

# Female scientists are considerably more likely to be mistakenly cited as if they were males than vice versa

[blogs.lse.ac.uk/impactofsocialsciences/2017/04/19/female-scientists-are-considerably-more-likely-to-be-mistakenly-cited-as-if-they-were-males-than-vice-versa/](https://blogs.lse.ac.uk/impactofsocialsciences/2017/04/19/female-scientists-are-considerably-more-likely-to-be-mistakenly-cited-as-if-they-were-males-than-vice-versa/)

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*Gender stereotypes appear so enduring that certain prestigious professions continue to be almost exclusively associated with the male gender. **Michał Krawczyk** sought to discover if scientist was one such profession by studying the citations to a large sample of academic publications and identifying cases of gender misattribution of the cited author. Although the overall prevalence of gender misattributions is quite low, female scientists are considerably more likely to be mistakenly cited as if they were males than vice versa. These mistakes are most common in business and economics, but virtually never happen in the biomedical fields.*



Do you remember how everyone was surprised when it turned out that [the founder of I Fucking Love Science was a woman](#)? And how tricky is the riddle featuring a surgeon saying “it’s my son!” about a boy who [has just lost his father](#)? Of course, this is just anecdotal. However, more solid evidence exists that some prestigious professions, including scientist, continue to be associated with the male gender only.

In a study recently published in [Scientometrics](#), I tried to verify a novel prediction following on from this gender-science stereotype. I speculated that female-to-male gender misattributions are much more common in academic citations than the reverse. Such a tendency would reinforce the biased perception of females’ contribution to science, perhaps also adversely affecting individual scholars.



**Image credit: 2006-10-17 – United Kingdom – England – London – South Bank – Man and Woman by CGP Grey. This work is licensed under aCC BY 2.0 license.**

To test this, almost 3,000 often-cited (defined as 100+ citations), single-authored (by a man or a woman) academic publications from the hard sciences, social sciences and humanities were investigated. All those papers citing them

(that were discoverable and accessible using Google Scholar) were screened for cases of misattribution of gender of the cited author. I compared the prevalence of the cases in which a female author was referred to as “he” to the cases where a male author was referred to as “she” in a citing paper. As mentioned before, I hypothesised that female scholars would have their gender misattributed more often than males. It could also be expected that the effect would be strongest in older publications. One would also like to know whether male citers and citers in male-dominated fields would be most prone to such bias.

By calculating summary statistics, conducting simple tests of equality of proportions, and estimating a logistic regression model, I arrived at three main findings. Firstly, the overall prevalence of gender misattributions is quite low. Of the 2893 sources checked, authors of only 57 (1.97%) have been subject to any gender misattribution (there were 66 mistakes in total, with some papers having been incorrectly cited more than once). Such low figures are not entirely surprising. In the English language there is rarely a need to make a gender attribution in the first place. Accordingly, it is likely that those authors who choose to do so are confident of doing so correctly. Moreover, in all likelihood, research assistants, referees, editors, and proofreaders rectify a majority of remaining mistakes.

Secondly, those mistakes that survive the screening process show a strikingly asymmetric pattern: only four male-turned-female mistakes (concerning three papers) were found. By contrast, of female-authored papers, as many as 53 (4.65%) were incorrectly cited at least once. Given that there were approximately four gender attributions per source paper in our sample, 1.16% of all attributions of single female authors turned out to be incorrect, whereas the rate for males is 0.04%. The plausible explanation is that the gender-science cliché remains strong in (some) authors, so much so it is often not even deemed necessary to check.

Finally, there might be some effect of the field of study. Female-turned-male mistakes are most common in business and economics, followed by the social sciences, and the arts and humanities; and virtually never happen in the biomedical fields. However, given that it is the social sciences and the arts and humanities categories that boast a relatively high proportion of female scientists, that variable does not seem to explain much of the variation.

Nevertheless, with more women reaching senior academic positions and publishing successfully, one may hope that the severe gender asymmetry observed will come to an end. For instance, the [Fields Medal being awarded to a woman, Maryam Mirzakhani](#), for the first time in 2014, may help dispel myths such as “girls can’t do math”.

As the prevalence is low, gender misattributions *per se* most likely do not contribute significantly to lower awareness of female researchers’ achievements. Then again, the data from a follow-up project (work in progress) shows that in Slavic languages, with different grammar forms for the two genders meaning attribution is more often necessary, mistakes are considerably more common. Moreover, a strong gender asymmetry is also observed in that dataset. One might thus speculate that those writing in English quite often make the same female-turned-male gender misattribution, but simply rarely have the opportunity to reveal their mistake.

*This blog post is based on the author’s article, [Are all researchers male? Gender misattributions in citations](#), published in *Scientometrics* (DOI: 10.1007/s11192-016-2192-y).*

*Note: This article gives the views of the author, and not the position of the LSE Impact Blog, nor of the London School of Economics. Please review our [comments policy](#) if you have any concerns on posting a comment below.*

## **About the author**

**Michał Krawczyk** received a PhD in economics from the University of Amsterdam. He is currently an assistant professor at the University of Warsaw. His research interests comprise several sub-fields of behavioral economics. Most of his studies involve laboratory and field experiments. He has published in *American Economic Review*, *Experimental Economics*, *Journal of Economic Behavior and Organization*, *Journal of Economic Psychology*, *Journal of the European Economic Association*, *Journal of Public Economics*, *MIS Quarterly*, and *PLoS ONE*. His ORCID iD is [0000-0001-6795-1175](#).

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