

+8 = 8 (+28) = 36 (+1) = 37 (+28) = 65 (+231) = 296 (+28) = 324 (+1) = 325 (+28) = 353 (+7) = 360			
8 - 28 - 1 - 28 - 231 - 28 - 1 - 28 - 7			
	S		H
Wind (16) Flash (19)	S8		H8 Flash (16) Wind (19)
Wind (20) Flash (2)	S36 S37		H36 H37 Flash (20) Wind (2)
Wind (16) Flash (18)	S65		H65 Flash (16) Wind (18)
Chimes! Chime! Chimes! (4) ThuuUUUUUUUUUUunder. (6)	S296		H296 ThuuUUUUUUUUUUunder. (4) Chimes! Chime! Chimes! (6)
Chimes! Chime! Chimes! (13) ThuuUUUUUUUUUUunder. (2)	S324 S325		H324 H325 ThuuUUUUUUUUUUunder. (13) Chimes! Chime! Chimes! (2)
Chimes! Chime! Chimes! (4) ThuuUUUUUUUUUUunder. (6)	S353		H353 ThuuUUUUUUUUUUunder. (4) Chimes! Chime! Chimes! (6)
	S		H

# THE BOOK AS COMPUTER: A NUMERICAL AND TOPOLOGICAL ANALYSIS OF *ONLY REVOLUTIONS*

by Manuel Portela

## ABOUT THE AUTHOR

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THE NOVEL *ONLY REVOLUTIONS: The Democracy of Two Set Out &* *Chronologically Arranged* (2006), by Mark Z. Danielewski, establishes a relationship between its bibliographic coding (graphical and material form as a book made of letters, pages, and openings with a specific typographic design), its linguistic coding (phonetic, syntactic, semantic, and pragmatic verbal form), and its narrative coding (form as story).

*Only Revolutions* uses the Möbius strip and the circle, in their multiple material and symbolic manifestations—including letter and number shapes—as the organizing principle of this triple universe of signs. Circularity and mirror symmetry function simultaneously as the structure of the book, the structure of language, and the structure of narrative. This

article describes the book's numerical and topological form as a mechanism for creating feedback loops between those structures.<sup>1</sup>

Our cycle allways / putting everyone out of work. (S192)  
 Our cycle allways / putting everyone out to work. (H192)

## 1. INFINITY IS ROUND

Potential literature can be defined as the process of textual generation by the formalization of permutational rules at various levels of language: from the micro-level of grapheme, phoneme, morpheme and sentence to the macro-level of narrative sequences. The structural syntax of language, with its double articulation, is projected onto narrative syntax, creating isometries between linguistic sentence and narrative discourse. The fundamentally combinatorial nature of both language and narrative is enhanced by a method that reveals meaning as the genetic product of permutations and recombinations. Permutations and recombinations are formalized by rules or algorithms that determine constraints, iterations, substitutions and transformations of elements. In Oulipian literature, writing is redefined as a program for inventing and applying constraints and algorithms, thus laying bare generative mechanisms upon which semiotic and hermeneutic productivity depend, as if the world were a mere effect of the engine of language.

The novel-poem *Only Revolutions* (2006), by Mark Z. Danielewski, is a challenging exploration of the probabilistic potentiality of literary and bibliographic devices in the production of meaning. Two features stand out in this work: on the one hand, the link between typographic materiality and the world of hypermedia digital technology; on the other, the inventiveness of its writing, whether at the level of words and sentences or at the level of narrative sequences.<sup>2</sup> Danielewski's obsessive and meticulous typographic

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- 1 Shorter versions of this text (with the title *Algorithms of Letter, Language, and Book*) were presented on two occasions: at the conference 'Le pied de la lettre: créativité et littérature potentielle' [*The Foot of the Letter: Creativity and Potential Literature*], organized by the Universities of Vigo and Minbo, which took place at the Museo Verbum Casa das Palabras, in Vigo, Spain, April 24, 2009; and at the Center for Portuguese Literature at the University of Coimbra, June 8, 2009. The author wishes to thank Francisco Craveiro de Carvalho and Fernando Matos Oliveira for their comments.
- 2 Reviews published in the second half of 2006 highlighted those two features: "Mark Z. Danielewski is out to drag the novel kicking and screaming into the world of twenty-first century entertainment. House of Leaves, his first novel did an admirable job of starting the task, but *Only Revolutions* takes even bigger steps. Danielewski makes full use of the technology that has helped to create video games and surreal special effects in movies to create a complicated all-text reading experience. Thanks to the gift of layout programs such as the Adobe Creative Suite, with which this novel was created, the text is all over the page in a rainbow of colors. [...] Oh, it's a crazy-quilt mish-mash of several kitchen sinks and more than a few collages. But get down to the level of language, engage the novel as a reading experience, and there's no doubt that Danielewski is accomplishing precisely what he intends with a level of style that has literally never before been seen or even possible." Rick Kleffel, "Only Revolutions," *Bookotron.com*, Dec 9, 2006, [http://trashotron.com/agonys/reviews/2006-old/danielewski-only\\_re.htm](http://trashotron.com/agonys/reviews/2006-old/danielewski-only_re.htm) (access 31 July 2009). A similar assessment and hyperbolic tone can be found in reviews published in *Kirkus Reviews* (July 15, 2006), *Publishers Weekly* (Aug 28, 2006), *Los Angeles Times* (Sept 03, 2006), *The Guardian* (Sept 30, 2006), *San Francisco Chronicle* (Oct 20, 2006), *The Washington Post Book World* (Oct 22, 2006), *The New York Times Book Review* (Nov 5, 2006) and *Bookmarks Magazine* (Jan-Feb 2007). See, for instance: Deborah Vankin, "Psychedelic Love," *Los Angeles Times*, 03 September 2006, Book Review-R, p. 9; Steven Poole, "O How Clever," *The Guardian*, 30 September 2006, <http://www.guardian.co.uk/books/2006/sep/30/featuresreviews.guardianreview16> (access 31 July 2009); Mark S. Luce, "Journey Through Time Turns Novel Upside Down. Literally," *San Francisco Chronicle*, 20 October 2006, <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2006/10/20/DDGFLLRRM01.DTL> (access 31 July 2009); Steven Moore,

and bibliographic construction of text and book matches an equally acute sense of the combinatorial possibilities in the materiality of language and writing. The result is a work that blends a numeric and algorithmic logic—descendent from Oulipian mathematical procedures, with its formalized rules and constraints, to a Joycean panomastic associationism—with its verbivocovisual revelations of the unconscious of language by means of phonic, graphical, and semantic attractions that explode into unexpected combinations. Whitmanian parataxis, with its uncontainable drive for ever-increasing enumerations, joins a Rabelaisian humor, replete with genital allusions.

Operations of metatextual organization add an ergodic and cybertextual layer to the discursive and bibliographic structure of Danielewski's work.<sup>3</sup> By suggesting several reading trajectories, they enlarge the set of syntactic and narrative permutations that readers can perform in their universe of signifiers. This compositional process turns the text into a machine for revealing the mechanism that makes the production of meaning possible. *Only Revolutions* exposes the mechanism that generates its particular bibliographic structure, that is, its material code. Through this device, it displays not only the intertwined mechanics of writing, language, and codex, but also of the novel itself as a printed and narrative genre. Designed as a textual machine, the text shows the abstractness of signs and culture, specifically, the combinatorial nature of discourse and representation. Those features enable us to investigate the connectivity and the physicality of the form's language and writing as producers of meaning: "A lot of *Only Revolutions* is interested in the mechanisms that are underlying things, the grammar, the physics of things. We're not talking about particular words but the relationship between words. Not the particular names of planets, but the nature of an ellipse and the effect of gravity on the orbit." (Danielewski, quoted in Miller 2007).

*Only Revolutions* confirms the architectural and stylistic ability that Danielewski showed in his first novel, *House of Leaves* (2000). Both works are remarkable feats in the representation of various internal and external spaces, in the typographic spatialization of voices and discourses on the page and, above all, in the act of creating correspondences between the different scales and patterns into which those internal and external spaces are articulated. While *House of Leaves* was written and page-set on the basis of labyrinthine ramifications, *Only Revolutions* is materially structured on the basis of symmetric and recursive circularity.<sup>4</sup> A set of rules and algorithms translates the space-time of fiction into the space-time of the codex. The correspondence between referential spaces (spaces in the fictional world)

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"Spin Cycle," *The Washington Post Book World*, 22 October 2006, p. 13; and Troy Patterson, "Complete 360," *The New York Times*, 5 November 2006. <http://www.nytimes.com/2006/11/05/books/review/Patterson.t.html> (access 31 July 2009). Since I finished this chapter in October 2009, several new studies have appeared: Assayag 2009; Leonard 2010; Aardse 2011; Hayles 2012: 221–248.

3 I use "ergodic" and "cybertextual" in the sense put forward by Espen Aarseth (1997), which implies both self-referential operations within the medium and readers' interventions in the construction of the semiotic field: "The concept of cybertext focuses on the mechanical organization of the text, by positing the intricacies of the medium as an integral part of the literary exchange. However, it also centers attention on the consumer, or user, of the text, as a more integrated figure than even reader-response theorists would claim. The performance of the reader takes place all in his head, while the user of cybertext also performs in an extranoematic sense." (1)

4 *House of Leaves* as both a thematization and performance of ancient and modern figures of the labyrinth has been analyzed by Cox (2006) and Hamilton (2008). Graulund (2006) examines its rhizomatic structure as a function of textual and paratextual relations.

and self-referential spaces (spaces within the book itself) results in a heightened awareness of mediation that defines the experience of reading in both works. Danielewski is trying to create a homology between bibliographic form and narrative content, in order to show how recursivity works in the process of meaning production. Meaning is experienced as the result of a feedback between sequences of signifiers and their mode of material inscription.<sup>5</sup> Considered in its literal configuration on the page, the text takes on an iconic and indexical dimension, which creates a constant tension between a mimetic and a self-reflexive self-descriptive effect.

Like *House of Leaves*, *Only Revolutions* is not just a print emulation of the electronic writing space. This work interrogates the very topology of the codex as a multidimensional space for meaning, exploring the articulation between the page as a unit and the motions from page to page. Self-awareness of the ergonomics of codex spaces is achieved by means of internal symmetry axes at each level (graphic and bibliographic, verbal and narrative). The articulation between material spaces and conceptual spaces works through the topological and algebraic mediation of a set of geometric shapes and patterned numbers that stand out as a metacode. In this way, the codex reveals itself as a computational engine, i.e., as a mechanism that governs the distribution of letters and blanks on the page surface. Its signifying power depends upon various layers of symbolic inscription.

The symbol or logo of the work (Fig. 1), for example, can be read as a sign of those multiple inscriptions. It is a symbol for the two characters simultaneously, for stasis and motion, for union and separation, for the circularity of narrative, and even for the orbital relations between the bodies of signs and the bodies of readers created by the mechanics of book rotation and book translation. By linking graphic space to narrative space, this logo marks its own materiality as an archaeological and technological record of itself as a signifying trace. This ideogram may be said to contain a double reference: to the circle, represented in the outer ring; and to the Möbius strip, represented in the two traces. The figure of the circle is also used, in the body of the text, as a symbol for the eyes of each character—gold for Hailey, and green for Sam. The ring imitates the shape and color of the pupils of Hailey and Sam's eyes while the two traces suggest the point of entry for light. As ideograms for the eye and for the act of seeing they are symmetrically structured, both as reflections of each other, and as representations of the specular nature of the organ of sight. Their presence is multiplied and echoed in the colored letters and numbers in the text, and also in the doubly circled page numbers. The alphanumeric sign (as number zero and letter o) gains an ideographic and pictographic content by turning this particular logographic form into an identifying sign for each of the two individual characters. The color-coded O's and 0's become pictograms referring to the individual

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<sup>5</sup> For an analysis of this technotextual dimension in *House of Leaves*, see N. Katherine Hayles, *Writing Machines* (Cambridge, MA: The MIT Press, 2002) pp. 109-131, and *Electronic Literature: New Horizons for the Literary* (Notre Dame, IN: Notre Dame University Press, 2008), pp. 175-185. Mark B. N. Hansen (2004) reads *House of Leaves* through the concept of digital topography, thus suggesting a retroactive effect of the computer on the printed page. These ideas are further developed by Jessica Pressman (2006) and Brian W. Chanen (2007). Both of them read the typographic composition in *House of Leaves* as a print emulation of electronic text networks. We should bear in mind however, that Danielewski has always stressed the freedoms of the paper-and-pencil medium and the three-dimensionality of the book as opposed to the two-dimensionality of the screen (cf. interview by McCaffery and Gregory 2003: 117-118). Although deeply dependent upon digital tools, *House of Leaves* and *Only Revolutions* are ultimately concerned with the multidimensionality and the dynamics of the codex form as a complex inscriptional and topological space.



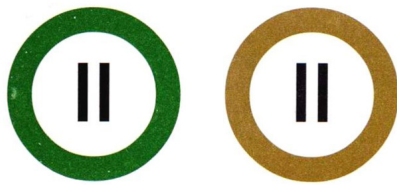


Fig. 1. Only Revolutions' ideogram. © Mark Z. Danielewski, 2006.

characters and suggesting the presence of the eyes in the act of reading. They are part of a series of graphical strategies for adding a visual layer to the alphabetic coding of this novel, and for involving readers in its semiotic circles.

In fact, the circle is not only a circle. It is also a model for a Möbius strip. Interior monologues of the two characters are laid out on opposite sides of the strip, as if each of them were written on the surface of the other. Inside and outside become entirely relative coordinates. Once you get to the end, the journey begins again, restarting a new circular cycle. This endlessness is expressed through the lack of hierarchy in narrative focus: each perspective has an exact counterpoint on the opposite point of the circle. Danielewski has attempted to make linguistic and narrative forms symmetrical, as if they were mirroring one another. The symbols 8 and  $\infty$  recur as numerical and geometrical tropes of the novel.<sup>6</sup> On both title-pages,  $\infty$  is used to symbolize infinity. It can be read also as a two-dimensional representation of the Möbius strip. By emulating a Möbius strip, page layout recreates the topology of this structure in the reading surface of the codex. The topographic relationship between 8 and  $\infty$  is established by a rotation that transforms one symbol into the other. In fact,  $\infty$  was often made in printing by typesetting an 8 type on its side. Like verbal language, which has a mathematical expression, numbers have a geometric expression, and vice versa. In addition, the symbol  $\infty$  is also a graphical representation both of time and space within the narrative, as well as of the trajectory of reading motions. Infinity ( $\infty$ ) is thus a representation of the manifold dimensionalities of the codex as topological and semiotic space.

The circle and the Möbius strip are used not only metaphorically, but also as a model or meta-description of the bibliographic and typographic form that determines the linguistic and narrative composition. There is a continuous process of calculus that projects a topographic and numeric structure onto a bibliographic and typographic structure, and onto a linguistic and narrative structure. Topographical and numerical correlations work at different levels: they structure the book, the chapters and the pages; they structure the strings of alphanumeric characters, and the number of lines; they structure the font, size, style and color of type; they also work at the level of syntactic structures, narrative sequences, and chronological history. They are codified so that the structure and spaces of one level are mapped onto the structure and spaces of another level. This set of correlations can be described as the metadata for writing, page-setting and reading the work. As a device, it shows the technological nature of the book as a machine for linking writing to reading, and language to narrative. Like its predecessor *House of Leaves* (2000), *Only Revolutions* may be analyzed as a technotext in the sense proposed by N. Katherine Hayles: “Literary works that strengthen, foreground, and thematize the connections between themselves as material artifacts and the imaginative realm of verbal/semiotic signifiers they instantiate” (2002, 25).

The circle and Möbius strip, in their multiple material and symbolic occurrences (including the shape of alphanumeric characters), are the main organizers of this universe of signs. This is done by using both their geometry and a large set of numbers derived from their properties. Typographic composition and page layout make possible at least three

<sup>6</sup> In mathematics, the symbol  $\infty$  denotes an infinite limit beyond any particular assigned value. It was first introduced by John Wallis, in *De sectionibus conicis* (1655).

major reading trajectories, according to three axes of symmetry. Circularity can be experienced at the level of the book as a whole, as well as at the chapter level, and the page level, all three of which are structured as symmetrical halves. Thus narrative space desires to fully coincide with the paper space of the page and with typographic composition, i.e., with the exact shape of written characters (typeface, type size, type color, type style, line distribution, and constellation of character strings). The reader must acquire a new kind of literacy through this secondary reading code. In the following sections, geometrical and numerical circularity will be mapped considering the book as a whole, chapters, openings, single page, columns, lines, alphanumeric character strings, and type.

### 2.1. THE BOOK IS ROUND: RECURSIVE LAYOUT

This book's pagination and page layout are based on the projection of 360 degrees of the circle onto its bibliographic structure (Fig. 2). There is a large set of numbers that can be projected onto that structure, which works both at a numeric and a geometric level, according to several axes of symmetry. The numbers used to generate the linguistic and typographic combinations are mostly multiples and submultiples of 360 [1, 2, 3, 4, 5, 8, 9, 10, 36, 40, 45, 60, 72, 90, 180, 360, 720, etc.]. In certain instances, such numbers can be used to generate additional numeric sequences with circular and recursive properties. The book has 360 pages and it is split into two symmetrical layouts, which establish two directions for reading: one half of each page is read in one direction, while the other half is read in the opposite direction. The book has two identical title-pages, each of them identifying one narrative voice. The story is told from the perspective of Sam in one direction, and from the perspective of Hailey in the other. Thus the end of Sam's narrative coincides with the beginning of Hailey's, and vice versa. Like a Möbius strip, there seems to be no exit. The inner surface gradually becomes the outer surface, and vice versa, generating a recursive movement around itself (Fig. 3).

This form of recursivity in the act of reading becomes a material experience of the recursivity between graphical and conceptual space within the codex, and a choreographic embodiment of the hermeneutic circle created by the relationship between sign and interpreter. The need to choose between paths among constellations and networks of signs confronts the reader with his/her role in the co-constitution of the object that s/he interprets. The act of rotating the book embodies the eventual nature of meaning production. If a computational work has to be executed by a program before it becomes readable by a human reader, this bibliographic work follows a code that shows the semiotic import of the reading operations coded in its various material levels. Reading is being produced by re-producing its object as a series of coded fields. The number eight, which works as a symbol for infinity and a planar representation of both the circle and the Möbius strip, also functions as a diagram for the reading motions of the novel. Circularity and infinity are captured on the book's algebraic expression, repeated at each end: "Volume 0: 360: ∞," a formula that should be read as a mathematical representation of the endless proliferation of meaning relations generated by this codex as a discursive machine.

As happens with the successive levels of abstraction that link forensic materiality to formal materiality in a computer (Kirschenbaum 2008, 10-13), these procedures make explicit the multiple layers of coding contained in a printed book. This layering includes the levels of articulation of language (phonological, syntactic, lexical, and semantic), its recoding by writing (which makes it possible, for example, to explore the combinatorial and recursive

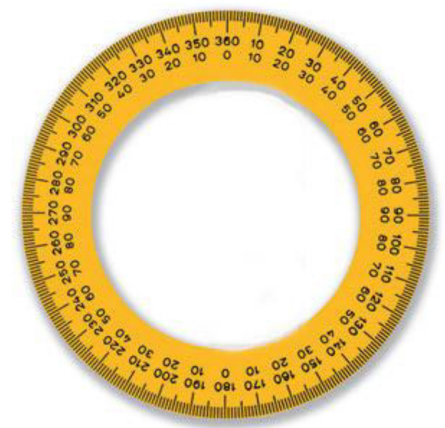


Fig. 2. Does a book have the properties of a circle?  
© Manuel Portela, 2009.

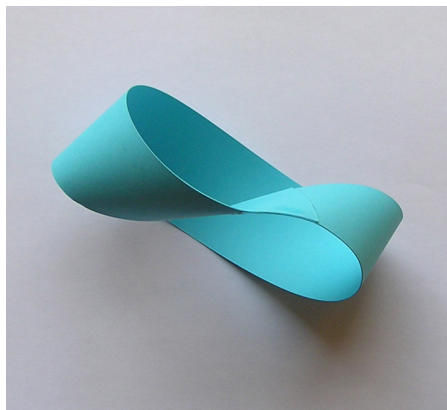


Fig. 3. Does a book have the properties of a Möbius strip? © Manuel Portela, 2009.

structures of language with a higher degree of complexity), its recoding by modes of production of cohesion and coherence in discourse (manifest, for instance, in stylistic patterns, cultural archetypes, and narrative genres), and also the typographic and bibliographic coding of all those elements (according to particular planographic and three-dimensional layouts). By giving explicit semiotic functions to all these material levels of the codex form, *Only Revolutions* delights in the multiplicity of its levels of encryption.

It activates as part of its literary form the double set of codes (linguistic and bibliographic) that characterizes the book as an artifact. It should be noted that bibliographic codes work even when they are not explicitly incorporated into the literary form of the work: their function is to socialize the text, i.e., to materialize it as an artifact. The text is dependent upon a mode of production and a set of reading protocols established by its specific bibliographic condition. The paperback edition of *Only Revolutions* (dated June 2007), for example, contains praising quotations on both covers (from the *San Francisco Chronicle* and *The Washington Post Book World*), the phrase “National bestseller,” an embossed silver seal that reads “National Book Award Finalist,” and a note that identifies the author as “Author of *House of Leaves*” (Fig. 4). Those four markers are repeated in similar relative positions on both covers, accommodating themselves to the principle of symmetry used in the composition and pagination of the book. To these we should add two praising quotes on each of the book flaps (from *The New York Times Book Review* and from “National Book Award Finalist Judges’ Citation”), typical of book blurbs. The graphic layout of this set of markers re-enacts the principles of symmetry and circularity that are internal to the work’s compositional rationale, but its pragmatic function is to promote the book as a commodity.

In this way the whole institution of literature becomes present in the socialized artifact: through book reviews in the periodical press, the system of literary awards, the network of bookstores and the author’s reputation, i.e., through the whole set of markers that produce the symbolic identity and commercial value of a book in the literary market. Those markers inscribe the work in the system of literary reception in the North American book market. They link the symbolic economy of discourse to the symbolic economy of monetary value. There are therefore elements in this book’s bibliographic coding that go beyond what the author can control and which depend upon a broader system of signs that re-inscribes his work in a particular mode of production and reception. These socializing elements re-contextualize the edition’s illusory autonomy as bibliographic artifact. Even with the most detailed authorial planning of all areas of the book (including colophon, flaps, spine, inside cover, and bar code), the ubiquity of the author cannot overwrite the ubiquity of the market. In other words, a representation can never exhaust itself and no explicit meta-codification can escape the general processes of socialization of meaning and the codes that determine it.



Fig. 4. Mark Z. Danielewski’s *Only Revolutions* double cover and spine (paperback ed., 2007). © Mark Z. Danielewski, 2006.

## 2.2. THE BOOK IS ROUND: SYMMETRICAL STRIPS

The circular structure, which organizes the 360-page ensemble, is re-played at each page. Each page is divided into four sectors or areas, whose limits are defined by two axes of articulation (inside/outside and upper/lower). Each of these four sectors contains an identical number of alphanumeric strings. The counting unit is the alphanumeric string of characters (and not the word): for example, the punctuation sign that follows a given word (or precedes it, such as dashes) has to be counted as part of the letter or number string.

Numbers, or numbers followed by letters, are always one single sequence. Blank spaces set the boundaries of any unit. “22 Nov 1963,” for example, is counted as 3 strings. Each of the four sections of the page has exactly 90 strings. This means that each page is an analogue of the circle, with  $90 + 90 + 90 + 90$ , or, 360 strings (Fig. 5).<sup>7</sup> By using character strings as counting units, instead of word strings, Danielewski points to the code of alphabetic writing as a specific and arbitrary form of recoding language. That differential and generative function of the alphabetic code is also clear when he blends words or when he gives them a phonetic twist.

Each page has two columns divided into two halves, forming four sectors. The inner column always contains references to dates and historical events, while the outer column contains the interior monologues of each character. These four sectors can be read according to several horizontal, vertical, and diagonal sequences:<sup>8</sup> (hH1+H1) + (hS360+S360), or (hH1+hS360) + (H1+S360), or (hH1+ S360) + (hS360+ H1), etc. The page thus becomes a mirror of the book and another analogue of the circle: the book’s 360 pages are now the 360 character strings of each page. The three-dimensional space of paper gets translated into the bi-dimensional space of alphanumeric characters. An identical structure links the actual writing surface to the printed marks of writing. Each page is a replica of codex structure, thus establishing a homology between the movement within the plane (X and Y axes) and the movement within space (Z axis). The three-dimensional circularity obtained by handling the sheets and the volume of paper also occurs on the two-dimensional surface arrangement of typographic layout in each page. Readers’ body movements of handling the codex mirror their eye movements traversing the page, and vice versa. Hand movements are symmetrical to eye movements.

### 2.3. THE BOOK IS ROUND: INTERSECTING CIRCLES

The use of initial letters organizes the 360 pages in groups formed by 8 pages. There are 45 chapters in each reading direction, i.e. 90 in all. This means that motions of reading can trace three circular paths at the level of bibliographic structures: at the level of the book as a whole, at each chapter, and at each page. Reading can move around the four sectors of each page in different directions (left-right; right-left; top half/ bottom half; inside column-outside column) and in various combinations, either clockwise or counter-



Fig. 5. Only Revolutions page structure as a circle analogue [H1//S360]. © Manuel Portela, 2009.

<sup>7</sup> This pattern is only broken on those pages in which the history column has been left blank, specifically, for dates comprised between “Jan 18 2006” and “Jan 19 2063” [pages H285 to H360]. In each of these 76 pages there are only 3 character strings (those corresponding to date headers).

<sup>8</sup> When quoting or referring to pages and columns, I will use the following conventions: H or S followed by a page number—for example, H1 refers to page 1 by Hailey, and S1 refers to page 1 by Sam; two forward slashes [//] indicate reversed pages on the same surface—for example, S1//H360; one forward slash [/] indicates reversed symmetrical pages at opposite ends of the codex—for example, H1/S1; a hyphen [-] identifies a sequence of pages, for example, S1-S8; and the letter b before S or H refers to their respective history column—for example, bH1 or bS360.



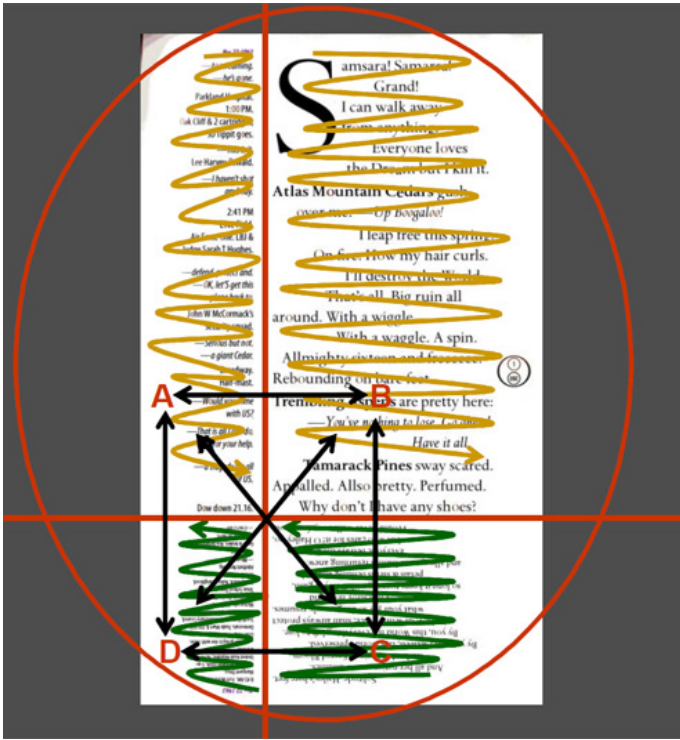


Fig. 6. The page as a circle and twelve reading directions between the four sectors [AB/BA: CD/DC; AD/DA; BC/CB; AC/CA; BD/DB]. © Manuel Portela.

clockwise (H1[1/4, 2/4]/S360[3/4, 4/4]) (Fig. 6). Those same paths can also be made between diametrically opposite pages (H1[1/4, 2/4]/S1[1/4, 2/4] + H2[1/4, 2/4]/S2[1/4, 2/4] + ...) (Fig. 7(a)). The reader can read 8 + 8 pages of symmetrical chapters (S1-S8 [1/4, 2/4] + H1-H8 [1/4, 2/4] ...) (Fig. 7(b)) or the full 360 pages of each sequence (S1-S360 [1/4, 2/4] + H1-H360 [3/4, 4/4]) or any combination of those reading paths, moving randomly between the scale of the column, the page, the chapter, and the book (in both reading directions) at any given moment (Fig. 7(c)).

*Only Revolutions* is thus both multilinear, in the sense that several reading trajectories have been produced in advance as preferred courses (such as H1-H8/S1-S8, or H1-H360/S1-S360, or even H1/S1, H2/S2, etc.), and multicursal, in the sense that many other trajectories are determined by the reader according to either regular or random patterns. As a constellated constrained hypernovel—one of the most constellated and constrained novels ever written (including electronic hyperfictions)—*Only Revolutions* is an extreme instance of what Aarseth has called “cyborg aesthetics” (1997, 51-57), i.e., an aesthetic of textual machines. Table 1 represents the triple circularity in the typographic and bibliographic structures of the work, showing in diagrammatic form the relationship between the character strings that define the circle on each page, the sequence of pages that makes up each chapter, and the ensemble of pages that makes up the book. In this schematic representation, arrows mark the trajectories of reading (turning the page + rotating the page + rotating the book) which materialize the experience of circularity in the act of crossing the work’s field of signs by means of those combined motions.<sup>9</sup>

### 3. TYPOGRAPHY IS ROUND: GENERATIVE LETTERS

Initial letters also form a numerical and recursive pattern which loops at each end of the book. Initial letters are legible when combined together, forming a recurring cycle that suggests the topology of the Möbius strip: “SAMANDHAILEYAND” (Table 2).<sup>10</sup> Reading can follow a clockwise or counter-clockwise direction. Certain properties of

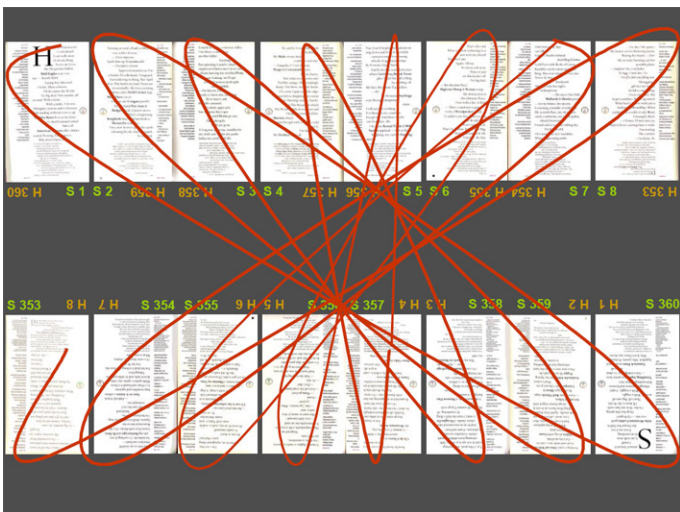


Fig. 7. Symmetrical chapters: (a) reading as a circle in space (8 full translations); (b) reading as a Möbius strip (8x2, reverse directions); (c) reading as a circle and a Möbius strip. © Manuel Portela, 2009

<sup>9</sup> Events for historical dates between “Jan 18 2006” and “Jan 19 2063” [pages bH285-bH360] were left blank, with the exception of date headers. Out of a possible total number of 90-character strings for the history column in each of those bH pages, only 3 strings—for date headers—have been filled in. In those 76 pages, there will be a total of 228 strings [=76x3] instead of the expected 6840 [=76x90]. Therefore this column has less 6612 strings [=6840-228] than its equivalent in Sam’s pages.

<sup>10</sup> In this table, numbers correspond to chapters, green cells represent Sam’s chapters (reading in one direction) and brown cells represent Hailey’s (reading in reverse).



the Möbius strip, whose structure may be described by a system of differential algebraic equations,<sup>11</sup> are recreated in the material and symbolic space of the book:

a) the reading of initial letters can start at either end and run continuously, as happens with the continuous unlimited surface of the Möbius strip:

SAMANDHAILEYANDSAMANDHAILEYANDSAMANDHAILEYANDSAMAND-  
 HAILEYANDSAMANDHAILEYANDSAMANDHAILEYANDSAMANDHAILEY-  
 ANDSAMANDHAILEYANDSAMANDHAILEYANDHAILEYANDSAMANDHAI-  
 LEYANDSAMANDHAILEYANDSMANDHAILEYANDSA-  
 MANDHAILEYANDSAMANDHAILEYANDSAMANDHAI-  
 LEYANDSAMANDHAILEYANDSAMANDHAILEYAN-  
 DSAMANDSAMANDHAILEYAND...;

b) the motion of the book when reading symmetric chapters or inverted pages emulates a half-turn needed to produce a Möbius strip out of strip of paper;

c) the boundary of the Möbius strip, when projected in three dimensions, is a topological equivalent of the circle;

d) the page works as a basic rectangle and its division into two parts, with reverse reading directions, is akin to the unlimited double-face of the Möbius strip;

e) the rotation needed to obtain a Möbius strip is made around a point that is outside of the surface of the strip itself, and this is actually simulated by the rotation of the book in space.

Such symmetries (SAMAND/DNAMAS + HAILEYAND/ DNAYELIAH) are a feature of the whole work, and they manifest themselves at the level of letter, number, and page sequences. This means that the bibliographic and typographic elements have a fractal structure. Recurrences at the scale of the book as a whole are repeated at the scale of the chapter, the page, the line, the word, and the letter and number strings. The textual machine designed by Mark. Z. Danielewski produces iterations that are homologous in each of those levels of meaning production. What is performed by the surface of inscription is also being performed by the inscription marks. The overall structure becomes an

Hailey	number of character strings	Sam
45 chapters = 360 dates	page numbers	45 chapters = 360 dates
H1-54 Nov 22 1963	90 90 90 90	S1-54 Nov 22 1963
H97-104	page 1 180 360 180 page 8	S15-352
H1-24	90 90 90 90	S33-344
H33-40	page 2 180 360 180 page 7	S329-336
H41-48	90 90 90 90	S313-320
H49-56	page 3 180 360 180 page 6	S305-312
H57-64	90 90 90 90	S297-304
H65-72	page 4 180 360 180 page 5	S289-296
H73-80	90 90 90 90	S281-288
H81-88	page 5 180 360 180 page 4	S273-280
H89-96	90 90 90 90	S265-272
H97-104	page 6 180 360 180 page 3	S257-264
H105-112	90 90 90 90	S249-256
H113-120	page 7 180 360 180 page 2	S241-248
H121-128	90 90 90 90	S233-240
H129-136	page 8 180 360 180 page 1	S225-232
H137-144	chapter numbers	S217-224
H145-152	90 x 8 = 720	S209-216
H153-160	90 x 8 = 720	S201-208
H161-168	180 x 8 = 1440	S193-200
H169-176	180 x 8 = 1440	S185-192
H177-184	360 x 8 = 2880	S169-176
H185-192	720 X 45 = 32400	S161-168
H193-200	720 X 45 = 32400	S153-160
H201-208	6612 = 25788*	S145-152
H209-216	6612 = 25788*	S137-144
H217-224	1440 x 45 = 64800	S129-136
H225-232	58188 + 64800 = 122988	S121-128
H233-240	2880 x 45 = 129600 + 6612 = 122988	S113-120
H241-248		S105-112
H249-256		S97-104
H257-264		S89-96
H265-272		S81-88
H273-280		S73-80
H281-288		S65-72
H289-296		S57-64
H297-304		S49-56
H305-312		S41-48
H313-320		S33-40
H321-228		S25-32
H329-336		S17-24
H337-344		S9-16
H345-352		S1-8
H353-360 Jan 19 2063		

Table 1. Circle analogues: page circularity; chapter circularity; and book circularity. Symmetrical reading sequences at page level, chapter level, and book level. A numerical analysis of character strings in the novel. © Manuel Portela, 2009.

<sup>11</sup> Here is one mathematical representation of its topology: “One way to represent the Möbius strip as a subset of  $R^3$  is using the parametrization:

$$\begin{aligned}
 x(u, v) &= \left(1 + \frac{1}{2}v \cos \frac{1}{2}u\right) \cos u \\
 y(u, v) &= \left(1 + \frac{1}{2}v \cos \frac{1}{2}u\right) \sin u \\
 z(u, v) &= \frac{1}{2}v \sin \frac{1}{2}u
 \end{aligned}$$

,where  $0 \leq u < 2\pi$  and  $-1 \leq v \leq 1$ . This creates a Möbius strip of width 1 whose center circle has radius 1, lies in the  $xy$  plane and is centered at  $(0, 0, 0)$ . The parameter  $u$  runs around the strip while  $v$  moves from one edge to the other.” [http://en.wikipedia.org/wiki/Möbius\\_strip](http://en.wikipedia.org/wiki/Möbius_strip) (access June 3, 2009).

S	A	M	A	N	D	H	A	I	L	E	Y	A	N	D
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
D	N	A	M	A	S	D	N	A	Y	E	L	I	A	H
45	44	43	42	41	40	39	38	37	36	35	34	33	32	31
S	A	M	A	N	D	H	A	I	L	E	Y	A	N	D
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
D	N	A	M	A	S	D	N	A	Y	E	L	I	A	H
30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
S	A	M	A	N	D	H	A	I	L	E	Y	A	N	D
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
D	N	A	M	A	S	D	N	A	Y	E	L	I	A	H
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

Table 2. ‘SAMANDHAILEYAND’ [H chapters] and ‘HAILEYANDSAMAND’ [S chapters] as a Möbius strip (a). The initial letters form 3 groups of 15 letters [(3 x 15) x 2 = 45 x 2 = 90]. © Manuel Portela, 2009.

Table 3. ‘SAMANDHAILEYAND’ [H chapters] and ‘HAILEYANDSAMAND’ [S chapters] as a Möbius strip (b). The initial letters form 15 groups of 3 letters [45 : 3 = 15 x 2 = 30]. © Manuel Portela, 2009.

S	A	M	A	N	D	H	A	I	L	E	Y	A	N	D
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
D	N	A	M	A	S	D	N	A	Y	E	L	I	A	H
45	44	43	42	41	40	39	38	37	36	35	34	33	32	31
S	A	M	A	N	D	H	A	I	L	E	Y	A	N	D
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
D	N	A	M	A	S	D	N	A	Y	E	L	I	A	H
30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
S	A	M	A	N	D	H	A	I	L	E	Y	A	N	D
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
D	N	A	M	A	S	D	N	A	Y	E	L	I	A	H
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

embodied equation for deriving topological spaces from alphanumeric expressions, and vice versa.

There is yet another marker that associates chapters in groups of 3, since the initial letters for chapters 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40 and 43 are set in a larger font. In the table with these chapter groups, we can isolate the four letter markers: S, A, H and L. (Table 3). The reading motion of the structure created by initial letters suggests the topology of the Möbius strip, in which the front side of Sam’s story is also the back side of Hailey’s story, and vice versa. The motions of reading make a retroactive path between one sequence and the other. This elliptical motion is the line drawing movement for the number eight and for the infinity symbol. As mentioned above, the book actually describes rotations and translations which turn reading into a sort of gravitational orbit between the reader and the signs (see Fig. 19). The wavy line that reverses on itself suggests both a looping without beginning or end, like a Möbius strip, and an elliptical or circular motion. Danielewski’s bibliographic device models reading and writing as gravitational fields. His book is an experiment on the physical and conceptual mechanics of reading.

These three-chapter groupings produce the palindromic equivalence “AND” = “DNA,” which suggests that the numerical meta-codification can also be read as a matrix or genetic code for generating certain textual occurrences and certain semiotic correlations between verbal language and mathematical language. The constraints (which determine the number of lines and character strings, font size, areas of the four page sectors, number of pages, and number of page sets) function as the code for the various permutations and combinations. The productivity of this recursive replication for generating new textual segments is a consequence of that particular code. The established correlations, which link sequences according to the symmetry axes left/right and top/bottom, generate a periodic pattern 2-3-2-3-2-3 (Table 4). Anagrammatic and anacyclic patterns (palindromes) occur both in combinations of letters, and of numbers. Thus the anacyclic principle (i.e., reading in reverse) works at the level of bibliographic structures (page, page groups, and entire codex), at the level of linguistic and narrative structures (each narrative can be read from first page to last, and from last page to first) and, in several instances, at the level of character strings (letters and numbers). The axes of symmetry that duplicate those structures operate according to specularly (mirror reflection) and self-similarity.

Besides mirror symmetries, each column provides various combinations of four or three letters. These letters suggest the

DNA code and the possibility of factorial permutations of the base elements in new strings:

a) in the first columns S and H:

- in groups of four (top-bottom), S-A-H-L, A-S-A-H, L-A-S-A, H-L-A,
- in groups of three (top-bottom), S-A-H, L-A-S, A-H-L, A-S-A, H-L-A,
- in groups of four in reverse direction (bottom-top), H-L-A-S, A-H-L-A, S-A-H-L, A-S-A,
- or in groups of three in reverse direction (bottom-top), H-L-A, S-A-H, L-A-S, A-H-L, A-S-A;

b) in the second columns S and H:

- in groups of four (top-bottom), A-N-A-E, N-A-N-A, E-N-A-N, A-E-N,
- in groups of three (top-bottom), A-N-A, E-N-A, N-A-E, N-A-N, A-E-N,
- in groups of four in reverse direction (bottom-top), A-E-N-A, N-A-E-N, A-N-A-E, N-A-N,
- or in groups of three in reverse direction (bottom-top), A-E-N, A-N-A, E-N-A, N-A-E, N-A-N;

c) in the third columns S and H:

- in groups of four (top-bottom), M-D-I-Y, D-M-D-I, Y-D-M-D, I-Y-D,
- in groups of three (top-bottom), M-D-I, Y-D-M, D-I-Y, D-M-D, I-Y-D,
- in groups of four in reverse direction (bottom-top), I-Y-D-M, D-I-Y-D, M-D-I-Y, D-M-D,
- or in groups of three in reverse direction (bottom-top), I-Y-D, M-D-I, Y-D-M, D-I-Y, D-M-D.

If initial letters are substituted for the equivalent chapter numbers, an identical generative structure can be applied to the chapter numbers (Table 5).

The bibliographic and typographical division based on the number three has a noticeable correspondence within narrative space, since it is possible to associate events in Hailey's and Sam's story into 15 sequences of three chapters. Every three chapters, each of which is 24 pages, contains a core theme, expressed in action, time and space. The following

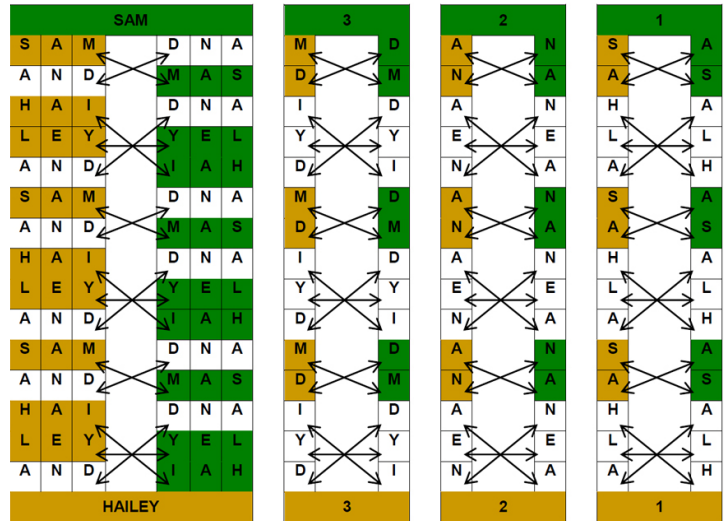


Table 4. 'SAMANDHAILEYAND' [H chapters] and 'HAILEYANDSAMAND' [S chapters]. Reflection symmetries between groups of letters. Initial letters as a textual genetic sequence. © Manuel Portela, 2009.

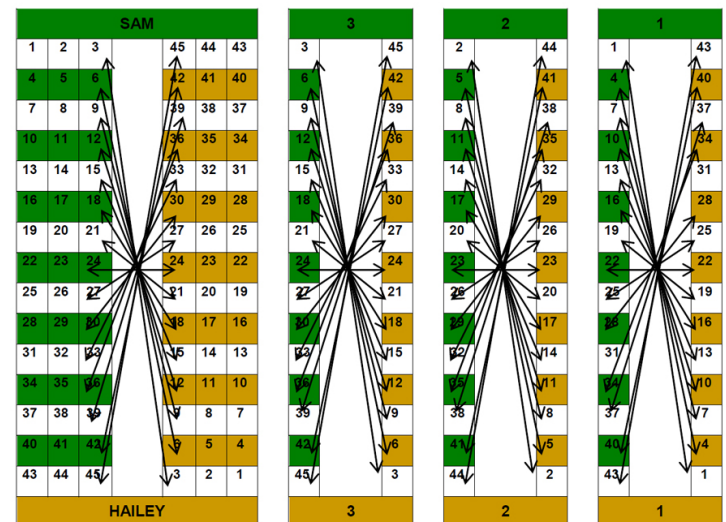


Table 5. 'SAMANDHAILEYAND' and 'HAILEYANDSAMAND'. Reflection symmetries between chapter numbers. Correspondences between chapter positions and chapter numbers. Chapters 22, 23, and 24 as a central axis. © Manuel Portela, 2009.



Table 6. 'SAMANDHAILEYAND'. Initial letters and the fifteen three-chapter narrative sequences [15x3=45]. © Manuel Portela, 2009.

H	A	I	Sam and Hailey first meet [1-24]	1	15	Hailey's lament for Sam [337-360] [H360-H353] [H352-H345] [H344-H337]	D	N	A
1	2	3	[S1-S8] [S9-S16] [S17-S24]				45	44	43
L	E	Y	Sam and Hailey reunited [25-48]	2	14	Death of Sam [313-336] [H336-H329] [H328-H321] [H320-H313]	Y	E	L
4	5	6	[S25-S32] [S33-S40] [S41-S48]				42	41	40
A	N	D	First car journey [49-72]	3	13	Car accident [289-312] [H312-H305] [H304-H297] [H296-H289]	I	A	H
7	8	9	[S49-S56] [S57-S64] [S65-S72]				39	38	37
S	A	M	Club party in New Orleans [73-96]	4	12	Fifth car journey and fight against THE CREEP [265-288] [H288-H281] [H280-H273] [H272-H265]	D	N	A
10	11	12	[S73-S80] [S81-S88] [S89-S96]				36	35	34
A	N	D	Hailey in the hospital [97-120]	5	11	Fourth car journey and marriage [241-264] [H264-H257] [H256-H249] [H248-H241]	M	A	S
13	14	15	[S97-S104] [S105-S112] [S113-S120]				33	32	31
H	A	I	Second car journey [121-144]	6	10	Third car journey, Hailey and Sam try to get married [217-240] [H240-H233] [H232-H225] [H224-H217]	D	N	A
16	17	18	[S121-S128] [S129-S136] [S137-S144]				30	29	28
L	E	Y	Stay at St. Louis and work at the bar [145-168] [S145-S152] [S153-S160] [S161-S168]	7	9	Last days working at the St. Louis bar [193-216] [H216-H209] [H208-H201] [H200-H193]	Y	E	L
19	20	21					27	26	25
A	N	D	St. Louis, bike rides to work, Sam and Hailey in bed [169-192] [S169-S176] [S177-S184] [S185-S192]	8	8	St. Louis, bike rides to work, Hailey and Sam in bed [169-192] [H192-H185] [H184-H177] [H176-H169]	I	A	H
22	23	24					24	23	22
S	A	M	Last days working at the St. Louis bar [193-216] [S193-S200] [S201-S208] [S209-S216]	9	7	Stay at St. Louis and work at the bar [145-168] [H168-H161] [H160-H153] [H152-S145]	D	N	A
25	26	27					21	20	19
A	N	D	Third car journey, Sam and Hailey try to get married [217-240] [S217-S224] [S225-S232] [S233-S240]	10	6	Second car journey [121-144] [H144-H137] [H136-H129] [H128-H121]	M	A	S
28	29	30					18	17	16
H	A	I	Fourth car journey and marriage [241-264] [S241-S248] [S249-S256] [S257-S264]	11	5	Hailey in the hospital [97-120] [H120-H113] [H112-H105] [H104-H97]	D	N	A
31	32	33					15	14	13
L	E	Y	Fifth car journey and fight against THE CREEP [265-288] [S265-S272] [S273-S280] [S281-S288]	12	4	Club party in New Orleans [73-96] [H96-H89] [H88-H81] [H80- H73]	Y	E	L
34	35	36					12	11	10
A	N	D	Car accident [289-312] [S289-S296] [S297-S304] [S305-S312]	13	3	First car journey [49-72] [H72-H65] [H64-H57] [H56- H49]	I	A	H
37	38	39					9	8	7
S	A	M	Death of Hailey [313-336] [S313-H320] [S321-S328] [S329-S336]	14	2	Sam and Hailey reunited [25-48] [H48-H41] [H40-H33] [H32- H25]	D	N	A
40	41	42					6	5	4
A	N	D	Sam's lament for Hailey [337-360] [S337-S344] [S345-S352] [S353-S360]	15	1	Sam and Hailey first meet [1-24] [H24-H17] [H16-H9] [H8-H1]	M	A	S
43	44	45					3	2	1

table is an attempt at identifying those 15 narrative sequences (Table 6). In the center column, which numbers the 15 sequences from each end of the book, it is possible to find other numerical associations. For instance, number 8 stands out as both the center of the narrative and the center of the book. The 13th sequence includes the car accident that precedes the death of both characters—Hayley from a bee sting (S321), and Sam from a fall (H321). The double circle and Möbius strip are further reflected on the wheels of the bicycle that Sam and Hailey use in their daily rides to work (8th sequence). There are references to cycles and cycling in the 16 pages of chapters 22 (H169-H176/S169-S176) and 24 (H185-H192/S185-S192), and the word “Bike” is used 8 times, in the first and last pages of the bicycle sequence (S169, S170, S191, S192; and H169, H170, H191, H192).

### 3.2. TYPOGRAPHY IS ROUND: LOOPING TYPES

Numerical patterns also determine the number of lines in the two narrative sectors (outside column) in each page. The number of lines of the monologues by Sam and by Hailey always adds up to 36 lines. Therefore we have yet another submultiple of 360 and a reading path linking the reversed halves of each page as a projection of the circle. The number of lines is organized according to the following sums: 22+14, 21+15, 20+16, 19+17, 18+18, 17+19, 16+20, 15+21, and 14+22. The number of lines decreases when the reader moves towards the end of the book and increases when s/he moves away from the end. These changes are symmetrical since the movement towards the end of one narrative is the movement towards the beginning of the other. In the central

Table 7. Number of lines (outside column) and correlation between decreasing and increasing type size in the half-pages Hailey-Sam and Sam-Hailey. Changes in size as musical notation. © Manuel Portela, 2009.

chapters the number of lines is the same in each half-column (18+18). In other words, the bibliographic pattern of the codex structure has a typographic equivalent in line layout.

This pattern is also replicated in font size, which decreases at regular intervals (Table 7). The font size decreases every 5 chapters, i.e., every 40 pages. This means that character size changes 8 times in each direction of reading. Changes occur, respectively, on pages H41, H81, H121, H161, H201, H241, H281 and H321, and on pages S41, S81, S121, S161, S201, S241, S281 and S321. In each group of five chapters, the number of lines in Hailey’s pages increases by one line, while the number of lines in Sam’s pages decreases by one line, and vice versa. Font size and number of lines in Hailey’s and Sam’s half pages is identical in the five central chapters of the book (pages H161-H200 and S161-S200). It is only here that the surface area of the page is divided into two equal halves. This divides the page height of 22.4 cm into approximately two halves of 11.2 cm. Changes in type size function as musical notation for a vocal performance of the monologues. They correlate with the changes in the general tone and emotional atmosphere of the various narrative sequences. The allegro vivace of the first sequences turns into the andante of the middle sections, and finally into the adagio of the last sequences. The joyful euphoria of love and car journey as filtered through individual consciousness gives way to the social transactions of Sam and Hailey with other voices and other people, and finally turns into a melancholic lament for separation and death. The size and style of type make the writing audible and they can be read as prosodic markers.

It is not only the page structure that is symmetrical. Symmetry is also a property of line layout, and font size variation. As we will see in the next section, such symmetry extends to the syntactic structure of sentences. Typesetting thus mirrors linguistic structure in the sense that typographical forms share topographic properties with the corresponding linguistic forms. Linguistic syntax becomes homologous to typographic syntax. The same syntactic structures are used by Sam and by Hailey, but with lexical variations that distinguish their voices. Moreover, each page (and, in some cases, groups of two pages) can be read as poems, because they often function as an autonomous unit, more or less independent of narrative sequence. Their rhythmic and syntactic unity often allow for a suspension of narrative continuity or, at least, for a tension between the self-enclosed page and the open-ended sequentiality of the circular codex. Syntactic structures, text lines, page sectors, single page, and page groups produce what can be best described as a voco-visual and constellated novel.

outside column					
type size decreases	H	36 lines per page		S	type size increases
↑	H1-8	22	14	S353-360	↑
	H9-16	22	14	S345-352	
	H17-24	22	14	S337-344	
	H25-32	22	14	S329-236	
	H33-40	22	14	S321-228	
H41	H41-48	21	15	S313-320	S321
↑	H49-56	21	15	S305-312	↑
	H57-64	21	15	S297-304	
	H65-72	21	15	S289-296	
	H73-80	21	15	S281-288	
	H81	H81-88	20	16	
↑	H89-96	20	16	S265-272	↑
	H97-104	20	16	S257-264	
	H105-112	20	16	S249-256	
	H113-120	20	16	S241-248	
	H121	H121-128	19	17	
↑	H129-136	19	17	S225-232	↑
	H137-144	19	17	S217-224	
	H145-152	19	17	S209-216	
	H153-160	19	17	S201-208	
	H161	H161-168	18	18	
↑	H169-176	18	18	S185-192	↑
	H177-184	18	18	S177-184	
	H185-192	18	18	S169-176	
	H193-200	18	18	S161-168	
	H201	H201-208	17	19	
↑	H209-216	17	19	S145-152	↑
	H217-224	17	19	S137-144	
	H225-232	17	19	S129-136	
	H233-240	17	19	S121-128	
	H241	H241-248	16	20	
↑	H249-256	16	20	S105-112	↑
	H257-264	16	20	S97-104	
	H265-272	16	20	S89-96	
	H273-280	16	20	S81-88	
	H281	H281-288	15	21	
↑	H289-296	15	21	S65-72	↑
	H297-304	15	21	S57-64	
	H305-312	15	21	S49-56	
	H313-320	15	21	S41-48	
	H321	H321-328	14	22	
↓	H329-336	14	22	S25-32	↓
	H337-344	14	22	S17-24	
	H345-352	14	22	S9-16	
	H353-360	14	22	S1-8	
	type size increases	H	36x360=		
number of lines=6480		12960		6480=number of lines	
outside column					





highly constrained patterns visible to the reader. Tracks (chapters) have been given titles, and in several passages a musical soundtrack has been added to the voices. Conventions of audio-books have framed the recorded reading in a way that stresses both the linearity of narrative syntax and the realist and romantic aspects of the work. Certain hierarchies are restored in order to navigate what is a highly decentred text. For instance, Sam's voice is given primacy, which turns his text into a template and Hailey's into a variation on that template. Reading the symmetrical chapters also stresses continuity of time, action and place, instead of the fragmentation and incompleteness of each character's single consciousness. As the semantics of spoken discourse overpowers the semiotics of typography and codex, narrativity displaces poeticity and visual spatial tensions are resolved as aural temporal sequences. Through this recording one can see the relation between the potentiality of the novel's graphical layout, with its multicursal and multilineal possibilities as an open notation for semiotic and hermeneutic operations and a particular vocal performance as a single interactive instantiation of an event that co-constitutes its own text. As with any highly constellated work, several other equally valid performative trajectories would have been possible.

One experiment I made with my students consisted of reading aloud one sentence or short sequence of phrases by Hailey and the corresponding symmetrical sentence or sequence by Sam. The result was a significant transformation of the lyric and narrative layers into a dramatic layer. The fact that each character's text is partially identical creates a powerful dramatic effect as if they were arguing the representation of their own feelings and actions. This means that there is a reading scale below page level at which the quasi-symmetrical counterpoint of voices also works as a dramatic dialogue, particularly at those points where tension and difference between characters is marked. *Only Revolutions* thus seems to have created a bibliographic and linguistic notation for the voices of Sam and Hailey that embodies at least three modes of literature, since it can be read as novel, poem, and play, according to specific trajectories and segmentations of the reading spaces made available through its constellated visual semantics.

Paronomastic associations, puns, elliptical syntax, truncated quotes, frequent use of parataxis, removal of connectives, and repeated use of metaphors based on slang and terminology (flora and fauna)—all these techniques emphasize the presence of a character's specific point of view that creatively deforms the events through the sieve of his/her emotions and motivations. Ellipsis and juxtaposition of thoughts, speech, and memories emphasize the absence of a single focus, a narrative effect of the interior monologue technique. They also contribute to the narrative presence of objects in the uniqueness of their existence, and especially to the fullness of the rhythmic and objective presence of the words themselves. The use of many sentences without verbs and the presentation of dialogue fragments require the reader to deal with words and phrases in non-hierarchical form. Their sensorial dimensions (aural and visual) and their semantic individuality are given priority over their logical place and their syntactic function. This effect is replicated in the tension between the self-sufficient page and its projection onto the sequence of pages or chapters. The autonomy of the poetic dimension of verbal discourse has a visual equivalent in the visual patterning of each page, which can be read either as an independent unit or as an echo of its correspondent symmetrical page.

The narrative dimension of discourse, in its turn, is projected onto the eight-page chapter, onto groups of chapters, and onto corresponding chapters, symmetrically placed

in opposite positions in relation to the codex center. This tension between the plane of the page and the space of the sequence of pages also articulates the basic duality of the codex as a device for organizing information. Page unity and page sequence are the main organizational properties of the codex: the tension between the plane of the page and the space of the book, i.e., the tension between the page as self-contained area for simultaneous presence and the codex as a space for sequential presence.

This lexicalization of reading motions has a visual occurrence on the inside covers of the book, where circular and elliptical disks work as a diagrammatic echo of the bibliographic movements that determine lexical and narrative associations. A series of 16 semantic and lexical fields are laid out in the shape of circular and elliptical disks (Fig. 9). These sets represent words not found in the novel or, in a few cases, found only once. Crossed-out words deliberately point out to the combinatorial nature of this work as an explicit exploration of the generative features of language: “~~The Now Here Found Concordance~~” (which also contains the visual rhyme “~~The Nowhere Found~~”), ~~Found Once Once Here~~ and ~~Found Once Once There~~. Each set of words is alphabetically ordered from A to Z, and they direct the reader’s attention to the dictionary and the grammar of language, but also to cultural patterns and abstract concepts as human constructs for making sense (Fig. 10). Their circular and elliptical shape is an echo of the reading motions that are required

for the production of meaning as a recursive path from sign to sign.<sup>13</sup> Because all of the inside cover is set in reverse, the concordance can only be read by holding the book up to a mirror. This action is both an evocation of the history of typography as a specific inscription technology, and a performative analog of the various forms of symmetry embodied at linguistic, bibliographic, narrative, geometric, and numeric levels.

The reader must see him/herself reading. Consciousness of the act of reading as a particular physical motion draws attention to the ways in which this codex is made to mirror its language, and the ways in which its language is made to mirror its codex. The circular syntax of codex structures interacts with the circular syntax of language structures by bibliographically multiplying permutations that are inherent in grammatical structures. Page layout feeds back onto the language, opening up words and sentences to the potentiality of new and unexpected associations. These 16 sets are composed of shapes which superimpose, intersect, and touch each other and are evocative of various kinds of scientific graphic representations. They evoke diagrams that represent the workings within

living cells, and diagrams that represent both the cosmological forces of the universe

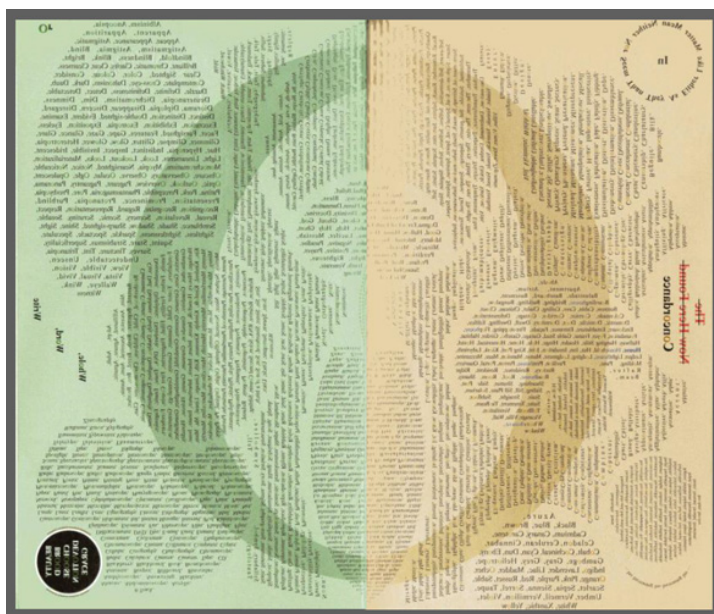


Fig. 9. The Now Here Found Concordance. The codex as a mirror of language and narrative: inside covers contain a concordance lexicon (in mirror image) of words not used in the novel. © Mark Z. Danielewski, 2006.

13 Because 4 out of the 16 circular and elliptical disks spread across the gutter, it is very difficult to give an accurate number for the words (i.e., strings of characters beginning with capitalized words) in all sets. I believe that there is a geometric and numeric pattern at this level too. This pattern associates the disks in groups of two (one circular + one elliptical section), and the sum of each of these pairs generates numbers that repeat certain digits—for example, Eye lexicon (elliptical, 146) + Color lexicon (circular, 42) = 188; Architecture lexicon (elliptical, 111) + Into lexicon (circular, 33) = 144; etc. The total number of character strings is approximately 1800, which becomes another symbol for the circle (0) and the Möbius strip (8), for singleness (1) and union (0), for zero (0) and infinity (∞), for nothingness (0) and endlessness (0, ∞).

and the quantum world of infra-atomic forces. One of the predominant semantic and lexical fields “found (t)here” at “the now here found concordance” is the field of language, literature, writing, and inscription technologies. Thus codex and language become equated with the basic magnetic and gravitational forces of matter, and with the genetic code of living organisms.

## 5. THE WORLD IS ROUND

In a work so full of self- and meta-reference, how does referentiality work? In *Only Revolutions*, reference is divided into two dimensions. On the one hand, there is the dimension of collective U.S. and world history, given as a chronological accumulation of facts. On the other hand is the dimension of individual and personal story, given as an accumulation of thoughts, feelings, perceptions, spoken words, and memories.

In terms of the circular topology of the work, Sam and Hailey’s stories can be seen as two half circles. At the same time the full circle of their joint story is but the half circle that relates individual story to collective history. There is an overlapping hierarchy between the two circles: circle 1 = Sam + Hailey; and circle 2 = (Sam + Hailey) + history. Or, in a different formulation: circle 1 = US; and circle 2 = (US) + U.S.

The relationship between readers and characters to the world also contains isometries between the fictional space and the semiotic space. Capitalization of “the World” occurs many times, making it possible to think about the relationship between the two characters as their knowledge of and relation to the world (Table 8). The movement from individual consciousness to collective consciousness is reflected in the double reference of the pronoun “US”. For the reader, the journey in the graphic fields of the book simulates the geographic, historical, and symbolic journey in the territory of the United States. Similarly, the route of the reader in the universe of signs describing Sam and Hailey’s journey has an equivalent in the journey through the history of the U.S. and of the world since 1863. The natural and political geography travelled by the characters triggers a set of associations with historical events, broadening the scope of the term “the World” and also placing the historical world within the metafictional trope of circularity. However, one aspect clearly distinguishes story from history: although the facts entered in the history column show a significant number of patterns (i.e., similarities that would suggest history as repetition), history does not exhibit the same kind of circular recurrence that we find in the fictional narrative. History is shown as a linear, time-dependent and open-ended process. Dates after 2006, for example, are necessarily blank; and the verbal symmetries do not have corresponding historical symmetries, since historical facts resist accommodation within cyclical processes.

### 5.1. INSCRIBING HISTORY

Representation of history is also geometrically and numerically patterned, which links the modes of typographic and bibliographic construction of fictional narrative to those of historical references. Besides the constraint of character strings in each half column, it seems possible to infer another algorithm from numbers generated by the intervals between

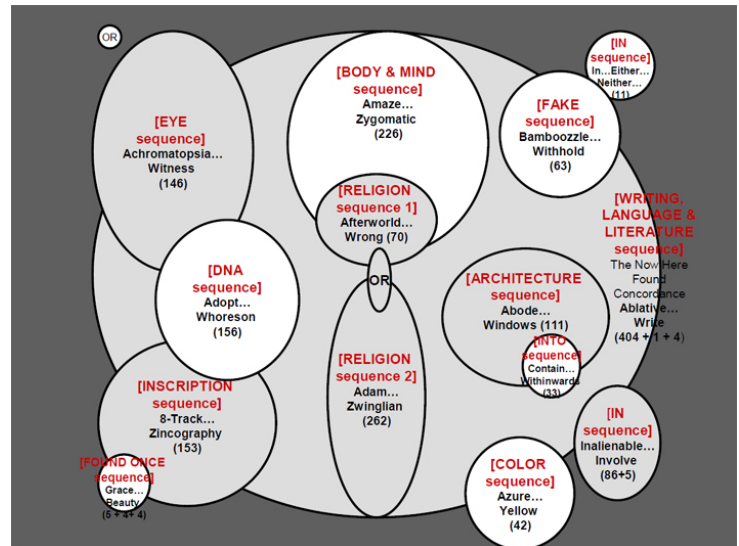


Fig. 10. The Now Here Found Concordance. *The codex as a mirror of language and narrative: inside covers contain a concordance lexicon (in mirror image) of words not used in the novel.* © Manuel Portela, 2009.



$1 (+3) = 4 (+2) = 6 (+1) = 7 (+24) = 31 (+3) = 34 (+5) = 39 (+7) = 46 (+5) = 51 (+27) = 78 (+31) = 109 (+11) = 120 (+3) = 123 (+17) = 140 (+36) = 176 (+4) = 180 (+1) = 181 (+1) = 182 (+3) = 185 (+6) = 191 (+8) = 199 (+16) = 215 (+10) = 225 (+13) = 238 (+3) = 241 (+5) = 246 (+6) = 252 (+26) = 278 (+5) = 283 (+13) = 296 (+14) = 310 (+1) = 311 (+4) = 315 (+5) = 321 (+1) = 322 (+2) = 324 (+3) = 327 (+3) = 330 (+5) = 335 (+4) = 339 (+14) = 353 (+2) = 355 (+5) = 360$ $1 (+5) = 6 (+25) = 31 (+3) = 34 (+5) = 39 (+7) = 46 (+5) = 51 (+27) = 78 (+31) = 109 (+11) = 120 (+3) = 123 (+53) = 176 (+4) = 180 (+1) = 181 (+4) = 185 (+53) = 238 (+3) = 241 (+11) = 252 (+31) = 283 (+27) = 310 (+5) = 315 (+7) = 322 (+5) = 327 (+3) = 330 (+25) = 355 (+5) = 360$  $5 - 25 - 3 - 5 - 7 - 5 - 27 - 31 - 11 - 3 - 53 - 4 - 1 - 4 - 53 - 3 - 11 - 31 - 27 - 5 - 7 - 5 - 3 - 25 - 5$		
	S H	
I'll devastate the World.	S1 H1	I'll destroy the World.
I'm The Mountain which / The World climbs down from and / I laugh because it tickles.	S4 H4	I'm The World which the / The Mountain descends from.
Couldn't care less. I elect to kiss / the World away.	S6 H6	I don't give a shit. I'll nevermore/ the World with a smooch.
I stand and scorch her falling sky. / I'm her World.	S7 H7	I'm his land torching a broken sky. / I'm his World.
I'm their only World.	S31 H31	I'm their only World.
beware me to burn / the World quick. /... Because all around me / the World rebegins.	S34 H34	daring me to crisp / the World fast. /.../ Because always all around me / the World rebegins.
only to avoid breaking her neck. / just, with spastic hand pivots /.../ Around and around.	S39 H39	swirling the World and lifting / the sky, arches uniting /.../ Around and around.
Is it ever too late / to destroy the World?	S46 H46	Though is it ever too late / to destroy the World?
O Lucky World. / My gift.	S51 H51	O Lucky World. / My present.
All mine! / Toetickling digs. I'm so loose for	S78 H78	Move / the World, faster, faster, blast off and boogie.
I shuffle back. Round the World.	S109 H109	I pas de bourrée aside. Fouetté about.
- If it's not this World, / then it's of this World.	S120 H120	- If it don't pay rent, / kick it out.
Sticking US again to the World.	S123 H123	Sticking US again to the World.
Wondering too / of a way to continue our blitz from / the impedance of the World.	S140 H140	together wonder / of a way to continue our charge from / the persistence of the World.
The City, Our Mishishishi and US. Just two / for the World.	S176 H176	The City, Our Mishishishi and US. Just two / for the World.
Sticking US together. / Sticking US to the World.	S180 H180	Sticking US together. / Sticking US to the World.
Leaving US to the World.	S181 H181	Leaving US to the World.
- These Worlds of ours.	S182 H182	- These Worlds of ours.
Around. / With Hailey of course but also unsure, / exploring a World for just two.	S185 H185	Around. / With Hailey of course but also unsure, / exploring a World for just two.
for a World separated by five tables	S191 H191	for a World separated by five tables
- Out of this World!	S199 H199	- Going wide!
- We go to free the World. /.../ - You go to lose the World.	S215 H215	- We go to free the World. /.../ - You go to lose the World.
Hailey, all fusion ball,	S225 H225	Sam, all New World Order,
Our Aero Willys / always easily beating the World.	S238 H238	Our Geo Metro / easily, allways, beating the World.
World's too particular for me.	S241 H241	World's too petulant.
Turns me upside down. And the World. /.../ because she spins the World, she spins me too.	S246 H246	Stands on the wind. Holds the World up. / When I tickle his ribs Adulterers split feering / the World will fall.
The World suddenly revolting.	S252 H252	The World suddenly revolting.
On the World.	S278 H278	On the World.
Ripple discs overturning our countering World / again and again.	S283 H283	Revolving rims overturning our countering World / over and over.
By / our Worldturning blur.		By / our Worldhurting blur.
[Sam, irascible, / wants every turn to take a / turn. H65]	S296 H296	[Still, she's flirty. / Wants at every bend to take a bend. S65]
Our present. / Lucky World.	S310 H310	Our gift. / Lucky World.
The sadness of the World before US / but we are already after US / and sadly passing even US.	S311 H311	The sadness of the World after US / but we are already before US / and sadly surpassing even US.
Because I Love her / and it's never too late to keep a World.	S315 H315	Because I Love him / and it's never too late to keep a World.
Around the World. Over the falls. Yoyo down and up.	S321 H321	Ever around. Over the World. Down, yup and up.
Around and around. / Spinning me from the World.	S322 H322	Around and around. / Spastic grabs for pivots nowhere found.
only with raggy shreds to oppose a World somehow / still ongoing without the wonder of Hailey's grin.	S324 H324	with just a tattered shawl to repel a World somehow / still ongoing without the wonder of Sam's spin.
That terrible haste reeeending a World.	S327 H327	That frightening pace reending a World.
My only World.	S330 H330	My only World.
So hacked and roped by this savage World.	S335 H335	Still harnessed to this toothy World.
Hair a thistle of icicles reaching / down to The Mountain of World.	S339 H339	Hands a claw of icicles curving / down to The Mountain of World.
Because my World's urgings over earth's want / pours from this mortal work.	S353 H353	Because by earth's urgings over World's want / all's gathered up from the partial labor of / value and need.
For him / the World spins and to blow it away / would forfeit all the World already Loves of him.	S355 H355	For her / the World turns and to blow it away / would forfeit all the World already Loves of her.
By you, ever sixteen, this World's preserved. / By you, ever sixteen, this World has everything to lose. /.../ I'll destroy no World.	S360 H360	By you, ever sixteen, this World's reserved. By you, ever sixteen, this World has everything to lose. /.../ I'll destroy no World.
	S H	

Table 8. 'I'll destroy the World' // 'I'll destroy no World': 'World' x 90. Number sequence: 12-1-1-12. © Manuel Portela, 2009.



consecutive dates in the historical chronology. The numerical intervals between dates increase when we move from 1963 to 2063 and they decrease from 1863 to 1963 (Table 9). These number sequences, obtained by placing the numbers of the same reversed half-pages side by side, can be related to concepts of symmetry, circularity, and recursion. In this case, number sequences are not the result of an arithmetic operation, but they can be used as a matrix for deriving further sequences of repetitions of which they are the elementary constituents.<sup>14</sup>

Digits or numbers generated by date intervals work as a kind of genetic code for generating larger numbers which have recursive structures, axes of symmetry, and circular patterns (Table 10). The two arrays of numbers, obtained from the symmetrical double-pages of Sam and Hailey, correspond to the double helix molecule of DNA, and also to the doubling of language, narrative, and bibliographic structure. Their decoding by the act of reading—which implies reuniting what the actual page setting has set apart—is an equivalent of the replication of genetic material, when the basic building blocks of cells are put together according to a template that has to be translated by molecular mediation. In this instance, reading executes the algorithm of meaning encoded in language and typography. As far as concerns this and other templates' ability to generate a large number of unpredictable associations, we may say that they also offer a model for literature as a complex system and for meaning as an emergent phenomenon. The numbers generated

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<sup>14</sup> Numerical intervals between consecutive dates can be used as a matrix for generating palindromic and other symmetrical sequences of numbers—either digit by digit [e.g. 11, 33, 44, ... 1221, 2112, 2332, 3223...], or in groups of 2, 3 or more digits. Symmetries are obtained by reading left-to-right and right-to-left; by reading groups of 2, 3, 4 or more digits as recursive units within a larger sequence; and by taking the center of the sequence as the axis for recursion [e.g. 911119/119911, 12101012/10121210, 44474744/4744447...]. I took the opening (left + right pages) as the minimum unit of reading. Each opening has four calendar dates. This lets you generate four numbers (two in the numerical intervals of dates corresponding to Hailey's narrative and two in the numerical intervals corresponding to Sam's). By treating numbers in this way we have four different reading positions [A+B/ C+D], an analogue of the four parts of the circle that structures the arrangement of columns and character-strings on each page. The only two exceptions are the first and last pages of each narrative (bH1//bS360 and bS1//bH360). In this case, only two positions were considered [A+B]. The number of calendar days between consecutive dates grows larger as one moves from bH1 to bH360, and smaller as one moves from bS1 to bS360. When those co-occurring four numbers are taken together, they can be read in three different ways (horizontally, vertically, and diagonally), and in two directions each way. If combined according to symmetrical directions of reading, the iteration of these numbers can generate new numbers that have axes of symmetry and recursive sequences, many of which are palindromic. When grouped into units of two or three digits, all numbers generated by this iteration retain their identity when read from left to right or from right to left. The permutational principle implies changing the relative position of the digits (left + right / right + left). This suggests a homology with the double direction in the reading of the book. This homology is also present in the idea of union between two numerical units (as happens with the two individual characters in the novel). This basic permutation of elements also points to syntax (numerical, alphabetical, discursive, and bibliographic) as the fundamental mechanism for producing meaning, a mechanism that works by endless repetition and variation of its units. Being a matrix of four units, with a double orientation, these numbers also emulate the four bases of the genetic code [C, G, T, A].



by the matrix of date intervals further suggest the identity between numeric and verbal language, both in terms of their permutational mechanisms, and their abstract nature.<sup>15</sup>

With very few exceptions, date headers were chosen not for their particular symbolism (such as November 22, 1963), but for the numeric intervals between consecutive dates.<sup>16</sup> As between any two consecutive dates it is possible to include any events one wants to select, Danielewski is able to make allusions to a huge slice of history (from a U.S. and world-historical perspective) between 1863 and 2006.<sup>17</sup> The choice of date headers is determined by the numeric pattern rather than by the selected events which tend to fall within the period set by two consecutive date headers and not necessarily on the specific calendar day. Yet, while giving the impression of randomness, the representation of history is powerfully framed within a general theme of political, social, and natural violence—history as an endless cycle of human and natural violence. The nightmare of history, with its brutal accumulation of violent events, is not so much the result of a random accumulation of dates, as it is the effect of bias for selecting certain types of events, particularly those that can be represented by death counts.

The juxtaposition of events follows a discernible set of patterns, which include references to hundreds of political revolutions and military conflicts of the past 150 years; references to many natural disasters and accidents of human origin; and references to important legal developments in the political order. Chronology seems dominated by political violence, natural disasters and human accidents, all of which confront humanity with death and violence as the fundamental condition of individual and social existence. In the representation of the history of the United States, the violence within the society and the imperialist design of the state stand out as part of the general pattern of representation of world history. Despite factual references, the history column embeds chronology in the bibliographic and narrative pattern of the story sections. Although facts and references are, in most instances, quickly identifiable, the history column follows a technique of montage and a fragmentary logic of association which are similar to the techniques governing the body of the interior monologues by Sam and Hailey. This associative logic is clear in the fragments of quotes from various historical protagonists. The sidebar excerpt exemplifies the discursive structure and the rhetorical function of the chronology in the narrative economy of *Only Revolutions*.

In this example, the early history and first battles of World War I are evoked through fragmentary and truncated quotes and names of historical significance (individuals, places, institutions). By means of an associative mnemonic the reader provides a context for these references, a cognitive operation that reveals the contextual and fragmentary nature of the

<sup>15</sup> Besides numeric palindromes, we find several anagrammatic, homophonic and homographic relations, placed at equivalent relative positions on symmetrical pages. Some of the most frequent are “feer” and “free”; “cbea” and “cbeer”; “US” and “U.S.”; “allone,” “alkways,” “almost,” “allmighty,” “already.”

<sup>16</sup> “Nov 22 1863”, for instance, was chosen so that it was 100 years before “Nov 22 1963” rather than for the first specific event listed in the column, which happened in Nov 23 1863—a message signed by North Carolina Governor Zebulon Baird Vance (1830–1894), from which Danielewski has extracted the quote “—Abolition of slavery, confiscation of property, and territorial vassalage!” (hH1).

<sup>17</sup> In so far as part of the events included in the history column were suggested by readers of Danielewski in an electronic forum, there is a level of integration of historical facts that assimilates different perspectives and different national histories under the general framework of military violence and political revolution. The collective import of the chronology reflects, to a certain extent, this process of consultation.

### July 29 1914

1,200,000 troops.

Austria & Belgrade.

– consult her own.

Attack Germany,

Attack France.

– Neutrality.

– Impartiality.

– Fairness.

– I attack.

Von Kluck, von Bülow

& The Marne.

– We have lost the War.

– clear out of my way.

U-9s.

Braves over Athletics.

– woman’s body belongs.

Sydney’s Emden.

Butte Mine Fight.

Hindenburg’s Austro-

German forces.

Raggedy Ann.

Aerial battles over

Southend-on-the-Sea.

French to German

Trenches. Fortino Samano.

Triple Entente.

River of Doubt.

– going out all

over Europe.

Italy quakes, 29,500 go.

Blücher down.

Coast Guard.

800,000 to Prussia.

Champagne attack.

Total Sub Warfare.

(hS66)





semantic mechanism for meaning construction. Such fragmentation can be read as a kind of interior monologue of history, as if causal relations in the historical processes could acquire the phantasmagoric nature of a stream-of-consciousness voice without narrative mediation. Thus narrativity shows itself also as a product of association by reading. Juxtaposition predominates over hierarchy, as if the facts of history were a mere lexicon available for syntactic recombination.

Even at this documentary level, Danielewski's novel is a product of digital serendipity, which has made all sorts of documents and sources available for search, citation, and cross-reference in the electronic networked environment. History appears as a mere reservoir of discursive representations available for automated searches and verbal sampling. Many historical references, perhaps the majority of them, have been quoted or taken not from printed sources, but from electronic sources by the use of electronic tools. This form of intertextual digital historiography, that is, the many quotations from speeches and written documents woven into the history column, results from access and reorganization of personal knowledge of the historical archive by the intermediation of the computer. Moreover, several items in the chronological lists were taken from an online forum where readers of Danielewski contributed references to their own local and national histories.

## 5.2. INSCRIBING GEOGRAPHY

If numbers constrain reading paths in the territory of the page are there any numbers that determine the journey in geographic space? Re-construction of the geographic itinerary of the journey follows the same principle of uniting the two symmetrical half-pages. The reader has to intersperse the locations mentioned by Sam with the locations mentioned by Hailey in symmetric chapters, since their place references (towns, cities, buildings, monuments, streets, roads, natural landscape) are rarely identical. The journey goes from East to West, in several stages. It moves south from Pennsylvania and Maryland to New Orleans, then it continues from south to north, mostly along the Mississippi River and along meridian 90° W. After a prolonged stay in St. Louis (the center of the journey also coinciding with the center of the book). It continues north to Wisconsin and in the last stage, the characters travel west, to Montana, mostly along interstate highway 90 (Fig. 11). Therefore the 90° of the circle are projected onto the 90° of the four cardinal points of the geographic coordinates. In this way, what is happening in bibliographic and linguistic space is translated into the fictional geographic space. The numeric infrastructure of the work has an equivalent in the geographic coordinates that map the territory.

The first toponymic references are “Passing through Gettysburg, / Route 30 East to 134” (H50) and “Passing through Gettysburg, / Chambersburg Pike to Taneytown Road” (S50). The last references are “Past Avon, Ovando and Apgar” (H304) and “Past Missoula, Kalispell and Polson” (S304). In between, several small towns, cities, streets and roads have been mentioned. They run across 16 states: Pennsylvania, Maryland, Washington DC, Virginia, North Carolina, Tennessee, Mississippi, Louisiana, Missouri, Illinois, Iowa, Wisconsin, Minnesota, South Dakota, North Dakota, and Montana. There are also mythical coordinates and references linking East and West. The Mountain, referred to at the beginning of the journey—“I’m leaving The Mountain. / East. I am the East. / Master of the Wheel. All mine.” (S49) and “I’m leaving The Mountain. / East. I am the East. / Master of the Wheel. That’s me.” (H49)—re-appears at the end of the journey, as the place where Sam and Hailey are separated by death—“The Wheel hers no more. /



We're stuck but she's my West. / And we've reached The Mountain" (S312) "The Wheel his no more. / We're stuck and he's my West. / But we've reached The Mountain" (H312). Like the characters, human and natural spaces extend into a mythical and symbolic dimension. The Möbius strip is also echoed in the charted itinerary, as we can see when linking the compass points (Table 11).

This archetypal dimension is evident in another central element in the flow of images of the work: the Mississippi River. The Mississippi appears as yet another analogue of the Möbius strip and of the idea of recursion. Like the Liffey in *Finnegan's Wake*, the river enacts a symbolic function in the psychic economy of the self narrating the world. The river is at the same time an image of the cycle of natural forces, in its long path between Lake Itasca and the Gulf of Mexico, an image of the flow of collective history, and an image of the force of desire within the self. Its mythical and historical place is echoed in the characters' road journey along the river. There are recurrent references to the river, both in the monologues of Sam and Hailey, and in the history column. The word *Mishishishi* (for Mississippi) appears in the inside and the outside columns. A major part of the journey (cf. narrative sequences 6 to 10, above) runs from south to north along the course of the Mississippi, following approximately the meridian 90 degrees West, through the states of Louisiana, Mississippi, Tennessee, Missouri, Illinois, Iowa, Wisconsin, and Minnesota. Several references to the natural and human history of the river are listed in the history column. That is the case of the historical floods of 1926–1927 (hS87: Feb 9 1927); of 1967— "Mishishishi's 30 million acres," "Mishishishi & Student riots" (hH61: May 11 1967); and of 1993— "Missouri Light. Mishishishi's 15 million acres" (hH235: June 5 1993); or a ferry accident in 1976— "New Orleans ferry, 78 go" (hH132: Oct 18 1976). The desire of the characters is sometimes personified in the river: "The Hudson L bucks on through, / around vermicular shores lapped with / waste, Our Mishishishi, hoisting a / low Paddleboat loaded with / Half a Ferris Wheel puppuppering for / Southern Fields. I am the South." (H121) and "The Ford Elite whines on / around caressing banks splashed with / refuse, Our Mishishishi, heaving a / low Barge loaded with / Half a Ferris Wheel tuttgugging for / Southern Pastures. I am the South." (H121); "The River, Our Mishishishi, / Rolling Along The Long Gone / Sadly Sliding On, / too slow to ever catch up with US." (S132) and "The River, Our Mishishishi, / Roaming Along The Long Way / Sadly Sliding On, / too slow to ever catch up with US." (H132); "And overcome by / in the distance, surrounding, fastening to U.S. / The City, Our Mishishishi and U.S. Just two / for the World" (S176) and "And overwhelmed by / on distances, encircling, fastening to U.S. / The City, Our Mishishishi and U.S. Just two / for the World." (H176).

The "Mishishishi" is one of the verbal and historical links between Hailey and Sam's story column and the history column. Other referential links between story and history are made more or less explicit through the natural and historical landscape of their journey. However, both columns seem to run on parallel sections of the page without any mutual awareness, at least from the point of view of the characters. It is up to the reader to traverse this gap between the factual record of historical events and the fictional record of mythical events, and find patterns of connection in the randomness of their co-occurrence on the same page. This representational gap increases the tension between the apparent timelessness of the fictional structure of this love narrative, on the one hand, and the time-bound uniqueness of historical events, on the other. Although the principle of anacyclic reading applies to both columns, in the end human history breaks free from the symmetry

patterns, since the future cannot be written in advance. The blank columns show the limits of cyclic representations of experience, and thus they point to the abstract and ideological nature of any mythical representation.

The tension between the absolute presence of the present in individual consciousness and the presence of signs of historical temporality may be observed in the modes of representation of the automobile. The car is metonymically transformed into many different models, as if it assumed a new identity with each new reference. Such mutations are a projection of the emotional states and desires of the characters at any given moment, but also of the technological unconscious of history. The diachrony and historicity of America show through the relentless synchronic fullness of the present in the interior monologue. Here is the first reference to the automobile in each of the monologues:

For now here, weirdly, where  
my chainsawed **Green Ash** died  
by Sam's murdered ride waits  
a Shelby Mustang. Idling  
(H48)

For now here, weirdly, where  
my butchered **Horse** died and  
Hailey's betrayed timber lies  
waits a Ford 999 Racer. Idling.  
(S48)

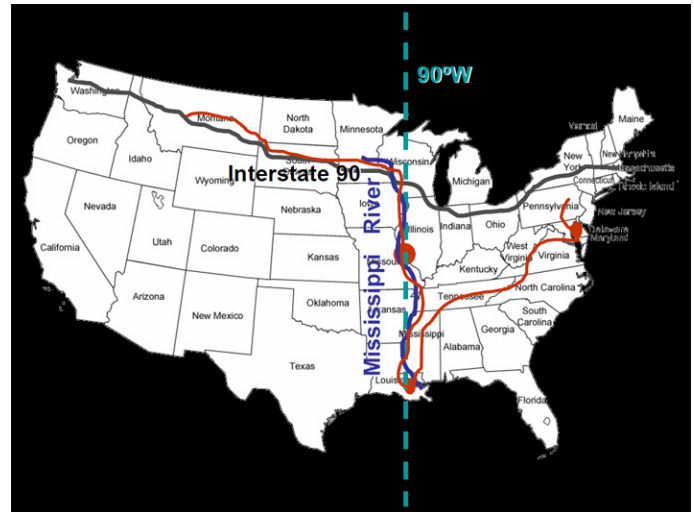


Fig. 11. Journey map. Meridian 90° W, Mississippi River and Interstate 90. St. Louis as the center of the journey. © Manuel Portela, 2009.

A sports car of the late 1960s and the first Ford sports car (dated 1902) seem to overlap in the same slice of time, evoking in their morphology the technological history of the twentieth century. In all the remaining occurrences, the car will assume many other forms: Cadillac One (H50) and Dodge Charger (S50); Oldsmobile Roadster (H56) and Pontiac GTO (S56); Imperial Baker (H57) and Corvette Sting Ray (S57); Model T (H57) and Corvair Monza (S57); Overland 71 (H65) and Buick Electra (S65), etc. (Fig. 12). More important than the design of the individual vehicle is the archetype of the car and the mythology it evoked. A journey in the present extends into a past that is both historical and mythical. Cars are thus one of the forms of linking American history and American myth to the story of these characters. Actual time and actual space overlap with mythical time and mythical space as the car becomes a narrative and poetical fetish.

This rhetorical operation juxtaposes historical strata to the layers of the present, linking the story column to the history column. At the same time, it also contributes to showing the 16-year-old characters as myths and archetypes. Both characters always refer to themselves as US, a self-reference that generates a level of allegorical reading in which their actions and relations stand for a narrative of American history and the American nation. This mythological projection is enhanced by the paronomastic power of phonetic and lexical associations that agglutinate words. References to flora and fauna, which are associated respectively with Hailey and Sam, perform a similar function. They form a catalogue of species and they represent a large piece of natural history as a series of Americana items. Thus, the journey through the human and natural landscape of the U.S., and the

psychology and actions of teenage lovers expose their mythic and ideological dimension as narrative-producing categories.

### 6. LOVE IS ROUND

The digit eight [8]—also a symbol for mathematical infinity [ $\infty$ ], for the Möbius strip [ $\infty$ ] and for a double circle [oo]—functions as a numerical matrix that generates many verbal, narrative and bibliographic permutations. It also works as the geometrical figure for structuring both the plane of the page and the space of the book.

Each opening, for example, is divided into 8 parts, projecting the infinity symbol in the duplication of the circle projected onto the four sections that make up each page. The retroactive function of the signs 8 and  $\infty$  as figures for the circuits between the different levels can be exemplified by one of the refrains of the book (Fig. 13). This refrain of the book-novel-poem consists of eight words and it has ten occurrences in each direction of reading: it is thought eight times by Sam and another eight times by Hailey; it appears twice in direct speech at the center of the book, in both the mouth of Sam (S180 and S181) and the mouth of Hailey (H180 and H181). Its double central occurrence symbolizes the coincidence of selves and bodies at the center of the circle (see below), and they define an axis of symmetry with 4 occurrences at each side. This refrain undergoes transformations as the action progresses. Its initial form—“Everyone loves / the Dream but I kill it.” (S1 and H1)—is an expression of adolescent rebellion against the world, while its last occurrence—“Everyone betrays the Dream / but who cares for it?” (S360 and H360)—seems to recast, in a collective and impersonal dimension, the experience of individual and social desire as imagined forms of the real.

The tension at the heart of desire as dream and at the heart of dream as desire is symbolized in the spelling change that turns “fear” and “free” into anagrams for each other: “Everyone fears the Dream but she frees it” (S307), and “Everyone fears the Dream but he frees it” (H307). Besides the dream cycle (ideation-realization-destruction), changes in the refrain’s personal pronouns suggest a cycle for human union (singleness-union-singleness): “I” is the form used until the center of the book is reached; “we” is used after the center has been reached; and then “he” and “she” are used after the death and survival of both characters.

The characters’ narrative development suggests a movement poised between self-consciousness, consciousness of the other, and the possibilities and limits of personal and political union. Moreover, the numbers generated by page intervals in the occurrences of the refrain create axes of geometric and numeric symmetry:  $54 + 54 + 36 + 36 + 36 + 36 + 54 + 54$ , i.e., a division of the circle into eight parts (which are equal in 2 groups of 4). They also create a number with a central axis of symmetry, and this number shows recursion of the same elements (in units of 2 or 4) on both sides of the axis:  $54\ 54\ 36\ 36\ | \ 36\ 36\ 54\ 54$ , or  $5454\ 3636\ | \ 3636\ 5454$ .

The passage of time and the duration of love and life are symbolized in the 12 jars of honey which are consumed as the story proceeds (Fig. 14 (a)). Their duplication in both symmetrical and reversed pages can be read as a projection of the 12 (or the 24) hours of

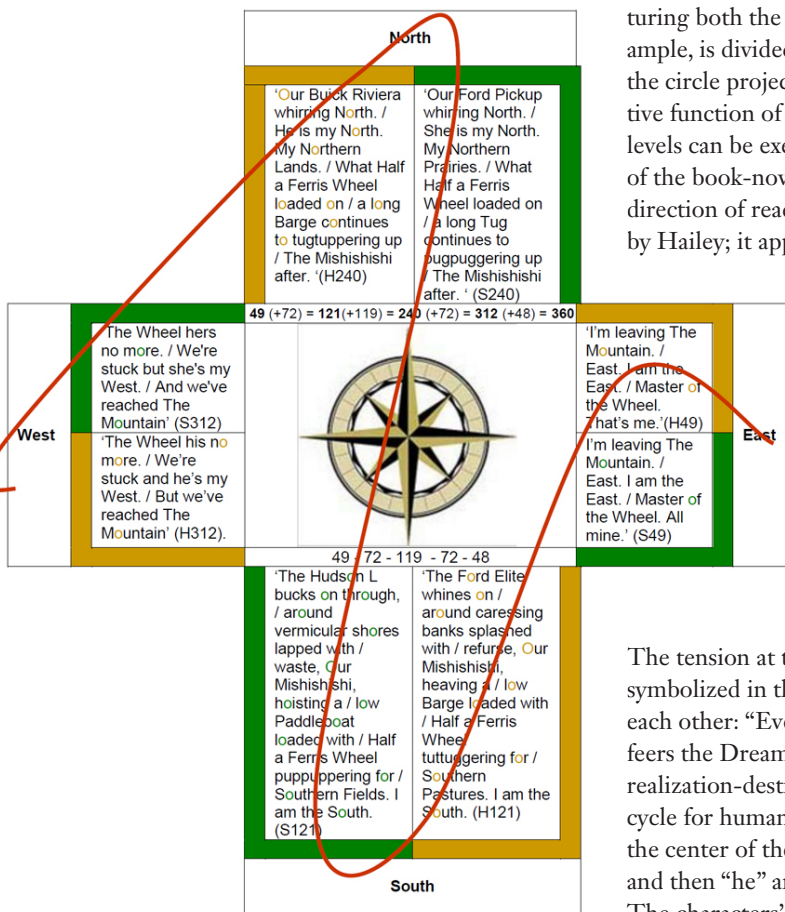


Table 11. The four points of the compass as page numbers: East (H49 and S49), South (H121 and S121), North (H240 and S240), and West (H312 and S312). Number sequence: 49-72-119-72-48. © Manuel Portela, 2009.

the day (Fig. 14 (b)). They function as a time-keeping device which measures the passage of time. As the narrative moves on, readers are updated on the remaining fractions of honey jars. Hailey and Sam share all jars of honey. The fraction 1/2, being a narrative occurrence of half a unit, echoes the division of the page and the division of the circle. References to “honey” also occur on the reversed pages of Sam and Hailey (42//319, 43//318, 66//295, 123//238, 180//181), strengthening the connection between typographic signifier and narrative signifier. Honey jars also stand for the duration of love. Early on, honey is set up as a figure for the love relationship between Hailey and Sam:

Sunnyastounded kisses my mouth.

**Mistletoe** whisks:

– Consume *only* this.

HONEY!

(H42)

A dozen kisses unfinished.

Half kisses.

(H43)

Sunnyastounded kisses my mouth.

**Storks** bliss:

– Consume *only* this.

HONEY!

(S42)

A dozen kisses competing.

Half kisses.

(S43)

This association between honey and love is established during their first sexual intercourse on pages 42 to 48, and at the beginning of the car journey. It ends with their death and separation on pages 319 to 328, and with the end of the journey:

Impossibly still. Just gone. Dead.

To where I'm allready goinggone.

Though over her still bawling, kissing her, plugging  
her nose, compressing her heart. My breath

rushing. Allone. Now. Here. Left only.

(S328)

'Impossibly gone. Just still. Dead.

To where I'm allready gonegoing.

Yet over him still slobbering, kissing him  
plugging his nose, pounding his heart. My breath

pounding. Allone. Too left. Now. Here. Only.

(H328)

One last reference is made on pages 353: “My hand falls. I'll eat the Honey” (S353) and “My hand drops. I'll eat the Honey” (H353). At the end of the novel, narrative symmetry implies that both characters die and that both survive. Up to this point the story appeared to have a single chain of events told from two narrative perspectives. In the denouement, however, that single chain of events unfolds in two parallel sequences: in one of them, Sam dies and Hailey laments his death; in the other, Hailey dies and Sam laments her death. The myth of love occurs here in one of its more powerful *topoi*: the death of the beloved and the lamentation for that death.



Fig. 12. Transformations of the automobile (H48-H65 e S48-S65). © Manuel Portela, 2009.

Fig. 13. Repetition and variation in the novel's refrain (4 + 1 + 1 + 4) x 2. Symmetrical sequences: 54-54-36-36 | 36-36-54-54. © Manuel Portela, 2009.

1 (+53)= 54 (+54)= 108 (+36) = 144 (+36) = 180 (+1) = 181 (+36) = 217 (+36) = 253 (+54)= 307 (+53) = 360  
1-53-54-36-36-1-36-36-54-53  
54 + 54 + 36 + 36 (=180) + 36 + 36 + 54 + 54 (=180)  
54 + 36 (=90) + 54 + 36 (=90) + 36 + 54 (=90) + 36 + 54 (=90)

(S1) Everyone loves / the Dream but I kill it.  
// Everyone betrays the Dream/ but who cares for it? (H360)

(S54) Everyone reveres the Dream / but I take it.  
// Everyone fears the Dream but he frees it. (H307)

(S108) Everyone shares the Dream / but I need it.  
// Everyone chases the Dream but we leave it. (H253)

(S144) Everyone sells the Dream but I live it.  
// Everyone wants the Dream but we give it. (H217)

(S180) -Everyone dreams the Dream / but you are it.  
// -Everyone dreams the Dream / but we are it. (S181)

(S181) -Everyone dreams the Dream / but we are it.  
// -Everyone dreams the Dream / but you are it. (S180)

(S217) Everyone wants the Dream but we give it.  
// Everyone sells the Dream but I live it. (H144)

(S253) Everyone chases the Dream but we leave it.  
// Everyone shares the Dream / but I need it. (H108)

(S307) Everyone fears the Dream but she frees it.  
Everyone reveres the Dream / but I take it. (H54)

(S360) Everyone betrays the Dream/ but who cares for it?  
// Everyone loves the Dream but I kill it. (H1)



Now what?

Her death

clinging hard to Hailey's rigid lips. **O!** How?  
 Some course of course. If not at all obvious to me.  
 Only the saddest mystery cradled by her cold palms.

My end denied by her end  
 almost ending me with all it won't harm.

Because I can't end what I don't own.  
 Though there's got to be somehow I can join her?  
 I freak. Shaking, streaming.

Tears unstopping globs of mess.

– **O** here. Let me go. Please.

So hacked and roped by this savage World.

I'm too frightened.

(S335)

What's this?

A Bee?

Still clinging to Sam's swollen wrist. My poison!  
 His poison? With nix of even paucities left over.  
 Still I scratch its sad sting over my skin.

Across my gums. My demise denied by Sam's  
 demise

denying me here what's my affliction.

Because I can't start what I don't own.  
 Though there must be somehow I can go too?  
 I lose it. Skeeking, shaking.

On my back. Streaks unstopping slogs of goop.

– **O** here. Release me. **O** Please.

Still harnessed to his toothy World.

I'm so terrified

(H335)

42 (+1)= 43 (+23)= 66 (+57) = 123 (+29) = 152 (+28) = 180 (+1) = 181 (+28)= 209 (+29) = 238  
 (+57) = 295 (+23) = 318 (+1) = 319 (+41) [= 360]  
 42-1-23-57-29-28-1-28-29-57-23-1-41

(S42) Jars! One dozen Jars! / (...) Honey!  
 // savage separation. Our Jar over. (H319)

(S43) Half a Jar goes.  
 // and retrieves for US our last jar of honey. / (...) Just half. (H318)

(S66) Spooning up honey.  
 // Even though he's my honey. My everything. My me. (H295)

(S123) Honey. / 8 ½ left. / One Jar for two. Halfandhalf.  
 // 3 ½ left. Sweet / Honey. (H238)

(S152) Only for US. Honey. 7 ½.  
 // 4 ½. Honey. Only ours. (H209)

(S180) Our honey. With just 6 ½ Jars left.  
 // With just 5 ½ Jars of honey left. (H181)

(S181) With just 5 ½ Jars of honey left. 5 ½ left.  
 // Our honey. With just 6 ½ Jars left. (H180)

(S209) 4 ½. Only ours. Honey.  
 // Only for US. Honey. 7 ½. (H152)

(S238) 3 ½ left. Sweet / Honey.  
 // Honey. / 8 ½ left. / One Jar for two. Halfandhalf. (H123)

(S295) Even though he's my honey. My everything. My me.  
 // Sam spooning up honey. (H66)

(S318) and retrieves for US our last jar of honey. / (...) Just half.  
 // Half a Jar goes. (H43)

(S319) savage separation. Our Jar over.  
 // Jars! One dozen Jars! / (...) Honey! (H42)

This unfolding in the chain of events suggests the overlapping of alternative temporal states and alternative individual destinies. Linguistic and typographic symmetry have an equivalent in a narrative symmetry which forks paths in the chain of events. The cycle of separation-union-separation, an analogue of the cycle life-death-life, is closed. Yet this closure is but one iteration of a recursive process that can continue in new iterations *ad infinitum*, since, whether as a circle or a Möbius strip, the book can always start over again. While it embodies death and separation, it also reaffirms the romantic myth of a union that desires to transcend death:

Fig. 14(a). "Honey Jars" as the passage of time. The duration of life and love (12 x ½) x 2. Symmetrical sequences: 42-1-23-57-29-28 | 28-29-57-23-1-42. © Manuel Portela, 2009.

<p>Hailey's my oblivion. For once. And allways.          Beyond even time's front. Because now          we are out of time. We are at once.          (S320)</p>	<p>Sam's my oblivion. For once. And allways.          Beyond even time's front. Because now          we are out of time. We are at once.          (H320)</p>
<p>Gold Eyes with flecks of Green.          (S330)</p>	<p>Green Eyes with flecks of Gold.          (H330)</p>

Representation of sexual relations has several instances, often metaphorically transfigured by references to specific contexts, such as the flora and fauna or the automobile. Such metaphors make sexual allusions more or less explicit in language and page layout. Sex, which is omnipresent, is given many rich and inventive representations. Moreover, the copula is one of fundamental recurrences of the symbolic figure of the circle in the narrative. At a narrative level, the union of Hailey and Sam—typographically embodied in the circle around two vertical lines and also in the circle around the double numbers of the pages—enacts the geometric union of the two halves of the circle which is graphically materialized in the layout of each page and of the book as a whole. This deep link between narrative and bibliographic space is further stressed in the central chapter (pp. 177-184). Here, a coital relationship coincides with the material center of the book. The co-presence of both interior monologues is symbolized by their typographical and linguistic coincidence on pages 180-181. This coincidence is the only space-time of complete union and verbal identity between the two voices.

The relationship between the two characters manifests itself in the physicality of the book. The myth of a love fusion (which is also the topic of the conversation between Hailey and Sam during and after sexual intercourse) has a bibliographic embodiment through the momentary coincidence between the space of narrative, the space of language, and the space of the book. At this point cunus and phallus are graphically depicted in the typographic composition of Hailey's and Sam's monologues. This process turns the typographic and phonic carnality of the letter into an erotic fetish. On pages S177//H184 and H177//S184, the penis and vagina are visually marked by their layout as salience and recession (Fig. 15). These two half-pages are, respectively, the beginning (177) and the end (184) of the coital relationship that occurs at the center of the book. Their iconic similarity to the objects of representation is a graphical symbol for the temporary fusion of love.

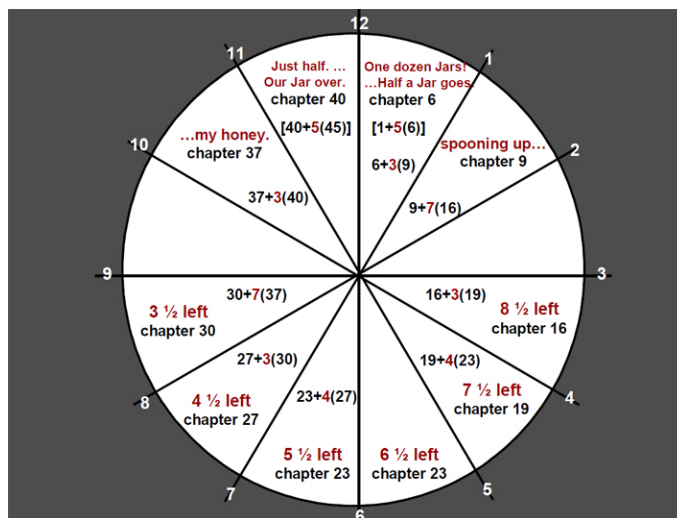


Fig. 14(b). "Honey Jars" as the passage of time. Numbers from 1 to 8: 1/2 and 12, 3, 4, 5, 6, 7 and 8. Symmetrical sequences: 5-3-7-3-4 | 4-3-7-3-5. © Manuel Portela, 2009.

The symmetrical composition of the 18 lines of each of the two half-pages allows for the projection (by combining a rotation with a translation) of the half-page S177 onto the half-page H184, and vice versa. Moreover, both pages can be seen as part of a circular single text, since their linguistic structure and narrative implications lend themselves to a circular iteration. This is one of the most expressive uses of the tension between the stasis of the autonomous page and the kinetics of the syntax of turning the pages over and around. This tension reflects the tension between the lyrical and the narrative dimensions of language in the work. It also evokes the tension between the fullness of time inhabited through sensations and the inexorable passage of time, which inscribes human experience in the biological and social process of history.

The phrases “That’s too easy” (S177), “That’s too easy” (H177), “That’s too difficult” (H184) and “That’s too difficult” (S184) contain the first co-occurrence of green and golden circles in the same half-page. This co-occurrence captures in graphic terms the dilemma of the union, which is also verbally marked by the shift from first person singular to first person plural, emphasized in the eighth narrative sequence (chapters 22, 23 and 24). This temporary coincidence of Hailey and Sam is bibliographically marked by the coexistence of the two characters on the same page opening and by the identity of their thoughts and speeches (pages S180=H180 and H181=S181). Golden and green circles, pictographic representations of the eyes of each character, are used on the same half-pages (S177-S184 and H177-H184). Moreover, separateness within union and union within separateness (whether between two individuals, or between individual and community) has a lexical instance in two recurrent lexemes in the novel: “alone,” which contains “all one,” “alone” and “a11one” (in Spectrum MT, the typeface used for Sam and Hailey, “l” and “1” are similar); and “US”, which contains “us,” “United States” and the graphical symbols for reversal and recursion.

Within this vast set of symmetrical structures, symmetry breaking becomes another tool available for symbolic purposes. A break of symmetry in the networks of symbols established for Hailey and Sam occurs in one of the final pages. References to flora are placed in the speech of Sam (S357), while references to fauna appear in the speech of Hailey (H357). Each character is projecting the memory of the other onto the natural world. Both lists recapitulate 18 references from the first chapter. Sam recapitulates the following plants, first mentioned on pages H1-H7: Aster, Yarrow, Buttercups, Clover, Tarragon, Tansy, Mustards, Daisies, Flax, Catnips, Mints, Bull Thistle, Lilacs, Wild Licorice, Birches, Tamarack Pine, Trembling Aspens and Atlas Mountain Cedar. Hailey lists the following animals, first mentioned on pages S1-S7: Rough-legged Hawks, Mallards, Crows, Bighorn Sheep, Cottontails, Wasps, Milk Snakes, Toads, Brook Trout, Badgers, Ants, Cats, Deer, Crickets, Coyotes, Beavers, Golden Bears and Bald Eagles. This final sequence of references to the natural world inverts the order of their first occurrence. If each item is identified by its respective page number, the following numerical sequence is obtained in both cases: 7-7-7-6-4-4-3-3-3-2-2-2-2-2-2-1-1-1. The sum of both lists equals 36, which suggests another overlapping circle: the circle of the natural world, with animals and plants forming each half of the circle. Symmetry, circularity and reversion are lexically, graphically, and narratively reasserted. All of these patterns, or breaking of patterns, sustain various types of feedback loops between graphic and bibliographic levels (letter, line,

page, etc.), on the one hand, and language and narrative levels (words, sentences, sequence of actions, etc.), on the other.

In the central chapter (pages S178-S183 and H178-H183), Hailey's letter colors appear in Sam's half-pages, and vice versa. On pages S180-S181 and H180-H181 the color mix highlights the following words: you, Honey, Gold, Love, Horror, Gold, Honey, Everyone (x2), i.e., eight words which are repeated in each half-page (Fig. 16). These words provide a key for the interpretation of the whole work. This key links the individual layer of story to the collective layer of history. The crossover of graphic properties between Sam's and Hailey's half-pages signifies the temporary union that occurs at the center of the book. It is also there, in the eighth narrative sequence, that the center of the circle (and of the book as a circle) is reached. At that point layout and typography emphasize symmetry according to the axes inside/outside, top/bottom, left-hand page/ right-hand page. By using the opening to derive an internal axis of symmetry (4+4/ 4+4), "you" is symmetrical to "everyone," "honey" to "honey," "gold" to "gold," and "love" to "horror," in both Hailey's and Sam's pages. The experience of duality between love and horror is embodied in the individual story and in collective in history. History, as mentioned above, is often represented in the inside column through political revolutions, social uprisings, battles and wars, human accidents, and natural catastrophes. The death of both characters and the violence of history equate, individually and collectively, the experience of horror in human life.

## 7. WRITING IS ROUND

The written form of the central page numbers captures the conceptual tension between union and separation embodied in the book's structure. Numbers "180"/"181" and "181"/"180" can be read not only as markers of the half-sequence 1-360 and 360-1, but their actual shapes and relative positions can be read topographically, as happens with the flip-book animation of the double-numbered pages (Video 1). In this case, the digit eight [8] standing in the middle of the other two digits [1 and 0] functions as the axis of mirror symmetry, which combines either 1 and 0, or 1 and 1—the elementary units of machine-language. Furthermore, it points to the infinite [∞] possibilities unleashed by the productivity of language when subject to the joint permutational powers of writing, codex, and reading. The double articulation that makes signification possible—by cutting out symbolic space through phonemic and graphemic differences—shows its similarity with digital representation and with the principle of the numeric difference of machine-

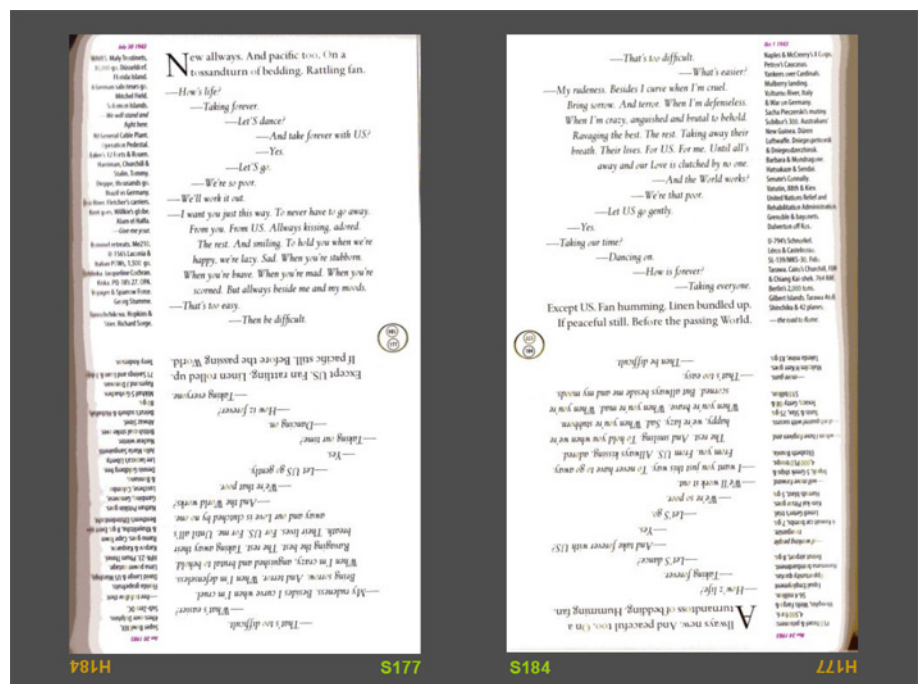


Fig. 15. Sex on the page. Pballus and cunnus in line layout [S177//H184 and H177//S184]. © Mark Z. Danielewski, 2006.



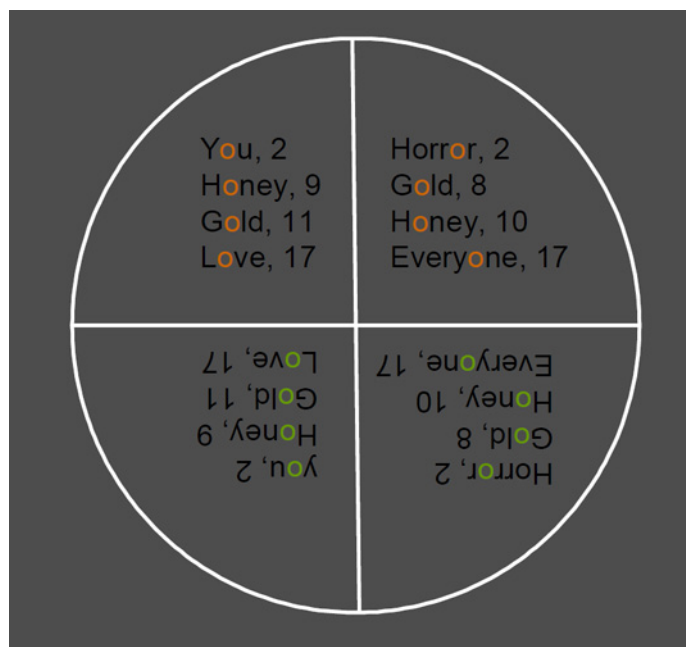
language. Verbal language and alphabetic writing operate upon algorithmic principles which make them capable of automatic processing.

*Only Revolutions* presents us with the book as a programmable machine, i.e. as a device with interdependent levels of coding that retroact upon each other. The codifiability of the book takes place in the topography of the page, in the syntax of pages and openings, in the typographic properties of characters and visual layout, and in the reading instructions contained in this set of performative markers. Typesetting and layout have recoded the bibliographic materiality of the informational structures of the codex in a self-reflexive form. Semiotic operations re-signify the verbal and narrative elements by activating their specific relations to the bibliographic signifiers. This creates retroactions between semantic/narrative layers and bibliographic/graphical layers. Insofar as many operations rely on reading decisions taken upon a constellated universe of signs, a substantial part of meaning in bibliographic, linguistic and narrative spaces is the result of the multiple (anticipated and unanticipated) motions of reading.

The typesetting and layout in this work reinforce associative reading paths, with a significant degree of randomness, across the codex's signifying field. The reader experiences the quantum distribution of fragments of meaning, perceiving them as a result of symmetries and broken symmetries, of overlapping alternative states, of uncertainty and incompleteness in the encounter between text and reader, and, above all, of the vast set of (conscious and unconscious) mechanisms that bind the materiality of language to the materiality of writing and codex. The rhetoric of typographic styles reinforces the schematic nature of the oppositions. But their topography affirms the notational power of codex surfaces, multiplying the reading paths between signs. The paranomastic association of multiple lexemes and the radiant constellation of alternative reading paths have the effect of showing the potentiality of meaning. As a set of potential meanings, which overlap in indeterminate ways, they point to the abstract nature of writing, language and book, and to their formal materialities. That abstractness determines both narrativity, as the effect of a particular reading path between signs, and semiosis as the general process of translating signs into other signs.

Retroaction between linguistic and bibliographic circularity is reinforced by series of refrains that bind together the inverted half-pages. These refrains are explicit markers for the connection between the verbi-narrative and the biblio-typographic layers. At those points, the work creates a loop that allows the reader to cross fictional time and space (passing from the focalization of Sam to the focalization of Hailey, and vice versa, in divergent times) just by moving on the space of the page. This happens at least with six refrains: “the Wheel ESNW,” “the Dream,” “Honey Jars,” “Green Eyes / Gold Eyes,” “Flash / Wind / Chimes / Thunder” and “Leftwrist Twist” (Table 11 and Figs. 14(a), 14(b), and 16, above; Fig. 17 and Tables 12 and 13, below). By rotating the page, the reader finds a variation of the refrain on the reverse page, as if that particular page opened a temporal corridor for a later or an earlier time in the narrative. This seemingly random

Fig. 16. Six keywords linking Sam and Hailey, and both of them to the temporality of national and world historical events. Symmetrical sequences: 2-9-11-17 | 17-11-9-2; 2-8-10-17 | 17-10-8-2; 22 | 22; 98 | 89; 1110 | 1011; 1717 | 1717. Sums: You(2)+Everyone(17)=19; Honey(9)+Honey(10)=19; Gold(11)+Gold(8)=19; Love(17)+Horror(2)=19. © Manuel Portela, 2009.



connection, created by the page layout, has the paradoxical effect of reinforcing the idea of circularity. However, the possibility of moving at random between sectors of each page feeds the re-constellation of pre-constituted narrative patterns, enabling the reader to explore retroactions in the search for emerging patterns and meanings. Its biblio-linguistic cyclical and recursive structure implies not a mere repetition of a single course, but an open exploration of those multicourses generated by various kinds of feedback between language and pagination.

Although they look back to the tradition of complex and dynamic print works, both novels by Danielewski should also be read as digital typographic novels. The visuality and bibliographicality of the print medium have been heightened by digital mediation in the production of the printed book. Digital mediation is reflected not only in the planning, pre-printing, and final layout, but also at the level of word processing in verbal composition. Duplication of Sam's and Hailey's monologues suggests that word-processing tools also played a role in comparing, parsing and sorting their respective texts. Syntactic and lexical parallelism of phrases and sentences, and their symmetrical segmentation in equivalent pages open them up to a labyrinthine reading, that is, to a reading that intersperses the corresponding lines of Sam's and Hailey's pages.

Therefore printedness is also a product of the flexibility of the pixel and of the page as a bitmap. As has been argued in different ways by N. Katherine Hayles (2002), Mark B. Hansen (2004), Jessica Pressman (2006), and Brian W. Chanen (2007) about his earlier novel *House of Leaves* (2000), this is a case of remediation in which the print codex re-appropriates new technologies and redefines its own materiality for the digital context. *Only Revolutions* strengthens self-referentiality and self-similarity using a bibliographical and mathematical trope that subsumes digitality in graphicality. Turning the book into a computational device, *Only Revolutions* links the digitality inherent in human language and in alphabetic writing, as permutational devices based on recursive structures, to the system of differences that sustain the material and conceptual space of the codex. *Only Revolutions* shows the book as a semiotic machine in which the operations of typesetting, layout, and binding on the one hand, and the operations of browsing and turning the pages on the other, produce reading paths that co-determine textual possibilities, at both semiotic and hermeneutic levels. The permutational function of the codex is performed through a typographical design (of letters, lines, and pages) that makes readers aware of the various layers of permutation as the basis for linguistic and bibliographic meaning. Instead of the common figure of the computer as a book, i.e., as an extension of the informational structures of the codex, Danielewski's work gives us the book as a computer, i.e., as a calculating machine that generates algorithms and geometrizes the plane and the space for writing and reading.

The website dedicated to the work is symptomatic of the new media ecology, which has extended into the electronic space all marketplace transactions, reconstituting in cyberspace the identity and modes of circulation of commodities (Fig. 18).<sup>18</sup> But this website is not only a place for merchandising or for meeting other fans of a book-object that has become a cult object. In the design of the website we find algorithms that are identical to those that organize the book, emphasizing the contiguity and symmetry

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<sup>18</sup> <http://www.onlyrevolutions.com/>

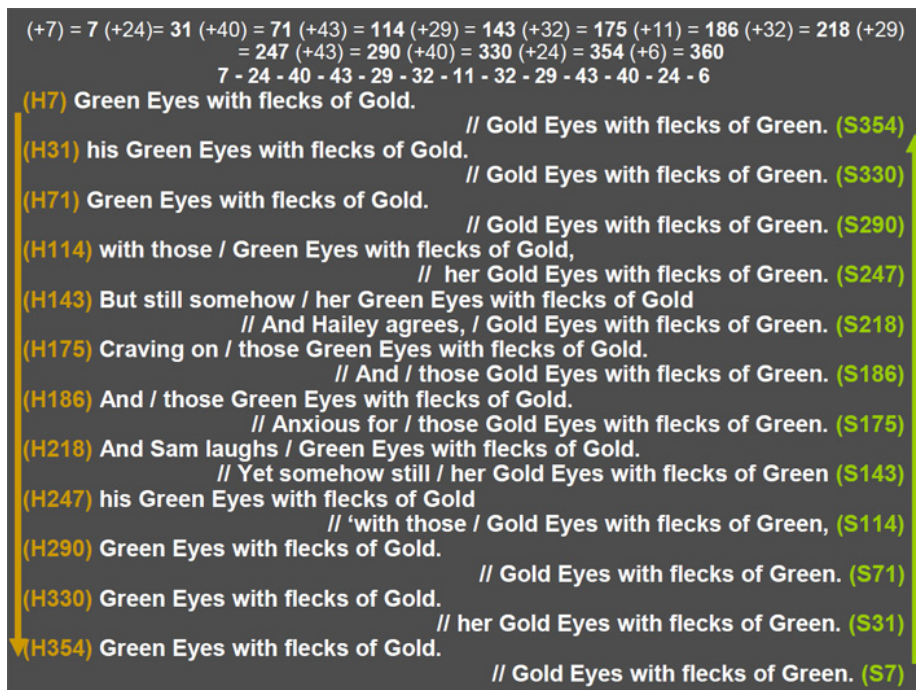


Fig. 17. ‘Green Eyes’ // ‘Gold Eyes’: reflections and symmetries, difference and repetition.  
© Manuel Portela, 2009.

## 8. READING IS ROUND

The 180-character strings in each of the columns suggest that the circle is completed only when one reads the second half, either following the axis of symmetry of the page or the axis of symmetry of the book. Accessing the equivalent halves in each narrative requires reading the symmetrical pages and chapters. The reader has to turn the book around 360 times, if s/he chooses to read page by page, or 45 times, if s/he reads chapter by chapter. These motions create a complex articulation between space and time, since any given timeline in the story has been split into two symmetrical spaces that are apart in the book. To access the same chronological time readers have to travel between opposite spaces of the book, describing circular motions. These circles intersect at the center of the book where the center of a three-dimensional space and the center of a two-dimensional plane coincide. It is as if time and space contracted or expanded as we move towards or away from the center. Both symmetrical sides of Hailey and Sam’s narratives total 180-character strings, i.e., half of the circle. The other half consists of the 180-character strings formed by the two halves of the history column. This means that the circle symbolizes not only the desire for union of the two characters, but also the relationship between individual and collective destiny. The tension in the union between two individuals replicates the tension in the union between individual and society.

Disjunction between chronological time and bibliographic space is also a disjunction between the points of view of Sam and Hailey. Producing a coherent representation of the two characters and of the events in which they participate involves joining the two corresponding halves (i.e. symmetrical pages and chapters). The gradual construction of a global representation (i.e. the construction of a coherent narrative from the genre expecta-

between the two spaces. The spinning of photos around both eyes—and the ability of each user to create his/her particular sequence of images—is a virtual simulation of the bibliographic orbits described by each reader as s/he moves around between parts of the book. The virtual spaces of the computer and of the book are hypermediated by this self-consciousness of their specific medium and of the medium they are trying to emulate. An analysis of the mediation processes involved in this work has to consider not only the book-in-the-book and the computer-in-the-book, but also the book-in-the-computer. Self- and meta-referentiality in *Only Revolutions* have transmedial implications. Codex and hypermedia are the two halves in the inter-mediating circles between book-machine, computer-machine, and reader-machine.



52 (+3) = 55 (+8) 63 (+12) = 75 (+15) = 90 (+9) = 99 (+21) = 120 (+15) = 135 (+7) = 142 (+8) = 150 (+8) = 158 (+13) = 171 (+9) = 180 (+1) = 181 (+9) = 190 (+13) = 203 (+8) = 211 (+8) = 219 (+7) = 226 (+15) = 241 (+21) = 262 (+9) = 271 (+15) = 286 (+12) = 298 (+8) = 306 (+3) = 309 (+51) [= 360]

52-3-8-12-15-9-21-15-7-8-8-13-9-1 // 1-9-13-8-8-7-15-21-9-15-12-8-3-51

	S	H	
'Wipe my hands and with what's left, / a Leftwrist Bracelet – / Priceless. / And there's Hailey. How sad. / Around her Leftwrist a Twist of Scat.'	S52	H309	'And though I'm by my Leftwrist a Twist of Scat / all stinking with rags, Sam's / Leftwrist Twist of Forever reassures me.'
'But my Leftwrist Wealthy Twist / stuns him.'	S55	H306	'At least Sam's Leftwrist Wealthy Twist / spins spendidly despite this accident.'
'Hailey offers her Leftwrist / Twist of Myrtle & Tamarisk.'	S63	H298	'When pinched by my Leftwrist Twist of / Myrtle & Tamarisk Sam advocates quick / a Wedding Gift.'
'Though thirsty. / Twirling my Leftwrist Diamondy Twist.'	S75	H286	And me by Sam with his / Leftwrist Diamondy Twist.'
'And despite / Hailey's Leftwrist Bronze Twist.'	S90	H271	'with just / my Leftwrist Bronze Twist.'
'At once I offer, graciously, / my Leftwrist Twist of Sapphire.'	S99	H262	'Despite Sam's Leftwrist Sapphire Twist.'
'Anyway by Hailey's / Leftwrist Tin Twist we're slimps.'	S120	H241	'Worries so plenty get / me turning my Leftwrist Tin Twist.'
'fidgeting there with / her Leftwrist Crystal Twist.'	S135	H226	'jabbing at my Leftwrist Crystal Twist.'
'Even with her Leftwrist Silver Twist.'	S142	H219	'My Leftwrist Silver Twist cooling.'
'Even with / my Leftwrist Platinomy Twist.'	S150	H211	'His/ Leftwrist Platinomy Twist spinning fortunes.'
'Hailey gripping hard her / Leftwrist Rosegold Twist.'	S158	H203	'merely twirling my / Leftwrist Rosegold Twist.'
'And though / I've my Leftwrist Twist of Silvergold, / Hailey's more.'	S171	H190	'While I Sam / with his Leftwrist Silvergold Twist / keeps earning more.'
'Our Leftwrist Twists of Gold too.'	S180	H181	'our Leftwrist Twists of Gold.'
'our Leftwrist Twists of Gold.'	S181	H180	'Our Leftwrist Twists of Gold too.'
'While I with my Leftwrist Rosegold Twist / keeping losing more.'	S190	H171	'And even though Sam's / only got his Leftwrist Twist of Rosegold, / he's more.'
'merely twirls her / Leftwrist Silvergold Twist.'	S203	H158	'Me, touched now, twirling my / Leftwrist Silvergold Twist.'
'shattering plates not even my / Leftwrist Silver Twist could afford.'	S211	H150	'And Sam, despite / his Leftwrist Silver Twist, / rakes up another broken dish.'
'Hailey's Leftwrist Platinomy Twist spooling.'	S219	H142	'Even with my Leftwrist Platinomy Twist.'
'grabbing for Hailey's Leftwrist Amethyst Twist.'	S226	H135	'clamouring there / for my Leftwrist Amethyst Twist.'
'Thrills enough to get / Hailey turning her Leftwrist Emerald Twist.'	S241	H120	'Besides, by my / Leftwrist Emerald Twist, we're rich.'
'Me and my Leftwrist Copper Twist.'	S262	H99	'Who offers immediately / his Leftwrist Twist of Copper which'
'with Hailey / and her Leftwrist Diamondy Twist.'	S271	H90	'by lips / and my Diamondy Leftwrist Twist.'
'And me with just / my Leftwrist Iron Twist to toy with uneasily.'	S286	H75	'Feering fifth gear, / clutches his Leftwrist Iron Twist'
'Which is when I dig, even with Hailey's Leftwrist / Wealthy Twist, my wife deserves / a Wedding Gift.'	S298	H63	'THESE TWINKS must first put up / geech against my Leftwrist / Wealthy Twist.'
'Even my Leftwrist Twist of Myrtle & Tamarisk / mocks this accident's loss of competence.'	S306	H55	'Sam offers his Leftwrist Twist / of Myrtle & Tamarisk.'
'And if I'm by my Leftwrist a Twist of Shit / always rank & sapped, Hailey's / Leftwrist Twist of Forever astounds me.'	S309	H52	'Wipe my hands and with what's left, / a Leftwrist Bracelet – / Priceless. / And there's Sam. How pitiful. / Around his Leftwrist a Twist of Shit.'
	S	H	

Table 12. 'Leftwrist Twist': reflections and symmetries, difference and repetition. © Manuel Portela, 2009.



$+8 = 8 (+28) = 36 (+1) = 37 (+28) = 65 (+231) = 296 (+28) = 324 (+1) = 325 (+28) = 353 (+7) = 360$ $8 - 28 - 1 - 28 - 231 - 28 - 1 - 28 - 7$			
	<b>S</b>		<b>H</b>
Wind (16) Flash (19)	S8	H8	Flash (16) Wind (19)
Wind (20) Flash (2)	S36 S37	H36 H37	Flash (20) Wind (2)
Wind (16) Flash (18)	S65	H65	Flash (16) Wind (18)
Chimes! Chime! Chimes! (4) ThuuUUUUuUUUUuunder. (6)	S296	H296	ThuuUUUUuUUUUuunder. (4) Chimes! Chime! Chimes! (6)
Chimes! Chime! Chimes! (13) ThuuUUUUuUUUUuunder. (2)	S324 S325	H324 H325	ThuuUUUUuUUUUuunder. (13) Chimes! Chime! Chimes! (2)
Chimes! Chime! Chimes! (4) ThuuUUUUuUUUUuunder. (6)	S353	H353	ThuuUUUUuUUUUuunder. (4) Chimes! Chime! Chimes! (6)
	<b>S</b>		<b>H</b>

Table 13. “Wind—Flash—Chime —Thunder” [4 + 4 x 2 = 16]. Reflections and symmetries, difference and repetition. © Manuel Portela, 2009.

tions associated with the novel form or narrative poem) is obtained through the presence of the experience of reading as a series of rotational and translational motions among sets of signs. In moving from one half to its symmetric counterpart, whether at the page or chapter levels, readers have to negotiate the disjointed relationship between the sequential and the simultaneous. Simultaneous chronological times within the narrative (the times when Sam and Hailey coexist) are spatially dislocated within the book. This asymmetry between bibliographic space and narrative content foregrounds the process of mediation. Readers have an experience of the specific ergonomics of the work and of the algorithms and rules that determine recursions and associations. Reading time is translated into narrative space and narrative time is translated into bibliographic space. Narrative meaning becomes embodied in the linguistic and bibliographic signifiers themselves.

As seen in the previous sections, the calculus developed by Danielewski produces a set of numeric equivalences which translate combinations of linguistic and narrative syntax into geometric relations of the page’s topography and the book’s topology, and vice versa. The three- and bi-dimensional materiality of the book is foregrounded in a way that complicates the ergonomics of the physical relationship between reader and book. Self-awareness of reading paths within each page and across the book is obtained by making the act of rotating the pages or rotating the book an integral part of the novel’s explicit meaning. The silent and automatic choreography of the hands in the act of reading the codex (opening the book and turning over the page) is made entirely audible by the motion of turning the book and pages around in both predetermined and random patterns. The sequence created by the organization that defines the codex form, and which creates an expected

reading direction, is multiplied by the book's symmetric structure. Its circular symmetry offers the reader multiple paths within and between pages.

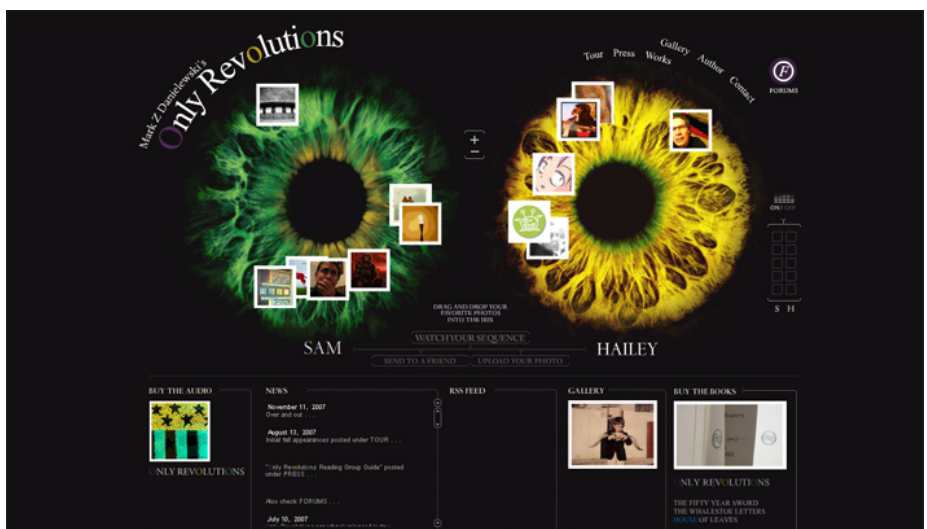
The division of each page into four sections, corresponding to the 90 degrees of a quarter of a circle, and the use of reversed reading directions results in many circular readings. Such reading circles provide for multisequential trajectories at the various levels of articulation (page, set of pages, entire codex). Since the fragments of each page are, in most instances, narrative and syntactic units with a significant degree of autonomy, circles of reading can be drawn almost anywhere in the book or in the narrative. This means that the two preferred trajectories of reading (S1 to S360 and H1 to H360; or by symmetrical chapters—S1-S8/H1-H8, etc.) exist in a tension with a number of other possibilities inherent in the constellated and modularized page layout of the work. This tension can be played out either at the large scale structures (page, group of pages and entire codex) or at small scale structures (sentence, line, word, alphanumeric strings), since readers can engage the textual connectivity at any of those scales.

Bibliographic space and narrative space become homologous because the physical motion of reading inscribes meaning in the material space of the book. Inscribing the circle and the Möbius strip as conceptual figures in the rectangular form of the page and in the prismatic form of the book, *Only Revolutions* creates symmetry between syntagm and line, between text and page, and between narrative and book. In other words, inscriptions in the imaginary space of the narrative maintain internal relationships that are homologous to the internal relationships created by printed inscriptions in the graphical plane of the pages and in the topological space of the codex. Nothing seems to take place outside of the book: the whole language and the whole story happen in its typography and in its topography, as if meaning could not dematerialize from its linguistic, graphic, and bibliographic signifiers.

This retroactive circuit between the verbi-narrative and the biblio-typographic levels is further reflected in sets of explicit and implicit markers, such as circular markers on page corners and leitmotif phrases or sentences (Tables 14 and 15). Danielewski's numeric and topological structuring of the relation between verbal and biblio-typographic forms works as an encoding that translates verbal and graphic correlations into numbers and strings of numbers. These numbers and strings of numbers may be said to simulate the formal manipulation of the verbal and graphical elements carried out by the codex's algorithm (Table 16). They offer a numerical replica of recursivity, symmetry, and infinity as performed by the codex as a computing machine for talking about the endless possibilities of its own code.

The revolutions referred to in the title are the revolutions in the individual stories of Hailey and Sam—how their bodies orbit each other moved by the gravity of love

Fig. 18. *Only Revolutions: a website mirroring the book [screen capture].*  
© Mark Z. Danielewski, 2006.



= 2 (+4) = 6 (+68) = 74 (+4) = 78 (+68) = 146 (+4) = 150 (+68) = 218 (+4) = 222 (+68) = 290 (+4) = 294 (+68) = 67 (+4) = 71 (+68) = 139 (+4) = 143 (+68) = 211 (+4) = 215 (+68) = 283 (+4) = 287 (+68) = 355 (+4) = 359 (+68) = -4-68-4-68-4-68-4-68-4-68-

I'm a new terror upon the land / releasing runoffs, tumbling / torrents. No sweat. / Me.	H2	⦿	⦿	S2	I'm a new horror upon the earth / releasing floods, sluicing rapids. / No big deal. / Me.
Kindness ever finds, spills my ear, for a while I might / slip down and play amidst her canopies of gold.	S359			H359	Loving ever binds, spills my ear, for a while I might / slip down and play among his foals so green.
Tiptoe & Kiss the Mountain, / Tress, RudeRoot & All / goodbye. Hot.	H6	⦿	⦿	S6	Kiss Hag, / Horse, Mountain & All. / A goodbye. By this.
So let ice blossoms vine her hair. / And though repugnant & dour, / all she cares enough for to let go I'll spare.	S355			H355	So let ice cavalcades gallop his hair. / And though withering & wroth, / all he cares enough for to let go I'll spare.
While / Sam refuses even a taste / afraid always to partake.	H74	⦿	⦿	S74	Though I avoid all deglutition, / disgusted by Hailey's hogging.
Only none ever follows. / We are all strays. / Allways astray.	S287			H287	Only none ever trails. / We are all strays. / Allways astray.
Leaving free / Boooooooooomblastandruin / to congeal	H78	⦿	⦿	S78	with a shave and a / Boooooooooomblastandruin / haircut where
So up for this sky of billowy puff / from every bang our exhaust pipes sputter. / King Cheetahs cease on the rough.	S283			H283	Krumped out for horizons of willowy plumes / from every snort our exhaust pipes broom. / Kinnikinnik Dogwoods dead on the road.
Working / tables & chicks. / Thick swinging dick / tormenting every Geek	H146	⦿	⦿	S146	Swaggering tables & clientele. / A hick fist ed prick / harrying every Hairpin
- No, we go to free you. / And we do. Shuffling off from / The St. Louis Drive Thru drudgery.	S215			H215	- No, we go to free you. / And we do. Stumbling free of / The St. Louis Take Out stuckery.
Scrubbing floors, / which VIAROROPOLIS, / with sluggy kicks, / muds up.	H150	⦿	⦿	S150	Scouring floors, / which VIARIFONACCI, / with muddy boots, / gobs up.
Hurling whatever he grabs: / mugs, saucers, flatware and bowls, / until with clenching fists he almost squeegees me.	S211			H211	Rockets whatever he grabs: / shot glasses, platters, cutlery, always / missing dear Sam completely.
Cool and quick. / Lubricated. / We never clutch.	H218	⦿	⦿	S218	Cool / and powerful. / Ventilated. / We never alter.
Yet somehow still / her Gold Eyes with flecks of Green / keep smiling tenderly / for me.	S143			H143	But still somehow / his Green Eyes with flecks of Gold / keep smiling tenderly / for me.
And Sam, such a gas / with our Nissan 300ZX bent	H222	⦿	⦿	S222	Hailey, such a gas, / with our Pontiac Chieftain, bent
But getting on, a tire pops, / the VW V2 hardly stocked, no longer / rocketing. soon after stops, / spilling air defeatedly.	S139			H139	Getting on, a tire blows, / the VW Rabbit, barely full, no longer / barrelling, too soon slowing, / gushing air defeatedly.
And allways we will leave US / behind US. / Because we're free.	H290	⦿	⦿	S290	And allways we will leave US / behind US. / Because we're free.
Blithe. Weedy. Except O those / Gold Eyes with flecks of Green. / - And her smile, / Carolina Parakeets preen. / I slow. Pull over.	S71			H71	Race. Hold. Except O those / Green Eyes with flecks of Gold. / - And his smile, / Smooth Azalea bold. / He slows. Pulls over.
Sam's Saturn Spin, our wedding and escape.	H294	⦿	⦿	S294	Hailey's Cadillac Eldorado, our union and escape.
While Hayle's detained by some / trenchcoat CREEP	S67			H67	Sleezy breezy amidst Lithium-6. / But THE CREEP's sexy.

and desire or how their car(s) travel(s) through the territory—and the revolutions in the history of the United States and the world, but also the revolutions of the reader around the book—the way s/he describes circles and ellipses within its material and conceptual space as s/he turns the book around in her/his hands. This rotation becomes the figure for the act of reading itself and for the production of meaning as an infinitely recursive route between signs (Fig. 19).

Through a wide range of formal operations, *Only Revolutions* inscribes in its bibliographic dynamics the ergonomics of specific reading acts as paths from sign to sign and from page to page. By transforming the book into an object that is both a game and a toy, it objectifies the motions of reading. It also shows the productivity of written language as a function of the potentiality of syntactic and typographic combinations: typographic syntax enhances the potentiality of linguistic syntax because it increases the number of potential permutations of verbal signs. Numerical restrictions governing the typographic, syntactic and narrative combinations maximize the feedback loops between each of those three levels. The four sections of the page have been structured and mapped according to geometrical and numerical coordinates, whose aim is to relate the topology of the page to the topology of language and narrative. The page is a map of its own bibliographic territory and a map of a fictional narrative space.

The U-turn required for reading each of the opposing surfaces on the sheets of paper creates a choreographic analogue of the Möbius strip, which exists in the x and y axes of the page, and in the z axis of three-dimensional handling of the book. The recursivity of reading motions from sign to sign responds to the recursivity of linguistic and bibliographic structures. The object becomes highly co-constructed

Table 14. Ten circular markers on page corners.  
© Manuel Portela, 2009.

Table 15. Meta-markers: numerical, narrative, and bibliographic patterning. © Manuel Portela, 2009.

by the act of reading as a co-producer of the object that it interprets. The autopoietic property of bibliographic space and the probabilistic nature of permutations of signifiers, which are an essential part of the hallucinatory experience of reading, may be experienced through the multiple echoes between bibliographic and linguistic spaces. This co-determination between object and subject draws attention to the codex as a combinatorial textual machine, i.e., as a device for enhancing the digitality of language and of alphabetic writing.

Only Revolutions is an experiment with the codex as a tool for narrative and poetic notation. Recursion inside language and inside narrative is echoed and modeled on the recursions of typographic and bibliographic structures. Meaning appears as a topological function of the spatial symmetries of the book, which feedback onto the linguistic and narrative planes. What the vast ensemble of algorithms in this work makes materially perceptible is the extent to which literature can be an exploration of meaning as an emergent and probabilistic phenomenon. A constellated and networked structure of signs, organized on the basis of numerical and topological constraints, results in a complex scripting of the chaotic motions of reading.

Ergodic textuality requires a semiotic intervention by the reader in realizing the potentialities contained in the textual algorithm. The text is a set of possibilities of meaning whose algorithms the reader has to execute. The conversion of texton (stored text whose display depends upon an algorithm) in scripton (text displayed as the result of an interaction between algorithm and reader) requires an additional level of intervention. Reading plays itself out not only as the interpretation of a code that pre-exists the work, but as a semiotic process that generates parts of the code that the reader uses for constructing and reading certain textual possibilities. Associations between signs depend upon a calculation of probabilities determined by the algorithm of reading in response to the algorithm of writing. The more constellated the work is, the greater the number of combinations and paths. More than a bundle or cloud of interpretations of pre-existing signs, reading is a bundle or cloud of motions between signs that are co-generated by the reading motion itself. For the machine-reader, the experience of reading becomes the experience of the particular algorithm that generates the code that makes it possible for him/her to read. Thanks to this code, the mo-

Table with 10 columns representing different text elements and a final column with numerical values. The table contains a complex grid of alphanumeric markers (S, H) and their corresponding values.



Table 16. Book algorithms in Only Revolutions: a summary of the numerical and topological constraints. © Manuel Portela, 2009.

book algorithms		multiples and submultiples of 360
<b>page algorithms</b> The number of pages equals the number of degrees in a circle [360°].		= 360
<b>chapter algorithms</b> The number of chapters equals 1/8 of the circle [45°]. The sum of the number of chapters by Sam and by Hailey equals 1/4 of the circle [90°]		(360 / 8) = 45 45 + 45 = 90
<b>algorithms for chapter groups</b> Variation on the size of initial letters associates chapters in groups of 3.		3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 15
<b>algorithms for character strings</b> The number of character strings in each page equals 4 x 90. Each quarter of a page corresponds to a quarter of a circle [90°].		(90 + 90) + (90 + 90) = 360
<b>algorithms for lines</b> The sum of the number of lines in Sam's and Hailey's narratives on each page equals 36, i.e., the equivalent of 1/10 of the degrees of the circle [360°]. The relative distribution of lines on each outside column is identical for every group of five chapters. This fact makes it possible to associate (in terms of the relative distribution of lines in each half-page) 5 chapters by Sam and 5 chapters by Hailey. 36 x 5 = 180. Every 180 lines the size of the font decreases on one half of the page and increases on the other.		360 / 10 = 36 lines (22 + 14) x 5 = 180 (21 + 15) x 5 = 180 (20 + 16) x 5 = 180 (19 + 17) x 5 = 180 (18 + 18) x 5 = 180 (17 + 19) x 5 = 180 (16 + 20) x 5 = 180 (15 + 21) x 5 = 180 (14 + 22) x 5 = 180
<b>algorithms for initial letters</b> Initial letters form a pattern of 15 letters [SAMANDHAILEYAND], i.e., they correspond to 1/24 of the circle [15°]. The sum of all occurrences equals 90 letters, i.e., 1/4 of the circle [90°].		15 + 15 + 15 = 45 x 2 = 90
<b>face</b> 8 typefaces are used in the book, including inside cover, title-page and colophon	8	8 replicates the symbol for infinity and the Möbius strip. Its shape also suggests two tangent circles.
<b>size</b> Font decreases every 5 chapters [i.e. every 40 pages], i.e., 8 times in each reading direction.	40-40-40-40-40-40-40-40-40	H41 S41 H81 S81 H121 S121 H161 S161 H201 S201 H241 S241 H281 S281 H321 S321
<b>algorithms for type</b>	<b>style</b>	<i>Italics</i> – direct speech and quotes <b>Bold</b> – flora and fauna <b>SMALL CAPITALS</b> – other characters, referred to in figurative ways and without proper names.
	<b>color</b>	<b>Hailey</b> – gold <b>Sam</b> – green <b>THE CREEP</b> – violet There also colored markers (green, gold, black, violet) and the logo of the novel – two vertical lines inside a circle) at the corners of 20 pages [H2/S2; H6/S6; H74/S74; H78/S78; H146/S146; H150-S150; H218/S218; H222/S222; H290/S290; H294/S294; whose reverse pages are: H67/H67; S71/H71; S139/H139; S143/H143; S211/H211; S215/H215; S283/H283; S287/H287; S355/H355; S359/H359].
	<b>animation</b>	Page numbers for Sam's and Hailey's narratives are contained in two small circles which are then contained in a larger circle. These numbers rotate around each other, shifting their relative positions, from top to bottom, and bottom to top. Inversion occurs at the middle of the book, on pages 180-181.
<b>recursive numerical sequences in the novel's leitmotifs</b>	The Dream	1.54.108.144.180.181.217.253.307.360 1-53-54-36-36-1-36-36-54-53 54-54-36-36-36-36-54-54
	The World	1 6 31 34 39 46 51 78 109 120 123 176 180 181 185 238 241 252 283 310 315 322 327 330 355 360 5-25-3-5-7-5-27-31-11-3-53-41-4-53-3-11-31-27-5-7-5-3-25-5 2 6 74 78 146 150 219 222 290 294
	Circles	67 71 139 143 211 215 283 287 355 359 4-68-4-68-4-68-4-68-4-68-
	Eyes	7.31.71.114.143.175.186.218.247.290.330.354 7-24-40-43-29-32-11-32-29-43-40-24-6 [(1)6-24-40-43-29-32-11-32-29-43-40-24-6]
	Flash Wind	8 36 37 65 296 324 325 35
	Chimes	8-28-1-28-231-28-1-28-7 [(1)7-28-1-28-231-28-1-28-7]
	Thunder	42.43.66.123.152.180.181.209.238.295.318.319 42-1-23-57-29-28-1-28-29-57-23-1-41 [(1)41-1-23-57-29-28-1-28-29-57-23-1-41]
	Honey Jars	49.121.240.312 49-72-119-72-48 [(1)48-72-119-72-48]
	The Wheel E-S-N-W	52.55.63.75.90.99.120.135.142.150.158.171.180.181.190.203.211.219.226.241.262.271.286.298.309 52-3-8-12-15-9-21-15-7-8-8-13-9-1-1-9-13-8-8-7-15-21-9-15-12-8-3-51 [(1)51-3-8-12-15-9-21-15-7-8-8-13-9-1-1-9-13-8-8-7-15-21-9-15-12-8-3-51]
<b>animals (H357) and plants (S357)</b>	Leftwrist Twist	7-7-7-6-4-4-3-3-2-2-2-2-2-1-1-1 7-7-7-6-4-4-3-3-2-2-2-2-2-1-1-1
	Fauna (S1-S7)	(18 + 18) + (18*18) 36-36
	Flora (H1-H7)	
<b>six keywords</b>	You	2-9-11-17    17-11-9-2
	Honey	2-8-10-17    17-10-8-2
	Gold	22    22
	Love	98    89
	Honor	11-10    10-11
	Gold	17-17    17-17
	Honey	19-19-19-19
	Everyone	

tion between signs that reproduces the textual surface becomes interpretable.

If alphabetic writing contains an analysis of the combinatorial principles of language (from a phonetic to a syntactical level, and from a syntactic to a discursive level); and if the printed letter represents the mechanization of writing (from typeface design, font size, and font style to spacing, leading, alignment and segmentation of words, lines and sentences); the book has defined itself, since its very ancient beginnings, as a simulator of the world which enhances language and writing with its own formal materiality. As producer of the world it simulates, *Only Revolutions* works by articulating the linguistic and typographic space with the poetic and narrative space through a bibliographic encoding that establishes relationships between the various conceptual and material spaces of letter, language, and codex.

The letters S and H symbolize not only the characters and the two halves of the story, but the specific productivity of the letter as a minimum unit of a narrative machine. This productivity of the letter is also a mirror image of the productivity of reading: shapes H and S describe the reading paths that generate line and page re-combinations, either according to symmetries created by horizontal, vertical, and diagonal axes (dependent upon the motion of the eyes), or according to rotations and translations of the codex (dependent upon the motion of the hands) (Fig. 20). Reflection, rotation, and translation symmetries at the level of letter shapes are similar to those symmetries that occur at the higher levels of page layout, codex structure, and language structure. Thus geometrical self-similarity of H and S is also a diagrammatical representation of a whole series of reading motions triggered by print patterns. The narrative machine is shown here as being constituted by the recursive dynamics between the cascading levels of human language, alphabetic writing, and printed codex. The particular form of codex patterning invented by Danielewski becomes a matrix for generating emergent meanings, i.e., unanticipated meanings produced by specific actualizations of potential reading motions. The bibliographical expression of endlessness and recursion may be formalized as  $S + H = \infty$ .

*Only Revolutions* is not merely an attempt to represent the nightmare of human history by a random and cumulative list of facts, nor is it just an attempt to represent the nature of human desire in the reader's hands a bibliographic emulation of the experience and the myth of love. The desire for embodied reference in linguistic communication is transferred to the materials of codex and writing. The subtitle of the book—*The*

*Democracy of Two Set Out & Chronologically Arranged*—suggests the political dimension of the union of love and, at the same time, puts the body politic of the nation in the sphere of desire. And that sphere, or rather that Möbius strip, morphs into the democracy of the elliptical and circular orbits formed by reader and book in their particular rotations and translations.

Signs do not suffer me to merge with them. They just allow me to move in the turbulent field of meanings with which their particular constellation seduces my desire for interpretation. I go round and round, one more time I go round and round, and in that spiral vertigo I experience the madness that there is in language. I go round and round, one more time I go round and round, and, caught in the infinitely recursive loop of reading, I am aware of the desire to read as one of the many forms of love. First an S, then an H; first an H, then an S; and in that SSSSSSSHHHHHHHHHHHHHHHHHHHHHHSSSSSSSS I feel the chaos of the world reconstituting itself through the hallucinatory effect of the digit of the letter, the calculation of language, and the geometry of the codex as a recursive dispersal and proliferation of meaning in the strange looping of signs. ■

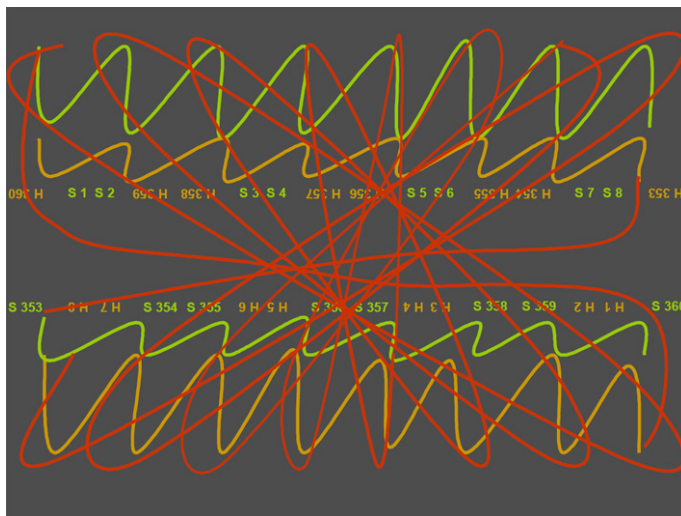


Fig. 19. Orbits of reader and book: symmetry and recursion in the motions of reading.  
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Fig. 20(a). Symmetry in typeface design of the letters S and H: the symmetry of the letter S over a point, and the symmetry of the letter H over a point and two lines. © Manuel Portela, 2009.

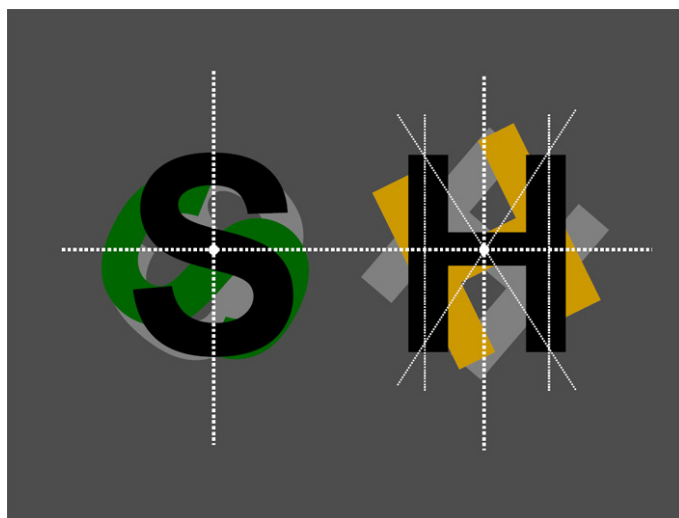
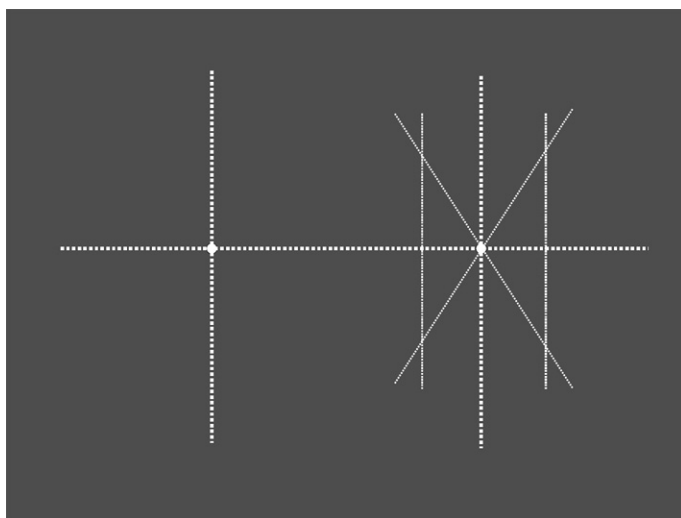


Fig. 20(b). The shapes of the letters H and S contain a representation of the recursions of reading both within each page and between pages.  
© Manuel Portela, 2009.



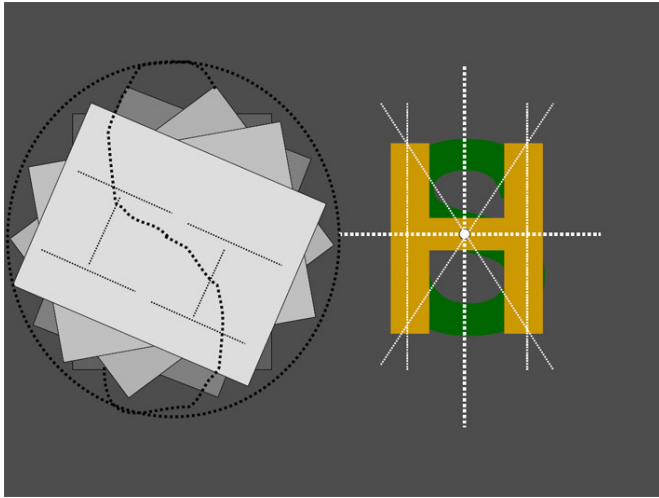


Fig. 20(c). The topographies of the shapes H and S describe the reading paths that generate line and page recombinations, either according to symmetries created by horizontal, vertical, and diagonal axes (dependent upon eye movements), or according to rotations and translations of the codex (dependent upon the motion of the hands). © Manuel Portela, 2009.

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