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FEMALE LANGUAGE IN RESEARCH ARTICLES WRITTEN BY TRANSGENDER SCIENTISTS

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Abstract: *Physiological examinations of trans individuals reveal that their bodies over time align to correspond with their gender identity and shift away from the parameters associated with gender assigned at birth. Considering this, the present study looks at language production of transgender scientists to determine if their language changes along with their physiology. The investigation centers on one aspect of scientific trans discourse—that is the frequency of female language. It was expected that those scientists who transitioned from male to female would use female language more frequently after the transition, and those who transitioned from female to male would exhibit fewer instances of female language. However, the opposite appears to be true. According to the evidence collected from 10 professional scientific articles, the frequency of female language goes up for those scientists transitioning from female to male and goes down for those who transition from male to female.*

Keywords: *female language, trans discourse, scientific discourse, trans linguistics*

1. Introduction and literature review

In the last few decades, the view on gender has shifted dramatically from the binary approach; gender is now more commonly accepted by many as a social, rather than a biological, category (for which "sex" is a label) (e.g. Rey, 2013). In linguistics, however, research conducted related to this shift can still be called emergent and categories of "gendered language," "male," and "female" language are still used as analytical cornerstones (e.g. Beblo, Görges, Markowsky, 2020;

Langer, 2011; Mulac, Bradac & Gibbons, 2001). "Transgender language," for instance, is only starting to develop into a robust linguistic category. Zimman's (2020) chapter on Trans Linguistics in *The Oxford Handbook of Language and Sexuality* is an important step to formalizing the term as it not only positions trans linguistics as a "framework for research on language in populations defined by their deviation from gender norms," but he also highlights a history of such research beginning in the 1960s. The chapter also introduces terminology specific to the field: "trans grammar," "trance voice," and "trans discourse." The concluding section, however, casts a light on the emerging nature of trans linguistics as an academic field: "*Toward* a Trans Linguistic."

As Zimman (2020) points out, attention has been given to the language of the LGBTQIA+ community and to the individual groups that comprise it. Currently, the most visible and easily accessible are numerous online glossaries (e.g. LGBTQIA Resource Center Glossary at UC DAVIS), individual studies on pronoun use (e.g. Bradley, 2019), and explanations of appropriate and undesirable terms (Goldberg, 2019). What all these works have in common is the focus on labels. Professional research, on the other hand, focuses more on trans discourse, syntax, grammar, or an overview of trends (for a summary of existing research see Brown, Anderson & Barrett, 2006). However, such investigations are less visible because they remain behind the publishers' paywalls and do not contribute as much to the popular perception of transgender language. Thus, trans discourse, in the eyes of the general public, is simplified to a debate about which pronouns to use and a list of offensive terms like "transgendered," or "post-op." However, transgender discourse is much more complex and just as nuanced as the discourse of any social group.

This study is an attempt to raise awareness to a specific subset of transgender discourse—the discourse of transgender scientists—and to position trans discourse within a well-established discoursal group—scientific discourse. The scientific disciplines represented in this study are biology, economics, materials science, and neuroscience. These disciplines cover a broad range of scientific writing including social sciences, natural sciences, and an interdisciplinary field drawing on physics, chemistry, and engineering. All the individuals whose publicly available writing is the subject of this research hold doctoral degrees in their fields. Most of these individuals are active practitioners (Ben Barres passed away in 2017, being active in his work up until that time). The samples of writing are comparable in their length and style, representing professional scientific writing in their respective disciplines. With that, field-specific terminology is present, but it does

not affect the present analysis, as it focuses on more general features common to all scientific writing. In the case of each scientist, a writing sample of pre- and post-transition writing is comparable in length, style, and covers the same discipline. No scientists whose writing is examined switched their field of study. As such, the samples demonstrate both trans discourse and its relationship to scientific discourse out of which they emerge.

Zimman (2020, p.10) identifies three categories important to trans discourse: "medical gatekeeping and narrative authenticity; the negotiation of legal and embodied selves; and globalizing forces". This study analyzes the language of transgender scientists before and after transition, taking into account whether the transition occurred from male to female (MTF) or from female to male (FTM). Therefore, it does not neatly fit into Zimman's categories, yet it touches on the issue of gatekeeping. The scientific community and, particularly, the scientific publishing community has been identified by transgender scientists as conservative and inflexible when it comes to openly expressing a non-binary gender identity (Chen, 2023; STEM pride, 2023, p.3352, 3354). For example, transgender scientists repeatedly note the difficulty to change their name on already published research articles—something that would allow them to take proper credit for the work accomplished before transition (Chen, 2023, p.871-872; STEM pride, 2023). In some cases, career advancement may be jeopardized (Chen, 2023, p. 872). However, preserving the names used before transition allows for comparative analysis of trans discourse.

To collect my data sample, I use the analytical category of "female language" to identify certain trends in linguistic production of transgender scientists. In Limnios (2023, p. 174), I introduce the following distinction between "gendered language" and "female language": there is a "line between what is the expected linguistic output for a female in the English language and what is the natural language that females and female-identifying individuals produce. The former, I will consider gendered language, while the latter I will regard as female language". The same distinction is applied to the present investigation.

Specifically, this study considers how many features of female language are present in research articles published by an individual pre-transition and how many female language features are found in research published by the same individual after the transition. I hypothesized that those scientists transitioning from female to male would exhibit fewer traits of female language after transitioning, and those who transitioned from male to female would write in a way that would

present more female language features. This assumption is based on evidence from psychological and physiological studies of transgender individuals that indicate a shift, both in emotional and physical traits, toward gender identity and not biological gender (e.g. Harper et al., 2021; Kurth et al., 2022; Zimman, 2017). Studies in psychology, especially, show a desire of transgender individuals to use language as an assimilation mechanism into their new gender group (Langer, 2011; Thornton, 2008).

While this study uses a traditional gender binary category as reflected in language (female language being the major analytical category), other investigations into transgender language have taken a different approach in trying to describe a "queer grammar" (Steriopolo & Aussoleil, 2021). Some unique features to transgender language that Steriopolo and Aussoleil uncover include "Queering conventionally gendered language forms; (ii) using gender-neutral forms to queer familial terms; (iii) queering pronouns; (iv) using the playful and affective animal role play; (v) queering language to describe babies and young individuals; and (vi) language mixing". Both approaches, I argue, contribute to the linguistic phenomenon that is transgender language and raise awareness to its unique features. My decision to use a gender binary analytical approach is based on the desire to investigate trans discourse within a broader category of scientific discourse, where gender binary is more prominent. In addition, historically, transgender individuals have themselves acknowledged the gender binary categories when it comes to language.

It is clear that language is crucial to the trans community, both internally (individual production) and externally (production of others in response to the trans community). Studies of language as an identifying and community-building tool for LGBTQIA+ individuals began in 1980s and 90s with Chesebro (1981), Hayes (1981), and Leap (1996) being instrumental in identifying marked features of gay language. As Brown, Anderson, and Barrett (2006, p. 320) point out, transgender individuals "typically attempt to adjust their speech patterns to reflect normative expectations of gendered use of language". Langer (2011, p. 304) writes "we…have a need to verbalize in order to formulate our identity to ourselves and for another to comprehend us as individuals". In some cases, queering of language is a way to achieve the new social identity as Steriopolo and Aussoleil (2021) show. At other times, the focus on female or male features of linguistic output takes center stage; as Limnios (2023, p. 173) suggests, such attempts by trans individuals to create and project a new social identity "inevitably uncover differences between

female and male linguistic identities". For example, queering a linguistic gender binary is an attempt to highlight and dismantle it. Zimman (2017, p. 1016) notes that "transgender speakers provide a perfect opportunity for teasing apart social and biological influences on the gendered voice".

The present study assumes a linguistic gender binary as a fact (e.g. Limnios, 2023; Mulac et al., 2001; Roberts & Utych, 2020) and investigates how female linguistic identity manifests itself pre- and post-transition in professional publications of transgender scientists. While working with a binary category might seem counterintuitive when investigating transgender language, it is not uncommon. For instance, Zimman (2020, p.8) shows evidence from Bershtling (2014) "that nonbinary identities can be expressed in the context of binary grammatical gender systems". Zimman (2020, p.5) also brings up a crucial point concerning binary gender view in linguistic analysis pointing out that numerous early studies of transgender language were "concerned [with] how well trans people approximate the linguistic styles associated with cis people of the same gender identity—but without necessarily questioning the empirical status of those associations". The present study, while using a binary gender category, does not aim to evaluate "how well" transgender people use female language, but simply records frequencies of linguistic markers associated with this category and contributes to Bershtling's (2014) and Zimman's (2020) examples of a linguistic binary not hindering transgender expression.

As pointed out in Limnios (2023, p. 174-175), looking at statistically supported frequencies of female language rather than conducting a qualitative analysis illustrates how gender binary works as an analytical category. Mulac et al. (2001, pp. 124-125) introduce the idea that differences in linguistic features between males and females "should be viewed as…gender-indicative tendencies" and not as "'speech markers'" which are associated with "group membership" and point to one group or another by mere presence; gender-indicative tendencies, they suggest, "are used by both genders. It is the extent to which they are used" which allows differentiation. For instance, both males and females use hedging devices; however, several studies show evidence that hedges are found more often in texts produced by females (Holmes, 2005; Pfiester, 2009; Reid et al., 2003). Thus, a hedge does not characterize male or female language, yet its *frequency* contributes to such identification.

Most of the sociolinguistic studies of gender-related issues are based on data collected either in laboratory settings that induce conversations on specific topics (Ashenfelter et al., 2009; Bortfeld et al., 2001; Hancock & Rubin 2015; Hannah & Murachver, 2007), natural conversations in professional settings (Holmes, 2005; Menz & Al-Roubaie, 2008), and from sociolinguistic interviews (Hazenberg, 2016). The present study contributes with an analysis of formal written language in one specific genre—scientific research article, covering a range of disciplines from social sciences and natural sciences, to an intersection of physics, chemistry, and engineering.

Professional scientific publications are less likely to be places where transgender individuals would *deliberately and consciously* work on projecting a certain social identity—this is more likely to occur in more personal interactions. Professional scientists have to navigate a maze of social and linguistic conventions when producing written texts, making their own claims and refuting claims of others (Hyland, 1997; Myers, 1990).

While doing so, scientists have to adhere to certain rules of pragmatics—hedge their claims, for example (Hyland, 1998; Limnios, 2022; Varttala, 1999); and often they have to deal with multiple audiences who have different levels of knowledge on the subject (Myers, 1989). On top of that, professional scientific language in general is known for being impersonal (Barton, 2010; Bowater & Yeoman, 2013; Meredith, 2010). Therefore, it would be unlikely for an article author to *purposefully* demonstrate gender-related linguistic tendencies. Therefore, when female language features are observed, it is possible to assume that they are a result of subconscious use and allow a unique glimpse into the language production of transgender individuals.

2. Background and methods

The current investigation is an extension of an earlier study of female language in scientific discourse (Limnios, 2023). The present study continues to look at female language features (listed below) but as they show up in transgender language. The previous project, however, specifically focused on cisgender writers and excluded LGTBTQ+ individuals. The goal of that research was to provide quantifiable, statistically supported evidence in favor of female language features in popular science written by cis males and females.

Limnios (2023) makes a detailed case for viability of female language as an analytical category. Namely, "Female language manifests…through vocabulary and grammatical structures that are statistically more likely to occur in female and female-identifying individuals" (Limnios, 2023, p.174). Mulac et al. (2001, pp. 124-125) use "gender-indicative tendencies" to describe a similar phenomenon. So, it is possible to use the label "female-indicative language" rather than "female language" to describe the features I examined in research articles written by professional scientists who are transgender. However, to keep current research in correspondence with previous studies on gender features in language, I will continue to use the term "female language".

The following features of female language were identified by Limnios (2023) as quantifiable, statistically-supported by previous studies, and relevant for a specific subset of scientific writing—popular science:

- Dependent clauses not associated with hedging, that is, dependent clauses with markers other than "if"
- Sentence-initial adverbials
- Oppositions (including subordinate conjunctions)
- Negations

For the present investigation that considers professional research articles two more features of female language were added:

- Questions (based on Hannah & Murachver, 2007; Mulac et al., 2001; Pfiester, 2009)
- Reader-inclusive pronoun "we" (based on Holmes, 2005)

These items were excluded from the earlier study because they are considered conventions in written popular science. In that context, they were not quantitatively significant as indicators of female language. In professional research articles, however, questions and the reader-inclusive pronoun "we" are less common and serve as deviation from convention rather than conformance to it. For example, the language of a research article is usually more formal and less conversational, which limits the use of such interactive features as reader pronouns and questions (Hyland, 1997; Limnios, 2022; Meredith, 2010; Myers, 1989).

The data for analysis was collected from 10 research articles covering the disciplines of biology, economics, engineering/materials science and neuroscience. The articles were published between 1972 and 2023 and represent written scientific discourse produced by 5 transgender

scientists before and after transition. The date range is determined by the public availability of published research from these individuals and the ability to verify their identity before and after transition. The articles are publicly available through research databases such as Google Scholar, ScienceDirect, PubMed, etc. The total number of words analyzed is 88,831. There are two authors who transitioned from Female to Male (FTM) and three who transitioned from Male to Female (MTF). See Table 1 for a schematic representation of data.

Article	Identity	Field	Date
1a	Female	Neuroscience/biology	2015
1b	Male	Neuroscience/biology	2023
2a	Male	Materials science/engineering	2013
2b	Female	Materials science/engineering	2022
3a	Female	Neuroscience	1991
3b	Male	Neuroscience	2008
4a	Male	Economics	1983
4b	Female	Economics	2016
5a	Male	Biology	1972
5b	Female	Biology	2012

Table 1. Schematic Representation of Data

The 5 scientists whose selected works served as data for this project openly identify as transgender representatives of the international scientific community, and the information on their gender before transition is publicly available through a Google search. In fact, these individuals and their writing were selected because it was possible to trace their pre-transition identity and publications to their post-transition research activity. The verification was done using biographies available through Wikipedia, personal websites of the scientists, and journalistic writing about the scientists; the pre- and post-transition identities of the scientists were also verified using ORCID. A particular constraint on collecting data was posed by a desire expressed by transgender scientists to erase their pre-transition academic identity by updating their names with publishers (see Chen, 2023; STEM pride, 2023). With pre-transition gender-specific names being removed from the

equation, the only publicly available way to confirm gender identity change would be a date of transition; however, such information is not always in the public domain.

It is noteworthy to mention that the process of changing one's name in a previously published article is described by transgender scientists as arduous and time-consuming. There still appears to be a resistance in the publishing industry to accommodating researchers who transitioned. As a result, many forgo due credit and recognition for accomplishments prior to transitioning. For example, Armada-Moreira reports that he was "fully successful in fewer than 50% of the cases"; Jen M. Hope notes that "academia is resistant to deviation from the norm" (STEM Pride, 2023, p.3352, 3354).

The names of the authors along with bibliographical information for the articles are available in the Appendix. In the body of this article, however, I will use a code system by numbering the articles/authors 1 through 10, using letters *a* and *b* to signal writing before (a) and after (b) transition, and acronyms signaling the type of transition (FTM or MTF). For example, "article 1a FTM" would refer to an article written by author 1 before their transition from female to male "Article 3b MTF" would refer to an article written by author 3 after their transition from male to female.

While three of the authors are single authors of the articles analyzed, two other articles are co-written with male and female authors. Ordinarily, this may be seen as a problem with the purity of the data; however, when it comes to scientific writing, co-authorship is common, and a resulting article can be regarded as a writing sample for all the authors. In hard sciences especially, single authorship is rare. Since this research project is concerned exclusively with professional scientific written output of transgender scientists, co-authored articles were considered writing samples on par with single authored articles. It should be noted that co-authored articles were compared with co-authored articles, and single-author articles compared with single-authored articles. For example, both samples from author 2 are co-written, while both samples from author 5 are single-authored.

After the selection and verification process was complete, each article was analyzed for the presence of the above-listed features of female language. A SEARCH feature of a word processor was used to find words or phrases corresponding to each of the female language features. *Dependent clauses* were identified by the following markers: after, although, as, as if, because,

before, even if, even though, if, in order to, since, though, unless, until, whatever, when, whenever, whether, and while (based on Hancock & Rubin, 2015). When identifying *oppositions*, I searched for "but" and "yet" (based on Mulac et al., 2001). *Negations* were determined by looking for "not" (which covered all uncontracted negations) and "n't" (which covered all contracted negations), for example: "didn't" "doesn't," "couldn't," and "wouldn't" (based on Hancock & Rubin, 2015). While uncontracted negations are a convention of academic writing, Hancock & Rubin (2015) argue for both contracted and uncontracted negations as features of female language, and the sample data, in fact, showed a presence of contracted negations. The *sentence-initial adverbials* I searched for included: however, finally, specifically, therefore, additionally, thus, moreover, similarly, furthermore, conversely, initially, recently, subsequently, firstly, secondly, lastly, hence, consequently, accordingly. In addition, a search for "ly" revealed a number of adverbials. To account for *questions*, I searched for "?". Indirect questions were not considered since they have not been identified as features of female language during the literature review. To identify the *reader pronoun "we,"* I considered all instances of "we," and counted those uses where the pronoun referred to the author/s and the reader not to the authors themselves or to the author/s and the scientific community.

Upon completion of the search, quantitative data on each article was compiled to represent the total number of female language features in each article and frequencies of individual features.

3. Results

Manual search for female language features in each of the 10 articles yielded the numbers shown in Table 2 below. Compared with the author's previous study (Limnios, 2023) of female language features in popular scientific writing, the percentages found among transgender scientists are lower, ranging from 1% to 2.5%, while cisgender male and cisgender female authors of popular science employed between 4.5% and 8.5% of female language features.

A subtle but thought-provoking pattern emerges from the numerical frequencies presented in Table 2. Those scientists who transitioned from female to male tend to use slightly more features of female language after transition. At the same time, those who transitioned from male to female dropped the number of female language features in their writing. Admittedly, the sample analyzed

for this project is small, and it would be necessary to look at a larger number of articles to confirm the pattern.

Article	Number of female language features	Percentage of female language features per article
1a FTM	58	1.2%
1b FTM	79	1.3%
2a MTF	31	1.2%
2b MTF	46	1%
3a FTM	137	2%
3b FTM	171	2.3%
4a MTF	545	2.5%
4b MTF	293	2.4%
5a MTF	229	1.4%
5b MTF	94	1.3%

Table 2. Frequency of Female Language Features before and after Transition

Article/ Feature	1a	1b	2a	2b	3a	3b	4a	4b	5a	5b	Total in all articles	Percentage of corpus
Dependent clauses	19	28	18	21	66	44	70	53	62	42	423	0.5%
Oppositions	8	9	6	3	17	37	124	64	34	9	311	0.3%
Negations	7	24	5	9	36	45	226	135	38	26	551	0.6%
Sentence-initial adverbials	23	17	2	13	14	17	2	3	71	12	174	0.2%
Questions	1	1	0	0	3	14	46	16	0	2	83	0.09%
Reader pronouns	0	0	0	0	1	14	77	25	24	3	144	0.1%

Table 3. Frequency of Individual Features of Female Language

When it comes to the distribution of individual features of female language (see Table 3 above), negations are the most frequently used marker followed by dependent clauses and oppositions. Questions and the reader pronoun “we” are used the least; with several authors not

employing these markers at all, it appears that they are less reliable indicators of female language and are representative more of individual writing styles.

The pattern of distribution of individual features shown in Table 3 remains unchanged when pre- and post-transition writing is analyzed separately. This is shown in Tables 4a and 4b respectively. Negations remain the most frequent feature of female language. The study of cisgender scientific writing (Limnios, 2023) showed that negations were the least frequent marker.

Article/Feature	1a		2a		3a		4a		5a		Total
Dependent clauses	19		18		66		70		62		235
Oppositions	8		6		17		124		34		189
Negations	7		5		36		226		38		312
Sentence-initial adverbials	23		2		14		2		71		112
Questions	1		0		3		46		0		50
Reader pronouns	0		0		1		77		24		102

Table 4a. Frequency of Individual Features of Female Language before Transition

Feature/Article		1b		2b		3b		4b		5b	Total
Dependent clauses		28		21		44		53		42	188
Oppositions		9		3		37		64		9	119
Negations		24		9		45		135		26	239
Sentence-initial adverbials		17		13		17		3		12	62
Questions		1		0		14		16		2	33
Reader pronouns		0		0		14		25		3	42

Table 4b. Frequency of Individual Features of Female Language after Transition

The articles with the most frequent use of dependent clauses and negations represent three fields: neuroscience, biology, and economics. It is possible that the increased number of these features corresponds with writing conventions of these scientific fields. For example, Myers (1990, p.81) notes the importance of narrative to a discipline like biology, which “unlike the physical

sciences, must often deal with unique events in time". Other disciplines that contribute the data, neuroscience and economics, are also "unlike physical sciences," and may also rely on narrative to provide explanations. A successful scientific narrative includes information that is interpreted by the author in some way, which may explain the increased presence of dependent clauses as rhetorical devices that link and explain claims (Pilkington, 2017; 2018). Negations may also be seen as devices that help position claims within broader narrative contexts of the discipline.

Overall, the quantitative analysis of female language features in this sample of scientific research articles written by transgender scientists reveals a pattern of increased use for those who transitioned from female to male. At the same time, individuals who transitioned from male to female, used fewer markers of female language. Negations are the most frequent marker of female language before and after transition.

4. Discussion

The hypothesis of this study was that female language features would become more frequent in the writing of scientists who transitioned from male to female and less frequent for those individuals who transitioned from female to male, which was disproved. In developing this hypothesis, I was mindful of Zimman's (2020, p.5) observation that historically "[a] common set of questions concerned how well trans people approximate the linguistic styles associated with cis people of the same gender identity—but without necessarily questioning the empirical status of those associations". It is important to reiterate that female language is not a set of linguistic structures used exclusively by females, but rather linguistic constructs that are statistically more frequent in the language females produce. The hypothesis was based on studies of transgender psychology and physiology that note transformations toward a gender that a person identifies with and away from the gender assigned at birth. For instance, Harper et al. (2021) show that over time hormone therapy in transwomen alters their physical bodies and abilities to align more with the parameters found in cis women. They report the following physiological changes, "decreases [in] muscle cross-sectional area, lean body mass, strength and haemogloblin levels" (Harper et al., 2021, p. 871). Kurth et al. (2022) demonstrate that the brain anatomy of transgender individuals changes after gender-affirming hormone therapy. The changes reveal alignment with gender

identity rather than with the assigned gender. “The observed shift away from a male-typical brain anatomy towards a female-typical one in people who identify as transgender women suggests a possible underlying neuroanatomical correlate for a female gender identity” (Kurth et al., 2022, p. 1586). Studies in psychology (e.g. Langer, 2011; Thornton, 2008) articulate a need that many transgender individuals feel to adjust their linguistic output to correspond more with the norms or perceptions of their gender identity.

Language is situated between physiology and psychology, dependent on both, and if transitioning involves physical changes and triggers a need for psychological adjustments, it is possible to assume that linguistic production of a trans individual would also adjust to reflect gender identity. In fact, Hancock et al. (2014, p. 329) in their study of “male and female language use” express a similar initial assumption that “the MtF [Male to Female] group would adopt language more similar to the female group”. Their findings are also similar to this study’s results where transgender women use fewer markers of female language, and transgender men use more markers. Hancock et al. (2014, p. 239) observed that trans females “did not statistically differ from males and in fact often the MtF group mean was closer to the male mean than the female mean”.

Such findings reflect the unique position of transgender discourse in general and of transgender discourse within scientific writing in particular. Compared with cisgender writers of popular science (Limnios, 2023) transgender scientists used fewer markers of female language regardless of whether the transition was male to female or female to male. The overall lower rate of female language may be indicative of a lower status of women in the scientific community— it is possible that transgender scientists are particularly sensitive to the power imbalance and try to mitigate it subconsciously. In the experience of Adam Armada-Moreira (2021), being a trans scientist means having “a fine-tuned ability to identify sexism, personally knowing how it is to be perceived as a female versus a male scientist”. As Zimman (2020, p. 10) writes, trans discourse “is concerned…with…discourse-level strategies that characterize trans people’s place within structures of power”. The use of female language markers might be one indicator of how trans scientists navigate the power structures within the scientific community. That is, they might be subconsciously avoiding female linguistic expressions because of their personal experiences, whether current or past, within the scientific community. Transgender scientists are uniquely positioned to experience both male and female identities, which may lead them to being particularly

sensitive to behaviors (including in writing) that may incur discrimination. To scientific discourse in general, this study contributes a set of data that showcases ways trans individuals use the resources available within the established rules to create their own, unique language and project their identities.

5. Conclusions and limitations of the present study

The present study focused on a sample of professional scientific writing by transgender scientists with a limited corpus of 10 articles and 88,831 words. As such, the findings of the study may not be indicative of possible general trends of trans discourse, yet they may point out future avenues of research in the fields of scientific discourse in general and trans discourse in particular.

The results gathered from this rather limited corpus analysis suggest that those scientists who transitioned from male to female use fewer markers of female language after transition, and those who transitioned from female to male use more markers after transition. The most frequent female language markers observed are negations, dependent clauses, and oppositions (in that order). These results come from a quantitative analysis of the available data, and the present study does not attempt to offer explanations for this distribution.

However, even a small-scale study can be useful in contributing to the confirmation of the unique nature of transgender discourse suggested by Zimman (2020) and Hancock et al. (2014). This study suggests one possible way in which transgender scientists engage with the scientific community and respond to its power arrangements. Finally, the present study may contribute to the awareness of trans discourse as its own linguistic category and shine a light on the intersectionality of transgender and scientific discourses.

APPENDIX: Bibliographical Information for the Analyzed Articles Coded 1 through 5

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