Roubaud's *Destruction:* A Mathematician's Prose

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Jacques Roubaud's novel *Destruction* is not a traditional, *linear* novel,[1] but, as described in its subtitle, "a narrative with interpolations and bifurcations,"[2] thus it can be conceived as what George P. Landow calls a "quasi-hypertextual narrative" (189). As in electronic hypertexts, the reader of *Destruction* is constantly required to make decisions and to take over some of the author's role: which possibilities to neglect, which to accept. Therefore the act of reading Roubaud's novel becomes an act of selecting which of the diverging fictional worlds to explore, or which path to take through the novel.[3]

The concept of *Destruction* as a hypertextual narrative and, of course, Roubaud's Oulipian background seem to justify the idea of envisioning his novel, and even his series, as an attempt to computerize a literary genre. In *Atlas de littérature potentielle* Roubaud's fellow Oulipian Paul Fournel is aware of new technological possibilities to create text: "Potential literature is, by definition, rich with all kinds of potentialities. Among those that await us (seek us?), obviously, is computerization!" (*Oulipo*, Atlas 299).

For several reasons I am not convinced that "computerization" is what Roubaud intended. The first reason is solely technical: at the time, when the first *branch* (Roubaud uses the notion "branch" instead of "volume") of his series *Destruction* was written, Roubaud was still using paper, pens of different colors and various typewriters for his literary activities.

It is only in the second branch, *La Boucle*, that he began writing on a computer and started to play with typography.[4]

The second reason is the author's love for books, printed books—reading on a computer screen would take away the pleasure of encountering the physical object. In §49 of *Destruction*, Roubaud calls himself a reader, a reader of books, and he cannot imagine his life without them: "books open and overturned in the grass, books piled near a bed; …books in buses, trains, subways, planes. Every picture of my surrounding world contains at least one book" (105). For Roubaud, reading —and here he refers to reading novels—means devouring, which is quite different from playing with interactive fiction on a computer.

If *Destruction* is not an electronic dream, as Dominic Di Bernardi suggests in his afterword to the English translation, then how to explain what Roubaud calls narrative with interpolations and bifurcations?

The title *Destruction* might suggest an intention to destroy the classical novelistic form and to create a new avant-garde narrative, but in Roubaud's fifth branch, *La Bibliothèque de Warburg—version mixte*, the author reveals that this is not his intention:

> Now, I have no intention of appearing as an innovator, of presenting myself in the avant-garde of the renewal of prose. I don't consider my approach as an innovation, but as what imposed itself in the circumstances in which I found myself, and find myself…. Much less did I seek to destroy anything whatsoever, to join the ranks of a movement that would call into question or dismantle the traditions of the narrative, the story, or the novel (59).

In the fourth branch, *Poésie: récit*, Roubaud even calls himself "un auteur classique." However, the goal in his first version of the entire series, which he later destroyed as well, was the destruction of his *Project*:

> …November 7th of the following year, 1980, I had undertaken what was to be "the great fire of London" whose present version constitutes, simultaneously with its construction, its destruction.
>
> "The great fire of London," in this destroyed version, was to be the destruction of the novel whose name it bears, but as a quoted title; it was also to destroy the Project (156).

These different layers of destruction are not meant to create a new novelistic form. We have to seek another reason that would explain the forking in Roubaud's text.[5]

I see the most important reason for the nonlinear structure of the entire series in the author's mathematical background and in his admiration for a group of mathematicians known under the name of Bourbaki. This not only would motivate the use of *interpolations* and *bifurcations*, but also elucidate such mysteries as why a chapter (chapter 5) should be omitted at the first reading, clarify the function of definitions, assertions, axioms and explain the mathematical language that dominates the whole novel. We will see that Roubaud's narrative is not conceivable without mathematics. This form of expression produces the necessary freedom for creativity that affects not only the Oulipian novelist Roubaud, but also the competent literary reader. The (often hidden) mathematical constraints in the author's work, which are fundamental to his ability to create poetry and prose, lead to a concept of literary fiction that only a mathematician can write *and read*. Roubaud is aware of this dilemma. In *Destruction* he notes:

> Those who can understand what is said have no interest in what is said, not being readers of poetry or, at the very most, reading poetry (or any other work of art) precisely for its nonformal, noncalculable elements…. [T]hose who could, should, would be interested do not possess the necessary tools for comprehension. The simplest things both formally and mathematically strike them as incredibly mysterious, difficult (253).

Nevertheless, Roubaud wrote the entire series in what he calls mathematical language.

Speaking about mathematics to nonmathematicians is not an easy task, and I am aware that I will face a similar problem in this essay. However, I intend to analyze Roubaud's relationship to Bourbaki's fundamental work and to discuss the significance of mathematics in *Destruction*, to show that the mathematical structures and terminology in his novel have a more profound *raison d'être* than just playing with mathematical constraints as he did in his Oulipian novels (the *Hortense* cycle and *La Princesse Hoppy ou le conte du Labrador*):[6] it creates emotional distance for the reader, and—even more important—for the author himself. In his unconventional narrative, Roubaud finds a way not only to justify the failure of his intended mathematical and poetic *Project*, but to overcome the void in his life and to deal with the early death of Alix-Cléo, his wife.

Bourbaki's Influence on Oulipian Writing

In *Destruction*, Interpolation #132, Roubaud admits that his notion of prose was greatly influenced by Bourbaki's famous treatise,[7] and in his fith volue, *La Bibliothèque de Warburg*, he emphasizes that the group Bourbaki not only served as a model for the creation of the group Oulipo, but that "Oulipo est un hommage à Bourbaki, une imitation de Bourbaki" (221). In *Mathématique: récit*, the third branch of the entire series, however, Roubaud thinks of Bourbaki as the *Treatise*, not as the group (68). He is especially fascinated by the clarity of Bourbakian representation. In Destruction he claims: "The Bourbakian manner of fashioning sentences is attached, rather consciously I believe, to a certain Boileauesque ideal of clarity: to state clearly what has been well thought out…" (245). In *Poésie: récit* the author emphasizes Bourbaki's idea of publishing the *Elements* in different books, which led to his concept of dividing his *Project* into several books and later to the publication of the entire series in branches. For Roubaud, the most fascinating volume of Bourbaki's *Elements* is the *General Topology*: "I was inspired especially by one of his books…, the book of general topology" (*Poésie: récit* 156). Before discussing the impact of Bourbaki's mathematical treatise on Roubaud's literary prose, I will briefly present this group that has influenced not only Roubaud but had inspired the group Oulipo—especially its founders, Raymond Queneau and François Le Lionnais—as well.

At the end of the nineteenth century, the output of mathematical research papers increased significantly, resulting in a growing number of mathematical branches. That mathematics did not lose its clarity is due to a group of young, mostly French mathematicians, known under their pen-name of "Nicolas Bourbaki," who tried with their treatise *Eléments de mathématique*[8] to reconstruct the entire building of mathematics by starting from the very beginning. For them the beginning meant *Set Theory*, and following the formalistic thought of David Hilbert.[9]

Bourbaki was founded in 1935 by Henri Cartan, Claude Chevalley, Jean Coulomb, Jean Delsarte, Jean Dieudonné, Charles Ehresmann, René de Possel, Szolem Mandelbrojt and André Weil. In the 1960s and 1970s, the *Eléments de mathématique* were considered as the Bible of mathematics. Their first volume was published in 1939, the latest, *Algèbre Commutative—chapitre dix,* in 1998. The group, whose members must retire when they become fifty to keep Bourbaki young forever, is still active today at the *Institut Henri Poincaré* in Paris. Their writing process, however, is slow. Normally it takes ten to twelve years to finish and publish a volume of the *Elements*. Victor J. Katz describes Bourbaki's procedure:

> One member is assigned the task of writing a preliminary version of the work. A year or so later, the work is brought before the Bourbaki meeting and subjected to detailed and merciless criticism. Once this version has been torn apart, someone else is chosen to revise it, and the following year his version is also torn to shreds. Eventually, however, Bourbaki comes to unanimous agreement on the contents and the book i s published (734).

This rigid working method became a model for the French writers' group *Oulipo*. In his work on Perec, David Bellos compares Oulipo and Bourbaki:

> Oulipo was not a sect, or a chapel, or a campaign for an "ism"; indeed it was not really a writers' group at all. It was a research team that aimed to fashion new tools for writing and to refurbish old and forgotten ones. Its operational model was Bourbaki, the group of anonymous French mathematicians who reinvented their entire discipline by starting afresh from first principles (349).

Reading Mathematics

It is Bourbaki's idea of a new beginning, of starting from first principles, that enables Roubaud, after the death of Alix-Cléo and after a long period of silence, to start all over again and to create literature under a new point of view, a mathematician's point of view.

Already during his mathematical studies in the 1960s the Bourbakian treatise and other mathematical works had a crucial influence on Roubaud. In the third volume of the entire series, *Mathématique: récit,* Roubaud discusses his "mathematical life" in more detail than in *Destruction*, where he claims that first of all Bourbaki's *Elements* influenced his reading habits:

> Mathematics, philosophy, and collected meditations are more like springboards for reflection, interims that foster comprehension, a preparatory work for deductions and analyses, rather than acts of reading. And I found it extremely difficult—since reading (as I've said, of novels) was a very old habit from childhood, deeply ingrained, unfolding in its own ways, and especially at its own speed—to tackle Bourbaki's treatise, when the need first arose in the wake of my decision to become a mathematician.
>
> True to form, I read a page rapidly, I understood it, word for word, each one, but I literally grasped no meaning in what I was reading this way. And I found slowing down impossible (236).

In general, reading mathematics cannot be compared to reading a traditional novel. The novelist wants his reader to start at the beginning, read without interruption till the end, not skipping pages, paragraphs or chapters.[10] Reading mathematics, however, requires another form of activity, even more creative, when the reader is constantly asked to use *pen and paper* to verify theorems, to comprehend proofs, or to solve problems: "Mathematics is not for spectators; to gain in understanding, confidence, and enthusiasm, one has to participate" (Armstrong, preface).

Inspired by his reading experience of mathematical texts and by writing mathematical research papers, Roubaud creates the entire series in a style of prose that I call *mathematical style* or *mathematical prose*. Reading his novel means breaking with old linear reading habits (though linear reading is still an option) and—like the reader of a mathematical text—engaging in a new form of dialogue with the author. Roubaud provides the reader with the choice of continuing in different directions (e.g. marked as → I §111)[11] by switching back and forth among narrative, interpolations and bifurcations. This nonlinearity in *Destruction* is borrowed from a similar structure in Bourbaki's *Elements*:

> It followed that the entire extralinear progress, the whole bifurcating overspill of my "subject", was to receive, at each locus in the "narrative," a "local" solution.
>
> I reflected, in this instance again following Bourbaki's example: the essential weight of what is my own work consigned to the *insertions* is…in the old master's "elements of mathematics" placed in the "exercises." Certain of these *exercises,* which are digressions of sorts,[13] either exceeding or veering off-course from the principal line of reasoning, can stand alone: examples, counterexamples, particular theorems. In the "transposition" under discussion…they correspond to my *interpolations*. Certain others, from paragraph to paragraph and chapter to chapter, themselves comprise a parallel and at times extensive exposition; this provided my model for the *bifurcations* (242).

Although Roubaud admits that mathematical exercises without a given solution differ from his narrative insertions, he insists on the reader's participation when he compares Bourbaki's "sadistic" idea of exercises to "verify that he [the reader] fully understood the text" (242) with his own idea of *insertion*: "in my insertions there is also for the reader, if he so desires, an exercise-like quality: the 'why' of any given interpolation, or bifurcation, is passed over in silence; a 'why' whose answer aims to shed light on the narrative's ultimate aim: its completion and the revelation of what it is" (242). Roubaud's idea that the reader has to find the reasons for the interpolations and bifurcations in *Destruction* would equal mathematical exercises in the sense that both are meant as a form of control for the readers, to see if they understand Roubaud's narrative or a mathematical theorem, respectively.

Roubaud's intention is certainly not to copy the Bourbaki mathematical model by transferring the coarse structure of the Bourbakian *Elements*—a structure that is typical for nearly all modern mathematical books—to his own narrative, but to exploit form and structure of the *Elements* and to apply Bourbakian concepts to his narrative. In the following, the literary applications of mathematics will be considered as an element of Roubaud's creativity, which implies that they are not necessarily required to be mathematically exact.

Mathematics as Therapy

In *Destruction* similarities with mathematical texts, especially with Bourbaki's treatise, are obvious. I will compare these two modes of discourse (the novel and the treatise) and discuss the meaning that the mathematical terminology and structures take on in Roubaud's novel.

Destruction begins with an *avertissement* (preface), to draw the reader's attention to what to expect in the novel and what not to expect. Roubaud borrows this structural element from Bourbaki's *Eléments d'histoire des mathématiques*[14] that begins with an *avertissement* as well. While Bourbaki is gathering historical notes from his published *Eléments de mathématique*, "This work brings together, without any substantial modifications, most of the historic Notes that have appeared thus far in my *Elements of Mathematics*" (preface). Roubaud hopes to find a remedy for his stagnant *Project* by accumulating notes and scraps.

Roubaud calls the fourth chapter of *Destruction* "Portrait of the Absent Artist." And indeed, despite many autobiographical elements—such as Roubaud's love for books or numbers, his childhood in Provence, his life in the Rue des Francs-Bourgeois or his visits to the United States—the reader feels the artist's absence, because Roubaud draws his (or the narrator's) portrait in mathematical terms (these terms will be marked in bold in all quotations from Roubaud's texts), as if he were describing statistical data, not a human being:

> At that time when I began to **approach** my **maximum**, if not my **definitive size**, the **average dimensions** of French males were clearly more **limited** than at present, which means that back then I was both in the **absolute** sense (a little) and in the **relative** sense (a lot) taller than today (90).

After a portrait that discusses the hair loss of male family members, the narrator's nose, which is too long, and a detailed description of his shaving habits, Roubaud switches from physical appearance to personality by describing his enthusiasm for certain activities: "plainly and simply skipping over the intermediate regions of my body (below my razor-skimmed neck), I'll continue my portrait with my legs—not by describing them, since I'll single out only their dimensions…, but by discussing the essential use I make of them, for *walking*" (97).

The description of his activities, however, is reduced to four "passions": walking, swimming, counting, and reading. In §47 of his narrative Roubaud explains his enthusiasm for swimming, and here again the text reads more like a technical manual than a passionate portrayal:

> A swimmer I am, just as I am a walker. I make the mental transition between vocations through a simple **rotation of pi/2** forward or backward, that is, the **transformation** is **reversible**, at least in its intellectual essence….
>
> I head out toward the horizon, its **distance**, on a **direct line**, far from land, toward the narrow **angle** of sea and sky that marks the end of my field of vision (100-01).

The reader hardly learns anything about the narrator's emotions or feelings that he would expect of a portrait, an autobiographical work, a diary or a journal[15]—the artist is indeed absent as the title of the fourth chapter indicates, not physically but *emotionally*. How to explain this phenomenon? I claim that in the narrator's portrait, Roubaud takes advantage of a Bourbakian concept for his own writing, when, after his wife's death, the emotional expression through poetry has ceased to be possible for him. In the *avertissement* of *Eléments d'histoire des mathématiques* Bourbaki points out that biographical information on mathematicians is not intended: "Finally, the reader will find practically no biographical or anecdotal information on the mathematicians in question; for each theory, our goal was to present as clearly as possible the main ideas, and how these ideas developed and reacted upon each other" (preface).

Bourbaki's intention to expound mathematical theories regardless of their authors' biographies, emphasizing instead the development of ideas and their interconnections, finds a parallel in Roubaud's *Destruction*, where the artist also is absent. Bourbaki-like, the author reviews his mathematical and poetic *Project* and the reasons for its failure by discussing his various ideas, their development and their interrelations with his actual narrative of the entire series. The depiction of intended but failed projects (and especially of an unbearable reality), is less painful in mathematical language, in abstract, neutral style:

> Now what has actually become nonexistent for me since January 1983, what I can't even entertain in thought, is *poetry*. Prose, at least the sort I am practicing here, strikes me quite to the contrary as an absolutely neutral zone free of any pressing need for a reader's eyes or an audience's ears. Poetry, due to my acquired habit of reciting it aloud, of giving public readings, as well as for her, the woman I lived with, had ground to a halt (38).

Earlier in his life, Roubaud's had switched from his studies in English literature to mathematics, mathematics already had been a sort of remedy for him: "I sought arithmetic. In order to protect myself, but from what? At the time, I would probably have replied, from vagueness, from lack of rigor, from 'literature' (in the pejorative sense of the word)." (*Mathématique: récit* 56). Mathematical thinking prevents Roubaud from meditating on human fears, such as uncertainty, or coping with the loss of his younger brother and later with his wife's death.

Bourbaki, in his treatise, initially attempted to present its axiomatic theories systematically and to derive the whole building of mathematics from structures of Set Theory, but the development of modern logic and theory of categories (Roubaud's field of research) showed the limits of Bourbaki's project and can be considered as the reason for what Roubaud calls its *échec* (failure). Bourbaki continued working—with interruptions—although the original objective could not be accomplished. For thirteen years, from 1984 to 1997, no new volume was published.

Roubaud adapts Bourbaki's failure when describing his own failed *Project*, but also the process of publishing the entire series. The concept of writing, with interruptions, about a project he could not accomplish, and keeping only the basic ideas of the *Project*'s intended novel *The Great Fire of London*, is similar to Bourbaki's procedure:

> The…illuminations…led me in 1978 to a few sentences of the "Preface" which can still be found, seven years afterward, at the start of "the great fire of London": I could see the truth at last, which was the failure of the *Project*, and of the *novel*. I could see it clearly and humbly; and I set about recounting this …(37).

Bourbaki's treatise, like mathematics in general, has a therapeutical effect on Roubaud. In *Mathématique: récit*, the author sees in mathematics a glimmer of hope when stuck in his literary studies and creativity: "I had found this word: Mathematics. I believed that it had offered me a new life. Thanks to that word, thanks to mathematics, a *vita nova* was going to begin, to open up before me."[33] After the explosion of the first French atomic bomb, mathematics became strongly related to destruction and Roubaud sought a way out of this dilemma. He finds a solution by applying mathematics and numbers to poetry and by writing *mathematical prose*: “Now, there was an alternative vision, an entirely different point of view on mathematics. Therein lay the way” (*Mathématique: récit* 244).

Limit, Continuity, and Neighborhood

Bourbaki’s treatise as a model for Roubaud’s prose is not restricted to formal structures and procedures, but also has an impact on Roubaud’s writing process, and while Bourbaki transforms “intuitive” language into mathematical notions, Roubaud is doing the opposite, and applies these mathematical terms to his prose in a literary adaptation. Bourbaki’s statement (in *General Topology*), that “most branches of mathematics involve structures of a type different from the *algebraic* structures…: namely structures which give a mathematical content to the intuitive notions of *limit*, *continuity* and *neighbourhood*” (11) influenced the first chapter of *Destruction*. Bourbaki emphasizes the notion *neighborhood* as one of the basic elements for further topological development: “In order to bring out what is essential in the ideas of limit, continuity and neighbourhood, we shall begin by analysing the notion of *neighbourhood*” (11). To show that Roubaud indeed begins his *Destruction* by applying the notion *neighborhood*, the definition of this term in the introduction of Bourbaki’s *General Topology* will be beneficial:

> If we start from the physical concept of approximation, it is natural to say that a subset A of a set E is a neighbourhood of an element *a* of A if, whenever we replace *a* by an element that

> "approximates" *a*, this new element will also belong to A, provided of course that the "error" involved is small enough; or, in other words, if all the points of E which are "sufficiently near" *a* belong to A (11 f.).

The first chapter of *Destruction*, "The Lamp," starts with a description of Roubaud's neighborhood:

> This morning of 11 June 1985 (it's five o'clock), while writing this on the scant space left free by the papers on my desktop, I hear passing, in the Rue des Francs-Bourgeois, two floors below on my left, a delivery van which has probably pulled up in front of the former Nicolas store beside the Arnoult butcher shop (5).

In great detail, Roubaud portrays the things "sufficiently near" to him during his writing process: a photograph, described in detail in a geometrical language, and objects needed for his writing procedure:

> On the desk, in the light of the lamp before me, to my right, are the instruments of my dark morning activity: my notebook, with eighty totally blank white pages, without any pretraced lines or grid, has a relatively dark blue cover….
>
> It's a notebook of the most common brand, Clairefontaine, indicated on the lower right-hand side of the cover, at the base of an upside-down triangle whose surface, against a blue background…is decorated with the drawing of a pseudo-Greek divinity: the Greekness of the drawing, a sign no doubt of an intense intellectual activity, is demonstrated by a temple column topped by a partial moon, an ensemble a touch obscene but above all remarkably ugly. A white rectangle, elongated horizontally, is set out, somewhat toward the top, somewhat toward the right, at the heart of sorts (if one identifies with the notebook)… (11-12).

Later, in his fourth branch, Roubaud also mentions the presence of books: "On the desk the lamp; behind me, books: on mathematics (all the volumes of Bourbaki's treatise); poetry" (*Poésie: récit* 116).

For Roubaud the notion of *neighborhood* and the topological *separation axioms*[16] are related to memory. In *Mathématique: récit* he describes his fondness for a special axiom, called the *Fréchet* axiom, where for every two distinct points, a neighborhood exists that does not contain the other:

> This axiom's charm sprang from the fact that it was possible, in such a space, that, for certain of these pairs of points, each neighborhood of one of the points in these pairs necessarily encounters one of the neighborhoods of the other, and thus they find themselves entangled with one another by the topology of their space, their world. I believe that this is what happens in memory, in the difficult separation of memories (*Mathématique: récit* 167).

The topological conception of space is an essential condition for Roubaud to understand time and the interior space in us, in and by our memory.

The topological notion of *neighborhood* in Bourbaki's *Topology* leads to the idea of *continuity*. In Roubaud's first branch of the entire series, *continuity* is given through the writing process itself: the author works at the same place (during the first five chapters) and the same hour in the early morning every day, line after line: "writing without deletions, regrets, impatience, always at the same times, as close as possible to the myopic continuity of the irreversible and hated present" (13). Here, Roubaud is referring to the void in his life after Alix-Cléo's death.

The third term of the intuitive notions of *limit*, *continuity* and *neighbourhood* mentioned in Bourbaki's introduction to *General Topology* is the notion of *limit*. In Roubaud's fiction, *limit* has a much more subtle, philosophical meaning. I will come back to it when discussing the most challenging chapter of *Destruction*, chapter 5: "*Dream, Decision,* Project."

Neighborhood, *continuity* and *limit* are not the only mathematical terms that Roubaud applies to his fiction. In the entire series the author plays constantly with mathematics: not only does he use mathematical terms to describe nonmathematical phenomena as we have seen in his self-portrait, but he also presents mathematical notions, definitions, or theorems in *literary* language.

Mathematical Prose

Bourbaki's *Topology* is not the only mathematical model for Roubaud's fiction. Most terms in *Destruction* relate to geometry or calculus. For describing the complicated relationship between his *Project* and the planned novel, however, Roubaud passes to abstract algebra:

> A decisive illumination sheds light on *the state of the* Project and is accompanied by a second illumination involving the narrative *The Great Fire of London*, for which a *how* (itself moreover determining a *what*) identically bursts before me, **homomorphous**, or perhaps even **isomorphous** to the *Project* (35).

The notions *homomorphism*[17] and *isomorphism* are special mappings[18] borrowed from Group Theory.[19] If Roubaud applies these algebraic terms to his *Project* and his *Novel*, he interprets at the same time *Project* and *Novel* as (algebraic) groups, so that he can apply group theoretical axioms, operations and theorems to both concepts in order to structure his *Project* and to obtain a new form of creativity for his *Novel*. I will not discuss these algebraic notions any further, because this would involve going deep into mathematics.

The application of mathematical terms in Roubaud's prose is not limited to his failed *Project*, or to descriptions and memories in his prose. *Invariability*,[20] for example, a fundamental notion in geometrical and topological theories, is one of the premises of the author's/narrator's writing process: "I would like, in short, to preserve almost immutably the conditions for a prose experience that will be a daily one to the utmost degree: the place will be nearly **invariable**, the time **fixed**…" (6). Things that surround him should not move: "All of this, and the lamp whose head is a black sawn-off cone, have a permanent place, are relatively **invariable**" (14).

Nevertheless, most of the mathematical vocabulary in Roubaud's novel has a descriptive function: "le courage minimal," "le cercle d'isolement," "le segment de nuit finissante," "le temps potentiellement infini," "ces lignes irréelles" ("minimal courage," "circle of isolation," "segment of ending night," "potentially infinite time," "unreal lines"). Portrayals, such as the following of a photograph, often read like a text on mathematics. Roubaud chose terms from geometry to draw a picture of a hotel room in Fez where he had stayed with Alix-Cléo:

> The photograph…a rectangle outlined against the wall of the room….
>
> And, within the picture of the wall, of the rectangle sectioned from the wall by the mechanical acolytes of the eyes, there are two rectangles whose proportions don't match….
>
> The first rectangle inside the rectangle cut in the wall by arbitrary geometry of the negative…inscribes the second

> rectangle of a picture (here, then a picture of a picture) showing Fez, the very city where this hotel room is located and where this rectangular slice of wall has been captured (7).

The emphasis on geometrical language (the word *rectangle* appears fourteen times in this relatively short paragraph, the word *surface* four times, and the word *square* three times) suggests a precise description. But can we really imagine what the hotel room looks like? Roubaud's reader will only succeed in getting an idea of this room if he participates, if he takes a pen and paper to write down relationships or to make a drawing. But even then, if he locates all the rectangles, squares, and curves, if he succeeds in visualizing the room as a parallelepiped,[21] he still has no visual impression. The description might be exact, but mathematical precision disguises emotional truth. Writing about Alix-Cléo—even memories of places where he had been with her—in a poetic style would have caused unbearable pain for the author. The integration of mathematical terms into his narrative, however, creates the emotional distance that Roubaud needs to "recommence," to start writing again after his wife's death.

***Dream, Decision,* Project**

Chapter 5, "*Dream, Decision,* Project," is the only one in Roubaud's first branch that is "preconceived as a premeditated whole" (111), while all the others are neither planned in advance nor rewritten. Guillermina de Ferrari describes this chapter in her article "Representing Absence: The Power of Metafiction in Jacques Roubaud's *Le Grand Incendie de Londres*" as "extremely dense due to its mathematical jargon and postulation of axioms" (268), and Roubaud himself classifies this chapter as difficult

(110). He refers to advice that we often find in books on mathematics when he admits: "This chapter can be omitted during a first reading" (110). This reading process may be valuable for mathematics, but why should an author write a chapter that can be omitted? Roubaud explains that this remark "indicated that certain expository details were either more difficult or digressive and supplementary in nature, and that a reader pressed for time, or lacking the necessary self-confidence, could confine himself to what was designated as essential without too much loss" (110).

What makes chapter 5 so difficult and so challenging for the reader, and why could it be neglected in a first reading? I argue that it is not only the complex structure—due to the complexity of higher mathematics—but Roubaud's conception of "speaking obscurely" (123), of looking for the questions to be given, already known answers,[22] and of deriving an imaginary *Project* and a *Novel* from a dream that makes chapter 5 appear much more complicated than the others (140).

What the chapter "*Dream, Decision,* Project" has in common with the other five is its division into paragraphs or moments. However, not only is there a larger number of moments (thirty-nine, whereas chapters 2, 4 and 6 are divided into nine paragraphs, chapter 1 into fourteen, and chapter 3 into eighteen paragraphs), but they also contain ninety-nine assertions, which lead in a complicated deduction to the destroyed version of the entire series, and describe or indicate what his *Project* could have been and not what the entire series, the actual novel (not the destroyed one), is: "The assertions…were intended to introduce …not what the *Project* actually was, since it never actually existed, nor the novel, which didn't exist either, but rather what constitutes its depiction in imagination…: what it should be, what it would be (conditional)" (117). Roubaud assumes in his first assertion that three things are clear: the dream,[23] the decision and the *Project*. Most of the subsequent assertions are transcriptions from formal mathematical language (or logic) into prose. In the following, I will discuss only the first four assertions in more detail to show the author's procedure.

Roubaud often uses implications[24] $p \Rightarrow q$, which read p *implies* q (p is the hypothesis and q is the conclusion of the implication). In my transcription D will stand for dream, d for decision, P for *Project* and N for *Novel*. The two implications in assertion 1—"the dream presupposes that the decision has been made," and "The decision implies the Project" (114)—then will read in formal mathematical or logical language: $D \Rightarrow d$ and $d \Rightarrow P$. If $D \Rightarrow d$ and $d \Rightarrow P$, it follows that $D \Rightarrow d \Rightarrow P$ and therefore $D \Rightarrow P$, which Roubaud consequently assumes in assertion 2 and 3:

> "If the dream doesn't lie, the decision will be made" (117) ($D \Rightarrow d$)
> "If the decision is made, there will be the *Project*" (117) ($d \Rightarrow P$)
> "The dream…presupposes the *Project*" (115) ($D \Rightarrow P$)

In mathematical logic, the implication $p \Rightarrow q$ is equivalent to the implication *non* $q \Rightarrow$ *non* p, which Roubaud transforms also into literary prose: "If the opposite decision is still possible the dream cannot speak the truth (*non* $d \Rightarrow$ *non* D) (117)."

Assertion 4 then leads to the implication $D \Rightarrow N$ (N = destroyed novel) and it follows: $D \Rightarrow$ (d and N and P), which means that the dream not only initiated the decision, but also the idea of the *Novel* and the *Project*.

The last few of Roubaud's ninety-nine assertions are still dedicated to the author's *Project* and *Novel*, but especially to their failure or destruction. The failed project vanishes through the writing of the later-destroyed version of the series. The result of this process can be represented by the number zero. We will see that zero, together with the two notions *limit* and *infinity* are veiled components in Roubaud's "Axioms of the riddle and the mystery"(116),[25] which can be considered as a philosophical approach through mathematical prose to cope with absence and death, while searching for infinity and truth.[26]

Zero and Infinity

To explain the failure of the *Project* and the destroyed novel, Roubaud formulates his "Axioms of the riddle and the mystery" in order to support his intention "to perform a type of elliptical deduction" (110), which corresponds to Bourbaki's procedure in the *Elements*. Roubaud defines in these "Axioms" (166) a new literary genre that he calls "a novel with mystery" (166). In mathematical notation the first of his axioms, "The riddle *is* the *Project*" would correspond to the equation $r = P$ (r = riddle, P = *Project*). Axiom VI asserts that "Each mystery approaches [*the*] riddle" (the official translation, "each mystery approaches its riddle," contradicts the axiom), which implies that there is only one riddle. Axiom VII asserts that "The system of mysteries has the riddle as its *limit*." These two axioms and Roubaud's statement that "in order for the novel to grasp the riddle, an infinity of mysteries would be required" (116) can be read as the literary application of the mathematical notion of limit when the values of a *mystery* function *f(m)* approach infinity:

$$\lim_{m \to \infty} f(m) = r$$

(lim = limit, *m* = mystery)

The ninth axiom, "The riddle exhausts the mysteries" (épuiser: to exhaust; to use until nothing is left) and the eleventh axiom, "There is no *inside* to the riddle," consequently can both be written as $r = 0$. This equation underlines the enigmatic character of the void, of absence and death.[27]

If

$$r = 0$$

and

$$\lim_{m \to \infty} f(m) = r$$

it follows that

$$\lim_{m \to \infty} f(m) = 0$$

Because of $r = P$ (as shown earlier) and $r = 0$, it also follows that $P = 0$.

The equation $P = 0$ would mean that the *Project* vanishes if we have an infinity of mysteries, which is not possible, even if Roubaud thinks about "simulating a prose infinity" (166). On the other hand, if it is impossible to write a novel containing an infinity of mysteries, zero, or the *Project*, cannot be reached, which would mean that the void or death could never be understood.

Roubaud compares this situation to the famous semantic antinomy that Epimenides formulated in 600 B.C. and that more than 2,000 years later led to Bertrand Russell's syntactic antinomy where not the meaning of an assertion is important, but the question, which of the assertions logically lead to a contradiction. In *Destruction*, Roubaud refers to Russell's barber, "the man who shaves only those who don't shave themselves" (167) and where the question is: Does he shave himself? The set-theoretic version of Russell's antinomy is the following: Let A be the set of all sets which are not elements of themselves. Is A an element of itself, or not? Whichever we assume, we deduce the other. We would have to leave *naïve* Set Theory and change the rules so that the argument fails in order to find a remedy to this paradoxe. Roubaud, however, proposes another solution when he considers his *Project* as a possible world where Russell's barber finally shaves himself without creating a paradox, "applying the razor-reflection to the reflected shaving cream, which is not himself, but a mere coherent contrefactum" (167). Because this world is not possible in *naïve* Set Theory or in reality, Roubaud's *Project* fails and we assume that it equals *zero*.

Longing for a Transfinite Universe

In *Destruction*, zero not only stands for failure, absence or death, it also reflects Roubaud's striving for solitude. The artist is absent and all he leaves behind is a zero. Even though the author described solitude as one of his passions, it became unbearable after Alix-Cléo's death: "Solitude is not my hardship, something *they* have imposed. My hardship today, and for almost three years, does not have solitude as its cause; awful solitude is its effect" (109).

In mathematics, zero is strongly related to infinity. Dividing a number by zero yields infinity, dividing a number by infinity yields zero. In *Destruction*, Roubaud envisions a similar connection between death, eternity and solitude. He acknowledges that writing the entire series (he describes this series also as his "morning branch") became indispensable to his survival as a man living in solitude (239). The completion of an imagined evening branch, dedicated to Alix-Cléo, however, would only be possible only if Roubaud succeeded in leaving a "first" infinity behind him, if he were able to live in Cantor's universe of *transfinite numbers*:[28]

> If the time scale of our world is pictured as linear, instant after instant along a straight line and in a single direction, the "new" world, the very same one, would begin after the end of the first, in the infinity of time. I visualize my "evening branch," where I rejoin Alix in the anterior future of her Project, our past nullified and gone forever, as if it were located in this world after the infinity following the end of time; and *that* is where I should go in order to write it (240).

Not even an eternal life could provide the author with the ability to reach the point beyond infinity, but his capability to imagine mathematical worlds such as Cantor's Universe—where he would move from one infinity to the next higher level, where he would rejoin his wife Alix—encourages him in fighting despair, through the conception of *Destruction* as mathematical prose. By searching truth and absolute certainty in mathematics, by eliminating metaphysical elements and by creating emotional distance through modern mathematical theories, Roubaud escapes from a hated present, a present without Alix-Cléo, and regains creative freedom.

Acknowledgement

I would like to thank Roxanne Lapidus for translating the French quotes (unless otherwise indicated) into English.

Notes

[1] Roubaud distinguishes between "the great fire of London" (in quotation marks and lower-case), a quasi-autobiographical series projected to be six volumes or "branches," and *The Great Fire of London* (italicized, in capitals), his failed Project on mathematics and poetry. Roubaud refers to this entire series as a "traité de mémoire" [treatise on memory]. The first volume (of the French publication), *Destruction* (1989), was published under the series title, "Le grand incendie de Londres," with "BRANCHE UN: *Destruction*" listed on the title page (which is missing in the English translation). Subsequent volumes have been published under their own names: *La Boucle* (1993), *Mathématique: récit* (1997), *Poésie: récit* (2002), *La Bibliothèque de Warburg—Version mixte* (2002). In the present article I will refer to the first volume—published in English under the title *The Great Fire of London*—by its individual title, *Destruction*, as Roubaud himself does. Cf. Jacques Roubaud: *Poésie: récit* (154).

[2] The narrative part of Roubaud's novel is divided into six chapters that are subdivided into ninety-eight paragraphs. The six interpolations (which refer to each chapter) consist of sixty-five

paragraphs and the five bifurcations of thirty-three paragraphs. The sum equals 196 paragraphs. Roubaud has initiated a project of 1,178 moments or paragraphs in six volumes of 196 moments each. These moments reflect Roubaud's memories, interwoven with a description of the writing process. Because 6 x 196 = 1,176, Roubaud has added the *avertissement* in *Destruction* and intends to finish his series with an additional moment to get the number 1,178, a number that has a very personal meaning for him: He lived 1,178 days together with his wife Alix-Cléo who died at the age of thirty-one. The numbers of moments in every chapter, interpolation, and bifurcation are all but one (number 19) Queneau numbers. Raymond Queneau invented a poetic form, called *la quenine* or *n-ine*, generalizing the form of the *sextine*. The sequence of integer numbers for which the *quenine* of order *n* exists, is called the *fondamental sequence of Queneau*. The first thirty-one *Queneau numbers* are: 1 2 3 5 6 9 11 14 18 23 26 29 30 33 35 39 41 50 51 53 65 69 74 81 83 86 90 95 98 99. Roubaud discusses *Queneau numbers* in detail in the fascicules 65 and 66 of *La Bibliothèque Oulipienne*.

Because the last volume of Roubaud's series is not published yet and because of the interrelations between the numbers in all of the six branches, I will not discuss the use of numbers in this essay.

[3] According to Guillermina de Ferrari, Roubaud's novel is a particular type of text, revealing something about narration, rather than something about a particular self, which would make *narrative* a better translation of *récit* than *story*. *Destruction* is about the process of writing and is not an account of past events

or incidents. Consequently, in this essay, the word *story* in the official English translation will be replaced by *narrative*.

[4] In *La Boucle*, (written 1990–1992) and the later volumes, Roubaud uses the typographical possibilities (different sizes, fonts, and styles) of his Macintosh computer to replace his colored handwritten papers and in *Poésie: récit*, the incises are not extra chapters but are integrated into the main text in a different typographical style.

[5] *Forking*, as well as *linking/jumping* and *permutation*, *computation*, and *polygenesis* are characteristics of the non-linear novel (Landow 80). I don't think that Roubaud thought of Jorge Luis Borges's *Ficciones*, especially "The Garden of Forking Paths," when planning his narrative with interpolations and bifurcations. Ts'ui Pên's impossible infinite novel in "The Garden of Forking Paths," however, could have influenced Roubaud, when—as I will mention later in my essay (Zero and Infinity)—he seeks for simulating a prose infinity.

[6] The emphasis in this essay is not on the playful aspect, but on the more therapeutic effect of mathematical constraints and mathematical style, even though Roubaud's use of terms, which have a meaning in everyday language and in mathematics—and the author is aware of the double meaning—often has a humorous, ludic character. Oulipian mathematical constraints are discussed in Oulipo, *La littérature potentielle* and Oulipo, *Atlas de littérature potentielle*. In *Die Macht der Vier—Von der pythagoreischen Zahl zum modernen mathematischen Strukturbegriff in Jacques Roubauds oulipotischer Erzählung 'La Princesse*

Hoppy ou le conte du Labrador' I have discussed in detail the mathematical constraints in Roubaud's tale *The Princess Hoppy*.

[7] Roubaud continues: "To confine myself here to the problem of digressions, of the impossibility of limiting myself to a linear narrative, which lies at the root of my presently implemented *strategy of insertions*, I turned spontaneously toward Nicolas Bourbaki's *Elements of Mathematics* both because among works of this type it is the one I (or rather I had at one time) master(ed) best (when mathematics was my main preoccupation) and because of its scope, the immensity of its ambition (it failed) (it was destined to fail) presents rather clear analogies with the vastness of my own *Project* (which I, alone, wanted to expand to the dimensions of that collective, anonymous cathedral)" (241).

[8] The word mathématique is written without an *s* to show the unity of mathematics.

[9] David Hilbert (1862–1943). Hilbert's work in geometry had the greatest influence in that field after Euclid (365?–300? B.C.). In 1899 he published *Grundlagen der Geometrie* putting geometry in a formal axiomatic setting. The book continued to be published in new editions and had a major influence in promoting the axiomatic approach to mathematics. Jacques Roubaud discusses Hilbert's life in *L'abominable tisonnier de John McTaggart Ellis McTaggart et autres vies plus ou moins brèves*, especially 191–224.

[10] This is not the case in hypertextual fiction, where the reader participates in its creation. A beginning, not necessarily offered

by the author, might be marked with a starting point and an ending only occurs, "even in infinitely expandable, changeable, combinable docuverses…, because readings always end, but they can end in fatigue or in a sense of satisfying closure" (Landow 189).

[11] Switching is much easier for the reader of the English translation, where the references to corresponding incises are marked within the narrative itself. This is not the case in the French original.

[12] In the original, Roubaud does not write that he will "follow" Bourbaki's example, but that it came to his mind: "J'ai réfléchi, dans ce cas encore, à l'exemple de Bourbaki."

[13] In the original, "digressions of sorts" was written as "résultats annexes."

[14] Here, Bourbaki wrote *mathématiques* with an *s*, because it refers to the history of mathematics.

[15] The entire series is often read as an autobiography, but at several places in his five volumes, he insists that it is "un traité de Mémoire." In his fifth branch, *La Bibliothèque de Warburg—version mixte*, Roubaud discusses the terms autobiography and autofiction, which do not seem appropriate to him for his own work: "The term 'fiction' is then attached to 'auto' to show that, my goodness, we know very well that it's not possible to tell the true biography of one's own life; that willy-nilly one fictionalizes; that the 'real' person is not who the author tells us

he is. He deceives himself, and deceives us.... But in my book, the 'I' who narrates is not me" (41).

[16] For the mathematical background see Bourbaki, *General Topology*, Chapters 1–4, Chapter I, 8, 1, 75.

[17] Mathematical definition: If G and H are groups, a mapping $\propto$: G $\rightarrow$ H is called a homomorphism if $\propto (ab) = \propto (a) \cdot \propto (b)$ for all a and b in G.

[18] A mapping $\propto$: A $\rightarrow$ B is a rule that assigns to every element a of A exactly one element $\propto (a) = b$ of B. Example: Let A be the set of people, and B the set of the age of a person. For each element a of A (Roubaud, for example) there is a uniquely determined attribute b of B (69, while I am writing in May 2002, Roubaud was born on 5 December 1932): $\propto$ (Roubaud) = 69. The mapping $\propto$ would be called "age of."

[19] Group Theory allows us to describe and classify symmetries. Group Theory is not only important in Mathematics but also in crystallography to make deductions about the molecular structure of crystals. In *Die Macht der Vier—Von der pythagoreischen Zahl zum modernen mathematischen Strukturbegriff in Jacques Roubauds oulipotischer Erzählung 'La Princesse Hoppy ou le conte du Labrador*,' I have discussed how Roubaud applies Group Theory to his short novel *The Princess Hoppy*.

[20] Felix Klein (1849–1925) is best known for his work in non-Euclidean geometry, for his work on the connections between geometry and Group Theory, and for results in Function Theory.

[21] A *parallelepiped* is a solid body of which each face is a parallelogram. In the English translation the three-dimensional *parallelepiped* has falsely become a two dimensional *parallelogram*.

[22] Roubaud writes, "It is true that living offers us the answers a long time before the questions. The world stretches before us, fraught with answers, and we cannot find our tongues. In the "barrens" or "bedrooms" of devastated time we wander, not in search of answers, but in quest of questions" (*Destruction*, 140-41).

[23] "In this dream I was coming out of the London tube. I was in a rush, in the gray street. I was preparing myself for a new life, for joyful liberty. And I had to fathom the dream's [the word *dream's* is not in the French original] mystery, after long investigations. I remember a double-decker bus, and a young (redheaded?) lady under an umbrella. On awakening I realized that I would write a novel that would be entitled *The Great Fire of London*, and that I was preserving this dream, for as long as possible, intact. I note it down here for the first time. This was nineteen years ago" (112).

[24] In mathematical language, common language words often have a different meaning. In common language, the word *implication* means: thing not openly stated; involving or being involved. In mathematical language, however, the word *to imply* or *implication* has a different meaning: p *implies* q—which is usually written in symbols: $p \Rightarrow q$—means: If p is true then q is true.

[25] I would prefer the word *enigma* as translation for the French *énigme*.

[26] For a discussion of Mathematics and Roubaud's quest for truth, see Elvira Monika Laskowski-Caujolle, "Jacques Roubaud: Literature, Mathematics and the Quest for Truth."

[27] In 1961, the year of Roubaud's dream, his younger brother had died, which Roubaud does not reveal in *Destruction*: "The year 1961 surrounds the dream. Plus something I'm not going to tell…" (112). (Cf. *Poésie: récit*, 73–83).

[28] With the notion of *transfinite numbers*, the mathematician Georg Cantor (1845–1918) succeeds in ordering infinite sets.

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