while it has been argued for saying *die Kaufmännin* (in 1965), *die Kauffrau* was used from 1985 onwards. (The precondition of a male base twice marked for female subordination in the presence of a counterpart to *Mann* "man", namely *Frau* "woman" was strongly rejected by feminist linguists). To not make a linguistic detour from the male referent anymore shows how strongly and quickly society and language shape each other (Nübling & Kotthoff 2018: 132).
Compounding, it should be noted, works in the other direction as well: in an unprecedented adaptation to reality, in 2009 the "Deutsche Hausfrauenbund" had the organisation renamed (in "DHB - Netzwerk Haushalt, Berufsverband der Haushaltsführenden e. V.", developing the female-specific to a GN term) for reasons of altered family structures that integrate men into the household reflected in male members (Pusch 2014: 17). It becomes apparent that membership in compounds is gendered. As soon as men do not feel included, engendering their participation by degendering a lexical-specific expression is realised, highlighting the interdependency of both Gender and language reform approaches.

dress *Kollegen und Kolleginnen* ("colleagues$_{MASC.PL}$ and colleagues$_{FEM.PL}$"), is preferred, "rather than subsuming women under the masculine" reference[29].

Thanks to their efforts, feminists and language reformers have motivated the co-ordinated use of feminine and masculine personal nouns resulting in expressions of A and B, or B and A. Placing both in a specific meaning, the masculine is considered to be just as genus-marked for male Gender as the feminine is for female Gender, and these two are thus used pairwise, or split. Pair forms and so-called long splitting connected with conjunctions are quite common indeed, but receive criticism for their length[30]: *alle Lehrerinnen*$_{FEM}$ *und Lehrer*$_{MASC}$ */ jeder*$_{MASC}$ *Lehrer*$_{MASC}$ *und jede*$_{FEM}$ *Lehrerin* "each$_{(MASC / FEM)}$ teacher$_{FEM}$ and teacher$_{MASC}$"; *jemand der*$_{MASC}$ *bzw. die*$_{FEM}$ "someone who$_{MASC\ or\ FEM}$". Some publications subsume binary adjectival modification with "fe-/male", pairwise conjuncted to "male and female teachers" under femininisation strategies, which they are not; this is othering and in practice seems to suggest that the masculine form is the norm, since the double marking of masculine attributes to masculine generics is so infrequent that the form that is mostly encountered is the feminine adjective used alongside the masculine base noun (*Lehrer*$_{MASC}$ vs *weibliche Lehrer*$_{MASC}$). Generic terms would, instead of being restricted to genuinely generic references thanks to the paired specificity, affect female reference to be marked as the deviation from the generic. Splitting may thus not be unequivocally the proper solution to establish Gender-indefinite reference. As an inherent factor of language change, only time will and does tell. The mere undeniable existence of a female chancellor (*Kanzlerin*) has made a difference regarding the explicit mentioning entered in the constitution, and was only referred to when a reality pioneered in which this circumstance was true, once again potentially creating a blueprint to request *Ihre Ärztin oder Apothekerin* (Pusch 2014: 32-33).

In times of fast-paced (digital) communication, orthographic shortcuts have been developed to transform long parallel forms to abbreviated splitting. This type connects two genus-carrying pairs by various orthographical symbols pronounced with a glottal stop (precisely, a minor acoustic gap in between *Lehrer*?*innen*) to be exemplified shortly in the appendix *C3*, and has sometimes been called "Sparformen" that save space (rhyming with "Paarformen").

2.1.3.2 *"Degender" with Gender-neutral alternatives: Neutralisation, Word Formation, Paraphrases*

As many options at which we peeked above to mark Gender specifically on lexical and morphological grounds are there to a Gender-indefinite communication. German is well stocked with a multitude of options to neutralise the Gender information to be transmitted, and there is considerable variation which form undergoes which operation to background or veil Gender, to "degender". In

29 (except for the infamous yet not infrequent swallowing of non-salient "-innen", essentially erasing the feminine marking in a haplology, for instance when addressing "Liebe Kolleg'en und Kollegen" in a momentous assimilation.)

30 In a linguistically analogous situation, when a pair form "correction" of *he or she* instead of "generic" *he* was advocated for English (by the way not keeping up with the semantic advantages of the structure under attack, singular *they*, as overarching Gender binaries), it was not encouraged but "grammarians actually tried to eradicate this also, claiming [the split form] is "clumsy", "pedantic", "unnecessary"; arguments we know from debates on German. "Significantly, they never attacked terms such as 'one or more' or 'person or persons', although the plural logically includes the singular more than the masculine includes the feminine.", Bodine adds for consideration (2005: 126).

contrast to a gendered personal reference strongly evoking a specific concept of Gender, with balanced terms yielding doubled Gender-specific references, genuinely Gender-indefinite expressions have a lower grade of "Genderisation" and are thus often called Gender-neutral. Gender-neutral alternatives are generally word forms grammar "allows", that is, they are regularly built, and used – usually purposefully – in avoidance of "generic" masculine, for example by using types of Gender-indefinite nominal formulations such as *Leute* ("people"$_{PL}$) or *Publikum* ("audience$_{SG}$"), or pluralised nominalisations. None of these differentiate grammatical genus depending on referential Gender (Bußmann & Hellinger 2003: 166), and hence are not concerned with Gender identities entailed in their denotation. Forms that functionality abstract from Gender come from any genus class and can be readily used to refer to both fe-/male referents and, importantly, those referents not dichotomously marked (*die*$_{FEM}$ *Person* "the$_{FEM}$ person", *der*$_{MASC}$ *Mensch* "the$_{MASC}$ human", *das*$_{NEUTR}$ *Individuum* "the$_{NEUTR}$ individual"). Their resemblance to metonymy and synecdoche (such as a pars pro toto or totum pro parte part-whole relation or super- and subcategory) makes them practicable Gender-fair terms whose denotations aim to include humanity, a total of all Genders, as hyperonyms for the female, male, diverse representatives of GN terms, which become equal hyponyms in this scheme. In place of binary-marked pair forms like Studenten$_{MASC.PL}$ / Studentinnen$_{FEM.PL}$ and Direktor$_{MASC.SG}$ / Direktorin$_{FEM.SG}$, die Studierenden$_{GNEUTR.PL}$ and die Direktion$_{FEM.SG}$ are used as Gender-neutral versions. Semantically, they contain both split meanings but paraphrastically circumvent the common markings for fe-/male reference.

On top of that, troubles that occur with engendering, with doubled markedness and case suffixation interferences, are eliminated: they do not explicitly hint at lexical or referential Gender, have no definitional Gender, and span over various Genders as they do not take Gender-specific markings, but rather behave like English nouns for which stereotypical information mostly transmit a Gender interpretation, as will be shown below. However, their conceptual Gender-neutrality is not to be confused with grammatical neutrality (for instance nouns categorised and accompanied by the neuter article "das"), so nouns that are considered Gender-neutral may formally still belong to the grammatical class of feminine or masculine (or neuter), but crucially and unlike the examples presented in the sections before, this does not provide lexical, definitional, or differential information to their functionally inferred extension to one particular Gender. It is the fact that they can, but do not have to be marked for genus, whilst being unmarked for lexical Gender that underlines the importance of the terminological distinction (*die*$_{FEM.SG}$ *Lehrkraft* – "the$_{FEM.SG}$ teaching staff$_{SG}$" is the GN variant of *Lehrer* or *Lehrerin* "teacher$_{FEM\ /\ MASC}$", a specific Gender concept is not indicated. Countering a relevance, salience and omnipresence of Gender (Nübling & Kotthoff 2018: 36) and this way abstracting from referent Gender, such terms are perhaps more functional as generic terms since the same (potentially) conceptually neutral term is used to refer to women*, men, or others alike. Expressions that are "undoing Gender" through a temporary situative neutralisation of Gender difference (Hirschhauer 1994, recurring Goffman 1977 and the idea of different grades of "staging" Gender, which Nübling & Kotthoff (ibid.) historically embed) are called *epicenes*. They are not free of soci-

etal implications and expectations, or other social dimensions, though: a baby (*das*$_{NEUTR}$ *Neugeborene*) can be referred to with the neutral personal pronoun *es* ("it") as long as Gender is unknown, but may be referred to as *sie* or *er* ("she" or "he") when known it is a girl or boy (Aikhenvald 2018: 53), which is usually the very first information conveyed at birth.

The lexical-conceptual focus on a person or people – instead of on their Gender – is often applicable for composition of an activity or role said person(s) perform, e.g., *Ansprechperson* ("contact (person)"). These functional formations build on a Gender-neutral base word (following the principle of referring to a couple as *Eheleute* (lit. "married people"), which comprise people of (traditionally) not just one Gender). Until today, it has not been investigated in how far [this] is actually used as a productive derivation, following Nübling and Kotthoff (2018: 134)[31]. The productivity of the singular and plural formation with "-person/en" is an issue at stake insofar language change critics are apprehensive of our vocabularies being overrun by *Lehrpersonen* (teaching personnel), *Vertrauenspersonen* (confidential person), and so on ("which however hardly seems to be established", the authors (ibid.: 135) notice – younger generations might prove them wrong as in my experience this is a quick way around if someone's Gender has come out to be diverse or non-binary[32], making use of this exact advantage of "person" being the hyperonym to anyone of any Gender).

Speaking of superordinate terms: collective singulars are another option to avoid personal reference altogether and no new invention for Gender-neutral purposes only, but are often grammatically neutral indeed in their representational abstraction. The way these expressions centre their meaning on a function, position or status, or entirety, they are conceptually de-personalised, and hence degendered: *das*$_{NEUTR.SG}$ *Ministerium* "the$_{NEUTR.SG}$ ministery" transmits the office, position, and occasionally status a referent entity has and thereby includes anyone from *Minister* to *Ministerin* ("minister$_{MASC\ /\ FEM}$"). "Of course, these alternatives are not necessarily semantically equivalent to expressions containing personal nouns […] suggests that it may not be the minister her/himself who conducts the negotiations and thus individual responsibilities are potentially obscured" (Bußmann & Hellinger 2003: 157). Referential to humans they are still, their denotations contain human individuals that were collectivised and/or depersonalised. While abstracting from Gender specification, it is a strategy of personification (e.g., of an office like when the "ministery of education decided ...", and the question rather concerns whether referents are a) available as personal representations, and b) considered part of the group and not individually represented, given the singular form that may involve a single referent in its representation either way.

31 The materials prepared for the following experiment were supposed to test a noun of this type: the widespread Gender-neutral form „Feuerwehrleute" (*firefighters*). It is however stereotypically male-biased and was presented as a practice item.

32 (or if there has not been the opportunity to introduce each other's pronouns. These should not be assumed as they are nothing we can ‚see' and nothing that should be presupposed, but essential part of people's identity. Misgendering someone is hurtful to them and ignorant, and although it may take some effort at first to break out of internalised Gender-normative attributes, we are a species able to feel empathy and break mentally unhealthy habits.)

Although, equivalent to the strategies introduced before, nominal conversions of a participle have long been in language use, e.g. *Angestellte/r*$_{\text{FEM / MASC.SG}}$, *die Angestellten*$_{\text{PL}}$ ("employee$_{\text{FEM / MASC.SG}}$", "employees"), these forms are mostly attacked for being artificially constructed. In the latter example, singular nominalisations legitimate a derived form to refer to a person of either Gender respectively given the variable differential genus in the article that signals noun class and, as a personal noun, referential Gender (if necessary, many GN indefinite plural forms can be re-differentiated to their Gender-specific hyponyms with the functions they were derived, or disambiguated with the gendered form of agreement in anaphora)[33].

Despite its convenient referential Gender-unmarked plural (as well as the feminine singular form not morphologically marked but rather demarked and shorter, thence less dependent on the masculine form), nominalised participles have become one of the most debated "interventions" towards Gender-equality. Whilst *Studierende* (GN "students"), *Beschäftigte* ("employees"), and *Reisende* ("travellers", from the verb *reisen* "to travel") are well accepted by now (with few exceptions of those who scent grammatical violations, soothed by A. Stefanwitsch), *Sachbearbeitende* (a consultant or person dealing with a case) or *Kulturschaffende* ("creative artists") may stand out as uncommon, the low frequency adding to its peculiarity, in contrast to commonly used terms like *Reisende*[34]. Instead of a feminine or masculine grammatical marking to infer fe-/male reference, GN variants are, or rather have become, marked in their own way: suffixes such as "-ende" are strongly indicative of Gender-fairness.

Taken individually, each group of truly generic expressions (for instance, the one compounding words like "human", "person", or "member", the collective singular and nominalisation of verbs, adjectives, participles) is limited. From a variety of derivational mechanisms the applicable one needs to be chosen for a specific noun to achieve grammatically acceptable Gender-neutral forms. It is for this reason that successful gendered language recommends the variational use of best applied strategies instead of forming one engendering or degendering method forced upon any item. Ger-

33 There is a functional difference in the allomorphy of the determiner: "die$_{\text{PL}}$" is not a type of differential genus, whereas "die$_{\text{SG}}$" is. Feminist linguistics favour expressions like nominalised participles instead of the pseudo-Gender-indefinite *die Studenten* although the articles typically remain – formally, it may resemble the feminine, but functionally it does not. Genus markings must recognise the function of context in which Gender-neutral forms allow for more (Gender-specific) variability in the singular and abstract in the plural.
Pusch (2014: 110-111, transl. C.S.) demonstrates and attests Gender-indifference to nomalisations:
Keiner der Studenten, nicht einer, hat seine Hausarbeit abgegeben. "None$_{\text{MASC}}$ of the students$_{\text{MASC}}$, not one$_{\text{MASC}}$, handed in his$_{\text{MASC}}$ term paper."
Masculine anaphoric reference does not "sound female", and feminine agreement would be incorrect here. But:
Keine der Studierenden, nicht eine, hat ihre Hausarbeit abgegeben. "None$_{\text{FEM}}$ of the students, not one$_{\text{FEM}}$, handed in her$_{\text{FEM}}$ term paper."
And the masculine version is just as correct:
Keiner der Studierenden, nicht einer, hat seine Hausarbeit abgegeben. "None$_{\text{MASC}}$ of the students, not one$_{\text{MASC}}$, handed in his$_{\text{MASC}}$ term paper.
Both is correct due to the capability of the expression to refer to *"die*$_{\text{FEM}}$*"* as well as *"der*$_{\text{MASC}}$*" Studierende*.

34 https://www.deutschebahn.com/de/presse/pressestart_zentrales_uebersicht/DB-2019-Erstmals-ueber-150-Millionen-Reisende-im-Fernverkehr-DB-Regio-mit-erfolgreicher-Trendwende-Investitionsoffensive-vor-allem-bei-DB-Netze-ausgebaut--5049890, last accessed 27/04/2020.

man, with the nearly unrestrictive word formation it allows, has manifold, creative possibilities at hand, not at all just “stoic splitting” (Nübling & Kotthoff 2018: 120)[35].

It can be concluded that for the purpose of engendering and degendering (Gender demarkation), word formation (esp. in German) is always at our disposal, whenever there is respective need for naming (and referring to referents Gender-specifically or -indefinitely) – as is the case for under-referred identities to become visible and addressed. Obstacles, e.g., restrictions of input, can be overcome playfully (ibid.: 139, translation mine), when seriously attempting to.

2.1.3.3 *“Re(interpret)-Gender” or “X(exit)-Gender” with other Variants*

For the sake of completeness, two strategic propositions most heatedly debated are shortly sketched, one by Pusch (a stage model from the 1980s), and another by Hornscheidt (2015[36]). Both aim for Gender-fairness with a neutralising option, the former by reducing genus marking on nouns to the article alone, and the latter by replacing the genus marking with a type of placeholder element (“x”).

In her criticism of feminine suffixation that disappreciates the construction of the deviational female Gender achieved on grounds of a masculine word stem “which is due to the normal Gender”, Pusch (2016: 43 in Nübling & Kotthoff 2018: 219) suggests to get rid of an optical “backwater” (lit. “rail siding” *Abstellgleis*) and to clear the word stem from genus information, that is, to keep one base form, and to differentiate genus on the determiner alone, thereby creating a Gender-neutral form by using neuter genus article “das”. Although this would solve issues of genericity, it would bereave German of its complex genus system preserved from simplification over centuries. Hornscheidt pursues a similar stipulation of the identification of genus morphology and obligatory marking: their conclusion is to acknowledge Gender as something you cannot and should not augur, and therefore adds “x”-affixes to any genus-marked form: *Professorx* [profesˈoriks]. This distorts many critics’ reading and challenges them to find alternatives to address people – actively causing awareness of actual Gender-inclusivity[37] and one’s intent to achieve it.

2.2 Language-Society Interface: Grammatical Genus meets Gender

„Because using language is a socially situated action, it is clearly embedded in the same sociocultural matrix that supports sexual bias in the work we do, the wages we receive, the expectations we have of ourselves and others, and so on.” McConnell-Ginet (2005: 199) in Nübling & Kotthoff (2018: 65)

Linguistic genus of personal nouns has been introduced as a way of categorising nouns, but as these always involves features of humanness and by implication, Gender, it involves social patterns of someone carrying this Gender “label” as well. Based on the dichotomy of Genders, social

35 When leaving the nominal domain, a plethora of phrasings and expressions can be periphrastically composed to strategies of circumscription, ranging from indefinite relative pronominal constructions, passive formulations, and many other options of choice to “fade out” the subject(s) (Nübling & Kotthoff 2018: 130), for instance *diejenigen, die unterrichten* “those who teach”, *es wurde unterrichtet ...* “it was taught ...”.

36 http://www.diva-portal.org/smash/get/diva2:819364/FULLTEXT01.pdf#page=30, last accessed 27/04/20.

37 The call for creativity and for taking recourse of available truly Gender-indefinite and Gender-overarching expressions is the goal of this approach, when for instance it is suggested to simply write a standard greeting like “Hallo” to avoid making a choice between “Liebe/r” ($Dear_{FEM\ /\ MASC}$) in order to not make Gender inferences that are incorrect (a matter that is of relevance for the outlined addressing of diverse Gender).

roles and norms are contrasted, and “embodied in cultural practices and public ritualised behaviour” (Aikhenvald 2018: 1-2).

Nouns mandatorily belonging to different declension classes is a property that German has retained or fostered, and utilises these to mark not only genus but Gender, too (Nübling & Kotthoff 2018: 61), visible by the sheer “naturality” by which the class that includes most (animate) words referring to females is called “feminine”, similarly for males and “masculine”. Although we have seen cases in which genus classes may extend beyond those, they are defined by their gendered fe-/male members (Aikhenvald 2018: 1f). The intersection of genus and Gender for referential terms denoting humans (and animals, to some extent), of grammar and social being (more precisely, binarity of Gender), is the most obvious principle to assign Gender – in a linguistic binarism. The sections above have illustrated that meaning-based (more often than form-based) principles and Gender features account for genus choice in the domain of human reference.

Nominal elements from the field of personal denotation let us observe that for gendered realities and identities, we make use of concepts to which gendered information is attached. The connections between the semantics of a language and a patriarchic and androcentric, to be clear, sexist society illuminate how particular meanings become attached to particular forms – or not.

The significance of such “tagging” process, labels, how meaning is produced and reproduced, shapes the concepts we seek to put our tags on. This production of meaning designates what unit of language is to be produced to convey a particular meaning, and it is bilateral since those who perceive this language make sense of its meaning.

Expressed through such a variety of language components, the meaningfulness of Gender cannot be denied – no other social dimension has undergone grammaticalisation (else realised by lexical means). To genderise nouns for humans, genus is mapped to Gender categories. This does not occur arbitrarily, as we have seen. Moreover, the world we live in prints the labels we put on lexemes, and words are filled with knowledge from the world around us. This reflects a connection, an interaction, between human denotations and personal nouns and society as well as reality: As we constantly use nouns that always belong to a genus and inflection class, we permanently replicate the Gender differentiation and order contained in them (Nübling & Kotthoff 2018:61, transl. C.S., an aspect of performativity as well as speech acts). A re-production of meaning entails “our dependence, in producing meanings, on previous meanings or interpretations, to our dependence in particular on one another's experience with the linguistic forms being used” (McConnell-Ginet 2005: 199), which links to aquisitional aspects of concepts that evolve, that are reproduced, that are modified, and that depend on those prevalent in the community.

With regard to terms of address and/or reference, bodies as well as social roles and positions are interactively or discursively generated (Spieß et al. 2012: 8, transl. C.S.). To generate them, we draw from concepts attached to the Gender category: from early on those who are sorted into the male and female class treated differently, make different experiences, may have and may have to fulfill distinct expectations; as a consequence, Gender roles sediments “entrench themselves”/ set-

tle/ deposit on a Gender-class specific way of appearance, of acting and feeling over a naturalised pattern that embellishes, disobeys or crosses this (ibid.: 5) – the violation following a mismatch between genus and Gender, makes said sediments visible. For instance, introducing someone as *der neue Erzieher* "the$_{MASC}$ new caretaker$_{MASC}$" when a female representative is spoken of. Surprisal indicates updated activated representations and a specific Gender assignment for a generically intended expression. This is rather reflected, not initiated, by language.

It is the ultimate aim of language reform and guidelines to get rid of this unclarity of extensional meanings of generics that either include people other than males or not. When clarifying "labels" of the world around us and recognising how influential these meanings can be, the actual rate of inclusion of non-male referents requires to check the availability of women* in these roles and concepts. The assumption, or conceivability, of their presence or absence, or rather not verifying why they could or could not be referents, is closely interwoven with stereotypical knowledge, i.e., if women* typically do certain things, like occupy an office, which is informed by the frequency of their appearance, which ultimately has to do with their (actual, cognitive and linguistic) representation.

2.2.1 Stereotypes and Social Roles: Personal and Role Nouns as Socio-Linguistic Catalysts?

"The problem with stereotypes is not that they are untrue, but that they are incomplete. They make one story become the only story." Chimamanda Ngozi Adichie

On the example of the social domain of people's workplace, differentiation of Gender has been legally prohibited for quite some years, and Gender must not be determinative for applications, access to careers, and hiring.

Here, the knowledge that "gen"Masc. – if anything – "rudimentarily" pertains has led to political consequences (Nübling & Kotthoff 2018: 14): job advertisements, all the more so as an addressing text sort, have to be offered in a Gender-fair formulation (Nübling & Kotthoff 2018: 120). When challenging the masculine as the standard form of reference because it is not Gender-neutral addresses issue of language comprehension and use that are tied to social ones. Be it Gender distribution in jobs or social roles, changes in society have been or currently are finding expression in speech and language in terms of Gender-fair expressions. One instance that illustrates how "societal change in the guise of increasing female employment with decreasing female relation to the man at the same time has led to language change" is the distribution of a "matrimonial inflection" (ibid.: 137) for female reference, which, in many diachronic examples, places women* in an active, working, identity, as in *Geschäftsfrau*.

With the women*'s active, working identity and, slowly, status on the rise, language was found to not offer or allow female reference to be communicated (men's social and the grammatical masculine's dominance symbolically turns a quantity of women* into a male crowd). As a consequence, they started developing their own linguistic conventions, among others consistent female-specific feminine reference. Language change, it becomes obvious, is put into effect by those who use it, and as we constantly use language, it is constantly changing. Until some decades ago, men had "expelled" women* from public spaces (from studying, teaching, preaching, voting, from court and

politics; Pusch 2014: 107), mostly by law, which is why their influence on official language use was kept small. The existence of such unequal social structures is reflected in the non-redundancy of word formation in a given language: if no women* are allowed to elect or doing the job, why talk about them?

Correlates of one of the feminine word production endings, be it "-in" or "-frau" have not always been in circulation and have only become institutionalised when female workers earned a legal salary (Mills 2010: 78). The possibility that females are referred to using a separate term from males was a necessity to be able to state that someone is a woman* and a worker, a woman* and a leader or a scholar; and the feminine affix pays due to the (then) innovation that these professions are accessible to both men and women*. Nowadays feminists still campaign for Gender specification for occupations to make women* who work visible (Pauwels 2003 in Mills 2010: 84-5), particularly desirable in male-dominated professions, which contain "proto- or stereotypical performers of such activities" (Hellinger & Bußmann 2003: 2-3). However, the social development to be more open to Gender equality does not directly invite the use of Gender-fair terms in the sphere of the workplace. Instead, the grammatically prescribed masculine term is continuously used and "erases the women in the profession" (Mills 2010: 84) by failing to represent the novelty of their presence linguistically, and it may continue to be male-dominated. Masculine occupational nouns impact the social layer, in which a change in referential meanings (i.e., female employment) is not taken adequate account of.

The potential men or women* or diverse ones have to do this job or reach that required status varies across Genders, and the linguistic availability of forms does not match the Gender-balancing of specific reference: the negative or positive attitude an occupation or role transmits typically corresponds to the amount of prestige, income or influence, it has; and, not surprisingly, the discussion is led about students and decent professions like *Geschäftsführende* "managers$_{\text{G-NEUTR}}$", but no uproar regarding underrepresented "kindergardeners$_{\text{MASC}}$" has started so far. "Thus, as with everything which is labelled masculine/male or feminine/female, these terms have very little to do with biological [Gender] difference, but a great deal to do with assertions of power. […] (Mills 2005: 76)", where stereotypes reinforce social inequalities. Bußmann and Hellinger (2003: 150) illustrate how the same holds for Gender-neutral terms: compare "the travelers" (*die Reisenden*$_{\text{GNEUTR}}$), "the delegates" (*die Abgeordneten*$_{\textit{GNEUTR}}$) with "the office workers" (*die Büroangestellten*$_{\text{GNEUTR}}$) regarding its decrease in potentially equal referents and increase in expected female referents.

Some nouns of personal specific reference appear to bear so strong a stereotypical opposition that the feminine marking is amplified with additional adjectival modification indicating referent Gender to highlight the exceptional viz. non-stereotypical Gender: *ein Spieler hat eine*$_{\text{FEM}}$ *weibliche Trainerin*$_{\text{FEM}}$ – "a player has a$_{\text{FEM}}$ female coach$_{\text{FEM}}$" (ibid.: 160). With an overapplication of genus-Gender-congruency in mind, it could be intended to satisfy a need of congruency which should otherwise be lexically redundant. To emphasise intended reference to female to yield a female interpretation, the suffix information should in principle suffice, and the female-specific attribute should be unne-

cessary. For male-specific reference, the generic homophone seem to be adequate despite opposed stereotypes: *einen*$_{MASC}$ *neuen Kindergärtner*$_{MASC}$ *einstellen* – "hire a$_{MASC}$ new$_{MASC}$ kindergardener$_{MASC}$". Various examples support the notion that such overapplication has to do with efforts taken to surmount stereotypical Gender information of the concept: *ein*$_{MASC}$ *männlicher Erzieher*$_{MASC}$ ("a$_{MASC}$ male nursery school teacher$_{MASC}$") is a valid German phrase not in spite but because of this field of work being predominantly female occupied (*ein weiblicher Erzieher*$_{MASC}$ "a female nursery school teacher$_{MASC}$", but *?ein männlicher Fußballer* "a male football player$_{MASC}$"). "Marked feminine usage occurs in contexts where female participation is the exception", the authors confirm (*erster weiblicher Chef* "first female boss"), supported by the asymmetry regarding male-specific overapplication. The "pure", non-inflected generic in the masculine form in any male-dominated sphere, such as *Doktor* ("doctor") is interpreted as male(-dominated), and therefore requires extra information for their reference to women* – crucially, a high frequency of "female X" in corpora does not testify to the normality of female (occupational) participation but its exact opposite, Nübling and Kotthoff (2018: 150f) claim for their investigations (exemplified on composite *Frauenfußball* ("women's soccer") double as frequent as *Männerfußball* ("men's soccer"*)*, clearly because *Fußball is* gendered male, the norm causing a male specification redundant – not due to a higher presence or relevance of the former (ibid., 135). In a society that undervalues women*, it should not come as a surprise that the effort to derive respective referential expressions is sluggish.[38]

Nouns carry these stereotypes inside their semantic components, and when the form they surface is contradictory, it means an exception, proven by the overapplication of Gender-specific marking, i.e. doubled genus on noun and on non-mandatory modifying elements that in fact carry the meaning of the genus suffix. According to Pusch (1985: 258 in Nübling & Kotthoff 2018: 150f), distance to female participation is created thereby in an oppositional "anti-normality", whereas feminine inflection better marks the normality and (formal) equality of status. In essence, such overt binary adjectival splitting is a method of linguistic genderisation that emphasises the intended reference to both women* and men, which may be informative in cases where the noun has a male bias. To clarify the social Gender constellation for a group, adjectival modification mostly "occur[s] with masculine nouns whose generic interpretation – despite prescriptive traditions – can no longer be assumed to be generally available", that is, in contexts of contrastive emphasis where female participation shall be explicitly marked: *weibliche und männliche Chirurgen/Piloten/Politiker* – "male and female surgeons/pilots/politicians" (Bußmann & Hellinger 2003: 156)[39].

38 Regarding occupations, especially when used as predicates, the authors share a contrary assumption: professions are less marked provided their non-referential usage that abstract from personal properties, because in these instances, a person's Gender is backgrounded or even irrelevant. Their argument relies on the semantic features of the activity and the occupation primarily evolved in nouns like *Bäcker sein/werden* ("be/ become a baker" – be professionally baking; Nübling & Kotthoff 2018: 92)

39 Because adjectival modification, be it fe-/male-specific or split in an overt binary Gender assignment implies and confirms that the generic is ineffective or inapplicable, the exposed element of specificity is a strategy of othering the genderisation of lexical items I will not discuss in more detail but go with Elizabeth Cady Stanton (1980): "I would have girls regard themselves not as adjectives but nouns, not mere appendages made to qualify somebody else."

Albeit not the original objective of genus classes to differentiate between Genders, it has become the result of so-called exaptation: a reanalysis of obsolete forms with new functions that surround socially central properties, such that by now, the German grammar is subtly meshed with Gender indices, which a) motivate genus assignment often, and b) perpetuate and solidify in their reiterated activation in designates (Nübling & Kotthoff 2018: 89). As such, the reference from genus to Gender constitutes the secondary use of an old genus system that nowadays palpably assigns close and productive ascriptions based on lexical specifications such as differential genus of nominalised adjectives and participles (*die*$_{FEM}$*/der*$_{MASC}$ *Angestellte*$_{GNEUTR}$) (also obvious in anglicisms in German, e.g. die Queen, ibid.: 71) If languages have genus classes, feminine and masculine are among them, and will be used to specify Gender in animate words. (This tight coupling in many languages, not just Indo-European ones, is remarkable, because, again, the original function was not to indicate Gender per se.)

2.2.2 (Non-)Binary Systems: More Genders than Grammar Can Mark?

German grammar forces us to make a choice in forms to classify a person clearly and specifically in terms of their Gender, something we "perform trans-situationally" and not "facultatively" for a person opposite us, even "in our postmodern society" (Hirschhauer 2001: 215ff qtd. In Spieß et al. 2012: 2). Gender assignment becomes socialised when stereotypical information on people is added to the grammatical denotation. Humans' belief in two Genders, source of discomfort to many, is being "practised with devotion" – not surprising that the binary concept has soaked into deep layers of grammar and lexic (Nübling & Kotthoff 2018:61, translation C.S.)

As society changes, humans may come to be seen differently, and Gender assignment may reflect progress in the understanding of identity, freedom of choice, and reforms. The clear-cut distinction of men (actually, human, as it has turned out in the examples) vs. women* linguistically may be maintained by grammatical means of feminine and masculine marking and noun categorisation devices, but social structures that are broadened to include diverse people may require more neutral expressions to apply to the human species.

So while many people adhere to the two categories, this is definitely going to differ for diverse people and everyone challenging the binary. On top of that, the asymmetry caused by treating Gender categories as oppositions, unequal in distribution, status, and generic inclusion, speakers may wish to avoid the Gender-definite classification of personal referents but draw from less unequivocal and presumptive terms. How to refer to humans without forcing a dichotomous label indexed by suffixes, determiners, and pronouns onto them?

Arguably, binary modifications and markings reach a morpho-semantic limit when it comes to personal reference to non-binary Gender identities among us humans. If *Lehrer* evokes a male image of "teacher$_{MASC}$" in most cases, and *Lehrerin* a female one of "teacher$_{FEM}$" throughout, how is teaching personnel of diverse Gender represented, mentioned, and included? The option to create binary pairs of different Genders by means of grammatical affixation highlights how genus derivation enriches the lexicon on the upside, but unfortunately forces a complex property of humanity into a

binary idea simply because language allows for a limited amount of linguistic devices to indicate Gender specifically. What has been defined as functional “markedness” in the section before, has a social dimension likewise. It resonates with the preference of the putatively unmarked, that is, masculine, to an extent in which feminine terms are not consistently derived any more nor used even in cases of female reference (see Boyce et al. 2019 on pronouns). In Gender-indifferent contexts, the feminine genus is unacceptable and avoided (due to its strictly female exclusivity), whereas masculine expressions may nearly always be employed: “The generic use of masculine genus forms is linked to the issue of [some] ‘unmarked’ [hu]man”, and re-repeats “the presumed supremacy of the male Social Gender” (Aikhenvald 2018: 27). Inflection for another Gender to derive a marked form (re)produces the underlying androcentrism of a standard and its deviation, an exception to its rule. Moreover, the “formation of female-specific terms have low productivity, and more often than not produce semantically asymmetric pairs in which the female represents the lesser category” by contrast to the masculine terms that pass neutral contexts (Hellinger & Bußmann 2003: 12-13). This is where social Gender indicated by grammatical genus may do harm.

The outcome of a fundamentally socio-linguistic asymmetry, viz. hierarchy, is said to be “conserved in the language system as thousand years old dependency of women* on men“ (Pusch 1984: 59, translation C.S.), and thereby “reflects the cultural convention according to which women are seen in relation to men, but not vice versa” (Doleschal 1991: 27, translation C.S.). Said dependency and subordination pervades the entire language system, especially so on the (pro-)nominal domain. Significantly, the asymmetry gained momentum when feminine-marked words for female-dominated occupational domains, these did not serve as the same morphological basis for derivation of masculine counterparts (with the very few exceptions of *Braut* – *Bräutigam* “bridge – groom” and *Witwe* – *Witwer* “widow – widower”). Instead, quite effortfully and deliberately, new terms were created as if not do adopt the degrading connotations of feminine formulations: *Krankenpfleger* “nurse$_{MASC}$”, *Mitglied des Reinigungspersonals* “member of the cleaning personnel” (Bußmann & Hellinger 2003: 157).

What needs to be understood is that social change alone cannot explain such findings and developments without an understanding of power, apparently motivating linguistic word formation as well. The mechanism to modify male-reference expressions with an affix bears some resistance, yet likewise replacing biased or not genuinely generic masculines with Gender-neutral alternatives is met with reluctance, as if to hold the masculine norm in high esteem. Genus choice in this view is a tool to keep power relations and status dis-/advantages in place: Language reforms aimed at restoring the balance between Gender-marked forms aim to attack the societal perception, in which the masculine forms as default constitutes the “epitome” of a social superordinate status of male Gender (Aikhenvald 2018: 114-5).

Social sciences are by far better equipped with theoretical perspectives on this practice of placing the male at the centre of human perception: phallocentrism prefigures that “man” is “coterminous with ‘human’”, and that generics may confirm a [+male, ?female] reading. Men as default referents

led several scholars to subsume that there are not two Genders; there is only one: “the feminine; the masculine not being a gender. For the masculine is not the masculine but the general'“ (Mills 2005: 66, with reference to Monique Wittig 1983: 2), illustrated as the formula “man = human”, “women = Gender” (Kochskämper 1993: 170 in Nübling & Kotthoff 2018: 166). When inspecting the etymology of female compared to male denotations, we will observe a structural asymmetry that terms for females either focus on the relation to a man or on reproduction, conceptualised as someone with a Gender in its specific purpose and social attitude (Nübling & Kotthoff 2018: 165).

The obsession German has for Gender, Nübling and Kotthoff (2018: 136) conclude, it has for imbalances of both classes, too. This leads the authors to refer to a language’s genus markers as linguistic genitalia or tertiary Gender features (ibid.: 136).

A deeper understanding of Gender-neutrality distinguishes the strategies to engender and to degender: while the former balances explicitly marked Gender-specified references, the latter deals with indiscriminate reference via linguistic forms that do not overtly show specific Gender cues. Because the objective of this paper is to examine how certain words are comprehended as to their generic content (i.e., does a Gender-neutral word convey a Gender-neutral meaning?), it is important to operate with an exact definition of Gender-neutrality in terms of cognition. Gender-neutrality in a mathematical sense would allow that in some scenarios, a female referential Gender, and in others a male Gender is ascribed in a 50/50 notion that would receive the interpretation of both being potentially included. From a theoretical or conceptual perspective, Gender-neutrality is successfully obtained if referents of male, female, and diverse Gender are possible, not either the one or the other. This distinction (made by Nissen 2013) elucidates why GNL and approaches to degender offer more versatile semantic preconditions to include diverse and non-binary referents as they are less constrained.

For a society that is no longer reflected in binary Gender conceptions, binary marking is to be overcome. However, the third genus for personal reference is only very rarely expedient, because grammatically neuter genus usually receives a Gender-*less* interpretation, not a neutral let alone fair one for humans. It is for this reason why derivational devices, such as participles, among others, receive increasing attention to indicate both non-binary as well as indifference of Gender. In addressing someone based on their Gender, “words are deeds” (in the appellative construct again) (Mills 2010: 77), and assigning Gender incorrectly (“misgender” someone) is an (even if not deliberately) act of disregard, disappreciation, or even malice. It becomes clear that whatever (un)marked form a language inhabits, the problem to (un)mark for diversity is not solved by grammar alone. Trawling through Gender-indifferent options in search of Gender-neutral elements requires to realise this is once more a question of power to not deny the existence of diverse Genders that is concealed by either male- or female-specific personal reference.[40]

40 To learn more on the markedness or distinctiveness and cultural patterns, please read on in Aikhenvald 2018. The exact causal correlation of a cultural pattern motivating a linguistic one and the other way around, cannot and will not be argued at this point.

2.2.3 A Note on the Inability to Tell Genus from Gender ("Genus-Sexus-Nexus")

The systematic relation between genus and Gender becomes evident in effects of semantic agreement and cases in which either a grammatical congruency switches to a semantic one, or the former being overridden by the latter (also noted by Oelkers 1996: 13, see Nübling & Kotthoff 2018: 84, and elaborated in Nübling 2018).

On a parallel observation, a noun's genus motivates referential Gender of accompanying words and titles in personifications (*Mutter Erde* vs. *Gevatter Tod*, *Herr Fuchs & Frau Elster*), and in lexical or definitional Gender nouns, it is the primary means to assign genus even (Nübling & Kotthoff 2018: 79). Many metaphors offer access to the fixed range of Gender concepts the specific genera evoke – the masculine a man, the feminine a woman. These findings, too, were construed as evidence against a generic masculine, and crucially, against genus being merely a feature of grammar, a meaningless one, as far as the personal domain is concerned: if even animals and concepts and objects are assigned a latent Gender corresponding to their grammatical genus specification, why should this mechanism be switched off in the only field where there actually is a relation in the sense that humans hold a gendered role that nouns denote? This assumption is unreasonable (ibid.).

One of the most convincing piece of proof is the not to be neglected finding that in the area of human nouns, semantic agreement of a gendered concept and its gendered satellite element often overrides formal agreement the noun class would grammatically demand. The choice of anaphoric pronouns – feminine-/ masculine-specific or Gender-indefinite –, for instance, is sensitive to the noun's lexicalised concept – fe-/male. Referential Gender, not genus category is decisive (a growing tendency over the past three decades towards agreement between grammatical genus and Gender, like a description of *die Person* ("person") may draw from Gender-specific information to revealed by behaviour of modifiers and satellites, illustrated by variation in anaphoric agreement that is not driven by formal but referential Gender features (Bußmann & Hellinger 2003: 164). Above, it has been outlined how das$_{NEUT}$ Mädchen ("the$_{NEUT}$ girl") should grammatically be referred to with *es* ("it") and, e.g., the possessive pronoun *sein* ("its$_{NEUT}$", allomorph to "his$_{MASC}$", however), but is conceptually mostly in agreement with lexical female Gender-specific feminine pronouns *sie* ("she") and *ihre* ("her").[41] An individual (*das*$_{NEUT}$ *Individuum*), conceptually Gender-indifferent, would formally require anaphoric *es* ("it"), yet may be referred to as *sie* or *er* ("she" / "he"), depending on the concretised context. Finally, a star (a famous person, an anglicism loaned from English to German) – grammatical genus masculine (*der Star*) – may be used indifferently (*die Stars von morgen*, "tomorrow's stars"), and does not follow formal agreement strictly, but takes semantic congruency such that the NP can use differential anaphoric reference (ibid.: 146-7).

41 Cross-linguistically, agreement on conceptual grounds has been found, and even similar adaptations of inanimate objects for which masculine possessive were replaced by feminine ones when a female person is the one possessing, e.g., a book (French le$_{MASC}$ livre → son$_{MASC}$ livre, transformed to sa$_{FEM}$ livre, ignoring grammatical rules to realise semantic Gender agreement, cf. (Luce Irigaray 2005: 123). With respect to GFL or GNL, besides Gygax et al.'s study battery, cross-linguistic evidence is sparse.

Despite feminist linguists providing one example after the other where only in this background violations of grammatical genus caused by semantic or lexical Gender can be explained, and yield effects of Gender order, “it is argued that feminist campaigners here do not understand the workings of grammatical gender, confusing it with sex difference. But feminists can see very clearly that grammatical gender and sex difference are very often inextricably linked” (Mills 2010: 85). By consequence, they have understood that instead of two-Gender-specific binary genera, Gender-neutrality of expression is a more equitable solution to include people of diverse Gender.

2.3 Research hitherto: Evidence on Genera, Generics and Gender-Fair Language

A note on where we start off: This work *could* rephrase, and put it up for discussion whether or not the “generic” masculine noun form in German theoretically does include female individuals. Since this has been done elaborately both experimentally as well as argumentatively, the readers will be guided through a selection of published papers on this debate but instead of repeating the well-established research in detail, they will presented with the prominent and concurrent conclusions drawn from these findings, and only pointed to the dissent. I will use the insightful recapitulation and flaws as remarks for my research direction, and the ground built from these works to take it a step further to offer new assumptions and results to later be discussed based on my contribution and by future research.

A large part of the research body on the so-called “generic” masculine in German focused on personal relations, roles, occupations that women* or men can take (here again, dichotomous classification of Gender is a desired precondition to test Gender-(non-)membership of referents for the genus the nouns carry) – which are crucially the domains where Gender proportions are of high relevance due to equal opportunities, a political issue even (Nübling & Kotthoff 2018: 117). These areas of personal expressions have been reconstructed as the crux of the matter where Gender and genus interactions demand empirical material to discuss and re-evaluate said interactions and the linguistic and social behaviour we derive from them.

Nübling and Kotthoff (2018) offer the most extensive overview and summary of footsteps, advances and perspectives of Gender linguistics and are rendered a treasure of a source, which enters this overview in an abridgement on German. Looking back on half a century long history (researched since late twentieth century), the self-evident generic use “came under attack as a direct reflection of male dominance [...] with the rise of the feminist movement (the major question being whether women were to be included in the scope of [a generic masculine] or excluded from it: in the latter case, [this] is seen as 'pseudo-generic') (Aikhenvald 2018: 196). During more than 40 years of Gender linguistics in general, research foci – often steered by feminist interests of Gender equality in language – have covered German dictionaries, proverbs and metaphors, (syntactically subordinated) binomials *(Herr und Frau “*Sir or Madam”, *Ehemann und Ehefrau* “husband and wife”) always in search of grammatical encodings of genus and lexical etymology of Gender disclosing misogynist loop-ins in language, pejorative and diminutive usage for terms related to femin-

inity but not masculinity, Gender stereotypes, lexical asymmetries and under-reference to female forms. Methodologically diversified, both linguists and psychologists have employed corpus-based investigations, acceptability judgments, categorisation tasks and questionnaires on the (cognitive) inclusion of women and men during naming. They compared the use of the so-called "generic" masculine as stimuli with feminised forms of different (orthographic) types to shed light on the influence of gender language forms on processing. Task design included a written test to fill in comparing the effect of "gen"Masc. with a pairwise mention in a cloze test (Klein 1988, 2004) or to write down a short story about fictitious people (Heise 2000, 2003) – protagonists were gendered by giving names to them. Research on text level focused on text comprehension when presenting texts in different versions, manipulating gendered language form (taking objective measures as well as subjective evaluation) (Braun et al. 1998, 2007). Based on actual texts, an analysis of reference and relevance provided a more realistic approach of recommended gender forms usage (Pettersson 2011). Questionnaires of all kinds have been a popular tool to contrast retrieval and cognitive inclusion of female referents depending on gendered language forms presented (Kusterle 2011, Stahlberg & Sczesny 2001, Stahlberg et al. 2001, Braun et al. (2002); their advantages are best shown by the article first cited for which people of all age groups, classes of education and population could participate easily. In the direct survey of participants, they even had knowledge of the research focus (De Backer & De Cuypere 2012). Behavioural data of reading and reaction times on sentences presented on a computer screen were first measured by Irmen & Köhncke (1996) and Irmen & Kaczmarek (2000) – and to date, are a rare technique seldom applied on the phenomenon in Gender linguistic research. A most extensive and methodologically varied investigation on German (and also on French and the genus-non-marked English) have been composed by the research group around Gygax et al. 2008, who analysed reaction times of responses to on-screen presented sentences.

To cut it short: Experimental studies show a compelling tendency to identify grammatically masculine forms as male 'generics' as a specifically referring to men. Albeit a fascinating branch of linguistics, this work focusses on studies investigating nominal instances[42], viz. on findings on the "generic" masculine, e.g., splitting, as well as evidence (or lack thereof) about propositions of language change, such as Gender-neutral and Gender-balanced expressions. Crucially, studies have not been interested on "production-sided declaration of intentions" (the famous affirmation of "meaning everyone"), but measures recipient-sided comprehension as a criterion for communicative success (Nübling & Kotthoff 2018: 99, transl. C.S.).

"Generic" Masculines. The question under debate – whether the grammatically masculine for personal designation is able to bear reference to both female and male Gender – has been asked since the 1970s (by Pusch and Thrömel-Plötz) and addressed empirically since the late 1980s (Klein 1988). Claimed by grammar(ians) and many "lay people", too, (Nübling & Kotthoff 2018: 20), the studies test the functional outcome of the generic usage of the masculine genus on nouns,

42 Pronominal instances, such as grammatically masculine indefinite pronouns, are considered in the review in (Nübling & Kotthoff 2018: 21).

mostly contrasted with a strategy of femininisation. A canon of evidence overwhelmingly dismisses the masculine form as fully generic and deny the masculine its scope. None of the experiments confirmed (and did not hypothesise, that is) a rule that had masculine forms evoke exclusively men; what they commonly predicted and found was that these forms do not succeed in including women* as well, not to speak of representing them equally.

In not a single instance in Klein's (1988 and 2004) experiments to (singular denotation, plain family name equipped with form of address) was there approximatively equal distribution. Personal generic masculines were lexically prototyped (*der typische Einwohner*$_{\text{MASC.SG.}}$ “the typical inhabitant”) and attributed stereotypically male or female attributes to test the extent to which “concepts of precedence promoting men as the human prototype” (99, translation C.S.), that is, how strongly preferred. Although this work thus differentiated “grades of genericity”, an overall clear predominance of 70% of male Gender specification was found. By monitoring specific referents showed that a generic conceptualisation was exited as soon as they were named with definite determiners.

Irmen and Köhncke (1996) tested the availability of the concepts [female] or [male] in generic comprehension: sentences that contained either singularised “gen”Masc., a specific masculine or a feminine singular in nominative case (*ein Radfahrer* / *eine Radfahrerin* “a clyclist$_{\text{MASC / FEM}}$”, had to be interpreted as belonging to a certain category or not – distractors put aside, the decision between “man” or “woman” was of interest – via button press. Categories were presented to participants as words, and in a second test series that had similar results as pictures. A “gen”Masc. followed by [woman] received the strongest rejection by far, yet acceptance of a specific or, crucially, a “generic” masculine as [man] reached 85% - 90% (being quickest as well). Not only did just 20% fall upon the “gen”Masc. – [woman], items of this type “exceeded the expected differences of reaction times” and “after presenting a personal masculine in an unambiguously Gender-neutral context it is not only hard to access[…], moreover, it is not compatible with the representation this term had activated” (Irmen & Köhncke 1996: 160, transl. C.S). The pseudo-neutrality of singular generics that it could be meant generically was as a result of this disconfirmed. However in-/definite the singular determiner, the concept was specified as soon as “a cyclist” should be categorised as one particular “man” or “woman”.

Spontaneous mental representations of personal referents in plural in order to simplify a Gender-balanced interpretation through invisibility of genus cues (Nübling & Kotthoff 2018: 103, transl. C.S) were tested by Heise (2000 & 2003). Persons of reference were written in “gen”Masc. or in a variant promoting female visibility via the feminine suffix either in a paired form separated/conjoined by a slash or the Binnen-I, most items in indefinite, some in specific uses. Most male realisations, once again, fell on “gen”Masc. forms, but surprisingly also actually “neutral” nouns. Vice versa, in concord with the other investigations reviewed up to this point, a masculine “generic” reduced female nominations, thereby rendering man as the prototype for human referents all the more (Nübling & Kotthoff 2018: 104) (MAN-principle). A quite similar design of four studies (Stahlberg & Sczesny 2001; Stahlberg et al. 2001; Braun et al. 2002; summarised in Braun et al. 2005) had par-

ticipants name their favourite celebrities and personalities in a questionnaire version with “gen”Masc., neutral forms, or splitting variants. Again, masculine generics were least able to balance Gender proportion. Compared to gendered language alternatives, women* were less cognitively included under “gen”Masc. both in direct measures of naming and indirect ones (such as reaction times; Stahlberg & Sczesny 2001: 137).

In an early study by Braun et al. (1998), the same text written with referential nouns in “gen”Masc., pair form, and a version neutralised for Gender was read by participants who were then asked to estimate the proportion of referents’ partaking. Presenting the masculine and the feminine form (splitting) yielded significantly more women* in comparison to the other text versions – yet mainly for female participants (without a significant effect for male subjects).

Braun et al. (2007) addressed the most common pretence that deviations from the “gen”Masc. affect quality of texts and their processing. After presenting fictitious leaflets for patients written in “gen”Masc., pairform and neutralisation forms varied, or with capital I, memorised text content was tested as well as writing style rated – this design combined objective criteria of successful information processing and the subjective criteria of judging text quality. For women (who likely deal more often with health and prevention, ibid.), memory achievements were generally good across the versions of text, and better than for men, who remembered the pair form version best – and the “gen”Masc. text worst. Despite their poorer performance, men judged the “gen”Masc. version as slightly more comprehensible (as they are most used to it and feel included in any case) (Nübling & Kotthoff 2018: 107). Overall, memory performance proved to be independent of gendered language form, and processing worries have not been justified.

Placing models for personal reference on trial on a textual level, too, Rothmund and Scheele 2004 presented participants with different texts of travel literature (thereby including a potential influence of thematic context) and asked for their estimations of the respective Gender proportion (avoiding dichotomous practices to allow for Gender-overarching besides the -specific representations). Results were measured from using plural “gen”Masc. homogeneously, the same condition but transported in a footnote preceding that “both” Genders are intended to be meant, and alternating use of plural “gen”Masc. and pair forms, as well as alternating use of pair forms and Gender-neutralising forms (built with “-person” compounds). This study, again, confirmed that “gen”Masc. fails in the supposed abstraction from Gender (Nübling & Kotthoff 2018: 108). Crucially, a footnote exacerbates biases towards men further (regardless of the gendered language form it was written in): it appears as if readers are released from thinking against a discriminatory effect when perceiving this idea in a side note. Still, gendered referents of the other text types were not much more symmetrical, which leads to the assumption that prototypical visitors of the textually introduced locations could be male-biased, since in the second sort of text on another topic, male dominance was weakened (enhancement hence context-induced, ibid.).

Plural personal and role nouns entailed in a sentence of which a subgroup was then specified for Gender in a subsequent sentence such that fe-/male continuations followed were investigated by

Gygax et al. 2008. Their design postulates rather specific and definite referential terms, but the presented plural article “die” homophony did not show an effect on Gender imagery (see Nübling & Kotthoff 2018: 110). In German, masculine continuations were substantially more frequently judged as acceptable (similar in the genus language French; yet in genus-unmarked English there was no such discrepancy but influence was lexical stereotypicality alone) – even when stereotypically female roles continued with a sentence marked for masculine compared to a feminine continuation (ibid.: 109). Also, German (and French) subjects took far less time to respond to masculine sentences following both a stereotypically male, neutral, and even female group. In essence, readers of “gen”Masc. principally hesitate whenever it was made explicit that in the supposedly Gender-neutral or Gender-irrelevant group contain one ore more women were contained, which means hesitations and processing difficulties occurred due to the incomplete representations a masculine “generic” had imposed (ibid.: 111). A genus-Gender correlation (masculine form – specific male representation) in turn sped up reactions. Finally, the researchers found an effect of language type / genus classification system on available mental representations of Gender (challenging Meinunger’s (2017) suggestion of a feminine German grammar and in agreement with Pusch 2014: 108-112, Stefanowitsch in Baumann & Meinunger 2017).

In Kusterle (2011), participants’ task was to name persons (first name) introduced to them in the different gendered language forms of “gen”Masc., GN forms, or alternative forms – pair form and “Binnen-I” – that appeared in different Gender stereotyped contexts (sports and university). Both gendered form and context showed severe impacts of Gender concepts, which paid due to the knowledge we actively exploit to interpret the contexts in which referents are embedded (Nübling & Kotthoff 2018: 112).

Patterns of variation of all strategies – “gen”Masc., pair form, GN forms – were analysed in terms of their actual distribution and factual personal reference by Pettersson (2011), who found that predominantly the masculine was used for non-specific reference, but pair forms for specific and Gender-indifferent reference in effect, i.e., when women*’s presence was situatively of relevance and had definite, accurate referents (which is why the direct addressing under commercial aspects was found to promote a specific pair form, intertwined with establishing sympathy, not distance).

When explicitly asked to classify in-/definite personal referential terms in German (and Dutch) of masculine or feminine genus for referent(s’) Gender – into male, female, or into male and/or female (which was treated as Gender-neutral) –, subjects tended to comprehend masculine forms as having almost an exclusively male genderisation. Importantly, De Backer & De Cuypere (2012), had a lexico-semantic distinction of role nouns and job nouns in their 2012 study. This variable elucidated that – albeit less pronounced in plural – masculine nouns for occupations were even more male-biased than role nouns.

Time needed to read sentences (but in stereotypical contexts) that begun with plural “gen”Masc. in subject position and were resolved in the consecutive clause to a specifically masculine, specifically feminine or ambiguous – that is, “overarching” Genders – reading was measured by Irmen and

Kaczmarek (2000). Gender-indifferent readings, followed by the masculine continuations, were processed fastest, while most processing time was demanded by feminine readings which pointed to women* (allomorphic "sie$_{3.P.SG.FEM. / 3.P.PL.}$" *her* or *they* could have been problematically misleading between meaning 'everyone' in plural, or a singular female referent, respectively).

This batch of effects observed can be appropriately subsumed under sexist overtones attested in German (Aikhenvald 2018: 113), or at least an instance of non-Gender-inclusive language, given the outstanding results that if masculine forms are used as generics, they are not interpreted generically; their visualisation (Hellinger & Pauwels 2007 in Mills 2010: 156), comprehension, retrieval and interpretation are overwhelmingly male. Consequently, in the various contexts of usage, these forms were not only non-generic, but also discriminatory.

Generically intended or not, personal reference in the masculine tends to be interpreted as predominantly referring to man, not human, to the extent that they readily evoke and focussed on images of males than of any other Genders, women* do not become entailed in the images unless referred to with "their" grammatical form. Most tasks, however, explicitly mentioned women* when they were meant to elicit a response.

In all studies, the grammatically masculine intensified male imagery, so while the use of masculine generics was found to produce male-dominated mental representations, Gender inclusive alternatives are rewarded the status of evoking balanced representations. In how far this was reflected in the research so far is summed up below.

Gender-Balalancing: Pairs and Splits. Strategies of female linguistic visibility, first and foremost splitting and pair form, but also orthographic splitting techniques, promote the activation and recall of women* to significant degrees. Findings all agreed that an increase in grammatically feminine marking (in keeping with specification) was useful to reduce the male-specific, exclusive representations, thus weakening male predominance in face of the suffixed existence of female reference (Klein 1988, 2004).

Although the "headstart" of primarily male association decreased, a consequential mentioning of both fe-/male nouns of reference does not entirely cause a mental picture of both fe-/male persons (Nübling & Kotthoff 2018: 99ff). But it does achieve a more balanced representation, in particular when using pairform (Rothmund & Scheele 2004), also in a slash version, and can even evoke more mentions of women*, which was repeatedly attested for a femininised derived and contracted form with exposed "I" ("Binnenmajuskel", cf. Heise 2000, 2003; Braun et al. 2005; Stahlberg & Sczesny & Braun 2001). A female-dominated mental representation even was repeatedly observed for the "Binnenmajuskel" writing of a plural form for which the feminine suffix is attached to the noun (corresponding to the masculine form) with capital "I"[43]. The orthographic exposition, it is assumed, of the femininisation suffix led to demonstrably more women* associated to the concept than for any other strategies of linguistic Gender equality (Nübling & Kotthoff 2018: 217). The more obvious the linguistic designation, the more explicit the alternative forms are in mobilising Gender

43 Though not satisfying the generic functionality either, an "overrepresentation" of women* as subjects of reference can be appreciated as counterbalance to societal male privilege.

difference (that is, deviation from the male-as-norm), the more effectively women* are mentally included (Klein 1998, 2004; Rothmund & Scheele 2004; Kusterle 2011). Based on this rationale, a claim was shared that if interested in equal representation of Gender, and particularly women*'s presence, these strategies need to be adopted (Irmen & Köhncke 1996; Kusterle 2011; Nübling & Kotthoff 2018: 115).

In a further study of listing referents, Stahlberg et al. (2001) and Braun et al. (2002) tested "Binnen-I" additionally, which was found to best include women*, partly with more female than male nominations (supporting the effect Heise showed) and confirm that (pro)nominal splitting, abbreviated or long, does allow for more balanced interpretations and "to achieve a roughly symmetrical mental representations of female and male referents" (Hellinger and Pauwels, 2007: 672)" (Mills 2010: 156). The strong effect of female inclusivity has led to a rise of acknowledgement of 'feminized' generics, visible only in written language. A pair form, too, significantly affected the choice of referent Gender towards non-male-only inclusion, meaning that in spite of the reference made to both Genders, a female interpretation came to mind. This highlights how surprisal and markedness may enhance attention to visibility.

It should be noted that reported results stem from experimental items of the written or visual mode, that is, noun forms were read or presented on screen, and to my knowledge none used auditory stimuli.

Gender-Neutralisation. The notion of Gender as dichotomous category in which humans are obliged to confirm to one is strongly represented in the denotations of a representative of one category – either female or male (or rather, male else female) – such that most referential nouns that are grammatically (genus) neutral (*das Opfer* – "the$_{\text{NEUTR}}$ victim") or semantically (Gender-)neutral (*der Gast* – "the$_{\text{MASC}}$ guest") are in fact not "neutrally" comprehended under empirical views, "which supports the assumption that gender-related socio-cultural parameters are a powerful force in shaping the semantics of personal reference" (Hellinger & Bußmann 2003: 10).

Coming from the perspective established and backgrounded in the paragraph before that masculine generics mainly yield activation of conceptually male representations, psycholinguistic research has turned to the inclusion of more Gender-fair alternatives and started testing both Gender-balanced variants (splitting or pair form, "Beidnennung" in which the feminine form is visible and_or audible) soon after feminist-linguist pioneers have suggested these (see above), and more recently, Gender-neutral terms (initialised by Braun et al. 1998). Whereas the former constitutes the larger part of unequivocal empirical evidence of achieving a definitely more just distribution of female referents, the latter still awaits to have the predicted demands for equality attested. So-called epicenes (*Epikoina*) are Gender-"overarching" intended – hypotheses have been put forward on their comprehension as more Gender-inclusive than the masculine forms under resentment and have been confirmed by some, yet had to be rejected in other studies – 'neutral expressions (*die wissenschaftlich Tätigen* "scientists") produced asymmetries of various degrees' (Hellinger and Pauwels, 2007: 672)" (Mills 2010: 156). In fact, the convincing results from Gender-

balanced pair form and splitting versions have highlighted a comparative inefficacy of neutralisation expressions to make women* cognitively present (which apparently requires repetitive cues of feminine forms within a text, see Rothmund & Scheele 2004 and Braun et al. 1998, who alternated these forms). Gender-neutral roles on their own were continued with a male-dominated reading far more than a female continuation (Gygax et al. 2008) and received similarly high proportions of male representations as the “gen”Masc. condition (Braun et al. 2005), in contexts of definite reference asking for specific single persons, though. When explicitly made aware of Gender assignment tasks, however, concepts in “gen”Masc that are hardly ever intended specifically in reality, such as *Bürger* “citizen” did receive a neutral reading (amounted to 97% in De Backer & De Cuypere 2012, similar to *Einwohner* “inhabitant” in Klein 1988), which is usually impugned. In addition to a non-contextual presentation and aware choice/task, this finding was credited to its relative frequency of referring (mainly legislatively) to both female and male representatives are in widespread use for both men and women and diverse people: the more frequent a masculine (“generic”) form is, and the more dominant than a feminine reading it is, the more a neutral reading is made possible (see Nübling & Kotthoff 2018: 112).

The lack of Gender cues through genera suffixation for personal reference may result in an even more pronounced invisibility of women* and non-binary people, and thus deem GNL not worth the effort, somewhat ineffective in making Gender diversity and female presence visible in language. Mills (ibid., 2010: 156) suspects these more neutral forms to “erase” women*'s presence, as well, depending on the locus of the experiment, there have been inconclusive findings regarding their inclusivity when compared to the masculine “generic”, feminine, and paired forms (with those forms referring to the feminine genus in an explicit form as well as when balancing reference – that is, “it is only when women are pointedly referred to that there seems to be roughly equivalent visualisation of women and men” (ibid.).

Nonetheless, Klein (1988) found that personal masculines are not associated with Gender-neutrality either. Given the repeatedly documented finding that ambiguous stimuli in terms of Gender are more likely to receive an androcentic interpretation, in the sense that they are comprehended as referring much more to male than to female representatives. A number of studies came to the conclusion that even with Gender-fair language, female referents do not become more salient than male ones who were always part of the mental imagery evoked. The use of masculine versus neutral generics was seldom demonstrated as effective[44].

Placing special emphasis on proposed strategies of “neutralising” Gender inferences in language so far hardly or not tested at all is a current essential goal in psycholinguists (Nübling & Kotthoff 2018: 115). Said strategies range from nominalised participles to compounds and collective singulars in German, and the lack of data corresponds to a desiderata, a request even.

44 Researchers like Khrosrashahi (in a study from 1989: 517f., quoted in Ehrlich & King 2005: 169) blame, among others, literature as significantly dominated by male characters because of which men become representatives, and androcentric connotations tend to be developed for Gender-indefinite words by default being no exception.

Language change as captivated by research. The contrastive diligence and eagerness of Gender research can be a helpful looking glass at language change, captivated by diachronic perspectives which highlight a change or loss of meaning as awareness increases. Dictionaries and new usage of existing or neologistic words highlight a "lexicographic doing gender", and at the same time reflect stereotypes that have endured centuries.

Social roles do influence patterns of language use, of expressions and formulations, and as the former are changing, in the latter there can be relaxations and novelties in language and prescription (Nübling & Kotthoff 2018: 21-22). The interpretation of generics is apparently closely intertwined with (traced back to and_or brought about by) recent social changes (e.g., the kind that that acknowledge women be a part of society as any other male human).

Parallel to an increase of a (feminist) strive against oppression and towards equality – be it equal pay, equal education, equal opportunities, and equal integrity.

However, a survey of the research on German (by Pauwels (2003), reported in Mills 2010: 92) that documents the “effectiveness of feminist campaigning” – which is, concerning language, basically boiling down to fighting the alleged generic meaning of the masculine terms and advocating Gender-fair guidelines instead – “concludes that there has been a dramatic decline in the use of masculine generic nouns”, whereas “non-sexist alternatives […] [have] greatly increased”.

In a relatively short time span in terms of language change, the use of Gender-exclusive “terms (such as '-man' […]) In job advertisements has been largely replaced by the use of the affix '-person'” (note that prescriptive language reform has added to this effect), and the “gen”Masc. “is seen as an inherently 'sexist' reflection of Social Gender stereotypes”, thereby looking at referentiality and genus as “a phenomenon ripe for linguistic reforms” (Aikhenvald 2018: 114). An important layer Gender linguistics furthermore have unveiled is the spectre of factors that influence Gender representations: besides the forms of person reference, their genus, number, and degree of referentiality as well as degree of lexical genderisation of the role, activity or occupation denoted, embedded context, whether an inflected correlate stands by its side, the frequency of expressions and alternatives, and finally, age and Gender of participants (Nübling & Kotthoff 2018: 115).

It culminated in a controversy, when in 1997 Kalverkämper, a structuralist, fought for the “dictum” of a metaphoric function at ground (just as day is both opposition to night *and* covers night in that it has 24 hours) by stating that female reference is equally included in any case. He went so far as to be tutoring the linguists, female colleagues, that is, about the semantic feature reduction of [Gender] that “gen”Masc. automatically accomplishes to ensure Gender neutrality – forcing a misunderstanding logic upon the exact thing that has been disproven by their work. The reply by Pusch lay the foundation for German feminist linguistics. Nowadays, the cited articles and books on Gender linguistics being published, it is mostly imputed that “gen”Masc. defending linguists – called masculinguists – deliberately ignore such knowledge (Nübling & Kotthoff 2018: 115). Advocates of this disclaiming view (to deligitimate Gender-sensitive language endeavours) tend to get lost in theoretical remarks of isolated grammar theory, by which both usage-based linguistics as

well as psycholinguistics are discredited. They do not or do not wish to differentiate between the intention of a “generic” masculine (and as we have seen in early dictionaries, even the “noble” intention is quite questionable) and its virtue. In their unswerving trust and belief in the masculine form’s generic function, they regard alternatives as redundant[45].

2.4 Interim Conclusion: Psycholinguistic Reality of Genus and Gender Marking

The state the current debate is in, or rather is stuck, still pleading for a generic function of masculine forms, shows that public space did not take notice of more than a dozen psycholinguistic studies. Because feminist linguistic research is discredited, regarded not as scientifically but ideologically motivated (an illegitimate separation of science from society), the work done takes a sort of niche. At the same time, much more research on a morphologically complex language like German is necessary; and so long, evidence that is inconclusive in some parts is unavoidable.

Not having proved a “masculine generics refer to men *only*” is not an unsatisfying finding, rather the finding that only to a small extent do they contain women* in their reference is a robust one in disproving the Gender equality a generic form in the grammatically masculine is trusted with. It should be no longer considered a valid argumentation to claim that – bare of any evidence acknowledged, be it in favour or not – the masculine-marked genus “is simply a feature of grammar” without any “impediment to change in the patterns of the sexual division of labour towards which our society may wish to evolve” (a proposal by linguists against Gender-fair language reprinted in Aikhenvald 2018: 197), analogue to a plethora of opinions.

Out of this conglomerate, the number feature, the use of singular or plural gendered language forms, will be discussed in more detail as this distinctive category seems to carry crucial cues to the Gender-specificity of information: studies that controlled for number report singular expressions to enhance a male interpretation (cf. studies under 2.3); plural in contrast is ‘permeable’ insofar as more female names were produced throughout (Kusterle 2011). Psychological observations overlap in that (generically intended) masculines de facto tip over again and again to a male-specific reading especially so for singular terms (Irmen & Köhncke 1996), which is why Rothmund and Scheele (2004) refrain from testing singular “gen”Masc. to begin with due to their male bias, i.e. the men-only association being too readily activated. Plural items defused the MAN-bias more reliably. Syntactic embedding of masculines and masculine “generics” have to be considered, too, as it de-

45 More recently, and profoundly so as the flaming debate has caught new fire, masculinguists (like Gauger 2007, Wegener 2017, next to other authors in Baumann & Meinunger 2017), teach their readers on this exact same level and the same absolutisation of language like back then – pretending there have not been four decades of feminist linguistic research (Nübling & Kotthoff 2018: 115). Men in science explain women* what these have failed to acknowledge, what they are affected by and what not, while the men themselves cannot experience who is being included or left out, cynically adding evidence to the research prospect. Suspiciously, none of the contributions by conservative, dominantly male linguists, delivers scientific evidence concerning a reliable generic function of the masculine genus, e.g. in prominent studies, whereas the glosses and articles that take a critical position, written mostly by feminist linguists, diligently offer a wide range of evidence from psycholinguistic research causing considerable doubt on the generic masculine, or precisely its reference to all Genders involved. This, too, is an asymmetry contributing to male dominance in research, which authorises some opinions, and mere opinions they are, lacking a foundation of the existing research, as reliable as the evidence-based work of others.

cisively influences if these are able to refer Gender-overarching (Nübling & Kotthoff 2018: 21). Interestingly, the singular is more affected, more MAN-prone, compared to plural forms that have been shown to be able to better include women*, presumably thanks to their group denotation that allows a wider variety of potential referents than an individual (for which the prototype might be chosen in consideration of the cognitive challenge to assign a Gender to each member of an undefined large group, perception of Gender may be backgrounded – alternatively, group membership increases the potential that referents the speakers can relate to are included). Although not controlled for in many tests, the evaluation whether a "generic" masculine definitely diverge depending on the reference to a single person or a group of referents: plural sentences contrasted with singular ones weakened the male-specific reading, was the conclusion they came to. So even if these may not fully reach a Gender-neutral meaning, pluralised expressions may enhance a more inclusive Gender association than singular masculines (which were less accepted as reference to women*, also when tested self-reference and predicative nouns, e.g., "I am …"; Schröter et al. 2012 in Nübling & Kotthoff 2018: 119). Choice of number is hence a highly relevant factor to bear in mind in gendered language research because the plural seems to allow a greater inclusivity (ibid.: 95).

Whichever factors have been manipulated, and contexts taken into account, a justified confirmation of equal referentiality that deserves the predicate "generic" the "gen"Masc. could not sustain in any study.. This observation invited feminist linguists to speak of *suggestive* formulations in German that evoke a male image while the female representative, e.g., *der neue Bundeskanzler* "the$_{MASC}$ new chancellor$_{MASC}$" gets out of sight (Ehrlich & King 2005: 167).

All in all, „[u]sing various theoretical frameworks and empirical methodologies, all of these studies arrive at similar conclusions" indeed (Bußmann & Hellinger 2003: 161). Summarising the several implications drawn from the various contributions, a cognitive connection between genus and gender is a) existent, and b) disadvantageous, and hence is not a "chimaera" feminist linguists continue to fantasise "but psycholinguistic reality" (Klein 2004: 304 qtd. in Nübling & Kotthoff 2018: 102), neither is it "anxiety" or "pronoun-envy on the part of those seeking such changes" (Aikhenvald 2018: 197). The answer as to whether there *is* a so-called "generic" masculine shows a clear tendency to "no" (Nübling & Kotthoff 2018: 115). Instead, genus does influence the choice of Gender for referents and strengthens representational male dominance in the written modality on the word, sentence, and text level. Such overly male interpretation of referents is hard to avoid if generic terms grammatically indicate masculinity, not resolving the ambiguity. Contrary to grammar-driven belief, female referents are *not "meant"* (although mostly not categorically excluded either) as personal masculines are consistently not comprehended as having generic readings. The source of this cognitive problem seems to lie in the double-correspondence of the specific and generic to the same one masculine form – in absence of cues, recipients may hardly tell which meaning might now be applicable. The tendency to relate female referents to "gen"Masc. rather underlines we have learned this meaning. From a psychological point of view, Stahlberg and

Sczesny (2001) render it “highly expectable” that “gen”Masc. evokes male associations, simply because the denotation contains at least one male representative, yet female presence not necessarily – this makes language itself the source of the imbalance. A generic intention, but specific interpretation means the masculine grammar features contribute to an interference of cognition and perception. Facing the (asymmetric) power of language forms, Kusterle (2011) dared an account of manifestations of linguistic relativity, a moderate version of which has been proposed in the most diversified aspects of language for and in the world around us.

Genericity should include all Genders to a symmetric extent; the masculine plural failed to do so. Without specific lexical and_or orthographic reference to female existence, we apparently fall victim of a male bias. Femininisation highlights female presence in an other-than-male-Gender contrast. Can a neutralisation of Gender be as effective?

Stahlberg and Sczesny (2001) refer to several studies conducted together and_or with colleagues and wrap up the evidence in their exhaustive review that personal masculines are not consistently interpreted with generic readings. Nissen (2013) questions if conclusions based on different studies (on Spanish) between the 90s could still be replicated. For German, however, the ongoing research shows that in contrast to the public controversy, socio- and psycholinguistic works have found answers to the questions such that “[t]here seems to be no need for more research on whether masculine forms can serve as true generics [...]. The existing research is unequivocal on the question: they cannot.” (qtd. Henley and Abueg 2003: 449). I there pursuit the investigation of other forms’ qualification as generic expressions – in this work, the GN variants opposed to masculine- or female-marked terms. This paper empirically tests the intention and functionality of linguistic Gender-neutrality. The majority of results stems from questionnaires, which as of today would prick up one’s antennae of political correctness, and yield desirable, societally appreciated opinions instead of valid answers. Irmen (von Stockhausen) and Schumann (2011) as well as Esaulova et al. (2014) provide reaction times and an eye-tracking procedure in reading to their investigations of predicate (kinship or occupational) nouns in a Gender mismatch-related paradigm. To my best knowledge, no other eye-tracking experiment in a spoken stimulus referent Gender comprehension approach has been conducted with Gender-neutral variants on German, and none had the additional advantage to compare the comprehension of four of the lexical neutralisation strategies among one another (at least not published). Moreover, those studies contrasting the “generic” masculine with the feminine and Gender-neutral forms did not gather behavioural data such as reaction times or eye movements.

3. Referentiality of Gender: Experimental Evidence on Genericity and Gender-Neutrality

3.1 Eye Tracking in the Visual World: Methodology and Mechanisms

For most of the time, we are unaware that, and where to, our eyes move. Even more unconscious are we of this organ's utility for the human language system, for communication and thinking (de Groot & Hagoort 2018: xvi), and their indispensable support of ongoing cognitive processes such as information integration, during human behaviour, by which eye movements qualify as a powerful research tool in various disciplines of human sciences (see Tatler et al. 2014: 3). As essential as our hands are for actions, our eyes are to uniquely coordinate perception and action, they, are "perception in action", Tatler et al. (2014: 4) propose. Looking is not the least passive, for eyes gather and, importantly, select visual information to examine the world around us. In their intertwining with goal-oriented processing, eye movements are directed by the task performed and allow us to complete the tasks set for us.

Experiments of the visual world paradigm build on these neurocognitive aspects of vision, attention, perceptual processing, and memory, and are thus a versatile application with a multitude of possible implementations "to investigate and frame a wide range of psycholinguistic questions on topics running the gamut from speech perception to interactive conversation" in various populations. Visual world studies were pioneered by Roger Cooper in 1974, further developed by Tanenhaus et al. (1995) in a more natural video-based interactional approach (see Salverda & Tanenhaus 2018: 89, 90), and research based on eye-tracking methodologies grows exponentially. With an eye-tracker, participants' eye movements to objects presented visually on display are recorded as they listen to (or sometimes, produce) spoken language while looking at the co-present visual materials. Processing language is combined with visual search, e.g. to depicted objects: the VWP maps eye fixations, or rather control and guidance thereof, to the meaning of comprehended language onto underlying processes. Evidence derived from monitoring participants' eye movements as speech unfolds argues "for rapid integration of visual and linguistic information in word recognition, reference resolution, and syntactic processing (parsing)" (ibid.: 91).

The most basic and crucial fundamentum to back up the eye-tracking technology in general is the *linking assumption*: listeners' gaze behaviour is linked to their real-time cognitive processing of linguistic input, which basically assumes eye movements to happen input-driven. Secondly, this is assessed from attentional behaviour in response to the input: in eye-tracking research, we are committed to "the conclusion that what we 'perceive' […] is not the movement of the eyes, but the movement of attention. […] The location of the eyes provides information about the focus of attention." Attention as indicative of focus and gaze location is key to information processing: "If processing is difficult, fixation durations increase and the distances between their locations (…) decrease" (Kliegl & Laubrock 2018: 68). During real-time comprehension, attention is shifted according to the information of the speech signal towards encoded information about the contents of the visual scenery, and "as visual attentions shifts to an object in the workspace, as a consequence of planning or comprehending an utterance, there is high probability that a saccadic eye movement

will rapidly follow to bring the attended area into foveal vision“, that is, the high acuity centre of visual field (Salverda & Tanenhaus 2018: 91). “Where a participant is looking, and in particular when and to where saccadic eye movements are launched [...], can therefore provide insights into real-time language processing” (ibid.: 107). To capture these, measures are language-mediated, gaze-sensitive (contingent) and time-locked. We cannot manage to look at our environment exhaustively and simultaneously, but relate attention to focus, so when viewing images or scenes, “fixations are allocated preferentially to certain locations, while other locations receive little or no scrutiny by foveal vision […]. Moreover, the regions selected for fixations are similar between individuals: different people select similar locations in scenes to allocate foveal vision to […]. Such similarity in fixation behaviour implies common underlying selection priorities across observers” – a combined guidance by scenic information and strategic factors (Tatler 2014: 18, referring to Buswell 1935; Yarbus 1967). Tracking visual motion on presented, pre-chosen images that are associated with those auditory elements named and that attention may thus be attracted to is used to interpret, i.e., assignment of referring expressions. Over the course of an unfolding speech signal (i.e., a trial), but most interestingly at a point in time (e.g., the occurrence of a target word or referent), both fixation locations, durations, and proportions are expected to augment in response to the processing of linguistic information. The increase is assumed to reflect “the integration of this information with information in the visual world (Salverda & Tanenhaus 2018: 100). Given the complex system language is, how different aspects of language impact the comprehended speech and consequently, the relation to eye movements, therefore needs to be taken into account (in establishing reference, for example, prolonged and increased fixations on a specific area in the visual field right after this element are observed). Several rationales accompany this underlying connection between visual attention, as measured by fixations and saccades, and cognitive mechanisms. The proportion of fixations, their amount and duration, has been related to an activation of the representation: „If there are more looks to a related object [...] relative to an unrelated object, this suggests that the listener perceived evidence for the linguistic information uniquely associated with the related objects” (Salverda & Tanenhaus 2018: 102) at a specific point in time in the speech signal, and in turn this increase provides "increased evidence for a particular interpretation associated with that object" (ibid.: 100). Put differently, a rise in fixation proportion is a) sensitive to processing difficulties caused by linguistic input (Kliegl & Laubrock 2018: 68), and b) may indicate some extent of a mental activation of an input-related representation that is looked for in the visual display (mapped to representations in our mind). Rapid, initial fixations are assumed to reveal an automatic measure of preferred interpretations and/or anticipated continuations, whereas later fixations are more informative about integration of information – the method captures both processing stages). As a response to stimulus events, eye-tracking is a measurement of reaction time, but a very discrete and challenging one indeed, using visual latencies to identify if a target was psychophysiologically responded to when a stimulus was presented. Psycholinguistic research is cognisant of the close feedback of attentive perception to processing language and vice versa, but how to

quantitatively assess it? Eye-tracking technologies have been advanced significantly to professional stimuli presentation and several different eye-tracker manufacturer software with their methodologically sophisticated usage in recent years.

An *EyeLink*1000 operational system, sampling at 1000 Hz, set up in a small room in a university laboratory was used. Eye movements were tracked with a video-based pupil monitoring system in a desktop-mounted setup. A head and chin rest stabilised the head position, advised to improve spatial resolution and precision by "minimiz[ing] head movements for an increase in measurement accuracy" and reliability for most precise data collection (Kliegl & Laubrock 2018: 74) (to some detriment of comfortability of subjects). Eye-tracking systems of this type "combine an infrared light source, high-speed cameras sensitive to visible and infrared light, and computer-based image processing to detect the pupil in the eye image as well as the corneal reflection" (CR) – known as the 'first Pukinje image', the strongest reflection in a pupil (Kliegl & Laubrock 2018: 71). Features in eye image are detected by certain criteria, contour, and the outer cornea that reflects light projected onto the pupil "to infer gaze location by measuring the orientation of the eye in its orbit", "obtained by exposing the eyes to invisible near-infrared light originating from an illuminator" (Salverda & Tanenhaus 2018: 93). Because of the short duration of occulomotor events, a high sampling rate is desired to allow to measure precisely – sampling at 1000 Hz yields 1 observation of the eye position per millisecond. Viewing was binocular, tracking monocular, that is, an image of one eye (the dominant one) was recorded by the optical sensors and processed by dedicated soft- and hardware. Gaze position is then established on the basis of the video image of the pupil viz. reflection sent to the eye-tracker and tracked with a detection algorithm, while tracking the CR provides an additional reference point in the eye image and may compensate for small movements. Computed from the vectors between the pupil centre and corneal reflection, the eye-tracking data output generates a file of x- and y-coordinates and therein lists gaze locations as the measure in screen coordinates for one [eye], time-stamped throughout the session. This format of a screen coordinate data stream allows recording eye movements to be coded to defined areas of interest (AoIs), that is, to particular sections on display, i.e., images presented, and time-locked to defined regions of interest (*RoI*) in the auditory input, i.e. a target word of reference. The pixel coordinates of gaze positions on the screen are estimated from measurements (calculated by the eye-tracker on basis of the relative position between pupil and CR identified) at screen locations with known coordinates – calibration points presented prior to recording collect and align examples of how points on the stimulus display area correspond to the specific gaze position. Calibration is vital to high quality data collection and useful to detect and rectify optic artefacts, e.g., events that are confused with other reflections, like those on glasses, lenses, or tears on wet eyes that result in flickering and physiologically impossible eye movements.

For the experiment, a 1680x1050 (32 bits per pixel) screen of a desktop computer operating with Windows in *vlab* (*Vasishth Lab*) based in Golm, University of Potsdam, was used[46]. On the table of

46 Founded by Shravan Vasishth and dedicatedly led by Johanna Thieke, who contributed enormously to the experimental phase of this project by her obliging help and effort to create a welcoming environment for

the presentation monitor, the desktop-mount eye-tracker camera was positioned. Participants sat in front of this computer in the lab, the experimenter took place in front of the recording PC behind them (app. *D1*). Settings of the presentation screen were accommodated to friendly light conditions with not too much of a contrast between a bright background screen light and the dimly lit room environment. Two small yet sufficient loud speakers played the sound files at a volume that participants were given the opportunity to have adjusted during practice trials (individual preferences turned out to be quite different regarding what was deemed too loud). The calibration procedure allowed for the thresholding of pupil and CR detection to better detect features in the eye image: contours could be adapted to avoid unwanted reflections, e.g., on glasses (for which cleaning solved most issues). Additionally, camera and participant could be placed differently to have the reflection or any shadows outside the pupil area[47]. Reflections were liable for the fact that in the extreme areas of the screen, a good image of the eye was not always possible as at extreme angles the CR can be lost – only up-most corners were affected, so this was not considered too much of a disturbance for tracking in the stimulus array. Drift correct was occasionally accepted even when slightly off because only quite large quadrants were of importance as areas of interest.

The experiment was programmed with the *ExperimentBuilder* (EB) software provided by *SR Research*. In a drag-and-drop fashion, nodes of actions, triggers, and multiple other components can be connected, timed, and referenced to data source information coded appropriately, and to library files to create the procedural dimensions of the experiment[48]. For interest areas (IAs) created in the EB script in advance it is reported if fixations landed in a defined square that corresponded to one of the images displayed, or not. Using *DataViewer* (DV, the associated data processing programme), the sequence of coordinates across trial time, fixations on interest areas or outside (coded with identifiable IA image type and *RoI* timestamp variable names), blinks and saccades (no fixation recorded) can be parsed into subsettable reports for response-contingent analyses. Recorded at the sampling rate of the eye-tracker, screen-based pupil-/ reflection-coordinates plus response data from the explicit motor task (here, a referent image clicked on) are stored in one file that includes messages pre-labeled in the script, time-locked to the action, and therefore contains essential information about the trial, including the identity and position of the images and the timing of acoustic landmarks in the speech stream, for instance which image was presented that fixations

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everyone doing research in the lab.

47 Subjects with soft lenses were largely unproblematic, hard lenses caused poor calibration to due optic artefacts, though. Subjects wearing mascara (in spite of instructions telling them not to because this easily confounds the regions with similar pixel intensities by which to identify the pupil and so disturbs tracking) were asked to remove it as much as possible, and the remaining black lashes were tried to restrict by camera position and threshold lowering.

48 Besides the helpful orientation Prof. Sol Lago's previous work with EB in methodologically similar studies supplied, this psycholinguistic tool box comes with plenty of resources available such as webinars, forums, manuals, and not to forget a zealous support team that is quick to respond and of enormous help. At times (in the sense of "often times"), the software shows its deficits in user-friendliness. During the end phase of setting up the experiment, not a day went by without error messages and new errors that had never occurred before but, for example, quit the experiment application in the middle of the session, leaving the experimenter to do some meticulous debugging. Every contact with the employees at SR Research has been the definition of technical *support*.

landed on at the on-/ offset of a word or phrase like the referent. Altogether, the presentation software presents stimuli, time stamps and trial information (number, item, condition, etc.) sent to recording PC (stimulus on-/offset), as well as participants' response to the recording PC, and with reference to the prior creation of interest areas (IA), controls at what point the eye-tracker records gaze. In the present data source, the following timer messages, as pre-defined points of time during trials, are received from the EB script run on the EL programme: display of protagonist and of group referents, position of protagonist and group referents images, critical word onset and offset, relative clause offset, referent identification question onset and offset. The sample report contained a number of variables that EB records and DV provided that will be relevant later.

3.2 Conditions and Propositions

Critical linguistic materials in the experiment were of three conditions (app. *Table 1*):

M the so-called "generic" masculine: a grammatically masculine plural noun form for social, personal, and professional roles (which is often identical with the singular, i.e. *der Lehrer*$_{SG}$ / *die Lehrer*$_{PL}$ – "the teacher$_{SG}$" / "the teachers$_{PL}$") that is conventionally used to refer to all human beings regardless of their Gender;

F the feminine plural, mostly derived from the masculine form (*die Lehrer<u>innen</u>*$_{FEM.PL}$ – "the teachers$_{FEM.PL}$"); according to the German grammar, pluralised feminines are limited to refer to female persons and all-female groups of people and can exclusively be used for their denotation;

GN a Gender-neutral variant that can per se refer to not only men and women* but people of any Gender, undefined or unknown; in German, different forms fulfill such function: a nominalised participle of the verb stem (nom.Part.), a nominalisation of a verb (Subst.), adjective, or adverb, a collective singular (coll.SG.), a periphrastic construction of a verbal action or a compound and the notion of "-person" added to it (e.g., *die Lehrkräfte*$_{PL}$ – "teaching staff$_{PL}$"; recall the detailed categorisation under 2.1.2.3).

All of these gendered language forms in 3), by now rather common and proposed as valid alternatives in many guidelines on Gender-sensitive language (2.1.2.3), will be included in the experiment. Doing so is for two reasons: first of all, for every item there had to be a Gender-neutral variant to fulfil the third condition. To include only one type of Gender-neutral noun form, i.e., the nominalised participles exclusively, would have either not be sufficient for the purposes of the design, that is, yielded an amount of critical sentences too small, or else ignored that nouns are not mechanically transferred and forced into one Gender-neutral counterpart (even though critics claim this to be the case whenever altering the binary-marked language). For some nouns another more inclusive alternative of these types is already in use (2.1.3.2). The complicity to come up with the same number of role nouns in only one Gender-neutral type notwithstanding, "making up" Gender-neutral alternatives in spite of existing forms would have led to very artificial lexemes that are extremely infrequent (if comprehended at all). Secondly, present guidelines recommend variability, considerate

word formation, drawing from existing forms and minor syntactic adaptations instead of one executed strategy alone – altogether for a least disruptive Gender-sensitive language[49].

In this study, only types of strategies to degender covered in the previous chapter are considered, no dual forms and no gap pronunciation, because the acoustically "conspicuous forms [...] would have immediately revealed the real aim of the study to the informants" (Nissen 2013: 102).

Since the singular article (like any determiner, pronominal, or satellite element would) indicates the personal noun's genus and referential Gender beforehand, the experiment uses plural forms of role nouns only (except for the grammatically neutral collective singular, which will nevertheless be subsumed under this category as conceptually denoting a group). Nouns were thus equally accompanied by the plural article "die". The kind of determination must take into consideration the grammatical indication exaggerated if reference is made to an individual person or some group, i.e., if singular or plural number is cued. Sato et al. (2016) found that the determiner "die$_{PL}$" did not affect Gender biases, but only the information associated with the human reference role nouns.

In spite of all grammatical conventions, the plural form in German cannot be taken for granted as Gender-inclusive: the expression used as a generic conceals the possibility that theoretically, in an exhaustive group, say, *alle Lehrer*$_{PL}$ "all teachers", there could be 99% women* – one male member would contribute to the mixed group interpretation for which the feminine marking is not applicable (see e.g., Nübling & Kotthoff 2018: 98). Consequently, the implementation of a 50/50 Gender participation in mixed group images is expected to be able to evoke a truly Gender-balanced interpretation (recall the conceptual definition of Gender-neutrality, 2.2.2).

The presentation of a singular person (protagonist) and some plural referents enables a contrast of referentiality qua linguistic identification, between the specific referential protagonist (there is only one) and the more abstract, less specifically referential group (of which there are three on display). Visibility is, however, tied to some degree of definiteness (Nübling & Kotthoff 2018: 92). Searching memory representations and retrieving suitable referents for an established role is therefore supported by visual materials, but also limited by the options presented, by which it is confirmed that there *is* one such entity satisfying the description of *Lehrkräfte* ("teaching staff"). Case marking in German interacts vigorously with nominal morphology: stimulus sentences were primarily in nominative or accusative, seldom in dative or genitive case, for some of which there are paradigmatic exceptionalities[50] (such as allomorphic *der*$_{GEN}$ being homophonous with masculine singular article

49 Exploiting one form intentionally would be forced: "Any forcefully executed strategy appears strained and unobliging on the reader's side" (Nübling & Kotthoff 2018: 120, translation C.S.).
When varied, a flow of reading is being ensured and any already available expression used – a strategy promoted by the majority of recommendations on successful implementation of Gender-inclusive language – and yet, critics ranted on an etymology book that implemented the strategy. Unsurprising as it was, their reluctance revealed a deeply enrooted androcentric world view, and their defense of the masculine "generics" had them explain the absolutely non-generic interpretation, objecting to female participation on human history. So on the one hand, "gen"Masc. are vindicated to fulfil their grammatical function properly and include people of all Genders, and on the other hand, when pointed to the observation that they, in fact, do not, by using alternatives, they are unveiled to bear a male-specific intention after all (ibid.: 20).

50 Probably the reason nominal classification of declination has not been focused on experimentally: it is admittedly disturbingly difficult to create complex, fairly natural yet comparable stimuli (and not has not simply been "overlooked" by feminist linguists like Nübling & Kotthoff 2018: 62 assume).

der$_{MASC.SG}$); the subsequent anaphoric plural determiner introducing the relative clause (*viele der Lehrer, die*$_{PL}$ ... "many of the$_{GEN.PL}$ teachers$_{MASC}$ who$_{PL}$ ...") with the plural syncretism was considered to help establish a sufficiently unambiguous reference to a plural entity.

Nouns denoted occupations, positions, and social roles. Sentences were chosen that refer to real-life situations, but as in real life, there might not be an equal distribution of women* and men involved. The developed scenarios could not rule out stereotypical thinking with regard to Gender roles (cf. leadership and car contexts vs. animal and child care, but see 3.3.1.1 & 3.3.1.2; app. *A1*).

Assumptions on auditory-visual-performance on the materials hypothesise an interaction between what is fixated when what (noun form) is heard, to put it simply. In visual world studies, some auditorily provided linguistic information can usually be uniquely linked to (one of) the related objects or images, which builds up expectations regarding fixations allocated at the visible interest areas during an acoustic window or time span of speech input. The present design exploits the fact that in this phenomenon of Gender-related genericity, the associations are questionable with respect to their uniqueness and their function to denote depicted referent groups, which is why the Gender-neutral forms will be contrasted with the masculine genus-marked ones, and the response pattern they cause to infer which forms (better) yield a generic interpretation.

3.3 Perceiving Genus and Gender: Materials

The entire list of items serving as stimuli is attached in app. *A1* for critical experimental items and app. *A2* for filler items (sample translations of a few items are provided in app. *A3*).

3.3.1 Auditory Stimuli: Sentences, Structure, and Scenarios

The experiment consisted of 48 critical items in three conditions (= 144) distributed over three lists, and 60 fillers that were the same in each list. A list thus consisted of three practice trials, 16 critical items of each condition (in F / M / GN = 48), and 60 filler items (= 111 per list). Items were Latin squared (see scheme in appended *Table 2*), pseudo-randomised (in the EB setting), and a maximum of two items of the same condition in a row was possible[51].

3.3.1.1 *Experimental Items*

One person with a female or male name is introduced and presented within a setting in the beginning of each item. This setting describes a relatively complex situation this protagonist is facing, encountering, or which is affecting them in some way. Embedded in this context is a plural term for a group of people acting as referents for the subsequent question regarding the scenario.

The plural role nouns are manipulated for genus and appear in either masculine or feminine form, or as a Gender-neutral variant (M: *die Studenten*; F: *die Studentinnen*; GN: *die Studierenden*).

By means of indexicality, the person's name is perceived directly in terms of their Gender (following phonological and etymological cues to some extent (Nübling & Kotthoff 2018: 22), but other than that habitual structures of naming are the root of Gender-inference by name)[52]. Stereotypically female or male first names have been assigned to the characters. A small number of protagonists

51 This should have been limited to one as both GN and F forms may be too revealing when occurring repeatedly.

were addressed with their family names and Gender-specified as men or women* addressed with the titles *Herr* (“Mr.”) or *Frau* (“Mrs.”). This was mainly done for variation during the experiment and for purposes of adaptation to particular contexts in which it would have been quite unusual to refer to someone with their first name, e.g., in a (hierarchical) workplace relation or other instances of personal distance.

The plural noun denoting a role or occupation was the critical word for all items, all listed in app. *A1.1 and A1.2*. A handful of NPs were varied for the sake of contextual saliency: when the noun was accompanied by an adverb or no determiner contexts obtained a more natural formulation (*viele X* “many”, *einige X* “some”). This was not expected to affect genericity.

Syntactic structure and thematic prominence was kept equal.

As illustrated above, masculine and feminine role nouns share the word stem until the suffix, whereas GN forms may diverge earlier in the word – they are derived from verbal stems to nominalised participles (*Studierende* “students”) or are a compound built with a base word notion of persons (*Pflegepersonal* “caregivers”) the first part component of which indicates the role or occupation. A number of Gender-neutral terms entail collective singulars referring to a group of people (*Kollegium* “all of the colleagues, staff”). Given the fact that these still carry a group notion semantically, they will be treated equally to the other plural nouns for further remarks and enter the general analysis as Gender-neutral “plural” versions. However, at least two studies on the German so-called “generic” masculine have found the singular to be even more male-connoted or to point to a more pronounced Gender marking (Schröter et al. 2012; Bülow & Harnisch 2015; possible reasons will be explained in terms of homonymy and metonymy under the analysis). Whether this might affect their Gender-neutral status relative to the other grammatically plural variants is examined in the analysis, where these GN noun types (listed in the table in *A1.2*) will later on be analysed separately in comparison to each other.

No personal pronoun for the protagonist was used when the context is established in the second sentence to avoid Gender repetitions and any interactions with the anaphoric reference of a clearly masculine (*er* “he”) or feminine (*sie* “she”) pronoun with the group denoted. Instead, the name will be used again to describe the situation the person is in[53].

The contextual sentence includes the setting or problem as well as the critical region – the role noun in the respective form (masc.PL. / fem.PL. / gendered alternative), followed by a relative clause specifying the noun (it was recommended to have a pause in this part of the sentence, i.e. after the gendered role noun, for easier splicing the auditory recordings[54]). At the end of each item, a question was posed following the scenario in which above exemplified nouns appear in subject or object positions; it prompted participants to single out the group for referent identification by ask-

52 Because most of the protagonist names are uniquely associated with a certain Gender, these are (like personal pronouns) types of referential indexing, or first order indexes to refer to someone (Nübling & Kotthoff 2018: 38, 39), and accomplish identification by referentiality generally best.

53 In a comparable study for German, Klein (1988: 315) realised that when analysing the results, there was a test sentence that contained an anaphoric *er* (“he”). This sentence scored (not surprisingly) the highest rate of “male bias”. A pronoun-caused bias was thus strictly avoided, just like Nissen (2013: 105) did, too.

54 A hint for which I am thankful to Dorothea Pregla.

ing about the afore-presented content concerning their actions directly, or by asking for the protagonist's action towards a group. Hence, some trials use prepositional questions and name the protagonist once again, while in others, the question words aim to target the plural group directly (*An wen muss sich Paula wenden?* “To whom does Paula have to go?” vs. *Wer hat die Fachschaft gegeründet* “Who founded the student council?”). Whether the protagonist's reappearance in the question type (name included / not named), has an effect can be controlled for in the analysis, an influence of a female or male protagonist on referent choice as well.

3.3.1.2 *Fillers*

Fillers were created in a similar scheme, but denote groups of people referred to by Gender-specific nouns of personal relation with definitional gender (which resemble the test trials: in these items, a one-to-one correlation between the noun's grammatical and lexical genus and human Gender (*die Mütter* “mothers”, *die Väter* “fathers”) requires to pick out the all♀ or all♂ group image unmistakably), such as *Brüder, Tanten, Nichte* (“brothers”, “aunts”, “niece”, including compounds that contain one of these nouns, such as *Pflegeväter* “foster fathers”), which exclusively and distinctly allow a Gender-specific response to the respective image. In German grammar, like in many other languages, in the field of terms of family relations, terms of address directly refer to the Gender of a person (Nübling & Kotthoff 2018: 39) and their genus cues may therefore “be said to perform a symbolic function (Bußmann & Hellinger 2003: 148). Find the full list of definitional Gender filler nouns in appendiced *Table A2.1.*

Syntactically and content-wise, these 60 items were created in a form and topic range similar to the critical ones. Protagonist names were either stereotypically female or male (with two exceptions that may be used for people of female and male Gender, and are equally possible as names for non-binary people). To cover the experimental focus, fillers provided role nouns for kinship and generation, such that scenarios either established a family relation between protagonist and group referents or provided cues to the age of the protagonist or groups and a quite typical activity for this age span. The respective visual age manipulation in a number of items underscores the simulated second task of age estimation; picture stimuli were adapted for this purpose and included infants, children as well as seniors, but find a more detailed description below.

Context of items covered diverse yet relatable settings. Scenarios problematised issues of every day life, work, studying, picked up actual problems such as high rent, low pension, and insurances, mentioned animals, sports, science, and overall topics adults can relate to (app. *A1 & A2)*.

Both experimental items and fillers followed the same sentence structure (app. *D2*): the first sentence introduces the protagonist, the second sentence explains the situational context, and the third and fourth sentences are questions: the first asks about the referents, whereas the second one tests comprehension. Few exceptions unfolded the problem in two subsequent contextual sentences, such that the referent identification question (RefIDQ) constituted the fourth and the comprehension question (CQ) the fifth one. Items of both types were rich of information and rather high in complexity. Albeit a challenging task in a listening session, the cognitive load was rendered a

strength, not a weakness, because the many-faceted scenarios required an amount of attention that might have distracted from the referent Gender assignment task additionally.

3.3.2 Visual Stimuli: Protagonist and Group Images

Besides the linguistic information of Gender that can be encoded in personal expressions, people's looks may "perform" Gender inferences much more obvious than referential phenomena. Gender differences can be shaped by outward appearances (hair styles, facial characteristics with beard or make-up and not to forget clothing may be utilised *and* interpreted as cues, once more aligned on a scale that corresponds to more or less fe-/ male-stereotypical). The semiotic shape of Gender includes the presentation of exterior, and is thus indexical to Gender features and moreover central to someone's genderisation in interaction (Nübling & Kotthoff 2018: 35, 37). Any encounter with a human being, be it just a fleeting glimpse, invites us to recognise and assign their Gender (ibid.: 94), and by reading these cues we have been taught to infer Gender instantly[55]. The aspect of ascription (taken aside how problematic it is for the concept of Gender identity that appraises the category to be something we choose, and not what others force upon us) is the foundation for the (successful) interpretation of stereotypical depictions of females and males and the assignment of Gender-indexing nouns. The experimental screen depicted an array of visual stimuli in the form of pictures that contained drawings of people's faces to which Gender had to be assigned in order to perceive the task at hand, i.e., a referents' Gender identification to match the genus of the plural role noun. The stereotypical depiction of upper body parts ensured this coupling.

Five different images were on display in each trial: a single picture of the protagonist at first, and four images following quickly. Instead of distinct pictures for each trial that would have demanded an extremely high work load for the experimenter and extremely high processing cost for the participants, the same palette of referent pictures appeared throughout the experiment (app. *B1* & *B2* – only those of adult age are relevant for critical experimental items).

Due to the tremendous complexity of illustrations of humans and the high risk of effects that details such as clothing, physical characteristics, individual details could cause, only faces (of female and male persons) were found to be qualified to be used. All of them are illustrated in a simplistic, symbolic way with stereotypical details like long vs. short hair, moustache or beard, and slightly individualised with glasses, braids, and the like[56]. Faces that a group image of people showed were not used as protagonists (and vice versa), because the task was not a group membership acceptability choice (in which the protagonist could be co-referent to the role noun), but group constellation identification. The three group images per trial resulted in three possible group constellations (of Gender) of which only one was presented in the experimental trials (which means all were present, but once): all♂ [+male –female], all♀ [–male +female], ♀♂ [+male, +female].

55 Again, Nübling & Kotthoff (2018: 15) speak of "sex[us]" when it appears to result from physical features that "allow" for Gender assignment. It should be noted that this can be misleading: these are symbols we take for granted as Gender-specific or exclusive any human may choose to embellish their body with.

56 The creation and constellation of real-world or depicted human characters that are neither too detailed nor too alike, too resembling of each other, distinctly displayed, controlled and matched for all purposes of the study, is very generously left to those researchers with a more lavish supply of time and money on their hands to be spend on the endeavour.

Basically, in each critical trial, the pictures were Gender competitors, similar along the conceptual dimension of number (plural). Fillers mixed Gender and age constellations (not within but between group pictures), such that non-critical trials were of either [same age, same Gender] / [different age, different Gender] / [different age, same Gender] in a ratio of 23 / 23 / 14, since the latter is basically identical to the manipulated stimulus array of the experimental conditions (regarding adult ages), see manipulated filler items in app. *Table 3* and app. *B2*, all ages).

The pictures for definitional Gender nouns used for fillers were the same as in the critical experimental items regarding protagonists and the adult groups, but additional visual material was added that was of the simple black-white line drawings style as well, partially taken from the same source of image set. To distract from the potentially quite explicit genus-Gender manipulation of group constellation and noun form representation, fillers introduced the factor age as a distractor category that differed from critical items along the visual dimension of typical age features. The manipulation for age was aligned with the experimental design of group referents presentation, i.e., there were four faces in each of the four images, and within one group image the pictogram faces were of the same age and either all-male, all-female, or in an evenly split up mixed Gender constellation (half male, half female). Age properties were varied, however, from infancy and childhood to adulthood and seniority, by creating images additionally to the adult groups used as experimental stimuli – Gender-varied alike – showing simple black-white drawings along the dimension of infants, children, and seniors in all♂, all♀, or ♀♂ groups, respectively. Each age range was complemented with a female or male protagonist, too. From these 12 sets of image groups, filler image displays were created by selecting (A) a different age–same Gender group, (B) a same age–different Gender-group, or (C) intermixed altogether (app. *B2*). This procedure was chosen to make the experimental focus neither too distinctly Gender-focused nor age-related, but for some stimuli unrelated to the social phenomenon. First of all, because fillers contained nouns of definitional genus to be identified, the group image displaying the correct referents was determined. Another image displayed was the introduced protagonist before-hand, as in the block of critical items (app. *B1*). The remaining two images were varied for the grouping described above: 60 filler items were thus subdivided into smaller groups; group (A) showed referents of the same Gender but different age (e.g., *Tanten* “aunts”: young women* / girls / old women*); group (B) had referents of the same age on display, but with different gender (e.g., *Großmütter* “greatgrandmothers”: old women* / old men / old people fe-/male mixed Gender); and in group (C) referents of both different age and Gender were displayed (*Witwen* “widows”: old women* / young women* / old men, or for *Jugendliche* “youths”: young mixed Gender / old mixed Gender / young female infants), which must have been the most challenging filler set up in light of the processing demands and hence, curbed reaction times likely pay tribute to the Gender- and age-mis-/matched distractors. The groups of image configuration of group (B) fillers resembled the critical stimuli.

Protagonist presentation was accompanied by a drawing depicting a woman* or man / a girl or boy, matched to the stereotypical female or male name. For the sake of variation, two images per

Gender were used, in two age spans of more younger- to older-looking adults to better fit the contexts (going to university vs. leading a company; cf. app. *B1*) In spite of the overlap of several similar faces with several different protagonists, it was unlikely to have a memory effect for a protagonist due to the diversified settings; that means, a protagonist's face could belong to another person introduced, given another name, and experiencing another situation. Rather, the reappearance of faces for new protagonists promotes to refrain from strategies and to detach faces from intentional 1:1 personifications. It was thus regarded a useful design to abstract single faces in order to judge the concept of a group constellation, and spare subjects the time otherwise needed for person identification in each trial for text comprehension. Group images were similarly reappearing, highlighting the concept of group constellation rather than individual group membership. Working memory demand and task focus was consequently shifted from exhaustive and intense visual attention to auditory processing and decision-making. Nevertheless, faces draw attention, and the more there was to be seen (in particular when having presented the same faces over and over) in one face, the more it was focused, as indicated by exploratory investigations of fixation data in *DataViewer* (DV). Some faces received more attention, with more fixations directed to those image parts rich with facial details, such as glasses, smiles, beards. A rough inspection of looks gave rise to the impression as if one or two images per set attracted most attention.

3.3.3 Materialisation: Recordings and Image Selection

The audio materials were recorded in a newly furnished studio (*Tonstudio* Griebnitzsee) on campus at Potsdam University, in a half-closed sound booth[57].

A 28-year old female native speaker of German who was judged as fairly free of accent (which is hard to find in this area of Eastern Germany) with clear but natural pronunciation and a deeper, comfortable and unagitated voice was generous enough to contribute her voice. With only minor breaks[58] the items were recorded in about 4 hours.[59] The manager then cut and spliced stimuli sentences and questions. Acoustic landmarks needed as time stamps in the data to define regions in the speech were then extracted with the recording and editing software *Audacity*.

Speaking rate was neither artificially slow nor incomprehensibly fast; recordings resembled normal speech in everyday interactions, except for some structurally nested clauses. With regard to the content load in stimulus contexts, information had to be processed fast cognitively[60].

The author knows of voice effects in auditory experiments on Gender (Vitevich et al. 2013) when coming across the attitudes towards female or male speakers and leaves this interesting factor, the suspicious influence on listening experiments, and socially relevant factors such as vocal Gender cues in terms of frequency, impacting empathy and authority, for a future experiment which may

57 With the highly appreciated support of Tonstudio manager Juliane Kuba, who created the most calm and welcoming environment during the session.

58 (none for smoking as this would have affected the vocal consistency)

59 The speaker was discovered to be a talented one, eminently suitable for recordings demanding as these. The Tonstudio manager, too, was full of appraisal and confirmed, seldom are there such self-regulative and enduring speakers.

60 Still, items that were of complex scenarios was perceived as too much input in too little time by some participants. This should be kept in mind in case of late integration of referent information.

manipulate the speaker's voice to a stereotypically male one. Salverda and Tanenhaus (2018: 93) stress the importance of the source of speech in experimental research, because the language that the speaker has to be able to relate to "often comes from a disembodied voice, which provides a narrative […] or an instruction […]". They emphasise the communicative "default assumption [...] that the speaker and the listener have access to the same information in the visual world".

Images have been selected by the experimenter amongst the abundant *Adobe* stock, in the style of those that were first found in a preliminary search engine inspection to fit the purposes outlined above. Tonstudio Potsdam licensed and provided the files. Pictures were then re-scaled to approx. the same size of individual faces (without unnaturally stretching their facial traits) using the graphic editing softwares *Inkscape* and *Gimp,* where image files had to be further edited and re-coloured such that they shared the same black-grey-white colour scheme, and grouped as collages of equally sized images of four people. Hair colour was supposed to be balanced across the four-faces-groups, but could not be realised for the female-only group because of the limited availability of appropriate pictures. All images, sets and protagonists, were exported in an EB-readable format of non-vectorised graphic files of 300x265 pixels (as 300x300 displaced or compressed proportions, while this pixel ratio grouped images most naturally[61]). How images were edited[62] to be used for the experimental design can be tracked in *Table 4* in the appendix.

3.4 Procedure

The steps that were followed in each experimental session are outlined in *Table 5.*

3.4.1 Instructions and Debriefing

Appendices *C1* echo the instructions, and *D3* reproduces the script to run the experiment built with EB in a graph format.

In the instruction screens prior to practice and experimental blocks, participants were told how the experiment expects them to listen carefully to sentences while pictures are being presented. From the image on display, they would have to pick one out by clicking on it. They should decide for the picture qualified best to answer the question about the scenario they had just heard. If unsure, the image to match the sentences best should be chosen. They were also made aware that whenever a response takes too long, the next sentence will be presented; so although they should respond after hearing the complete sentences, they are supposed to be quick to answer. In avoidance of contemplation of stereotypes of certain roles and a socially desirable response, such a timeout is sensible. The long stimulus scenarios, however, left on average about 15ms time while listening to consider the referent choice that subjects will be asked to perform. The click should be executed as soon as a decision was made to signal rapid automatic assignment after the question – any

61 Finalised with the incredible help, skilfulness, and quickness of Fabian Eltz.

62 After a valuable hint by Sol Lago, "blonde" people, which were depicted with white hair and beard on white faces, were edited and hairy areas filled with a light grey colour, to make these images easier to process, especially given the length of the experiment. One filler image was found to be reinvertible (old male with beard and no hair): it was thus prone to receive much more attention viz. fixations and encounter higher processing demands. Colouring facial hair in light grey for the all-white line drawings addressed such cogntive concerns, made picture stimuli more comparable, and reduced visual effort during the 111 trials.

hesitancy, prolonged overthinking to perhaps reinterpret a first interpretation will be indicated as measures of reaction times. Participants were instructed to fixate the EB-programmed drift correct symbol ○ until the images appear on screen, but were not given a hint as to where or how to look, e.g., at the faces, in order to prevent influencing their viewing behaviour (instructions have been demonstrated to have a more profound effect on fixation locations than did the stimuli, but see Tatler (2014: 21) on those task effects).

The practice trials were structurally fillers, given the definitional nouns for referents and the following CQs, for which participants received a correct- or incorrect-feedback, respectively.

They were given the opportunity to ask questions after reading the instructions and performing two test trials to get accustomed to the experimental look-and-listen paradigm followed by the decision prompt. Example trials included feedback message screens on subjects' response to the first question on referent identification and on the subsequent comprehension question as well. To familiarise with the timing, those whose response took longer than experimentally desired (details on the design follow below) received accuracy and timeout feedback of being too slow to reply (*Richtig!* 'Correct!', *Falsch!* 'Incorrect!, or *Zu langsam!* 'Too slow!', after 5s into the RefIDQ). Picking out the single-person protagonist as compatible referents was rated as an incorrect answer since the settings were in fact asking for the group referents – in turn, opting for any group referents was initially rendered correct because participants should be trained to follow their intuitions on who the referents in the presented setting were. Although it would have been misleading to receive positive feedback on a group of men chosen as referring to "mothers", for instance, the practice items were sufficiently unambiguous such that none of the subjects got them wrong in terms of group constellation. Ambiguity hit the interpretation of scenarios to be not experienced by the protagonists, but as actively executed by them, which is why practice trials were largely answered incorrectly by clicking on the protagonists. A slight bias as a consequence of being introduced to the single person and of having familiarised with them most, might be the cause. Observation of the experimenter also showed that this was mainly due to an initial impression of being overwhelmed by the amount of information presented per item, and even surprised that a question is enquired, resulting in indecisiveness and pondering – it was "safer" to select the protagonist that definitely is involved in the scenario instead of (troublesome) evaluating which group it was. It should be admitted that practice trials might have been contextually too ambiguous, because in principle the protagonist could have been a member of the group, despite not stated by the sentences. In the course of the experiment, when an item was presented in which clearly the protagonist was not the correct identification (perhaps because the RefIDQ contained their name), subjects understood their task better. Against the initial idea of not only coding a protagonist response as incorrect (since not the mentioned referent targeted), a click on the single person's face as a referent was not penalised with an 'incorrect'-feedback: if stimulus creation has been misleading and to some extent unsuccessful as far as (non-co-)reference is concerned, this should be visible in the analysis of protagonist-image-(PRO-)responses. Moreover, the interpretation of collective singulars in the Gender-neut-

ral condition should not be overshadowed by a forced choice against a single referent image that subjects have learned to be “wrong” during practice. Overall, after some clarification questions that recapitulated the instructions, the task was well understood quickly by the vast majority of subjects. After half of the trials, i.e., the first block, a screen informed participants of the break they could take. The second block ended with a screen in which participants were told they made it, got all the answers, and that they now could get back to the experimenter. After finishing the session, participants were handed a short questionnaire to collect demographic information on age, self-identified Gender, educational background and study programme (if applicable, otherwise highest level of education), hours of sleep, vision (corrected or not, and if so, how), political attitude as well as their assumption on what the experiment was about. If interested (nearly all participants were), a few pieces of debriefing information on the study purpose were offered.

A session protocol was filled out by the experimenter to take notes of any irregularities and peculiarities concerning participants or testing to later be able to reconstruct any troubles or common problems encountered or questions, and the like.

3.4.2 Item and Experimental Design

Presentation, Accuracy Coding, and Lists. In total, there were 60 fillers and 48 critical items in the respective three conditions, a list covered 108 items of the same amount of fillers and critical items distributed over the conditions (111 with three practice items included). Each participant was exposed to only one list out of three. Blocks were separated into practice items (n=3), experimental items (n=48), and filler items (n=60). Since an item ranged from 13-28 seconds, the entire experiment lasted for about one hour plus a few minutes needed for greeting, consent form, additional to the time needed for the questionnaire and debriefing afterwards.

Experimental items were counterbalanced across conditions and Latin squared across 3 lists, while filler items remained the same. The design shown in *Table 2* ensured there be a similar amount of items per condition in each list, and that participants were exposed to an item in one condition only, but to all items and all conditions. Protagonist Gender was counterbalanced (*Table 6*).

As mentioned above, PRO-responses had been labelled as incorrect for data collection and accuracy coding purposes since the question targets a plural group of referents. The responses to the referent identification questions were thus coded false when the protagonist was clicked on, and correct for any group image regardless of constellation (0 or 1, respectively). This way, the entirety of “accurate” responses on group images could be analysed, and it was counter-intuitive to code generic, masculine and/or Gender-neutral nouns for accuracy when comprehension of these is what shall be examined. The target picture of interest in the analysis is the mixed Gender group as the successful identification of a referent group evoked by a generic, meaning all-Gender-inclusive.

Some trials – all fillers – were followed by a comprehension clause that needed to be judged as either true (*yes*-response) or false (*no*-response), coded accordingly. The CQ was read aloud as well, presented with a simple "?" on top of the screen, while below the response option were written as text: *ja* / *nein* (“yes” / “no”) required another decision by mouse-clicking on the correct an-

swer. Answers to the comprehension questions for fillers were unambiguously either yes or no, a "yes"-response was correct in about half the items (n=29), to the other items "no" had to be responded (n=31, the imbalance caused by post-recording adaptation and exclusion).

3.4.3 Set-Up

Please follow app. *Table 5* on procedural steps. After giving confirmed consent and being placed on chair close to the table in front of the presentation computer, the subjects adjusted table height to sit straight but comfortable in a position they felt they could endure for a while. The experimenter, if necessary, re-adjusted the forehead and chin rest to fit comfortably. After a quick test to find out which eye was dominant, camera and software was set up to track this eye. Participants went through calibration and validation where they were asked to fixate a sequence of points in order to establish gaze position as a mapping of screen coordinates of stimulus locations and measurements (computed from the correspondences), carried out by the experimenter. The procedure followed basically the standard protocol[63], and was repeated if problems with tracking were encountered until an acceptable result was reached.

An initial calibration routine with recommended settings is an important step to any eye-tracking application to ensure “that the point of gaze is recorded accurately or otherwise the information obtained or action executed might be different from what was intended” (Blignaut 2014: 77). Every participant was calibrated using a 9-point calibration, which expects small circles in the middle, corner, and near the sides of the screen to be fixated. The software can estimate given locations on the stimulus (located with pixel coordinates, as well), as determined by the subsequently done validation procedure, in which subjects were to look at the same points as in the procedure before, to visually verify that the eye-tracker is calculating the gaze to be on those points (in case of deviances of measures to the ones provided under calibration, the experimenter decided if this had to be repeated). If data were recorded for the tracked eye at all points, that is, “if a fixation was shown for each circle and no fixation appeared in an obvious outlier position (...)” (ibid.: 85), accuracy (the average difference between an actual gaze position and the one measured or recorded, in degrees of visual angle) was considered acceptable to continue with the experimental session – which is less important when interest areas are large, like in the present design. Although good calibration and set-up was aimed for to improve the data recording, people who had problems fixating a point (usually an upper corner, because of a reflection of tear fluid or glasses or individual eye characteristics, for instance) were not re-calibrated until they were on point but were allowed to participate when central points had fixations of decent quality on record. When subjects had difficulty to stably fixate points, re-calibration was done, but that was not repeated during one block if evitable, as cal-

63 “At the beginning of an eye tracking sessions, the system needs to be calibrated. [...] of the pupil-corneal reflection vector […]. Usually calibration is followed by a validation run, determining whether the estimated eye position is indeed close to the known position of new targets. In most cases, calibration and validation are accomplished in a few minutes and are supported by high-level routines of the manufacturer's software, It is recommended common practice to present additional validation points, or 'fixation checks', during an experiment and to re-calibrate in case of failure” (Kliegl & Laubrock 2018: 74).

ibration is typically tiring and exhausting for participants doing long eye-tracking sessions. Only between the blocks, i.e., after break, or when drift check was extremely off it was re-calibrated.
During set-up and validation, it was explained what needed to be done to set up the eye-tracking components: subjects knew not to move because of the adjustments. After validation and practice, they were given the chance to ask questions and informed to cooperate. The experimenter then sat back and stayed backgrounded in front of the recording PC to proceed trials and check upon tracking to reduce participants' feeling of being supervised and to ensure a quiet workplace.
On screen, the first image presented was followed by four images located in the four sections towards the corners of the screen, equally distant from both the centre of the screen and the sides. After listening to a question that is concerned with the group pictures, one of the displayed images needed to be clicked on to continue with the experiment; or else time runs out and the next trial started automatically with a new drift correct (to check whether eye position is still in on point).
With the help of a positions list added to the experimental resources in EB, the screen dimensions were defined and divided into equally big quarters to which four images were be located for presentation via pixel specification, the image locations were varied in each trial from position 1 to 4 corresponding to the screen array – this way, images appeared at the different positions throughout the experimental session. Coordinates had to be defined once in the positions variable and then picked up from the data source that assigned each picture in each trial a location number of 1, 2, 3, or 4 (1 being top left corner, 2 top right corner, 3 bottom left corner, and 4 equivalent to the bottom right corner).

3.5 Measurements on Interest Areas and Regions of Interest

The visual stimuli were arranged to the four corners of the screen, the typical precondition in visual world studies. The four images therein (three groups and one protagonist) constituted the interest areas (IAs) that selected a pre-defined image from the EB library and varied the presentation depending on the data source information (protagonist image, female group image, male group image, mixed group image). These were defined as areas of interest in the script and coded respectively (InterestArea M/ IA F/ IA GN or IA PRO; the GN-abbreviation was kept despite the group being actually mixed-Gender in order to have consistent naming when running the code and interpreting output in terms of conditions). Response fields for "yes" / "no" were further IAs (to record the selected response).
Eye movements were recorded in all areas of interest across the screen but were processed in DV to decode their locations over different time spans for insights on the activation of mental representations via online fixations driven by attention and cognition, the decision-making process, gaze directions in the course of time during listening to the stimulus sentences and questions, and therefore potential re-analyses upon hearing the stimuli until the reaction, i.e., when performing the decision via mouse click. Other measurements of interest circulate around the referent identification question for any inspections of hesitation or the decision-making process when being prompted to

identify the group involved and mentioned, although the final click-response should be paralleled by the highest fixation proportion usually because gaze then rested on the image.

The choice of window size was motivated by stimulus construction: syntactic region of interest was measured at the noun (onset of *Studenten* / *Studentinnen* / *Studierende* "students$_{MASK / FEM / GN}$") until its offset and into the relative clause specifying the role noun – until this point, a decision should have been made cognitively represented in the duration and amount of fixations on the target image. Any visual reaction to a comprehended uniqueness or disambiguation point (the only word possible at that „point in the speech signal when only one picture is consistent with the integration of information in the sentence and the affordances of the objects in the visual world", Salverda & Tanenhaus 2018: 92 – regarding genus-marked personal nouns, on the suffix for masculine and feminine forms, and potentially emerging after the GN expressions) can be detected 200ms after the spoken word earliest. Note that the assumption of disambiguation until single-fit-picture is challenged by the study's purpose of finding a match to elicit a generic interpretation.

Stimuli were subdivided hence into 1) article and noun (start and end point of the genus-manipulated part: noun onset & noun offset), 2) the relative clause following the noun (onset is the end of the noun, offset was marked the endpoint of this phase approx. 200-500ms after the noun had ended – in this time span, the processing of auditory input, cognitively reacting to it should be visible as eyes move: RC offset), and 3) RefIDQ (question onset, when a reaction to the identification prompt can first emerge up to the question offset, when the mouse trigger will begin to be moved to one of the images to respond (usually, the eyes follow the mouse cursor and finally fixate what is being clicked on, hence the immense increase in fixation proportion. The time-stamped location on screen and were written to a data file from which their duration, amount, and location on IAs at certain regions of interest points could be extracted, as well as response accuracy, reaction times of responses to questions, and trial information. Two regions of interest ensue: *RoI1*, the NP that contains the critical noun and its determiner, and *RoI2*, the referent identification question. Fixation behaviour in both *RoI* are informative of referent Gender interpretation and entered the analyses.

3.6 Data Collection

Before data collection could get started, a phase of pilot testing was completed to practice handling the eye-tracking hardware and software, see missing links in the presentation procedure and EB script and/or data source, familiarise with recording, and conduct presentation, recording, and data quality checks in test runs. These samples had no other purpose than to produce failures until everything was fixed, and were not included in the final data.

3.6.1 Participants

37 participants took part in the study, the youngest aged 18, the oldest one 35 years old. Gender was their self-identification as male, female, diverse or whatever they filled into a blank space as their Gender identity. The first six subjects underwent pilot tests, after which minor corrections were carried out. Due to equipment malfunction, data of four participants was incomplete and had to be

excluded, leaving 27 participants without any history of hearing or visual impairment who studied or lived in Potsdam for analysis. In the description of the experiment, they were asked to come well-rested, sober, and not wearing eye make-up. Also, their native language had to be German. Inclusion and exclusion criteria were managed through the pre-screening of the SONA registration pool (*Table 9.1*). Further information will be reported in an analytical paragraph below.

All subjects with student status were allowed to receive (course) credits (so-called "Versuchspersonenstunden" Vpnh) for participation (not all of them needed to take these). The duration of the entire experimental session corresponded to 1,5 Vpnh, that is, circa 90 min. Additionally, some sweets[64] were provided to appreciate participants' willingness to contribute to the master thesis research.

3.6.2 Questionnaire

The information participants were asked to provide additionally is appended in app. *C3.*

3.6.3 Rating Norms of Stereotypicality

"As to the integration of women* in the labour market, the educational system and the administrative sector; this change is still ongoing." Nissen 2013: 114), among others, explicitly correlates linguistic phenomena and societal changes. Irmen and Köhncke (1996), in an androcentric criticism, report the disproportional part of one-sided male genderisation in occupational and personal terms, which "reflects the historical fact that originally men were the first to perform most prestigious or "male" occupations and professions, while only few, and generally low-status occupational terms developed from female domains", such as midwife, cleaning woman, etc. (Bußmann & Hellinger 2003: 157).

The impact of masculine nouns on the inclusion or association of women* who increasingly participate in these occupations denoted by masculines seems to increase by the amount of prestige that the occupation is lacking (Nübling & Kotthoff 2018: 116) – a reciprocal feminine inflection for lower-status jobs (Horvath et al. 2016), exemplified by various terms in the service sector[65]. Occupational nouns in particular lexicalise the additional meaning of who does it stereotypically, and who has the power to do so, which thereby becomes a semantic compound. Not only Gender class membership but also status class can be derived from and differentiated in stereotype-loaden terms (which is sometimes used to explain why women* themselves prefer male referential terms and thereby circumvent potential pejorative notions of feminine-marked terms, Nübling & Kotthoff 2018: 140). Gender-related socio-cultural and -political influences lead us to ask if referential expression contained in our language are indicative of such hierarchies? To address this issue, a stereotype rating will be adjunct to stimulus nouns. For an additional subanalysis concerning the ste-

64 Sour dinosaurs: "sour" – *sauer* ("angry") in German, and dinosaurs as extinct as the linguistic invisibility of non-male people one day will be.

65 Unfortunately, this and any such correlations cannot be considered analytically as passionate as the author would want this parameter to be, and I must leave it for investigations to come. In their book, Nübling and Kotthoff (2018: 64ff) follow a grammatical investigation in how far social prestige affect Gender markings. Lexical gaps have also been found to shed light on the feminist analysis of Gender-specific division of labour – and to reflect reality (compare the infrequent *der Haushälter* "the$_{MASC}$ housekeeper" with the uncommon hardly used *die Zuhälterin* "the$_{FEM}$ procuress" and their connection of who serves whom (Pusch 2014: 16).

reotypicality of nouns used in stimulus sentences, mean values of how stereotypical a role or profession is rated have been adopted for all possible items. Rating measures were assumed to closely resemble Misersky et al.'s (2014) rating norms study, from which those that I had used as critical items were extracted, see app. *Table 7*.

3.7 Predictions

3.7.1 Fixations

The eye-mind assumption introduced above postulates that where the eyes move to is dependent on what information we are given to process. If the referent genus cue differs and provides different feature information, the Gender assignment will differ accordingly, and with it fixation locations on the picture matching in the groups' Gender features. Based on condition and IA, I work with the following abbreviations corresponding to the notation of "condition - click decision on IA" (to be read as "when noun form in M / F / GN was perceived, image of all-male / all-female / mixed Gender was clicked"), formularised hypothesis are summarised in *Table 10*.

F-fem: An immediate response indicating activation upon hearing a feminine-marked role noun will yield fixations directed to the all-female image.

M-male: male bias, I predict the development of a strategic specification of masculine-marked noun as referring to male, provided the more Gender-inclusive interpretations is soon recognised to be more applicable for the mixed Gender image – constituting the alternative. A weaker masculine specification when explicitly prompted to assign referents is expected to lead to re-analysis processes, reinspection of images during the question time window, and an overcome bias, that is, late (and non-automatic) genericity.

As argued before, the GN noun form has available cues of Gender-sensitive language, often consciously used to *not* refer to male-only constellations, and will thus give rise to a higher fixation proportion on a mixed Gender group. There are subhypotheses connected to the strategic differentiation of grammatically masculine vs. Gender-neutral alternatives that will be reflected in a learned visual and behavioural distinction of the available pictures.

Since the *RoI* where carefully chosen on theoretical grounds, fixation divergences during these phases of trials are expected under the different conditions.

RoI2 fixations are theoretically a confirmation of *RoI1* observations, for the RefIDQ asked who they thought it was about and called for the representation in mind actively. Both measures are thus highly valuable: in practice, the first measure of mentally activating a representation of referents may but does not have to equal the second measure of an active aim to include them. The second time window shows the (re-)evaluation of best referent fit. Consequently, a mismatch between early automatic and later fixation proportions in the course of said genus-Gender-congruity-evaluation process can be expected insofar that fixations in *RoI1* (immediate activation upon having established reference) are disproportionate to the *RoI2*-generated response for Gender-neutral and

masculine nouns (*M: male vs. mixed* and *GN: male vs mixed*). For these conditions, female presence may compete for their incorporation into the representations.

UpdateGN and *RejectM* comprise this dynamic integration of (new and acquired) information, such that as the experimental task becomes clear, there may be reconsideration in terms of a conscious counteraction to not actively exclude women* in a masculine (and gradually reject the M form for generic reference), and as *M-male* decreases, *GN-mixed* would increase. Early fixations are likely to consider all♂ groups as referents, whereas fixations in later trial times indicate re-analysis and potential mental inclusion of a more balanced representation. It is inversely proportional with a lessened acceptance of all-male group referents under the GN conditions, which should be observable as early fixations of IA M (capturing a male bias) and later stages in trials that then tend to favour a mixed Gender interpretation. Later measures conflicting with an early or automatic reaction have been reported for gendered language phenomena in several studies (Irmen & Schumann 2011; Esaulova et al. 2014). When looks to the mixed IA or all-male IA diverged from looks to other pictures is insightful with respect to a point of differentiation, defining the earliest point in time to actually look to one image in particular (in response to the reference point in the speech signal where information was available, or rather when it was used by participants to identify the target).

3.7.2 Responses and Accuracy

IAs chosen by clicking on them are informative of the Gender of referents that has been decided to represent the stimulus noun denotations best. In fillers, the interpretation of a definitional genus noun is straightforward as the noun form semantics is indicative of an either unambiguously male or female reading; accuracy of referent identification should scratch over 95%, especially so as the Gender and age manipulation even narrows referent options to consider (i.e., world knowledge would dismiss infants as referents for “firefighters”; young males hardly qualify as “widows” – therefore the age distractor images are much less connected to the setting in which referents are placed in the subgroups of fillers than is the case in experimental items).

When it comes to critical items, “correct” response equalled plural group selection, however interpreted Gender-wise (remember that the precise referent Gender identification was both research interest and task). For experimental items in which stereotype collides with, or rather, is contradicting to, genus (*die Haushaltshelfer* “the housekeeper$_{MASC}$”, *die Ausbilderinnen* “the coaches$_{FEM}$”), answers are expected to be too late, or even lacking response data due to timeout, since the genus-Gender Stereotype mismatch has to be resolved and re-integrated first (see *Table 10)*.

As GN forms are less common and, crucially, less frequent than masculine, but also feminine-marked references, they cue (and may be perceived to deliberately do so) ambiguity to the extent that group constellation is somewhat “open” to interpretation, and this socially loaded information needs to be processed first. To come to a final referent identification, stereotypical knowledge is likely to be checked and used to establish reference. Referential clarity on Gender-indifferent terms will be more time-consuming than the straightforward *F-female* correlation, which is grammatically 100% correct (and is consequently expected to exhibit this response pattern in over 95%, the re-

mainder being subject to stereotypicality mismatches). The exception of this clearly unambiguous condition that makes explicit reference to females should produce the quickest response times as well (to the matching IA F). All in all, GN forms are expected to be more successful in evoking generic readings, so the mixed Gender image IA GN will be clicked on most – here, genus does not aid to infer referent Gender as they are not marked with a fe-/male-specific suffix. A male bias (responses to male images IA M) of these nouns is probable have an impact nevertheless, because as shown for English, genus-unmarked forms invite comprehenders to take recourse to stereotypical knowledge to assign conceptual Gender. However, the opaqueness of masculine specific vs. generic usage has been shown to be resolved by later processes, too (Irmen & Schumann 2011). Such evaluation of inclusion of women* in a masculine "generic" will be reflected in reaction times, captured by the hypotheses *UpdateGN* and *RejectM*: a reanalysis of grammatical-semantic agreement, of genus form, gendered group referentiality, and generic applicability needs conscious cognitive reprocessing and will be observable in response latencies. When a Gender-neutral form is being cognitively revised for Gender proportion of referents, this should be reflected in stronger late effects re-evaluating the possibility of a mixed group image as candidate for the perceived reference (especially so for those aware of the Gender constellation task that demands an inclusive/exclusive distinction. For example, while *die Zuhörer* ("the listeners") is likely to be inclusive, *die Minister* ("the ministers") in consideration of the prestigious, male-dominated sphere of politics, may not be. By extension, the ultimate decision in favour of a group referent may be stereotype-dependent, and mismatches of a noun's grammatical cue and the stereotype information contained should slowdown clicks. Stereotypically male professions in the masculine are expected to allow for female presence (in a mixed Gender group) to a lesser extent than stereotypically female ones, for which there is a higher expectancy to be included in a female-gendered referential noun. If stereotypicality is balanced, such that both men and women* could be participating in the occupational field denoted, male group responses should still outperform generic understandings (mixed Gender image) due to the MAN-principle and the masculine-specific cues on a noun in M condition.

3.7.3 Behavioural Data and Fixations: Interactions

Manual responses, or clicks, will be overall correct and mostly in a 1:1 correlation to total amount of fixation proportions on the clicked IA, because the referent identification questions quite clearly asks for a clarification of expectations and interpretations that have been built up for mostly up to 20s or longer during listening to the item's scenario.

As stipulated above, a reaction to an interest area in *RoI2* (the referent identification prompt question) may be in opposition to the largest fixation proportion on an IA image in *RoI1* (critical noun phrase). Instances of this kind have to do with generic re-interpretation and stereotype integration with subconscious and purposeful reactions, and will thus generally target GN and M responses where the semantic denotations of whom to include may have a wider scope.

Clicks for experimental items in condition F are expected to be closely aligned with fixation rates, though, meaning when encountering definitely feminine-marked nouns, these will be linked to female images as this is the only – grammatically prescribed – reference to make in German (*F-fem*). The time course of processing masculine-marked and Gender-neutral forms, for which the answer may not be as straightforward since there is no definitely correct single answer (the interpretation of *die Lehrer*$_{PL}$ "the teachers$_{MASC.PL}$" generically – mixed Gender group – is as valid as the specific one – male-only group, just as *die Lehrkräfte* "the teaching staff" lacking a grammatical cue to Gender could be interpreted stereotypically, i.e., mostly women* in this profession – female-only group – or fall victim to the male bias, i.e., men as prototypical working humans, or finally reveal a truly generic function for women* and men teaching in a balanced representation). The deliberate re-inspection of referent nouns in the masculine or in a Gender-neutral form will impact the distribution of all-male IA decisions. The probable shift in Gender assignment according to available Genus markings *and* one's own aspiration to not act sexist (by interpretatively denying women* a certain occupation, for instance) is captured by the *UpdateGN* hypothesis: over the course of the experiment, the stimulus nouns will yield comparably more responses to the mixed Gender group constellation. *UpdateGN* is motivated by the idea and cognitive pursuit that mixed, balanced male and female, referents are socially desired (often repeated by advocates of Gender equality and formulated by guidelines), and therefore enter our world knowledge that in principle, anyone could have some role or do a job. Regarding fixations on highly stereptypicalised nouns, looking for differences in human's physical appearance may reflect mapping with conceptual Gender of groups rather than the genus indication more automatically in early fixations, since such differences of e.g., abilities and responsibilities, are led back to afore-mentioned "naturalised" Gender concepts, to e.g., reproductive necessities, characterising the difference essentially as dominance and Gender as "a status to be achieved in a society" (Aikhenvald 2018: 212). Stereotype information is expected to be integrated as a direct activation of "the [different] position [women* or men] are placed within the social hierarchy" (Aki Uchida 2005: 290) and to overrun grammatical markings to some extent – a stereotypically female noun in the "generic" masculine will be identified with female group referents not because of the "generic intention" but motivated by the stereotype, that is, world knowledge of jobs and roles women* (are expected to) do.

Inaccuracy may be propelled by too hasty responses, images mistaken, fatigue, lack of attention (it was coded incorrect to choose the protagonist as a referent of a plural prompted noun, but if fixations have indeed increased on the PRO image, the item's context may have pointed towards a single person reference).

3.7.4 Habituation and Time Course

Concerning masculine and Gender-neutral forms, a habituation effect is assumed to arise, brought about by figuring out the experimentally manipulated Gender-marking as soon as nouns of all three noun forms (M, F, GN) potentially corresponding to ♂ / ♀ / ♂+♀ referent pictures were perceived (note the immediate, quasi-automatic, non-inhibitable Gender assignment outlined above; this is a

relation immediately established). During the first trials, nouns of masculine genus might receive reactions to a mixed Gender group (*M-mixed*); language use after all allows for and makes elaborative use of the generically intended masculine. Similarly, in the beginning of the experiment, Gender-neutral nouns may evoke male-biased interpretations and responses to the male group depicted as a consequence (*GN-male*). Only when, but shortly thereafter indeed, the existence of options for a referent noun form and an associable referent image across trials has become aware to participants, will they perform strategically. The availability of a Gender-neutral (GN) form, the dichotomy-causing feminine, *and* the masculine form altogether will presumably lead to a strategic mapping of the potentially more inclusive variant for the mixed group, which in turn leaves the masculine noun form best suitable for reference to a male group. Whereas under an investigative ambiguity view, for Gender-neutral and masculine forms there can be more than one interpretation, the prompt requires a decision for an image to be picked out. Variability regarding which personal terms are being assigned a certain group constellation will decrease over trials, as long as images of all three different constellations are available under a forced-choice design, a design asking for and at the same time offering a single, “correct” or “best-match” answer to each question. I consider a deliberate switch to specific interpretations of masculine genus as indicative of male Gender in a goal-oriented fashion and in presence of a definitely non-male-specific alternative to solve the task at hand highly probable. Provided the habituation assumption is true, it is supposed to interact with the *UpdateGN / RejectM* hypotheses: the more items participants have been exposed to, the more they attempt to match conditions to images strategically and to act socially aware. Mixed Gender IA responses should thus increase from earlier to later trials when encountering GN nouns, and the choices of the all-male IA under the masculine-marked form should be relatively larger in later than earlier trials. The updated “better” generic meaning of provided alternatives aligns with behavioural data predictions with the implied demands to pick the one referent group best suited to the Gender representation cued by varied gendered language nouns.

3.7.5. Reaction Times

That said, mouse responses are regarded as, first of all, a necessity to equip the experiment with an interactive task, and not just having people stare at a screen for about 60 minutes, and secondly, to provide an informative measure of reaction times that are hypothesised to convey processes of reanalysis in case of early fixation–later response-mismatches and cognitive, knowledge-based evaluation processes of intuition–prescription–expectation–integration. These are most expectable for the masculine generic/specific ambiguity outlined above, but also pertain for the unclarity who might be involved in a Gender-neutral denotation, which will take time and become detectable in cases of more complex processing when increases of RT are observed. Mapping a feminine noun form to an image of a group of women* should be the fastest (*Table 10*).[66]

Such an integrative processing in the time course of a trial can be exemplified as follows: upon encountering a grammatically masculine role noun, the first intuition will be male-biased (based on

66 As a side note, reaction times for fillers will take comparatively longer, because of the rich, partly distracting, context in which the information asked for must be recalled and verified as true or false.

previous work outlined in the current state of research), although grammar prescription permits both readings as possible. Now it takes time to decide for one referent image: stereotypical re-assessment takes an influence, as well as the social expectation to *not* interpret “gen”Masc. as all-male, such that people possibly integrate their knowledge that role nouns may refer to women* alike. Alternatively, in presence of mixed Gender groups and Gender-neutral expressions, it might be necessary to interpret the “gen”Masc. anew as in fact denoting males, because for generic purposes a more neutral form has become known to be offered in the experiment. Latencies of real-time antecedent search can hence be interpreted as a competition between grammatical form and use, and degree of referentiality to reality. Since it goes beyond rapid automatic Gender assignment, this would be reflected in temporal distribution of results of behavioural data, and perhaps visual re-inspection of the other images again prior to deciding. Otherwise, the referent image should be settled for visually at *RoI1* and require no more than a quick shift (in *RoI2*) to the image that will be clicked, unless the Gender and stereotypicality cues clash with the noun form. To that effect, a stereotypicality mismatch slowdown should be expected (a feminine-marked but stereotypically male role like *die Ausbilderinnen* would be slower than a feminine-marked stereotypically female role like *die Haushälterinnen*, and this in turn be faster responded to than the stereotype/marking-mismatch of *die Haushälter*). Frequency of such forms and the processing cost of integrating linguistic input with world knowledge add to the effect.

3.7.6 Other Variables

Protagonist Gender. Why one could suspect an influence of a male or female protagonist on the referents clicked on has to do with co-activation and Gender priming, just as with the context being defined as a situation occurring to a woman* – female referents may not have to be directly activated when just cued or prompted, but may have been made available by a female-directed scenario when a protagonist with a stereotypically female name and appearance was introduced, just as male protagonist images may enhance a male interpretation of referential nouns as best fit to the scenario.

Protagonist Name (included / not named). As already postulated, being named once more in the RefIDQ will lead to fewer PRO responses because agent-patient roles are clearly assigned.

Participant Gender. Against the same backdrop of likelihood with which someone identifies with a group they, too, belong to in a manner of self-identification with a Gender and the potential to feel affected or included or addressed, for instance (Gabriel & Gygax 2016), and will be explained in more detail in the report of results.

GN Nountype. The hypotheses concerning the genericity evoked by GN variants have been proposed based on research findings, morpho-semantic peculiarities, and guideline suggestions so far; the way in which the different forms to express Gender-neutrality will be comprehended is inevitably assumptive, given the lack of data. The following predictions will be put forward for the four alternative forms: in line with the stronger male bias found for singular and definite personal nouns (2.3), the collective singular is expected to be comparatively less effective in yielding a Gender-

neutral reading. On the other side, a collective singular takes a neutral article, abstracts from humanness in some examples and foregrounds a position (instead of gendered human), or emphasises the entirety of a group (instead of group membership), and in this regard may have its advantages over other generics. Nominalised terms (typically with differential Gender in singular only) will likely be accepted as Gender-neutral, that is, referential to a mixed Gender group as these examples have often been established as accepted expressions (2.1.3.2). The most obvious effect may be achieved by compounds with a notion of “person”, as these are usually feminine-marked nouns whose grammatically feminine second part element (*die Person)* has been thought to evoke more female mental representations (cf. Nübling & Kotthoff 2018: 118). Additionally, they are clearly derived from available fe-/male-specific role nouns, such that their usage highlights a Gender-inclusive intention. The same holds for nominalised participles, for which both the effect size, interpretation as Gender-indifferent and the fact that they signal non-all-male reference may be even more pronounced (the *-end* morpheme has been analysed as a marker for GNL, in fact, but see Bülow & Harnisch 2015 whose exaptation appraisal endorses this work).

3.8 Data Analysis

3.8.1 Participant Data

Substracting data sets from 6 pilot participants collected until reaching successful experimentation and 4 subjects due to equipment malfunction,[67] 27 (of 37) participants were analysed (18 of female, 6 of male, 3 of diverse Gender; age range 18-35 years, *M* = 25.74 *SD* = 4.42). They were recruited via announcement of the study on the university's platform to register for experiment slots, or via a call spread in the experimenter's sports team and peer groups (15 participants were found over the lab's participant pool, another UP student participated without being registered there, 6 members of the sports team took part, 3 came from the peer group, and another 2 were peer group, too, but sports-connected). Bachelor students enrolled at Potsdam University (n=23), were in the majority, highest level of education for most was hence "Abitur". Educational background of the other participants were a bachelor's degree and some master students (n=2), or missing. Of those that were (still) students (all but 4), number of semesters was on average 8.3, but ranged from 1 to 25 university semesters they were in. *Table 8* and app. *E1* provide the collected subejct information. All participants were native speakers of German and they all had normal or corrected to normal vision. Note that background was assessed with the prescreening done by SONA, the participant pool for *vlab* studies, and a separate researcher's questionnaire for

67 Despite splendid testing conditions in the lab, technical difficulties could not be prevented. Images, sounds and length of experiment resulted in large files to be stored, and since older files had not been deleted from the host PC, the EL hard disk suddenly encountered memory space limits. Sadly, EL only presented an error message when no new file could be openened anymore (0MB); the four files (sessions) before had been saved only partially as EL did not communicate errors during recording these but saved inbetween until space was full, and then simply continued to run the experiment. Incomplete data was later excluded from analysis, and participant number bulked up to 37 (which left 27 complete data sets.) This amounts to 37 hours of testing plus 18.5 hrs of pre- and postpreparation of sessions.

additional information (cf. *Table 9.1* and app. *C2*). Participants wearing glasses or lenses were told to do so during the experiment.

3.8.2 Preparation and Prerequisites: Variables, Data Description, and Programming Environment

The dependent variables (DV) reflect the outcome: fixations, their proportions and latency over a time course, and click responses on IAs, for which reaction times and image decision are data points per response.

Analysed as independent variables (IV) were those by which the materials were manipulated: the condition, presented images, participant Gender, trial number (meaning the chronologically ascending order of items occurred), protagonist Gender (PROGender), protagonist name (included vs. not named, PROName). *Table 9.2* shows the levels of each of these parameters.

Hours slept, handedness, and first and other languages and their proficiency level were collected as via SONA and the questionnaire, and were only checked upon to account for potentially identifiable outliers, or subjects whose eyes were hard to track (in fact identified as the ones for whom trials had to be excluded from the analysis for severe track loss). As production and comprehension of gendered language rather shows a marked difference from one generation to another, I anticipate, not in people aged 18-35 who grew into this debate, especially in academic contexts, age was not included as a predictor given this adolescent age span, neither was semester or study programme for there were not enough data points to draw conclusions from. Social background was not diversified, but could of interest in in future studies, on Gender issues in general, though, as identity politics may not have the potential to reach lower privileged citizen.

The VW study it is, this research “[is] interested in eye movements in response to the presentation of relevant linguistic information in the speech stream, which translate to temporal windows that are time-locked to particular linguistic events (e.g., a window that captures eye movements during the presentation of the [critical] word” (Salverda & Tanenhaus 2018: 102). Here, we want to compare two conditions over the extended first and second time interval, starting with the onset of the critical noun (*RoI1*) or the question word (*RoI2*):

(i) By performing a comparative analysis of the masculine and the Gender-neutral condition, I aim to tackle the issue of “opaque reference” – the problem to decide if a masculine plural noun in a text setting is interpreted as Gender-indifferent or -specific (Pettersson 2011 in Nübling & Kotthoff 2018: 113) by comparing fixation and responsive reactions to the all-male group image or the mixed Gender group image in the masculine condition (*M-male* vs *M-mixed*).

(ii) Looks and clicks to the male or mixed image in the Gender-neutral condition provide information about the extent to which a Gender-neutral form may fulfil the generic function by its Gender-indifferent meaning, depicted by a ♀♂ group image (*GN-mixed* vs *GN-male*).

Stimuli	(audio)			(visual)		
Condition	GN	vs	M	♀♂	vs	♂
Materials	“die Lehrkräfte”		"die Lehrer"	mixed		all-male
	teaching staff		$\text{teachers}_{\text{MASC}}$			

The eye-tracking and behavioural data therefore allow a comparison of the processing for masculine and Gender-neutral forms to explore the effect of noun choice on listeners' expectations about possible referents depicted. The feminine condition (*die Lehrerinnen* – “the teachers$_{FEM}$”) is not focused on for now, but reported in between to complement summary of results, and stressed whenever hypotheses were reconciled.

Prior to data analysis, the data exported was downsampled to a lower frequency from 1000Hz to 20Hz (one observation every 50 ms written to the data file output as time stamps); for scene perception this has been judged acceptable and makes computational processing (esp. on a standard personal laptop computer) manageable.

As described before, measures of movement and position, as well as numerosity and latency measures have been collected with the *EyeLink* software and associated programmes such as *ExperimentBuilder* and *DataViewer*, each installed on a Windows operational system.

R and *RStudio* were used for analysis with the respective programming language as well as necessary packages that had been installed (see app. *C4* and resources under 5. References). The open source software *R* is a well-evolved, powerful, convincing tool in its flexibility and efficiency on the one hand, and transparency ergo replicability on the other – countless tutorials and learning resources, a rich ecosystem of tools and packages are in existence, and if one encounters problems, the large user community have typically attempted to solve it, too, and offer help online. The majority of my coding to read and shape data(sets) conveniently, to manipulate data and do summary statistics, and to plot data is formulated in *tidyverse* manner (involving the packages *tidyr*, *dplyr*, and *ggplot2*). The more advanced analyses of fixation data draw from the *eyetrackingR* developers kit and one of the developer's tutorials (Dink & Ferguson 2015).

The *eyetrackingR* package offers various eye-tracking data analysis steps, so-called vignettes (subanalyses that can stand on their own), models and plots for the different subanalyses incrementally built up in a workflow with a concise yet comprehensible documentation of functions. Eye-tracking data, once in the prerequisite, compatible format (raw, where each row specifies a sample in an equally spaced unit of time), can be cleaned, subset into derivative data sets, and run through analyses as specified time or response windows, fit into several models with different predictors, plotted illustratively, modeled in distinct analyses (e.g., a growth curve analysis or onset-contingent analyses indicating switch performance), and finally can estimate divergences to ascertain timing of an effect. Unlike the data preprocessing in other parts of the analysis, where blinks and saccades during which no fixations were recorded by the eyetracker were removed, these are kept and needed to indicate track loss of trials in *eyetrackingR* (which will then be identified and removed in a separate function to continue with reliable and sufficient trial per subject data to estimate their performance, here: at least 75% of trials contributed). Analyses that aggregated over the chosen response windows report whether during trial an effect was significant. Data has been further subsetted according Gender of participants to test the hypothesis of women* being less included in “generic” masculine forms than men, and consequently performing

differently. Whenever required for substeps of analyses, the full data were re-processed, shaped and partitioned for grouped data sets, e.g., for early-, mid-, or late-occurring items or trials.

The experiment created for this thesis was a four-alternative forced choice experiment: from four presented images, one had to be chosen as a display of the referents mentioned in the context and referred to by the question. Since the essential research question at the heart of this thesis is to ascertain by the use of which noun form a generic, Gender-fair interpretation is achieved, the Gender-neutral condition (GN) is compared with the masculine condition (M); and by inference, responses to the mixed Gender group picture (IA GN) to the interest area depicting the all-male image (IA M). This approach made both a properly fit general linear mixed regression analysis possible and, crucially, made the divergence analysis of the two-alternative forced choice experiment implementable for which the *eyetrackingR* workflows were developed.

3.8.3 Analyses of Behavioural Measures: Responses and Reaction Times

Behavioural data involves two measurements that emerged as a consequence of the referent identification question of the 2nd region of interest, *RoI2*: the image (IA) that was clicked on, and the time it took. The full report of behavioural data incl. reaction times and response proportion analyses can be found in app. *Table 11* and *Tables 12* and *13.*

3.8.3.1 *Reaction Times*

In its nature of a response to the referent identification prompt of *RoI2*, reaction time was measured as the time span between question offset (indicated per item in data source the EB script relied on) and mouse-click on image (time-stamped to data file).

Mean RT per condition and IA is plotted in *E.5.4*, and a gradient of IA click proportion by condition visualised in *E.5.5*. Overall mean reaction time – throughout the experiment and regardless of variables – was 999.25ms. This paragraph will unravel to what extent RT was dependent on subjects, items, conditions (i.e., the manipulated region of interest), noun form types, time course of the experimental session, and image (interest area), cf. *Table 11*.

Means & variance per participant. The RT table and the plot in appendix *E2* illustrate the tremendous variance of reaction times across subjects: while some of them were very quick to respond to the question (smallest value of mean reaction time ~.500s), others were quite hesitant decision-makers (slowest mean RT ~ 1.470s). This confirms that on the one hand, the length of the question heard was enough to settle on a response, but on the other hand made some subjects contemplate more thoroughly. It also becomes visible that those who are slow to decide perform like this in every condition, while those fast to respond tend do so in all conditions, too.

Means and variance per item. Similarly, items evoked varied reaction times, indicating striking differences in complexity of the materials to process or recall the referent information or ease in Gender assignment to referents (app. *E3*). For some, it was overall fast to decide for a referent with small variances, others took a maximum of RT until the mouse button was pressed. Item 13 (M: *die Krankenpfleger* / F: *die Krankenpflegerinnen* / GN: *das Pflegepersonal* – “nurses”) was responded to fastest (.479s on average), item 32 (M: *die Wähler* / F: *die Wählerinnen* / GN: die

Wahlberechtigten – “voters”) consumed by far the largest time to identify a referent (1.888s), app. *E3*. Further item outlier analysis would help define contexts that prolonged or facilitated responses.

Means and variance per condition and noun type. Calculating mean reaction times per condition resulted in referents in feminine or masculine genus (F and M) being identified fastest (with feminine nouns slightly ahead) with under 1000ms. By contrast, GN nouns needed on average half a second more time to receive a referent image response (1.045s). This gives rise to the theoretical framework introduced that evident Gender cues speed up responses. Among the Gender-neutral variants, variance was comparatively large, and the nominalised participle (*die Studierenden* – “students”*, die Sachbearbeitenden* – “administrative persons”) had the highest RT – unexpectedly, since usage of them is constantly increasing and the “-*end*” morpheme has been introduced as a marker for Gender-inclusivity (Bülow & Harnisch 2015). This may be item-dependent: some words highlight their political correctness quite obviously but lack naturality of usage (e.g., *Sachbearbeitende*), whereas others (*Studierende*) are commonly used. Again, items of the GN coll.SG type (*die Beratung, die Konkurrenz* – “the competitors”) were among the slowest, whereas probably rather common GN nouns (*das Pflegepersonal* – “the caretakers”*, die Kranken* – “the patients”*)* were more quickly responded to. In the feminine condition, stereotypical mismatches of gendered human concepts appear to have infered (slowest RT received *die Rettungs-helferinnen*, *die Polizistinnen* – “the policewomen”, while RT was fast for *die Tänzerinnen* – “the dancers$_{FEM}$”). Nouns in the masculine form were sped up for *die Krankenpfleger* – “the nurses$_{MASC}$”, for example – an expression deliberately created for the inclusion of male nurses, thus cuing specific and explicit male Gender assignment. Potentially due to a time-consuming evaluation of specific or generic function, the items *die Wähler* – “the voters$_{MASC}$” and *die Kunden* – “the customers$_{MASC}$” had slower RTs, although or because these are among the most "generically" used, widespread in documents and official use, for which it is known that a clearly male-specific reading should be overcome to be Gender-indifferent. An all-male response to a GN noun form took longer to decide for.

Also noteworthy is that when analysed for only “correct” (group image, non-protagonist clicks) responses, by-condition RTs were somewhat faster, which implies that insecurity of referent choice and decision for the single protagonist option slowed participants down (app. *E4*).

Habituation and time course: latency over trial number. Preview time before the critical region was similar in any item. Since the decrease in RT is evident in all conditions, participants interpreted a noun faster as the trial number increased. Also, the later in the blocks, the less the protagonist was decided for (hence, the better the task was understood as PRO responses cluster in the beginning, when maybe the rich context was not recalled, making it too difficult to choose a referent). RT in *Table 11* documents the slower responses for the GN condition that becomes faster over time (compare early with late order), suggesting an accommodation to Gender-neutral language in the experimental procedure (and surprise only in early trials). In parallel, at the end of the 2nd block, all-male (male-specific) interpretations decline, app. *E5.6* illustrates. This observation supports the

habituation hypothesis and a learning effect. To examine changes in RT as the experiment proceeded, the two blocks were further subdivided into earlier trials in the starting phase when participants familiarise with the design (the first 29 critical items), mid-sections at the end of the first and the beginning of the second block, that is, after the break (item count 30-54 and 55-79), and finally late-occurring items at the end of the session (80-108) when everyone should have gotten used to task design and responding. While mean RT in the early phase was almost 1.200s, subjects became faster in the middle block before the break (1.109s), then reacted even quicker after they had a rest (1.052s) and responded most confident again in the final phase of the experiment (1.005s). The learning effect of how to respond, or at least an improving understanding of task requirements in the course of the session is detectable. Presumably, this decrease in click response time to IAs is a first piece of evidence for applying strategic noun referent interpretations, which take up fewer processing time cognitively. Indeed, the RT data agrees with the assumption that towards the end, fewer all-male answers were picked for a GN noun than at the start, whereas mixed image decisions were made more often. Late effects of GN indicate that a) when processing Gender specification vs. Gender abstraction, the latter is more hypothetical, and takes time to activate a gendered image of people or to think longer about the interpretation due to an ambivalent effect of Gender-neutrality, which the former immediately succeeds at, and b) that one familiarises with Gender indifference.

Means & variance per (in)accurate response; by-condition mean response times at IAs. Images depicting the all-female group were clicked fastest (.973s), which underlines the hypothesised strong *F-fem* effect of grammatical-semantic exclusivity; the all-male and mixed Gender group were reacted to within approx. 1s on average with no evident differences as yet; and responses in which the single protagonist image was chosen were of the highest RT, remarkably so with nearly 1.5s (as a check, this is in line with the difference in RT for correct vs. total responses (group vs. any image) observed above. By contrast, mean group image RT was .988s. Placing the incorrect (single protagonist IA) clicks under closer scrutiny revealed that of these comparatively slower responses, nouns in the masculine condition were apparently more acceptable for a one-person IA decision, their overlap with the singular masculine form being the highly probable cause for it (those of feminine genus had a much longer RT when the protagonist was clicked on). In these protagonist response cases, the Gender-neutral form led to increased RTs alike, however not so much in the collective singular noun type, which is tempting to be interpreted in the singular number as well.

Other Variables. Participant Gender. Further analysed variables that mediated reaction times are reported below. Firstly RT differed for participant Gender, with women* and people of diverse Gender responding quickest to the referent identification questions (.960 to .977s), and men taking on average more time to answer via clicking (1.085s). Precisely, male subjects seemed to need longer to respond to nouns in the masculine (so-called "generic"), which would add evidence to the

claim that they are forced to re-evaluate their exclusive or non-exclusive reference and decide if the meaning is specific or inclusive. The other differences of Gender and RTs are quite marginal.

Assumed purpose of the experiment and distractor. Whether the purpose of the experiment had been figured out by subjects or whether the age distractor had been successful in veiling the experimental focus on gendered language had an effect, too: the few subjects who were naïve to the purpose reacted slower to the referent identification prompt (as they likely thought more carefully about their answer) than those who had realised it (~1.2s vs. under 1s (.999s), but this difference is not as meaningful as data points from those who did not have an idea of the gendered language research interest are sparse). If distractor manipulation worked, that is, if focus was not recognised, responses took longer, and no strategy efficiently speeding up responses from early on had been applied. By implication, the subjects who had named age as an experimental focus in the debriefing questionnaire had much longer RTs – due to having to process distracting and sometimes conflicting age (and Gender) dimensions –, taking about .400s longer than the others for whom the age manipulation went unnoticed (or at least was not as central as Gender, yet the same problem with too few data points holds here).

To conclude the analysis of reaction times, despite the overall individual variance within and between subjects (the range exemplified in *Tables 15*), reaction times show patterns that had been stipulated under the expectations.

3.8.3.2 *Responses to IAs: Group Referent Image Decisions*

Now that the temporal effects of the given dependent variables (when an IA was clicked on under which circumstances) have been assessed, the proportions of clicks (what image in a condition and how often, to put it simple) on interest areas will be examined.

Accuracy. Assessing protagonist vs group interpretations yielded inaccurate responses for the former and were coded as correct for the latter. While it did take long to finally settle on the protagonist as a referent, this only happened in 2.7% of the critical trials – in 97.3%, one of the group images was correctly identified as referents. For F and M condition, numbers were similarly high (<97.5%), noun types of the GN condition did not lag behind immensely but were lowered by the collective singulars provoking assignments to the protagonist. On the evidence of the overall high accuracy, the task can thus be evaluated as well understandable and manageable (despite all challenges the processing load of items might have posed). Large proportion of PRO responses for masculine role nouns can be explained because of the overlap with specific SG form. After the break, PRO clicks declined, supporting the task familiarisation with increasing trial number (*E5.6*).

Image clicked per condition and noun type. The plotted data helps to visualise that despite clearly female-specifc feminine genus reference, the F condition yields some mixed Gender and even a few male group responses (app. *E5.2*), and some PRO button presses (like suggested before, presumably if items were too hard to answer or if unimagineable that women* could be meant as referents[68]). The M condition (“generic” masculine) did receive mixed Gender group interpretations,

68 One participant uttered an interesting objection to comprehend female-specific nouns as male-exclusive because men would be able to do a certain job, too. Such remarks of session protocols were elucidating of

but the male-specific answers were just as abundant, the distribution of which might be noun form- and stereotypicality-dependent. We see clearly in the plot attached to *E5.4* that the GN condition succeeds best in achieving an inclusive, Gender-balanced interpretation. It cannot be stated that this takes an infeasible long time, as the overwhelming majority of button clicks is between below 1 second, equal to distributions in the other conditions. From this first inspection, the masculine and GN noun response times are more scattered, i.e., took longer for some items. Inspecting the plots also visualises that the few PRO responses are mainly from masculine, some from GN condition nouns, and critically, that the all-male (IA M) response was best yielded under the masculine genus condition. However, most responses landed on the mixed Gender image, especially so for the more inclusive GN condition.

GN Nountype. Nouns in the Gender-neutral condition were of four variants, for which not only the RTs presented before but also the observed effects of behavioural data did indeed differ: the collective singular (coll.SG) stood out as having received the highest proportion of protagonist responses. Subjects must have been inclined to mistake these for PRO reference because of an in-/definite confusion fueled by [SG] number feature that can give rise to activation of a singular entity (accurate or not). The depersonalised, more abstract entities denoted by the coll.SG form thus show a PRO tendency (and else received interpretations as male-specific, see app. *E5.3*). Additionally, Nübling and Kotthoff (2018: 73) describe animacy in perceptual degrees, an anthropocentrically organised (that is, around ourselves) hierarchy from [+ to -animate], not a dichotomy. Noun forms that are more closely related to somewhat dehumanised concepts of positions and institutions (such as *das Ministerium* “the ministery”) may not be easily interpretable as groups of people after all. As with any other alternative expression, this might shift if used constantly for personal reference (and was probably better understood for *das Kollegium*).

Under which circumstances mixed Gender was favoured over all-male identifications might be driven by the explicitness of the experimental focus. The analysis went for condition-image correspondence comparisons to disentangle input-referents mappings.

Match proportions per condition (mapping F-female, M-male, GN-mixed). Because of the design’s potential to “match” one of three conditions to one of three group referent pictures (which was pushed by the direct mapping of a feminine-marked female-specific noun to the available all-female group image (*die Lehrerinnen* → all♀), I will report these condition-to-IA results, meaning the percentages with which the all-male group image was chosen by click after hearing the referent noun in the masculine condition (*M-male*: *die Lehrer* → all♂), and with which a Gender-neutral noun form yielded a mouse response of referent assignment to the mixed Gender group (*GN-mixed*: *die Lehrkräfte* → ♀♂). Likewise, “mismatch” cases of Gender-neutral variants having their referents identified as all♀ (*GN-male*), or the masculine nouns being followed by a click decision to the mixed Gender group (*M*-mixed, turning out indeed generic), will be of interest.

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how biases, even when recognised, were perceived.

F-fem reached 80.4%. Although the all-female group was the only definitely correct referent to a grammatically feminine role noun, matching these did not reach ceiling, as was initially hypothesised. For some items, the feminine condition was responded to with protagonist, all-male, or mixed Gender images despite unambiguous *-innen* as pointed out above (app. E*5.2* shows non-IA F-clicks). *GN-mixed* scored a little higher; 88.6% of responses were indeed matched to the mixed Gender group when referents should be identified that had been referred to with a Gender-neutral role noun form before. This finding strongly supports the relevance of Gender-neutral terms that introduce and subsequently enhance the recall of mixed Gender referents. Nominalisations (*die Alkoholabhängigen* “the alcohol addicts”) that did not take referent Gender away were most successful (leading to 95.2% of mixed group decision, while the other GN noun types were between 86-89%). GN nominalisations were most reliably identified as group referents, especially as mixed. If not identified as mixed, GN person compounds were a little more often interpreted as all♀ than all♂. Even more so, nominalised participles seem to act as a female-marker as the majority of non-mixed responses are all♀ decisions: a closer investigation of items revealed that *die Lehrkräfte* and *die Flugbegleitenden* were among the *GN-fem* mappings – their female stereotypicality cannot be denied, and a subparagraph below will extent this observation. The choice of all-male referents when prompted to establish reference after having been exposed to a grammatically masculine role noun, *M-male*, did not happen in more than half the cases – 40.9% of clicks matched a male-only group to a noun like *die Lehrer*. At this point, we cannot subsume that the masculine condition failed at a generic interpretation that included men and women* equally completely, neither can we claim that terms of nominal reference in the grammatically masculine were male-specific allover. On the contrary, for just roughly half of the items, this proved to be true. Yet as ‘reassuringly’ generic the masculine did not qualify, since in about 41% of responses when masculine genus was matched to the male-only IA, women* were explicitly *not* included.

Mismatch proportions per condition (mapping M-mixed or GN-male). When inspecting the mismatches, it becomes clear that both M and GN condition produce some inaccurate protagonist referent clicks (about 2-3.5%), as if some items were not "qualified" for a plural meaning, that is, as group referents, or like they had an overly strong PRO-directed content. Interestingly, the Gender-neutral versions rarely failed in the Gender-balanced mixed Gender assignment (only in 4.3% of cases the all-male image was clicked on), whereas the masculine so-called “generic” failed to be interpreted Gender-balanced by almost 41% (once again, mainly the coll.SG noun type’s fault). A generically applied referent identification (in the mixed Gender picture, in which women were not excluded) did occur in 56% in grammatically masculine noun forms. So far, the click proportions can be interpreted in line with the hypothesised GN advantage to better and consistently include women*, and also a potential shift of the masculine form to its male-specific meaning in presence of an inclusive, more readily generic term within the experimental materials (to which mixed images were assigned) cannot be ruled out.

As a fascinating side note, GN nouns were followed by an all♀ image response for 35.6% – a conceptual integration of women* the M forms enabled for no more than 0.7% of responses (essentially interpretable as both unintended clicks, errors, and/or a plain failure of the “generic” masculine to be used for females when there are occurrences of the appropriate form in general).

Progress in the experiment had an impact on the behavioural data collected as well. When attempting to not adhere to “gen”Masc. because there are more effective inclusive expressions that the experiment offers, it takes longer as it is a conscious decision against an early activation, hence shortest RT for *M-male* than *M-mixed. UpdateGN*, the emerging tendency to apply a socially (and maybe experimentally) desired Gender-inclusive interpretation of referent nouns even when presented in the masculine condition, was fortified towards late occurring trials (50.5% in early phase items, 56% in the end phase). The amount of mismatches of *GN-male* is lowered the more trials had been done, which is also true of F mismatches that received GN responses especially in very early trials. When in doubt, RT is higher, reflecting the reanalysis to a) if women are imaginable as referents, or b) reconsider if “only men” could be referents, so time to respond is longest for *GN-male.* A small effect of *RejectM* was observed in the distribution of click proportions in which, over the course of trials, responses to a Gender-neutral referent form were directed to the all-male group to a lesser degree (~6% in early presented, and ~4% in later presented items). These numbers may be correlated in terms of male-specific readings of masculines decreasing as Gender abstraction increases – this would be in disagreement of the specificity pushback in the M condition in presence of Gender-fair alternatives. Instead, masculine forms would benefit in inclusivity in such situations quite explicitly promoting equity (*M-mixed)*.

(In)accuracy for each condition: Other variables. PROName. Having the protagonist reappear in the RefIDQ could facilitate the group interpretation through agent-patient-role clarity (“Who can Petra$_{[PRO]}$ contact?” implies that the correct response of referents cannot be the protagonists themselves). If included again, it makes the choice of the protagonist as the intended referent highly unlikely, whereas not naming them renders them as referents in the scenario – though content-wise incorrect and given the number feature [PL]. However, it cannot be ruled out that co-reference of a protagonist and group role noun in a few stimulus sentences had not been effectively precluded. The plot in app. *E6* that shows zero PRO responses when name was *included* and thus named as another individual referent who is supposed to interact with the referents asked for supports this assumption clearly.

PROGender. Despite not being the focus of the experiment, there could have been an effect of Gender cues from protagonist names, which is why they were counterbalanced across items and conditions. Half of the items were introduced with a female name, the other half had male names (or titles). Influenced by the Gender of the protagonist, referent Gender could have framed the activated mental images and therefore responses. Female-named protagonists slightly increased responses to all-female images, and stereotypically male PRO names led to all-male IA responses. Interestingly, in app. *E6*, all-female responses in the mismatching M condition only occurred when

PRO name was female (a hint on priming driven by introduced Gender and one's self-identification). In the GN mismatching, a minor increase for all-female interpretations occurs: in the nomin.Part type of the GN condition, a female PROGender and female name enhanced IA F clicks. So while a female protagonist increased probabilities to identify an all-female, but also mixed Gender group as referents, a male protagonist name, however, did not show this pattern. Female names seem somewhat less compatible context for "generic" masculine referents, while male-Gender first name slightly favoured an all-male click for coll.SG, but eventually, this awaits research more ample in data points to test the influence of concepts of self and an intensified identification with one's own Gender. Because names were counterbalanced and the small differences in a few trials no more than speculative, this variable was dropped.

The results produced with a binomial *glmer* model in *Table 14* placed Target response (to mixed IA) as the DV moderated by (participant) Gender, the respective condition, the interaction of condition and Gender, and allowed for participant and item variance as well as variance across trial numbers. Interactions between Gender and M condition performance showed significant effects, Gender alone did not, but whether nouns occurred in masculine or GN forms had a main effect on whether the mixed Gender IA was clicked.

3.8.3.3 *Practice Items, Fillers and Comprehension Questions*

For the sake of completeness, I will quickly report on CQ accuracy in filler items, and how participants coped with practice trials. Practice item accuracy was very low (42.9%, strong protagonist tendency[69]). Filler item accuracy then became stable and reached 99% (of group referents identified, which underlines the ease of kinship term Gender assignment), which indicates that subjects became better acquainted with the experimental task the more items they encountered as the session continued (also emphasised by timeouts, where no response was recorded in time: 33.5% during practice, decreased to 0.3% for fillers, and none for critical items). For future replications, it is advisable to increase number of practice items and edit task instructions to clearly exemplify task requirements or to better time and embed their presentation during the practice part as this was seemingly not sufficiently intuitive. It also indicates that, in the beginning, the task is more implicit than expected, but might as well be evidence that the task demand – both establishing reference and recall and amount of information – and the group vs. protagonist referent(s) choice is quite complicated. Performance on comprehension questions on filler scenarios was slightly below at an accuracy of 91.2%. Apparently, recall of information, sustaining attention, and an additional interrogative task proved difficult at times.

3.8.4 Analysis of Eye Movements: Fixation Proportions and Divergence of Looks

In correspondence to the regions of interest outlined before, the eye-tracking analysis was divided into two parts: with the experimental design in mind, data subsets to work with were the 1st region of interest *RoI1* around the critical gendered noun form, and the consecutive question prompting the referent identification targeted at this noun of reference as the 2nd region, *RoI2*. Both will be

69 Participants' initial reluctance to choose an image and to do so wrong had been discovered by the experiment; some of them later reported to have been overwhelmed by the sudden load of input.

reported separately below, but are presented in the same subsections, in order to be comparable to reveal differences and correlations.

A first inspection of the data in app. *E16.1* and *E16.2* confirmed the *F-fem* match condition (fixations landing on the all-female group when hearing a feminine plural) once more, although the effect would have been expected to be higher as this is the only acceptable interpretation (let aside a feminine generic or induced Gender gap comprehension). The parenthesised assumption could explain why eye moments on the mixed Gender group interfere in *RoI2*, towards the second time window of identification prompt until click responses. Alternatively, mixed Gender group fixations in the F condition might indicate a male bias in the comprehension of feminine-specific referential expressions, i.e., a "double-check" if only women* are referred to, if these are the ones who could do the job or have the role (and with it, its status, but see Horvath et al. 2016 regarding feminine markings and a down-graded evaluation of income), or if maybe, a proportion of men is likely to be entailed in the noun's meaning, as well as Ehrlich & King 2005: 167 on "detrimental effects on individuals' beliefs in females' ability to perform a job, and on females' own feelings of pride, importance and power"). Remarkably, the all-female image overall had the fewest looks recorded, which sadly supports the laments that whichever form is used, women* do not have the same chance to be referred to (Hellinger 1985; consistent pronominal female under-representation has been documented by Boyce et al. 2019). To receive more visual attention might also mean that unlike the female IA, all♀ and ♀♂ images had to be checked and re-checked more than female ones, to be re-evaluated if the referent noun could really be referential, i.e., when resolving the opaque referentiality. In the past research, that is, in naming tasks in which participants were asked to explicitly list people referred to in a feminine-marked form, results were clearer in favour of an all-female interpretation, and future research should have a closer look at the comprehension of female presence in a larger context.

Apart from that, data demonstrate a wait-on-PRO-tendency, a protagonist preference, motivated by the focus on them in the introduction, and maybe by expecting some information to resolve who the story was about. Besides this protagonist bias, fixations were equally likely to a picture prior to the critical information. This is modified in the two subset time windows representing the regions of interest where obviously information in the input directed attention to other images[70]. Comparisons across conditions confirmed that subjects looked at interest areas differently, that is, according to the condition they heard in a matching attempt, so fixation distribution behaves in support of the correspondences reported. Differences emerging along trial time suggest that information was dynamically updated upon perceiving cues to depicted people and their Gender.

How much Gender-neutral expressions do their claimed expectations justice is illustrated by the rise in fixations in both regions of interest when such form is encountered – the mixed Gender

70 Nonetheless, the familiar protagonist amongst the critical group pictures was occasionally relied on when indecisive: some participants waited strategically, resting their gaze on the PRO image or mid-screen on the cursor, for relevant information or the question prompt to appear, and would only then shift gaze – thus the prominent PRO curve prior to the critical period in all conditions.

group receives most attention, the other images becoming neglected. The increase in the GN curve emerges later than in the other conditions, but in contrast to the feminine and masculine terms, the alternatives are not or less marked for Gender grammatically (for instance, *-ium* as in *Kollegium* occurs in inanimate object nouns as well, e.g., *Aquarium*, and the neutral noun *Personal* is not marked for a genus that coincides with a Gender). Thus, the information to derive Gender is not as immediately available as in fe-/male-denoting nouns of personal reference. The second time window for referent identification responses in *RoI2* indicates that this mixed Group interpretation is re-evaluated again where the curves tend upwards alternatingly before clicking, potentially in favour of the all-male image (male-biased) or a decision for all-females (potentially for stereotypically female roles). The plotted behavioural data supports an uncertainty in some cases given the distribution of responses in this condition to all three (in fact, four, since the protagonist image was occasionally opted for as well) pictures. A more detailed item analysis under the GN and M condition as has been done for behavioural and latency data shall follow up on this.

The instances in which masculine generics were presented are less straightforward: in the first time window on the critical noun itself (*RoI1*), fixations on the all-male group clearly indicate that this noun type of condition M was interpreted as referring to men, but later, fixations seem to be directed at both male and mixed Gender images evenly (aggregated over participants, it might be the case that some followed a male interpretation throughout trials while others understood these generically: participant and item variation might be veiling strategic approaches). The region of interest in which the question is asked and the referents picked out (*RoI2*) is not providing a reliable visualisation of the magnitude of effects and calls for statistical scrutiny.

To do so, a window, growth curve, and bootstrapped cluster based permutation analysis was performed on the generic depiction of Gender-balanced group referents of the respective ⚥ image IA under condition M and GN for a) *RoI1*, and b) *RoI2*.

Overall proportion of fixations prior to the responses. But before I tap into the statistical modeling of eye-tracking data, the analysis of mean fixation proportions over the predefined time windows is undertaken to yield an overview of the degree to which a picture is looked at over the respective temporal regions. Here, we focus on the referent identification question first (*Table 13*).

Starting with the condition of feminine nouns and the all-female interest area (IA F), proportion of fixations during *RoI2* – when a referent picture had to be decided for – were the highest in this correspondence (over 46%, propelled to more than 56% when the female IA was finally clicked on), with the other group images only being looked at to some 13-15%. Having to identify referents that had been referred to with a masculine role noun evoked a distinct male-specific share of male-biased fixations (to the male-only group in about 28% – even 52% in cases of an all♂ IA M decision –, while mixed Gender image IA GN was fixated in ~16% – not increased by a click response to it – and the female-only image basically discarded with fixation of not even 11%); so based on what participants attended to visually, grammatically masculine nouns did not invite to take a certain female participation into visual account, and hence did not (re-)activate female group

members necessarily before responding. In stark contrast, when nouns had been articulated in a Gender-neutral version, fixations to the balanced mixed Gender group image were over 51% (almost 56% if ultimately clicked on: *GN-mixed*), and even the women*-only group in IA F received attention to nearly 22% (*GN-fem*, doubled compared to the ratio of masculine forms under *M-fem*), which supports Gender-neutral language to be much more inclusive in that female* groups are visually considered when asked for the referents. The largest proportion of fixations are allocated to the mixed Gender image – groups that are not male-only but Gender diverse or deviant from norm Gender attract attention. But while GN nouns were almost four times more successful in generating looks to the mixed Gender referents than the allegedly “generic” M condition, the all-male group image also received over 41% of fixations under Gender-neutrally introduced referents (*GN-male*). Given the lack of grammatical Gender cues (unlike in F and M condition nouns), I suspect stereotypes and male biases to impact processing until referent decision. What stands out suspiciously is that in the feminine condition, the single protagonist picture was focused more often than in the other conditions – are participants more unsure after hearing about referents with a female-specific form, do they need reassurance if women* were really involved, and rather rely on an incorrect yet unmistakenly involved referent? Other than that, an identification of the protagonist was accompanied by 48% rate of fixations of the single person image, so an active decision for this IA to best represent the referent asked for seemed to be subject to item content (not just lack of decisiveness, i.e., in an evasive response strategy, or chance level).

A note on how the experimental design was adapted to the study the *eyetrackingR* data was based on: This thesis foregrounds the effect on referent Gender of Gender-neutral language and places emphasis on the realisation of a mixed Gender image response of attention and conscious decision. In the subsequent eye-tracking analysis, the GN condition and Gender-balanced image will be the Target acting as the “favoured” referent of the linguistic expression, and the competing (for generic function) M condition and male-only group the “Competitor”, related to the Target along the supposedly “generic” dimension.

3.8.4.1 *Eye-Tracking Analysis of Divergence I: Critical Gendered Noun:* RoI1

To recapitulate, the 1st region of interest covers data of a time window extending from 200ms before acoustic onset of the critical referent noun to the relative clause following after the noun offset, for some 3-4 seconds ("die Lehrer/ Lehrerinnen/ Lehrkräfte, die ..." *the teachers, who ...*).

For the sake of confirmation of the determined “response window” outlined in the description in the previous chapter, fixation analysis start off with a broad *window analysis*, beginning 200ms pre-word-onset, and ending at the end of the subphase of the relative clause later. This was performed on the data to justify and substantiate the proposed window choice, and to ultimately glance at the occurrences of effects during this time window of *RoI* indicated in the curves.

The time to detect a particular manipulation or violation in the auditory input is a function of when the appropriate information is computed in the course of processing the sentence. Since the exact timing of the effect of gendered nouns comprehension on visual perception was unknown, the time

window analysis is useful to visualise “at what point in time with respect to [the auditory input] (e.g., the onset of a word) a shift in the participant's visual attention occurs, as measured by a saccadic eye movement to an object or picture” (Salverda & Tanenhaus 2018: 91).

At this stage, some sanity checks were conducted along with initial visualisations, for subjects and for conditions. First of all, track loss removal left a mean number of 910.5 trials per subject (*SD*=280.5). When aggregated by subjects, the data frame returned fixation proportions to the Target image as the dependent variable. The mixed Gender image received a few more fixations (56.8%) than the all-male image during the critical noun trial subphase (49.9%; raw proportions under the target GN condition, app. *E7.1* & *E7.2*, note the large variation of subject slopes on Target fixation behaviour in app. *E8*). A simple paired t-test (Welch’s Two Sample) for area of interest between conditions on Target proportions revealed a significant difference between the two sample means, mean in group GN and M (p=0.0052, 95 percent confidence interval: 0.02 and 0.12). Some simpler models are reported to give an outlook of effects mediated by other factors: A first linear model taking (participant) Gender into consideration as an interacting factor showed large Intercept effects, a negative effect of Target under M condition (capturing the smaller likelihood to fixate IA GN when nouns were in masculine form, p<0.0056), but no effect of participant Gender on this Target difference (p<0.34). The interaction of Gender and condition M did not reach significance (p=0.081).To predict looking to the IA, the GN image, based on the condition (GN or M) of each trial, data was then aggregated by trials (not by participants), and a linear model fit (using the *lmer* function) with mixed-effects while accounting for random intercepts and slope across trials (i.e., items) and participants. The mixed effect model of subjects and items confirmed correlations and significant fixed effects of Target (p=0.037), which remained in a model to which the Gender predictor was added (p=0.032). A last linear mixed effects model that included “Order” (progress of experimental session) produced highly significant effects for order as well as the interaction of order and the Target (p<0.001), which substantiates the strategic GN fixation increases outlined under habituation and learning aspects. Part of the following *growth curve analysis* was to establish time sequences over the selected window to allow for non-linear change in the models in order to visualise the trajectory of an effect. Aggregated across items (or trials, respectively) within subjects, time sequence data is re-formatted into time bins to calculate proportion of looks to each bin (and show differences, if any, between conditions over time in a trial). The time course of attention as the observation when an effect has emerged is plotted in app. *E9.1,* with lines for raw predictions added to *E9.2* and non-linear predictions in E*9.3* – its precise onset and how long it lasts could have been detected in an onset-contingent, analysis)[71]. Ideally,

71 A re-occurring and to date intractable error message hindered this analysis from running. Despite contacting the developers and someone who had worked with the package as well, no solution could be found. For the kit, the functions that were developed use a code unique to the package.
In the subsequent step, visual reaction times would have been calculated to examine how quickly participants’ looked to the referent AOI (in this case, the IA GN, when Gender-neutral forms were named vs. when the masculines were named). The developers argue for looking preferences as well as switches from the onset of the trial (at non-target AoI, perhaps), and how quickly these switches were, based on this interpreted as participants reliably identifying the target-AoI. With the backdrop of the present experiment,

these differences should be consistent with the psycholinguistic foundations to not be visible at window onset – the curves diverge at about 1200 ms, point in time we derive at which the proportion-of-fixations curves diverge to the target, the time for an effect to occur; so in fact differences did emerge far after ~200ms into the window specified. The first linear mixed model on the first time span with time as a predictor – basically assessing bends in the curves fitted to the proportion of looks – reported Target to have a highly significant effect in this early subphase ($p<0.001$), that is, an evident immediate visual reaction to the IA. Up to this point, analyses have tested for significant effects during trial in a broadly set response window and the trajectory of this effect over the course of trial – and thereby guiding the assessment of the previously undefined effect characteristics of the experiment.

The heart of the vignettes, the analysis of *divergence* of looks in order to establish a time frame on which to run a linear mixed regression analysis, tested time bins individually upfront: before estimating the divergence of looks, the onset and duration of some predictor's effect were to be found. Here, the approach to analyse how long an effect lasts was to generate by-subject time-binned data and then perform a statistical test on each of these time-bins separately (the latter is problematic yet introduced to understand the testing procedure, i.e. controlling for family-wise error rate, or “false alarms”, in this case meaning “the probability of finding at least one divergence across conditions where none actually exists” – a problem they address with the Bonferroni correction. Another method available to adjust the alpha error rate is Holm's, which this analysis will adopt as well for the sake of comparison.) In *RoI1*, fixations during the critical noun input, two positive runs on significant time bins could be reported, one from 1400-1500ms and another one from 1600-2100ms (the third run prior to noun onset was excluded for this effect cannot be attributed to the critical word, app. *E10.1*). Controlling their alpha-values (and type I error rates: not detecting effects when they are present) using the Bonferroni or Holm correction, none of the time bins were significant, however (*E10.2*). Dink and Ferguson (2015) lament a similar encountering to the corrections being overly conservative. What followed was hence a *bootstrapped smooth divergence analysis* on splines, which again showed significant positive runs in the 1400-2200ms time span and late 4800-5100ms, and a negative run from 3700-4200ms (*E10.3*), but Bonferroni-corrected, significance vanished (*E10.4;* the downside of “multiple testing using corrections is that it severely limits power”, the developers admit). This thesis’ ultimate aim was to run a *cluster-based permutation analysis*. Prior to this step, the analysis looked for initial clusters (and found more or less the same as reported for the *bootstrapped smooth divergence analysis* above, with an additional positive run from 1600ms to 2100ms (*E10.5*). Just the cluster probability (with which we would expect this cluster in the normal distribution) in the third positive run, 1600-2100ms, was as low as 0.06 (while the others were very probable under the null, too, therefore not unequivocally supporting the alternative hypothesis, see *E10.6*). *Cluster-based analysis*, the virtue of which is the

having four images presented but removed two of them to fit the analysis and models, switches from one image to another while ignoring switches from other images to the target image might not have been fully informative and interpretable anyway.

"compromise" between the alerting false-alarm rate and retained sensitivity, started off with the statistical significance of the effect tested at each time bin. Now quantified, all bins could be grouped together by adjacency into clusters (cluster statistics), followed by iterations that can best be described as shuffling-test-then-cluster, yielding time-clusters[72]. The comparison of the distribution of the obtained summed-statistics with the cluster statistics obtained before, a p-value is calculated (for data more extreme than the data in the cluster). Clusters in which looks diverged were modeled for 2000-2200ms away from the GN Target under the M condition (and additionally to the Target for 5200-5400ms when Order was a predictor, *E10.7*). Finally, it was tested whether subjects had a "baseline preference" for the mixed Gender image, especially as they may have learned to respond in a non-sexist, inclusive and fair fashion to questions of group constellations. Including the continuous predictor into a known model may produce false alarms and perhaps misleading significance. Cluster analysis aided to interpret what appears to be significant divergence effects in overall probability of not only such observation but its cluster under the null distribution. It identified the timing and occurrence of fixation to the Target, an effect of Gender-neutrality in this experiment that was unknown from research literature, which is the reason this reaction time is accepted as the time it takes to generate fixations to the Target under the current item design. In such a data-driven analysis, a temporal window has now been defined on which a regression analysis can be performed. Of course, a data subset of a specific time could be set according to theoretical considerations alone, but in a study for which neither effect size nor timing could be reliably predefined given the lack of research data, and for which thus the time window that had been assumed from critical noun onset until embedded relative clause referring to the noun finished was quite large, the extensive pre-analysis is a statistically transparent, principled way of establishing the timing of an effect for generic noun comprehension. I continued with the general mixed linear regression model of mixed effects (using *glmer*) and the given predictors in this time window. In *RoI1*, the clustered effects towards the end might have been spuriously significant time-bins after all. To reinspect the early effects for subjects, an ANOVA of participant and Target (GN) modeled a significant effect of Target ($p=0.019$). The item effect, again, was barely significant ($p=0.051$), whereas including order as a model term produced a main effect ($p=0.0051$). An ANOVA model comparison with vs. without this factor supported the model for Target, Participant, and Order ($p=0.023$). Time-binned data for Target proportion was fit into a linear model and showed main effects for time course ($p=0.044$), non-Target, and their interaction ($p<0.001$), see *Table 15.*

3.8.4.2 *Eye-Tracking Analysis of Divergence II: Referent Identification Question:* RoI2

Within the 2nd region of interest, data was extracted from a time window from the starting point of the referent identification question to the mouse response (*Wer...? / Zu wem/ An wen…?* "Who…?"

72 If data were indeed random, the shuffled data reports clusters that should be expected by chance, like when there were no effect (H_0).

/ “For/ to whom…?”). Hence, this “response window” began with the question onset, after the end of the context, and lasted until the offset of the question before click responses were accepted.

Because the response window during the referent question waited for the mouse click, time of *RoI2* was longer, and about 1249 trials per subject (*SD* = 224) were left when cleaned for track loss. Condition means for GN and M calculated for the subject-aggregated was profoundly different: 75% landed on the mixed Gender image and 57% on the all-male one (raw proportions again, app. *E11*, subject slopes and means once again provided in *E12*). The two sample t-test (Welch’s) of these means in both groups provided a very significant p-value (<0.001, 95 percent confidence interval: .11 and .25). The plots in *E13.1-4* illustrates the tremendous increase in mixed Gender (Target) IA looks in the GN in contrast to the M condition. Trial end, when an image had to be clicked, displays huge variation – consequently a subset of data covering the time the RefIDQ was asked but cutting off the fixations during the click response time was used to continue analyses. The first linear model showed main effects for M condition again (and Intercepts, but not for interaction and other predictors). The *growth curve* model for time sequences was highly significant for Target and its interaction with the first early sequence in the window (p<0.001), indicating early effects for this region of interest as well. The individual analysis of time bins for significant runs initial to the divergence vignette provided one positive run from 1500-4600ms, which would span nearly the entire *RoI2* (*E14.1*), shortened to 1700-4000ms phase that withstood the Bonferroni and Holm’s correction (*E14.2)*. Boots splines of the *smoothed divergence* have statistical tests operated over a less noisy version (i.e., eye-tracking data is supposedly full of variations, and therefore may report effects that are not present in some time bins, while they are in others), which involves repeated resampling to generate the distribution and obtain the confidence intervals (at the conventional alpha=.05), producing smoothed curves that “helps remove minor deviations that might disrupt” a divergent period of time points for conditions (Dink & Ferguson 2015). A list of divergences for which p <0.5 identifies when plotted divergence(s) in looking across the compared conditions. They showed a similar run of significant time bins from 1300-4800ms (Bonferroni-corrected 1500-4500ms; app. *E14.3* & *E14.4*). Sensitivity of the model regarding type I-errors and the manual correction needed are addressed by the *bootstrapped cluster-based permutation analysis*. To pursue the *cluster*-directed steps, initial clusters in *RoI2* were found in three positive runs from 200-300ms (in fact right upon hearing the question word at the onset, e.g., “Who…?”), 1500-4500ms, and 4800-4900ms – the second, mid-phase cluster being highly probable to not occur under the null distribution and sustained under Bonferroni (1400-4800ms) and Holm (1600-4600ms) corrective analyses (app. *E14.5* & *E14.6*). The negative divergence in *E14.7* reveals the significance across the later time span of the RefIDQ to look away from the GN Target under the M conditon. Further test types of linear models with added predictors (like order, as the statistical techniques may include continuous predictors and several covariates in the model being tested) analysed subclusters (3600-3700ms), but had a large probability to also

emerge under the null. In *RoI2*, the late effects clustered are likely to be related to hesitancy and rethinking the “correct” viz. appropriate mouse-click decision.

3.8.5 Comparative Analyses of Variables: Causalities, Comparisons, and Interactions

Once the temporal windows in my time course of interest regions had been estimated, fixations in *RoI1* were compared in a generalised linear regression model (using the *glmer* function in *R*). The model worked with a subset of data on the time span the above-described analysis had identified as crucial, and its structure had fixations on Target image (mixed) as the dependent variable, participant Gender, the number of trials (amount of items heard and seen), and the interaction of Gender and fixation behaviour as predictor variables. To fit the model, raw by-sample data was used again (not the cleaned fixation version). Output results did not reach significance on the defined time bins, although effects of Target, Time, and Interactions did (*Table 15*). These findings are contrary to the significant effects the more sophisticated *cluster-based permutation analysis* had modeled. At this point, a standardly fit generalised mixed linear regression model was found to not be sensitive enough, and it is deemed recommendable to follow a data-driven approach that models the data impartially and under different predictors, controlling for time and noise in the ET data in an informative and statistically advanced way.

Un-/Conscious Responses. Subjects were not willing to accept male-only readings but to defy the acquired convention, and vindicate the notion that women* could just be able to do the job. This counter-stereotypical thinking would be a conscious one. A subsequent analysis of first fixations versus later eye movements to IAs contrasted with the mouse click decision and prior fixation proportion would be informative as to whether early fixations mismatch the gaze towards subjects’ reaction. Although mouse responses to a Referent Identification Question are the result of visual association during referent naming, quick reactions most definitely withstand a cognitive re-analysis. Reaction Times reported earlier underline that *M-male* was faster than *M-mixed* and indicate that there might be an impact of unconscious automatic and more controlled conscious processes to resolve the formal overlap and semantic competition.

The statistical comparison of fixations and click (both of *RoI1* vs *RoI2* as well as within *RoI2* fixations and the subsequent response) under consideration of response times would have stretched the limits of this project.

Participant Gender Effect. The supposition of subject Gender as a predictor of referent Gender interpretation via self-identification draws from Gender biases effects, which Klein (1988, 2004), Heise (2000, 2003), and Braun et al. (1998, 2007), among others, reported: female participants tended to score higher in female specification than males, associated more women on average than the male subjects did, named more female referents for pair forms than for other types of reference, unlike men (cf. Nübling & Kotthoff 2018: 99). Apparently, being female ourselves appeals to a representation of femininity which in turn facilitates female-specific reference – a connection between a linguistic form, one’s own Gender, and some “Gender-centric” reflection in

these (also commented on by (Nissen 2013: 112). Similarly, the male concept of self might effectuate a pronounced masculine-specific interpretation of role nouns, but requires more data of participants of all Genders. The Gender similarity hypothesis challenges a priori ascription of certain characteristics to one Gender: contrary to the anthropological studies that almost presuppose gendered brains, a fundamentally different “female” or “male” way of processing does not have to be assumed (in De Backer and De Cuypere (2012), Gender turned out to be irrelevant for the effects). However, being differently affected by stereotypes and thereby affecting cognitive networks of association must be represented in a model of Gender processing.

3.8.6 Exploratory Analyses

3.8.6.1 *Participant Acquisition Revisited: Peer Groups*

An intuitive analysis was carried out to factor in that some of the participants were not acquired via the registration pool but actually peer group of the experimenter. Effects of so-called *snowball sampling* (collecting participants via in-group members; a useful method to get hold of populations that may not be present in academia and its orbit) have been shown to influence results (Podesva & Sharma 2014). Besides variation of reaction times, some subjects, whose response behaviour I observed, indeed refused to accept a masculine form as denoting anything else but males, i.e., only chose inclusive alternatives to denote inclusive groups. Strikingly, Gender-sensitive subjects who are well aware of the topic and issues were fastest to respond, which might imply they have a strong tendency towards their interpretations to be applied strictly and consistently – a time-saving direct mapping. It overlaps with a group of females and diverse people who were faster in general. Moreover, diverse subjects did not encounter problems with Gender-neutral nouns as RT on this condition was faster than for fe-/male participants, which might be because they are well accustomed to using these, too, to refer to themselves. (Still, coll.SG types were the most troubling for anyone.) But taken together, separately plotted data for each participant grouping were not outstandingly different, and no further analysis was pursued. In general, this should not be disregarded too easily: a) a personal acquainted subject may behave differently, and b) those who engage in critical discourse on Gender and discriminatory effects of language possess the respective sensitivity and attitudes. Kotthoff (referenced in Nübling & Kotthoff 2018: 219, 221) interprets gendered language strategies as an “emblem of group membership” by which the belonging to an in-group of (self-proclaimed) superior language sensitivity works as practical group indexes, such that some identities may feel more represented. The reference established may rather be to a discourse community among participants dealing with heteronormativity, hence Gender-fair language, frequently and critically than to the linguistic phenomenon under research.

3.8.6.2 *Stereotypicality and Prestige*

In their societal entanglement, nouns for occupations or roles have a meaning component that world knowledge feeds: the real (or perceived) proportion of men and women* who take this function or role and this way, Gender-specific stereotypes are fueled. Contextual effects when processing personal reference was found to be sometimes more, other times less Gender-oriented

(Rothmund & Scheele 2004; Braun et al. 1998; Bülow & Jakob 2017; also controlled for by Kusterle (2011), referenced in Nübling & Kotthoff 2018: 111, and by using “fe-/male” as attributes in Heise (2003), Nübling & Kotthoff 2018: 99). The work that factored in stereotypicality of nouns based on an additional norming study to be used for a test battery on plural role nouns in a number of languages by Gygax et al. 2008 integrated the rating of the materials. Of the 48 noun forms I used, 28 were listed in the normed Gender-stereotypical lexemes that preceded the studies just mentioned (Misersky et al. 2014, nouns had been rated on a scale the extent to which groups are realistically made up of men or women*, app. *Table 7*). By reason of capacity limits of this master thesis project, an investigation of stereotypicality effects as unconscious biases towards gendered referents can only be touched upon. Mid-stereotypicality rated (balanced) items took the longest RT, whereas the extremes of high (stereotypically female) and low (stereotypically male) values were among the shorter RTs. Stereotype cues to Gender facilitate faster referent decisions, and the evaluation of female inclusivity seemingly needs enhanced cognitive control. The interpretation of referents is predictive, and what research should delve into is that the outcomes reflect a Gender mis-/match paradigm (in which potential referent stereotypicality is manipulated as an experimental diagnostic for referent Gender assignment), here adapted to gendered group identification that when contradicting expectations causes processing difficulty. Item outliers support this claim, but in lack of a proper, large-scale stereotypicality rating analysis, it calls for closer scrutiny. To provide selected excerpts, only male participants voted for the GN term *der Rettungsdienst* to be all-male (under time-consuming contemplations). Mismatches were identified as stereotypical ones of conceptual Gender: an M condition noun *die Flugbegleiter* – “steward” was identified as all-female, but a female-specific F marked noun *die Abteilungsleiterinnen* – “heads of department$_{FEM}$” had been assigned to the all-male group, for instance. The labels give an idea of how the more prestigious professions (of leadership and status-higher positions) are more often identified as all♂, yet there are several lower status or arts- and humanities-related roles that were consistently interpreted as mixed referents, although having been presented in masculine form (*die Künstler*, *die Musiker* – “the artists”, “the musicians” – in spite of their supposedly equal genderisation according to the ratings of 0.5, see *Table 7*). What is even more fascinating is that these insights are in agreement with the findings reported by De Backer and De Cuypere (2012): masculine terms for occupations (*die Polizisten* – “the police(men)”) were to a much greater extent interpreted as male than role nouns (*die Zuhörer* – “the listeners$_{MASC}$”, *die Kunden* – “the customers$_{MASC}$”[73]), in other words, the impact of real-world workplace circumstances and men’s position therein. Still, the degree to which males and females can be associated equally with a particular expression depends on additional context clues[74]. Scientifically, the plotted correlations

73 Klein (1988, 2004, referenced ibid.) suspected some stimulus materials to shift in a female-specific direction in a stereotypically female context (“Tante-Emma-Laden”) – and perhaps because it is women* who most frequently do the shopping there and are customers.

74 Stereotypical noun information is not detached from other social domains, or more precisely, from the socio-economic effect it has in a climate of female inferiority. Income and prestige of jobs, and how those scoring low are distributed within a class perspective, should likewise be taken into consideration. Feminisation, Pusch (in Hellinger 1985: 24) recognises, is here tantamount to declassification, a downgrading of acitivities

of stereotypicality rating value against their response proportions in either GN or M condition and reaction times, respectively, illustrated for each participant Gender (app. *E15.1* and *15.2* in a more detailed fashion), can merely make a foray for future endeavours. Assumably, this would challenge Gygax et al.'s (2008: 478) findings: in their "German-speaking samples, stereotypicality had no effect in the representation", and linguistics cues were most pivotal.

3.8.6.3 *Individual Differences: Outliers Among Subjects and Items*

Given the observation that subject slopes were of major difference and item outliers overly present in this experiment, these individual differences reported may not be as aggravating in a larger sample. It was decided to not remove them, because all too often eliminated outliers clear away the information they carry, i.e., complexity of particular items, actually true participant variation on this phenomenon, unveiling a large impact of personal preference and attitude, etc.

or occupations (cf. "Hausherr" vs. "Hausfrau", "Sekretär" – not the furniture it is nowadays also associated with – vs "Sekretärin"). An expedited use of the feminine as a counter-strategy to male-biased terminology may hence lead to the interpretation of feminine-marked nouns as having a lower "rank" (ibid.: 7) at first. The merits of this work prevented to delve into this with the author's actual devotion.

4. The Comprehension of Genus and Gender: Closing Remarks

Gender and language affect subdomains of linguistic and social layers of cognition and behaviour – an innovative way of conducting research is requested for the interactions of genus features and generic meanings for personal reference. Eye-tracking in a simple visual world setting has been shown to be a hugely informative method to immerse into the comprehension process of Gender-neutral and masculine forms in German. Presenting the visual system with the phenomenon of gendered language has illustrated how it interacts with attention, cognition, and behaviour and on top of that, implicit biases, stereotypes and social expectations. Research questions were framed by the reliability of grammatically masculine role nouns and the capability of Gender-neutral alternatives to yield a generic interpretation. The experimental design was able to offer answers to both and found an asymmetric behaviour of the pseudo-generic masculine to always establish reference to male representatives, but only selectively to female ones as part of a mixed group. Women* are under-represented when a group of people is referred to with masculine nominal expressions, that is, when input complies with the rule to use masculine terms of personal reference generically. Alternative expressions that achieved a more balanced representation should be conventionalised, and linguistic Gender-neutrality has been convincing to bring about conceptual Gender-neutrality.

4.1 Results

4.1.1 Generic functionality of Masculine vs. Gender-Neutral Nominal Personal Reference

Generic Adequacy: on Generic Interpretation in Gender-Neutral vs Masculine Forms. Both fixations and behavioural decisions were collected for the mixed Gender image; and the cognitive impact of a referent noun form the primary function of which is the inclusion of all Genders, known or unknown, even led to an increased response to the female image and women*'s representation as compared to the masculine condition. This result supports the signal effect suspected for Gender-sensitive language (i.e., on the basis of the “-end” marker in nominalised participles). The hypothesis that Gender-neutral forms fare better to evoke both a Gender-balanced representation and a mixed Gender group assignment to Gender-neutral reference can be justifiably accepted – just like the slight stereotypicality biases it suffers from[75].

Conclusively, the GN forms scored highest with respect to mixed Gender responses, and did ensure a Gender-fair comprehension with seldom exceptions to male *or* female interpretations. What this study could partly justify is a male bias holding for some instances of Gender-neutral forms as well. At the same time, this bias is countered by a small female bias (*GN-fem* mappings) that occasionally rendered a female-specific reference much more possible than nouns in the pseudo-generic masculine. A comparison of the Gender-neutral and masculine forms not only reveals that the mixed interpretation is higher for the GN form, but also that the male bias of male-

75 The male bias is not as strong as Nissen found in the surveys on Spanish, however, where there was considerable similarity between the interpretation of GN and masculine form (Nissen 2013: 109).

specific reference is lower. Therefore, the GN variants strive to create a more inclusive reading than the allegedly generic masculine.

The experiment has illustrated that a noun of masculine genus is automatically connected to a male image at first (indicated by a slightly higher fixation rate, though), and is assigned a Gender-balanced interpretation only half of the time for critical items in the masculine condition, which confirms that so-called “generic” masculines function as very poor candidates for generic reference to humans. In fact, these forms turned out to be as selective as psycho- and sociolinguists have demystified them. To validate the generic “intention”, in the present design it needed a clarification question to yield Gender-indifferent interpretations at least in half of the masculine nouns.

M specificity and exclusivity. In principle, the behavioural response findings dismiss the accredited male exlusivity for the “gen”Masc. of previous studies, much to the bliss of “masculinguist” representatives who usually never lose an opportunity to attribute a Gender-indifferent meaning to the masculine form. The masculine-induced specificity *increase* is rejected in its hypothesised extend insofar this mechanism did not operate on all of the M condition role nouns. However, the task and learning (to overcome stereotypical concepts) may encourage to counter this strategy by generic mixed Gender responses as participants aim not to exclude women*. Still, in presence of a matching strategy and alternatives, the masculine often received a specific interpretation, especially visible in early fixations reflecting an initial activation. The male biases confirms that using a masculine form under a generic intention is no more than an agreement, a convention (solely agreed on and tacitly approved) that undermines a female presence. Due to their homophony with the Gender-specific masculine, they have been shown to be at risk to be interpreted as male (yet again, in agreement with earlier research). When contrasted with GN variants, the masculine shifted into a specific meaning to men only in almost half the instances, without a surface change of the noun form. It can be concluded that without female indices in grammar or representations, their ambiguous denotation (here indicated by fixations and decisions) of always male, sometimes other human beings ultimately favours male referents, which guarantees them overproportional inclusion[76] (this finding can be lined up with Stahlberg & Sczesny’s 2001 review). Following Nissen’s (2013) definition of Gender-neutrality, “gen”Masc. do not have a 50/50 ratio of fixations or clicks on the male and female group (mathematical Gender-equal distribution, with specific reference to men *or* women*, unlikely under the shown display that offered a mixed Gender group for such references), yet neither a convincingly large percentage of fixations or clicks on the mixed Gender group (logical Gender-neutral definition).

In how far it may have pushed the masculine form to be even less female-inclusive in the context of an alternative formulation has been found by “Gygax and Gabriel (2008) […] for [French] role names that a job description using only masculine forms will generally be considered less suitable

76 “For male recipients, this might not even be remarkable, because their reference is ensured in both cases – a respective stabilisation of the masculine-male/men-correspondence has been compared to a “lottery” in which men cannot lose by Pusch (1984, referenced in Nübling & Kotthoff 2018): the male representatives are always entailed as referents, whereas the female ones cannot be sure.

for women, but even more so if other job advertisements make explicit references to both women and men" (Nissen 2013: 114). By presenting alternatives, an explicit task design adduced in the experiment, the possibility to allow for re-analysis both during a longer trial time and a referent identification prompt revealed that socio-political awareness of language use has an influence on the comprehension of "traditional" masculine "generics" and GN generics insofar that the referential range of personal masculines has been comparably narrow for male-specific reference over the session as more inclusive alternatives evolved in efficacy (and maybe over time as well, as female visibility and Gender-fair language usage is increasing). Similarly, Bußmann and Hellinger (2003: 167) speculate "that German personal masculines will continue to lose more of their generic potential in the future" as usage and acceptance of more inclusive forms increases. The straightforward mapping and shift to male exclusivity of masculines has been contradicted, though.

Habituation, Strategy, and Time Course: UpdateGN and RejectM. The study design had participants granted, rather explicitly, to choose between options, and the pictures presented invite the inclusion of women* as socially desired. Participants are very likely to know about the masculine forms' flaws, and strategically circumvent it in their responses. Their eye movements, however, tell a different story. Only later – as the scenarios unfolds and reanalyses consume the available time until the question for identification is asked (up to 10s to contemplate) – are mixed groups fixated; and the clicked image is not always what has been fixated during the critical period. This speaks for a strategic reprocessing of the pseudo-generic masculine in presence of an awareness for Gender equal representation. The male-specific proportions – early fixations later potentially resolved yet only "updated" to Gender-balanced responses half the cases – underline a default MAN-interpretation, that is, tending to men as referents (or at least included in any reference) unless explicitly proven otherwise (for instance through a female-exclusive form or a Gender-neutrality marker like *-end*). When taking the slower reaction times of GN expressions into account, the lack of Gender (and animacy) indices of genera in personal nouns we are accustomed to may correspond to both the reliance on conceptual information towards reference and a surprisal effect that effectively considers a fair Gender constellation: "perhaps it is precisely their awkwardness which in fact draws the reader's or hearer's attention to women" (Mills 2010: 156). Whenever Gender was not salient, it can be assumed, critical nouns were not as rapidly categorised as fe-/male referents, and subjects were not as alerted. The integration of Gender-neutral referent information supports this assumption of grades of saliency. This came at a small increase in processing cost as indicated by reaction times. Politeness, Stefanowitsch (2011 in Nübling & Kotthoff 2018: 121) adds, may entail higher costs, yet this should not keep us from showing gestures of respect. Alternatively, surprisal has an effect on our memory, and unexpected input could have been met with more attentive processing.

4.1.2 Female Presence

A stable finding of the feminine condition is that female presence is best achieved by explicit reference to female-specific nouns, which makes it justifiable to conclude that the explicit

mentioning of women* “by using of linguistic forms that unmistakably refer to [them] facilitate speakers’ mental representations of them. In other words, in order for women* to become more visible, “people should be reminded of their existence by means of unambiguous linguistic markers” (Nissen 2013: 113). A pronounced definition of females (and not, in general, an utterance or sentence) could lead to surprisal and a very augmented interpretation favouring female referents when recipients are being pointed to the exceptional, simply because of the “ideological enterprise” that males are not defined “to anything like the same extent” (Mills 2005: 77). The fact that “feminines only denote females” implies that when used for reference, they “are therefore always sexualized [...]” (Bußmann & Hellinger 2003: 161)[77]. Female-specific feminines were partly challenged by responses on mixed Gender groups and can be explained by the male dominance these forms carry conceptually. In sum, these forms show an indisputable exclusivity to women*; their markedness led to the finding that a group of people was imagined as non-female unless it was mentioned otherwise. Not using feminine terms has thus been considered as contributing to female invisibility. To be precise, this holds for an all-female reference; but female participation can cognitively be enhanced with Gender-neutral terms.

4.1.3 Variables and Factors

Stereotypicality. Despite only investigated cursory, the stereotypes attached to a noun of personal reference shaped its ability by which it does or does not include different Genders in a group. Even plural forms that do not have a Gender-specific genus marking, i.e., those of a GN meaning, turned out to be Gender-marked (also noted by Nübling & Kotthoff 2018: 95). “Incidentally, these features of Linguistic Gender and the ways in which they reflect societal stereotypes and ingrained attitudes to male and female practices fully debunk the myth of gender as a 'useless' decoration in a language” (Aikhenvald 2018: 207). Nouns of a lower stereotypically male rating “lowered” the barrier between women* and men. The very few Gender-neutral forms for which there was a norming value available were affected by stereotypical views as well and for now, do not allow a conclusion to what extent forms that abstract from Gender challenge stereotypical notions. Apparently, the way we speak about and refer to is “determined by the dominant culture's social values and attitudes”, and when changing the “terms initially introduced to be non-sexist and neutral may lose their neutrality in the ‘mouths’ of a sexist speech community and/or culture” (Ehrlich & King 2005: 164-5). Regarding prestige, results suggest an influence of status or income, especially in consideration of men’s roles and positions in the workplace. However, asking students to respond to the most probable referent could touch upon their lesser identification with higher-status jobs in their current stage of life, irrespective of Gender (Schröter et al. 2012: 371-2).

Participant Gender. Whenever subsets of (male, female, diverse) Gender were analysed, differences were apparent, and an investigation of gendered language comprehension must heed the influence of one’s own Gender into gendered representations.

77 In sign language, “worker” would be expressed with the verb *work* and a sign that means *“doer”* to derive the nominal role. For women* who work, signs consist of *work* again and *“doer”* plus the sign for *masturbate.*

In addition, other factors could be affecting choice or interpretation of referring expressions, such as frequency of lexemes, their uniqueness or familiarity that altogether may impact the search process for a word's meaning and moderate early stages of effects, contextual factors on a text level, working memory capacity given the complexity of item constructions, similarity-based interference, to name but a few.

4.1.4 Analysis

This thesis offered one new way to collect data on the phenomenon, but is far from an exhaustive analysis of data using eye-tracking research. VW eye-movement data can be analysed with a range of statistical analyses, and the type of eye-tracking analysis procedure to detect growth curves, divergences, and clusters in a response time window proved to be an illuminating approach to exploit an under-researched method for a phenomenon.

At this point, we pause for a realistic retrospective: the endeavour was ambitious indeed, and more often than not, time was not on the author's side. The acquisition of a complex methodology, techniques to execute the experiment consumed one share of resources, own stimuli materials a whole other, and a testing phase dependent on semester periods and willing participants yet another. There was no proceeding without a prior step completed, and there was no time frame for failures in data collection, which I have learned are a pivotal part in rookie research. Data analysis of a sometimes capricious data set regrettably suffered from the overstretching of what could be accomplished in a predefined amount of time with statistical knowledge that is awaits to be expanded. It does however attempt to level with the ambition put into this thesis. When a technique "continuously monitor[s] mental processes as they unfold in real time, [...] information-rich and dense datasets" are produced (de Groot & Hagoort 2018: xvi), and for sure there is much more to discover in the collected data than was extracted for the present analysis. This experiment had a huge data set in stock, so to speak, that has only received the blink of an eye.

4.2 Limitations or: Chances for Future Work

"I have tried to capture some of the dynamics of how the expression of multifaceted Gender reflects the world of perception, cognition, and social change. As Bolinger (1991: 319) puts it, 'no matter how wide the net is cast, a fish or two always escapes'. There will always be room for upcoming enthusiasts to cast their nets wider." Aikhenvald (2018: 10)

4.2.1 Participants and Sample

Given their age and educational background, participants' relations to the denotations may be personally relevant as all of them were of had been students themselves (contexts and referential expressions like *Studierende* or *Prüfungskommission* may be more frequent and familiar to them, cf. Schröter et al. 2012: 372). Yet, a small, predominantly White, young, and academic participant pool (moreover, of psychology and linguistics students) cannot allow conclusions beyond the well-educated spectrum, in which a discourse on gendered language has proceeded insofar that the male privilege is well known. For obvious reasons, this is common practice (and does not differ from the informants of most other studies), and a weakness that comes at the price of ecological

validity: data is valid for the group of respondents of university students; neither the campus nor the lab is frequented by the broader population. It can be presupposed that none of them has missed the controversy, and adolescent speakers can hardly fail to know contemporary evaluations of Gender-fair objectives. There is considerable reason to believe that based on the political attitude student and peer group participants reported, I have tested a proportional less sexist subgroup (Ehrlich & King 2005: 178), “especially as students may be more progressive in their attitudes and are subject to greater linguistic innovations” (Nissen 2013: 112).. Although they may therefore have been more open to Gender-sensitive language and may have been sceptical towards the “gen”Masc., they have not been free of male biases and the impact of stereotypical resonances on comprehension of roles and occupations: “[…] the vast majority […] were unintentionally sexist, using language which they assumed was appropriate to the particular context” (Mills 2010: 80). Sexism is not be characterised as simply a matter of individual intention but a structural power imbalance. Moreover, gendered language acceptance can be “depending on extra-linguistic factors such as tradition, prescription or speaker attitude” (Hellinger & Bußmann 2003: 13), which has not been controlled for. Applying an inherent sexism scale, an estimation of positive or negative attitude towards pursued equity and a measure of (dis)preferences of Gender-fair language may be a next step to count this factor of individual difference in. Results from this work cannot necessarily be generalised to reflect attitudes of the entire population, and future studies should try to manage to include a more varied participant group regarding age, ethnicity, and education (demonstrated by Klein 1988 or Oelkers 1996, see Nübling & Kotthoff 2018: 119). Yet, although VW studies are versatile, they require people to get to a lab and computer, and have the technological components set up by an experimenter. In order to obtain reliable data, strict control over variables need to be secured, usually under settings “that are impoverished substitutes of the real phenomena under study, the latter being stripped of many of their essentials, including the context in which they take place” (de Groot & Hagoort 2018: xix).

4.2.2 Design, Task, and Materials

Design. What this thesis set out for was to fill the methodological gap of visual world studies on Gender-fair language in German, a gap that is understandable now that effort and diligence of thinking of a proper design has been experienced. With respect to its complexity and explicitness, future work should take it from there and improve drawbacks of participant anonymity and homogeneity, their social pressure or expectations of political correctness interacting with subjects’ intuition.

The question asking for identification of referents was quite transparent to them, and while three practice trials may not have been enough to familiarise with the task, these already hinted at a Gender assignment based on the stimulus pictures and definitional and lexical Gender nouns presented. In spite of this, the fixation data highlights why an identification question additional to the encounter of the role or occupation was insightful: Attention allocated to the IA or not early in the first time window is more informative of a rapid referent activation and rapid Gender

assignment (on trials on which it was not already fixated, i.e., it was shifted, investigating the likelihood of making fixations to an image over the other), and although the implicit measure of subconscious reference had a much smaller effect than the explicit question to establish reference in second time window fixations, the question prompt was the measure to reveal memory effects and re-analysis processes.

Gender-neutrality was mostly absent from the referenced research on German. This experimental approach has shown that this is unfounded: it is easily implementable into a task designed to investigate gendered language comprehension (especially when making use of different noun form types), and it identified the advantage to be Gender-inclusive. In its variation of gendered language forms, it resembles the current state of how such forms are employed[78], and contributes to a valid account of Gender cue processing underlying fixations and reactions. A laboratory-based paradigm must be met with cautiousness in terms of its extension to more natural settings (Tatler 2014: 26) – the inconsistent usage of gendered language and consequently an interference with who it may refer to and include is a situation we often encounter.

Materials. Stereotypical depiction. Naturally, expressions for personal roles and occupations entail an identifying, a personifying component. As such, images of faces of humans that "force the respondents to think of concrete individual persons" (Nissen 2013: 103) are not too successful in abstracting from Gender. The difficulty this evokes has been noticed in the process of creating the experiment: people urge to assign a Gender to other people in what seems like an automatic association of one of the most salient features, influenced by stereotypes that are activated just as fast and not suppressable. The notorious problem to imagine or depict a "genderless" people can be observed in pictograms and traffic signs that either adhere to an emphasised stereotypical depiction, or that try use figures without clearly identifiable signs of Gender – which are read as male, experimental psychology has shown (Nübling & Kotthoff 2018: 93f, with reference to Heinz 1993: 28). The images of Gender, what "women*" and "men" look like, even when displayed in a mixed Gender group that has a larger inclusive potential may not be sufficient Gender cues to more diverse Gender identities outside the binary. From an instrumental view, studies hitherto used stimuli for which researchers assumed an approximate equal distribution of male and female members (like in questionnaires), my graphic materials made sure the triggered responses could be indeed matched to a Gender-balanced representation. A follow-up experiment on the effects of Gender-neutrality for diverse reference should use images of trans, inter, and non-binary identities (in a preliminary test, the acceptance, surprisal, and effort to integrate features that are non-stereotypical ("unisex") or those that challenge our stereotypical Gender concepts like combined beard and make-up, for example). Finally, effects of language-mediated eye movements in the current design where late, and processing was found to take longer than usual for comprehension – however, faces were often re-inspected as they had different appearances and features, and hence did not get uninteresting. Any object presented in a visual workplace makes it "potentially relevant" and "in-

78 https://www.zeit.de/wissen/gesundheit/2020-04/krankenhaeuser-coronavirus-pflege-versorgung-pandemie-covid-19-tirol, last accessed 27/04/20.

trinsically referential" (Salverda & Tanenhaus 2018: 105). Therefore, an idea Nissen (2013) shares is that of Gender-neutrality as a situation in which Gender is not assigned at all, i.e., when a medical-related activity would be presented that should not evoke (albeit untested) a clear gendered representation as human faces do.

Age factor and distractor. One source of criticism is concerned with the social category of age that both affected stimulus creation and filler manipulation, while it was unable to distract from the research interest. In many instances, personal reference of Gender cannot be communicated independent of age (Nübling & Kotthoff 2018: 129, 174, cf. girl / boy vs. woman* / man, with at least some conversions that can be perceived as Gender-indifferent, such as "infants", "children", "youths", "adults", or "elderly"; similarly, kinship is coupled with Gender). Thus, it is hardly possible to design materials for this purpose without implying an age span vaguely. Whichever aspects of human identification and differentiation may be manipulated, most of them are tightly coupled and may connect in the conceptual features of a denoted term, which makes it necessary to control for their impact on representations as well.

A cover story in the style of Braun et al.'s (2007) or Stahlberg et al.'s (2001) efforts to veil the genus and Gender focus in which the task is embedded has obtained fruitful results. There could even be a short statement by the way explaining that this study uses Gender-neutral language conforming to the set regulations at the university and ask participants to not be distracted by this. Such notes would not be too conspicuous in today's academic setting. Following the logic of Braun et al. (2007), a footnote could even lead to the subjects forgetting about this hint right away.

Items. Improvements of experimental aspects with regard to items should take the cognitive load into account. The context of the items was rather lengthy and could likely place a burden on listeners' working memory (subjects admitted it did). The experimenter regards this as a strength on the one side, since the story in which the noun forms are embedded help distract from the rather obvious Gender manipulation in the experimental items (once again, thanks to the relative infrequency and somewhat emotionally charged socio-political function, a reaction to GN terms as alerting may be attenuated by the amount of concentration needed for listening). On the other side, it is the resulting length of the experiment (approx. 1 hour) that makes it a limitation. Reducing complexity would also help distinguish which factors amplified processing difficulties in gendered language sentence processing, and if shorter and/or easier contexts would affect the time to respond to a potential referent.

Similarly, the controlled position in which the critical noun appeared – rather early or mid second sentence – had the advantage of being controlled for in terms of syntactic structure and complexity, but was not necessarily natural or unexpected for listeners' attention as some of them later protocoled they have been waiting for the critical information concerning the group.

Besides, stimuli sentences were not free of stereotypes, as the alternation of protagonist Gender produced some subtle stereotypical items that may have corresponded to our world knowledge but

reveal that the creation of stimuli is a taxing endeavour[79]. In fact, any condition in which the masculine form was presented in high-prestige profession replicated the male dominance therein, just as the feminine condition in lower-income jobs fueled this correlation.

Task. The oft-repeated explicitness the task held could be handled when removing Gender-specific suffixal contrasts of genus-marked personal nouns in a future version of the design as these (first and foremost, the feminine ending) have been made responsible for a signal effect of the study purpose. Conditions could allow for more controlled stimuli in a more implicit task design. The first pieces of empirical evidence of different Gender-neutral noun types being differently processed viz. differently equipped with a generic function and “female admission” demand further research by all means. Experiments to come should aim to verify and further examine the contextual premises when using GN noun types (just as acceptability judgment and/or referent anaphora and cataphora resolution of these would be a useful basis). Also, the task may be adopted from another methodological perspective that does not involve static scene-viewing and elaborate time to build up expectations. Based on this first attempt, we can expand the paradigms prevalence and diversity to our advantage. Innovations like eye-tracking glasses that allow to do research outside, beyond the four corners of a monitor, and to have subjects encounter and engage in a dynamic and real environment to interact with people not pictures are promising. In most circumstances and most definitely in the usage of Gender-fair language as a social interaction, it “[is] inappropriate to study individuals behaving in isolation from other individuals”, because “[h]umans are highly social beings and many of the behaviours we engage in are carried out in the presence of, in collaboration with or in competition with others” (not surprisingly, an effect of a subject’s gaze and reaction can be dependent on an interlocutor being present, cf. Tatler et al. 2014: 6-7, 8). A linguistic anthropology would “insist on its [language] interdependence with cultural and social structures” to collect and interpret “data from which it is possible to make inferences” (Pier Paolo Giglioli 1972 qtd. in Mills 2010). For sure, future adaptations and variations of the design with similar logic could come up with a more realistic motor task to be performed than clicking for identification of a group that has been named.

Analysis. Ultimately, what was fixated versus what received the response decision can be compared visually. For instance, saccade movements of eye movement to and from and IA as first fixations and regression paths, are indicative of a re-analysis of an utterance while mapping the lexical to the conceptual representation and could inform us about the integration of Gender information. In addition to the task habituation, it is worth testing a learning effect (“training”, in the way Arnold et al. 2020 did, for example) of intentionally Gender-sensitive language over time to allow such inclusive interpretations, i.e., how well and how quick are we to update our perhaps stereotypical representations when confronted with them in a pre-session?

4.2.3 Prospective Designs

The author did not run short of ideas, rather the frame to which a master thesis is confined (due to

79 While grandmothers were following recipes for cooking, grandfathers were making travel plans...

said resources) has steered the experiment into one direction. From here, however, any other branch of research on the topic can be climbed, such as having another speaker record the stimuli (or to edit these) to test effects of a male voice (see, e.g., Aikhenvald 2018: 126, who reports that fe-/male voices were attributed differently to pictures in accordance to genus by Spanish speakers) as well as a genderless AI voice recorded by people who are not identifying as male or female (frequency-adjusted, taking into account how pitch and modulation transmit Gender cues)[80]. This seems especially reasonable when investigating Gender-neutrality and inclusion of diverse Gender identities. Speaking of voice features, the next step to control for the so-called Gender gap is not far-fetched: the glottal stop with which (orthographically) abbreviated split forms are pronounced to use both the masculine and feminine form but shorten them in speech (*Student*innen* → *Student[?]innen*) is gaining attention outside a left-wing, feminist activism, politics, and culture, or academia could re-use materials and be easily added to the auditory stimuli via a controlled acoustic gap (best to begin with phonetically testing up to wich point a difference is perceived).

In a replication, it could be validated if in the progress of Gender equality this extremely robust male-as-norm-principle is weakened over the next years, as a function of increased exposure and awareness that may deem GNL elements as more available as referents and lead to and understanding of how easily we access their meanings.

When comparing GN forms with pair forms in a similar VW eye-tracking study, the results of Gender-balanced meanings for which a "double specificity" (referring to men and women* equally, yet perhaps not Gender-overarching could be certified and contrasted with the potential Gender-indifference of GN strategies. Besides, the questions of surprisal could be addressed with a neurolinguistic analysis of the P600 amplitude (which Arnold et al. 2020 suggested as well).

To enlarge validity and applicability in social contexts, it is worth to keep track of progress of implementable ET technology, i.e., wearable portable glasses that monitor eye movements in real life.

4.3 Implications

"With almost every word we utter, we have a choice."

Jane Mills (1989: xvi) qtd. in Mills (2010: 13)

While Lakoff (in 1973 and 1975) "was pessimistic about changing people's attitudes", fifty years on, masculine "generics" are "on the wane" (Aikhenvald 2018: 198, Nübling & Kotthoff 2018 provide data that instigate the optimism). Results that keep finding a cognitive distortion unless not being of the male norm or varied in Genders is explicitly communicated call for a deprivilegisation of the masculine forms (Pusch 2014: 66). There is a rising sensibility that masculine standards and their male-specific predominance in language are no longer unquestioned. However, with a change in social attitudes and what counts as common sense, acceptance may change, and with it its use. Constant criticism of certain words and introduction of others will entail that alternatives are spread and used, with discriminatory words falling out of favour. As masculines for female reference are not taken for granted as grammatically "given" (analogue to a "naturally given" Gender), negative

80 https://qz.com/work/1577597/this-ai-voice-is-gender-neutral-unlike-siri-and-alexa/, last accessed 27/04/2020.

connotations of alternatives may disappear over time. This change in common language use affects comprehension.

Defenders of “traditional” masculine generic use, that is, of androcentrism, “usually protest that it is ‘just a fact about grammar’ which is not intended to mark women's inferiority in the real world, and is not interpreted by reasonable people as doing so” (Cameron 2005: 85). From the studied sample, it has been shown that the attempt to find a generic form that may replace a masculine for Gender-indifferent reference has been successful for Gender-neutral terms. This effect potentially has been boosted by a differential Gender marking, which has been proposed for “-person” compounds to function in opposition to masculines and, as a consequence of othering and a binary understanding, designate female referents primarily (e.g., “chairman” vs. “chairperson”, Ehrlich & King 2005: 167) instead of fulfilling a Gender-overarching intention. As a third option besides fe-/male-specific reference, the present example has come to a different conclusion for plural terms, and ascribes the superior function of GN language to include women* to their markedness for Gender equity. The Gender-based distinction occasionally observed emerges due to the notion of “non-male”, the original cause to not use the available masculine. GN referential terms can be attested to both qualify for and justify to be used for mixed Gender reference. After the materials used in this study have tested a Gender-balanced representation, I cannot see why this should not be adaptable to have diverse characters included therein. In their non-specific semantics with respect to Gender, they ridden trans, inter, queer, non-binary individuals from making a choice to one of two heteronormative specific gendered forms in all areas, be it job descriptions or documents. As a language community that wants to diminish discrimination, this could be a first solution that both enables female participation and diverse presence mentally. Becoming aware of the impacts of linguistic choices, we can see that language reform – more than it wants to be prescriptive – “[i]t aims instead to clarify and distinguish, to move away from labeling and name-calling”, and “genuinely empowers” disadvantaged members of society. “In so doing, it reflects the positive changes taking place in our society; it enables, and genuinely empowers” (Doyle 2005: 152). Although Cameron (2005: 160) has been utterly irritated by the idea of non-sexist language “’clarify[ing]’ the fact that women exist” and claims that rather, it is not unawareness but a manner to disacknowledge and disparage – knowingly, we must add, in light of the state the contemporary debate is in. What it actually means is the necessity to clarify if their presence, their participation is equally included in a meaning, because we use tools of our language that are itself an insufficient means of clarity in reference. This is not a trivial matter in fighting sexist inequality: although this task design exemplified Gender-fair language use on behalf of Gender-mixed groups, Gender-neutral expressions were the only linguistic forms matched to symmetric representations. Strategically or not, Gender-sensitive speaking behaviour has acted as appellative input that comprehenders treated as equipped with a generic intention that constructed a Gender-inclusive imagery. Language that is non-discriminatory and inclusive of all Genders supports the cognitive visibility of those under-represented. The negotiation of imbalances is a source of raising awareness of the social mechan-

isms at work. Gender-sensitive language forces us to monitor who it does and does not include, and may be a vehicle to first, realise, and second, unlearn exclusion.

Cameron (2005: 89) maintains that actually, "[c]hanging the language is a well-worn expression, but it is also a misleading one: really it is shorthand for 'changing the behaviour of those who use the language'". Why this troubles so many speakers of our language communities is explained with one of the most fundamental characteristics of humankind: "Old habits die hard – if they die at all. Language change lags behind the changes in a society" (Aikhenvald 2018: 193). Gender-neutral language, drawing mostly from already existing periphrastic lexemes and widely accepted elements of word formation can be able to circumvent the caveats and refusals towards linguistic novelties of Gender-fairness, as speakers may be "clinging to archaic rules and usages" (Doyle 2005: 150). Like any innovation begins with carrying attributes of "area-linguistic" usage (in this case, left-wing feminism), this political markedness can be dismantled in the course of its expansion (Nübling & Kotthoff 2018: 217, translation C.S.). The comparative fluidity of comprehension of GNL might implicate lesser adjustments in language use.

Belittled and victimised, feminist linguists have given the prospect of a pervading infiltration of linguistic asymmetry in favour of men to be reflected in a societal worse position and economic disadvantage women* are being put in (unequal salaries, female majority employed in low paid care sector, child-bearing condition as obstacles of careers and the like are present in reports regularly) – or vice versa[81]. "Using Robin Lakoff's (2004: 171) words, 'language discrepancy makes manifest social inequality' in yet another way" (Aikhenvald 2018: 207). The power of intra-sectional research, a branch made of linguist-economist collaboration under the influence of social sciences, recently showed there is a link between genus-'loadedness' of a language and the economic imbalances women* have to face in this society: studies did relate socio-economic inequality between men and women* to a grammar system that has the tools to distinguish linguistically between (two) "sexes". In short, where there is the option to discriminate in language, it is done, as visible in opportunities for women* and power imbalance (this could be one reason why one of the highly industrialised countries like German continuously register one of the largest Gender pay gap). Gendered language research should therefore continue to understand and re-test the processing of role nouns, terms for occupations, and stereotypicality and keep track of changes in society that affect the economic status and the workplace, ergo the use of such expressions (like in Horvath et al. 2016). Indeed, the past decades have been characterised by a significant increase of visibility of women* in both work and social life, and they have claimed occupations, status, and with it the terms of reference. We may not know all of the many, of the most subtle mechanisms of oppressions, but emancipation and linguistic research has taught us where to look for them, and this way we have identified the masculine form as one. The so-called generic use of nouns (and pronouns), subsequently regulated, is one of the most pervasive, most demonstrative instance of it.

81 This interdependence leads back to the Whorfian question whether we do not refer to something, so it is hard to conceptualise and what is hard to conceptualise hardly gets realised (i.e., women* in powerful positions), or whether what is not being realised does not have to be referred to.

The analysis has found a weak male bias in GN and must conclude that no matter which form is employed, an implicit male bias is present unless countered by a strong female stereotypicality. This occurred although the purpose to interpret gendered language was known to most subjects, that is, although they likely attempted to overcome biases. Masculines render women* secondary and subordinate insofar that they hardly qualify as referents of such expressions. The fact that this was evident in the semantically more open plural denotations, gives cause for concern that masculine forms are restricted to men in the singular as well. This awareness should motivate us not to make use of masculine personal reference in neutral contexts as the default if we intend to achieve a generic meaning, and challenge the normative prescriptions of grammar. Increasingly, Gender-indifference realised by linguistically applicable variants as a practice that conforms to the principles of symmetry could be tolerated or actively supported. Gender-specific forms may fall from usage because they remind us of binary categories in contexts where we wish to avoid these. Personifications as a strategy to neutralise Gender (like the collective SG type) was only partially able to abstract from Gender and not shift into a male conceptualisation, whereas participles were more inclusive, depending on the stereotypical manifestation (which had an impact on feminine-marked forms not being trusted as female-specific as well when stereotypical information indicated a male participation). The dilemma with Gender-neutral language reducing cues and thereby inviting the principle to place men as a reference point may thus not be as vain as Nübling and Kotthoff (2018: 115) generalise.

4.4 In Conclusion

In the grammatical foundations, I have argued how genus assignment is inextricably embedded into the core structure of language, and that extensional Gender cues of denotations of genus-marked elements are transported via language. Genus choice is semantically transparent only to a partial extent and correlates only in part with Gender, but when it does, the interpretation of a noun is influenced by its form (based on its meaning). In the pseudo-generic masculine, this creates opacity in referential Gender. The extent to which GN terms are affected by their genus class remains unclear, because there have been few investigations that link Gender-neutral concepts of grammatical feminine genus to more female representations and masculine genus to more male ones (comparing “die Person” (the$_{FEM}$ person) with “der Mensch” (the$_{MASC}$ human being; cf. Nübling & Kotthoff 2018: 118). En detail, this has to do with genus being one of the most fundamental grammatical principles in German that we have learned to treat with caution and appreciate the plentitude of possibilities of personal reference, and not to find excuses why to discriminate with language “knowingly”.[82]

Albeit continually disputed, the results of this study have once more characterised German as a genus language that displays a clear tendency towards agreement between the (nominal) genera of personal terms of reference and referential Gender. For this reason, this work adds to the

82 Purposefully replacing words for the sake of antidiscrimination has a history and had to be fought for when those affected spoke out as part of broader movements (such as antiracist language use; Doyle 2005: 152).

evidence, gathered from various methods and designs, on the limited and rather selective generic function of masculines. Basically, following this line of research, we can speak of “negative evidence” on a fully generic masculine noun form, that is, data absent from the psycholinguistic experience (Harris 1991: 29). In the complex interactions with Gender, masculine genus in German cannot live up to its formal standard to be equally inclusive (at least, it is no longer but likely has not been even when claimed to meet the requirement). Gender is first and foremost a societal practice to differentiate humans, mostly assessed on their physical appearance, sorting human beings into (at least) two classes bearing tremendous consequences, i.e., restricting the ways in which people of one Gender can be part of a mental representation and eventually, restricting societal participation. The aim of a (feminist and linguist) critique of language with respect to gendered expressions was to expose where language exerts discrimination and impedes equity of female, male, and lately affiliated, diverse human beings. Linguistic Gender-neutrality both approves and accomplishes indiscrimination. Using language that puts anyone who did not happen to be male on an equal basis with those who did, is one of the most visible, most adoptable, method of effectively addressing more than half of the population, be it to reach out to members of the society, to recruit staff, to fight dominance and inferiority based on Gender identity. Some have accused that regulations to lead to a cover up of sexist language, masking attitudes of inequality, but discriminatory beliefs hidden under it that actually fuel this type of usage (Mills 2010: 97), yet language use is also about recipients – at the surface level, Gender-sensitive formulations widen the mental frame for female and diverse existence for those who encounter them. Through the prism of generic reference that offers alternatives, the masculine is no longer a promising option. The functional equivalents of Gender-neutral generics make a positive effort to be inclusive.

However sensible recommendations from this perspective may be seen, at this stage they mainly assist those who want to adhere to a more Gender-fair language voluntarily, the ultimate choice about using non-sexist language continues to be individual. Being liable to insensitivity or ignorance if not reflecting on one’s own attitude is not be mistaken with being forbidden (except for job advertisements) or censored[83]. When defending the status quo and taking a backlash against people’s demand to be(come) visible, it is nowadays the reluctance to listen; and all things considered, the intensity with which psycholinguistic findings are discussed, the struggle against asymmetries that hold women* and diverse people inferior to men slowly pays off. Consistently presenting alternatives such as Gender-neutrality did.

83 In a sense, the neglect of research on linguistic sexism and discriminatory language evoked by so-called “generic” masculine forms is well embedded into an increasingly post-factum society, in which evidence is denied and outvoted by mere opinions; it is the climate change debate of language: research keeps providing evidence, scientists and advocates spread such knowledge yet it is widely ignored and silenced by loud voices of a backlash (I have discovered the same backlash analogue in Mills 2010: 99). What we observe is a climate change in knowledge permeability, in the acceptance of science, in the equation of informed investigations and amateur stipulations.
It is thus not surprising to reckon that the protecters of a “generic” masculine owe the studies to base their assumptive intercession on. Instead, some of them call students to sue Gender-fair language regulations: www.sueddeutsche.de/bildung/universitaet-gender-verein-deutsche-sprache-1.4661809, last accessed 27/04/20.

Gendered Language in a Socio-Political Setting. Like the many scholar in this line of research, in an academic diligence I have been taken in by the same distressing discourse of argumentatively confirming a “genus-Gender-nexus”-induced male bias of masculine “generics”, and to challenge what meanwhile has a tradition of being refuted, so I end this argumentation why Gender linguistic research continues to dig deeper into the repercussions of generic reference with one of the most alarming studies performed: during a trial, the students that imitated a jury in court read the indictment in the (familiar) versions (English masculine generic or pair form; referenced in Stahlberg & Sczesny 2001: 139). Those who had been presented with masculine forms plead the accused *woman** “guilty”, and the others who had processed reference in pair forms did not. If a jury cannot perceive an article on self-defense as applying to female human beings as well, if they cannot apply equal rights to a person unless linguistically made aware of it, the problems we are facing caused by sexist biases extend the linguistic domain, and should be considered in every aspect of life. Placing more than half of the humanity at risk to be ignored and/or mistreated makes the avoidance of misleading masculine “generics” and the embracement of alternatives not simply a benevolent pledge to Gender-fairness but a righteous moral obligation. German guidelines for non-discriminatory language specifically addressing sexist language are on the right track to reject the masculine as a generic, and to make practical recommendations for both Gender-balanced and Gender-neutral forms. If GNL is adopted as a general policy, it seems justified that it would be able to be abstractive enough to work against trans-, inter-, and queer-exclusive Gender-specific biases to either men or women*, or “both”, to break with the tradition to either mark binary Gender or to refer to a normative male rarely reaching Gender-indifference when all are supposed to be meant. Like in the past, Gender linguistic research on the indiscriminate inclusion of referential terms will hopefully gain more momentum as non-binarism, humans that should not be subsumed under notions of “men” or “women”, enters the common knowledge and spreads into research domains. In how far heteronormativity / binary-as-norm can be challenged by Gender-neutral forms has just begun to be thematised. Their representational Gender-balance is in the majority of usages equipped to help eradicate male-only comprehension and male-as-norm pitfalls. Ultimately, the symbiosis of linguistics and feminism is intended to encourage change – change that is directed at a more inclusive language that so-called “generic” masculines fail to achieve in their presuming of maleness as standard and femaleness as deviation, exception. To summarise, Gender linguistics enumerate the discrimination women* and diverse people “feel” and are outraged about with measurements of responses to gendered language. Continually, we should debate what mitigates and what aggravates imbalances, as well as investigate more progressive ways. A psycholinguist’s duty is both to describe a language system to convey information and to provide empirical evidence on processing and comprehension of what this systems uses as its foundation and pillars. This thesis grew on the previous work; now the very same body of research on German generics for Gender-inclusive personal reference using masculine and Gender-neutral generic forms grows with it.

5. List of References

5.1 Resources

1) Computer Applications

SR Reserach
EyeLink1000
- Experiment Builder
- Data Viewer
- incl. Manuals
  - SR Research (2010): Eyelink® 1000 users' manual, version 1.5. 2.
  - SR Research (2007): EyeLink® Data Viewer User's Manual Document Version 1.8.221.
- incl. Support Forum (available at: https://www.sr-support.com/)

Adobe Stock
Adobe Systems. Adobe Stock. Available at: https://stock.adobe.com/.

Audacity
Audacity Team (2019). *Audacity* (R), Free Audio Editor and Recorder. Version 2.3.3 available at: https://audacityteam.org/.

GIMP
The GIMP Development Team. (2019). *GIMP*. Version 2.10.20 available at: https://www.gimp.org/.

Inkscape
Inkscape Project (2019). *Inkscape*. Version 0.91 available at: https://inkscape.org/.

R + Rstudio
https://cran.r-project.org/
https://rstudio.com/
- with packages (most relevant selection):
  - tidyverse (tidyr, dplyr, ggplot2), available at https://www.tidyverse.org/
  - eyetrackingR

2) Tutorials

eyetrackingR
Dink, J. W., & Ferguson, B. (2015): *eyetrackingR: An R Library for Eye-tracking Data Analysis* [manuscript in preparation]. Available at: http://www.eyetrackingr.com.

Tutorials on Generalized Linear Modeling
Ferguson, Brock (2015): Tutorials. R Growth Curve Analysis and Eyetracking Workshop. Tutorial 3: Generalized Linear Models & Tutorial 4: Growth Curve Analyses. Available at: http://brockferguson.com/tutorials/R-gca-workshop/.

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6. List of Tables

Conditions		Grammar		auditory Stimuli	visual
1)	**M**	(gen.) Masculine Plural		*-er/ -en*	all♂ : only men are depicted
2)	**F**	Feminine Plural		*-innen*	all♀ : only women depicted
3)	**GN**	Gender-Neutral Alternative			
			nom. Part.	*-enden*	♂+♀ : equally many men and
			"person" compound	*-kräfte/ -person*	women depicted
			coll.SG.	*-ung/ -ium/ -ion*	
			Subst.	*-en*	

Table 1. Conditions.

List		1	2	3	
Condition		GN	M	F	┐
		F	GN	M	├ Latin square design within lists
		M	F	GN	┘
	Critical Items	16	16	16	(per Condition)
		16	16	16	(per Condition)
		16	16	16	(per Condition)
Total Critical Items		48	48	48	
Total Fill Items		60	60	60	
Total Practice Items		3	3	3	
Total		111	111	111	(Practice Block = 3 / Block 1 = 54 / Block 2 = 54)

Table 2. Items across lists, Latin squared.

Group	Manipulation	Fill Item Number (total)	
A	same Age / diff. Gender	12-17, 41-48	(14)
B	same Gender / diff. Age	1-11, 29-40	(23)
C	diff. Gender / diff. Age	18-28, 49-60	(23)

Table 3. Age Manipulation in Filler Items.

Software Programme	Functionality	Result
Adobe Stock	search for "pictogram", "avatar", "b/w line drawing", "emoji", with age / Gender specification	Stimulus Images (in sets)
Inkscape	cut faces from entire sets, increase or decrease size, saved as vector, combined to a 4-part collage	individual face images, in the same pixel size, original image without pixel lines arranged in a group
GIMP	rescaled to fitted pixel size, exported as .png- files	format for ExpB (otherwise scalable vector graphic)

Table 4. Graphic material editings.

Step	
1.	Briefing
2.	Camera Set-Up
3.	Instructions
4.	Calibration & Validation
5.	Practice Trials with Feedback
6.	Experiment with Drift Correct and Break
7.	Questionnaire & Debriefing

Table 5. Procedure.

Protagonist Gender was counterbalanced: female for half of the items, and male for the other half (due to later assignment of one experimental item to the practice section and exclusion of filler versions of an unintentionally doubled name, not exactly halved).

Item	experimental:		filler:		practice:	
count	♂	1-25	♀	1-28	♀	1
	♀	26-48	♂	29-60	♂	2-3

Table 6. Protagonist Gender Across Items.

Block	Condition	Noun Form	Item	M	N	SD
Pract	GN	Feuerwehrleute	112	0.23	35	0.12
Exp	M	Abteilungsleiter	36	0.36	35	0.16
Exp	M	Alkoholiker	8	0.39	33	0.13
Exp	M	Amtsrichter	24	0.37	35	0.12
Exp	M	Arbeitnehmer	26	0.43	33	0.11
Exp	M	Ausbilder	6	0.47	37	0.14
Exp	M	Buchhalter	27	0.48	34	0.2
Exp	M	Fachbereichsleiter	18	0.32	35	0.12
Exp	M	Flugbegleiter	31	0.75	37	0.16
Exp	M	Forscher	34	0.42	38	0.11
Exp	M	Gewerkschafter	47	0.43	33	0.14
Exp	M	Haushälter	21	0.78	37	0.16
Exp	M	Hausverwalter	15	0.47	37	0.14
Exp	M	Krankenpfleger	13	0.65	35	0.13
Exp	M	Künstler	2	0.5	32	0.11
Exp	M	Landtagspräsidenten	39	0.17	33	0.12
Exp	M	Minister	17	0.33	36	0.13
Exp	M	Musiker	11	0.5	36	0.1
Exp	M	Patienten	16	0.51	34	0.14
Exp	M	Polizisten	41	0.35	33	0.11
Exp	M	Regisseure	37	0.32	35	0.12
Exp	M	Studenten	1	0.55	34	0.09
Exp	M	Verkäufer	12	0.69	36	0.14
Exp	M	Vertreter	38	0.49	36	0.12
Exp	M	Zuhörer	10	0.51	34	0.05
Exp	GN	Angestellte	26	0.54	36	0.08
Exp	GN	Betreuungspersonen	46	0.64	37	0.15
Exp	GN	Rettungsdienst	48	0.37	35	0.11

(The higher the M-Score, the more stereotypically female the roles were rated; the lower the M-score, the more stereotypically male.)

Table 7. Norms and ratings of stereotypicality of nouns; values selected for Critical Stimuli from Misersky et al. (2014).

Participant	Gender	Year of Birth	Age	political Attitude	HS Semester	Acquisition
T01_1~	w	1999	20	rather left	5	SONA
T02_2~	w	1998	21	neither nor	1	SONA
T03_3~	w	1989	30	left	10	SONA
T04_1~	m	1992	27	left	3	SONA
T05_2~	m	1995	24	left	11	SONA
T06_3~	w	1992	27	neither nor	1	SONA
T07_1	w	2000	19	undecided	3	SONA
T08_2	m	1995	24	left	7	SONA
T09_3	w	1998	21	rather left	5	SONA
T10_1	m	1995	24	neither nor	14	SONA
T11_2	w	1989	30	neither nor	-	SONA
T12_3	w	1998	21	rather left	1	SONA
T13_1	w	1990	29	neither nor	-	SONA
T14_2	w	1995	24	rather left	14	SONA
T15_3	m	2001	18	neither nor	1	SONA
T16_1	w	1994	25	rather left	1	SONA
T17_2	w	1999	20	neither nor	3	SONA
T18_3	w	1998	21	left	7	Stud
T19_1	w	1992	27	left	-	sports
T20_2	d	1988	31	left	25	sports
T21_3	w	1991	28	left	-	sports
T22_1	m	1984	35	left	13	sports
T23_2	d	1986	33	left	20	peer
T24_3	w	1991	28	left	10	peer/sports
T25_1	m	1993	26	left	13	peer
T26_2	w	1994	25	left	12	peer/sports
T27_3#	w	1997	22	left	-	sports
T28_1#	m	1988	31	left	-	peer
T29_2#	w	1998	21	rather left	3	SONA
T30_3#	m	1984	35	left	-	peer
T31_1	m	1990	29	left	13	peer
T32_2	w	1999	20	rather left	3	SONA
T33_3	w	1993	26	left	13	sports
T34_1	d	1987	32	left	16	sports
T35_2	w	1992	27	rather left	11	SONA
T36_3	w	1993	26	rather left	1	SONA
T37_1	w	1993	26	neither nor	1	SONA

(w = female, m = male, d = diverse; ~ = excluded pilot data files; # = excluded corrupted files)

Table 8. Demographic information for all participants.

Criteria	Inclusion	
Handedness	left / right	
Eye sight	normal or corrected to normal (glasses or lenses)	
Language Impairments	none	
Hearing Impairments	none	
Native Language	German	
Other Languages	any	(Proficiency Level and Time of Acquisition of L1 L2)
Date of Birth (Age)	2002 (18) onwards	

Own Criteria

Hours of Sleep, Alcohol or other Drugs Consumption the Night Before (no one was excluded based on this, there was no hungover person, but some quite tired ones)

Table 9.1 SONA Registration and additional information.

Variable	Levels		
Condition	F		
	M		
	GN	- coll.SG	collective singular
		- nomin.Part	nominalised participle
		- subst.	nominalisation
		- person	-person compound
Participant Gender	w	female	
	m	male	
	d	diverse	
PROGender	female		
	male		
PROName	included		
	not named		
Interest Area (click response)	♀	all-female	
	♂	all-male	
	♀♂	mixed	
Trial Number	early	1-29	
	mid (1st block)	30-54	
	mid (2nd block)	55-79	(after break)
	late	80-108	

Table 9.2. Variables with levels.

RT

condition	F-fem.	M-male	M-mixed	GN-mixed	GN-male
assumption	uniqueness	ambiguity, male-biased resolution	ambiguity, inclusive resolution	Gender-cueless, overcome male bias, realisation of purposeful use	Gender-cueless, evaluate fe-/male group membership
Reaction Times	shortest	>	>	>	longest

Fixations

condition	F-fem.	M-male	M-mixed	GN-mixed	GN-male
assumption	only possibility	ambiguity, male-specifc interpretation	reanalyse interpretation, prolonged because of stereotypical	allowing for both Genders to be present	

			info.		
Early vs. late fixations	early: quick decision to focus	early attention: initial specification	later attention: validation of Gender cue availability	late attention: integrate constellation, questioning stereotype info., validation of Gender cue availability	earlier attention: male bias

Fixatios: Assumptions and Findings per Condition for Immediate Reactions.

Conditions		Assumption	Results
M-male > GN-male	&	"gen"Masc is specific, especially in the presence of other groups and references to these	✓
M-mixed > M-male		"gen"Masc is generic, receives a Gender-balanced interpretation	x
M-male > M-mixed:		"gen"Masc is illusion, male-specific interpretation	✓
M-mixed = GN-mixed:		both M and GN forms are equally functional to receive a generic interpretation	x
GN-mixed > M-mixed:		GN are more inclusive and Gender-balanced	✓
GN-male >/ = M-male:		GN forms receive male-specific interpretation, male bias	(✓)
RT (selected)			
M-mixed > M-male M-mixed > GN-mixed	&	when "gen"Masc is generic, it takes long to decide for	(✓)
GN-mixed > F-fem GN-mixed > M-male	&	less common forms, stereotype check, less available	✓

Table 10. Hypotheses formulae.

		RT (mean) in sec.	*SD*	*SE*
Condition	*Noun Form Example*			
Feminine	“die Lehrerinnen”	.974	.736	35.6
Masculine	“die Lehrer”	.980	.734	35.7
Gender-Neutral		1.045	.840	40.9
coll.SG	“das Kollegium”	1.038	.898	68.1
nomin.Part	“die Studierenden”	1.068	.817	71.7
Subst	“die Kranken”	1.036	.881	83.9
-person	“die Lehrkräfte”	1.027	.717	136.
Interest Area	*Image Type*			
IA F	♀ all-female group	.937	.694	36.5
IA M	♂ all-male group	1.006	.765	55.2
IA GN	♀♂ mixed Gender group	1.010	.802	30.7
IA PRO	single person: protagonist	1.415	.845	145
(Mis)Match Condition : Image				
M : IA M	♂ all-male group	.948	.715	54.3
M : IA GN	♀♂ mixed Gender group	.990	.759	49.3
GN : IA M	♂ all-male group	1.552	1.029	242.5
GN : IA GN	♀♂ mixed Gender group	.993	.802	41.5
Time Course over Trials	*Trial Count*			
early	1-29	1.191	.870	48.4
mid (1st block)	30-54	1.109	.827	33.0
mid (2nd block, after break)	55-79	1.052	.799	26.2
late	80-108	1.005	.778	22.0
Accurate Responses				
accurate	group referent image	.988	.845	145
inaccurate	single protagonist image	1.415	.766	21.8

Participant Gender				
w	female	.977	.775	26.7
m	male	1.085	.798	47.2
d	diverse	.960	.683	56.9
Realised purpose of Gendered Language	*"GotIt"*			
yes		.991	.754	21.6
no		1.219	1.115	161
Realised Age: distractor	*"GotIt2"*			
yes		1.305	.916	59.4
no		.929	.716	22.3

Table 11. Behavioural Analysis Results of Reaction Times (RT).

Referent Identification Question		*Accuracy in %*	*SD*
correct	group images	97.3	16.1
incorrect	single person image	2.7	16.1
timeouts	no response		
Image-Condition (Mis-)Match			
1) Condition : Image	*Image Type*		
Feminine (F : IA F)	♀ all-female group	80.4	39.8
Masculine (M : IA M)	♂ all-male group	40.9	49.2
Gender-Neutral (GN : IA GN)	♀♂ mixed Gender group	88.6	31.8
coll.SG		87.4	33.3
nomin.Part		89.4	30.9
Subst		95.2	21.6
-person		86.3	34.6
2) Condition : Image	*Interactions*		
M : IA GN	Masculine : mixed Gender	56.0	49.7
GN : IA M	Genderneutral : all-male	4.28[84]	20.3
M : IA PRO	Masculine : protagonist	2.24	15.2
GN : IA PRO	Genderneutral : protagonist	3.56[85]	18.6
Condition	*Group referent images – Plural interpretation*		
Feminine		97.9	14.4
Masculine		97.6	15.2
Gender-Neutral		96.4	18.6
	coll.SG	94.8	22.2
	nomin.Part	97.0	17.2
	Subst	100	0
	-person	97.3	16.4
Accuracy Fill Items	*Non-critical Items*		
	Fill Items	99.0	9.97
	Practice	42.9	49.5
Comprehension Question	*Non-critical Items*		
correct	*Fill Items*	91.2	29.4
	Practice	27.2	93.2
timeouts	no response		

84 mainly coll.SG and Subst. affected:
NounType mean(mismatch_GN) (sd)
collSG 0.0690 (0.254)
nominPart 0.0152 (0.123)
person 0.0274 (0.164)
Subst 0.0476 (0.216)

85 mainly coll.SG affected:
collSG 0.0517 (0.222)
nominPart 0.0303 (0.172)
person 0.0274 (0.164)

		Fill Items	0.3	5.66
		Practice	33.5	47.2
Mismatch	*Time Course Over Trials*	*Trial Count*		
GN : IA M	early	1-29	6.32	24.5
	late	80-108	3.16	17.6
M : IA GN	early	1-29	50.5	50.2
	late	80-108	58.3	49.5

Table 12. Behavioural Analysis Results of Accuracy (Group Referent Identification).

Interest Area	*Condition*		*Proportion of Looks in %*	*SD*
F ♀ all-female	Feminine		46.4	49.9
	Masculine		13.1	33.7
	Gender-Neutral		15.0	35.7
M ♂ all-male	Feminine		10.9	31.2
	Masculine		28.3	45.0
	Gender-Neutral		16.4	37.1
GN ♀♂ mixed Gender	Feminine		21.8	41.3
	Masculine		41.3	49.2
	Gender-Neutral		51.3	50.0
PRO single person	Feminine		20.8	40.6
	Masculine		17.3	37.9
	Gender-Neutral		17.3	37.8
	Click on Image			
F ♀ all-female	all-female		56.7	49.5
	all-male		14.8	35.5
	mixed Gender		12.7	33.3
	single protagonist		22.2	41.6
M ♂ all-male	all-female		10.3	30.3
	all-male		52.0	50.0
	mixed Gender		14.2	34.9
	single protagonist		11.5	31.9
GN ♀♂ mixed Gender	all-female		12.5	33.1
	all-male		20.3	40.2
	mixed Gender		55.7	49.7
	single protagonist		18.3	38.7
PRO single person	all-female		20.5	40.4
	all-male		13.0	33.6
	mixed Gender		17.5	38.0
	single protagonist		48.0	50.0
	Condition	*PROGender*		
F ♀ all-female	Feminine	female	45.3	49.8
		male	47.6	49.9
	Masculine	female	13.0	33.6
		male	13.1	33.8
	Gender-Neutral	female	16.5	37.1
		male	13.4	34.1
M ♂ all-male	Feminine	female	10.9	31.2
		male	10.9	31.2
	Masculine	female	26.6	44.2

		male	30.1	45.9
	Gender-Neutral	female	15.9	36.6
		male	17.0	37.6
GN ♀♂ mixed Gender	Feminine	female	21.3	41.0
		male	22.4	41.7
	Masculine	female	41.5	49.3
		male	41.0	49.2
	Gender-Neutral	female	49.7	50.0
		male	53.0	49.9
Condition-Interest Area Match	*Time Course over Trials (SD parenthesised)*			
F ♀ all-female	early 1-29			late 80-108
Proportion of Looks (SD)	28.4 (45.1)			21.6 (41.2)
Proportion of Clicks (SD)	77.7 (4.18)			80.6 (39.7)
M ♂ all-male				
Proportion of Looks (SD)	21.2 (40.8)			19.0 (39.2)
Proportion of Clicks (SD)	44.9 (36.7)			40.0 (49.2)
GN ♀♂ mixed Gender				
Proportion of Looks (SD)	34.6 (47.6)			40.1 (49.0)
Proportion of Clicks (SD)	80.0 (40.2)			94.7 (22.4)

Table 13. Behavioural Analysis Results of IA Responses (Proportion of Looks to Images).

Model	Test	Effect	p
glmer	TargetGN*Gender	Intercept	0.04924 *
		Gender(m)	0.96547
		Gender(w)	0.75322
		TargetM	>0.0001***
		Gender(m):TargetM	0.00577 **
		Gender(w):TargetM	0.00479 **

(significance: ***: 0; **: 0.001; *: 0.01; .: 05)

Table 14. Results of a Generalised mixed linear regression model on behavioural response data.

Model	Test	Effect	p
aov	F2 subjects ANOVA	Target (coded)	0.0191*
aov	F1 items ANOVA	Target (coded)	0.051 .
aov	F1 trial order ANOVA	Target (coded)	0.00519**
aov	Model comparison (model without effects vs model with Order)	Model (Order)	0.02301*
lmer	binned Target proportion	Intercept	0.000888***
		TargetM	<0.00001***
		Time	0.044159*
		TargetM:Time	0.000001***

(significance: ***: 0; **: 0.001; *: 0.01; .: 05)

Table 15. Results of a Generalised mixed linear regression model on RoI1.

Overview of the Variation of Mean Reaction Times.

Participant	mean RT (ms)
1 T07_1	779
2 T08_2	1264
3 T09_3	1473
4 T10_1	1090
5 T11_2	864
6 T12_3	899
7 T13_1	866
8 T14_2	1008
9 T15_3	1126
10 T16_1	989
11 T17_2	948
12 T18_3	820
13 T19_1	904
14 T20_2	847
15 T21_3	724
16 T22_1	1047
17 T23_2	1330
18 T24_3	802
19 T25_1	1158
20 T26_2	803
21 T31_1	830
22 T32_2	997
23 T33_3	1305
24 T34_1	703
25 T35_2	1149
26 T36_3	1011
27 T37_1	1219

Age	mean RT (ms)
18	1126
19	779
20	973
21	1062
24	1126
25	897
26	1173
27	1028
28	762
29	848
30	864
31	847
32	703
33	1330
35	1047

Acqu.	Mean RT (ms)
peer	1106
sports	923
peer / sports	803
SONA	1046
Stud	820

Table 16. Mean RTs for Participants and across Ages and way of Study Acquisition.

App. A1

Experimental Critical Items

Item 1

• Das ist Martin. Martin engagiert sich neuerdings an der Universität und hat die Fachschaft für den neuen Masterstudiengang über unzulässige Prüfungsanforderungen informiert. Nun wollen **die Studenten**, die in der Fachschaft vertreten sind, eine Unterschriftensammlung starten. Wer will nach Martins Hinweis etwas bewegen?

• Das ist Martin. Martin engagiert sich neuerdings an der Universität und hat die Fachschaft für den neuen Masterstudiengang über unzulässige Prüfungsanforderungen informiert. Nun wollen **die Studentinnen**, die in der Fachschaft vertreten sind, eine Unterschriftensammlung starten. Wer will nach Martins Hinweis etwas bewegen?

• Das ist Martin. Martin engagiert sich neuerdings an der Universität und hat die Fachschaft für den neuen Masterstudiengang über unzulässige Prüfungsanforderungen informiert. Nun wollen **die Studierenden**, die in der Fachschaft vertreten sind, eine Unterschriftensammlung starten. Wer will nach Martins Hinweis etwas bewegen?

Item 2

• Das ist Leo. Leo hat den Keller ausgebaut, um Platz zum Arbeiten zu haben und bietet die freie Fläche günstig zur Vermietung an. Aufgrund der Mieterhöhungen allerorts schauen sich **die** meisten **Künstler**, die sich keine Ateliers mehr leisten können, nun nach einer geeigneten und erschwinglichen Räumlichkeit zur gemeinschaftlichen Nutzung um. Wer will sich angesichts der teuren Mieten Räume teilen?

• Das ist Leo. Leo hat den Keller ausgebaut, um Platz zum Arbeiten zu haben und bietet die freie Fläche günstig zur Vermietung an. Aufgrund der Mieterhöhungen allerorts können sich **die** meisten **Künstlerinnen**, die sich keine Ateliers mehr leisten können, nun nach einer geeigneten und erschwinglichen Räumlichkeit zur gemeinschaftlichen Nutzung um. Wer will sich angesichts der teuren Mieten Räume teilen?

• Das ist Leo. Leo hat den Keller ausgebaut, um Platz zum Arbeiten zu haben und bietet die freie Fläche günstig zur Vermietung an. Aufgrund der Mieterhöhungen allerorts können sich **die** meisten **Kunstschaffenden**, die sich keine Ateliers mehr leisten können, nun nach einer geeigneten und erschwinglichen Räumlichkeit zur gemeinschaftlichen Nutzung um. Wer will sich angesichts der teuren Mieten Räume teilen?

Item 3

• Das ist Herr Wagner. Herr Wagner leitet ein Gymnasium und versucht, den Jugendlichen wichtige Fähigkeiten für deren späteres Berufsleben mitzugeben. Oft fehlt die Wertschätzung, dass **die Lehrer**, die im Unterricht bemüht sind die Interessen zu wecken und Talente zu fördern, eine hohe Verantwortung tragen. Wer zeigt sich bemüht, den Unterricht interessant zu gestalten?

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Item 4

• Das ist Herr Weber. Herr Weber braucht einen neuen Personalausweis, doch der alte ist schon seit Wochen nicht mehr gültig. Manche **Sachbearbeiter**, die auf dem Bürgeramt arbeiten, drücken bei Fristüberschreitungen um ein paar Tage ein Auge zu. Zu wem muss Herr Weber nun gehen?

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• Das ist Kristian. Kristian wird beschuldigt, am Sonntag nicht trainiert zu haben und deshalb das bevorstehende Turnier nicht ernst genug zu nehmen. Im Trainingslager verstehen **die Ausbilder**, die ihren Traum vom Sieg verwirklichen wollen, nicht den geringsten Spaß und verlangen von allen genau so viel Ehrgeiz. Wer fordert zu mehr Training und Ehrgeiz auf, um zu siegen?

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• Das ist Herr Walter. Herr Walter hat ein Stellenangebot inseriert und würde am liebsten ab sofort Verstärkung für die Arbeit im Unternehmen einstellen. Auf das Zeitungsinserat hin haben sich viele

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• Das ist Jonas. Jonas hat einen Erfahrungsbericht über die Angebote und Hilfestellungen von Selbsthilfegruppen gehört. Diverse solcher Gruppen helfen **Alkoholikern**, die es allein nicht schaffen, vom Trinken loszukommen, durch den Austausch und die Beschäftigung mit anderen besser durchzuhalten. Wem bieten die Gruppen Hilfe an?

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Item 9

• Das ist Daniel. Daniel hat auf einem Kongress viel Neues gelernt und überlegt, wie die Inhalte bei der eigenen Arbeit einfließen können. Doch mit der Qualität der Vorträge waren **die** meisten **Teilnehmer**, die zum Kongress kamen, eher unzufrieden. Wer war im Gegensatz zu Daniel nicht zufrieden mit den Vorträgen?

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Item 10

• Das ist Rudi. Rudi besucht gern Konzerte, aber das letzte lief nicht reibungslos. Trotz der vielen Unterbrechungen ließen sich **die Zuhörer**, die einen weiten Weg auf sich genommen hatten, den Spaß nicht verderben. Wer konnte, anders als Rudi, das Konzert trotzdem genießen?

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Item 11

• Das ist Ben. Ben spielt seit frühester Kindheit Klavier, hat dank eines sehr feinen Gehörs nie Noten gelernt und kann die meisten Werke auswendig spielen. Trotzdem ist Noten lesen für viele **Musiker**, die neue Stücke einüben, grundlegend. Für wen sind Musikgrundlagen der Notenlehre wichtig?

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Item 12

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• Das ist Simon. Simon fühlt sich zunehmend überlastet, denn Simon hat selten eine 40-Stunden-Woche, sondern überschreitet die vorgegebene Arbeitszeit ständig, wenn der Dienstplan die Ausfälle wieder nicht abdecken kann. Auch auf der Intensivstation macht sich der Pflegemangel bemerkbar, sodass **die Krankenpfleger**, die Überstunden anhäufen, auf eine klare arbeitsvertragliche Regelung drängt und nicht länger in Mindestbesetzung Notfälle versorgen möchte. Wer fordert eine vertraglich festgehaltene Überstundenregelung?

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• Das ist Frau Böhm. Frau Böhm war in Afghanistan schilderte, wie Korruption im Gesundheitswesen dazu führt, dass dringend benötigte Finanzmittel einfach verschwinden. Alle **Referenten**, die von der Auslandsreise zurückkehrten, berichteten Beunruhigendes über die Zustände in den kriegsgeschwächten Regionen. Wer hat umfassend über die Lage im Land informiert?

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Item 26

• Das ist Frau Seidel. Herr Seidel ist im Betriebsrat aktiv und teilt die Auffassung, dass starre Arbeitszeiten der Produktivität eher schaden und das Familienleben deswegen unnötig verkomplizieren. Bei der letzten Betriebsversammlung reagierten **die Arbeitnehmer**, die sich ausgebeutet fühlen, unzufrieden auf die neuen Regelungen zur Arbeitszeit. Wer möchte die Arbeitszeiten flexibler gestalten?

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Item 27

• Das ist Frau Krämer. Frau Krämer ist von einer mehrtägigen Dienstreise zurückgekehrt und möchte die Fahrtkosten erstatten lassen. Das Formular zu Abrechnung muss sich bei **den Buchhaltern**, die momentan aus Krankheitsgründen unterbesetzt ist, abgeholt werden und binnen 2 Wochen eingereicht werden. Bei wem muss das Formular fristgerecht eingereicht werden?

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Item 28

• Das ist Caro. Caro muss die gelungene Bachelorarbeit verteidigen. Zum Schluss möchten **die Prüfer**, die reihum Fragen stellen, zum Beispiel wissen, wie die Thematik in Anbetracht der jüngsten Ereignisse einzuordnen ist. Wer befragte Caro zur Aktualität des Themas?

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Item 29

• Das ist Sarah. Sarah wurde geraten, bei Versicherungen zu vergleichen, welche am besten geeignet ist. Bei Unsicherheit, welche Versicherung am preisgünstigsten die wichtigsten Leistungen abdeckt, können **die Berater**, die die Bedürfnisse und Vorteile vieler verschiedener Angebote für Versicherte umfassend kennen, aufgesucht werden. An wen kann Sarah sich bei Fragen zur Versicherung wenden?

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Item 30

• Das ist Frau Sommer. Frau Sommer ist neu im Betrieb. Gestern auf der Arbeit haben **die Kollegen**, die schon länger zusammenarbeiten, beschlossen keine gemeinsame Kaffeekasse mehr zu führen. Wer teilt Frau Sommer den Beschluss mit?

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Item 31

• Das ist Kathi. Kathi fliegt nach Amerika, um Verwandte zu besuchen. Auf einem Langstrecken-Flug gehen **die Flugbegleiter**, die mehrmals durch die Sitzreihen gehen und Decken verteilen, es gewohnt, dass viele gleich nach dem Start einschlafen. Wer kümmert sich um die Fluggäste?

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Item 32

• Das ist Petra. Petra ist unzufrieden mit den Wahlergebnissen. Nach der Wahl vereinen sich **die Wähler**, die den Wahlzettel der letzten Bundestagswahl auch als sehr problematisch empfanden und nun eine gemeinsame Beschwerde vorbereiten, weil die Reihenfolge der Parteien manche begünstigte. An wen kann Petra eine Wahlbeschwerde richten?

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Item 33

• Sophie ist in der Multimedia-Abteilung des Kaufhauses tätig und berät zum Beispiel, welches Smartphone auf dem Markt das beste Preis-Leistungs-Verhältnis hat. Am verkaufsoffenen Sonntag hoffen **die Kunden**, die endlich Zeit zum Einkaufen haben, auf besonders günstige Schnäppchen, müssen allerdings lange anstehen. Wer nutzt die Ladenöffnungszeiten am Wochenende?

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Item 34

• Das ist Lisa. Lisa befürchtet, in Deutschland schlechtere Karriereaussichten zu haben, möchte aber hier bleiben. Andere junge **Forscher**, die promovieren möchten, nehmen deshalb eher im Ausland eine dauerhafte Stelle an. Wer verlässt eher das Land, um bessere Chancen auf einen gut bezahlten Beruf zu haben?

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Item 35

• Das ist Maria. Maria verfolgt interessiert die Beiträge zum Stadtgeschehen in der lokalen Zeitung, vermisst jedoch Inhalte aus dem Umland. Neuerdings planen **die Redakteure**, die bisher vor allem über die Stadt berichten, noch mehr Artikel aus Perspektive der umliegenden Dörfer abzudrucken. Wer hat vor, auch die Anliegen der Dorfgemeinden mit einzubeziehen?

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Item 36

• Das ist Julia. Julia hat sich vor kurzem entschieden dem Tennisclub beizutreten und erhielt daraufhin ein Rundschreiben wegen der Beitrittsgebühr. Aufgrund der niedrigen Mitgliedszahlen sehen sich **die Abteilungsleiter**, die sich im Verein engagieren, gezwungen, den monatlichen Beitrag zu erhöhen. Wer muss Julia die Beitragserhöhung mitteilen?

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Item 37

• Das ist Nathalie. Nathalie fühlt sich wohl bei den Dreharbeiten zum Film und an den verschiedensten Drehorten. Obwohl **die Regisseure**, die die Aufnahmen perfektionieren wollen, manche Anweisungen im scharfen Ton geben und gestresst sind, ist das Miteinander am Set inspirierend und anerkennend. Wer gibt beim Filmdreh gestresst die Anweisungen?

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• Das ist Klara Pohl. Frau Pohl vom Außenministerium erarbeitet bilaterale Verträge und macht hinter den Kulissen die eigentliche Arbeit. Beim Gipfeltreffen aber präsentieren **die Vertreter**, die bei Pressekonferenzen für die Konfliktpartien einstehen, diese Ausarbeitungen. Wer schmückt sich mit Frau Pohls Arbeit?

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• Das ist Jasmin. Jasmin wohnt in der Innenstadt und kann nicht verstehen, wieso sich über die Lautstärke im belebten Stadtzentrum beschwert wird, denn auch die Möglichkeit zu feiern macht die Stadt lebenswert. Allein am letzten Samstag kamen **die Polizisten**, die der nächtlichen Ruhestörung nachgehen müssen,

dreimal in Folge, um in den Kneipen und auf Partys um Rücksicht zu bitten. Wer hat die Beschwerden entgegengenommen und um Ruhe gebeten?

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Item 42

• Das ist Laura. Laura hat sich bei einem Versuch trotz der Schutzkleidung eine üble Verätzung zugezogen, die in der Notaufnahme behandelt werden musste. Trotz Ermahnung hielten sich viele **der Laboranten**, die regelmäßig belehrt wurden, dennoch nicht an die Sicherheitsbestimmungen und ignorieren die Vorschriften. Wer geht zu fahrlässig mit den Sicherheitsmaßnahmen um?

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Item 43

• Das ist Frau Brandt. Frau Brandt ist skeptisch, ob die Erhöhung der Abschlagszahlungen zumutbar ist. Zuletzt haben **die Vertragspartner**, die sich über die genaue Umsetzung beraten, vorgeschlagen sie mindestens gemäß der Inflation zupassen. Wessen Vorschlag traut Frau Brandt nicht?

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• Das ist Ronja. Ronja hat sich für den Marathon angemeldet und wird zum ersten Mal mitlaufen. Im Gegensatz zu **den Konkurrenten**, die dafür ambitioniert trainieren und mit dem Ziel teilnehmen, einen Platz auf dem Treppchen zu erklimmen und eine Medaille verliehen zu bekommen, sollen der Spaß und das Durchhaltevermögen im Vordergrund stehen. Wem geht es beim Marathonlauf ums Gewinnen?

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Item 46

• Das ist Kira. Kiras Mutter ist an Demenz erkrankt und ist ratlos, was jetzt zu tun ist bevor die Symptome sich verschlimmern. Vom sozialen Pflegedienst wird geraten, schon frühzeitig nach der Diagnose eine Pflegestufe zu beantragen, sodass **die Betreuer**, die entsprechend ausgebildet sind, sich bald kümmern und zur Entlastung der Angehörigen beitragen können. Wer kann vom Pflegedienst benachrichtigt werden, um sich zu kümmern?

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Item 47

• Das ist Lucy. Lucy hat sich über das Streikrecht informiert und sich telefonisch erkundigt, ob berufliche Nachteile entstehen können. Wegen den erfolglosen Tarifverhandlungen bisher fordern **die Gewerkschafter**, die zum Streik aufgerufen haben, die Arbeit so lange niederzulegen, bis die Gespräche nennenswerte Ergebnisse bringen. Von wem ging der Aufruf zum Streik aus?

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Item 48

• Das ist Marlen. Marlen ärgert sich beinahe täglich auf der Autobahn darüber, dass bei Stau keine Rettungsgasse gebildet wird. Sollte es zu einem Unfall kommen, versperren die Autos **den Rettungshelfern**, die wegen der vollen Fahrbahn nur diese freie Spur nutzen können, den Weg und verzögern den Einsatz, was Menschenleben kosten kann. Wer muss auf schnellstem Wege die Fahrbahn zur Unfallstelle durchfahren können?

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Satz 0A

• Das ist Karina. Karina unterrichtet seit Kurzem eine neue Klasse und hat vorgeschlagen, im nächsten Jahr mit der Klasse nach Frankreich zu fahren. Beim Elterntag besprechen die engagierten Mütter, die bereits die letzte Klassenfahrt organisiert haben, was bei der Reise Minderjähriger ins Ausland zu beachten ist und welche Reiseangebote eingeholt werden. Wer organisiert mit viel Engagement die Klassenfahrt?
Hat die Klasse vor, nach Finnland zu fahren?

Satz 0B

• Das ist Thomas. Thomas ist fährt lange Strecken mit dem LKW und ist selten zuhause bei der Familie. Nach einem langen Gespräch wird beschlossen, sich selbstständig zu machen und mit befreundeten Vätern, die ihren Bürojob satt haben, eine Fahrschule im Ort aufzubauen. Wer möchte den Job im Büro loswerden?
Möchte Thomas sich selbstständig machen?

Satz 0C

• Das ist Achim. Achim ist bei der Freiwilligen Feuerwehr aktiv und stellt das neue Einsatzfahrzeug vor, das größtenteils mithilfe von Spendengeldern finanziert werden konnte. Für den nächsten Tag wird ausgemacht, dass zuerst die Feuerwehrleute, die im Dienst sind, das Löschfahrzeug probefahren und die Leiter ausfahren, die bis zum Dach des 10-stöckigen Hochhauses reichen soll. Wer fährt das neue Einsatzfahrzeug zuerst Probe?

Satz 1

• Das ist Maja. Maja kam neu in die Krabbelgruppe, hat aber keinerlei Schwierigkeiten sich einzugewöhnen und kommt im Unterschied zu den meisten Sprösslingen, die sonst nie von den Eltern getrennt waren und infolgedessen in der Anfangszeit langwierige Probleme damit hatten, bisher gut in dem neuen Alltag und Umfeld zurecht. Wer bekommt in der Eingewöhnungsphase aufgrund der Trennung von den Eltern Probleme?
Ist die Eingewöhnung im Kindergarten immer für alle leicht?

Satz 2

• Das ist Dorothea. Dorothea wurde kürzlich an der Hüfte operiert wurde und wird wochenlang nicht laufen können. Zum Zeitvertreib möchte Dorothea Hobbies von früher wieder aufnehmen, zum Beispiel stricken. Im Nähzirkel bringen sich die Damen, die mit Leidenschaft stricken und nähen, gegenseitig Handarbeiten bei und tauschen bei den wöchentlichen Treffen neue Muster aus. Bei wem kann Dorothea sich melden, um gemeinsam Handarbeiten anzufertigen?
Trifft sich der Nähzirkel einmal wöchentlich?

Satz 3

• Das ist Elisabeth. Elisabeth hat sich vorgenommen, in dem frisch renovierten Wintergarten die Dielen selbst zu verlegen. Beim Einkauf der Bretter im Baumarkt fragt Elisabeth die Schwiegerväter, die angeregt über Holzarbeiten fachsimpeln, nach dem besten Vorgehen bei der Verarbeitung der Holzdielen, nützlichem Werkzeug und geeigneten Materialien. Wen fragt Elisabeth wegen der Holzarbeiten um Rat?
Wurde das Bad frisch renoviert?

Satz 4

• Das ist Antonia. Antonia macht gerade ihr Abitur und hat für die Abiklassen des gesamten Jahrgangs T-Shirts drucken lassen. Leider ging beim Druck etwas schief, sodass ein peinlicher Schreibfehler auf der

Vorderseite prangt und jetzt die Heranwachsenden, die gespart und zusammengelegt hatten, beraten, ob neu gedruckt oder es so belassen wird, da die Kosten sonst bei der Abschlussfahrt fehlen würden. Wer hatte extra das Geld für das Drucken von T-Shirts zusammengelegt?
Sind die T-Shirts für die Abschlussklassen fehlerhaft?

Satz 5

• Das ist Svenja. Svenja muss laut Gesetzgebung hohe Steuern für Immobilien zahlen, die von den Eltern geerbt wurden, wenn nicht selbst darin gewohnt wird. Svenja möchte sich mit den jüngeren Schwestern, die die Immobilie anteilig geerbt haben, austauschen, bevor das Haus der verstorbenen Eltern verkauft wird. Mit wem berät sich Svenja?
Ist das Haus schon verkauft worden?

Satz 6

• Das ist Katharina. Katharina war letzte Woche auf einer Firmenfeier, bei der die Musik so gut ankam, dass ausnahmslos alle Gäste getanzt haben. Noch in derselben Nacht hat Katharina angefragt, ob die Schwager, die sich bei der Feier um die Musik gekümmert haben, nicht auch auf der Silberhochzeit für Unterhaltung sorgen könnten. Wen spricht Katharina wegen der guten Musik / Musik für die Silberhochzeit an?
Haben auf der Feier alle getanzt?

Satz 7

• Das ist Diana. Dianas Eltern sind über 80 Jahre alt und möchten den Stammbaum so weit wie möglich rekonstruieren. In einem Familienalbum aus einer Kiste im Keller sind alte Fotos aus mehreren Generationen eingeklebt, doch die ältesten Vorfahren, die nur namentlich bekannt sind, können leider nicht eindeutig zugeordnet werden. Von wem sind nur Namen bekannt, die sich nicht mehr zuordnen lassen?
Wollen Dianas Eltern mithilfe eines Gentestes ihre Abstammung zurückverfolgen?

Satz 8

• Das ist Kim. Kim ist getauft, wobei die engsten Bekannten der Eltern Patenschaften eingegangen sind. Seitdem bekommt Kim von den Patentanten, die bei allen wichtigen Anlässen beim dabei sind und das Patenkind unterstützen, kleine Aufmerksamkeiten. Von wem bekommt Kim Unterstützung und Kleinigkeiten geschenkt?
Wurden für Kim bei der Taufe Patenschaften übernommen?

Satz 9

• Das ist Viktoria. Viktoria hat erfahren, dass bei Ausgrabungen noch immer beigelegte Gaben und Reichtümer aus längst vergangenen Zeiten entdeckt werden. In einer umfänglich recherchierten Reportage über Archäologie wurde veranschaulicht, mit welcher Sorgfalt ägyptische Könige, die Pharaonen genannt werden, aufwendig mumifiziert und mit kostbaren Gaben ausgestattet begraben wurden. Wer wurde aufwendig hergerichtet bestattet?
Ging es in der Reportage um Mikrobiologie?

Satz 10

• Das ist Mathilda. Mathilda kann die Diskussion um Trinkwasser und dessen Qualität gut nachvollziehen und lässt die Leitungen im Haus auf Rückstände an Schadstoffen und Verunreinigungen überprüfen. Zwar müssen bei Leitungswasser Grenzwerte eingehalten und streng kontrolliert werden, allerdings ist bei der Zubereitung von Nahrung für Säuglinge, die bei geringen Mengen an Krankheitserregern erkranken können, höchste Wasserreinheit verlangt. Für wessen Nahrung muss das Wasser frei von Krankheitserregern sein?
Veranlasst Mathilda eine Überprüfung der Trinkwasserleitungen?

Satz 11

• Das ist Bianca. Bianca hat als letzte in ihrem Freundeskreis geheiratet und zieht sich seitdem spürbar zurück, weshalb sich das Umfeld schon Sorgen macht. Weil jede Einladung ausgeschlagen wurde oder eine Ausrede erfunden wird, beschließen die anderen Ehefrauen, die sich im Café getroffen haben, noch am gleichen Tag spontan einen Besuch abzustatten. Wer möchte bei einem unangekündigten Besuch nach Bianca sehen?

Trifft Bianca sich noch häufig mit dem Freundeskreis?

Satz 12

• Das ist Aileen. Aileen geht gern in Ausstellungen und genießt die besondere Atmosphäre bei einem Urlaub in Paris. Im pyramidenförmigen Louvre-Museum ist es ein großes Ärgernis, dass nur noch eine überschaubare Anzahl an Menschen zur Besichtigung hereingelassen wird, nachdem die ungezogenen Bengel, die die Ausstellung ohne Erziehungsberechtigte besucht hatten, einige wertvolle Gemälde beschädigt haben. Wer war unbegleitet im Museum und hat Gemälde beschädigt?

Werden nur noch kleinere Gruppen zur Besichtigung ins Museum gelassen?

Satz 13

• Das ist Mila. Mila fasst die Ergebnisse einer Umfrage unter jungen Menschen zum Rauchen zusammen, laut der in den letzten Jahren ein kontinuierlicher Rückgang beim Tabakkonsum zu beobachten war. Online durchgeführte Studien zum Drogenkonsum möchten insbesondere bei Minderjährigen, die einen starken Drang haben Substanzen mal zu probieren und den Effekt erlebt zu haben, herausfinden, ob stattdessen der Konsum anderweitiger Rauschmittel zunimmt. Bei wem soll untersucht werden, ob statt des Rauchens der Drogenkonsum ansteigt?

Fertigt Mila eine Zusammenfassung einer Umfrage zu Gewalterfahrungen an?

Satz 14

• Das ist Tina. Tina ist im 4. Monat schwanger, erwartet das erste Kind und fragt sich, ob eine Hausgeburt in Frage kommt. In einem Vorbereitungskurs besteht das Angebot, die erfahreneren Schwangeren, die schon Kinder haben und bereits wissen, was dabei zu beachten ist, zu möglichen Komplikationen bei einer Entbindung zuhause zu befragen und in einem Gespräch die Vor- und Nachteile abzuwägen. Bei wem kann Tina sich erkundigen?

Ist Tina zum ersten Mal schwanger?

Satz 15

• Das ist Judith. Judith arbeitet während der Sommerferien in einem beliebten Eiscafé am Stadtrand. Fast täglich kommen dann die Neffen, die schulfrei haben, mit den Fahrrädern vorbei und möchten eine Kugel Eis vom Taschengeld kaufen. Wenn Judith allein im Laden ist, gibt es die sogar extra groß und umsonst. Wer kommt fast jeden Tag für ein Eis ins Café?

Arbeitet Judith in einem Imbiss in der Stadtmitte?

Satz 16

• Das ist Gertrud. Gertrud lebt mittlerweile allein in dem großen Haus, in dem einmal bis zu 3 Generationen unter einem Dach zusammenlebten. Ganz in der Nähe werden Wohnhäuser barrierearm umgebaut und renoviert, in denen bald mehrere Seniorinnen, die nicht vereinsamen wollen, wie in einer Wohngemeinschaft zusammenwohnen können. Mit wem könnte Gertrud zusammen wohnen, um nicht einsam zu sein?

Werden Wohnungen zu altersgerechten Wohngemeinschaften umgebaut?

Satz 17

• Das ist Lena. Lena beklagt, dass Hass im Internet zunimmt und sieht besonders den Jugendschutz gefährdet. Einer Befragung zufolge kommt es in Chatgruppen häufig zu Beleidigungen bis hin zu Bedrohungen. Die Statistik zeigt, dass sogenanntes Cybermobbing vor allem junge Frauen, die oft gezielt als Opfer ausgesucht werden, und deren Familien betrifft. Wer wird oft gezielt digital bedroht?
Ist Cybermobbing ein ernstzunehmendes Problem für den Jugendschutz?
Satz 18
• Das ist Lea. Lea absolviert das Pflichtpraktikum bei der Ausbildung auf der Geburtshilfestation im Krankenhaus. Heutzutage wünscht sich die Mehrheit der werdenden Eltern ein Familienzimmer mit den Neugeborenen, die nach der Geburt medizinisch versorgt werden müssen und so in den ersten Tagen gemeinsam im familiären Umfeld betreut werden können. Wer wird in den ersten Tagen nach der Geburt in Familienzimmern umsorgt?
Absolviert Lea das Praktikum bei der Unfallchirurgie?
Satz 19
• Das ist Nina. Nina kümmert sich beherzt um Tiere, die verletzt sind oder verstoßen wurden. Nina ist stolz auf die kleinen Brüder, die den verletzten Igel in die Praxis gebracht haben, denn als Einzelgänger hätte das kleine stachelige Wesen sonst keine Chance bei der Nahrungssuche in der kälteren Jahreszeit. Wer kam mit einem Igel in die Praxis?
Wurde eine verletzte Fledermaus zur Behandlung abgegeben?
Satz 20
• Das ist Monika. Monika ist zu dem Schluss gekommen, den Streit beizulegen und sich in Zukunft in die Erziehung nicht mehr einzumischen. Im Gespräch mit anderen Schwiegermüttern, die ähnliche Konflikte kennen und heutige Erziehungsmethoden oftmals fragwürdig finden, wurde deutlich, dass letztlich nur die Beziehung zu den Kleinen darunter leidet. Wer kennt Monikas Ärger über heutige Erziehungsmethoden nur zu gut?
Wird Monika zukünftig bei Erziehungsfragen Streit vermeiden?
Satz 21
• Das ist Eva. Eva möchte nicht länger wie ein Kleinkind behandelt werden, hat daraufhin das Zimmer umdekoriert und den Freundeskreis gewechselt. Statt mit den anderen Kindern aus der Straße verabredet sich Eva neuerdings mit den Pubertierenden, die schon in die höheren Klassenstufen gehen, und seit Kurzem wird die vereinbarte Zeit, zu der abends nach Hause gekommen werden soll, nicht mehr eingehalten. Mit wem trifft sich Eva neuerdings lieber?
Kommt Eva pünktlich wie vereinbart nach Hause?
Satz 22
• Das ist Alina. Alina ist ein Leichtathletik-Talent und kann stolz eine Urkunde über den 1. Platz präsentieren. Beim Sportfest an der Schule ist Alina schneller gelaufen und weiter gesprungen als alle anderen Mädchen, die gegeneinander angetreten sind, obwohl die älteren schon länger Sport machen. Wen hat Alina mit der sportlichen Leistung übertroffen?
Hat Alina den 3. Platz belegt?
Satz 23
• Das ist Valentina. Valentina liebt kurze Ausflüge über das Wochenende und fährt so oft es geht mit den anderen in das abgelegene Ferienhaus an der Ostsee, wo sich selbst versorgt wird. Für die anstehenden Feiertage planen die Ehemänner, die den Winter nicht am Meer verbringen möchten, einen Kurzurlaub zum

Skifahren in den Bergen in einem 4-Sterne-Hotel mit hauseigener Sauna und Vollverpflegung. Wer möchte zum Skiurlaub in die Berge verreisen?
Fährt Valentina am liebsten auf einen abgelegenen Bauernhof?
Satz 24
• Das ist Sina. Sina hält ein Referat über die Aufbereitung von Regenwasser und wie es zum Duschen oder sogar Trinken nutzbar gemacht werden kann. Der Aufwand, den die Wasserwerke dafür betreiben müssten, lohnt sich und in der Diskussion schlagen die anderen Kinder, die erstaunt von der Einfachheit dieser Möglichkeit sind, vor zusätzlich die umweltschädlichen hohen Schadstoff- und Abwasserbelastungen zu reduzieren. Wer ist erstaunt, wie leicht sich Regenwasser zunutze gemacht werden kann?
Behandelt das Referat verunreinigtes Grundwasser?
Satz 25
• Das ist Emma. Emma belegt einen Kochkurs für Fortgeschrittene und erlebt fast jedes Mal einen Generationenkonflikt. Obwohl viele junge Leute wieder Brot selber backen, regionale Produkte verwenden und sich von alten Kochbüchern inspirieren lassen, behaupten die Großmütter, die lautstark und stolz althergebrachte Rezepte von früher preisgeben, dass durch Fertiggerichte und Fast Food die traditionellen Speisen und das Wissen um hilfreiche Küchentipps verloren gingen. Wer sieht die althergebrachten Kochkünste durch Fertiggerichte verloren?
Belegt Emma einen Sprachkurs für Fortgeschrittene?
Satz 26
• Das ist Frau Mayer. Frau Mayer liebt die wunderschön bepflanzten Blumenbeete und beschwert sich am Gartenzaun zum benachbarten Grundstück darüber, dass die frechen Gören, die auf frischer Tat ertappt wurden, unerlaubt über den Zaun klettern und achtlos durch die gepflegten Blumenbeete rennen. Wer wurde dabei erwischt, die Blumen im Nachbargarten zu zertreten?
Liegen Frau Mayer die Blumenbeete am Herzen?
Satz 27
• Das ist Isabell. Isabell ist sauer, weil sich nicht gut um den Hund gekümmert wurde. Stattdessen wurde der zutrauliche Welpe gequält. Für den Streich bekamen die Jungs, die den Hund ans Karussell angebunden haben, großen Ärger und müssen als Strafe im Tierheim aushelfen. Wer hat den Hundewelpen auf dem Spielplatz gequält?
Ist eine Katze geärgert wurden?
Satz 28
• Das ist Charlotte. Charlotte arbeitet 6 Monate lang durchgängig auf einem erstklassigen Kreuzfahrtschiff und kann manchmal kaum glauben, wie nobel es dort zugeht. Trotz der verheerenden Umweltbilanz ziehen Schiffsreisen unverändert tausende Reiselustige an, die den Luxus genießen, vor allem aber ältere reiche Witwen, die ohne großen Aufwand die Welt bereisen wollen, mit dem Ersparten bequem per Katalog buchen und im Taxi direkt bis zum Hafen gefahren werden. Wer verreist im Alter gern mit einem komfortablen Kreuzfahrtschiff?
Arbeitet Charlotte mehrere Monate in einem Freizeitpark?
Satz 29
• Das ist Herr Müller. Herr Müller ist für die stichprobenartige Überprüfung von Lebensmitteln zuständig. Bei der letzten Untersuchung wurden fertig abgepackte Salate aus verschiedenen Supermärkten auf enthaltene Bakterien getestet, von denen kein Produkt zufriedenstellend abschnitt. Der Verzehr der verunreinigten

Speisen ist insbesondere für ältere Menschen, die wegen schwächerer Abwehrkräfte haben mit stärkerer Unverträglichkeit reagieren, gesundheitlich höchst bedenklich. Für wen birgt der Verzehr der abgepackten Salate Risiken?

Waren die überprüften Obstsalate unbedenklich und frisch?

Satz 30

• Das ist Frederic. Frederic bereitet für den Geschichtsunterricht einen Vortrag über bedeutende Thronfolgen vor. Am interessantesten sind die Biografien der Kaiserinnen, die die verliehene Macht nach der Vermählung und Krönung nicht selten ausübten, um den Kaisergatten zu entmachten und alleinherrschend den Thron einzunehmen. Wer übernahm nach der Entmachtung nicht selten den Thron?

Hat Frederic einen Vortrag für die Geschichtsstunde vorbereitet?

Satz 31

• Das ist Friedrich. Friedrich hat eine spannende Dokumentation über den Bau von Burgen im Mittelalter gesehen. Zu dieser Zeit befahlen Kaiser, die nicht selten den gleichen Namen wie Friedrich trugen, die Errichtung von befestigten Anlagen aus Stein, meist auf einer Anhöhe und umgeben von einem Schutzwall, um sich und die Bevölkerung gegen feindliche Angriffe zu verteidigen und angreifende Heere schon von Weitem sichten zu können. Wer befahl, steinerne Burganlagen und Schutzwälle zu errichten?

Hat Friedrich einen Film über den Mauerfall gesehen?

Satz 32

• Das ist Moritz. Moritz beobachtet mit Sorge, wie viele sich lieber digital treffen und Computer spielen anstatt draußen zu spielen. Das Gesundheitswesen findet diesen Zustand alarmierend und warnt, dass eine mangelnde Bewegung bei Jugendlichen, die noch im Wachstum sind, zu einem höheren Krankheitsrisiko führt, da eine Unterentwicklung des Skeletts spätere folgenschwere Haltungsschäden bewirken kann. Wer bewegt sich zu wenig draußen und riskiert Wachstumsschäden?

Führt Bewegungs- und Nährstoffmangel zu einem höheren Risiko für Krankheiten?

Satz 33

• Das ist Michael. Michael entwirft Holzspielzeug für Kinder ohne Plastikzusätze. Zahlreiche Spielzeughersteller verwenden Farben und Lacke, die gesundheitlich nicht unbedenklich sind, deshalb bekommen die Nichten, die am liebsten mit der Holzeisenbahn spielen, nur noch handgefertigte Spielwaren aus ökologisch einwandfreier Eigenproduktion. Wer spielt gern mit der Holzeisenbahn?

Erstellt Michael Stofftiere für Kinder?

Satz 34

• Das ist Richard. Richard hat sich im Naturkundemuseum die aktuelle Ausstellung angesehen. Im Museum sind die Vitrinen gefüllt mit Schätzen von Fürsten, die im Heiligen Römischen Reich geherrscht haben, und die Tafeln daneben informieren darüber, welche Kulturgüter bewahrt werden konnten und wie diese Artefakte damals genutzt wurden. Wessen Besitztümer zeigt die Ausstellung?

Stellt das Museum aktuell die Zeit des Heiligen Römischen Reiches aus?

Satz 35

• Das ist Konstantin. Konstantin soll einen Kurzvortrag über eine Skulptur seiner Wahl halten. Die meisten Objekte werden jedoch nur als Fotografie oder Kopie ausgestellt und dürfen nicht berührt werden. Deshalb ist es nicht verwunderlich, dass die anderen Teenager, die sich wundern, wieso so viel Eintritt für Fälschungen gezahlt werden musste, schnell gelangweilt sind und lieber die Stadt erkunden wollen. Wer möchte lieber die Stadt anstelle von Skulpturen erkunden?

Soll Konstantin einen Kurzvortrag über eine Stadt seiner Wahl halten?

Satz 36

• Das ist Ludwig. Ludwig geht im nächsten Jahr in Pension und freut sich am meisten darauf, endlich genügend Zeit zu haben, die Welt zu erkunden. Als erstes ist eine Reise quer durch die USA mit den Enkeltöchtern, die die gelernten Englischkenntnisse unter Beweis stellen können, geplant. Mit wem möchte Ludwig nach Amerika reisen?

Werden Englischkenntnisse von Vorteil sein?

Satz 37

• Das ist Bernd. Bernd organisiert im nächsten Sommer wieder ein großes Grillfest im Garten. Das Treffen einmal im Jahr, zu dem die älteren Cousins, die mehrere Autostunden weit weg wohnen und trotz der Entfernung hoffentlich kommen werden, hat sich zu einer beliebten Tradition entwickelt. Wer wird von Bernd zum Grillen im Garten eingeladen?

Wird Bernd in einer Gaststätte feiern?

Satz 38

• Das ist Josch. Josch war zum ersten Mal auf einer Party, die mehrere Tage ohne Unterbrechung lief, und hat geschworen, kein Wort darüber zu verlieren. Andernfalls würden die fast volljährigen Geschwister, die jeden Monat auf solche Partys gehen, Josch kein weiteres Mal mitnehmen, da die Eltern verbieten würden, nachts noch unterwegs zu sein und es für alle eine saftige Bestrafung gäbe. Wer feiert fast jeden Monat mehrtägige Partys?

Wurde die Party heimlich ohne Erlaubnis besucht?

Satz 39

• Das ist Adrian. Adrian hat sich neuerdings ein ganz schön freches Verhalten abgeschaut. Adrian hat nämlich vier genauso kesse Tanten, die allerhand Quatsch beibringen und Streiche spielen, sodass so ausgelassen gelacht wird, dass manchmal alle Bauchschmerzen davon bekommen und einen Waffenstillstand zum Durchatmen vereinbaren. Wer macht mit Adrian Quatsch?

Hat Adrian nur eine Tante?

Satz 40

• Das ist Wilhelm. Wilhelm ordnet und überwacht die Garderobe beim feierlichen Empfang anlässlich der Schließung des letzten traditionsreichen Bergwerks. Nach über 100 Jahren Betrieb wurde die letzte Zeche zur Steinkohleförderung im Ruhrgebiet geschlossen, in der die betagten Kohle-Kumpel, die sich seitdem nicht mehr gesehen haben, über Jahre hinweg untertage tätig waren. Wer hat früher untertage im Bergbau gearbeitet?

Wurde das letzte Kohlebergwerk nach über 100 Jahren geschlossen?

Satz 41

• Das ist Oskar. Oskar ist 11 Jahre alt und erschrocken darüber, wie viel Kinderarbeit es weltweit gibt, weil Familien in Armut ihr Überleben sichern müssen, indem alle gezwungen sind zum Einkommen beizutragen. Zwar ist es in den allermeisten Ländern verboten, trotzdem werden die Kinder, die häufig ohne Anstellung im Familienbetrieb aushelfen, von klein auf vom Schulbesuch und damit von höheren Bildungsgraden abgehalten. Wer trägt insbesondere unter Armutsverhältnissen zum Einkommen bei, obwohl es illegal ist?

Konnte Kinderarbeit weltweit abgeschafft werden?

Satz 42

• Das ist Oliver. Oliver hat sich günstig ein kleines gebrauchtes Auto zugelegt. Damit können die Einkäufe der Urgroßmütter, die nicht mehr so schwer tragen können, einmal die Woche transportiert werden und zum Dank gibt es etwas Geld und frischen Kuchen. Für wen werden die Einkäufe transportiert? Wem wird mit dem Einkauf geholfen?

Hat Oliver einen kleinen Gebrauchtwagen gekauft?

Satz 43

• Das ist Niko. Niko wünscht sich zum Geburtstag sehnlichst einen Roller, denn die Nachbarsjungen, die es nicht lassen können damit anzugeben, haben auch einen, mit dem so getan wird, als wäre es ein richtiges großes Motorrad und alle seien schon volljährig. Gefährlich wird es jedes Mal, wenn mit dem Roller geprahlt wird und auf der Straße gefahren wird, obwohl die Erwachsenen es ausdrücklich verboten haben. Wer gibt mit dem Roller an?

Wünscht sich Niko zum Geburtstag ein neues Fahrrad?

Satz 44

• Das ist Julius. Julius führt in den kommenden zwei Wochen ein Projekt zu Nachhaltigkeit und Umwelt durch, das mit korrekter Mülltrennung beginnt. Ziel ist es, mit den Teenagern, die sich bisher für Abfallentsorgung wenig interessiert haben, die Wiederverwendung von Material durch effizientes Recycling von Rohstoffen nachzuvollziehen, wodurch Ressourcen für künftige Generationen geschont werden. Wer hat sich vor dem Projekt kaum für die Auswirkungen von Abfalltrennung interessiert?

Werden Projektwochen zu Umwelt und Nachhaltigkeit durchgeführt?

Satz 45

• Das ist Matthias. Matthias beschäftigt sich seit frühester Kindheit in der Freizeit mit kniffligen Fragen rund um den Weltraum und weiß viel darüber zu erzählen. Bei jeder Gelegenheit möchten die wissbegierigen kleinen Cousinen, die das faszinierende Hobby teilen, Spannendes aus der Astronomie erfahren, zum Beispiel, warum der Saturn Ringe hat und ob es dunkle Materie wirklich gibt. Wer interessiert sich genau wie Matthias für Weltraumwissen?

Ist Matthias als Astronaut im All gewesen?

Satz 46

• Das ist Max. Max kam nach dem Umzug neu in die 3. Klasse und muss sich erst zurechtfinden. Obwohl Max eher zurückhaltend ist, findet er bei den anderen Jungen, die sich in den Pausen verabreden und im Unterricht zusammen arbeiten, schnell Anschluss und wird auch bald zu den Geburtstagen eingeladen. Wer hat Max schnell angenommen?

Ist Max neu in der Klasse?

Satz 47

• Das ist Vincent. Vincent liebt Mangas, die japanischen schwarz-weiß Comics im Animé-Stil, und besitzt ein komplettes gut sortiertes Regal voll. Im Zeitschriftenladen hängt ein Aushang, dass bei einer Auktion der wertvollste Comic weltweit für mehr als 1 Million Dollar an die jüngsten Mangafans, die selbst schon Comics zeichnen, versteigert wurde und der Erlös der Förderung von Zeichentalenten zugunsten kommen soll. Von wem wurde der teuerste Comic der Welt ersteigert?

Liest Vincent am liebsten Krimis?

Satz 48

• Das ist Joseph. Joseph liest im Wartezimmer einen Artikel über die Gefahr von Masern. Dass die Impfpflicht von manchen umgangen wird, sei fahrlässig. Eine Infektion wäre hoch ansteckend und kann bei

Komplikationen lebensgefährlich verlaufen, darum soll für die Töchter, die noch nicht geimpft sind, schnellstmöglich ein Termin vereinbart werden. Wer muss noch gegen Masern geimpft werden?
Kann sich vor der ansteckenden Maserninfektion mit einer Impfung geschützt werden?
Satz 49
• Das ist Malte. Malte hat bald ein Pflegekind und daher eine Beratungsstelle für Pflegeeltern kontaktiert, denn die Bürokratie und uneinheitliche Informationen können schnell überfordern. Seit Kurzem treffen sich in der Einrichtung auch einige Pflegeväter, die eine Gruppe gegründet haben, um sich darüber auszutauschen, welche Vorgaben es zu beachten gilt und wie sie die Erziehung als nicht leibliche Väter unterstützen können.
Wen kann Malte kontaktieren? / Bei wem kann Malte zum Gruppentreffen gehen?
Ist der bürokratische Aufwand für Pflegeeltern gering?
Satz 50
• Das ist Günther. Günther nimmt sich jeden Freitagnachmittag mit den Enkeltöchtern, die von der Grundschule abgeholt werden, etwas anderes vor. Diesen Freitag ist der lang ersehnte Kinobesuch geplant, denn der neue animierte Film ist endlich erschienen und hat schon beste Bewertungen bekommen. Mit wem möchte Günther ins Kino gehen?
Wird jeden Freitag etwas anderes unternommen?
Satz 51
• Das ist Peter. Peter beobachtet das derzeitige Rentenniveau im Verhältnis zum gesetzlichen Minimum und befürchtet, dass ein marodes Rentensystem bei jungen Menschen Zukunftsängste auslösen wird. Laut Prognose wird sich das in der Wirtschaftskraft und im Sparvorhaben niederschlagen und in den kommenden Jahren nicht bessern, sodass die Erwachsenen, die gering verdienen, gut beraten sind, frühestmöglich Geld anzulegen. Wem wird geraten, so früh wie möglich für das Rentenalter Geld anzulegen?
Wird sich die Lage des Rentenniveaus in den nächsten Jahren bessern?
Satz 52
• Das ist Erik. Erik bekam den Auftrag, ausgefallene Mode zu fotografieren und schaut sich dafür gern die Arbeiten anderer als Inspiration an. In dem aktuellen Katalog wird eine neue Kollektion extravaganter Männermode vorgestellt für „echte Kerle“, die sich mit den kombinierbaren Outfits modebewusst kleiden können, doch in den Galerien zu Modefotografie werden deutlich mehr Fotografien von Frauenkleidung ausgestellt, was nicht weiterhilft. An wen richtet sich die ausgefallene Kollektion im neuen Katalog?
Soll Erik Modefotografien anfertigen?
Satz 53
• Das ist Anton. Anton bettelt bereits seit Tagen, endlich Schokoladenkekse backen zu dürfen, bis aus dem alten Backbuch ein leckeres Rezept herausgesucht wird, zu dem ein paar Zutaten fehlen, die erst eingekauft werden müssen. Am Kühlregal bleiben die Großmütter, die Mehl und Kakao suchen, sprachlos stehen, denn darüber, dass es heutzutage fertigen Plätzchenteig zu kaufen gibt, können die Alten nur den Kopf schütteln.
Wem verschlägt es beim Anblick von fertigem Plätzchenteig die Sprache?
Möchte Anton Pizza backen?
Satz 54
• Das ist Werner. Werner schwimmt auch mit über 60 noch montags und mittwochs in der Freizeit-Schwimmgruppe. Am Wochenende finden in der Schwimmhalle regelmäßig Wettkämpfe statt, bei denen die älteren Herren, die aus Spaß an der Bewegung schwimmen, in der Altersklasse über 60 gegen jüngere Jahrgänge antreten. Wer schwimmt zusammen mit Werner?

Geht Werner in der Freizeit regelmäßig schwimmen?

Satz 55

• Das ist Gustav. Gustav möchte sich rechtzeitig um die Altersvorsorge kümmern und befürchtet eine knappe Rente, die wegen leerer Rentenkassen wie bei vielen Betroffenen nicht einmal den Mindestbedarf zum Leben deckt. Aktuell wird wieder ein Anstieg der Altersarmut verzeichnet, da viele Senioren, die trotz jahrzehntelanger Einzahlungen keine entsprechenden Auszahlungen bekommen, durch prekäre Teilzeitbeschäftigungen mit Nachteilen bei der Altersvorsorge zu rechnen haben. Wer erhält trotz Einzahlung in die Rentenkasse nur geringe Auszahlungen?

Ist Gustav eine vorausschauende Altersvorsorge egal?

Satz 56

• Das ist Emil. Emil sortiert in einem Buchladen die Neubestellungen, um die spärlichen Rentenbezüge aufzubessern. Mit der Zeit haben die Schwägerinnen, die das Geschäft besitzen, neben den Büchern mehr und mehr elektronische Literatur aufgenommen, bei der selbst historisch wertvolle Werke nun auf Datenträger ausgeliehen oder gegen eine Gebühr heruntergeladen werden können. Wer führt den Buchladen?

Bietet das Geschäft Bücher auch in elektronischer Form an?

Satz 57

• Das ist Adam. Adam fährt jeden Tag Straßenbahn und ärgert sich über die pessimistischen Gespräche, die dort von Tag zu Tag geführt werden. Lauthals empören sich schlechtgelaunte Greise, die täglich an der gleichen Station ein- und aussteigen, über gestiegene Ticketpreise und klagen über unfreundliche Jugendliche. Wer schimpft in der Straßenbahn über Preissteigerungen?

Fährt Adam jeden Tag mit einer Mitfahrgelegenheit? / Fährt Adam jeden Tag mit der Straßenbahn?

Satz 58

• Das ist Heinrich. Heinrich hat einen skandalösen Bericht über Steuerhinterziehung bei Firmen, die an Nachfahren weitervererbt werden, gesehen. Getarnt in einem verzweigten und schwer nachweisbaren System aus Tochtergesellschaften im Ausland können die Umsätze solcher Firmen, die noch die Urgroßväter gegründet hatten, zu einem geringeren Zinssatz versteuert werden und dadurch Ersparnissen bei den Abgaben verzeichnet werden. Wer gründete die Firmen damals, aus denen nun Steuervorteile gezogen werden?

Hat der Bericht enthüllt, wie Unternehmen Steuern einsparen?

Satz 59

• Das ist Karl. Karl entschlossen eine Lehre als Koch zu beginnen und schreibt fleißig Bewerbungen. Während die Aussicht auf einen Ausbildungsplatz gut ist, da der Nachwuchs überall in den Restaurants fehlt, ist die Abbruchquote sehr hoch bei gleichaltrigen Junggesellen, die neu in den Berufszweig einsteigen, hauptsächlich wegen der späten Arbeitszeiten und vergleichsweise niedrigen Bezahlung. Bei wem ist die Quote, die Kochlehre abzubrechen, sehr hoch?

Werden Bewerbungen für ein neues Studium / einen Ausbildungsplatz geschrieben?

Satz 60

• Das ist Ulli. Ulli hat eigentlich den Transporter nur zum Wechseln der Winterreifen in die nahegelegene Werkstatt gebracht, bei der Überprüfung fielen jedoch mehr Mängel auf als erwartet. Zum Glück betreiben die Onkel, die immer eine helfende Hand bei Problemen mit dem Wagen haben, eine eigene große

Werkstatt, bei der eine Zweitmeinung eingeholt und ein Freundschaftspreis ausgehandelt werden kann. Wer hilft mit der eigenen Werkstatt gern aus?
Wollte Ulli eigentlich nur Reifen wechseln?

App. A3

Example Translations of Critical Experimental Items

Item 1 *(male name of protagonist, name included in the referent identification question)*

• This is Martin. Martin has recently become actively engaged at the University and informed the student council of the new master's programme about inadmissible examination requirements. Now, **the students [MASC. / FEM. / GNEUTRAL]** who are representatives of the student council want to start a petition. Who wants to change something following Martin's suggestion?

Item 31 *(female name of protagonist, not named in the referent identification question)*

• This is Kathi. Kathi is flying to America to visit relatives. During a long-distance flight **the flight attendants [MASC. / FEM. / GNEUTRAL]**, who go through the rows of seats several times and hand out blankets, are used to many people falling asleep right after take-off. Who is taking care of the passengers?

Example Translations of Filler Items

Sentence 19

• This is Nina. Nina takes good care of animals that have been injured or abandoned. Nina is proud of **the little brothers**, who took the injured hedgehog to the vet surgery, because the little spiky creature, being such solitary animal, would have stood no chance when searching for food during the colder season. Who came to the vet surgery with a hedgehog?

• Was an injured bat brought there to be examined?

A1.1
List of Critical Nouns for Experimental Items

Experimental Item			**Translation**
Masculine	Feminine	Gender-Neutral	
Abteilungsleiter	Abteilungsleiterinnen	Abteilungsleitungen	head of department
Alkoholiker	Alkoholikerinnen	Alkoholabhängige	alcohol addicts
Amtsrichter	Amtsrichterinnen	Amtsgericht	county judge / court
Ansprechtpartner	Ansprechpartnerinnen	Ansprechpersonen	contact (person)
Arbeitnehmer	Arbeitnehmerinnen	Angestellte	employees
Ausbilder	Ausbilderinnen	Ausbildende	instructors
Berater	Beraterinnen	Beratung	consultants / consultation
Betreuer	Betreuerinnen	Betreuungspersonen	caregivers
Buchhalter	Buchhalterinnen	Buchhaltung	book keepers
Fachbereichsleiter	Fachbereichsleiterinnen	Fachbereichsleitungen	team managers
Flugbegleiter	Flugbegleitende	Flugbegleiterinnen	flight attendents
Forscher	Forscherinnen	Forschende	researchers
Geschäftsführer	Geschäftsführerinnen	Geschäftsführung	executive board
Gewerkschafter	Gewerkschafterinnen	Gewerkschaft	workers' union
Haushälter	Haushälterinnen	Haushaltshilfen	home help
Hausverwalter	Hausverwalterinnen	Hausverwaltung	property management
Helfer	Helferinnen	Hilfskräfte	helpers
Interessenten	Interessentinnen	Interessierte	interested parties
Kollegen	Kolleginnen	Kollegium	colleagues
Konkurrenten	Konkurrentinnen	Konkurrenz	competitors
Krankenpfleger	Krankenpflegerinnen	Pflegepersonal	nurses / nursing personnel
Künstler	Künstlerinnen	Kunstschaffende	artists
Kunden	Kundinnen	Kundschaft	customers
Laboranten	Laborantinnen	Laborkräfte	lab(oratory) assistants
Landtagspräsidenten	Landtagspräsidentinnen	Landtagspräsidium	state parliament president / presidency
Lehrer	Lehrerinnen	Lehrkräfte	teachers / teaching staff
Leiter	Leiterinnen	Leitung	superintendents/ managers
Leser	Leserinnen	Leserschaft	readers / readership
Minister	Ministerinnen	Ministerium	ministers / ministry
Mitarbeiter	Mitarbeiterinnen	Beschäftigte	co-workers / employees
Musiker	Musikerinnen	Musizierende	musicians
Patienten	Patientinnen	Kranke	patients
Polizisten	Polizistinnen	Polizei	police officers / police
Prüfer	Prüferinnen	Prüfungskommission	examiner / examining commission
Redakteure	Redakteurinnen	Redaktion	editors / editorial staff
Referenten	Referentinnen	Referierende	referents
Regisseure	Regisseurinnen	Regie	directors (film)
Rettungshelfer	Rettungshelferinnen	Rettungsdienst	ambulance wo/man / emergency medical service
Sachbearbeiter	Sachbearbeiterinnen	Sachbearbeitende	(admin.)responsible person
Studenten	Studentinnen	Studierende	students
Tänzer	Tänzerinnen	Tanzende	dancers
Teilnehmer	Teilnehmerinnen	Teilnehmende	participants
Verkäufer	Verkäuferinnen	Verkaufspersonal	saleswo/man / people
Vertragspartner	Vertragspartnerinnen	Vertragsparteien	contract partner / parties
Vertreter	Vertreterinnen	Vertretungen	representatives
Wähler	Wählerinnen	Wahlberechtigte	voters / eligible voters
Zugbegleiter	Zugbegleiterinnen	Zugbegleitende	train attendants
Zuhörer	Zuörerinnen	Publikum	listeners / audition

A1.2
List of Gender-Neutral Noun Types.

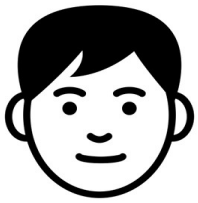
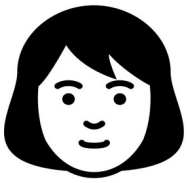
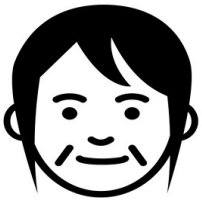
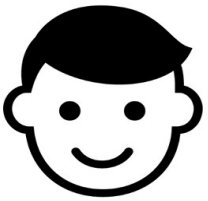
collective singular	nominal. participles	nominalisations	-person compounds
Amtsgericht	Angestellte	Abteilungsleitungen	Ansprechpersonen
Beratung	Ausbildende	Fachbereichsleitungen	Betreuungspersonen
Buchhaltung	Beschäftigte	Vertretungen	Haushaltshilfen
Geschäftsführung	Flugbegleitende	Alkoholabhängige	Hilfskräfte
Gewerkschaft	Forschende	Interessierte	Laborkräfte
Hausverwaltung	Kunstschaffende	Kranke	Lehrkräfte
Kollegium	Musizierende		Verkaufspersonal
Konkurrenz	Referierende		Vertragsparteien
Kundschaft	Sachbearbeitende		
Landtagspräsidium	Studierende		
Leitung	Tanzende		
Leserschaft	Teilnehmende		
Ministerium	Zugbegleitende		
Pflegepersonal	Wahlberechtigte		
Polizei			
Prüfungskommission			
Publikum			
Redaktion			
Regie			
Rettungsdienst			

A2.1 Nouns for Filler Items

Filler	Translation	Filler	Translation
ältere Menschen	elderly people	Mädchen	girls
Bengel	rascals	Mangafans	manga fans
Brüder	brothers	Minderjährige	minors
Cousinen	cousins [female]	Mütter	mothers
Cousins	cousins [male)]	Nachbarsjungen	boys next door
Damen	ladies	Neffen	nephews
echte Kerle	real guys	Neugeborene	newborns
Ehefrauen	wives	Nichten	nieces
Ehemänner	husbands	Onkel	uncles
Enkeltöchter	granddaughters	Patentanten	godaunts
Erwachsene	adults	Pflegeväter	foster fathers
Feuerwehrleute	firefighters	Pubertierende	pubescent [generic]
Frauen	women	Säuglinge	infants
Fürsten	princes [archaic]	Schwägerinnen	sisters-in-law
Geschwister	siblings	Schwager	brothers-in-law
Gören	brats	Schw	pregnant people
Greise	old men (geriatric)	Schwestern	sisters
Großmütter	grandmothers	Schwiegermütter	mothers-in-law
Heranwachsende	adolescents	Schwiegerväter	fathers-in-law
Herren	sirs	Senioren	seniors [male]
Jugendliche	youths	Seniorinnen	seniors [female]
Jungen	boys	Sprössline	offsprings
Junggesellen	bachelors	Tanten	aunts
Jungs	boys [colloquial]	Teenager	teenagers
Kaiser	emperor	Teenager	teenagers
Kaiserinnen	empressess	Töchter	daughters
Kinder	children	Urgroßmütter	greatgrandmothers
Kinder	children	Urgroßväter	greatgrandfathers
Könige	kings	Väter	fathers
Kumpel	miner [male]	Vorfahren	ancestors
		Witwen	widows

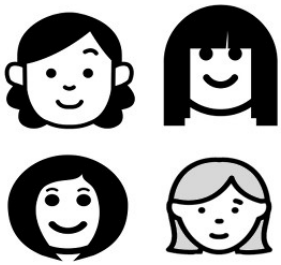
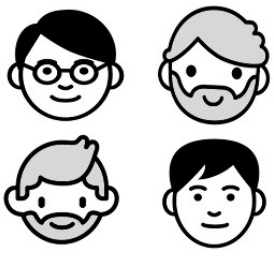
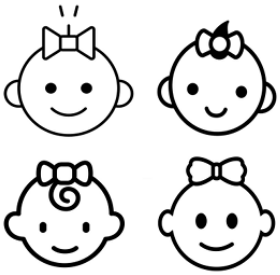
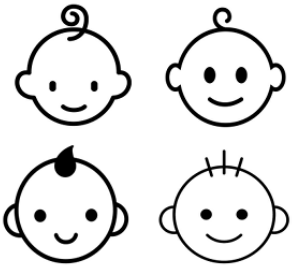
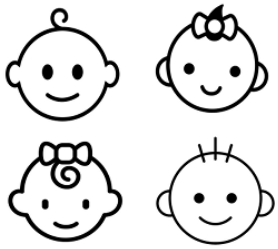
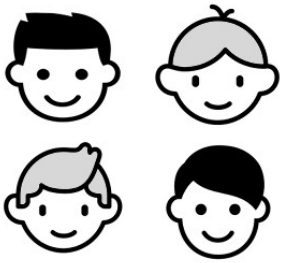
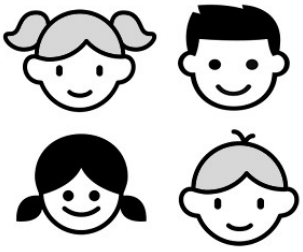
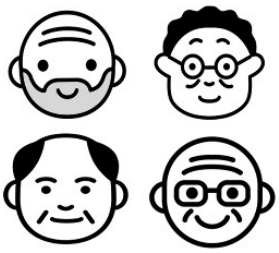
App. B1

Protagonists

Age	Gender: female	Gender: male
Adults		
young		
		
old		
		
Infants		
Children		
		
Seniors		

App. B2

Sets

Gender	all-female	all-male	mixed
Age			
Adults			
Infants			
Children			
Seniors			

App. C1

Instruktionen (German)

Display 1

Anleitung
Hallo und Willkommen zum Experiment
Dir werden gleich mehrere Bilder angezeigt, während du Sätze hörst.
Höre aufmerksam zu, worum es geht.
Am Ende der Sätze folgt eine Frage, bei der du dich für eines der Bilder entscheiden sollst.
Dieses klickst du mit der Maus an.

Klicke um fortzufahren

Display 2

Wähle das Bild aus, das für dich am ehesten zu den gehörten Sätzen passt und als Antwort zu der gestellten Frage passt.
Klicke erst nach der Frage auf das Bild.
Versuche dabei, dich schnell zu entscheiden.
Solltest du unsicher sein, klicke auf das Bild, von dem du denkst, dass es am besten passt.
Dauert deine Antwort zu lang, folgt der nächste Satz.

Klicke, um fortzufahren

Display 3

Zu Beginn jedes Szenarios wirst du einen ○ in der Mitte des Bildschirms sehen.
Du solltest kurz auf diesen Punkt schauen, bis die Bilder erscheinen.
Bitte lass während des gesamten Experiments deine Hand auf der Maus, damit du so schnell wie möglich antworten kannst.
Bei den Verständnisfragen antwortest du, indem du mit der Maus auf
[ja] oder [nein] klickst.

Klicke, um fortzufahren

Display 4

Jetzt werden deine Augen kalibriert.
Danach wirst du ein paar Übungen machen, bevor das Experiment startet.

Klicke um fortzufahren

Display 5

Ende der Übung
Falls du Fragen hast, solltest du sie jetzt stellen.
Ansonsten kannst du das Experiment beginnen!

Klicke um fortzufahren

Display 6

Ende des Experiments
Geschafft!
Du hast die Fragen erfolgreich beantwortet.
Nun hast du dir eine Pause verdient.
Vielen Dank für deine Teilnahme!

Instructions (English)

Display 1

Instruction
Hello. Welcome to the experiment.
While listening to sentences, pictures will be presented to you.
Listen carefully what the sentecnes are about.
At the end of the senteces, a question follows for which you are to decide for one of the images.
Click on this image with the mouse cursor.

Click to continue

Display 2

Please choose the image that most likely matches the sentences you heard; the one that qualifies best as an answer to the question asked.
After hearing the question, click on the picture.
Try to be quick to decide.
If unsure, click on the picture that you think fits best.
If your response takes too long, the next sentence will follow.

Click to continue

Display 3

At the beginning of each scenario, you will see a ○ in the middle of the screen.
You should look at this point shortly until the images appear.
Please leave your hand on the mouse during the entire experiment so you can respond as fast as possible.
To answer comprehensions questions, mouse-click [yes] or [no].

Click to continue

Display 4

Now we calibrate your eyes.
Afterwards, you are going to have some practice before the experiment begins.

Click to continue

Display 5

End of practice
In case you have any questions, now is the time to ask.
Otherwise you may start the experiment!

Click to continue

Display 6

End of experiment
Well done!
You successfully answered all the questions and deserve a break now.
Thank you for your participation!

App. C2

Questionnaire

Vielen Dank für deine Teilnahme. Zum Abschluss des Experiments benötigen wir noch einige Informationen:

Geburtsjahr: _____

Geschlecht, mit dem du dich am ehesten identifizierst:
- ☐ weiblich
- ☐ männlich
- ☐ divers
- ☐ _____

Studiengang: _____
Hochschulsemester: _____
[falls nicht immatrikuliert] höchster Bildungsabschluss: _____

Wie viele Stunden Schlaf hattest du letzte Nacht circa? _____
Hast du gestern Alkohol oder andere Drogen konsumiert?
- ☐ ja
- ☐ nein

Sehschwäche oder Sehhilfe vorhanden?
- ☐ Ja, korrigiert mit Brille
- ☐ Ja, korrigiert mit Kontaktlinsen
- ☐ Nein

politische Einstellung, bei der du dich am ehesten verordnen würdest:
- ☐ links
- ☐ eher links
- ☐ eher rechts
- ☐ rechts
- ☐ weder noch
- ☐ unentschlossen

Worum ging es deiner Einschätzung nach in dem Experiment?
_____
_____

App. C3

Symbolic Orthography to Gender

Introduced first more than three decades ago, the so-called "Binnen-I", an internal capitalisation of suffix onset /i/ as the initial grapheme in contracted co-ordinate expressions, allowed for both a shorter expression of female and male reference by simply "gluing" them together, and increases attention of the feminine suffix by word-internal capitalisation (in resemblance of the feminine-specific plural):

die LehrerInnen[86]. The possibility to pronounce the Gender-indefinite LeserInnen identical to $\text{Leserinnen}_{\text{FEM.PL}}$ would suggest a generic potential that is reserved for masculine forms, an argument which presumably underlies resistance against it. No hostile reactions however have stopped its circulation to spread even outside left-wing or feminist contexts. More frequently however, several other options are preferred in written texts, and both choice and socio-scientific reasons of these have led to a decline in Binnen-Is.

On orthographic strategies, various twists and writing styles have come into play, and have undergone several changes as to which one is preferred in feminist and academic texts (to be differentiated from the style used for publications). Because they ultimately engender and emphasise the feminine suffixation, they are listed above. The advantage of grammatical genus languages that derive another Gender-specific form from a base by affixation is the spectrum to link an amalgamation of dual forms with signs. At this point it should only be mentioned that their dis-/ preference varies with respect to the symbolic meaning signified: the slash symbolises a decision as either / or fe-/male, hence divides Genders quite strictly (*kein/e Lehrer/innen*; the underscore opens a gap into which other Gender identities could fit, but creates a distance that may be metaphorically hard to overcome (*Lehrer_innen*); the asterisk includes Gender identities outside the binary and has been enjoying by far the most approval to pertain to feminist and queer communities as the symbol for spectrum-wide Gender inclusion, however received some criticism lately due to its potential to allow those who intend to use sexist language otherwise to hide behind an – albeit improved – conventionalish formula (*Lehrer*innen*); the colon (adopting the logical predicate of the symbol) visibly creates a continuum from one ending to the other by least disrupting the word (*Lehrer:innen*); and in a combination of the capital "I" and colon, ï has recently been suggested (*Lehrerïnnen*). Symbols like slash, underscore, asterisk, colon, and capital letters (*keineR der Abgeordneten* "$\text{none}_{\text{MASC / FEM}}$ of the delegates) are restricted to written usage and pick up the development of feminine affixes in a unitary word-formation.

Besides the accusation that it "distort[s] orthographic continuity" (Bußmann & Hellinger 2003: 154)[87], word pronunciation was found to be an irresolvable hindrance to even deal with these suggestions by those who have argued for the effectiveness of a masculine "generic" and against reformed language use. Pronunciation may be realised by a glottal stop (contrary to what Bußmann & Hellinger 2003: 154 state, the zero pronunciation formerly criticised as too similar to the feminine has been solved quite a while ago via a glottal stop ("Knacklaut"), a small acoustic pause; masculinguists (German term for linguists who harshly defend the predominant masculinity in language by fighting Gender-equal language reforms) regularly need to be informed of it and calmed down and reminded that there is a pronounceable solution, but see Stefanowitsch 2018). Any orthographic offer presented above can be realised in various nominative singular and plural expressions, as well as modeled on pronouns, modifiers, etc. with a pinch of aptitude (esp. to derive compli-

86 Pusch suggested to better write an exclamation mark (like the letter turned upside down) to achieve even more attention to point to the presence of women*: Lehrer!nnen.

87 Again, the use of such capital letters to link esp. compounds, to visualise this link, and "as an attention-getting device […] has increased in recent years, not only in advertising language", e.g. InterRegio (Bußmann & Hellinger 2003: 154)

cated or oblique case morphology, *den Ärzt*innen* “the$_{DAT}$ doctors$_{MASC * FEM}$”, because masculine dative is contained (Ärzt-*inn*-en), or *den Spieler*innen* (den Spieler*n* + Spielerinnen) although this tendency to neglect case endings for the sake of economic writing / splitting is a rather new one.

App. C4

R Code

The extensive code has been added to the digital version only, for the sake of helping the environment by saving paper. It has been made accessible by the author as this work was officially handed in and initially uploaded, sent to both supervisors and the examination office (Prüfungsamt) at University Potsdam on 13 June 2020, respectively.

The code with which all data analyses were run contains

Script 1: Initial Inspection

Script 2: Basic analyses for behavioural data and fixation data

Script 3: eyetrackingR divergence analyses.

App. D

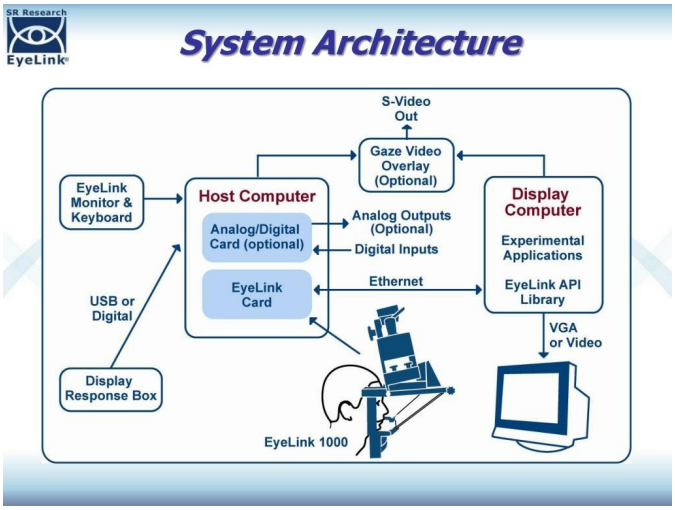
Eye-tracking Set-Up[88]

Presentation PC

Presentation Monitor

Recording PC Camera

Experimenter Participant



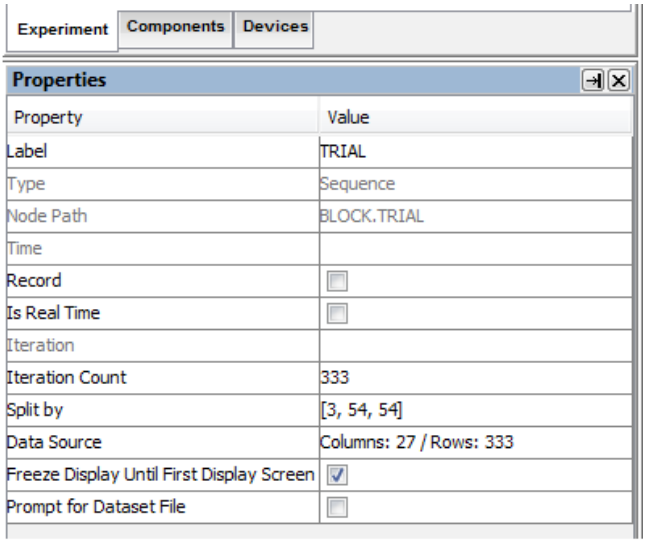
App. D2

Item Structure

Protagonist	Protagonists'	Unfolding	Referent	Comprehension
Introduction	Relation to Situation	Setting	Ident. Question	Question (filler only)
Sentence 1	*Sentence 2*	*Sentence 3*	*Sentence 4*	*Sentence 5*
	RoI1: critical NP	relative clause	RoI2	

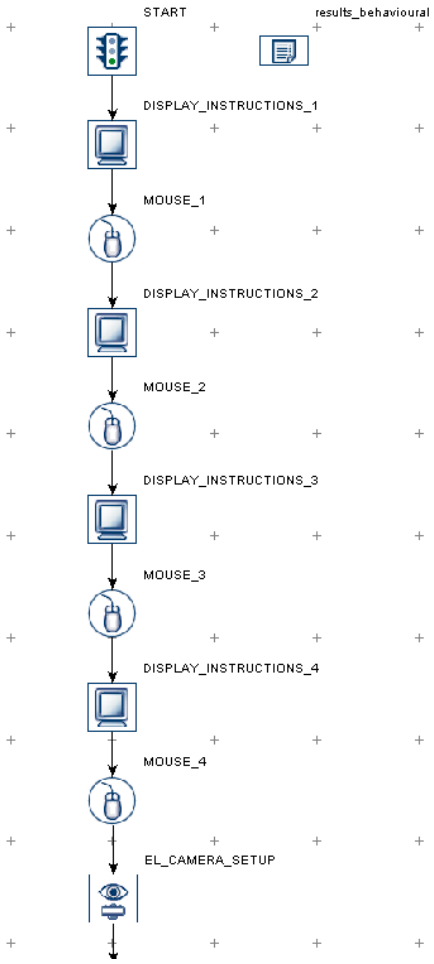
App. D3

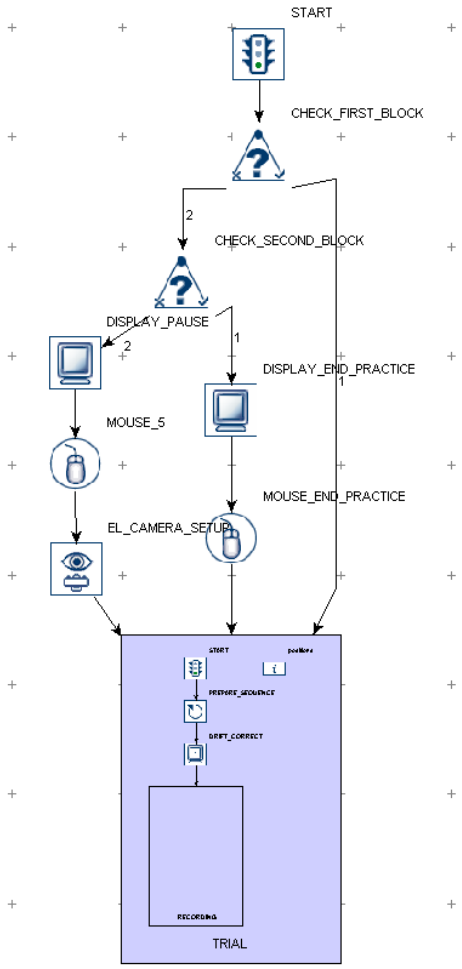
Experiment Builder Properties

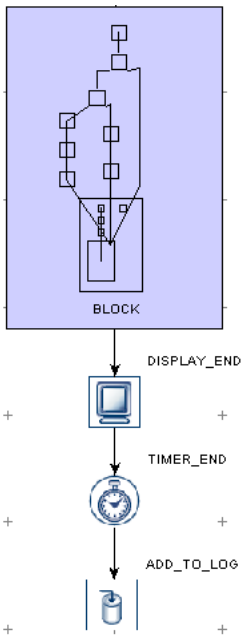


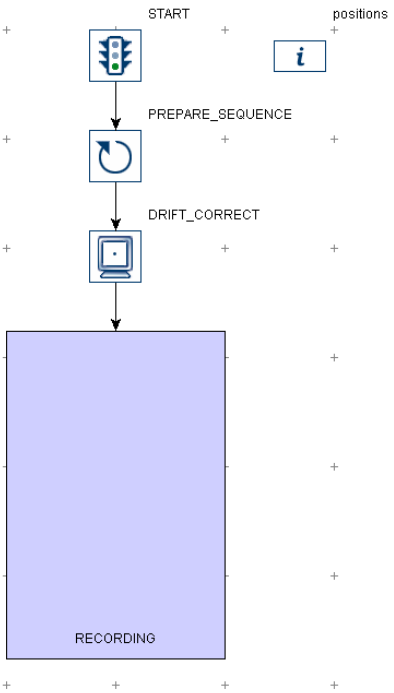
88 Source: https://www.slideserve.com/wayde/eyelink-1000-2k-and-eyelink-remote-introduction-and-training-session.

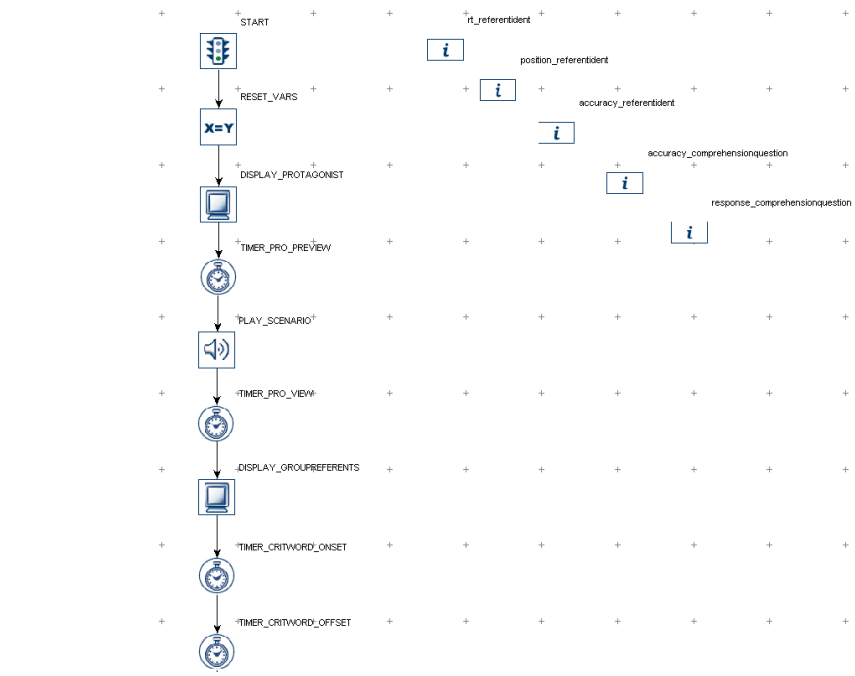
Experiment Builder Graph (from left to right, zoomed into Block / Trial / Recording Sequence)

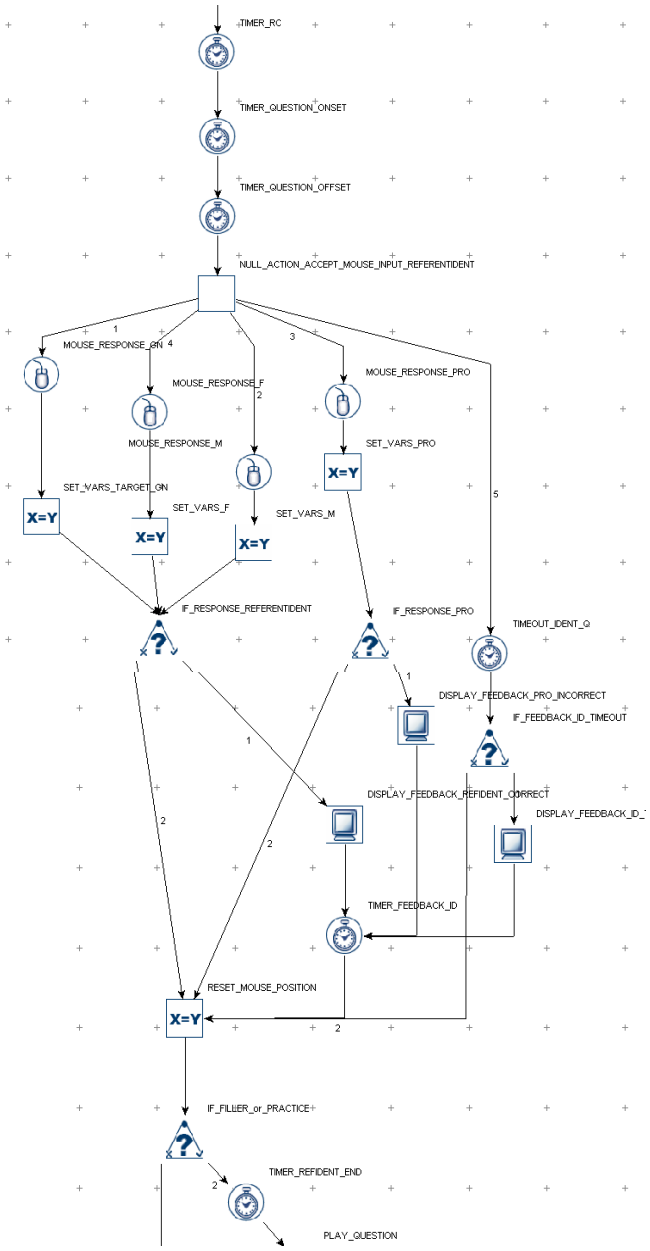


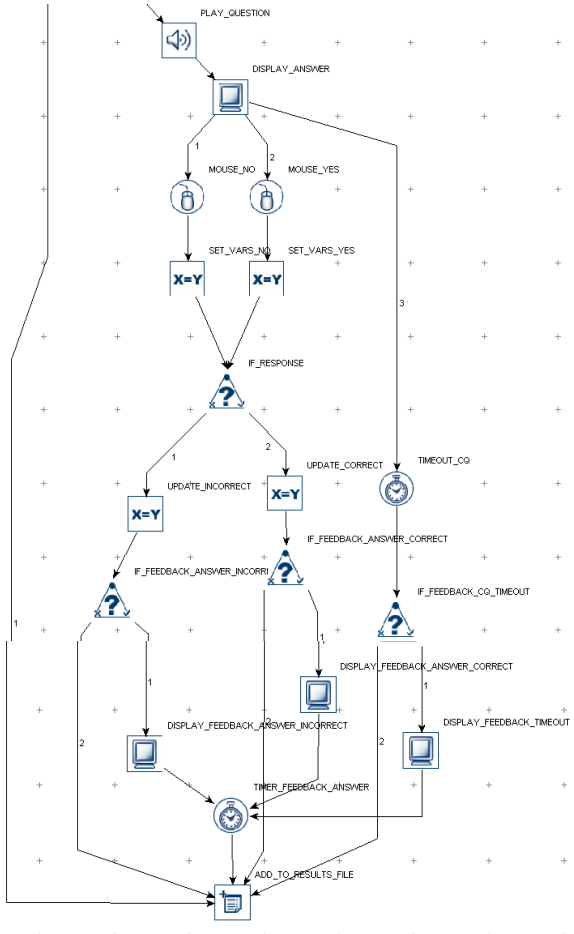






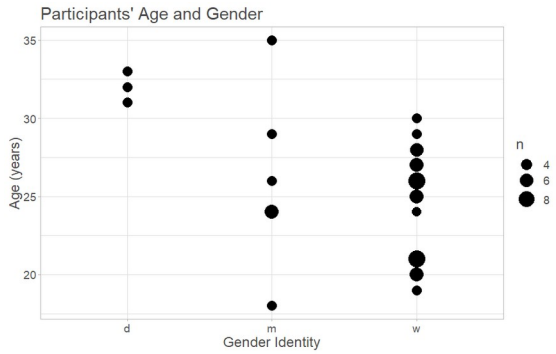

START
RESET_VARS
X=Y
DISPLAY_PROTAGONIST
TIMER_PRO_PREVIEW
PLAY_SCENARIO
TIMER_PRO_VIEW
DISPLAY_GROUPREFERENTS
TIMER_CRITWORD_ONSET
TIMER_CRITWORD_OFFSET
rt_referentident
position_referentident
accuracy_referentident
accuracy_comprehensionquestion
response_comprehensionquestion


TIMER_RC
TIMER_QUESTION_ONSET
TIMER_QUESTION_OFFSET
NULL_ACTION_ACCEPT_MOUSE_INPUT_REFERENTIDENT
MOUSE_RESPONSE_GN
MOUSE_RESPONSE_F
MOUSE_RESPONSE_M
MOUSE_RESPONSE_PRO
SET_VARS_PRO
SET_VARS_TARGET_GN
SET_VARS_F
SET_VARS_M
X=Y
IF_RESPONSE_REFERENTIDENT
IF_RESPONSE_PRO
TIMEOUT_IDENT_Q
DISPLAY_FEEDBACK_PRO_INCORRECT
IF_FEEDBACK_ID_TIMEOUT
DISPLAY_FEEDBACK_REFIDENT_CORRECT
DISPLAY_FEEDBACK_ID_
TIMER_FEEDBACK_ID
RESET_MOUSE_POSITION
IF_FILLER_or_PRACTICE
TIMER_REFIDENT_END
PLAY_QUESTION


PLAY_QUESTION
DISPLAY_ANSWER
MOUSE_NO
MOUSE_YES
SET_VARS_NO
SET_VARS_YES
X=Y
IF_RESPONSE
UPDATE_CORRECT
UPDATE_INCORRECT
TIMEOUT_CQ
IF_FEEDBACK_ANSWER_CORRECT
IF_FEEDBACK_ANSWER_INCORRI
IF_FEEDBACK_CQ_TIMEOUT
DISPLAY_FEEDBACK_ANSWER_CORRECT
DISPLAY_FEEDBACK_ANSWER_INCORRECT
DISPLAY_FEEDBACK_TIMEOUT
TIMER_FEEDBACK_ANSWER
ADD_TO_RESULTS_FILE

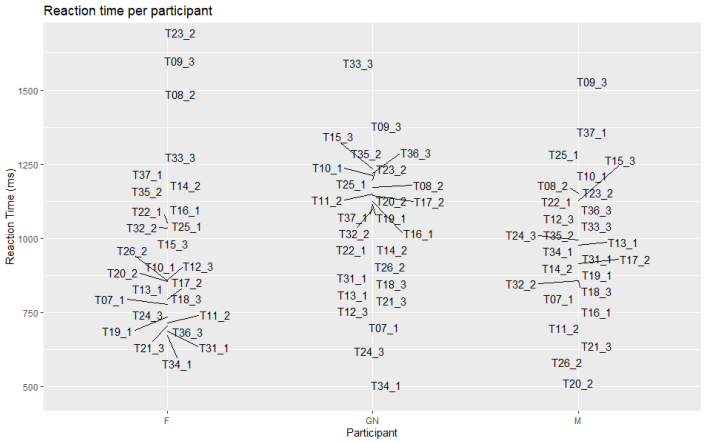
App. E1

Frequency dot plot for participants' Age and Gender Identities.
(d = diverse, m = male, w = female)



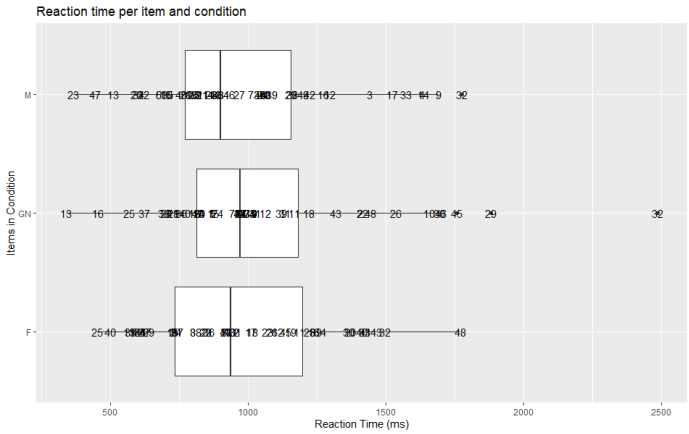
App. E2

Mean reaction time per participant and condition.



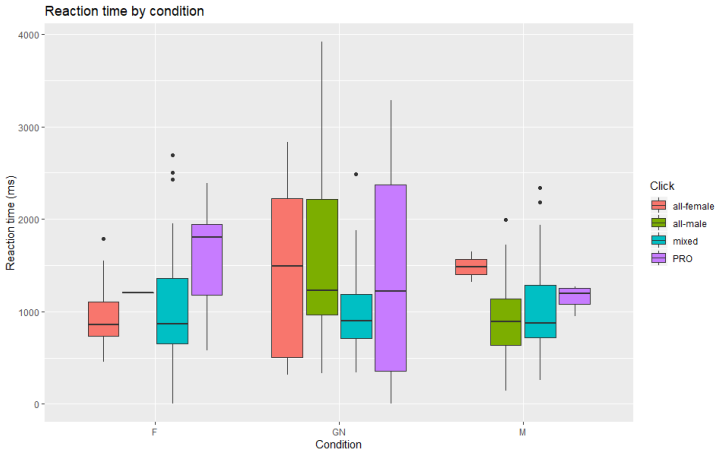
App. E3

Item outliers per condition.

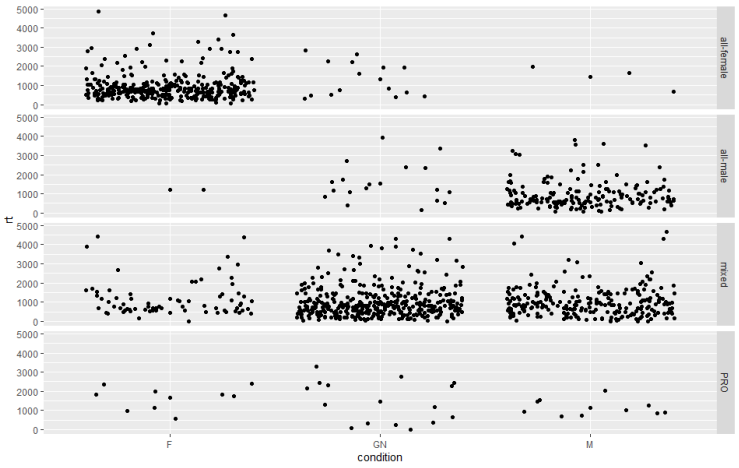


App. E4

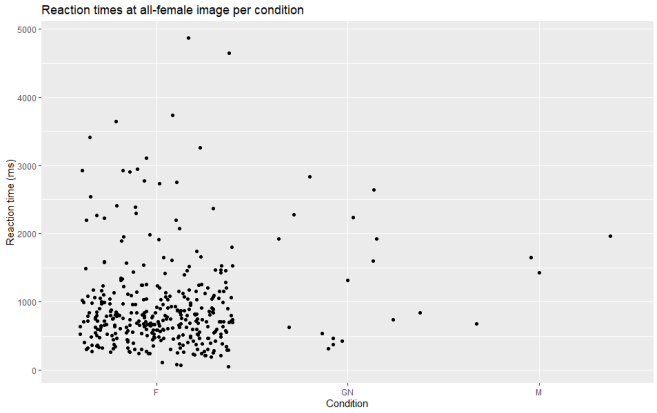
RT per condition and IA image.



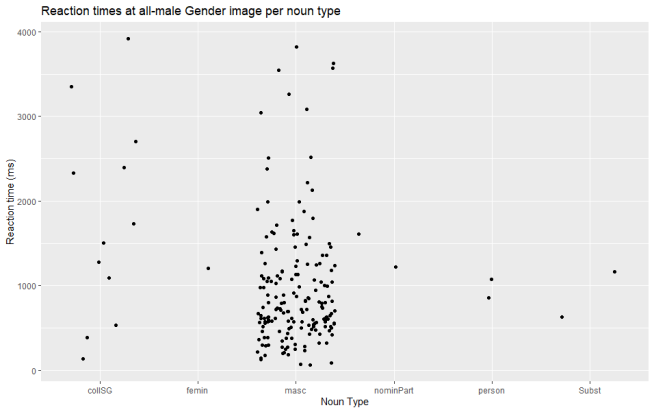
App. E5.1
Responses and reaction times to Interest Areas per condition.



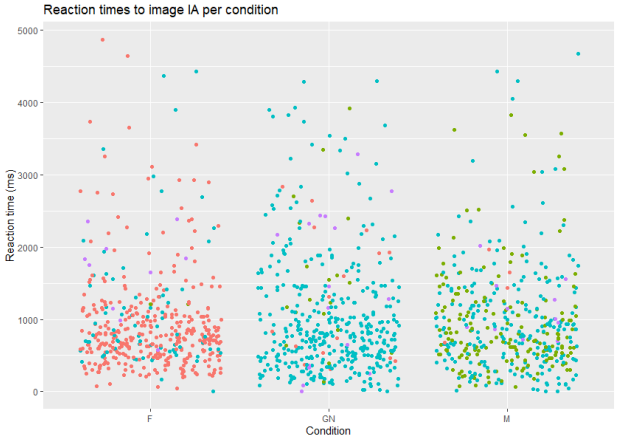
App. E5.2
Responses and RTs to the all♀ IA.



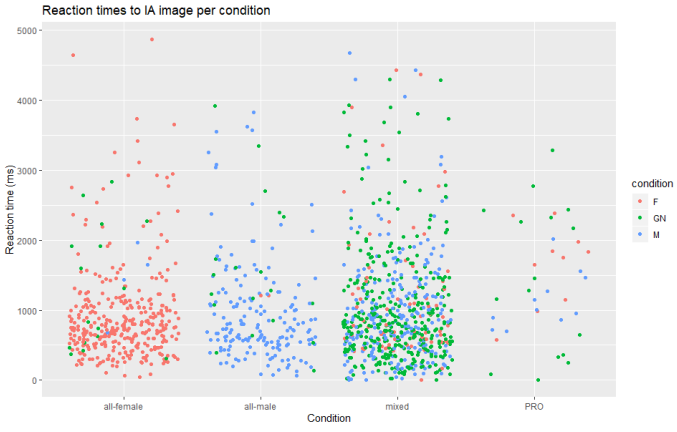
App. E5.3
Responses and RTs to the all♂ IA per Noun Type.



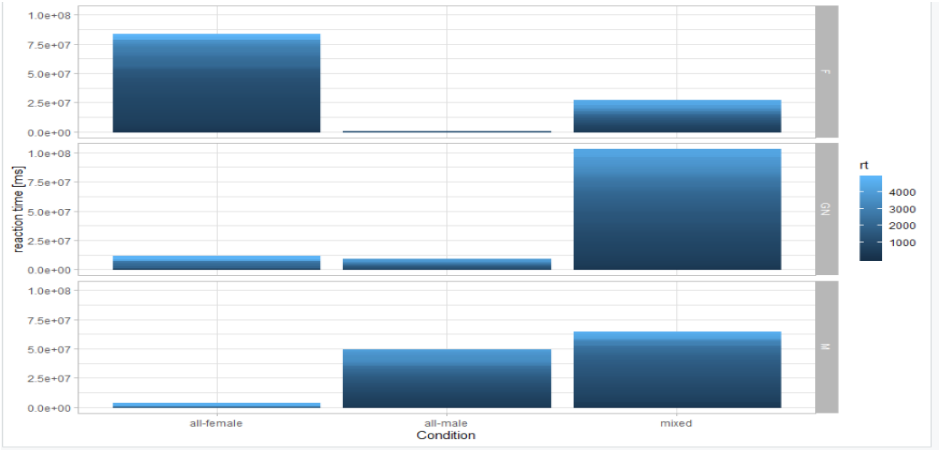
App. E5.4
Distribution of RT and IA responses across conditions.



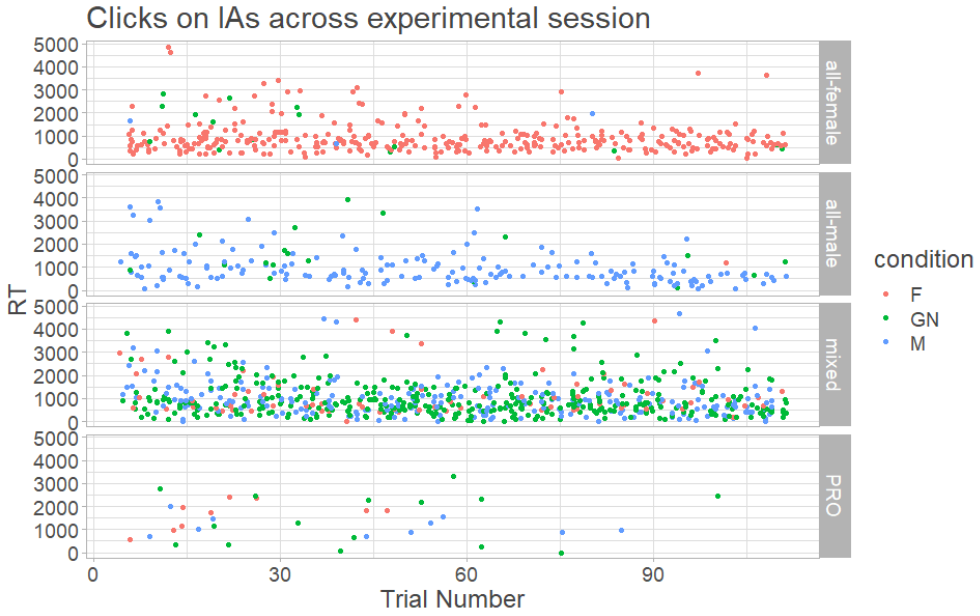
Distribution of RT and conditions across IA responses.



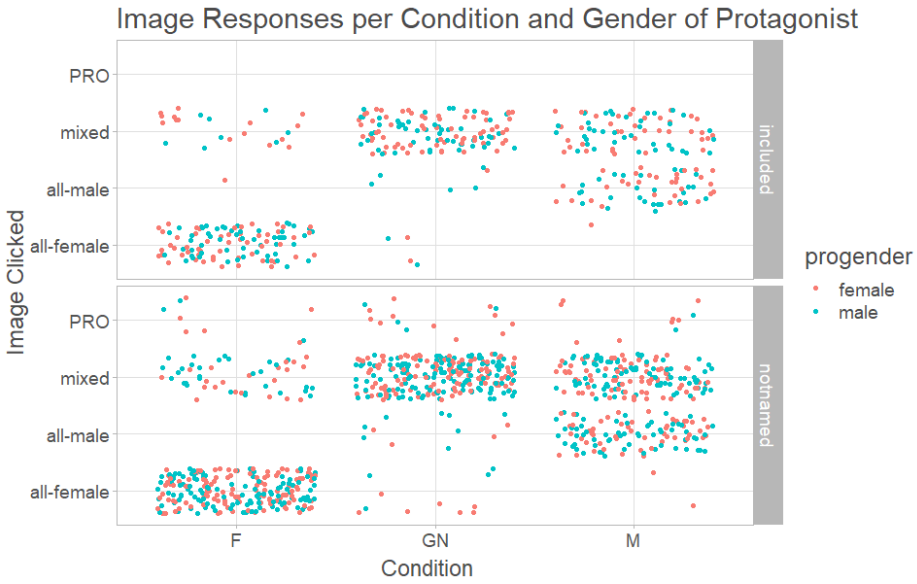
App. E5.5
Reaction times and IA response proportions across conditions.



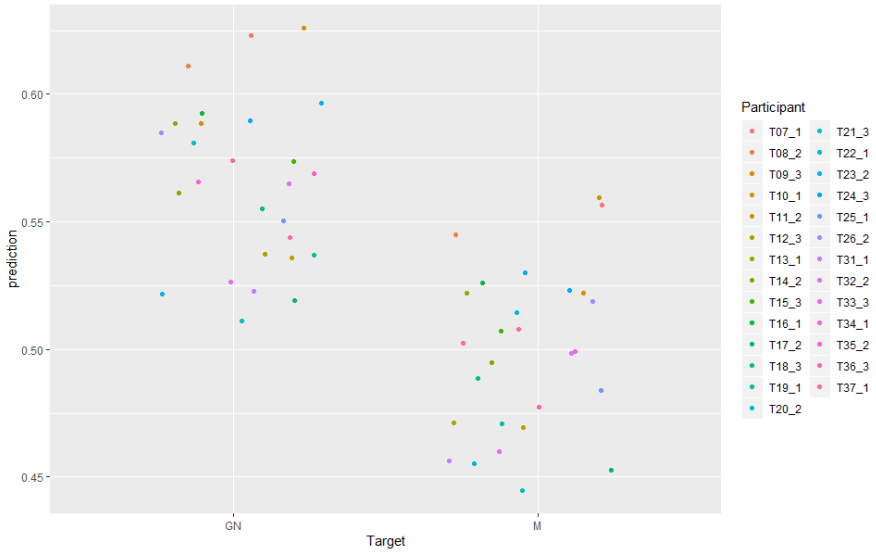
App E5.6
Reaction times and conditions under which IAs were clicked influenced by trial number (order).



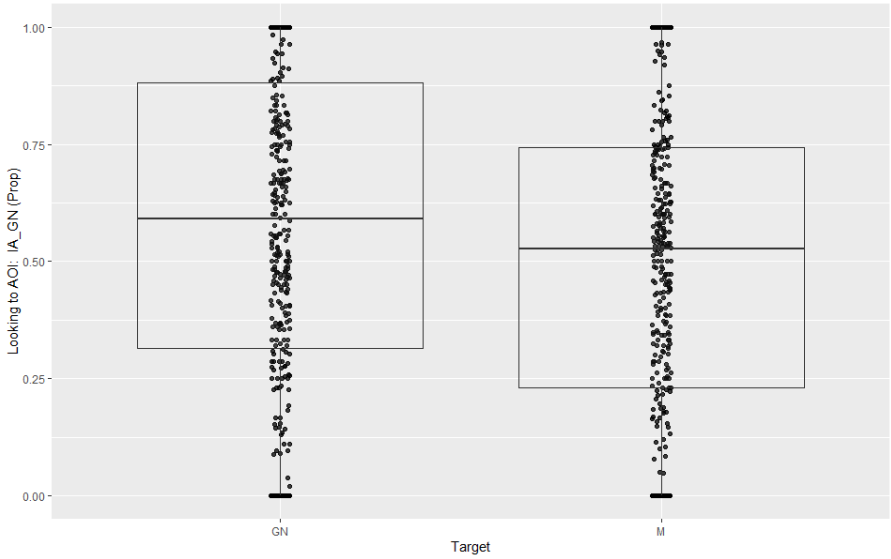
App. E6
Influence of protagonist name (being included or not named in the RefIDQ) and protagonist Gender.



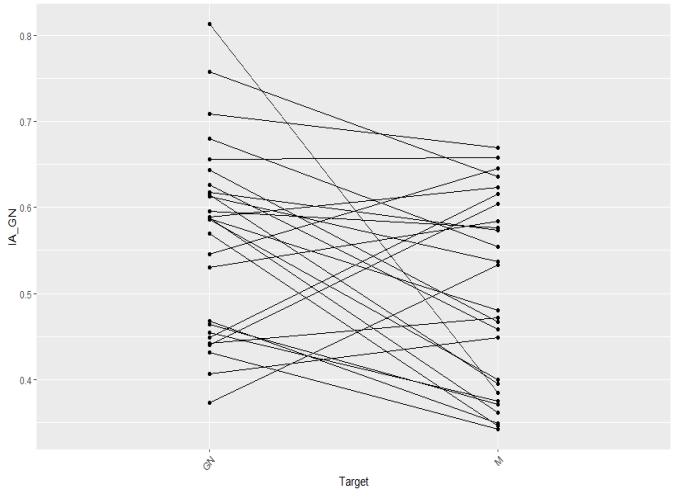
App. E7.1
Proportion of looks per Target condition aggregated over subjects.

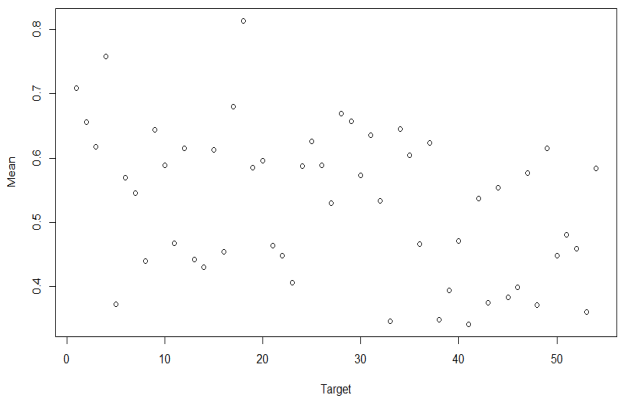


App. E7.2
Fixation proportions to mixed Gender image (IA GN) for conditions M and GN.

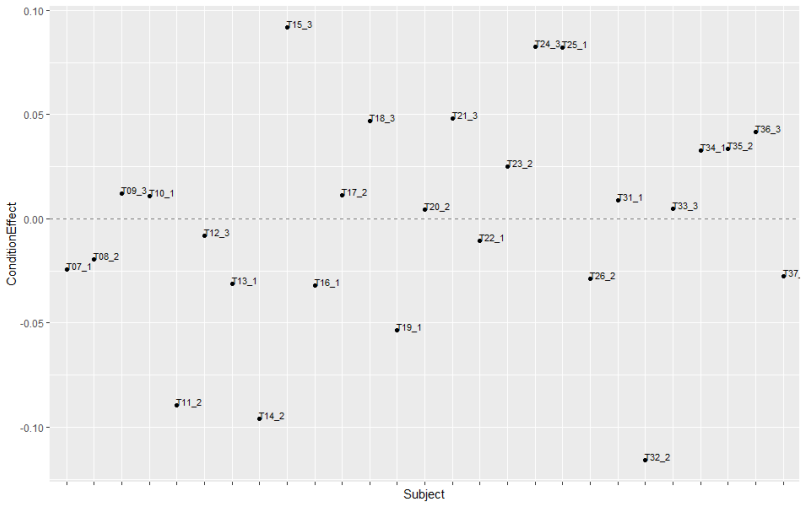


App. E8.1
Subject slopes and subject means of Target fixations.

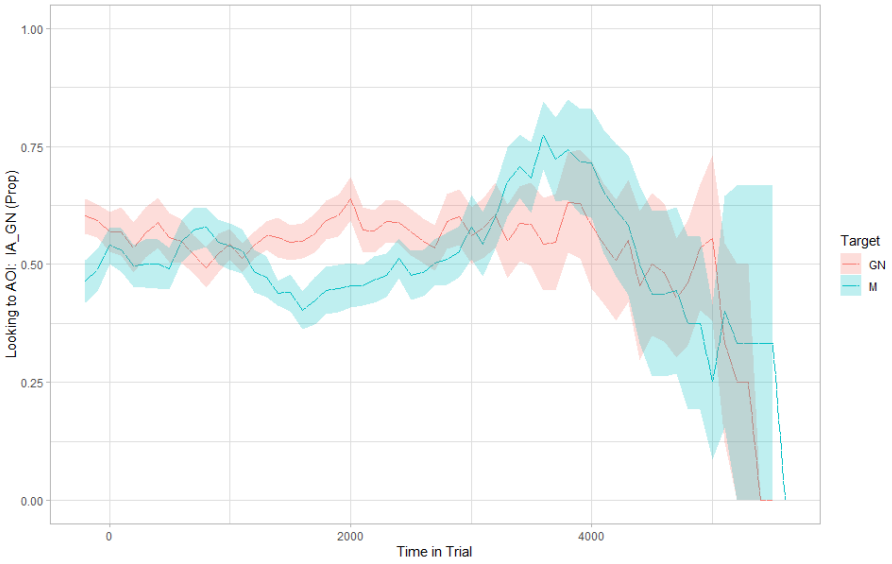




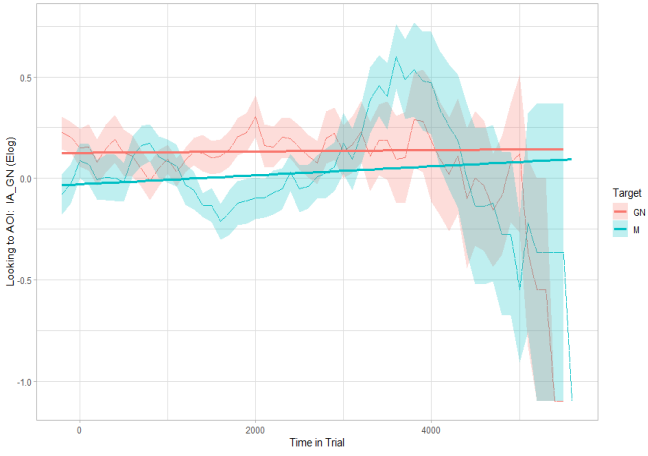
App. E8.2
Subject variation.



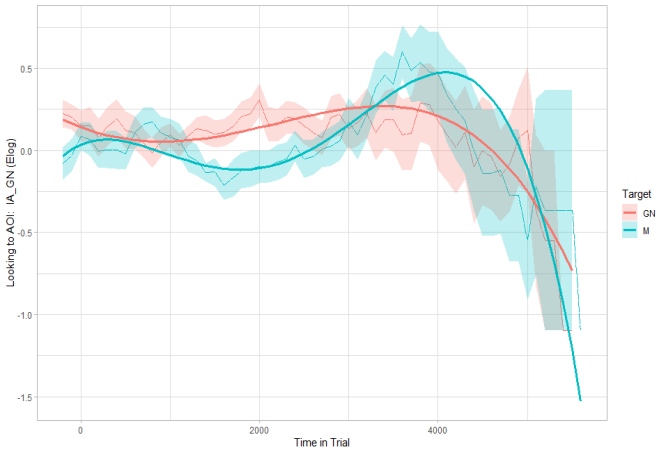
App. E9.1
Fixations to mixed Gender image (IA GN) over trial time in both M and GN condition.



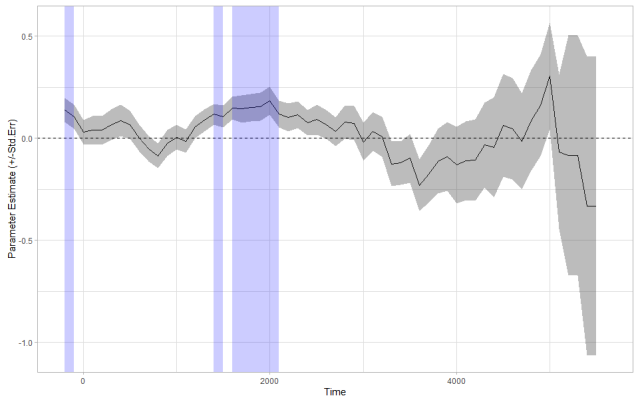
App. E9.2
E9.1 plotted with raw predictions.



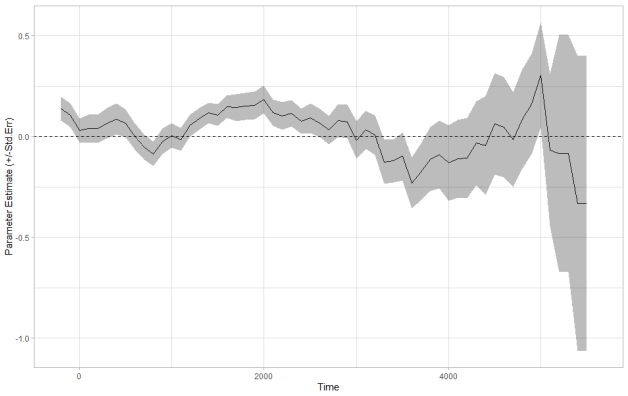
App. E9.3
E9.1 plotted with non-linear predictions.



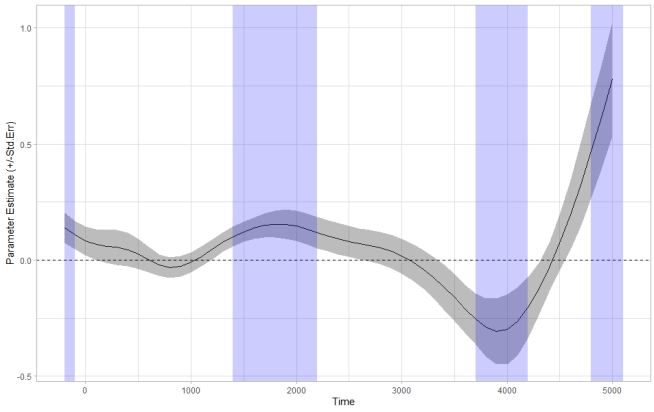
App. E10.1 Divergence plots of time bins (significance coloured).



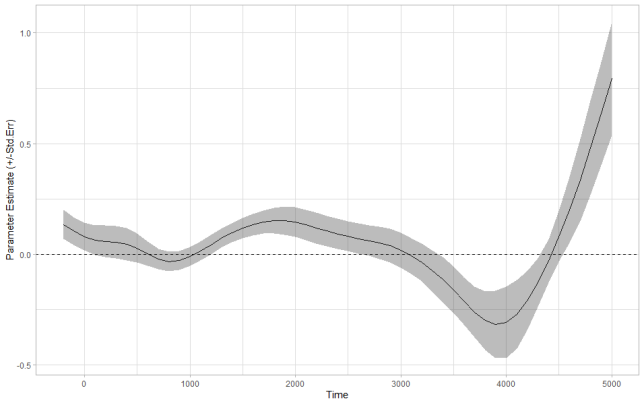
App. E10.2 *E10.1* Bonferroni-/ Holm- corrected.



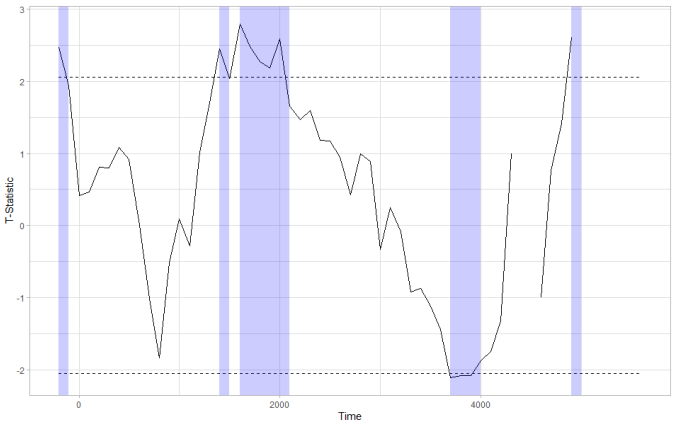
App. E10.3 Divergence with bootsplines.



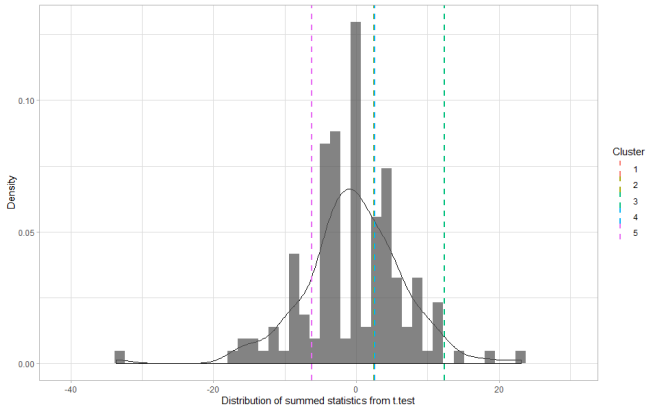
App. E10.4 *E10.3* Bonferroni-corrected.



App. E10.5 Divergence cluster.

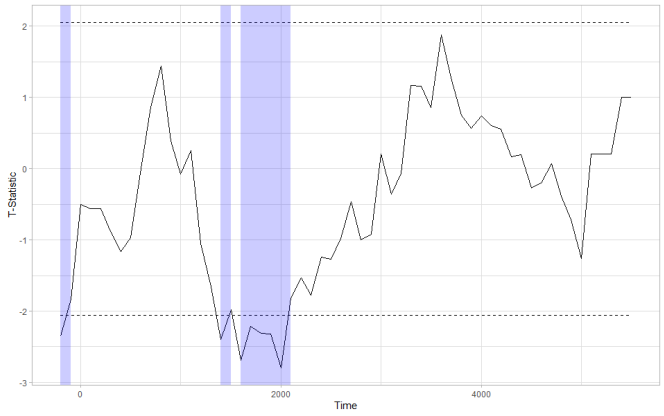


App. E10.6 Divergence bootsplines under H_0.

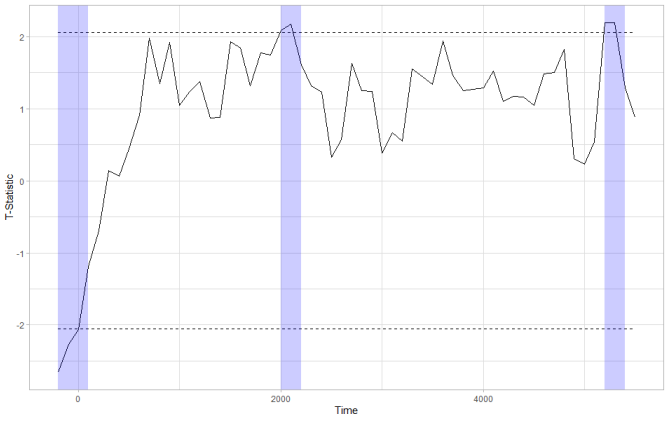


App. E10.7

Divergence Cluster between M Target, including Participant Gender as a Mediator

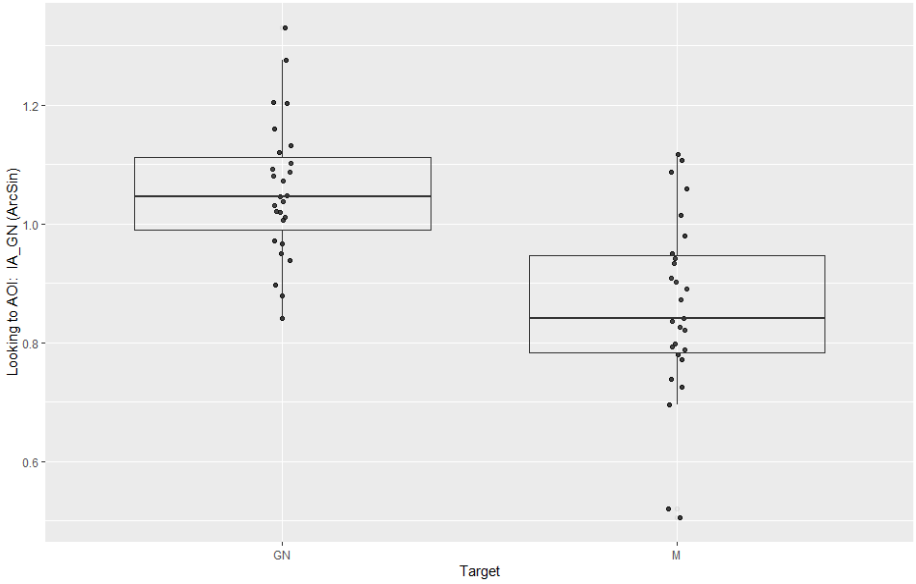


and with Order as an additional predictor.



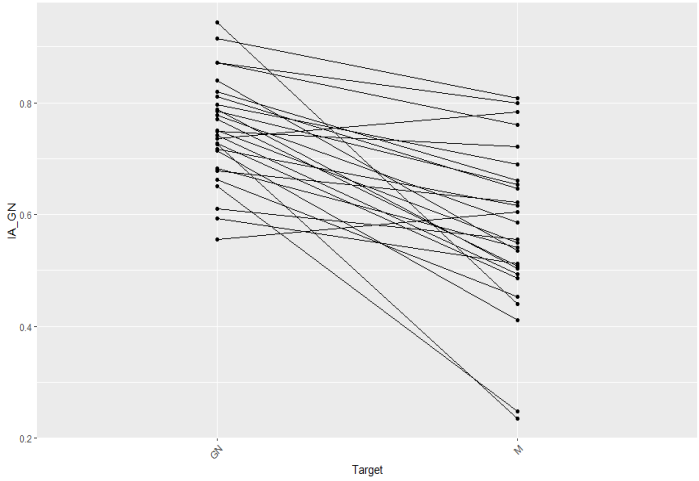
App. E11

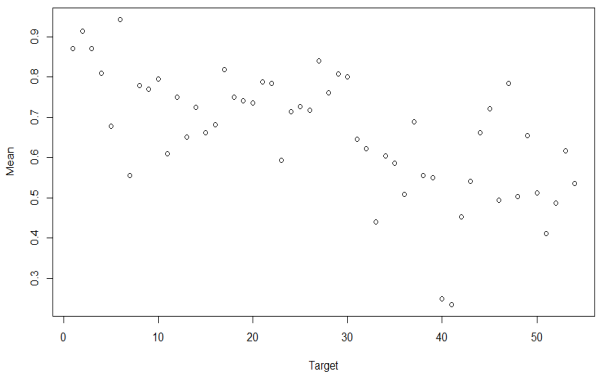
Fixation proportions to mixed Gender image (IA GN) for conditions M and GN.



App. E12

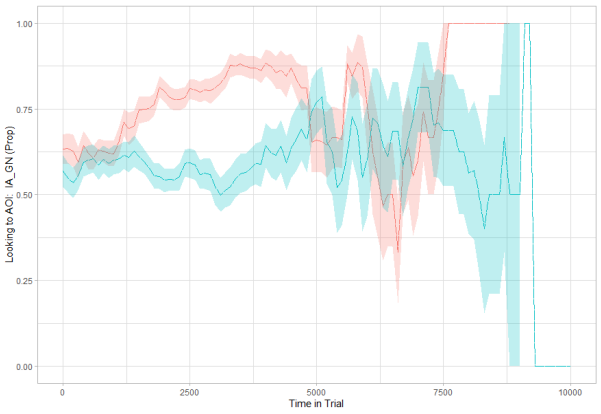
Subject slopes and subject means of Target fixations.



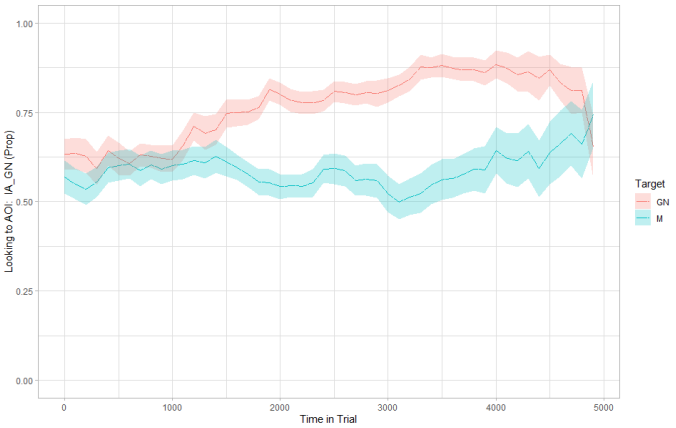


App. E13.1

Fixations to mixed Gender image (IA GN) over trial time in both M and GN condition.

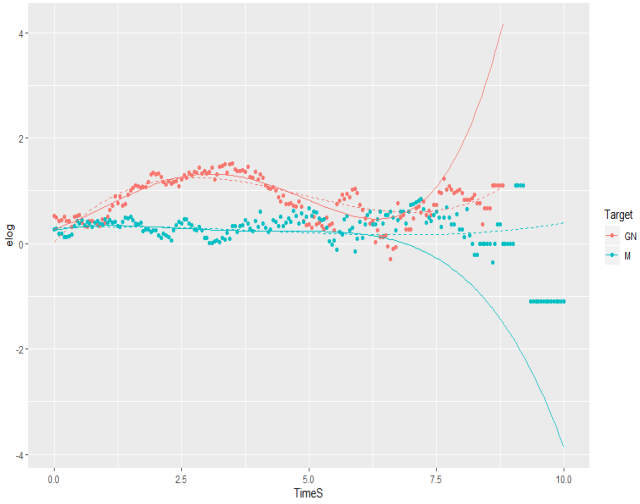


Therefore, subset to trial time before click responses.



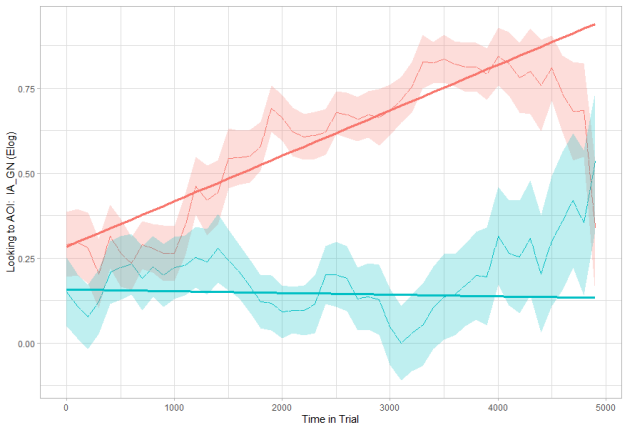
App. E13.2

End of trial click response variation, elog transformation.



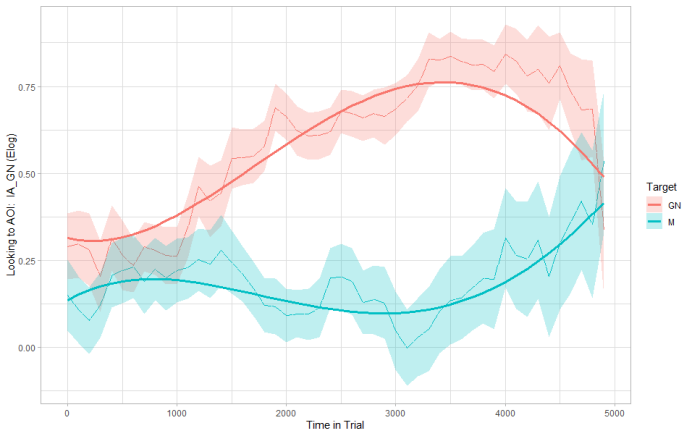
App. E13.3

E13.1 plotted with raw predictions.

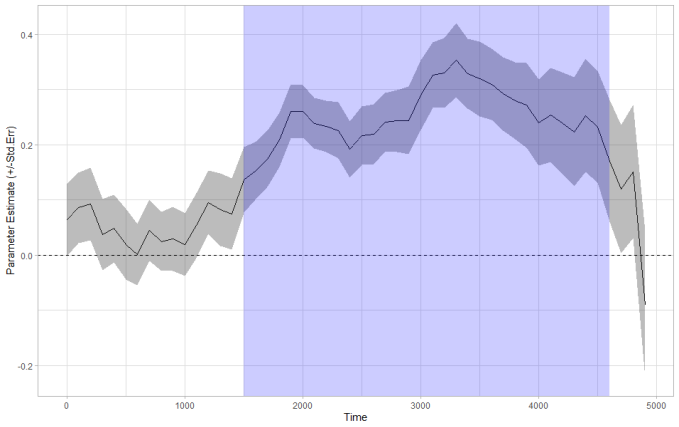


App. E13.4

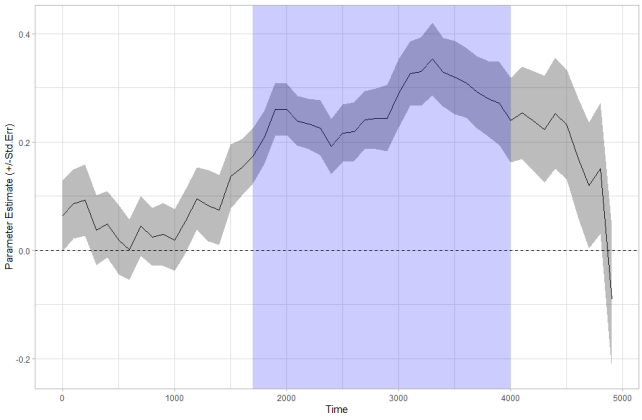
E13.1 plotted with non-linear predictions.



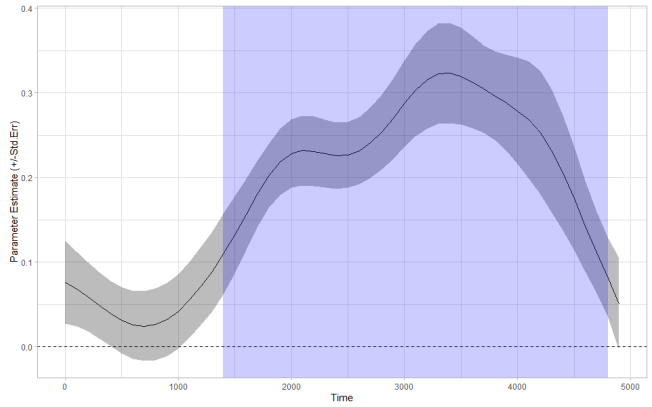
App. E14.1 Divergence plots of time bins (significance coloured).



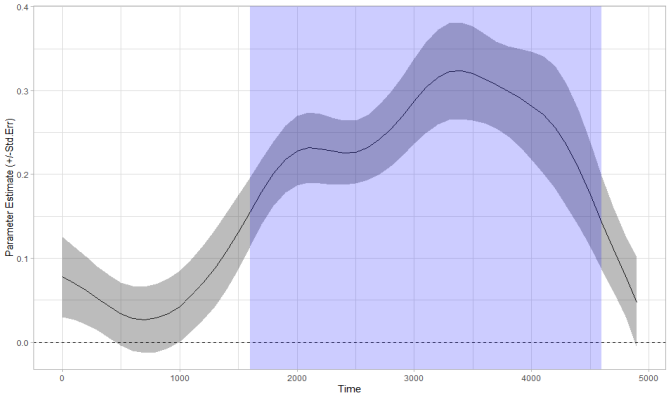
App. E14.2 E14.1 Bonferroni-/ Holm-corrected.



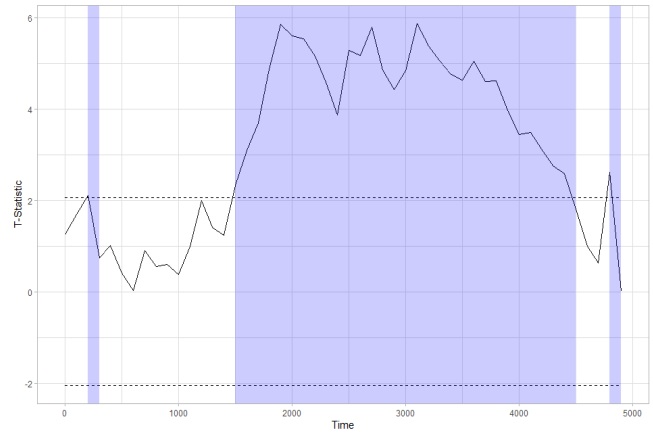
App. E14.3 Divergence with bootsplines.



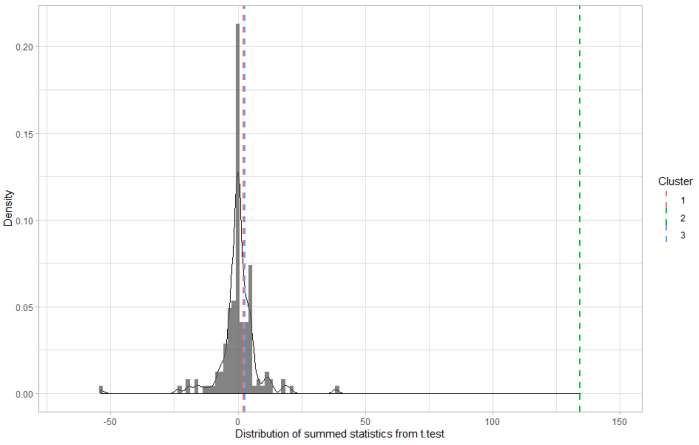
App. E14.4 E14.3 Bonferroni-corrected.



App. E14.5 Divergence cluster.

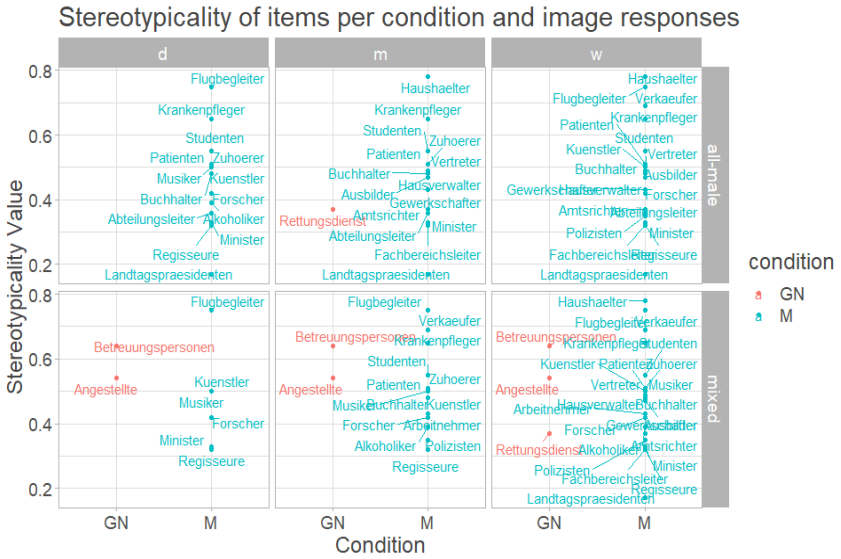


App. E14.6 Divergence bootsplines H_0.

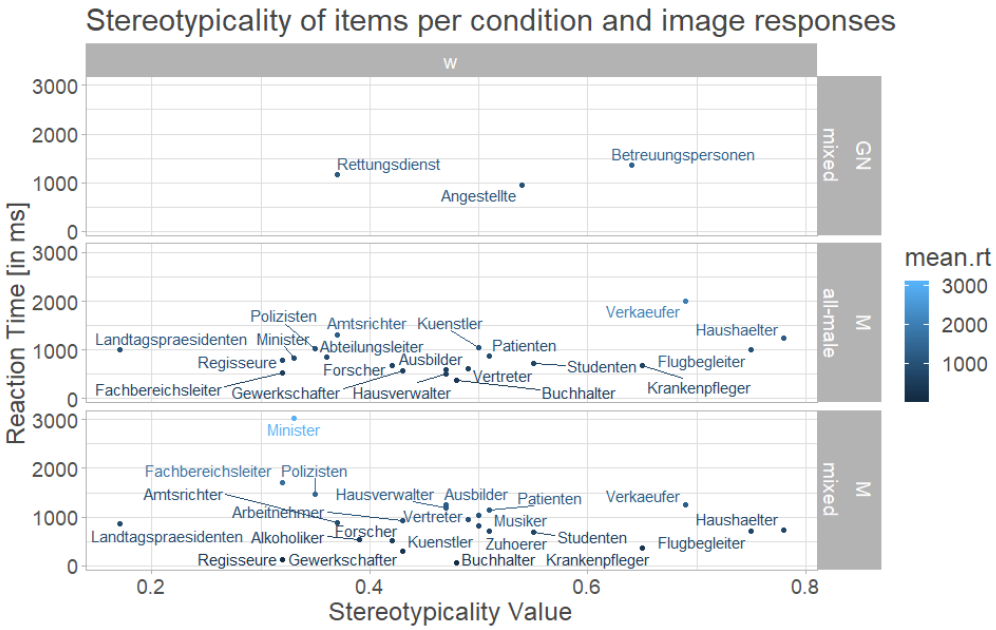


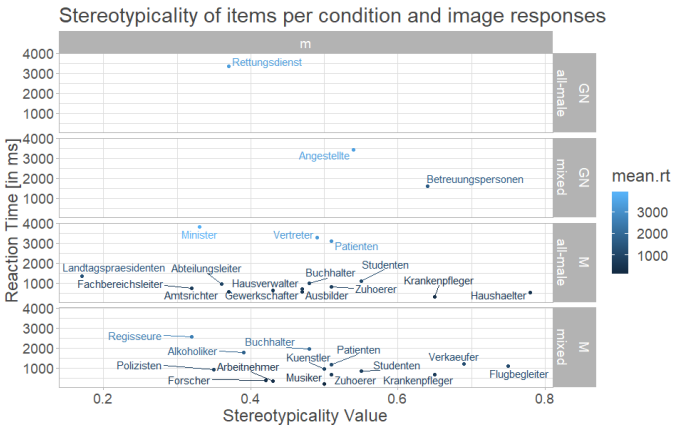
App. E14.7
Divergence Cluster between M Target, including Participant Gender as a Mediator.

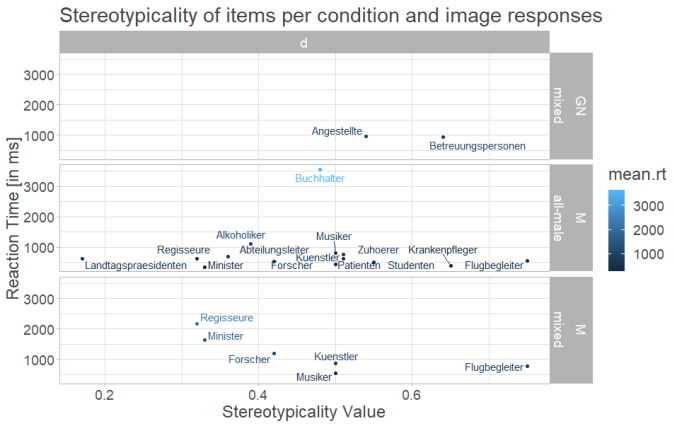
App. 15.1
Stereotypicality Values of Nouns of Items and the Images Clicked per Condition by Participant Gender.



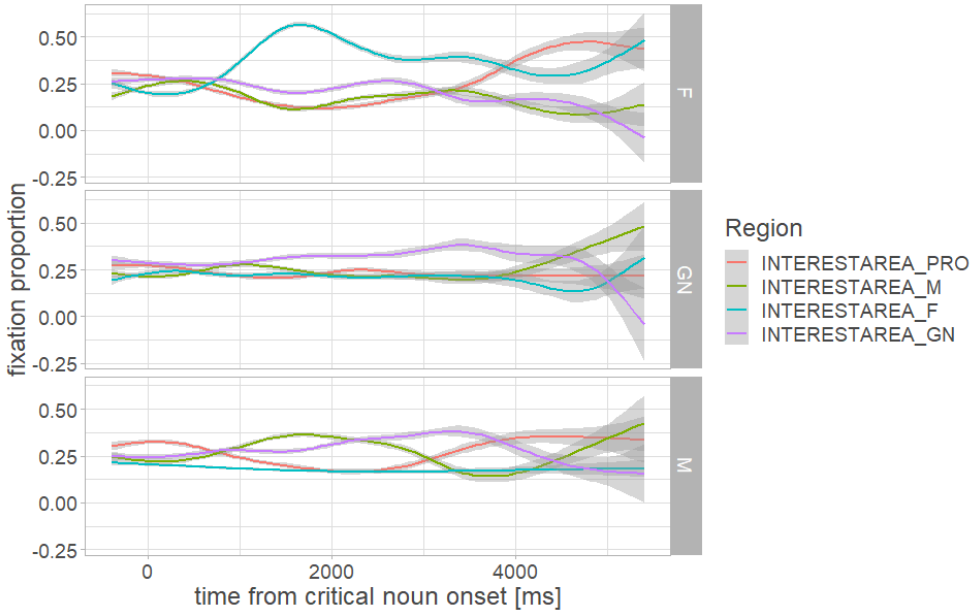
App. 15.2
Item Responses and Stereotypicality grouped by condition and participant Gender.
(w = female,
m = male,
d = diverse)



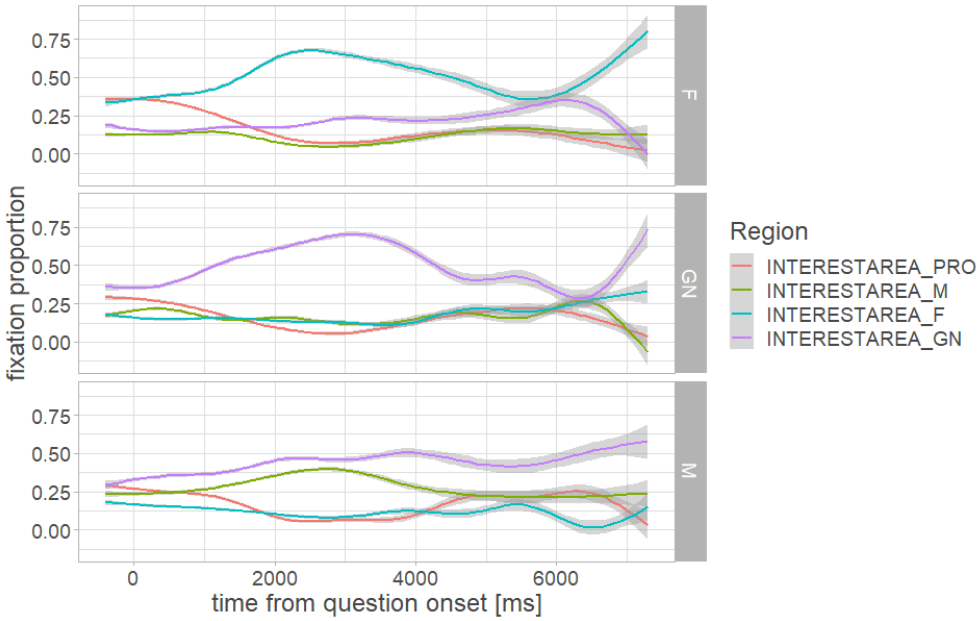




App. E16.1
Raw fixation proportions plotted over trial time for
RoI1



App. E16.2
and **RoI2**



App. F

7.4 Summary – Zusammenfassung

Verteidigt von Grammatik und Grammatiker*innen des Deutschen als valide Option zu Personen generisch, d. h. alle einbeziehend, Referenz herzustellen, attackiert von Seiten der Psycho- und feministischen Linguistik aufgrund der fortwährenden Schlagseite zugunsten der männlichen Lesart: das sogenannte „generische“ Maskulinum ist im deutschsprachigen Raum seit Dekaden umstritten als tradierte Vereinbarung, die ihre Funktion nicht oder nicht ausreichend erfüllt, sondern Frauen* in der Bedeutung einer grammatisch männlichen Personenbezeichnung unterschlägt. Die Debatte flammte unlängst auf und wird sowohl von sprachwissenschaftlichen Betrachtungen als auch Richtlinien mit antidiskriminierendem Anspruch zum geschlechtergerechten Sprachgebrauch begleitet.

Einleitend werden die sprachwissenschaftlichen wie feministischen Ansätze an geschlechtergerechten Sprachgebrauch mit ihren soziopolitischen Verflechtungen vorgestellt und in die grammatischen Voraussetzungen des Deutschen eingebettet, Geschlecht auf nominaler, personenbezogener referentieller Ebene zu markieren. Untersuchungsschwerpunkt liegt auf Substantiven als Personenbezeichnungen im Plural, insbesondere Berufs- und Rollenzuschreibungen, und inwiefern sich diese auf Referent*innen männlichen, weiblichen, oder diversen Geschlechts beziehen können. Anhand dieses Phänomens der Einteilung einer Kategorie, die versprachlicht wurde, kann untersucht werden, welche die konzeptuell aufgerufene Repräsentation ist, die mit den jeweilig markierten Nomen verknüpft wird.

Nominale Personenbezeichnungen können entweder als maskuline oder feminine Genera, seltener im Neutrum, klassifiziert sein und entsprechendes lexikalisches Geschlecht aufweisen, angezeigt durch das jeweilig genus-spezifische Suffix und den begleitenden Artikel im Singular:

der$_{\text{MASK. SG}}$ *Student*$_{\text{MASK. SG}}$ für Vertreter männlichen Geschlechts,

die$_{\text{FEM. SG}}$ *Studentin*$_{\text{FEM. SG}}$ bei weiblichen Vertreterinnen, die studieren,

während die Pluralform den Pluralartikel „die“ geschlechtsunabhängig trägt:

die$_{\text{PL}}$ *Studenten*$_{\text{MASK. PL}}$, *die*$_{\text{PL}}$ *Studentinnen*$_{\text{FEM. PL}}$.

Im Deutschen gelten folgende Prämissen: Der maskuline Plural wird generisch verwendet und intendiert Menschen jeden Geschlechtes einzubeziehen. Nur ausschließlich aus Frauen* bestehende Gruppen können mit dem femininen Plural bezeichnet werden. Aus funktioneller Sicht ist eine generische Form verfügbar, um auf jede Art von Gruppenkonstellation zu referieren, die sich mit der maskulinen überschneidet: *die Studenten*.

Seitdem die Forderungen und auch Kritik einer geschlechtergerechten und inklusiveren Sprache hinsichtlich weiblicher Präsenz und Partizipation und folglich sprachlichen Einbezugs auch in der öffentlichen Wahrnehmung nicht mehr verhallen, wurden alternative Bezeichnungen vorgeschlagen, welche zunehmend im Sprachgebrauch zu beobachten sind. Eine der zwei Hauptstragien für geschlechtergerechte Formulierungen sind neben expliziter Beidnennung von Paarformen (*Lehrerinnen und Lehrer*, *Lehrer*innen* als Sparform) ist die Neutralisierung von

lexikalischem oder referentiellen Geschlecht durch die Verwendung von Formen, die keine explizite formale Geschlechtsmarkierung aufweisen, deren Genus ergo nicht zwingend mit dem konzeptuellen Gender der referierten Personen korreliert: *die Studierenden*$_{\text{MASK. / FEM. / DIVERERSE PL}}$, sodass diese offener für geschlechterunabhängige und -diverse[89] Referenz sind. Neben nominalisierten Partizipien (und Nominalisierungen allgemein) können auch Kollektivsingulare (*das Kollegium*) und Komposita mit einem Term der ausübenden Person (*die Lehrkraft*$_{\text{SG}}$ */ Lehrkräfte*$_{\text{PL}}$) diese Funktion erfüllen. Deren Denotation enthält Vertreter*innen jeden Geschlechts, da von diesem abstrahiert wird. Obwohl diese geschlechterübergreifenden Vorschläge weithin empfohlen werden, ist ihre kognitive Verarbeitung und generische Wirkung bei referenzieller Verwendung im Deutschen bisher kaum Gegenstand der genderlinguistischen Forschung gewesen. Die vorliegende Arbeit nimmt sich dieser Forschungslücke an und fügt gleichsam der methodischen Palette, mit der das sogenannte "generische" Maskulinum bisher erforscht wurde (größtenteils als pseudo-generisch, da männerlastig entlarvt) eine weitere experimentelle Methode hinzu: In einer eigens kreierten "Visual World"-Studie wurden die Blickbewegungen zu Bildern, präsentiert auf einem Bildschirm, untersucht, während die Proband*innen kontextuell verschiedene Szenarien hörten, in denen Personenbezeichnungen in a) maskulinem Genus, b) femininem Genus, oder c) geschlechterneutraler Version (GN) benannt wurden. Referierte Personengruppen wurden bildlich als schwarz-weiß-Zeichnungen in den Konstellationen a) nur männlich, b) nur weiblich, oder c) gemischtgeschlechtlich dargestellt und dienten als Referent*innen, die in einer darauffolgenden Frage identifiziert werden mussten. In Echtzeit wird so die automatische Sprachverarbeitung des Gehörten durch Fixationen zu den Bildern gemessen, während die Reaktion(szeit) für das gewählte Bild die bewusste Integration der Information angeben kann. Die statistische als auch explorative Auswertung der erhobenen Daten und die Anwendung einer Divergenzanalyse (Dink & Ferguson 2015) in den zwei Zeitfenstern – (1) kritisches Nomen sowie (2) die Entscheidungsfrage, auf wen referiert wurde – ergab, dass den drei Bedingungen des akustischen Inputs strategisch die abgebildeten Materialien zugeordnet wurden, sichtbar sowohl in Verteilung und Verlauf der Blickbewegungen als auch durch die Bildauswahl und Antworthäufigkeiten. Hinsichtlich der Überprüfung der generischen Funktion konnte nachgewiesen werden, dass die GN-Formen am zuverlässigsten und unter geringfügigem zeitlichen „Mehraufwand" gemischt-geschlechtliche Referent*innen erzeugten, die maskulinen Bezeichnungen allerdings in nahezu der Hälfte der Fälle spezifisch männlich verarbeitet und gedeutet wurden und somit Frauen* als Referentinnen ausschlossen. Die Konvention, die maskuline Form zu verwenden, hat sich hierbei mehr als selektiv denn generisch herausgestellt. Im Hinblick auf die „opaque", zweigeteilte Funktion der Maskulina sowohl exklusiv-männliche als auch jegliche sonstige Personengruppen zu bezeichnen und in der Konsequenz Männer als Norm und Frauen* als Ausnahme zu konstruieren, wird geschlussfolgert, dass derlei Formulierungen einem inklusiven Anspruch nicht zu dem Maße gerecht werden, wie die vermeintliche Generik es verlangte und daher Vorstöße

89 Die Kategorie eines 3. Geschlechtes als divers ist in Deutschland seit Dezember 2018 eine legal anerkannte Option.

geschlechtersensibler Sprachverwendung kognitiv nachweislich ihre Berechtigung haben. Das entwickelte Experiment gab jedoch fortwährend geschlechterneutrale Varianten als Alternativen an, sodass die bei Nomen in maskulinem Genus hervorgerufenen Effekte unter Berücksichtigung dieses Bewusstseins und einer möglichen Zuordnung der bildlich dargestellten männlichen Gruppe zum grammatisch maskulin Markierten zu interpretieren sind. Bezeichnungen in geschlechterneutraler Form bewirkten zuverlässig die Zuordnung eine gemischt-geschlechtlichen Repräsentation; damit unterstreichen sie die Unterspezifizierung von konzeptuellem Geschlecht einer GN-Referenz. Je nach Art des geschlechterneutralen Ausdrucks wurden Unterschiede in ihrer Verweiskraft auf die gegebenen Geschlechterkonstellationen beobachtet. Ebenfalls war die stereotype Konnotation (eher von Frauen* oder von Männern ausgeübte bzw. ihnen zugemutete Tätigkeit) der verwendeten Materialien ausschlaggebend, wie in- oder exklusiv eine Referenz verstanden wurde. Die binäre Genusmarkierung scheint geschlechterspezifisches Verständnis zu fördern, deren Fehlen in den geschlechterneutralisierenden Ausdrücken eine Interpretation, die durchlässiger für gemischtgeschlechtliche Repräsentationen ist, begünstigt. Resultate werden unter einer Perspektive diskutiert, die massive Genus-Gender-Interaktionen, stereotype Geschlechtervorstellungen, soziale Erwartungen an (sprachliche) Gleichstellung, Gewöhnungsaspekte und Selbstkonzepte von Geschlechtsidentifikation unterlegt.

8. Declaration of Originality

This is to certify that to the best of my knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been consulted, except where due acknowledgement is made.
I hereby declare that the intellectual content of this submission is entirely the product of my own original work (except where otherwise indicated), has been composed by me, and the assistance received has been acknowledged.
Any contribution made to the research – to the project's design, conception, or style, in particular – by others, with whom I have worked at UP or elsewhere, is explicitly acknowledged in the thesis.

Furthermore, I confirm that:
I have fully and clearly referenced in accordance with academic requirements, in both the text and the bibliography, all text directly or indirectly quoted from a source, as well as any other work of authors, in any form, used as sources in the work;
I have not used inadmissible help of third parties to produce this work;
all data and findings in the work have not been falsified or embellished;
this work has not been previously, or concurrently, used for other purposes;
this work has not yet been submitted or published, neither in the same nor in a similar version.

Christin Schütze — Potsdam, 13.06.2020

Student Name: Christin Schütze

Winter Term 2019/20 –
Summer Term 2020
Department Linguistics
University of Potsdam

9. Acknowledgements

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Titus, for spreading the contagious fascination of this phenomenon, for those moments in academia when expertise met astonishment, for making stats interesting and actually at least a bit conceivable, and for the big (sometimes very big) visions.

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Anja, for being so different yet so united in proving how long studying may take (all in good time).

Mutti, for teaching me how to read and write and admire language so I got bored early in primary school, and not to settle for less than what I expect from myself (blessing? curse? both.).

Papa, for asking me so often what to do with all these languages and degrees (here it is).

Oma, Opa, for educating me to never stop educating yourself and others in life.

> “Mir kommt das bekannt vor. Wenn man linke, feministische Texte schreibt, dann kennt man den Vorwurf, dass man immer nur meckert. Ja, man meckert viel. Es mag etwas negativ wirken, aber sagen wir mal so: Wenn ich nicht die Hoffnung hätte, dass sich an den Zuständen, wie sie sind, etwas ändern lässt, dann würde ich mir nicht die Mühe machen, Texte darüber zu schreiben.
> In diesem Sinne danke ich allen, die diese Mühen mittragen, und dazu beitragen, dass es trotz allem auch sehr viel Spaß macht.”
>
> *This text is the shortened speech that Margarete Stokowski gave on 3/10/2019.*[90]

90 https://taz.de/Tucholsky-Preis-fuer-Margarete-Stokowski/!5639020/, last accessed 27/04/20.