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Transparent Typography in the Age of Electronic Communication: Towards a Better Utilization of Typography's Emotive Capabilities in Electronic Media through a New Design Paradigm

Ergodic and experimental print literature blur media boundaries through remediation of various forms of media, and as they do with many other devices, these types of literature attempt to use typography in experimental ways by incorporating aspects of its use in newer media. One of the purposes of art and experimental books is to challenge conventions and break rules and thus help society redefine the boundaries of popular culture. In works such as Tom Phillips' *A Humument*, the author uses type as a painter would use colors on a palette. Phillips regards "texts as images in their own right: treated as they are here with words ghosted behind words to form a (literal) subtext they are all the more image for being doubly text." (Hayles 88) In her non-fiction work *Writing Machines*, Katherine Hayles attempts to create a new way of presenting the text by experimentally incorporating into print components of electronic media. *Writing Machines* fuses aspects of typographic design with signifiers from the electronic space to underscore textual meaning. However, the direction that remediation is taking in many of the more popular print media is toward a diminished use of typographic qualities in favor of images.

This trend toward the visual in print media is infused with the design sensibilities of the Internet. Designers who are unfamiliar with Internet programming, particularly younger designers whose design sense has been shaped by a greater interaction with electronic media, produce designs with typefaces, imagery and conventions that are influenced by the Internet. Many established designers were initially dismissive of the Internet as a design medium because of its limited typographic capabilities; however, most designers now accept the hegemony of the Internet's design conventions into the larger graphic design space. Many graphic designers involved in traditional design media are also enlisted to design for the Internet. "Few design projects of any size are 'print-only'; most commercial communications are created to be disseminated in many different media and the Internet is as fundamental to the working practices of modern graphic designers as the drawing-board, T-square and mapping pen were to previous generations." (Shaughnessy)

Media in general—from newspapers to billboards to television ads—are remediating Internet design practice and symbolism. In print media, there is an increased use of Internet- and computer language-based characters, such as the bracket, the forward slash, and the chevron ([, /, >>). Additionally, the Internet practice of foregrounding the

visual over text is most notable in newspaper redesigns that visually attempt to reproduce the online experience in tabloid or broadsheet, and in magazines that strive for layouts that resemble web pages. Supported by research suggesting that a majority of 18-34 year olds prefer to get their daily news through online sources, newspapers have been undergoing redesigns that incorporate Internet design cues. (Tasker) According to Mario Garcia, who has collaborated on the redesign of over five hundred newspapers nationally and internationally, all newspapers will eventually convert to tabloid format because of the "undeniable" influence of the Internet, which helps to engender "impatience" with print. (Tasker) In 2002, Garcia directed the *Wall Street Journal* redesign to include color, more graphics, and an enhanced navigation system. Garcia's *Miami Herald* redesign in 2003 was implemented to mimic the way readers interact with Web pages. More visuals and shorter articles were included in the redesign with "navigational devices guiding readers to stories they want to read inside, without the tedium of advancing page by page." (Tasker) Garcia's redesigns are informed by studies that indicate that "we're a nation with environmentally induced attention-deficit disorder," with the Internet as a leading cause. The average paper reader views 98 percent of photos, 75 percent of headlines, 64 percent of photo captions, and reads 19 percent of full-length stories at least to the halfway point. (Tasker)

In magazine design, *The Atlantic Monthly's* April 2005 cover story layout was designed with Web page visual elements and interactive devices. To facilitate interaction between the footnotes and the main text, instead of superscripted numbers, the footnotes in the main text have lightly colored boxes drawn around them, signifying a hyperlink. The footnotes are offset by color-coded boxes in the margins of the page, similar to windows on a computer screen. Additionally, some of the footnote boxes have footnotes of their own, similar to pop-up windows or mouseovers on a Web page. The intent of the layout's design is to remediate aspects of Web pages, underscored by the Internet version of this article on *atlanticmonthly.com* that presents the footnotes through pop-up window scripting. The subject of the article, talk radio, is incidental to the article layout's design; such a design could have been used on any number of subject matters. (Figure 1) (Hypulp)

I.D. Magazine, which critiques the art, business, and culture of design, redesigned its entire magazine using textual cues from the Internet and navigational cues that evoke the folder hierarchies of an electronic file folder system. A design motif that is used throughout the magazine is the forward slash in front of department names, mixed with programming symbols (e.g., "/editor's note, /expo, /q+a, /rant"). The forward slash symbol is further utilized within the magazine on section pages where the slash is used to delineate sections within sections, similar to a collapsing and expanding folder tree found on Web page navigation or in a "File Transfer Protocol" client. (Hypulp)

Clear Channel bought KFI—or rather the radio company that owned KFI—some time around 2000. It's all a little fuzzy, because it appears that Clear Channel actually bought, or absorbed, the radio company that had just bought KFI from another radio company, or something like that.

It turns out that one of the reasons its old Koreatown studios are such a latrine is that KFI's getting ready to move very soon to a gleaming new complex in Burbank that will house five of Clear Channel's stations and allow them to share a lot of cutting-edge technical equipment and software. Some of the reasons for the consolidation involve AM radio's complex, incremental move from analog to digital broadcast, a move that's a lot more economical if stations can be made to share equipment. The Burbank hub facility will also feature a new and improved mega-Prophet OS that all five stations can use and share files on, which for KFI means convenient real-time access to all sorts of new preloaded bumper music and sound effects and bites.

As the board op, Mondo Hernandez is also responsible for downloading and cueing up the sections of popular songs that intro the *John Ziegler Show* and background Mr. Z.'s voice when a new segment starts. Bumper music is, of course, a talk-radio convention: Rush Limbaugh has a franchise on the Pretenders, and Sean Hannity always uses that horrific Martina McBride "Let freedom ring / Let the guilty pay" song. Mr. Z. favors a whole rotating set of classic rock hooks, but his current favorites are Van Halen's "Right Now" and a certain jaunty part of the theme to *Pirates of the Caribbean*, because, according to Mondo, "they get John pumped."

N.B. Mr. Z. usually refers to himself as either "Zig" or "the Zigmester," and has made a determined effort to get everybody at KFI to call him Zig, with only limited success so far.

(Which means that the negotiations between KFI and PRN over the terms of syndication for Rush, Dr. Laura, et al. are actually negotiations between two parts of the same company, which either helps explain or renders even more mysterious KFI's reticence about detailing the Clocks for its PRN shows.)

"Passion" is a big word in the industry, and John Ziegler uses the word in connection with himself a lot. It appears to mean roughly the same as what Ms. Berlucchi calls "edginess" or "attitude."

Part of the answer to why conservative talk radio works so well might be that extreme conservatism provides a neat, clear, univocal template with which to organize one's opinions and responses to the world. The current term of approbation for this kind of template is "moral clarity."

It is, of course, much less difficult to arouse genuine anger, indignation, and outrage in people than it is real joy, satisfaction, fellow feeling, etc. The latter are fragile and complex, and what excites them varies a great deal from person to person, whereas anger et al. are more primal, universal, and easy to stimulate (as implied by expressions like "He really pushes my buttons").

Appeals, has lately tried to make even more permissive). And these radio conglomerates enjoy not just substantial economies of scale but almost unprecedented degrees of business integration.

Example: Clear Channel Communications Inc. now owns KFI AM-640, plus two other AM stations and five FM's in the Los Angeles market. It also owns Premiere Radio Networks. It also owns the Airwatch subscription news/traffic service. And it designs and manufactures Prophet, KFI's

operating system, which is state-of-the-art and much too expensive for most independent stations. All told, Clear Channel currently owns some 1,200 radio stations nationwide, one of which happens to be Louisville, Kentucky's WHAS, the AM talk station from which John Ziegler was fired, amid spectacular gossip and controversy, in August of 2003. Which means that Mr. Ziegler now works in Los Angeles for the same company that just fired him in Louisville, such that his firing now appears—in retrospect, and considering the relative sizes of the Louisville and LA markets—to have been a promotion. All of which turns out to be a strange and revealing story about what a talk-radio host's life is like.

(2)

For obvious reasons, critics of political talk radio concern themselves mainly with the programs' content. Talk station management, on the other hand, tends to think of content as a subset of personality, of how stimulating a given host is. As for the hosts—ask Mr. Ziegler off-air what makes him good at his job, and he'll shrug glumly and say, "I'm not really all that talented. I've got passion, and I work really hard." Taken so for granted that nobody in the business seems aware of it is something that an outsider, sitting in Airmix and watching John Ziegler at the microphone, will notice right away. Hosting talk radio is an exotic, high-pressure gig that not many people are fit for, and being truly good at it requires skills so specialized that many of them don't have names.

To appreciate these skills and some of the difficulties involved, you might wish to do an experiment. Try sitting alone in a room with a clock, turning on a tape recorder, and starting to speak into it. Speak about anything you want—with the proviso that your topic, and your opinions on it, must be of interest to some group of strangers who you imagine will be listening to the tape. Naturally, in order to be even minimally interesting, your remarks should be intelligible and their reasoning sequential—a listener will have to be able to follow the logic of what you're saying—which means that you will have to know enough about your topic to organize your statements in a coherent way. (But you cannot do much of this organizing beforehand; it has to occur at the same time you're speaking.) Plus, ideally, what you're saying should be not just comprehensible and interesting but compelling, stimulating, which means that your remarks have to provoke and sustain some kind of emotional reaction in the listeners, which in turn will require you to construct some kind of identifiable persona for yourself—your comments will need to strike the listener as coming from an actual human

Figure 1. *The Atlantic Monthly's* Apr. 2005 cover story design: pop-up windows and hyperlinks in print

In electronic media, typography's early appearance does "not bode well for design." (Helfand) This is exemplified by electronic mail which, stylistically, is closer to conversational speech than to written language. In terms of design, email eliminates the distinctiveness that typography has traditionally brought to written communication. "It is

a kind of aesthetic flatland—informationally dense and visually unimaginative, functionally serviceable and visually forgettable." (Helfand) The irony of email is that it increases communication options, yet the quality or substance of the communication is lacking.

People are searching for ways to express emotion and meaning through textual electronic communication. In emails, expressive emotion is attempted graphically through emoticons, which contribute a rudimentary level of feeling to an email. To aid expressiveness through typography, email and instant messaging clients have only just begun to have Web-based fonts integrated into their font offerings for message composition. However, there are only a few fonts that are considered "Web-safe," in which Web-based content may be consistently displayed, and in which one can be reasonably certain that the font chosen for message composition will be the identical font displayed for reading on the message recipient's computer. There are currently nine fonts that are considered to be Web-safe, cross-browser and cross-platform compatible, and therefore widely acceptable for Web design and electronic communication. (Figure 2)



For many years the two most commonly used fonts on the Web were Times New Roman and Arial. There were no fonts designed specifically for the computer screen until Chicago and Geneva were created for the Macintosh. (Kare) Fonts such as Times Roman and Helvetica were originally designed to output to print devices, not created for their final destination to be a low-resolution computer screen. Fonts designed for printed matter are "previews" on screen that approximate what a printed page will look like. The purpose of most fonts on the computer screen is merely to "hint" at the appearance of type. (Eaton) As I will discuss later, for reasons related to the computer monitor's technical specifications, type that is created to be used in print suffers when used in electronic media.

Macromedia Flash technology can be used to help type work with rather than against the computer screen's specifications. Flash provides Web designers with the ability to use and animate any font the project's need dictates; however, Flash as it is generally implemented on the Web today is underutilized in its ability to provide substance to message content. Current Flash technology design practice gives rise to such statements as MIT Media Lab professor John Maeda's, wherein he asserts that while with the advent of computing we have created a new digital medium, it is generally approached with ways of thinking derived from other media. He believes that the separation of form and function represented by the computer is partly responsible for our forcing the computer into familiar metaphors. Additionally, designers substitute mastery of the software for mastery of the skills it is supposed to facilitate, which leads to "creative impotence." "Designers seem to concentrate too hard on what Flash can do, rather

than what the new medium allows a piece to say." (qtd. in Macdonald) There is general agreement, if not consensus, that for the most part the animated typography prevalent on the Internet is in its infancy, and similarly to the prevailing approach to type design in electronic media, is missing a fundamental point.

More people than ever are designing more typefaces than ever, yet few are designing type specifically for the computer screen. Some attribute the dearth of available fonts designed for the screen to the complexity of the task, which requires a deep knowledge of type design, legibility, and technology, rather than just style. (Will-Harris) The small number of typefaces available on the Web design palette, coupled with the fact that designers bring their knowledge of designing with type to a medium that does not embrace traditional print typography, creates a situation that, if not corrected, can lead to the demise of the use of the full expressive potential of type. Typography and typographic design in general practice today are aligned with elementary principles that adhere to traditionalist sensibilities that type should be seen and not heard, which is a reversal of the trend of ten to twelve years ago, when "illegible" typography and layouts were felt to demonstrate a designer's intuition, emotional state, and eclecticism. While the radical and fringe typographic designs of the 1990s did not achieve full inclusion into the mainstream media, the designs did serve to agitate the sedate typographic design sense, if only for a short while. In terms of experimentation and creativity in type, as I will discuss later, the 1990s was only equaled in recent history by the 1920s. These periods demonstrated that the art and practice of typography respond to trends in the general culture to reflect the zeitgeist of its period.

In addition to the cultural and artistic evolutions of type, letterforms and the media they inhabit have evolved together throughout history, the practice of creating the forms adapting to the needs of the medium. Many principles of print typography do not apply when the ultimate medium is other than print, an understanding that is only now in the process of being formulated for electronic media. Digitally created fonts were fashioned from its medium. Because the ultimate goal of digital type is print, the innovative digital typography of the 1990s was created by using principles of typographic design that were defined by print production. Type for documents that exist primarily on the computer screen must be created in the same way—by paying attention to the needs, advantages, and disadvantages of the electronic space, and by creating type that lives and communicates on the screen, as it can only on the screen. Web typography must necessarily take into consideration the qualities of its particular medium, as type has always done since it was created.

A HISTORICAL PERSPECTIVE

While the origin of the typeface is in writing and calligraphy, the history of typography is primarily closely related to the history of printing and eventually to the history of graphic design. Writing can be traced back several

millennia B.C. to Egyptian hieroglyphics and Sumerian cuneiforms, however, our modern alphabet letterforms can be seen in Roman monument and statue inscriptions from around 50-120 A.D. Early Latin writing was based on these Roman letters, and the evolution of these forms from the sixth to the tenth century saw the emergence of upper case and lower case letters. These letterforms developed from Carolingian letters, (so called because they were adopted by the Emperor Charlemagne as a standard for education) into what we now think of as "normal" in terms of their shape. "Italics," in the form of cursive script, was in use by the fifteenth century in Rome and Florence. (Phinney)

Johann Gutenberg is credited with the creation of the apparatus for making movable metal letters, or type, for the mass production of printed books, and in effect created typography in 1440. The type used by Gutenberg in his bible printing resembled a formal contemporary gothic black letter manuscript writing known as *textura*. (British Library) How Gutenberg made his type is still debated, because he continuously refined the methods for type creation. But by the 1470s, type was produced by foundries in the same manner that it would be produced for centuries thereafter. (Phinney)

Print production spread throughout Germany as a cottage industry that developed to meet the demand for scholarly texts. Initially printers used different typefaces each time a new press was organized. In creating a typeface, designers mimicked the manuscript scribe's work. Subtle differences in writing styles in different regions were represented in the fonts that were created in each region. Typeface creation and choice were based on local tastes because each printing house tried to create books using a typeface with which its customers were familiar. (British Library) As printing spread across Europe, increased variety emerged in typeface design. The incipient Roman print trade produced a typeface that was popular with renaissance scholars and is still today referred to as 'Roman'. Roman is based on Imperial Roman inscriptions and was designed to have a classical appearance. (Wysocki 126) Developed between 1467 and 1501 with variations in France and Germany, Roman was the typeface of the Renaissance, eventually replacing the tenacious hold that black letter gothic had on Germany around 1500. The Roman typeface completely altered the appearance of books and all kinds of printing from that time forward. (Carter 49) However, typefaces continued to be associated with specific textual genres; "even when roman and italic typefaces were used for other books (e.g., the classics), a form of gothic was still employed for the scriptures."(Greetham 279)

The printing press and the science of typecutting had only minor refinements from the late 1600s to the late 1800s. The industrial revolution introduced innovations in printing technology and type foundry procedures. Typesetting was transformed by the invention of the Linotype and subsequently the Monotype machines. (Phinney) The growth of consumerism during the nineteenth century conferred onto the commercial printers the task of ephemera printing. The book printer tended to be a sophisticated tradesman or a scholar, while the jobbing printer

was generally barely literate, unschooled in aesthetics, and practicing what was deemed a "peasant art." (Lewis 11) The printing manuals the jobbers used for reference stressed technical instruction and print production efficiency. These manuals provided "suggestions" to create page mockups in the interest of saving time, and the layout, typographic, and spacing references in the manual were based on "classical rules of proportion, largely absorbed as habit and convention rather than as articulated precepts." (Drucker 3) The Renaissance standards of conservative typography saw a decline in the character of the work produced, influenced by Victorian tastes. Victorian aesthetics were "confused by the belief that ornamentation and design were identical functions." (Chwast and Heller 3)

Owen Jones wrote *The Grammar of Ornament* in 1856 as a guide to counter what he saw as a lack of design principles. In the book, Jones outlined basic concepts and gave examples of what he considered the best of design in other cultures in its alignment of form with function. The book gave examples of "patterns, though infinitely variable, [that] follow certain universal principles of beauty, present even in nature," as well as tips on how to achieve balance and harmony in color. (Keefe) Owens's motifs were packaged as a specimen book and became a guide for printers and designers and in effect created the basis for the profession of graphic design. During the same period, Walter Crane, today most noted for his children's books that were the first successful mass market color books for children, was "one of the first illustrators to acknowledge the relationship between illustration, typography and page design." (Chwast and Heller 37)

However, the general state of typography in the late nineteenth and early twentieth centuries was often a conglomeration of different styles, usually with broken fonts and discordant typefaces, often within the same word. During this period though, type designers worked with type foundries and began to learn how to make type more readable. (Chwast and Heller 24) Influenced by British designers' return to classical forms, this period in American typography also witnessed the decline of the highly decorative style of type. The decline of this style of type was supported by incipient efforts to define layout and typographic standards. *The Printing Art* magazine was launched in 1903 to take up where the technical printing trade guides left off. The magazine offered articles on typographic and layout design as well as discussions on the need to unify type and image and to "return to classic design principles with an emphasis on basic structure, balance, and harmony of style." (Thomson) Even considering the ornamented fonts of the Victorian era, the evolution of font design was essentially following one direction, in which the three most visible aspects of type forms evolved consistently: "(1) the serifs became more refined and delicate; (2) the contrast between thick and thin strokes increased; and (3) the calligraphic or diagonal stress on curves gradually disappeared as it moved to the vertical." (Berry)

The 1920s was the most influential period on design in general and typography in particular prior to the digital age of type. At the forefront of the modernist design movement was the Bauhaus school, the aesthetics of which were

synonymous with futurism. The Bauhaus created graphic design as a curriculum that included typography workshops that attempted to avoid imposing any particular style on its students in order to allow them to develop their individuality. (Chwast and Heller 114) The modernist style of the Bauhaus was most notable in posters and photomontage influenced by Cubism, Futurism, and Dadaism. The asymmetrical typography of the period formed the so-called "New Typography," which was a rejection of the classical rules of typographic symmetry. Serifs were rejected, as were capital letters in Herbert Bayer's "Bayer" font, and the defining typeface of the period was named "Futura." (Chwast and Heller 120)

But even in the midst of this typographic experimentation, designers and artists believed it necessary to assert standards for typographic use. Modern artist Lazar El Lissitzky, a proponent of Russian Constructivism who "sought to create a modern art that would take the viewer out of the traditional passive role and make him an active spectator," and whose approach to graphic design emphasized "the tension between objects and typography," (Chwast and Heller 98) nonetheless listed first on his list of the qualities of good typography that "printed words are seen and not heard." (White 120) In 1925 Jan Tschichold collected and analyzed new typography in an attempt to codify it, and stated that "the rules of the old typography contradict the principles of fitness for purpose in design. Unsymmetrical arrangements are more flexible and better suited to the practical and aesthetic needs of today." (qtd. in Chwast and Heller 118) But, like many designers of the period, Tschichold was only willing to allow a certain amount of individuality and freedom of expression in typeface design. Tschichold believed that there should be no trace of the artist's signature in good typography. "What some may praise as personal styles are in reality small and empty peculiarities, frequently damaging, that masquerade as innovations. [...] Personal typography is defective typography." (qtd. in Khalsa 6) Along with the ascendancy of photography by the end of the 1920s, sentiments like Tschichold's and the stringent rules for typography that it engendered pervaded the environment in which type was created and used until the digital age of typography placed the tools of font creation in the hands of the masses.

A THEORETICAL PERSPECTIVE

The idea that type should be invisible is based on the contention that type should not connote meaning, nor can it. Even today, these long and closely held tenets continue to hold sway over typographic design. In Beatrice Warde's "Crystal Goblet" essay on typography, she stated that type should be as transparent as a crystal goblet, invisible to the reader. "Type well used is invisible as type, just as the perfect talking voice is the unnoticed vehicle for the transmission of words, ideas." (Warde) Warde's notion of invisible type is in force regardless of the context; she applied it equally to advertising copy and fine books. Perhaps one of the reasons behind the thought that the written alphabet and, by extension, typography is not (or as in the case of Warde's "crystal goblet") should not be imbued

with a culturally and historically inclusive societal gestalt is the dearth of research and theory on the subject of typography and reader response. The majority of the studies that do exist tend to concentrate on typographic efficiency rather than the link between type characteristics and any relevant mediating and moderating factors. (McCarthy and Mothersbaugh 664).

But perhaps even deeper than the idea that type lacks connotation is the notion that the alphabet itself is an empty and meaningless vehicle. According to Marshall McLuhan, semantically meaningless letters are used in the phonetic alphabet to correspond to semantically meaningless sounds, and that compared to the hieroglyph and the Chinese ideogram, the phonetically written word carries less meaning and perception. McLuhan also asserts that the wealth of perception and experience inherent in the ideogram is lost in the phonetic alphabet because the "ideogram is an inclusive gestalt, not an analytic dissociation of senses and functions like phonetic writing." (McLuhan 92) Additionally, McLuhan describes all Western cultures' Graeco-Roman letter-derived alphabets as radical translators of the sounds of any language into one visual code. In the course of this translation, the phonetic alphabets separate "both signs and sounds" from any verbal and semantic meaning. (McLuhan 94)

McLuhan asserts the lack of meaning of the alphabet, but he also conversely states that "it is the medium that shapes and controls the scale and form of human association and action. [...] Indeed, it is only too typical that the 'content' of any medium blinds us to the character of the medium." (McLuhan 9) The typeface, as the medium through which the content of textual messages is sent, is rife with meaning largely because of the cultural and societal associations that shape its history. The elements that make up typography are signs that are composed of semiotic layers, each layer imbued with the ability to convey meaning. (Stockl 205)

Post-structuralist and deconstruction theories support typography as playing a vital and active part not only in conveying information but also in how the information is expressed. In the interaction between language and image, typography as a "signing mode" is only recently gaining legitimacy in semiotic theories. Generally, linguists have been "averse to seeing writing and layout as connected with language and verbal communication and refuse to acknowledge typography as a semiotic mode." (Stockl 206) The home computer and its attached printer have enabled anyone who can print to also act as typographer. The ubiquity of typography increases the importance of recognizing its position as a "sign" that absorbs and reflects cultural and social and historical concepts and, as such, can be defined in semiotic terms.

Linguist Ferdinand de Saussure viewed what he called "semiology" as "a science which studies the role of signs as part of social life." (Dahlstrom, Somayaji) In Saussure's model, a sign consists of a signifier, which is the form that the sign takes that can be material or non-material, and a signified, which is the meaning of the sign and how the sign is interpreted. Saussure related a "chain of signification" as the ordinary state of affairs, in which signs refer to

other signs and all of the signs have meaning, but the meaning exists only within the context of this system of referential signifying. (Dahlstrom, Somayaji) However, Saussure's chain of signification did not extend to the alphabet. He felt that writing was inferior to speech and at best an artificial technology for reproducing language wherein the "tyranny of writing distorts its pristine referent through orthographic monstrosities and phonic deformations." (Lupton, Miller)

Roland Barthes expanded on Saussure's concept of signification by equating "myth" to language. Barthes refers to myth as a type of speech, a system of communication, a mode of signification that is a message, or a type of form. Barthes' form contains a "reserve of history" that stores its meaning, and that can transfer its meaning. (Lavers) Interpreted this way, an object such as the letter "a" is a signifier. But if it were weighed with a definite signified it would become a sign, resulting in transference of the meaning inherent in the signifier. For example, in market research at Procter and Gamble, products are never designated by A, B, and C. Even though the symbols may be recognized as arbitrary, the culturally derived hierarchy of the signifier alphabet is transferred to the signified letters, resulting in a sign that connotes A as better than B, which is better than C. (Greetham 284)

Deconstruction theories focus on the linguistic and institutional systems that frame the production of texts rather than the themes and imagery of its objects. In Jacques Derrida's theory of deconstruction, he asks how representation inhabits reality. This question is the basis of Derrida's interrogation of the relationship of speech to writing. "By showing how the devalued, empty concept lives inside the valued, positive one," Derrida showed that speech, like the alphabet, could not transparently reflect reality. (Lupton, Miller) Essentially, writing inhabits speech; phonetic language exists on its own as a language. In its assertion that phonetic writing and ideographic writing have borders that are in constant flux, deconstruction theory reverses Saussure's contention that they are separate. (Lupton, Miller) Additionally, deconstruction theory calls into question McLuhan's contention that the alphabet is "an analytic dissociation of senses and functions," while reinforcing his adage that "the medium is the message."

It is in Barthes' sense of signifier and signified that we speak of the connotative quality of a typeface. In the design process many artists instinctively know what typeface can be used to elicit the desired feelings because of the connotative attributes inherent in a particular typeface. A typeface draws its connotations from "the import of signs into a specific domain where they have hitherto not formed part of the accepted, conventional repertoire." (Van Leeuwen 137) This place of origin can be a historical period, a culture, a group, or a professional association. The connotation does not determine the meaning but rather it forms a "meaning potential" for a specific context of font usage, the interpretation of which is culturally grounded. (Van Leeuwen 137). However, many typefaces are not immediately recognizable as belonging to a particular context. A typeface's metaphoric potential differs from its connotation in that its metaphoric potential is a more subtle characteristic derived from the significance in the details of a font's specific

features and what these features suggest when used in certain contexts. Details such as serifs or san serif, angularity or long or short descenders can act as metaphor for the intended meaning. (Van Leeuwen 137) Such details can convey personality traits, as revealed in studies involving script types that were found to evoke elegance and sophistication. (McCarthy and Mothersbaugh 666)

It is through typography that visual communication and writing form an inseparable unity. Typography encodes language; reading is essentially a decoding of "graphic signs in order to make linguistic meaning." (Stockl 206) While there is a distinction between the pictorial graphic sign and the graphic verbal sign that is suggested by the higher degree of complexity of the graphic sign, a verbal sign can blur this distinction with inherent graphic aspects that visually convey meaning. Typography assumes pictorial qualities when readers "notice certain graphic qualities over and above the type of the letter and bring it to bear on the meaning of the text." (Stockl 206) A typeface can achieve "pictoriality" when its elements form visual signs that invoke objects, shapes, or pictorial symbols. This can be accomplished by shaping type to resemble objects (or, conversely, shaping objects to resemble letters) or using resources like texture and perspective on type that are usually reserved for images. These dimensions that add pictorial qualities to type evoke a variety of thoughts, images, and meanings that are in "both semantic and episodic memory systems. Personal and collective representations trigger a complex sequence of reactions known as emotions." (Stone 190) Feelings and emotions are related to the content of memory systems and are triggered by each individual's parsing of the ideas and qualities represented in the typeface. For example, coherent patterns evoke feelings of calm or pleasure and disharmonious patterns evoke tension. "Feelings are almost mechanically related to changes in the content of cognition." (Cupchik 3) While the feelings engendered by the messages conveyed in typefaces are assigned a value of their own independent of the typeface, the pictorial and connotative qualities, and the metaphoric potential expressed in the type are meaningfully related to the content of the text.

The intensity, similarity, and proximity principles of Gestalt psychology further heighten the semiotic aspects of typography. If these three principles are used effectively, an additional principle called 'strength of perception' is enhanced. (McCarthy and Mothersbaugh 669) According to Gestalt psychology, in the principles of similarity and proximity, objects that are similar or in close proximity are more likely to be perceived as a cohesive unit. Intensity is a function of similarity and proximity and represents the strength of unity of the objects. In effect, multiple similar elements increase the perception of unity and therefore increase the strength of the meaning of the typeface.

(McCarthy and Mothersbaugh 669) In the typeface named "Gestalt," if the individual letters are taken out of the context of a word that creates meaning, the letters may not be



recognizable as letters. Placed next to each other to create a word, the letters form a cohesive unit that is then recognizable as a word. (Figure 3)

THE MASSES ARE . . . TYPOGRAPHERS

With the advent of the technologies of desktop publishing and personal computing in the 1980s, typographic capabilities were digitized and given to the masses. Within a few years, designers had created as many new typefaces as they had done in the entire history of typography. (Bil'ak) These newly acquired keys to the typographic kingdom allowed the creation of new and experimental typefaces that disregarded centuries of the art and craft of typography. Digital type designs ignored the existing "categories, and typefaces were no longer limited to serif and sans-serif but also included such styles as semi-serif and mix." (Bil'ak) This creative outlet for type was actually a natural progression of type design given the ubiquity of desktop computing that allowed all who desired to exhibit typographic expression. "Digital media encourages an easy blurring of the boundaries of image/text through production methods that are radically different from those of more traditional/conventional production methods grounded in hot type, mechanical/darkroom photography, and photomechanical methods of production." (Drucker 3)

In the early 80s, typographic designs in print were constrained by conservative design standards. Slowly, however, as small publications began to experiment, typeface designers broke with tradition and, in doing so, broke the "rules" that the typographic and design masters stated as belonging to good typography. The masters of typographic design rejected much of the new digital typography as amateurish in that the typefaces inhibited legibility and were also lacking in the basic concepts of harmony and proportion of their typographic elements. As a result, these new typefaces were considered to have damaged the integrity of the craft of typography. "Young designers at the time were reacting against the rigidly prescribed guidelines of what constituted 'good typography.' They used letterforms as a way of visually representing philosophical ideas [...] or as a vehicle for personal expression." (Siegel)

According to Jan Tschichold, "for perfect typography, an exhaustive knowledge of the historical development of the letters used in printing books is absolutely necessary. More valuable yet is a working knowledge of calligraphy. To create a whole from many petrified, disconnected and given parts, to make this whole appear alive and of a piece — only sculpture in stone approaches the unyielding stiffness of perfect typography." (qtd. in Khalsa 7) The creators of this new digital typography were neither particularly familiar with the history of type nor did they necessarily have a working knowledge of calligraphy. One of the most notable designers of the period, David Carson, stated that when he started designing he "didn't know there was a profession called graphic design." (Clark) Carson was nonetheless able to produce the most controversial type designs in recent history. He designed type similarly as do most designers: by intuition. The type designs that Carson created and inspired were a product of their time. They

competed for attention with the emergence of music videos and adopted the concepts of the music video genre to print. As art typography, the type was not always legible. However, according to Carson, "if the type is invisible, so is your article, and it's probably not going to get read. The message that the type sends [...] is as important as what it's saying. When those work together, you've got really strong communication." Carson's typography fit the audience to which it was directed—underground and experimental, hip and young—who defined their own methods of communication by defying the rules. (Clark) Carson's digital typography defined the "look of the nineties" (Kirschenbaum) that introduced the aesthetic of illegibility into design, tame versions of which were co-opted by Madison Avenue and the corporate mainstream. (Figure 4)



Figure 4. A Nike ad designed by David Carson

With the growth of the Internet there was a change in direction from the expressive typographic designs of the 90s to a general design aesthetic aligned with the commodification of information which may be seen by:

... a casual inspection of the advertising in a magazine such as *Wired* or, for that matter, *PC World*. We'd find, for example, an ad for Microsoft Windows NT, which adopts the graphical format of the software's sliding menu trays to explicate its features, while the accompanying text marks off words for emphasis by coloring and underlining them in the now-familiar manner of HTML links. (Kirschenbaum)

FORM FOLLOWS FUNCTION

Only by paying close attention to the distinct requirements of form in electronic media can effective typographic designs emerge that suits their function. In the past, new developments in print and associated technologies engendered new ways of thinking about typography. This must also hold true for the Internet if type is to be used effectively in electronic media. While design is an inseparable element of the quality of type, the function that a typeface serves is defined by its context.

Typographic functions can be largely divided into the two main categories of art and communication. In art typography, the individual style and expression of the designer is given more importance than type readability. Communication typography is further divided into impression, information, and interactive typography. Impression typography is usually found in advertisements and its main function is to attract attention. The type may or may not be highly legible, depending on the desired connotation of the message. The aim of type used in information typography is readability and legibility. Typefaces with a universal and subtle appeal fill an informational function. The appearance of interactive typography varies with the context, and type selection depends upon its function within that context. Kinetic or animated type can relinquish a certain amount of legibility if its main purpose is to attract attention or convey emotion. However, type used for navigational and other informational purposes should be highly legible. (Schalke)

Print readability studies have shown that serif fonts are easier to read than sans serif fonts. (McPherson) The higher readability is attributed to the belief that serifs help to distinguish each individual letter. However, this benefit may be reduced or even eliminated on computer screens because of display particularities like poor screen resolution and pixelization, which makes reading 25 percent slower on the Web than in print. (McPherson) In readability studies for fonts on the computer screen, sans serif fonts yielded slightly better reading performance than serif fonts, and the sans serif fonts were also the preferred font. However, serifs have been shown to serve a useful purpose on screen. In the HTML-specific format sizes of small, medium, and large, users performed better at the small size with a serif font. (Morrison, Noyes)

The visual idiosyncrasies that affect text readability on a computer screen are the result of the monitor's qualities of luminous flare, resolution, and pixels. These qualities that define the form of the elements on display must necessarily be taken into consideration when designing a typeface that is highly legible. Controlling excessive contrast and reducing glare are of prime concern for type on the computer screen. The contrast ratio of an average computer monitor to that of a printed page is about 300:1. (Gillespie) When reading regular black text on a white background on a screen over prolonged periods of time, this contrast may cause eye strain. In print, "ink spread" has the effect of making type appear slightly bolder than it actually is. Conversely, if type is reversed-out, ink spread on paper causes the type to fill in and thus appear thinner. However, for computer screens, the opposite is true; the flare of the luminous source encroaches upon surrounding dark areas, making black-on-white text appear thinner and reversed-out text appear bolder. (Gillespie)

Before type can be emotive or convey an effective message, it must be visually comfortable in its medium, even if the connotation of the typeface is to suggest discomfort. As I stated earlier, there were no fonts designed specifically for the computer screen until Chicago and Geneva were created for the Macintosh in the mid-1980s. However, as a result of the hegemony of Windows, the two most commonly used fonts on the Internet in its early years were Times New Roman and Arial. These two fonts were part of TrueType technology, which Microsoft introduced with Windows 3.1 in 1992. TrueType provides virtually unlimited font size scaling and uses anti-aliasing technology to render text smoothly on computer screens. However, anti-aliasing can cause loss of font detail at small sizes on screens. Also, pixelization remains an issue because TrueType fonts are bitmap fonts that render their display at the pixel level. (Penney)

Microsoft is presently the major contributor to Web font technology. (Will-Harris) The fonts Verdana, Georgia and Tahoma were created in 1994, originally to be used as system fonts for Windows95. Fonts created for print are letter-spaced for paper rather than for the screen. Microsoft's new fonts were made wider and more open, resulting in greater legibility. In particular, Verdana's letter-spacing was created to be consistent and wide, which gives it the

illusion of being a larger typeface. Microsoft is growing the cadre of fonts designed for the screen with the future release of Windows Vista, which will include six new fonts that are designed specifically to take advantage of Microsoft's ClearType technology. This technology enhances text quality on computer displays by rendering the font at the subpixel level, thereby rendering fonts on screen with a level of detail that TrueType technology could not achieve. (Will-Harris)

MOVEABLE TYPE

In print, as we have seen, typography has the ability to create meaning semiotically through the multiple modes of color, size, and texture. The Internet potentially extends the modes, and thus the semiotic capacities of type, with the addition of movement, thereby allowing animated typography to be used to enhance the emotional content of a message. Yin Yin Wong's experiments in animated typography at the MIT media lab in the mid 1990s resulted in the development of type that "that appears to be speaking to the reader with an incredible density of meaning." (Small 66) Wong examined the use of spoken rhythm in the visual presentation of text and compared this to a rhythm based on predictable time lengths of spoken words. The experiment was grounded in the theory that reading "temporal text has a cognitive relation to the processes which handle spoken speech," (Wong) and that reproducing those rhythms in written text would enhance the meaning of the text.

The reading methods used for displaying text on screen were Rapid Serial Visual Presentation (*RSVP*, in which text is displayed one word at a time in a fixed focal position), scrolling text, and a three-dimensional reader-controlled method. (Wong) *RSVP* proved particularly beneficial for animated text because scanning eye movements are unnecessary when reading *RSVP* text, thus enabling fast reading. Additionally, in creating type for *RSVP* reading, designers can animate words independently without regard to effects on adjacent text elements. Wong is careful to make the distinction between animated type as used in television and the type used in her experiments, with the major difference being the two-way interaction between the reader and writer that is taken into consideration in her experiments. Her goal was to give expressive support to the writer's message, "as well as a reader's control over the pacing through the message." (Wong)

The size, weight, position, transparency, and color of the temporal type were manipulated to convey intonation and inflection, and the speed was adjusted for energy level. Wong's experiments resulted in the following conclusions: (1) animated text can embellish the meaning of a word and give the reading an inflection; (2) the rhythm of a presentation can affect the tone of voice conveyed; (3) and motion that references physical action can elaborate an expression. (Wong) The inference from Wong's experiments is that animated type can express the meaning of the text "as an actor performing a role." (Small 69) Wong envisioned the development of a WYSIWYG tool that develops

dynamic text. The tool would facilitate the creation of kinetic type forms that could be stored and reused as needed.

(Wong)

The creators of the Kinedit System built on Wong's work to make such a WYSIWYG tool a reality. The Kinedit system is a currently available GNU General Public License Java application that builds forms to enhance the emotive content of typography. Developed by students at Carnegie Mellon University in 2003, the tool was created to enable non-professional designers to quickly generate expressive type to be read in the style of *RSVP*. (Forlizzi, Lee 2) The Kinedit System manipulates type in terms of color, texture, size, fill and transparency as applied to individual letters, words, phrases or sentences. With the tool, designers can build dynamic text compositions that display expressed emotion through techniques for mimicking tone of voice, and by using analogous motion. For example, the effect of rising pitch at the end of a sentence to indicate a question is mimicked by using an upward movement of a final word, while loudness is expressed by sudden changes in type size and weight. While the type that the tool generates can be used only in video files, the authors were forward-thinking in that they developed the Kinedit system to be used as an engine for email and instant messaging applications. (Forlizzi, Lee 7)

The technical challenge to kinetic typography in Instant Messaging (IM) is the speed of the communication. Attempting to overcome this hurdle is the Kinetic Instant Messaging prototype, developed in 2003 at Carnegie Mellon University by a different group of students from those who developed the Kinedit System, and is built upon the Kinedit system engine. The prototype, presently available for download, offers four ways to animate text through keyboard shortcuts: hop, yell (text zooms in quickly and shakes), construct (individual letters rotate and slowly converge in the middle of the screen), and slide. Kinetic IM is still in the development stage—it has not yet been programmed to work over a network—and is currently undergoing user interaction research. (Bodine, Pignol 2)

The Prosodic Font is an experimental font, developed at the MIT Media Lab in 1998, and targets electronic portables, such as Blackberrys or cell phones, with expressive typographic output. In the prototype, each letter in the font forms its shape in response to how words are pronounced and enunciated. The speech signals are systematically "mapped" onto visual characteristics that are designed into the font. In *RSVP* format, the text changes shape, size, proportions, orientation, weight, and tint in response to the intonation, rhythm, and emphasis used by the message's sender. (Rosenberger 2) Results of user testing showed that people can correctly match Prosodic Font speech-to-text output with analogous speech patterns. (Rosenberger 60) As of 2006, the Prosodic Font is still in the developmental stage. The font technology and design require further development and user testing. Additionally, supporting technologies that are required to bring the font technology to fruition have not yet been fully developed. In particular, improvements are needed in speech recognition software so that the software can recognize and translate the complete range of verbal and non-verbal utterances. (Rosenberger 64)

In the decade that has passed since Wong's conclusions on the expressive potentialities of animated type, and in light of screen font readability studies that report user preferences, the potential for typographic contribution to message content remains untapped in electronic communication. Web designers remain confined to a small menu of Web-safe fonts, emoticons prevail in email messages devoid of typographic connotation, and animated type in its current use largely contributes little to message content. The present diminished state of the function and practice of typography and typographic design does not have to represent an irrevocable demise of typography as an art form. It is not necessarily the destiny of typography to be foregrounded by visual iconography, neither on the Internet nor in print. As we have seen, typography has inherent semiotic qualities that can be further imbued with graphic qualities that move through time and space, thereby enabling typography to compete successfully in the electronic visual space.

The aforementioned forays into kinetic typography are pioneering efforts in the expressive capabilities of type in motion in the digital arena. However, the applications still have far to go before they meet the technical requirements for electronic communication and much more research needs to be undertaken and applied before they begin to be able to fulfill their potential for expressive typographic communication. Designers are only now beginning to learn what it means to create visual communication in the electronic environment. The lessons learned in our interaction with electronic communication about its specifications and requirements, along with the new developments and explorations into kinetic typography, can provide the foundation for a new way of creating type for and implementing typographic designs in the electronic space.

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