

ILLUMINATING DATA

VISUALIZING THE INFORMATION
THAT MOVES OUR WORLD

TCNJ ART GALLERY
MARCH 14–APRIL 18, 2012

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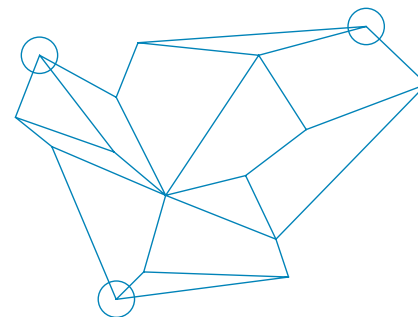
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ACKNOWLEDGEMENTS

The theme at The College of New Jersey for the 2011—2012 academic year is “innovation,” and there can be no more visually engaging demonstration of the innovative intersection of art and science than the thirty works of art in this exhibition, which seek to explore and explain the overwhelming mass and diversity of data that is engulfing our lives. First and foremost, the Art Gallery is deeply grateful to Professor Christopher Ault, who served as curator of the exhibition and authored the introductory essay. We are very appreciative of funding from TCNJ’s Cultural and Intellectual Community Program Council, as well as ongoing support for the Art Gallery’s exhibitions from the Mercer County Cultural and Heritage Commission.

This technically challenging exhibition would not have been possible without the expertise of Professor Ault, Professor John Kuiphoff, Professor Chung Chak, and students in the Interactive Multimedia program. The operations of the Art Gallery are wholly dependent on the dedicated work of TCNJ students. Hyuna Yong has handled registrational duties and worked on the exhibition catalogue and labels. Matt Pembleton has ably assisted with the installation and transportation of artworks. Thanks also to students Felix Cadman, Trista Chiu, Raha Ghassemi, Jane Howell, Mariah McLaughlin, Danielle Reilly, and Cassandra Valdes. The Gallery is also very grateful to Stephen Hegyi, Gary Lane, and Peter Ratzlaff from Facilities, who have provided invaluable assistance with exhibition preparation.

And, of course, we owe our greatest debt of gratitude to the artists in the exhibition, as well as the individual lenders.



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ILLUMINATING DATA

Computational data increasingly defines our lives—Facebook “likes” and Twitter trends; mouse-clicks, page views, and Foursquare check-ins; stock tickers and news feeds. Data also determines our lives. What route should you take to work when the bridge is backed up? Are you more romantically compatible with this person or that one? We make decisions based on which search results are elevated by Google’s algorithm, while Facebook’s algorithm determines why we hear a lot—maybe too much—from distant friends-of-friends, while other true friends rarely merit a mention. In our professional activities and social interactions, via big screens or pocket-sized gadgets, through spreadsheets, charts, and infographics, data is driving the modern world.

Kilo, mega, giga, tera... expanding data has complicated our vocabulary. An exabyte, for example, is one million gigabytes. And while that prefix is still unlikely to come up in casual conversation, 130 exabytes of data moved through the global network in 2005. That number is expected to increase by 60 times in just 10 years.¹ To put that in terms of the more familiar megabyte, there will be about 20 times more megabytes swirling around us in 2015 than there are stars in the Milky Way. This dawn of big data has left many people feeling overwhelmed. We use words like “explosion,” “flood,” and “viral” to convey the scale and speed of this transformation. And industries as diverse as banking, healthcare, national intelligence, and professional sports are turning to a new wave of professionals trained to dig through this data and make sense of it for the rest of us.

The cultural impact is glaring—if you can look up from your smart phone long enough to see it—inspiring a countermovement that advocates disconnecting from the data that clamors for our attention. Voices from all ranks—parents, educators, politicians, novelists—are calling for at least a moratorium, if not an outright retreat to the values and traditions of a simpler time (all of ten years ago!).



Artists, too, are confronting this sweeping shift. But rather than return to traditional themes and forms, the artists represented in TCNJ’s exhibition *Illuminating Data* have not only embraced the subject of complex, dynamic, interconnected data, they have also adopted the techniques, tools, and vocabulary of data analysts. These artists draw inspiration from raw information, use computational thinking as a compositional technique, and in many cases employ computer code as a creative tool, alongside or in place of paint, ink, wood, and metal.

This dialogue between art and information is certainly not a new one. The patterns of waves on the shore and the paths of stars in the sky have long inspired wonderment that’s on the one hand magical and on the other mathematical. As yesterday’s illuminated maps sought to situate geography within a narrative, historical, political, or economic context, some of today’s information artists work with GPS data as a means to tease out relationships and bind elements with a geographical thread. Over the centuries, artists

have sought to visualize the structures and the logic of botany, anatomy, astronomy, literature, and even spirituality. Their work was often limited by the feasibility of firsthand observation or the availability of canonical sources. But today every computer, every cell phone, every sensor is a node in a vast, persistent, and immediately accessible network. Every data point is a potential source of inspiration, and every link a potential thread in a narrative. Computers allow us to parse out the patterns, notice the trends, and recognize the relationships between various elements, whether they’re friends of friends on Facebook, popular topics in the *New York Times* or Twitter, or meteorological measurements off the coast of Cape Cod.

In surveying this vibrant field of data visualization in preparation for this exhibition, questions sometimes arose of whether a particular piece should be considered a work of art, or perhaps more appropriately a work of science or design. As the works themselves demonstrate, a single data point, pixel, or pen stroke is not intended to engage on its own, though several of the pieces demand that you view them up close, right in front of your nose, in order to perceive the details. What’s essential, however, is that you step back to contemplate the complete puzzle, the complex network taken as a whole. It would be similarly shortsighted to speak of the practitioners in this field as only artists, only scientists, or only designers, when by necessity they are some combination of all three. Computers were being used for artistic creation decades before most self-identified artists had ready access to them. Starting in the 1960s, scientists indulged their artistic inclinations by plotting points, shading polygons, and coloring pixels. Decades later, in 2003, Laurie Anderson became the first official artist in residence at NASA, an experience she recounted in her performance *The End of the Moon*.² She quizzed the researchers in charge of analyzing the complex and exotic data coming from the Hubble space telescope. Why were the Hubble images so bright and colorful—why pink and blue—when in fact the telescope’s cameras could only see in shades of grey? “We thought people would like it,” they responded, confirming Anderson’s suspicion that she wasn’t, in fact, the first artist at NASA.

For many, the idea of art generated from data may call to mind images that somehow look like math, with a vocabulary of lines and strong geometric shapes, and an emphasis on orderly patterns and symmetry. Not so with *Illuminating Data*. Much of the work is colorful and chaotic, whimsical, organic. Perhaps this is because many of the artists are working with very human data, including social relationships and small talk, reading habits and writing style. But in fact computer generated art has become less “computer looking” as the computation behind it has grown more sophisticated. Many artists have drawn inspiration from scientific models that demonstrate the tendency of natural systems—be they forests or ant colonies or human neighborhoods—to gradually acquire the appearance of disorder and complexity, when in fact the individual elements of the system—ants, or in the case of algorithmic art, colored strokes on a computer screen—are just following the same simple rules of interaction with the ants or the colors nearest to them. Complexity is just the product of simplicity, enacted over and over again for generations.



But the fact that many of the pieces in *Illuminating Data* look less like science or design, and more like art, is because they ultimately are art. They're not purely works of design with an eye toward efficiently and clearly communicating consistent information to every viewer. They're not purely works of science, dictated by accuracy, objectivity, and detail. The works are informed by science and design in their subject matter, execution, and source material, but these artists exercise their license in their choice of what data to convey and how, and what to leave out. And unlike a chart from an Excel spreadsheet or a bite-sized infographic in the newspaper, the works call for more engagement and interpretation from the viewer. Beyond merely conveying information, they interpret, provoke, and question. Many of the artists play with the data and at the same time play with the aesthetic conventions that have already emerged for this new form.

With *Illuminating Data*, The College of New Jersey is privileged to highlight a field of increasing cultural significance through the innovative work of a diverse group of artists—diverse in their subject matter, method, and medium, their background and geography. On behalf of TCNJ and the Interactive Multimedia program, I'd like to thank the artists for sharing their work, and through their work their insights into our data driven world.

CHRISTOPHER AULT

*Associate Professor and Coordinator
Interactive Multimedia Program
The College of New Jersey*

CATALOGUE OF THE EXHIBITION

All works are loaned by the artist unless otherwise noted.

SCULPTURES, INSTALLATIONS, PAINTINGS, DRAWINGS & PRINTS

CHRISTOPHER BAKER



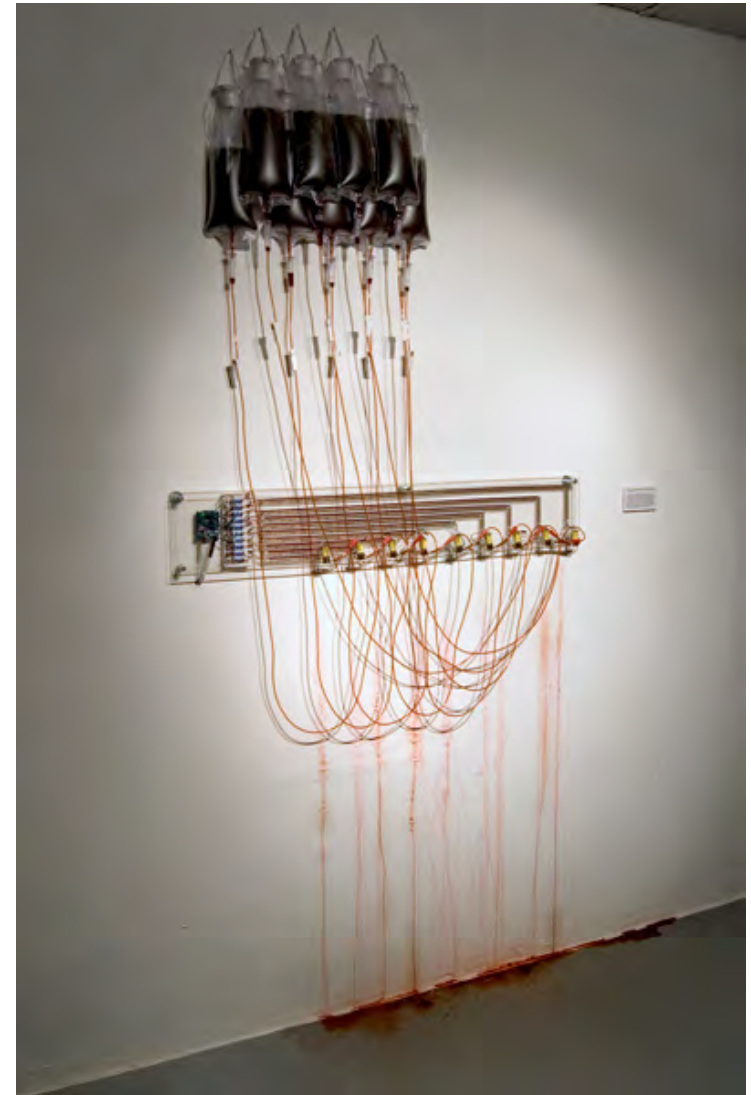
Murmur Study, 2011
Thermal receipt printers, Twitter messages, custom software
Dimensions variable

¹ "Drowning in numbers," *The Economist*, November 18, 2011, accessed February 24, 2012, <http://www.economist.com/blogs/dailychart/2011/11/big-data-0>

² Laurie Anderson, *The End of the Moon*, performance, Brooklyn Academy of Music, New York, spring 2005.



In-Formed, 2008
Aluminum sculpture and three digital prints
8 1/4 x 1 1/8 x 1/4 in.; prints, 16 x 20 in.



What It Is Without the Hand That Wields It, 2008
Installation with electronic solenoid valves and simulated blood
Dimensions variable



The Roughly Three Hours and Forty Minutes Before Finding My Glasses in the Fridge, 2011
Acrylic and carbon transfer on paper mounted on wood panel
51 x 31 in.

Trying to Subtract an Hour from a 24-hour Day on August 21, 2011
Acrylic and carbon transfer on paper mounted on wood panel
51 x 31 in.



From Over Here, 2010
Cards and wood
36 1/4 x 10 1/4 x 12 1/4 in.



External Weather, Internal Storms, 2009
Reed, metal, wood, data, musical score, and audio
60 x 33 x 40 in.

Temporal Warmth: Tango Between Air, Land and Sea, 2008
Reed, wood, and data
36 x 38 x 32 in.
Collection of John Thompson



Untitled (Machine Drawing), 2012
Multimedia installation
96 x 96 in.

Untitled (Square Line), 2006
Pen and ink on paper
22 x 30 in.

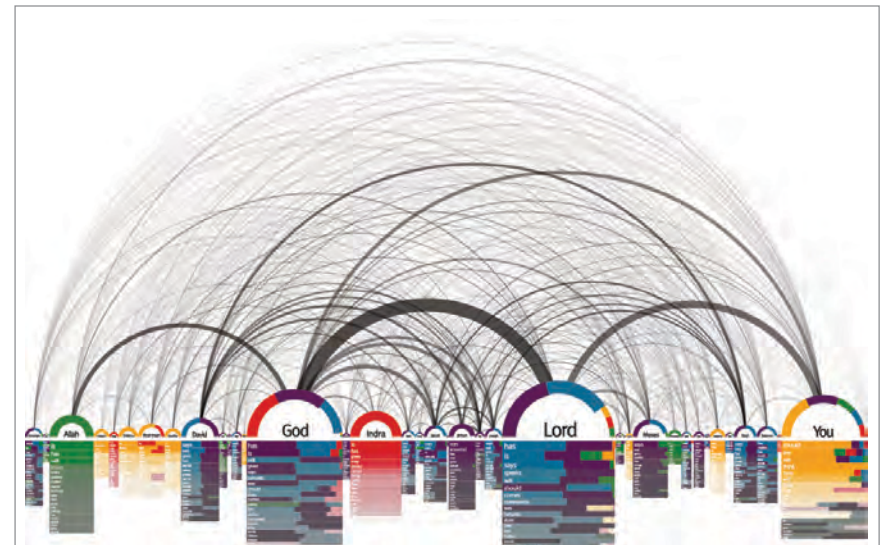
Untitled, 2007
Pen and ink on paper
14 x 17 in.



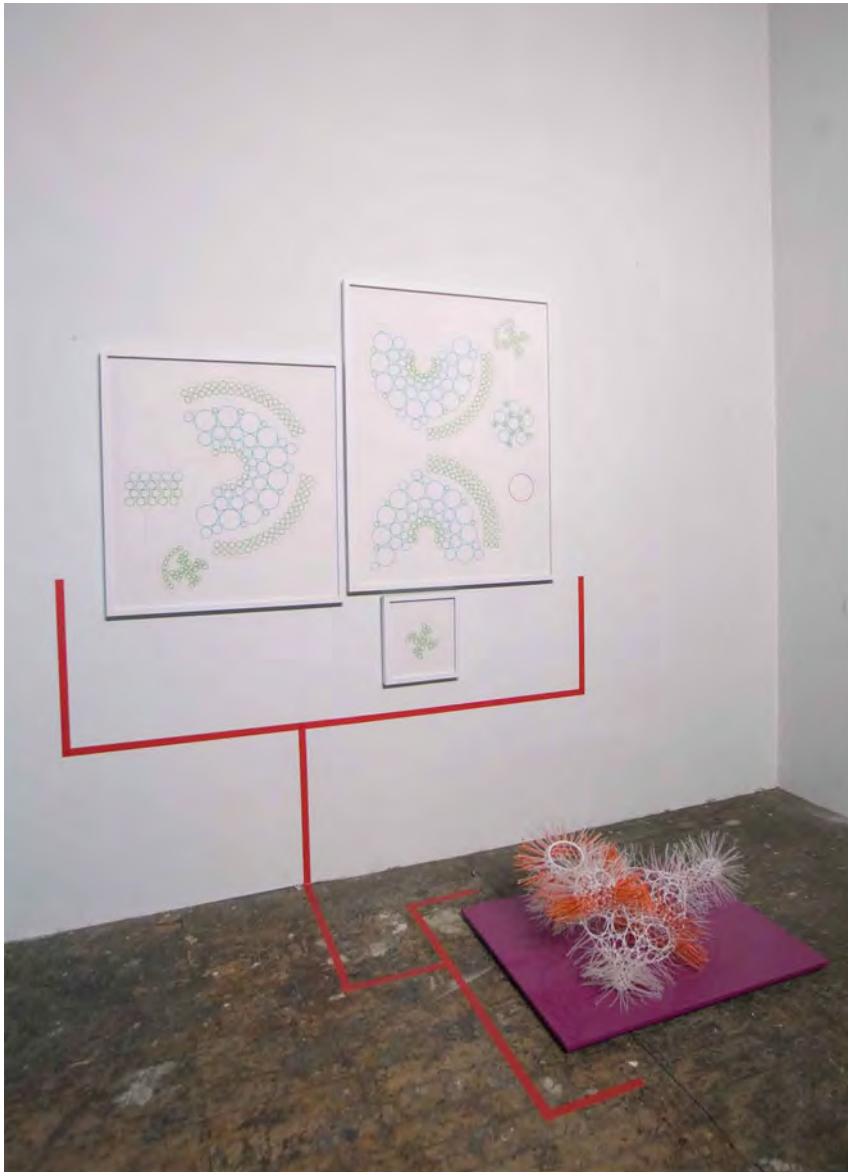
Writing Without Words, Literary Organism, 2011
Digital print (Hudson Motor Car Company colorway)
46 3/4 x 33 1/4 in.

Writing Without Words, Rhythm Textures, 2011
Digital print (Hudson Motor Car Company colorway)
46 3/4 x 33 1/4 in.

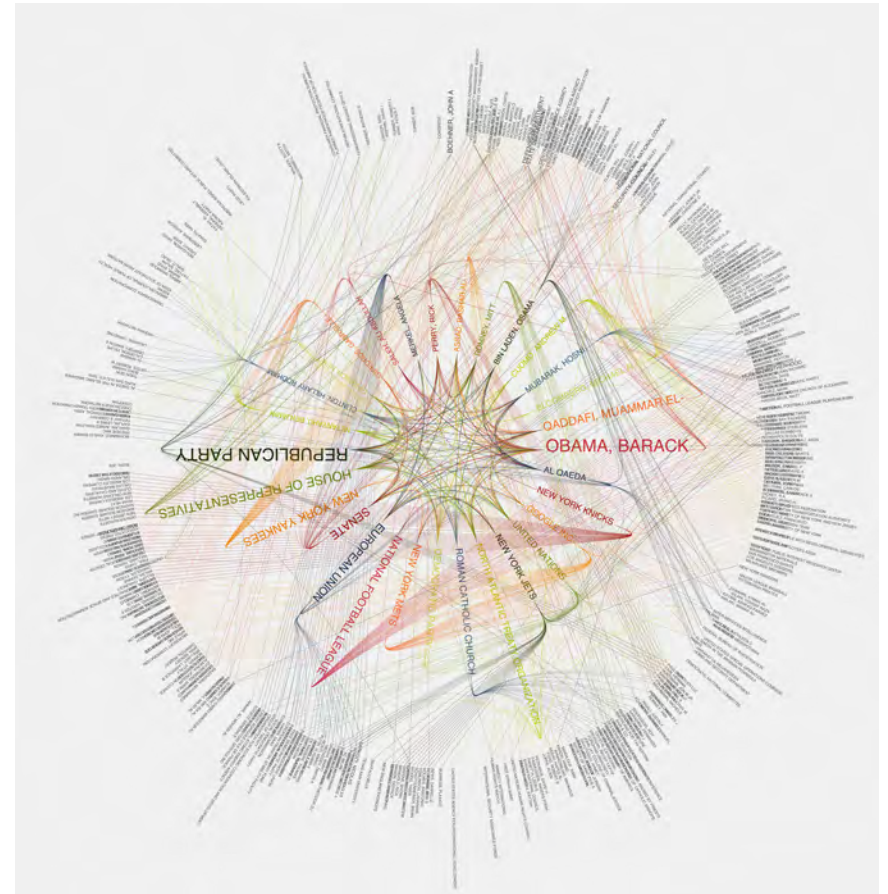
Writing Without Words, First Chapters: Faulkner, Fitzgerald, Hemingway, Morrison, Orwell, and Woolf, 2012
Six digital prints (Hudson Motor Car Company colorway)
Each 11 x 11 in.



Similar Diversity, 2007
Digital print
44 x 72 in.



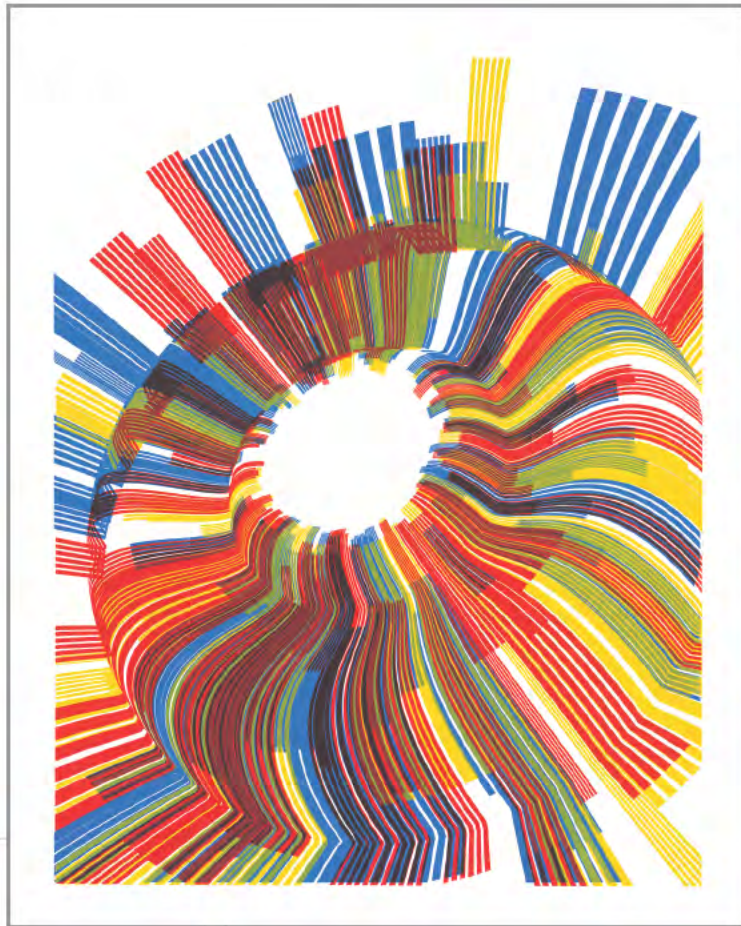
Systems of Knowing 07, 2009
Zip ties, Teflon O-rings, ink on paper, wood, paint
Dimensions variable



NY Times 365/360, 2011
Digital print
36 x 36 in.

RGB – NYT Word Frequency, 2011
Screen print
16 x 20 in.
Private Collection

Hope Crisis – NYT Word Frequency, 2011
Screen print
16 x 20 in.
Private Collection



Arcs 04-01, 2011
Three-color screen prints
20 x 16 in.
Private Collection

Arcs 04-00, 2011
Two-color screen prints
20 x 16 in.
Loaned by Random Number Multiples



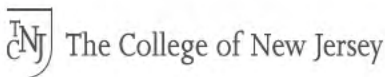
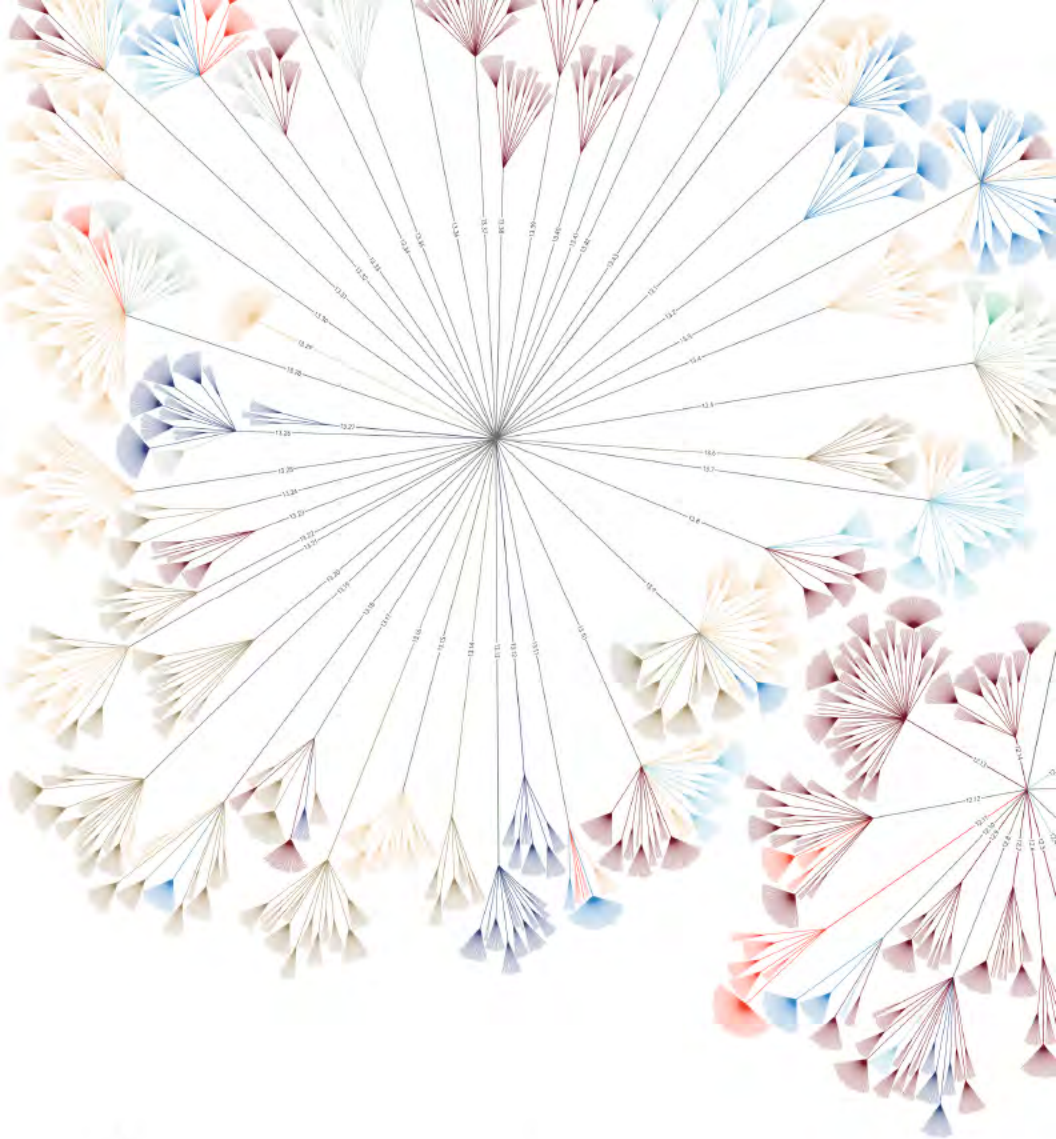
Things Fall Apart, 2010
Generative software series installation

ZOE FRAADE-BLANAR
Current, 2012
Networked software
www.binaryspark.com/current/

JONATHAN HARRIS & SEP KAMVAR
We Feel Fine, 2012
Networked software
www.wefeelfine.org

CHRISTIAN MARC SCHMIDT & LIANGJIE XIA
Invisible Cities, 2012
Networked software
www.christianmarcschmidt.com/invisiblecities/

MARTIN WATTENBERG
The Shape of Song, 2001
Networked software
www.turbulence.org/Works/song/



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Front cover: Marius Watz, *Arcs 04-01*(detail), 2011

Back cover: Stefanie Posavac, *Writing Without Words: Literary Organism* (detail), 2011