

Power Evasiveness in the Graduate Texts in Mathematics Series

José Saúl Barbosa
Michigan State University

Reagin Taylor McNeill
Michigan State University

Keywords: power, critical discourse analysis, graduate texts

Texts have an interpersonal function that establishes relationships between authors, readers, and the content of the texts (Morgan, 1996), and, thus, can be exclusionary. For example, examining the interpersonal function of middle school mathematics texts, Herbel-Eisenmann (2007) found readers are rarely positioned with mathematical authority despite the curriculum's intention. Similarly, texts can valorize masculinity (McBride, 1989), individualism (McBride, 1994), and passively maintain the status quo (Dowling, 1991). Despite the demographic homogeneity of postsecondary mathematics education (Blair et al., 2018), little research has critically analyzed postsecondary mathematics texts. We extend Herbel-Eisenmann's analysis to investigate the interpersonal function of the Graduate Texts in Mathematics (GTM) series with a particular focus on the use of pronouns by textbook authors. We pursue the research question: What do pronouns in the GTM series convey about interpersonal power?

Our analysis is grounded in theories of power evasiveness. Power evasiveness emerged from critical whiteness studies to characterize how racial power can be enacted in implicit or invisible ways (e.g., Frankenburg, 1993; Haviland, 2008). For example, white people's common avoidance of racially direct language can be understood as power-evasive, as it deflects recognition of the roles of racism and white supremacy while still allowing them to benefit from their ongoing enactment. Although our analysis does not explicitly center race, we recognize whiteness operates by creating factions to suppress collective resistance (Tochluk, 2010) and structures oppression across many dimensions (e.g., gender; Robertson & Hairston, 2022). We use power evasiveness to describe any enactment of power that is shrouded by power-neutral framings.

We selected 40 books from the GTM series, prioritizing books currently used by graduate mathematics students. Leveraging critical discourse analysis (Fairclough, 2013), we analyzed the opening pages of these texts through the first proof. We used an open/axial/selective coding scheme (Straus & Corbin, 1998) with two sets of open codes: one for pronouns and another to characterize the reader's mathematical authority. In line with prior critical textbook analyses (Herbel-Eisenmann, 2007; Morgan, 1996), we then categorized coded excerpts as inclusive when the reader was an actor in the sentence and exclusive otherwise.

Authors tended to use pronouns that signify the readers' inclusion while simultaneously constraining their agency. For example, "There are topologies on X that do not respect the vector operations in this way, but they are of no interest to us" (Clarke, 2013, p. 4) uses inclusive language to refer to the author and the reader while imposing the authors' mathematical agenda. Similarly, "We agree to write $\text{ord}_p 0 = \infty$ " (Koblitz, 1984, p. 2) includes the reader as an actor but forces their agreement with the author. These excerpts demonstrate power evasiveness through their seeming inclusiveness while exerting power over the reader.

While the postsecondary mathematics community has made important strides towards inclusion, this analysis illustrates that inclusion is insufficient to reconstruct mathematics as a liberatory domain (Martin, 2019); power continues to constrain mathematical agency and epistemic diversity (Gutiérrez, 2017). Power evasiveness in pronoun use symbolizes a need to reconstruct the very ways we think, write, and talk mathematically.

References

- Blair, R., Kirkman, E. E., & Maxwell, J. W. (2018). Statistical abstract of undergraduate programs in the mathematical sciences in the United States. *American Mathematical Society*.
- Clarke, F. (2013). *Functional analysis, calculus of variations and optimal control*. Springer-Verlag.
- Dowling, P. (1991). Gender, class, and subjectivity in mathematics: A critique of humpty dumpty. *For the Learning of Mathematics*, 11(1), 2–8.
- Fairclough, N. (2013). *Critical discourse analysis: The critical study of language*. Routledge.
- Frankenburg, R. (1993). *White women, race matters: The social construction of whiteness*. Routledge.
- Gutiérrez, R. (2017). Why mathematics (education) was late to the backlash party: The need for a revolution. *Journal of Urban Mathematics Education*, 10(2), 8-24
- Haviland, V. S. (2008). “Things get glossed over” Rearticulating the silencing power of whiteness in education. *Journal of Teacher Education*, 59(1), 40-54.
- Herbel-Eisenmann, B. A. (2007). From intended curriculum to written curriculum: Examining the “voice” of a mathematics textbook. *Journal for Research in Mathematics Education*, 38(4), 344–369.
- Koblitz, N. (1984). *p-adic numbers, p-adic analysis, and Zeta-functions* (Second). Springer-Verlag.
- Martin, D. B. (2019). Equity, inclusion, and antiblackness in mathematics education. *Race Ethnicity and Education*, 22(4), 459-478.
- McBride, M. (1989). A Foucauldian analysis of mathematical discourse. *For the Learning of Mathematics*, 9(1), 40–46.
- McBride, M. (1994). The theme of individualism in mathematics education: An examination of mathematics textbooks. *For the Learning of Mathematics*, 14(3), 36–42.
- Morgan, C. (1996). “the language of mathematics”: Towards a critical analysis of mathematics texts. *For the Learning of Mathematics*, 16(3), 2–10.
- Robertson, A. D., & Hairston, W. T. (2022). Observing whiteness in introductory physics: A case study. *Physical Review Physics Education Research*, 18(1), 010119.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research techniques*. Sage.
- Tochluk, S. (2010). *Witnessing whiteness: The need to talk about race and how to do it*. R&L Education.