

### 3.1 Code and title

A5 – Dog Whistle Content and Gender Biases in a Rational Model of Language Interpretation

### 3.2 Project leader(s)

Jun.-Prof. Dr. Titus von der Malsburg  
02.04.1977  
Department of English Linguistics  
Keplerstr. 17, 70174 Stuttgart  
0711 / 685-8xxx  
titus.vondermalsburg@ling.uni-stuttgart.de

Prof. Dr. Judith Tonhauser  
19.11.1974  
Department of English Linguistics  
Keplerstr. 17, 70174 Stuttgart  
0711 / 685-83121  
judith.tonhauser@ling.uni-stuttgart.de

### 3.3 Project description

#### 3.3.1 Summary and main research question

This project investigates empirical phenomena that arise from the misalignment of interlocutors' reference systems, namely dog whistle content and gender biases. Dog whistles are expressions that literally encode a benign meaning, while also being associated with a controversial, if not offensive, meaning that only a subset of the audience is receptive to. An example from the US American context is *inner city crime*, which may carry racial overtones by implying crime committed by African Americans. Gender biases are exemplified by listeners experiencing processing difficulty when reading the pronoun *she* in reference to a likely female future president.

Our working hypothesis is that the two phenomena can arise unintendedly (e.g., when the speaker is not aware of possibly misaligned reference systems), but can also be consciously employed by the speaker to signal their stance towards a particular issue. The social meaning of dog whistle expressions and gendered language thus arises from the complex interplay of the literal content, the utterance context, and the producers' and interpreters' beliefs, both about the world and each other. In this project, we empirically investigate and formally model the social meanings of dog whistle expressions and gendered language, by combining corpus annotation, experimental methods, and computational modeling techniques. Our empirical focus is on German, a language in which dog whistles remain largely unexplored. Our specific research questions are as follows:

1. Which German expressions are dog whistles? Which social meanings are indexed by dog whistles and gendered language in German?
2. How do interpreters' beliefs about the producer and the world modulate their comprehension of dog whistles and gendered language across different utterance contexts?
3. What does a predictive analysis of German dog whistles and gendered language look like?

#### 3.3.2 Current state of research and preliminary work

The state of research on German gendered language is very different from that on German dog whistle expressions. Gendered language in German is a hot button topic, with polarizing positions permeating both public and academic discourse (REFERENCES). Some empirical studies have demonstrated that so-called 'generic masculine' nouns like, like the *Studenten* 'student.MASC.PL', are interpreted with a bias towards male referents (GygaxEtAl2008; Kusterle2011). Such observations have inspired the use of nominalized participial 'gender-neutral' forms, like *Studierende* 'study.PTCP.NMLZ', or 'gender-inclusive' forms, like *Student\*innen* or *Student:innen*, which formally combine the masculine and feminine plural endings (taken to refer to individuals with those genders) with special diacritics that are taken to refer to non-binary individuals. Other works maintain

that masculine nouns suffice for inclusive reference, pointing out natural language gender categories are distinct from human gender: *Kind* 'child.NEUT', for instance, is formally neuter (REFERENCES).

However, this area of research is marred by the lack of a clearly articulated theory that explains how these biases arise. Furthermore, there are at least two methodological concerns about the empirical measures that have been used to investigate the biases. First, experiments typically expose participants to many instances of generic masculine, gender-neutral, and feminine forms (REFERENCES). This may result in participants developing awareness of what is being tested which, in turn, may influence their behavior. For instance, a salient gender-neutral alternative may lead participants to interpret a generic masculine noun as more male-oriented than they usually would, or participants might interpret the generic masculine more neutral due to social pressure (REFERENCE). A second methodological concern arises from the fact that most studies tested local undergraduate populations. That such results may not generalize to the wider German population is suggested by the observation that the strength of gender biases in English vary with interpreters' age, education, and political alignment (MalsburgEtAl2020).

The starting point with dog whistles is very different, as research to date has been largely limited to American English. Linguistic research on the meaning and use of individual dog whistles in the US American socio-political context has resulted theoretical proposals that differ in the status ascribed to dog whistle content as well as its predicted interaction with interlocutors' beliefs about the world and each other (e.g., stanleyxxx; burnett2017; khoo2017; HendersonMcCready2018; saul2018). While these proposals are based almost exclusively on researchers' intuitions and have, to date, not been subjected to large-scale experimental testing, they make empirically testable predictions. Complementing the linguistic research, experiment-based research in the social and political sciences suggests that the perception of dog whistle content varies by social group (e.g., Calfano and Djupe 2008; albertson2015; goodwin-saward2005; hurwitz-peffley2005; wetts-willer2019).

In this project, we build on the prior empirical and theoretical research on gender biases and dog whistle content to empirically investigate and formally model the two phenomena in German. Both PIs have extensive experience in conducting empirical research on meaning based on naturally occurring data and large-scale experimental investigations (demarneffe-etal-sub23; degen-tonhauser-managing:to-appear). Von der Malsburg used large-scale online experimentation to study gender biases in English during the 2016 US presidential campaign using both comprehension and processing measures (e.g., BoyceEtAl2019LSA; MalsburgEtAl2020). Tonhauser is an expert on the empirical investigation and theoretical modeling of secondary content, which include gender biases and dog whistle content (e.g., tonhauser-sula6; brst-lang11; tbd-variability).

## References to work outside the CRC

### 3.3.3 Work programme and role within the proposed Collaborative Research Centre

**WP 1:** theoretical work: predictions of previous work, Von der Malsburg is also an expert for Bayesian inference (MorganEtAl2020; MeziereEtAl2021) which puts us in an ideal the position to formally implement our theoretical ideas and to evaluate them using state-of-the-art Bayesian model comparison tools. stevens-etal2017 Point 3. will be addressed by extending the rational speech act model to see which assumptions are necessary to explain the observed data. Given the fully spelled-out mathematical nature of this model, we will be able to deploy the full arsenal of Bayesian model comparison tools for this purpose. The theoretical goal is to develop a predictive

jt: Missing: which biases arise?

jt: Mention a work that comes closest to a theory and point out what is missing?

jt: warum nicht "von der" Malsburg?

jt: make sure this works, then it will not count against page numbers

analysis of German dog whistles and gendered language on the basis of the empirical results. Our working hypothesis is that both phenomena can be understood as products of the same underlying dynamic, namely the interaction of rational pragmatic inference with misaligned reference systems, evaluate model predictions wrt production and comprehension through psycholinguistic experiments

Specifically, we will embed this issue in the RSA model of rational pragmatic inference and evaluate it using corpus data and experimental comprehension and production data. Within this framework we will also investigate the alternatives to the generic masculine since there is no strong a priori reason to believe that they are necessarily neutral (e.g., “Lehrer\*innen” may still be male-biased, or female-biased).

The overarching goal of the project is to investigate whether an existing formal account of pragmatic inference, namely the rational speech act model (**FrankGoodman2012**) can explain gender biases and dog whistles as naturally arising from the framework's independently motivated assumptions about efficient communication.

One clearly articulated proposal situates dog whistles in the framework of Bayesian signaling games (**Burnett2017**) and contents that dog whistles are used to signal one's persona and ideologies to a subset of the audience while keeping others in the dark (**HendersonMcCready2018**; **HendersonMcCready2019**). While theoretically attractive and precisely formulated, this proposal has not yet been thoroughly evaluated. It is also not clear to us that it captures the full breadth of the phenomenon. For instance, when George Bush says “family values”, one could argue that he is not plausibly denying his Christian identity which is widely known. One alternative interpretation is that speakers’ choice of language rather displays their biases much like the choice of masculine expressions does in the case of gender biases especially when explicit (e.g., racist) language is off limits. In this project we will formally implement this hypothesis as a variant of the RSA model and compare it to the **HendersonMcCready2019** proposal using corpus data and experimental data combined with Bayesian model comparison.

**WP 2:** corpus work, with annotations: to identify German dog whistles, but also build rich empirical foundation for dog whistles and gendered language; establishing a corpus of real-world examples from political speeches and public discourse; Bundestagscorpus (link to A2 and shared use case) but also naturally occurring examples

**WP 3:** experimental work: constructed and naturally occurring examples; large-scale online experiments that tap into wide participant population; online experiments also open the door to so-called one-shot designs in which each participant sees just one stimulus item and hence cannot develop an experiment-specific strategy. to understand how interpreters' beliefs about the producer and the world modulate their comprehension of dog whistles and gendered language across different utterance contexts.

[illegible]

### 3.4 Project-related publications by participating researchers

**a) Peer-reviewed published or accepted articles**

**jt:** I have 1 publication too many

## **b) Other publications**

### **3.5 Project funding**

[This information will be filled in at a later date. These sentences only serve to keep sufficient space free, for the information that will be filled in at a later date. I repeat: These sentences only serve to keep sufficient space free, for the information that will be filled in at a later date.]