Referring to someone using only their last name: Insights from gender-marked pronouns

Elsi Kaiser, Deborah Ho, Haley Hsu, Claire Post & Madeline Rouse
University of Southern California

In some contexts, last-name-only format is used for people (e.g. *Hedberg came in*). At least in U.S. English, men are more likely to be referred to by last-name-only format than women (male bias, e.g. McConnell-Ginet 2003). Moreover, researchers referred to with last-name-only are judged more famous/eminent (eminence bias, Atir & Ferguson 2018). However, the robustness of these biases is not yet well-understood, nor how they interact with other semantic biases. We show that these biases persist in informationally-impoverished contexts, the male bias persists when even pitted against verbs' implicit-causality biases, and these biases persist even when use of the last-name-only format for women is primed.

1 Introduction

How we refer to someone matters. Whether a speaker chooses refer to someone as *Sofiana*, *Sofiana Romano*, *Professor Romano* or *Romano* is influenced by numerous factors. The speaker's choices also influence others' impressions. The present work focuses on the phenomenon of referring to people with last-name only (e.g. *Hedberg came in, Ramirez was promoted*). Further examples are in (1a-c).

(1a) I would go so far as to say that had Watson and Crick not come into Rosalind's photograph -- by hook or crook; whichever way it was -- they would have lost the race entirely *(from a podcast by the Scientific American on Dr. Rosalind Franklin)*
(1b) Johnson is a great professor. He is funny *(from ratemyprofessor.com)*
(1c) Welsh is my favorite professor. She's just amazing *(from reddit.com)*

Although last-name-only does not carry an explicit marker of male gender (and does not have male *phi*-features, in formal terms) and can also be used for women (ex.1c), it has been shown that, at least in U.S. English, in multiple contexts (e.g. politics, academia, sports, science, even informal conversation), men are more likely to be referred to by last-name-only than women (**male bias**, e.g. McConnell-Ginet 2003, Atir & Ferguson 2018, Gardner & Brown-Schmidt 2019, 2020). Moreover, referring to a researcher by last-name only results in them being judged more famous, more eminent, higher status and more deserving of awards (**eminence bias**, Atir & Ferguson 2018). Thus, using last-name-only more for men than for women is not without consequences.

However, Atir & Ferguson (2018) focused on naturalistic communication and other rich contexts where people knew a lot about each referent. For example, they used names of famous people or provided participants with information about scientists and their research. Furthermore, they did not specifically control the linguistic properties of the sentences mentioning the referents, which leaves open the possibility of factors such as topicality or salience playing a role. Thus, it is not yet clear whether the last-name only format on its own is robust enough to elicit a male bias or an eminence bias in more linguistically-rigorously controlled settings, and how these biases interact with other semantic interpretation biases.

1.1 Aims of this work

Our work has three main aims. The first aim is to test whether these two semantic biases – the male bias and the eminence bias – associated with the last-name-only form are sufficiently robust and sufficiently strongly linked to this particular linguistic form that they emerge even in linguistically-controlled, informationally-impoverished contexts where speakers lack rich

mental representations of the referents. I.e., do we still make assumptions about gender when the only cue is the use of the last-name only format?

The second aim is to test we also test whether the male bias of the last-namely-only format is strong enough to persist even when *pitted against a different and well-established semantic bias* (verbs' implicit causality (IC) biases).

Finally, we test whether the male bias persists even if participants are primed beforehand with text using last-name-only format for female referents.

2 Experiment 1

Experiment 1 (20 targets, 22 fillers, 91 native U.S.-English speakers) used a sentence-completion task. Participants read sentence fragments ending in 'because + pronoun' and wrote continuations. We manipulated three factors, as illustrated in ex.(2-3):

The **first factor** is the verb's implicit causality (IC) bias: When followed by an explanation relation signaled by *because*, does the verb elicit mostly subject (IC1) or object (IC2) continuations? The existence of implicit causality biases are well-established in prior work. The verbs were selected based on norms reported by Hartshorne & Snedeker (2013). The **second factor** is whether the pronoun prompt is *he* or *she*. The **third factor** is whether the verb is *eminent* (presents the IC biased referent in a positive light, e.g. IC1: *impressed,* IC2: *promoted*) or *noneminent* (presents the referent in a negative light, e.g. IC1: *disappointed*, IC2: *despised*).

Targets contained one first-name referent and one last-name referent. The last name was always in the position favored by verbs' IC bias (subject/IC1 verbs, object/IC2 verbs). This was done to pit verb bias and male-bias against each other. Examples are in (2-3) below.

(2) *IC1 verbs (subject-biased)*

(a) Smith impressed Eric because he	[he + eminent verb]
(b) Smith impressed Amanda because she	[she + eminent verb]
(c) Smith disappointed Eric because he	[he + non-eminent verb]
(d) Smith disappointed Amanda because she	[she + non-eminent verb]

(3) *IC2 verbs (object-biased)*

(a) Frank promoted Mayfield because he	[he + eminent verb]
(b) Claire promoted Mayfield because she	[she + eminent verb]
(c) Frank despised Mayfield because he	[he + non-eminent verb]
(d) Claire despised Mayfield because she	[she + non-eminent verb]

3 Results of Experiment 1

Data were double-coded by coders blind to condition and with gender cues removed, to ensure any potential biases that the coders might have do not distort the date.

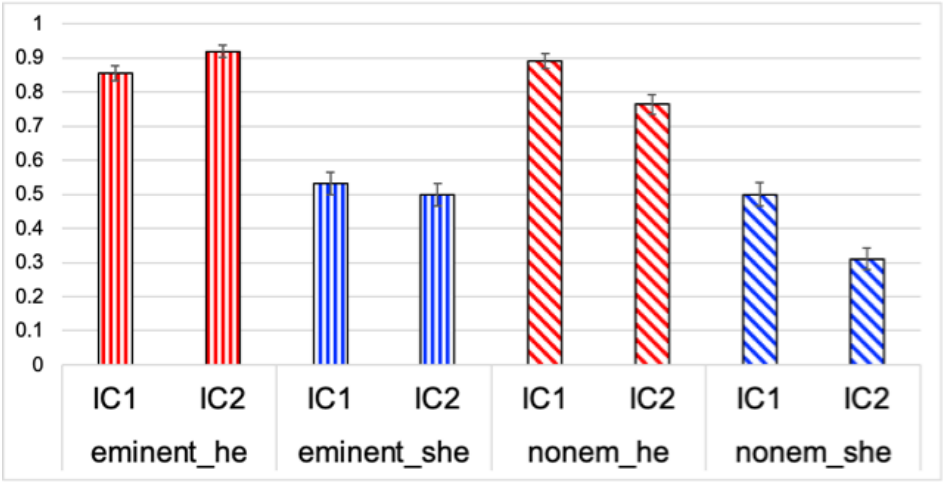
Fig.1 shows the *proportion of verb-bias-compatible continuations* – i.e., how often participants use the pronoun to refer to the referent favored by the verb's implicit causality (IC) bias (subject of IC1 verbs, object of IC2 verbs). Recall that this referent is realized using last-name-only. Thus, if verb bias is all that matters, all conditions should show very high bars, i.e. high rates of verb-bias compatible continuations.

Indeed, this is what we see in the ***he* conditions:** When the prompt pronoun is *he*, all conditions show clear verb bias effects. Both eminent and non-eminent IC1 verbs elicit mostly subject continuations (p's<.001), and eminent and non-eminent IC2 verbs elicit mostly object continuations (p's<.001). In sum, in the *he* conditions we observe the expected IC patterns familiar from prior work on implicit causality.

Strikingly, none of the ***she* conditions** show a rate of verb-bias-compatible continuations above chance. The rate of verb-bias-compatible continuations does not differ from chance with eminent IC1 and IC2 verbs or with noneminent IC1 verbs, and is in fact below chance with noneminent IC2 verbs (p<.05).

In other words, with *she*, even when the verb's semantic IC bias pushes towards the last-name-only referent (e.g. 'Smith' in *Smith impressed Amanda because she…*), participants are 'reluctant' to interpret that referent as the antecedent of the pronoun *she* – despite the verb biasing it. This reveals a *dispreference for interpreting a last-name-only form as referring to a female referent*. These patterns show up in the responses of male and female participants.

Fig.1 Experiment 1: Proportion of continuations that are compatible with the verb's implicit causality bias (subject with IC1 verbs, object with IC2 verbs).



Further analyses show that with IC2 verbs, verb-bias-compatible continuations are less frequent with non-eminent objects with both *he* and *she* ($p<.002$, $p<.02$). We attribute this to the **eminence bias**: If last-name-only style is associated with eminence, participants could be reluctant to provide explanations of why a last-name-referent would be being *criticized, despised, distrusted* etc. This pattern obtains with both *he* and *she*, indicating that the eminence effect is at play also when the pronoun signals the referent is female. In contrast to IC2 verbs, IC1 verbs show no effects of (non)eminence; perhaps they are masked by the greater overall prominence of subjects. This an important direction for future work.

4 Experiment 2

Experiment 2 was the same as Experiment 1 (92 new participants), but now we primed people beforehand with five paragraphs about famous female scientists that used last-name-only reference for female referents (ex.4), to see if priming/exposure could boost likelihood to interpret last-name-only referents as female. Participants were asked to read the five female scientist paragraphs at the start of the study and to answer comprehension questions about them, to ensure they paid attention. Then, participants did the same sentence-completion task, with the same stimuli, as in Experiment 1.

(4) *Example of female scientist paragraph from Experiment 2*

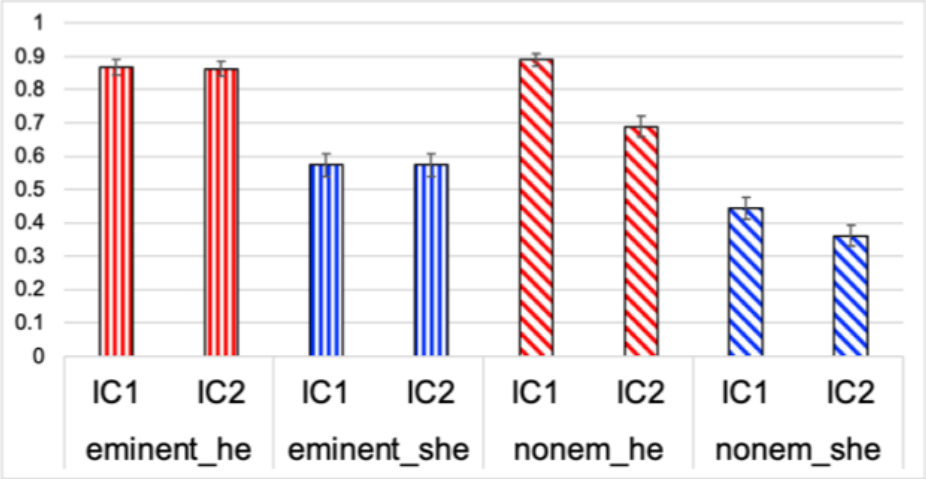
Dr. Rosalind Franklin was an English chemist who lived from 1920 to 1958. An expert in x-ray crystallography, she made groundbreaking contributions to the study of genetics, in particular the molecular structure of DNA (deoxyribonucleic acid) and RNA (ribonucleic acid). Today, Franklin is perhaps best known for the x-ray diffraction photographs that she and a graduate student, Raymond Gosling, took of DNA fibers. These include the famous "photo 51," showing the three-dimensional structure of DNA. However, Franklin is sometimes called the "dark lady of DNA" because her important role in the discovery of a second type of DNA and its remarkable double helix structure went largely unrecognized for decades. Nevertheless, Franklin's pioneering work on the molecular structure of coal and viruses was already appreciated during her lifetime. In fact, Franklin's discoveries helped the Allies use more fuel-

efficient coal during World War II. Franklin died of ovarian cancer at age 37, but her team continued her research which eventually won the Nobel Prize in Chemistry in 1982.

5 Results of Experiment 2

As shown in Fig.2, the results largely replicate Experiment 1. There is no strong indications of the male bias (or the eminence bias) weakening in the presence of the priming manipulation.

Fig.2 Experiment 2 with priming: Proportion of continuations that are compatible with the verb's implicit causality bias (subject with IC1 verbs, object with IC2 verbs).



6 Conclusions

The dependency-building elicited by gender-marked pronouns shows that referring to someone by last-name only triggers strong semantic inferences in comprehenders' minds, at least in the U.S. English context. Our results show that (i) the male and eminence biases persist even in informationally-impoverished contexts where the prior linguistic context is controlled to avoid potential confounds, (ii) the male bias persists even when pitted against established verb IC biases, and (iii) the male bias and the eminence bias do not seem to be affected by a priming manipulation seeking to boost the likelihood of last-name only being used for women. These results suggest that even when participants have no other information about someone, simply seeing that person referred to by means of (the in-principle gender-ambiguous) last-name-only format is still enough to trigger an assumption that the referent is male and eminent. Put together, these results highlight an under-researched aspect of pronoun interpretation that can have societal consequences.

References

Atir, S., & Ferguson, M. J. (2018). How gender determines the way we speak about professionals. *PNAS Proceedings* 115(28), 7278-7283

Gardner, B. & Brown-Schmidt, S. (2019). *"Call me by my last name": Gender bias through production about and memory for names.* Poster presented at the 60th Annual Meeting of the Psychonomic Society. Montreal, Canada.

Gardner, B. & Brown-Schmidt, S. (2020). *"No gender mentioned but I'd say male": Gender bias through production about news stories*. Poster presented at the 33rd Annual CUNY Conference on Human Sentence Processing.

Hartshorne, J. & Snedeker, J. (2013). Verb Argument Structure Predicts Implicit Causality, *Language Cognition and Neuroscience* 28, 1474-1508.

McConnell-Ginet, S. (2003). "What's in a Name?" Social Labeling and Gender Practices. *Handbook of Language and Gender*, Wiley. https://doi.org/10.1002/9780470756942.ch3