

KADIST

This assembly of three extended Notes—on the Type, Letter & Spirit, and Time—amounts to a style guide of sorts for Kadist Art Foundation (Paris, San Francisco). Together they trace the genealogy of Dexter Sinister’s typeface Meta-the-difference-between-the-2-Font-4-D, or MTDBT2F4D for short. The document also doubles as a contract that licenses Kadist’s 10-year use of the font for their graphic identity (see [www.kadist.org](http://www.kadist.org)) beginning January 2013. This is published on the occasion of its inaugural presentation at Kadist San Francisco, 19 January 2013.

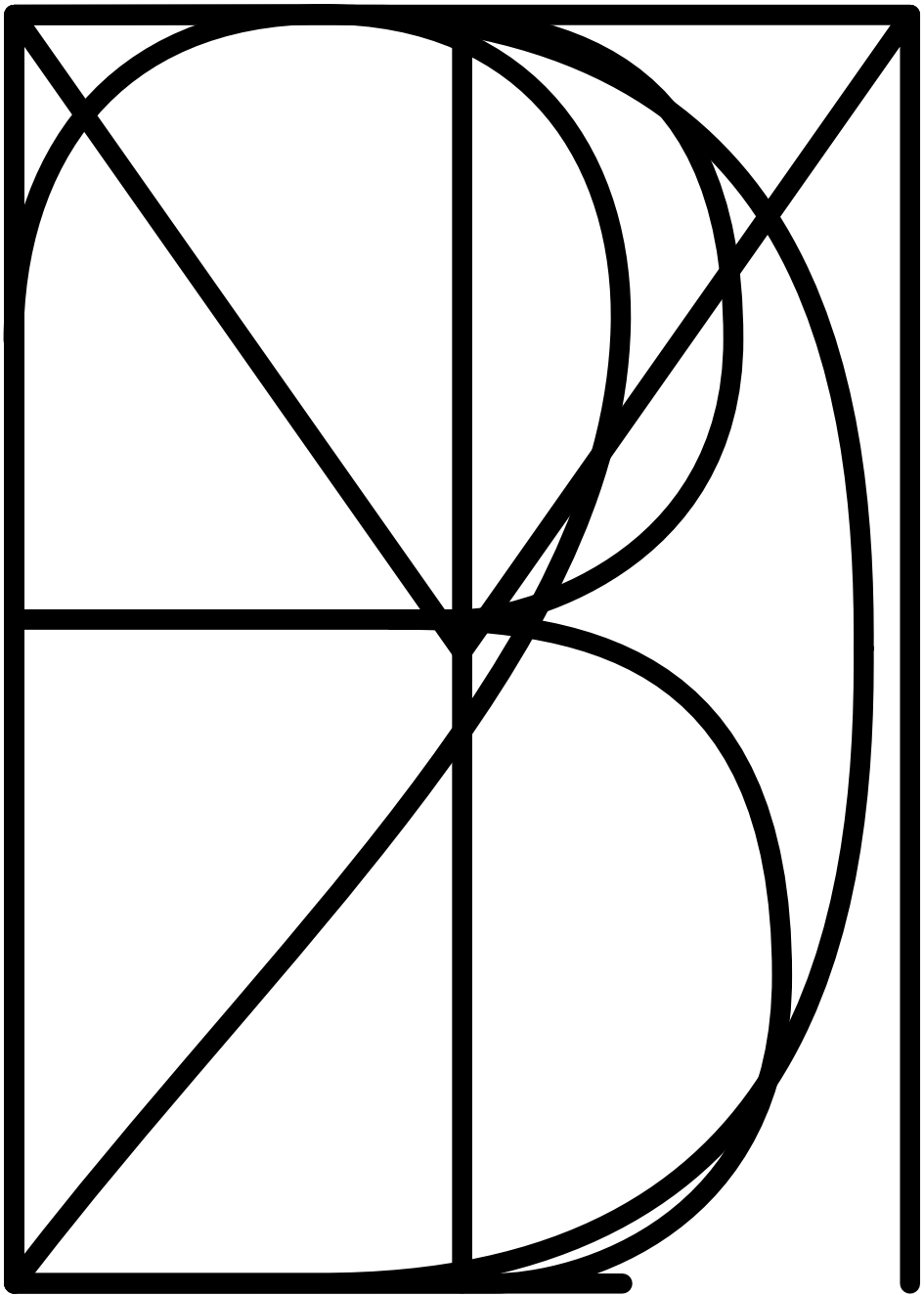
With thanks to Angie Keefer, who helped edit earlier versions of all three texts, and to Joseph del Pesco and Sandra Terdjman for brokering the deal.

See also:

[www.dextersinister.org](http://www.dextersinister.org)

[www.servinglibrary.org](http://www.servinglibrary.org)

Cover image: Kadist identity, 19 January 2013



## Dexter Sinister: A NOTE ON THE TYPE

This text was first published in *The Curse of Bigness* to accompany an exhibition of the same name at Queens Museum of Art (2010), then—variously reworked and incorporating new “sample” excerpts—as wall vinyl that comprised an exhibition called *The Plastic Arts*, Gallery 400 at University of Illinois, Chicago (2010); as a text in *Dot Dot Dot 20* (2010); in vinyl for the exhibitions “A Note on the Signs” at *Artissima*, Torino (2010), and “A Note on the T” at *Graphic Design Worlds*, Milan (2011); as a text in *Bulletins of the Serving Library* #1 (2011) and in *Afterall* (2011); and in the forthcoming *Graphic Design (History in the Making)*, Occasional Papers (2013).

Cover image: MTDBT2F composite glyph

PEN = 0, 1, 1, 0, WEIGHT = 100, SLANT = 0, SUPERNESS = 0.75, CURLYNESS = 0:

This is Meta-the-difference-between-the-two-Font, a typeface designed by Dexter Sinister in 2010, and derived using MetaFont, the now-thirty-year-old computer typography system programmed by Donald Knuth in 1979.

MetaFont is both a programming language and its own interpreter, a swift trick where it first provides a vocabulary and then decodes its syntax back to the native binary machine language of 1s and 0s. Knuth originally intended MetaFont as a helper application for TeX, the computer typesetting system he created to facilitate high-quality typography directly by authors. Donald Knuth, a Stanford professor and author of the multi-volume computer science “Bible” *The Art of Computer Programming* (1971), was dismayed on receiving galley proofs for the second edition of his book. The publisher had just switched from traditional hot metal typesetting to a digital system and the typographic quality was far worse than the original 1971 edition. Knuth figured that setting letters on a page was simply a matter of ink or no-ink, on or off, 1 or 0, and therefore a perfect problem for the computer. He planned on spending a six-month sabbatical writing a typesetting program and produced (almost 10 years later) the near-ubiquitous (in mathematics and science publishing, anyway) computer typesetting program, TeX. MetaFont was designed from the start as TeX’s manual assistant and faithful servant, producing as required the high-quality fonts at whatever size and shape on command.

MetaFont was also intended as a tool for designing new typefaces on its own. As MetaFont was programmed by Knuth, a mathematician, the resulting typographic design method relies on equations (multi-variable algebra and a bit of vector arithmetic) to specify letterforms and computer code to compile these instructions into a usable font—all of which is more the native province of mathematicians than type designers.

In the American Mathematical Society’s prestigious Josiah Willard Gibbs Lecture of July 4, 1978, Knuth gave a talk titled “Mathematical Typography,” and suggested that, “We may conclude that a mathematical approach to the design of alphabets does not eliminate the artists who

have been doing the job for so many years.” True enough, but the relatively steep technical slope of using MetaFont for type designers combined with the limited interest in making typefaces by mathematicians has resulted in only several handfuls of MetaFonts being produced over the last thirty years. As such, scant documentation and support exists for someone trying to create a MetaFont today.

OK, let’s change the parameters of what you have been reading by setting the following excerpt from logician Douglas Hofstadter’s article “On seeing A’s and seeing As” (1995) in *Meta-the-difference-between-the-two-Font*, with `PEN = 0, 13, 1, 216`, `WEIGHT = 98`, `SLANT = 0`, `SUPERNESS = 0.62`, `CURLYNESS = 0`. Like so:

In a word, logic is BRITTLE, in diametric opposition with the human mind, which is best described as “flexible” or “fluid” in its capabilities of dealing with completely new and unanticipated types of situations. The real world, unlike chess and some aspects of mathematics, is not hard-edged but ineradicably blurry. Logic and its many offshoots rely on humans to translate situations into some unambiguous formal notation before any processing by a machine can be done. Logic is not at all concerned with such activities as categorization or the recognition of patterns. And to many people’s surprise, these activities have turned out to play a central role in intelligence ...

In the attempts to get machines to do such things, the complexity of categories, in its full glory and in its full messiness, began slowly to emerge. Researchers were faced with questions like these: What is the essence of dog-ness or house-ness? What is the essence of ‘A’-ness? What is the essence of a given person’s face, that it will not be confused with other people’s faces? What is in common among all the different ways that all different people, including native speakers and people with accents, pronounce “Hello”? How to convey these things to computers, which seem to be best at dealing with hard-edged categories — categories having crystal-clear, perfectly sharp boundaries?

Unlike more common computer outline font formats such as TrueType or Postscript Type 1, a MetaFont font is constructed of strokes drawn with set-width pens. Instead of describing the outline of the character directly

by drawing each letter shape inside and outside, counter and letterform, a MetaFont file describes only the basic pen path or skeleton letter. Perhaps better imagined as the ghost that comes in advance of a particular letterform, a MetaFont character is defined only by a set of equations rather than hard-coded coordinates and outline shapes. So it is then possible to treat parameters such as aspect ratio, slant, stroke width, serif size, (curlyness!?) and so on as abstracted input values that can change in each glyph definition, creating not a set of set letters, but instead a set of set parameters, any of which can be changed each time the font is rendered. By changing the value at one location in the MetaFont file, a consistent change is produced throughout the entire font. The resulting collection of glyph definitions and input parameters is not then a single font, but instead, a meta-font.

Let's try that again ... You may recall from earlier that MetaFont is both a language and its own interpreter. (What does that mean?) Taking a clue from that riddle, we could turn MetaFont's name back on itself, by taking it apart, beginning with the end—"font."

"Font" is a word whose current common usage (particularly in the context of personal computers) has twisted its exact definition. Returning to its roots, a "font" is simply a collection of characters of one particular design, or precisely, typeface. More specifically a "font" is the particular realization of a certain typeface in a certain medium, according to certain parameters such as size, width, weight, style, contrast and shape—for example, a font of William Caslon's letters cast in hot lead at 14 points or a font of Standard Grotesque at 96 points carved from oak or even a full font of 12 pixel letters stretched 150% and rendered on a 72-dpi screen from the Arial typeface. However, this collection of parameters (size, width, weight, etc.) according to which a font is rendered from a particular typeface are not fixed. New parameters can be added at will, and this is where the "Meta" of MetaFont begins.

"Meta-" is a prefix of Greek origin that originally simply meant "after," but due to a strange turn of events\* came to mean "of a higher order, beyond" in Latin and later modern languages (excluding Greek, where it retains its original meaning).

\* Yes, its current use as “of a higher order” is due to Aristotle’s book on the Metaphysics, but he would never have called it that. Aristotle would refer to the subject of that book as First Philosophy or Theology. The title “Metaphysics” comes from Andronicus of Rhodes (1st century BC), who was the first editor of Aristotle and placed the book on the Metaphysics after the book on the Physics in his compilation (so, it was quite literally “after” the Physics). Best regards, Derek

So then you have metalanguages (languages used to describe languages), metahistory (the study of how people view and study history), meta-theorems (theorems about theorems), metarules (rules about rules) etc. Indeed you can “meta” just about anything.\*\*

\*\* Wait, are you guys really calling it “Meta-the-difference-between-the-two-Font”? Sorry man ... it’s a bad name, but you’ll soon realize that yourselves. I won’t press. I’ll just wait around till you see it.

Let’s try another version of MTDBT2F, demonstrated using a second fragment from Hofstadter’s text with PEN = 0, 1, 2, 216, WEIGHT = 98, SLANT = .20, SUPERNESNESS = 0.80, CURLYNESS = 0:

*And do not think that “z” is really the end of the line. After all, there remain all the uppercase letters, and then all the numerals, and then punctuation marks, and then mathematical symbols ... But even this is not the end, for one can try to make the same spirit leap out of the roman alphabet and into such other writing systems as the Greek alphabet, the Russian alphabet, Hebrew, Japanese, Arabic, Chinese, and on and on ... just as there are unimaginably many different spirits (i.e., artistic styles) in which to realize any given letter of the alphabet, there are also unimaginably many different “letters” (i.e., typographical categories) in which to realize any given stylistic spirit.*

*In metaphorical terms, one can talk about the alphabet and the “stylabet” —the set of all conceivable styles. Both of these “bets” are infinite rather than finite entities. The stylabet is very much like the alphabet in its subtlety and intangibility, but it resides at a considerably higher level of abstraction.*



*Of course this means that the project is in complete opposition to any view of intelligence that sees the main purpose of mind as being an eternal quest after “right answers” and “truth.” That the human mind can conduct such a quest, principally through such careful disciplines as mathematics, science, history, and so forth, is a tribute to its magnificent subtlety, but to do science and history is not how or why the mind evolved, and it deeply misrepresents the mind to cast its activities solely in the narrow and rigid terms of truth-seeking.*

In 2009, The *New Yorker* ran “The Unfinished,” a piece about American writer David Foster Wallace following his death six months earlier. Midway through the tribute, D.T. Max quotes from an early letter that Wallace sent to Gerald Howard of Penguin Books, in which he explains that his work is neither primarily “realism” nor “metafiction,” but rather, “if it’s anything, it’s meta-the-difference-between-the-two.”

Typically, it’s a throwaway line that returns, then stays with you. Does the “difference” here refer to a mathematical distinction in quantity, or to a more common sense of distinction or dissimilarity (or even disagreement)? Or both? Wallace’s chain-of-words is as slippery as the logically-recursive sentence “The first rule is: there are no rules,” but with a difference. Instead of simply setting up an endless loop between two poles, it observes that loop from a higher point of concentrated disinterest. There’s no simple way out of this one, and yet there seems to be just enough there to keep trying.\*\*\*

\*\*\* Zadie Smith makes a case for this in an essay on Foster Wallace, using his short story “The Depressed Person” from *Brief Interviews with Hideous Men* as arch example: “The effect on the reader is powerful, unpleasant. Quite apart from being forced to share one’s own mental space with the depressed person’s infinitely dismal consciousness, to read those spiral sentences is to experience that dread of circularity embedded in the old joke about recursion (to understand recursion you must first understand recursion).”

Exporting Wallace’s chain from literature to a more general use, we could plug other values into the equation. For “realism” we could insert “practice” and for “metafiction” perhaps “theory.” (These poles can be

endlessly swapped with similarly productive confusion—try “concrete”/“abstract” or “modernism”/“postmodernism.”) And yet the “meta-the-difference-between-the-two” between any of these two isn’t simply resolved by some alchemical fusion, as in “practice” + “theory” = “praxis,” practice informed by theory and vice versa. Less of a compound than an extraction, more a subtraction than an addition, MTDBT2 is then actually a skeleton, a script, or a good idea in advance of its realization.

Donald Knuth began his Josiah Gibbs lecture, “Mathematical Typography” with an apology of sorts, saying: “I will be speaking today about work in progress, instead of completed research; this was not my original intention when I chose the subject of this lecture, but the fact is I couldn’t get my computer programs working in time.” And he continues, “Fortunately it is just as well that I don’t have a finished product to describe to you today, because research in mathematics is generally much more interesting while you’re doing it than after it’s all done.”

Meta-the-difference-between-the-two-Font has a similarly incomplete character. As a set of simple letterforms and a collection of meta-design parameters, MTDBT2F will create unending numbers of different fonts from now onwards, always only moving forward and compiling a collection of surface effects onto its essential skeleton to produce a growing family of “hollow” fonts whose forms have more in common with handwriting than they do with hot metal counterpunches (not to mention modern digital fonts). The clumsy result, with its chewy name Meta-the-difference-between-the-two-Font, arrives before the effect that is applied to it, returning to a moment before fonts, just before Gutenberg’s first black-letter Gothic types attempted to match the scribe’s penmanship. At this point, to computer-automate the production of handwritten calligraphy, and to more or less ignore 400 years of typographic tradition, is essentially absurd.

It seemed like a good idea at the time.

So here’s one final trial with Hofstadter as dummy text, with the parameters now set to PEN = 0, 13, 1, 216, WEIGHT = 242, SLANT = 0, SUPERNESS = 0.62, CURLYNESS = 0:

To conclude, I would like to cite the words of someone whose fluid way of thinking I have always admired — the great mathematician Stanislaw Ulam.

Convinced that perception is the key to intelligence, Ulam was trying to explain to his mathematician friend Gian-Carlo Rota the subtlety of human perception by showing how subjective it is, how influenced by context. He said to Rota, "When you perceive intelligently, you always perceive a function, never an object in the physical sense. Cameras always register objects, but human perception is always the perception of functional roles. The two processes could not be more different..."

Rota interjected, "But if what you say is right, what becomes of objectivity, an idea formalized by mathematical logic and the theory of sets?"

Ulam parried, "What makes you so sure that mathematical logic corresponds to the way we think? Logic formalizes only a very few of the processes by which we actually think. The time has come to enrich formal logic by adding to it some other fundamental notions. What is it that you see when you see? You see an object as a key, a man in a car as a passenger, some sheets of paper as a book. It is the word 'as' that must be mathematically formalized ..."

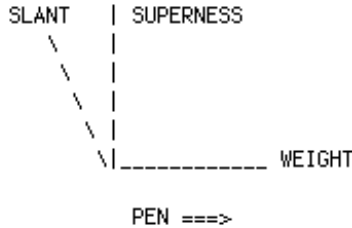
\*

Dexter Sinister: A NOTE ON THE TYPE

```

** initialization complete. **\r
Welcome to Meta-the-Difference-Between-the-Two-Font.
Today is Fri Mar 2 15:27:30 EST 2012
*
Current working directory is /Users/reinfurt/Documents/Projects/META THE DIFFERE
NCE BETWEEN THE 2 FONT/Source/Meta-the-difference between-the-two-Font/v0.6c

```



```

WEIGHT=50.00000000000000000000000000000000
SLANT=.2000000000000000000000000000000000
SUPER=.5750000000000000000000000000000000
PENTYPE=0
PENX=349.50000000000000000000000000000000
PENY=100
PENR=216.00000000000000000000000000000000
Welcome to Meta-the-Difference-Between-the-Two-Font.
Today is Fri Mar 2 15:27:30 EST 2012
*
Current working directory is /Users/reinfurt/Documents/Projects/META THE DIFFERE
NCE BETWEEN THE 2 FONT/Source/Meta-the-difference between-the-two-Font/v0.6c
mftrace 1.2.16
Font `mtdbt2f4d'...
Using encoding file: `/usr/local/texlive/2011basic/texmf/fonts/enc/dvips/tetex/m
tdbt2f.enc'
Running Metafont...
Tracing bitmaps... [0][1][2][3][4][5][6][7][8][9][10][11][12][13][14][15][16][17
][18][19][20][21][22][23][24][25][26][27][28][29][30][31][32][33][34][35][36][37
][38][39][40][41][42][43][44][45][46][47][48][49][50][51][52][53][54][55][56][57
][58][59][60][61][62][63][64][65][66][67][68][69][70][71][72][73][74][75][76][77
][78][79][80][81][82][83][84][85][86][87][88][89][90][91][92][93][94][95][96][97
][98][99][100][101][102][103][104][105][106][107][108][109][110][111][112][113][
114][115][116][117][118][119][120][121][122][123][124][125][126][127][129][130][
131][132][134][135][136][137][138][140][141][142][143]
Assembling raw font to `mtdbt2f4d.pfa.raw'...
Copyright (c) 2000-2011 by George Williams.
Executable based on sources from 13:48 GMT 22-Feb-2011-D.
Library based on sources from 13:48 GMT 22-Feb-2011.
** metafont ok **
** fontforge ok **
** mtdbt2f ok **
Bye.
** mtdbt2f-make ok **
Bye.
** sleep for 0 seconds **

```

This text was first published in *Bulletins of The Serving Library* #3 (2012), then—in a form first used to render a “Trailer for the Exhibition Catalog” in the show *Ecstatic Alphabets/Heaps of Language*, Museum of Modern Art, New York (2012)—variously distilled and animated as a “film” of live code at the Festival de l’Affiche Chaumont (2012), Tramway, Glasgow (2012), CCA Glasgow (3rd Eye Foundation) (2012), and Charlottenborg, Copenhagen (2012).

The full caption for the image on 18 is: Herbert Bayer, *Research in the development of Universal Type*, 1925. Black ink on paper, 11 3/4 x 23 5/8 in. (29.8 x 60 cm). Harvard Art Museums/Busch-Reisinger Museum, Gift of the artist. Photo: Imaging Department ©President and Fellows of Harvard College. ©2012 Artists Rights Society (ARS), New York/VG Bild-Kunst, Bonn

Cover image: from The Hollows

In the early 1980s, on the pages of academic design journal *Visible Language*, a classic thesis-antithesis-synthesis played out around the technological and philosophical fine points of computer-assisted type design. Stanford professor Donald Knuth begins with his article, “The Concept of a Meta-font” (Winter 1981). Two years prior, Knuth had conceived and programmed MetaFont—a software that enabled users to generate unlimited numbers of fonts by controlling a limited set of parameters. The article is a performative account of his intervening attempts, using MetaFont to harness the essential “intelligence” of letterforms. In Knuth’s view, the way a single letter is drawn—an *a priori* A, say—presupposes and informs all other letters in the same font. This information can be isolated, turned into a set of instructions, and put to work computer-automating the generation of new characters by filling in the features between two or more variables such as weight or slant.

Such intelligence is (and has always been) implicit in any typeface, but Knuth is out to omit all ambiguity and install a more definite system. He acknowledges that this preoccupation with designing meta-level instructions rather than the fonts themselves is typical of the contemporary inclination to view things “from the outside, at a more abstract level, with what we feel is a more mature understanding.” From this elevated vantage, MetaFont was set up to oversee “how the letters would change in different circumstances.”

A year later, fellow mathematician Douglas Hofstadter responded with his “MetaFont, Metamathematics, and Metaphysics” (Autumn 1982). While “charmed” by Knuth’s thesis, and admitting the bias of his own interests in artificial intelligence and aesthetic theory, Hofstadter proceeds to shoot down his colleague’s apparent claim that the shape of any given letterform is “mathematically containable.” To support his case, he invokes mathematician Kurt Gödel’s Incompleteness Theorems, which assert that any account of a logically coherent system always contains one root-level instance that cannot itself be contained by that account. Hofstadter’s antithesis then usefully couches the debate in terms of “the letter of the law” versus “the spirit of the law,” a familiar antinomy that posits an absolute deference to a set of set rules against a consistent-yet-fluid set of principles. Our prevailing legal system is, of course, based on both: judges base their decisions on firmly established precedent, but also map

uncharted territory by bringing the full range of their experience to bear on specific cases “in a remarkably fluid way.” In this manner, the law itself adapts.

Hofstadter argues that an accordingly \*spirited\* conception of type design would therefore renounce Knuth’s ur-A-FORM in favor of a yet-higher-level abstraction, an ur-A-ESSENCE; the fundamental difference being that Hofstadter’s notion of “intelligence” extends beyond a Platonic shape, allowing for the concept of \*what constitutes an A\* to change, too—beyond what we can reasonably conceive of this possibly being in the future. Each new instance of an A adds to our general understanding of this idea (and ideal), which is necessarily assembled backwards over time.

Hofstadter includes this illustration of two letters vying for the same “typographic niche,” to make himself clear:



help help help  
help help help  
help help help help

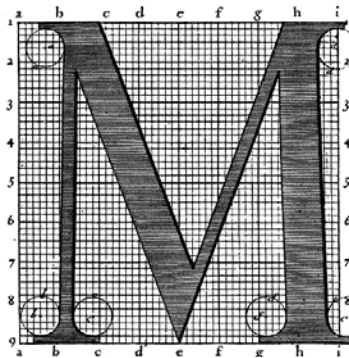
Neatly enough, the following year a linguistics professor called Geoffrey Sampson drafted a brief response to Hofstadter’s response to Knuth, titled “Is Roman Type an Open-Ended Question?” (Autumn 1983), which, it turns out, is decidedly rhetorical. Sampson argues that Hofstadter’s hairsplitting unfairly and unnecessarily exaggerates Knuth’s claims to the point of warping both his meaning and intentions. There is enough metaphysical latitude, the linguist referees, to accommodate both points of view without recourse to the misery of analytical one-upmanship. Sampson’s synthesis of letter and spirit contends that it is perfectly reasonable to conceive of letterforms as both a closed system (Knuth’s A-shape) AND as an open-ended system (Hofstadter’s A-ness).



Relatively speaking, it depends \*what you're after.\*

...

The history of typography is marked by a persistent drive to rationalize. Following the invention of movable type in the mid-15th century, the Renaissance saw several attempts to prescribe the construction of the Roman alphabet: Fra Luca Pacioli's alphabet of perfect relations, Albrecht Dürer's letters of mathematical instructions, and Geoffroy Tory's humanistic rationalizations. These attempts were, however, essentially calligraphic exercises in determining "divine proportions;" the first to apply Enlightenment rationality to properly technical ends was the so-called Romain du Roi, or the "King's Roman." Commissioned by Louis XIV in Paris at the end of the 17th century, it was a typical Age of Reason project—the imposition of a mathematically-rigorous structure on forms that had, until now, developed organically, initially shaped by the human hand (calligraphy, inscriptions, woodcuts) and adapted according to the various demands and opportunities of the printing press and its attendant technologies. Designed by "a royal committee of philosophers and technologists" from the Academy of Sciences, the Romain du Roi was initially plotted on an orthogonal 48 x 48 grid, and a corollary "sloped Roman" italic variant derived by skewing the upright version.



The coordinates were first engraved as a set of instructions, then cut into punches to make metal type, which were to be used exclusively on official or state-approved materials. In this way, the King's letters exerted state power like a great seal or particular signature.

Such ratiocination was revived at the Bauhaus in the 1920s, in line with two of the school's foundational principles set up to meet the demands of industrialization: the omission of ornament and the reduction to geometric elements. The most celebrated outcome was Herbert Bayer's 1925 Universal Alphabet, a pared-down sans-serif comprised exclusively of lower-case characters. Bayer adapted the basic glyphs for typewriter and handwriting, experimented with phonetic alternatives, and proposed a wide family of variants, such as the condensed bold version drawn on this panel:



Alongside the basic character set (minus a presumably redundant o, but with alternatives to a and g, as well as two d's that anticipate lighter weights), Bayer has further abstracted the tools he used to draw it: ruler, T-square, set square, compass and protractor. As such, the drawing captions itself, pointing to its point—that this is a project \*intrinsically concerned with a particular mode of construction.\*

Around the same time, fellow Bauhausler Josef Albers followed similar principles to slightly different ends with his Stencil Alphabet. This, too, was a single-case font, now entirely configured from ten rudimentary shapes, also typically isolated and presented alongside the assembled letters. Drawn and photographed for exclusive use in the school's own publications and publicity, these elemental Bauhaus fonts remained closeted explorations rather than properly industrial products. Neither was properly developed into a “working” typeface, mass-manufactured in metal for wider use. Outside the school, though, prominent *Werkbunder* Paul Renner toned down the hard geometry with gentler,

“humanist” sensibilities—more modulation, less harsh on the eye—to yield his commercially successful Futura. When it was issued in 1927, godfather of the nascent “New Typography,” Jan Tschichold, wrote that

**it cannot be open to one person to create the letterform of our age, which is something that must be free of personal traces. It will be the work of several people, among whom one will probably find an engineer.**

During the 1930s, British type designer Stanley Morison was in charge of Monotype, the most significant type foundry of the day. Morison was solicited by *The Times*, London’s principal newspaper, to take out a £1,000 full-page ad. Morison responded yes, as long he could typeset the page himself, because the newspaper’s existing design was in such a dire state. This conversation reportedly carried itself up the *Times*’ chain of command, prompting its director to invite Morison to oversee a complete overhaul of the paper’s typography. Morison accepted, again on one condition—that the paper abolish the use of full points after isolated proper nouns, which he (rightly) considered superfluous and an example of the sort of typographic depravity he intended to stamp out. The paper removed the offending punctuation, and Morison climbed aboard.

Newspaper typography is a particularly sensitive art. Minute adjustments have critical knock-on effects for the amount of news that can be issued—especially when multiplied by the massive circulation figures of *The Times*. In a 25-page memorandum, Morison concluded that the house typeface needed to be updated. What became Times New Roman, however, was neither redrawn from scratch nor merely an amendment of the existing version, but rather \*amalgamated\* from a number of different typefaces made at various points over the previous 400 years. The mongrel result was effectively collaged from past forms, so the lowercase e doesn’t exactly “match” the lowercase a—at least not according to the usual standards of typographic consistency. Up close, Times New Roman is full of such quirks.



The design of letterforms usually manifests an individual designer's aesthetic impulse at a given point in time, but Times New Roman was the bastard offspring of MANY designers working ACROSS time, with Morison's role something like that of producer, editor, or arranger. The most frequently repeated account of the type's development suggests that Morison gave an existing type sample and some rough sketches to an assistant in the paper's advertising department, who duly cobbled together the new font. Whatever the story, in a note on HIS type, Morison concluded, auspiciously enough: "Ordinary readers, for whom a type is what it does, will be pleased to leave them to analyze the spirit of the letter."

French type designer Adrian Frutiger took the rational mapping of the Romain du Roi to another plateau with Univers, released by the foundry Deberny & Peignot in 1957. In line with the all-encompassing aspirations of mid-20th century Swiss design—locus of the so-called International Style—Univers was conceived as an unusually extended family of fonts. The standard palette of variants, traditionally limited to regular, italic, bold, and sometimes bold italic, was expanded sevenfold, yielding a total of 21 fonts to be cut at any given size. In the foundry's publicity, the family was usually housed in a two-dimensional matrix: an X-axis charts relative WIDTH interspersed with POSITION (Frutiger's term for slant), while the Y-axis charts relative WEIGHT. The family DNA is manifest in a few eccentricities, such as a square dot over the *i* and a double-barred lower-case *a*, while individual character sets are named according to their position in the matrix—55 for standard roman, 56 for standard oblique, 65 for medium roman, 66 for medium oblique, and so on.



Univers' matrix implies that the family could potentially procreate in any direction *ad infinitum*, and, in fact, the project has remained notably open since its inception. Frutiger himself reworked the typeface for digital release by Linotype in 1997, raising the total number of distinct character sets from the original 21 to 63. These included additions to both ends of the chart (Ultra Light and Extended Heavy), along with new monospace variants, requiring a third number to be added to the identifying code. In the wake of Univers' popularity, further dimensions have since been introduced, including extended character sets such as Central European, and non-Latin alphabets such as Greek, Cyrillic, Arabic, and Japanese. This globalization culminated in 2011 with Linotype rechristening the entire design "Univers Next."

...

Towards the end of "The Concept of a Meta-font," an admirably frank Knuth wonders: "The idea of a meta-font should now be clear. But what good is it?"

Hofstadter, for one, had an idea: "Never has an author had anything remotely like this power to control the final appearance of his or her work." Indeed, seeing his own writing in print years earlier, Knuth had been so upset by the shoddy standards of early digital typesetting that he resolved to do it himself—not unlike Morison with his *Times* ad. It took longer than expected, but a decade later, Knuth had designed TeX, an automated typesetting system still in wide use today within academic publishing. MetaFont was initially developed as handmaiden to TeX, to generate the fonts to be used within the broader tasks of document markup and page assembly. However, as MetaFont developed as a project in its own right, its purpose was less immediately apparent. At the time of his *Visible Language* article at least, MetaFont appears to be more a case of hobbyist tinkering in search of an eventual application.

To be fair, Knuth does propose a few uses, all of which were already possible but certainly enhanced by the speed of computer processing. One is the ability to adjust the details of a particular font in line with the limits of a given output device—to make letters thinner or less intricate, for instance, so as to resist type "filling in" with either ink (on paper) or pixels

(on low-resolution monitors). A second is the possibility of generating countless iterations of the same basic design with slight differences in order to compare and contrast. But a more surprising (and most emphatically-stated) third function of MetaFont, according to its creator, is to meet the “real need” of “mankind’s need for variety.” In other words, to create difference for the sake of difference.

And so the notion of developing MetaFont as an autonomous project rather than as one of TeX’s machine-parts appears to aim foremost at expanding the possibilities of literary expression—anticipating “greater freedom,” a “typeface of one’s own,” “multiple fonts to articulate multiple voices,” and so on. It’s worth recalling, though, that when Knuth invented TeX in order to better typeset his own pages, or Morison refurbished *The Times*, their impetus was fundamentally reactive, not constructive. They weren’t out to expand the possibilities for expression *per se*, only to reinstate standards that had been eroded—ones that had been established in the first place to articulate written language as clearly as possible, not to pile on the effects. As Knuth himself states, typefaces are more medium than message, to the extent that “A font should be sublime in its appearance but subliminal in its effect.” What he didn’t foresee (or at least worry over) is that mankind’s real need for variety would tend towards the wholesale takeover of novelty as an end in itself.

...

In his 1928 book *One-Way Street*, the German cultural critic Walter Benjamin had already anticipated Knuth’s “power to control the final appearance of his or her work,” alluding to the artistic ends that an increased intimacy between writer and technology might foster. Specifically, he predicted that the writer will start to compose his work with a typewriter instead of a pen when “the precision of typographic forms has entered directly into the conception of his books,” to the degree that “new systems with more variable typefaces might then be needed.”

By writing directly into a mechanical form rather than a manuscript (as we’re doing right now) the writer would be working closer to the nature of the multiplied result, and through an increasing awareness and gradual mastery of the form’s new limitations and possibilities \*the writing itself

would evolve;\* the shorter the distance between the raw material of words and their processed output, the more entwined the content and form from the outset. This line of thinking was more famously expounded by Benjamin in his 1936 essay “The Work of Art in the Age of Mechanical Reproduction,” which more broadly argues that an authentic, pertinent art is the result of engagement with the latest technological innovations.

Benjamin was an active Marxist, committed to the notion that the technologies of manufacture—the “means of production”—ought to be owned by the people who operate them. In 1934’s “The Author as Producer,” instead of focusing on factories and workers, he attempts to pinpoint the nature of a \*socially committed art.\* Writing and the other arts, he writes, are grounded in social structures such as educational institutions and publishing networks, but rather than merely asking how an artist’s work stands in relation TO these structures, he queries how it stands IN them. He demands that artists refrain from merely adopting political “content,” propagating an ideological cause, and work instead to transform the root-level MEANS by which their work is produced and distributed. This “progressive” artistic approach INEVITABLY manifests a “correct” political tendency. The work practices in lieu of preaching.

Benjamin’s first case study in “The Author as Producer” is the Soviet writer Sergei Tretiakov, who lived and worked on an agricultural commune for extended periods before writing his experiences up into a novel. He is offered as an exemplary “operative writer,” implicating himself in the matter at hand, as opposed to the common hack who merely observes and “gives information.” Benjamin’s Exhibit A, though, is his immediate contemporary Bertolt Brecht, who subverted orthodox drama by way of his epic theatre’s celebrated “distancing effects”—leaving the lights on, renouncing expository narrative, presenting a series of objective “situations” in order that the spectators draw their own conclusions. Via these and other manipulations of “technique,” Brecht transformed “the functional relation between the stage and the public, text and production, director and actor.”

Necessarily leading by his own and others’ example, then, Benjamin urges the artist to perpetually reconsider his role away from prevailing norms, job descriptions, professional standards, and outside expectations

generally. What MIGHT the work of a constructively-minded “writer” constitute? Are the abilities to distill an opinion and turn a phrase adequately deployed via the regular mediums—newspaper columns, books, journals and pamphlets—or might they be more usefully channeled through writing, say, captions to photographs, or scripts to make films; or indeed by renouncing writing altogether and taking up photography instead? Hence the essay’s title is also its proposition: the writer (or artist) should be less a hemmed-in author than a free-ranging producer, closing the divide between her “intellectual” and “productive” activities.

. . .

In “A Note on the Type” (2010) we previously offered a history and extension of Knuth’s MetaFont project. Our appreciative “note” (more a love-letter written 30 years late) was then typeset in our own updated version of MetaFont—basically Knuth’s project rebooted for the PostScript generation and, following a throwaway remark by the late David Foster Wallace, rechristened Meta-the-difference-between-the-two-Font. That “single” note has since been published in multiple contexts and formats—on screens, pages, and walls. While all conform to the same basic essay template, each new instance adds three bits of writing by other people, each typeset in unique, freshly-generated MTDBT2-fonts to demonstrate the software’s essential plasticity. These extra texts have alluded to various facets of the project—\*repetition,\* \*habit,\* or \*the gray area between art and design,\* for example—that have suggested themselves as it has rolled palimpsestuously along.

Meta-the-difference-between-the-two-Font picked up where Knuth’s MetaFont left off. In fact, the only OSTENSIBLE difference between the two is that the new version was re-scripted in contemporary code to run on current computers. When typefaces are reduced to on/off bits of information, the typographic norms established by metal type (and carried over into photocomposition) are no longer bound to material necessity—they can be ignored and modified, and this is precisely what Knuth did. However, it was only with the advent and proliferation of PostScript in the early 1980s that typefaces became “device independent,” freed from their association with particular composing machines and their controlling companies. But beyond this nominal “language difference,” MTDBT2F



remained more or less faithful to MetaFont’s founding principles—not least its wacko parameters borrowed from Knuth’s Computer Modern font, which include “SUPERNESS,” “CURLINESS,” and so on.

The ACTUAL difference between the two, on the other hand, is less easy to discern. One clue is the simple difference in time: what it meant to make it \*then,\* and what it means to make it \*now.\*

In his essay “On the New” (2002), Russian art theorist Boris Groys wrote:

**Being new is, in fact, often understood as a combination of being different and being recently-produced. We call a car a NEW car if this car is different from other cars, and at the same time the latest, most recent model produced ... But as Kierkegaard pointed out, to be new is by no means the same as being different ... the new is a DIFFERENCE WITHOUT DIFFERENCE, or a difference which we are unable to recognize because it is not related to any pre-given structural code.**

He continues:

**For Kierkegaard, therefore, the only medium for a possible emergence of the new is the ordinary, the “non-different,” the identical—not the OTHER, but the SAME.**

MTDBT2F is, more-or-less, the same as MetaFont, abiding the obvious fact that it swallows its predecessor. Although the result may look the same, it clearly can’t be, because in addition to the “productive” software, the new version embeds its “intellectual” backstory—a story which is not merely supplementary but absolutely essential. MTDBT2F is a tool to generate countless PostScript fonts, sure, but it is \*at least equally\* a tool to think around and about MetaFont.

This broader notion is already ingrained in that original *Visible Language* debate, again most keenly foreseen by Hofstadter, who wrote that one of the best things MetaFont might do is inspire readers to chase after the intelligence of an alphabet, and “yield new insights into the elusive ‘spirits’ that flit about so tantalizingly, hidden just behind those lovely shapes we call ‘letters.’” Hofstadter is still referencing fonts and computers here, but

his sentiments can easily be read under what art critic Dieter Roelstraete recently called “the taunting of thought.” In fact, Walter Benjamin closed “The Author as Producer” with the following summary:

**You may have noticed that the chain of thought whose conclusion we are approaching only presents the writer with a single demand, the demand of REFLECTING, of thinking about his position in the process of production.**

At least as much as MTDBT2F serves as a functioning typeface, or set of typefaces, then, it is also a red herring, a carrot, and a mirror. It is a nominal setup for a nominal subject to play out, typically moving in and out of focus, veering off into other fields, and trespassing on other topics. In this unruly manner, the font serves us (or anyone else) exactly as it serves language—as rubber cement, a bonding agent.

...

In “The Designer as Producer,” a quick riff on “The Author as Producer” from 2004, design critic Ellen Lupton writes that Benjamin “celebrated the proletarian ring of the word ‘production,’ and the word carries those connotations into the current period,” offering us “a new crack at materialism, a chance to reengage the physical aspects of our work.” To claim, or reclaim, the “tools of production” in the arts today, though, shouldn’t imply some form of engagement, or worse, REengagement, with heavy machinery, hand tools, hard materials, or the studio (art-equivalent of the factory floor). More plausibly, it implies digital code.

Code resides in The Hollows, the curiously-named engine room of immaterial media, domain of scripts and programs, that has been likened by design group Metahaven to the stock market crash: “surface without surface, the exposure of the naked infrastructure or root level system language which precedes surface itself, surface without its effects.”

Another recent essay titled after Benjamin and written by Boris Groys, “Religion in the Age of Digital Reproduction,” invokes the protagonists of *The Matrix* as being uniquely equipped to perceive the workings of The Hollows. While Neo and co. were able to read image files as code, the average spectator “does not have the magic pill ... that would allow him

or her to enter the invisible digital space otherwise concealed behind the digital image.” And auspiciously enough, Groys also draws on our by-now-familiar terms, letter and spirit.

In updating Benjamin’s title, Groys signals the same basic investigation —of an existing phenomenon (this time religion rather than art) in a new milieu (digital rather than mechanical). Religious practice, he writes, has always involved the reproduction of institutionalized forms, but as Western religion has become increasingly personal and privatized, an unconditional “freedom of faith” has developed alongside traditional, conditional forms. Contemporary fundamentalist religion remains, by definition, grounded in the devout repetition of a fixed “letter” rather than a free “spirit” —material and external rather than essential and implied. This antinomy of “dead letter vs. living spirit” (which tallies easily enough with the legal one related by Hofstadter) informs all Western discourse on religion. On one hand, the typically “spirited” anti-fundamentalist account favors a living, powerful tradition capable of adapting its central message to different times and places, thus maintaining its vitality and relevance. Conversely, the ritualized repetition of the fundamentalist “letter” amounts to a kind of revolutionary stasis or violent rupture in the ever-changing order of things. Religious fundamentalism can thus be conceived as religion \*after the death of the spirit:\* letter and spirit are separated and polarized to the extent that the former no longer guarantees the latter. “A material difference is now JUST a difference,” Groys writes, “—there is no essence, no being, and no meaning underlying such a formal difference at a deeper level.”

While earlier media suited and so precipitated the circulation of conditional religion (1:1 mechanically-reproduced texts and images disseminated via orthodox channels), contemporary web-based media more closely approximate and so facilitate the unconditional—the wild dissemination of idiosyncratic views. And as digital reproduction supplants mechanical reproduction, the video image becomes the medium of choice. The cheap, anonymous, promiscuous character of digital information guarantees reproduction and dissemination more than any other historical medium. But what’s REALLY being duplicated is, of course, the image’s code —its invisible DNA.

In the 1930s, Benjamin had reasonably assumed that future technologies would only continue to guarantee the resemblance between an original and its copy, but now the opposite is true: each manifestation of the original is actually \*different,\* because typically overridden and recalibrated according to each spectator's local preferences (resolution, color calibration, style sheets, etc.) while ONLY THE CODE REMAINS THE SAME. In Groys' final analysis, spirit and letter are transposed from a meta-physical to a technological plane, where "spirit" is script, and each new visualization of that script is a corresponding "letter." (Picture m4v's, jpeg's and mp3's as angels "transmitting their divine command.") By now the terms are confused to the point of inversion: the so-called "spirit" of digital code is fixed, while the so-called "letter" of its various manifestations is fluid. Consequently, forms—surfaces—are no longer tethered to definite meaning, no longer plausible, and so no longer to be trusted.

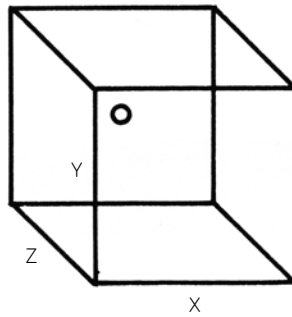
This is old news. However, as digital media become increasingly ubiquitous, templates increasingly homogenous and entrenched, the most likely place a "writer" might usefully "produce" today is in The Hollows. Hidden or invisible, and otherwise inaccessible to most, this is where we might conceivably reconnect spirit and letter, essence and identity—for "Ordinary readers, for whom a type is what it does."

...

How to keep things moving?

MetaFont and MTDBT2F were both set up to generate an infinite number of individual typefaces by tweaking a few simple parameters at different points in time. But what if we make one of those parameters \*time itself\*?

First let's transpose the extant ones onto a 3-D graph, running WEIGHT (a kind of bold) along the X-axis, SLANT (more or less italic) up the Y, and extending SUPERNESS (a kind of chutzpah) off into the Z beyond. We'll ignore CURLINESS for the time being, but we do have to account for a fourth factor, PEN, best conceived as a digital "nib" that determines the line's fundamental shape and angle at any given point.



Now let's send that point \*constantly moving\* through this imaginary cube. As it wanders randomly and aimlessly through the space, it trails a script that renders an alphabet whose form morphs according to its position relative to the other parameters—not forgetting the fact that the point-nib-pen itself is in perpetual flux. And, crucially, it never stops. The outcome might be usefully apprehended as the potentially endless matrix of Frutiger's Univers, amalgamated over time like Morison's Times New Roman, articulating itself in the manner of Bayer's Geometric Alphabet, over the precise wireframe of Louis XIV's Romain du Roi. Which amounts to a typographic oxymoron: a SINGLE typeface that's simultaneously MANY typefaces and never stops moving.

Naming this shapeshifter is easy enough—just shunt another couple of boxcars onto the end of the night train to arrive at (deep breath) Meta-the-difference-between-the-two-Font, or MTDBT2F4D for short.

...

Writing in one place inevitably \*performs\* in another.

Here, for example, reflecting on Hofstadter's and Morison's and Groys' various assimilations of the terms "letter" and "spirit" fosters a more robust, compound sense of their allegorical purpose. It produces a cosmopolitan thought. When grappling with ideas in one domain is brought to bear on another, those ideas are more firmly grasped and so more readily utilized somewhere else ... towards considering (say) the ways in which relative chauvinism and relative open-mindedness manifest themselves in daily life and work.

Or, equally, writing the first small script when learning a new programming language, the sole purpose of which is to generate two words that mark the border between instruction & instance. Swaddled in asterisks and set without a full point, this text always reads:

**\*\*Hello world\*\***

2011



## Dexter Sinister: A NOTE ON THE TIME

This text was first published in *Bulletins of the Serving Library* #1 (2011), then variously retooled for *Art Journal* (2011); a bilingual pamphlet in English and Italian printed on the occasion of *Alighiero e Boetti Day*, Turin (2011); as part of a larger PDF publication released alongside the exhibition *Counter-Production*, Generali Foundation, Vienna (2012); and transfigured into the “instructions” for Watch Wyoscan 0.5 Hz, a reverse-engineered Casio digital watch produced by Halmos with additional support from Objectif Editions, Antwerp, and Yale Union, Portland, OR (2012).

Cover image: after Albrecht Dürer, *Death and the Landsknecht*, 1510, woodcut



The time right now is 2011 Feb 18 3:34 PM. Now, have a look at the time stamped at the bottom of this page that marks when this file was last edited. It reports 2013 Jan 22 3:45 PM. What's going on? These two times could never be precisely alike—each is a specific POINT, and no two are ever exactly the same.

Both originate from the same source though—a networked time server maintained by Apple Computer and named, simply, `time.apple.com`. This external beacon commands not only the official time here on my MacBook, but also synchronizes its local clock with those of Apple users worldwide (laptops, desktops, phones, pods, pads, who-knows-whats-nexts). It's easy enough to think of `time.apple.com` as a master clock, but actually it is itself only a network of time machines, a collection of counters comprised of a circuit of servers—computers named `time1.apple.com`, `time2.apple.com`, `time3`, `time4`, `time5`, `time6` and `time7`. (The server my laptop is using right now (`time4`) is located at 20400 Stevens Creek Blvd. in Cupertino, California, just a few blocks away from Apple's appropriate corporate address, 1 Infinite Loop.)

All of these servers communicate and agree what time it is at `time.apple.com`. But this covers only North and South America, and also must synchronize itself with `time.asia.apple.com` and `time.europe.apple.com` to provide a unified answer. All this close coordination, communicated over distance and time, is governed by Network Time Protocol (NTP), a set of time-sharing conventions developed in advance of the World Wide Web in 1985, by University of Delaware professor Dr. David Mills. It is one of the oldest, and essential, Internet protocols.

NTP runs as a Ponzi-scheme. Each layer in the scheme organizes a set of time servers, who both receive the correct time from the layer above (each layer is properly called a “stratum” in the protocol) and also are responsible for dispersing the correct time to computers in the next layer down. At each level, more and more computers are connected.

The protocol works by sending a message between two points on a network containing two bits of information: 1. what time it is now at the source, and 2. how long it took to transmit this message to its receiver. Simple addition tells you what time it is on the receiving computer

(according to the sender). So, what time is it, precisely? Multiply this transaction through the layer-cake of millions of computers redundantly organized around the Network Time Protocol, and you'll begin to see a collective consensus emerge that passes for accuracy.

Turns out that in order to send a MESSAGE between two POINTS, it's essential that the two points AGREE on what time it is, otherwise the communication is jumbled. A quick thought gymnastic confirms. You live in Los Angeles and I live in New York. Settling on Eastern Standard Time, your clock tells you it is 2:34 PM, and mine tells me it is 2:32 PM, and you tell me, "Hey! In one minute the eclipse is going to start, you'd better run outside right now to see it (don't forget your sunglasses)!" and I drop what I'm doing to rush right outside. I see nothing. I'm bummed. I write back — "Nothing doing out there, I must've missed it." You reply, "But the eclipse is scheduled for 2:33 pm! You probably came in too early!" And I respond, "I'd already missed it then. It's 2:34 now." "No you haven't, it's in one minute still!" In the midst of this tedious exchange, surely the moon has passed in front of the sun and everyone in question has missed the party. What a misunderstanding!

These kinds of missteps multiply exponentially over a network, and it should be blindingly clear how critical agreement on the correct time is now, in our intimately-connected present. For communication, then, perhaps time is more of a medium than a measure. If we are going to be able to say anything to each other, we'd better start by agreeing on what time it is.

Some two years ago we were approached by Kadist Art Foundation, who asked if they could use our Meta-the-difference-between-the-two-Font for their graphic identity. We thought, instead, that it would be more useful to extend MTDBT2F by making a version that is constantly changing, gradually evolving over 10 years. Everyone agreed, and we drafted a letter on 21 October 2011:

**This is a letter of agreement between DEXTER SINISTER and KADIST ART FOUNDATION. Dexter Sinister will provide graphic design consulting, production and programming services. We will design and program a custom software program that generates a very slowly**

**changing typeface to serve as the logotype for Kadist. This font software will be hosted online at [www.kadist.org](http://www.kadist.org) and produce a time-specific font anytime it is accessed. Rather than one specifically identifiable font to mark the identity of Kadist, this fluid typeface will render distinctly at any moment in time. This custom typeface may be used by Kadist in print applications, on the internet and in other unspecified uses that arise over the coming 10 years.**

**The scope of work and associated fees as agreed are 5000 USD. Delivery date will be November 15, 2011. Any additional work will be contracted and billed separately.**

**We will begin this project with payment of the attached invoice for 50% of the total fees and the return of this letter of agreement.**

We all signed the document and work began. But let's back out for a minute and look again at the time reported in the first sentence of this text. This time was handed down through the cascade of networked time servers described previously, but where did the original "time" come from and how was it set?

In the top tier of the Network Time Protocol, one computer is hooked directly to one extra-ordinarily accurate clock. Currently, this is the Cesium Fountain Atomic Clock running at the National Institutes of Standards and Technology laboratory in Boulder, Colorado, named NIST-F1. Atomic clocks rely on the fuzziest logics of quantum mechanics. As electrons orbit the nucleus of an atom, rather than winding down gradually in energy like a pendulum, they lose energy in discrete chunks, at which point the circling electron jumps down to the next closest orbit producing something like a very very very faint "click." These steps are consistent for any one atom, and this quantity is its resonant frequency. The resonant frequency of the cesium atom, for example, is 9,192,631,770 Hertz (or cycles per second). And in a twist of recursive identity, the NIST has set the official standard for 1 second to be equal to 9,192,631,770 vibrations of the cesium atom. The United States' primary time and frequency standard is set then by NIST-F1 and is accurate to within one second every 60 million years.

So you can now more or less assume that the time stamped in the first line of this text does rather accurately reflect when the first sentence was written.

We'd all agree that 2011 Feb 18 3:34 PM identifies one specific POINT in time, a forever unrepeatable instant that disappears as quickly as we can stamp it. 18th-century empirical philosopher David Hume would certainly concur. Working from the center of the Scottish Enlightenment, Hume described his particular, uncompromised version of empiricism. He asserted that everything we know or can know about the world arrives to us only through direct sensory experience. Nothing exists outside of our own practical encounter with it as we move through the world. Further, he suggests that any sensible experience is composed of a single indivisible sensory building block which is marked by the limits of our perception. If you can't experience it, it does not exist. Hume most certainly was an essentialist.

While American empirical philosopher William James built many of his ideas on Hume's scaffolds, he also rejected Hume's reductive essentialism. In James's second-wave or "Radical" Empiricism, although knowledge about the world still arrived through direct experience, he dismissed what he called Hume's "atomism" or the idea that this experience was ever-assembled from smaller elementary blocks. James was, instead, a "Gestaltist" —a totalist who, although insisting on the incrementalism of building the world piece by piece, also understood that any one experience was whole and complete in and of itself, neither equivalent to nor reducible into any constituent bits.

So if we could query Hume on our time marked in the first line of this text, he would identify it as one irreducible moment. However, ask William James and he says that this POINT is really more of a DURATION. Time is like that—both point and duration. This is how it can bend and warp. A week, a second, a season: all are specific and discrete, but none are the same. The present can be cut to any number of lengths, from a single vibration of a cesium atom to the 3-month run of a contemporary art exhibition.

On Fri, 4 May 2012, about six months late, and after many technical

hurdles, the slowly evolving typeface was ready. We sent an email to Kadist describing the software apparatus involved which (anticipating the difficulty of keeping all this straight later) was written as much for ourselves as for the record generally. The subject line was “10 years from now”:

## How to keep things moving?

**Meta-the-difference-between-the-2-Font-4-D (MTDBT2F4D) is alive and has been running at a considerably sped-up pace for the last week on temp.kadist.org, depositing new fonts once a minute continuously. It is now ready to go live and begin making new fonts once a week for the next 10 years.**

This is how the whole thing runs: the software is composed of many parts made under different circumstances by different people at different times built one on top of each other, like a lasagna of sorts. At the bottom of the heap (the starting point) is MetaFont, a software written by Donald Knuth in 1979. MetaFont produces *\*bitmap\** fonts on-the-fly, specific to the output device, using a framework of essential skeletons for each letter that are drawn as required with a particular pen. The skeleton of a K, for example, will look quite different on each occasion depending on the explicit parameters fed to the software when it's run.

So Knuth's MetaFont (MF) already existed. We updated the framework that sits on the top of it, which both allows MF to run on a contemporary OS, and also massages the parameterization process, adding and altering some of the adjustable values. These additional or adjusted parameters include SLANT, SUPERNESS, WEIGHT, and PEN (which includes sub-settings for the form, rotation, and ratio between the width and height of the nib). These settings are expressed as a new set of MF source files.

The next layer is made of a tracing software (mfttrace) and a font production program (fontforge), both automated through a bash script. This combination produces a newly convenient, installable TrueType-format font from the the 30-year-old MF sources. A subsequent set of files are used with four MORE programs (shell scripts that mix python and bash which call fontforge routines) also written by us.

These are MTDBT2F-compile (assembles one proper MTDBT2-Font), MTDBT2F-convert (automates the batch creation of alternate versions), MTDBT2F-make (writes MF source files on the fly according to specific values fed in), and MTDBT2F-4D (a daemon-like process that moves the parametric values within an imaginary cube).

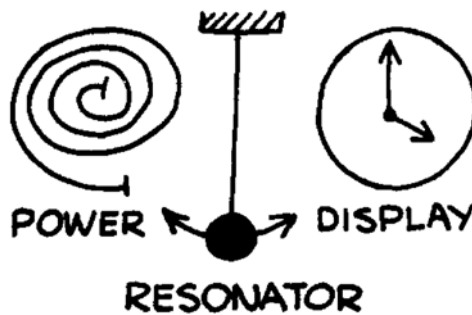
We imagine the resulting ~~Meta-the-difference-between-the-two-Font-4-D~~ as existing within the possibility space of this cube. Any one (momentary) instance of MTDBT2F4D exists as a point in the 3-dimensional space, defined by WEIGHT as the x-axis, SUPERNESS as the y-axis, and SLANT as the z-axis. We then take PEN—actually the most variable and perhaps consequential parameter in how the font looks—and set it traversing the 4th dimension of time. (PEN's values are also always incrementally changing within their own limits.) The minimum and maximum values for any of these are set before the process starts running, and, given that each step is made according to a random value generated by the software, and that the *\*changing\** step values multiply through four dimensions, then the resulting forms (MTDBT2F4D fonts) can't be predicted.

On the kadist.org server, then, the entire shebang is controlled as a cron job (a timed event on the server computer) that triggers one final shell script (MTDBT2F-release). This performs the heavy lifting (installing final files in the proper places, cleaning up etc.). As you can see, it's a fussy, messy recipe, though considerable care was lavished over its assembly. At this point, we only need to flip a switch (i.e, change the cron job) to get the thing running at the 10-year pace—so you just need to let us know when that time comes. Given the protractedness and patience that has necessarily accompanied this baroque process so far, we'd prefer sooner than later.

The whiplash of this email back and forth between technical details and somewhat grander notions is pretty much the experience of the whole project—so we must say again thanks to all involved for the time, space and spirit necessary to make it happen. It's certainly a heap of work to produce something that "simply" updates and swallows a software from 40 years ago. Now we get to spend the next 10 watching it grow. Maybe in the meantime we'll evolve slower eyeballs.

MTDBT2F4D went live (well, in a trial run that lasted another six months, during which time we troubleshooted any issues as the new Kadist website was being built) and things moved on. But let's double-back one more time to the time stamped in the first sentence: 2011 Feb 18 3:34 PM. And also, to the time as it stands right \*now\*: 2013 Jan 22 3:45 PM. We'll agree that the difference between these two points describes a length, but how can we measure it? Our meter-stick won't do. Time is nothing until it is counted, and for that we need a clock.

In *From Sundials to Atomic Clocks (Understanding Time and Frequency)*, James Jepsersen and Jane Fitz-Randolph describe keeping time as only a matter of counting the ticks of any regular, cyclical action. They also describe the constituent parts of a "clock" (or more properly a "clock system"). Schematically, it looks like this:



First, you need a device that can produce a periodic phenomenon (for example, a pendulum). This is the RESONATOR. Next you'll have to sustain the periodic motion by feeding it POWER (for example, the wound coil of a mechanical clock spring). Finally you need a means for counting, accumulating and rendering the ticks of the resonator. This is the DISPLAY (for example, a clock face and arms). Together, these three pieces define a clock. But of course to be useful — to measure a length — our clock must be RUNNING. With all of these conditions met, we can now simply determine the duration between writing the first sentence of this text and editing this one: 537 days, 0 hours, 59 minutes. And this delivers one final paradox: Time can only be measured by MOVING.

This "clock system" Jepsersen and Randolph describe can be easily applied to the KADIST logo. In this case, POWER comes from the hodge-podge collection of softwares wrapped up into the Meta-the-difference-

between-the-two engine. This runs on the [www.kadist.org](http://www.kadist.org) server, automatically producing new versions of the font once a week, regular as, umm, clockwork. This timed release is the regular tick-tick-tick of the RESONATOR. Finally, the DISPLAY is the actual KADIST logo, and its specific typographic form, at any one point in time of course.

Now, in order to guarantee that this 10-year speculation is allowed to run its course, we need to seal the deal by signing a contract to license the software. It is based on MIT's concise template, with certain pragmatic and poetic alterations to suit this case.

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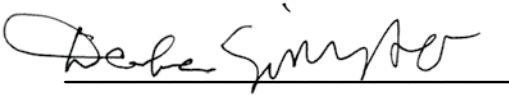
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**The Software relies on platforms and protocols that will inevitably change over the next 10 years, as the speed of technology continues to accelerate to near-terminal velocity. Nevertheless, every reasonable effort will be made in good faith by DEXTER SINISTER and KADIST ART FOUNDATION to maintain the Software over this time period.**



Further, on signing and initiating this 10-year license, KADIST ART FOUNDATION asserts an up-front commitment to allowing this eventual process to run its course, without excessive concern as to the form of the logo at any one particular moment, and with willful disregard to the winds of fashion or the mandates of technology, but instead, to pledge and bond itself to the principle that slowness and attention are their own rewards.

19 January 2013

A handwritten signature in black ink, appearing to read "Dexter Sinister", written over a horizontal line.

DEXTER SINISTER

A stylized, cursive handwritten signature in black ink, written over a horizontal line.

KADIST ART FOUNDATION

## Time is like that — both point *and* duration.

This is how it can bend and warp. A week, a second, a season: all are specific and discrete, but none are the same. The present can be cut to any number of lengths, from a single vibration of a quartz crystal to the display period of a digital timepiece.

*Watch Wyoscan 0.5Hz* is a reverse-engineered Casio digital watch. A tiny computer inside has been reprogrammed to slowly render the current time from left to right, scanning across its liquid crystal face, completing 1 cycle every 2 seconds.

You'll notice that reading this watch requires more attention than usual, as the seven segments of each digit are lit one by one across its display. This speed may be adjusted until it reaches *the limits of your perception*. You and your watch are now in tune.

*Watch Wyoscan* was adjusted by Dexter Sinister and produced by Halmos with support from Objectif Exhibitions, Antwerp, and Yale Union, Portland. It is available \*now\* (USD \$175) in select retail shops and online at [www.halmos.us.com](http://www.halmos.us.com).



**WATCH  
WYOSCAN  
0.5 Hz**

Photograph: Jason Fulford