

REVIEWS - RESEÑAS

Borges and Mathematics

Guillermo Martínez

Translated by Andrea G. Labinger

West Lafayette, Indiana: Purdue University Press, 2012, 140 pp.

As an internationally recognized writer of fiction with a Ph.D. in mathematics, Argentine author Guillermo Martínez is well suited—“balanced”—to address the subject of Borges and mathematics. In the preface to his book, he asserts that “to disregard the profusion of mathematical footprints would be to ignore some of the objectives and deliberate meanings that Borges attempted to convey, and thus to miss one of the dimensions of his work.” While a careful review of Borges’s *oeuvre* reveals over 180 allusions to mathematics, Martínez tells us, he also cautions that “to isolate or overemphasize this aspect, to examine the references with a high-powered magnifying glass or an arsenal of hyper-sophisticated mathematical tools would be an error of excess.” For Martínez, “the game of interpretation is, above all, a balancing act.”

Originally published as *Borges y la matemática* (Editorial Universitaria de Buenos Aires, 2003), Martínez’s 2012 English edition contributes to a body of books and articles elucidating Borges’ use of mathematical principles. Floyd Merrell’s *Unthinking Thinking: Jorge Luis Borges, Mathematics, and the New Physics* (1991) and *The Unimaginable Mathematics of Borges’ Library of Babel* (2008) by William Goldbloom Bloch come immediately to mind, as well as the collection of essays edited by Sara Slapak, *Borges y la ciencia* (1999), to which Martínez refers in his chapters.

In the case of *Borges and Mathematics* the objective of the book, as Martínez indicates, is to analyze Borges’s use of mathematics as it appears in each fictional work, without separating the math from the matrix of lite-

rary intentionality. The author hopes to show, as Borges himself has stated, that literary imagination and mathematics do not stand at odds but “complement one another like lock and key.” Also included in Martínez’s discussion are Borges’s use of logic and mathematics in his essays.

In truth, however, Martínez’s discussion of mathematical ideas in Borges’ writings comprises only the first half (65 pages) of his book. The volume’s title takes its name from two guest lectures that Martínez originally delivered at MALBA (Museo de Arte Latinoamericano de Buenos Aires) in February 2003, and they now constitute the opening chapters of his book. These, along with chapter three, explicitly address the topic of Borges and mathematics. The remaining ten chapters, however, occupy what amounts to the second half (62 pages) of the book, and make practically no reference to Borges. Instead, they present the author’s reflections and personal musings on mathematical concepts and their bearing on literary phenomena in general, introducing the uninitiated reader to philosophical ideas that bridge both disciplines. These chapters further allay the “skepticism” of those who believe—despite many examples to the contrary—that literature and mathematics cannot inhabit the same world.

In chapter one Martínez announces that, given his experience as a writer, he will “try to connect mathematical elements and stylistic procedures in Borges” and “will attempt to find a connection that is stylistic, rather than thematic.” Referencing various Borges texts (most notably “The Book of Sand,” “The Library of Babel,” and “Pascal’s Sphere”), Martínez nevertheless addresses three recurrent themes, all three of which come together in the short story “The Aleph”: different models of infinity, the sphere whose center is everywhere and circumference nowhere, and Russell’s paradox. One of the central elements in the chapter is the notion that “the general can be more intense than the concrete.” The author cites a passage from Borges’s essay “A History of Eternity” as a case in point: “During the boyhood summers I spent in the north of the province of Buenos Aires, I was intrigued by the rounded plain and the men who drank *mate* in the kitchen, but great indeed was my delight when I learned that the circular space was the ‘pampa’ and those men ‘gauchos’... The general... takes priority over individual features....” (“A History of Eternity” 129). By developing a fiction that is at once specific and general, Martínez reflects, Borges’s specific examples carry within them and permanently allude to a

universal form. Mathematics proceeds in the same way, he asserts, suggesting that mathematicians like to believe that Borges writes “exactly as they would write if they were put to the test: with a proud Platonism, as if there existed a heaven made up of perfect fictions and a precise notion of truth for literature” (21). In chapter two the author explores some of Borges’ non-mathematical texts in this light.

Further probing the generic and the concrete, the second chapter also examines how abstraction works, the author citing examples from Borges’s “The God’s Script,” “Funes the Memorious,” and “The Two Kings and the Two Labyrinths,” among other texts. The second half of the chapter considers “logical structuring” in Borges’ short stories, focusing particularly on “Death and the Compass.” The transcribed question-and-answer session included at the end of the chapter reminds us that these first two chapters were originally public lectures.

A seasoned translator and a three-time finalist in the PEN-USA competition, Andrea G. Labinger honors the conversational tone of the first two chapters. Indeed, she delivers a clear and overall reader-friendly rendering of Martínez’s Spanish, being careful to maintain the author’s presentation of sophisticated mathematical arguments accessible to lay readers, including those “who can only count to ten.”

In chapter three, “The Golem and Artificial Intelligence,” Martínez uses Borges’s poem “The Golem” as a springboard to address the subject of artificial intelligence and related ideas in the poem and two other texts: “The God’s Script” and “The Circular Ruins.” Precisely because Martínez’s observations are thought provoking, the brevity of the essay (4 pages) proves a bit frustrating. Even as one with no more than a conventional education in mathematics I would have welcomed a more developed exposition.

The remaining essays (most of them previously published in venues such as *Clarín*, *V de Vian*, *Página/12*, and *La Nación*) broaden our acquaintance with mathematical thought and literature. Titles include: “The Short Story as Logical System,” “A Margin Too Narrow,” “Euclid, or the Aesthetics of Mathematical Reasoning,” “Solutions and Disillusionment,” “The Pythagorean Twins,” “Literature and Rationality,” “Who’s Afraid of the Big Bad One,” “A Small, Small God,” “God’s Sinkhole,” and “The Music of Chance,” which bears the subtitle (placed in parentheses) “Interview with Gregory Chaitin.” In this last-mentioned piece, Martínez shares with

us the dialogue that took place in Buenos Aires' legendary Café Tortoni between himself and Chaitin, a distinguished mathematician and philosopher (who spent half his youth in Manhattan and the other half in Buenos Aires), author of *The Limits of Mathematics* and numerous other books. Once more, the subject of artificial intelligence emerges, and expands to embrace the impact of computers. We come to realize that as "the concept of solution" has changed and, with it, the methods employed by mathematicians, so have perceptions of the relationship between mathematics and literature. Martínez reflects, not without nostalgia: "...with this new focus something is lost: the idea of elegance, of concision, of mathematical beauty. Ideas that are derived from a human aesthetic...." (112).

In determining how much mathematics Borges knew, Martínez highlights the author's familiarity with logical paradoxes, various types of infinities, and some basic problems in topology and probability theory; he further underscores Borges' awareness of what was a crucial and hotly debated topic in the foundations of mathematics: "what is *true* versus what is *demonstrable*" (3). Martínez addresses this distinction several times in his book, noting how the once-held notion in mathematics that these two concepts—the true and the demonstrable—were essentially the same no longer applies. Likewise, the author acknowledges, "the demonstration of an aesthetic fact is not so clear-cut" any more (3-4).

Certainly, the Martínez (and Borges) reader who is not an expert mathematician can easily benefit from the mathematical principles elucidated by the author of *Borges and Mathematics*. For example, it is interesting to learn about one of the mathematical concepts that really fascinated Borges: that the whole is not necessarily greater than each of its parts. News of this departure from the Aristotelian postulate, which says the whole must be greater than any of its parts, surely gives those of us schooled in the old ways (and still only counting to ten) greater discernment and delight when reading "The Aleph." Where the book falls short, however, is in providing us with new readings of Borges's stories. While he tries to connect mathematical elements and stylistic procedures in Borges, Martínez does not take the next step: to explain exactly *how* this "connection" opens up new insights into Borges' texts, and indeed *what* those insights are.

The book concludes with three appendices. Appendix A provides a useful list of nineteen major themes connected with philosophical tradi-

tions or logical paradoxes related to mathematics, with titles corresponding to Borges texts in which these appear. Especially valuable for the Borges reader is Appendix B: a "Mathematical Bibliography of Works Consulted by Borges." Appendix C lists the "Sources of English Translations and Excerpts."

Although a more detailed critical analysis in some chapters, especially the first two, would strengthen the collection, Guillermo Martínez's *Borges and Mathematics* offers lay readers and scholars alike edifying access to the affinities among literature, mathematics, theory, philosophy—and Borges.

Ana Cara
Oberlin College