

Text Invader: A graphic interference on semantic flow

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Abstract. In this paper we report on a system of typographic intervention which aims to bring about a typesetting environment which automates the aesthetic as well as contextual concerns previously manifested in the output of deconstructivist typographers throughout the 20th century. While in the current state of the undertaking a commercial font design software named FontLab has been used to bring about a virus which substitutes vectors for semantic patterns found in bodies of text, future work will evolve towards the creation of a standalone application which may aid in a convergence of the fields of textual authorship and graphic design.

Keywords: Typography, Semantics, Automated, Controlled, Generated, Font, Virus, Graffiti.

1 Background

The motivation for creating Text Invader lies in a strong interest in the work and appended philosophical concerns of a number of deconstructivist graphic designers of the late 20th century who investigated breaking type and semantic flow on typeset pages through techniques which can best be described as painting with type, which involved experimental broken type setting. Particularly noteworthy amongst these designers are Neville Brody and David Carson, who initiated the Grunge Type movement which has been vastly influential onto this day [1].

Beyond designers such as Brody and Carson, the origins of typographic deconstruction can be traced to much early times, especially to Futuristic typography in the early decades of the 20th century. Thus, Marinetti writes in 1913 that his revolution is aimed at the so-called typographical harmony of the page, which is contrary to the flux and reflux, the leaps and bursts of style that run through the page adding that “*with this typographical revolution and this multicolored variety in the letters I mean to redouble the expressive force of words.*” [2]

One of Marinetti’s basic Futuristic tenets, the relegation of human experience to a continuum of sensations, underlay the techniques he proposed to use in achieving a Futurist literary expression. Marinetti described these procedures by declaring that “*nouns will be scattered at random, infinitives with their greater elasticity will replace the pedantic indicative*” [3].

Although separated in time though a period of 80 years, Ellen Lupton seems to pick up on certain aspects of Marinetti’s outcry when she sees deconstruction in graphic design as a process - an act of questioning typographic practice. In Derrida’s original theory deconstruction asks several questions which are crucial to typographic

design as well: How does representation inhabit reality? How does the external appearance of a thing get inside its internal essence? How does the surface get under the skin?

A crucial opposition in Derrida's theory of deconstruction, and one which is also highly pertinent in terms of typographic design, is speech versus writing. The Western philosophical tradition has denigrated writing as an inferior, dead copy of the living, spoken word. When we speak, we draw on our inner consciousness, but when we write, our words are inert and abstract. The written word loses its connection to our inner selves. Language is set adrift.

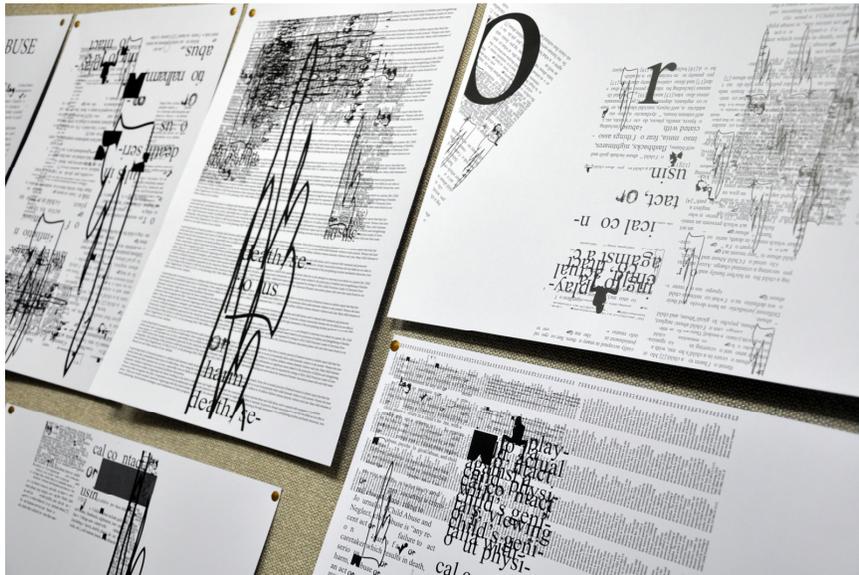


Fig 1. Workshop output. Bilkent University, April 2011.

Parallel questions for graphic design which preoccupy Lupton are how visual form may get inside the content of writing and through what means has typography refused to be a passive, transparent vessel for written texts, instead developing as a system with its own structures and devices throughout the ages? A typographic work can be called a deconstruction when it exposes and transforms the established rules of writing, interrupting the sacred inside of content with the profane outside of form [4] whereby “*communication for the deconstructivist is no longer linear, but involves instead the provision of many entry and exit points for the increasingly over-stimulated reader*” [5]. Thus the page is no longer to be just read but also to be perceived, beyond the pure textual content, into all of its associative conjunctions: In other words, we are also meant to feel rather than just to read a page, which brings up back to the considerations of graphic designers such as Brody and Carson who brought about such mind states by individually crafted works of typography in which the requisite interventions had been painted in by hand.

Can this process of breaking typesetting or painting with type happen generatively? Instead of typographically painting each individual composition, could there be a generative system comprised of fonts which would recycle and paint differently each time due to the nature of different word combinations? Bill Hill, who is renowned for his work on Microsoft's ClearType system proclaims that *“reading is like trail tracking which is a series of pattern recognition movements”*, a stance which is further elaborated upon by Gerard Unger [6]. Can such semantic patterns be visualized by substituting some of the letters, words or even paragraphs with graphic elements? If so, can this repetitive semantic pattern result in an aesthetic investigation?

Yet another query to which this project is related concerns the notion of ‘the designer as author’ whereby according to Poyner [7] certain examples of experimental typography could be considered as a post-structuralist revaluing of the co-production of meaning by both author and reader. Poyner elaborated this view in 1996 and commented that experiments in typography *“reflect a deep skepticism about received wisdom and a questioning of established authorities, traditional practices and fixed cultural identities”* [8]. While Poyner’s concerns for a redefinition of the agency of the designer as author, whose job definitions should go well beyond those of a merely efficient *“service-provider whose job is to convey a given message to an audience as efficiently as possible”* are duly noted, nonetheless of equal importance would appear to be the unleashing of a novel means of transdisciplinary expression in its own right - one which stands between the traditionally well demarcated fields of design and literature.

2 Text Invader

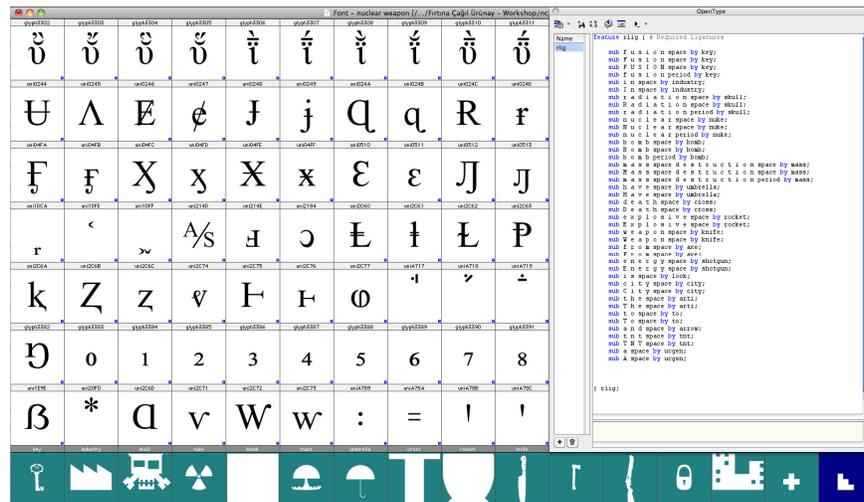


Fig 2. Screenshot showing the process whereby glyphs become substituted by vector drawings through codified intervention.

In 1996, Adobe collaborated with Microsoft on developing a format for scalable computer fonts. This new format, named OpenType, was intended to expand the use of typographic behaviors as well as to provide a means whereby the entire world's writing systems could be managed in a single font file which works across platforms. OpenType fonts allow around a hundred specifications for typographic behavior. This provides the typesetter with the choice to apply various glyph substitutions in order to enrich the content like, small caps, ligatures, text figures, scientific numerals, and alternative glyphs, which are just five specification features out of the many available variables. These OpenType features are programmed in FontLab where much of the type-design work takes place.

OpenType programming has a very basic substitution principle which is activated when certain combinations are juxtaposed. The common use of these typographic substitution behaviors are used to enrich the coherency level of the flowing text. For instance the f and i combinations in serif typefaces appear often times as the fi ligature and is activated in order to compensate the awkward negative space, to smoothen the reading direction, and to enrich legibility. In order to activate the fi ligature the typesetter has to enable this behavior via the OpenType panel in Adobe InDesign. This could as well be used for aesthetic reasons such as ct, st and sp ligatures. These are called discretionary ligatures, which still need to be enabled by the typesetter. This is a simple OpenType feature which is coded as "liga" for standard fi and ffi fl ligatures or "dlig" for discretionary ligatures in the OpenType coding panel.

The Text Invader method aims to use FontLab's OpenType panel as a creative medium in which to generate typefaces that modify the intended use of common typographic behaviors. It aims to experiment with the possibilities that are provided by the OpenType format in order to create the unexpected rather than the established conventions of typesetting. In other words, to interfere with the conventions that serves for linguistic flow. Unlike the liga feature where the typesetter can enable or disable this feature, the rlig (Required Ligature) feature is added in order to enforce this substitution without having the typesetter's will:

```
feature rlig { # Required Ligatures
  # Latin

  sub f u s i o n space by key;
  sub i n space by industry;
  sub R a d i a t i o n space by skull;
  sub n u c l e a r space by nuke;
  sub b o m b space by bomb;
  sub e x p l o s i v e space by rocket;
  sub h a v e space by umbrella;

script DFLT;
} rlig;
```

In the code above 'sub' stands for substitution whereas 'by' literally means by and 'space' denotes a hit on the space bar button. Anything after 'by' is a specific name that is given for each graphic to be called from the glyph library. Thus, sub f u s i o n

space by key = substitute whenever the letter combination fusion comes together and forms the word fusion with the graphic that is called key.

As the name suggests, Text Invader aims to generate fonts that can attack and infect the content in search for a pattern that may alter the context ironically or metaphorically. The Text-Invader virus may be implanted as various visuals: graphic images, letters, and abstract forms, which will be generated as an OpenType font format. Virus images are not used arbitrarily to alter the look of the content, rather they substitute the images with certain repetitive letters, words and even lines of text in search for creating a meta-text: Text in which the author's intentions have been intermediated by the Text Invader. This methodology in generating a virus font initiates a discourse and discussion about the author's and designer's roles in typesetting.

The system is based upon a dichotomy in that it is both controlled as well as generative at different levels of the output: While the substitution of vector files for specific keywords all of which are determined by the user brings forth a level of control as far as single words are concerned, the combination of these words into semantic patterns brings forth a novel layer/level of unpredictability in which the vector drawings conglomerate into a combined visual output which is ever changing based upon the variance with which the keywords converge throughout the text.

2.1 The workflow of Text Invader

The system was tried out during a 2 day long workshop held at the graphic design department of Bilkent University, Ankara in April 2011, with 10 participating students who utilized Text Invader to create a series of typographic interventions on text harvested from various sources. The following table shows the workflow through which the outcome was generated during the workshop.

Table 1. Workflow of Text Invader

Phase	Tasks
Language	English, Turkish, French, etc.
Topic	Art & Design, Law, Ethics, Sports, etc.
Textual Research	Keyword selection
Visual Research	Creating visual elements (vector drawings)
Font	Choosing continuous text fonts
Virus	Importing vector drawings into FontLab
OpenType	Programming OpenType features (rlig)
Generation	Generating it as a usable font (.otf)
Invasion	Output

As is evident from the table above, the two creative tasks which fell upon the workshop participants were the selection of the font and font sizes which would bring about the body text and more importantly the creation of the vector files which would substitute the keywords.

These images need not necessarily be figurative but can also be abstract shapes such as scratches, blotches, stains as well as geometric shapes such as squares and lines. Also, they need not be made by the designer/author personally since the internet

proliferates with freely downloadable vector files of all sizes and descriptions which can easily imported into the system. Indeed in future generations of Text Invader an embedded library of such files is planned as part of the application.

3 Future work

While the virus was used with great enthusiasm and provided the mainstay of textual transformations affecting semantic flow, nonetheless further manual interventions were also embarked upon by the participants. These involved changes in font sizes, rotations of text blocks and even analog additions such as the crossing out of words and sentences on printouts. Observing the design behaviors which the young designers who participated in the workshop exhibited has inevitably led to further thoughts as to whether such enhanced strategies which involve layout and composition can also be incorporated into the design environment as a novel layer of viral intervention wrought upon the semantic flow which, again, works through keywords and their juxtapositions and proximity within a given body of text.

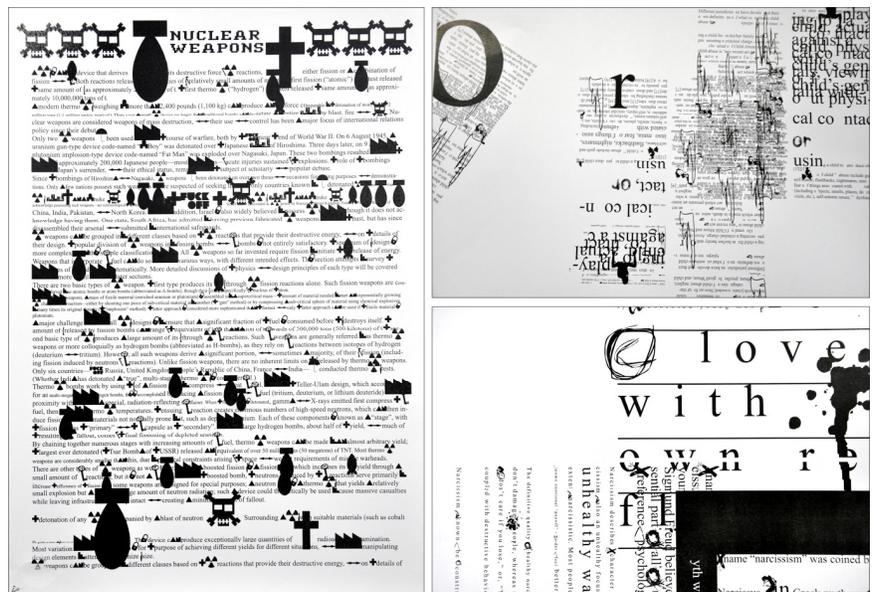


Fig 3. Workshop output. Typesetting through sole usage of the virus with no additional manual interventions (left), and viral behavior enriched through manual interventions such as changes in font sizes and text block rotations (top and bottom right).

While in its current state Text Invader works primarily as a typesetting environment, further viral infections which are programmed to evoke changes that go beyond the text and affect layout will inevitably entail a transition from pure typesetting to a fully fledged design application, in which design principles such as Gestalt and visual hierarchies will have to become sets of rules to be programmed as

viral invasions which affect semantic flow not only as discrete vector elements but as the instigators of overriding compositional systems.

Amongst graphic design software which works under generative principles Adrian Ward's Autollustrator from 2002, and Samul Lising/Peter Spreenbergs n-Gen Design Machine from the late 1990's stand out. While a close scrutiny as to how aesthetic principles were adapted with remarkable mastery into both of these applications is in order; nonetheless it is prudent to also bear in mind that Text Invader operates under an entirely different premise in that the primary concern does not revolve around pure visuality but rather around semantic flow, i.e., the transformation of textual content.

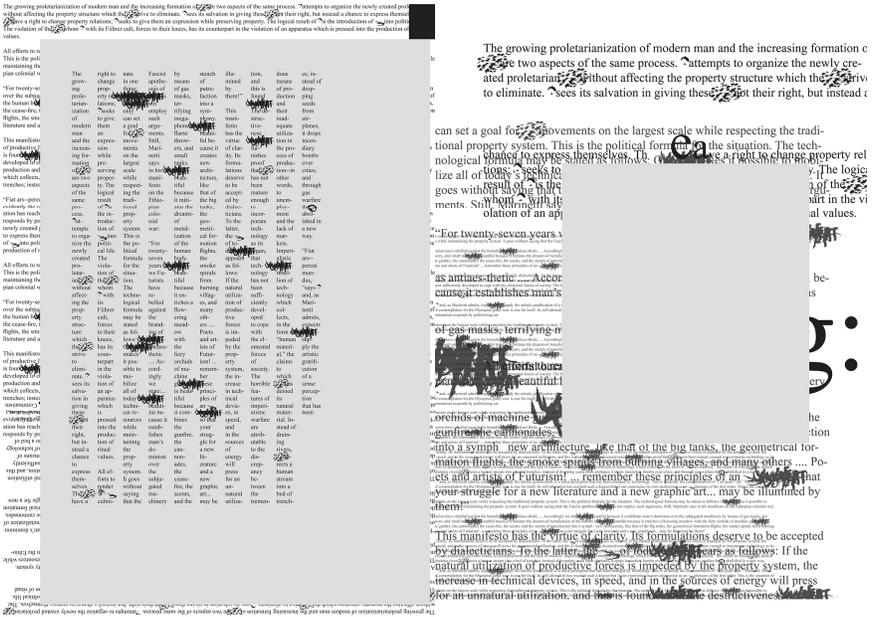


Fig 4. "Warr". Workshop output. Bilkent University 2011.

Utilizing the principles of generative systems as the founding strategies for design applications has been under discussion within the community of design theorists for quite some time [9]. The matrices for these discussions are often derived from self-organizational systems such as biological swarms and colonies, evolutionary systems and shape grammars, the last of which have been deliberated upon for the better part of 4 decades as a means for novel forms of artistic production [10]. It is generally held that generative design strategies may prove to be potent platforms for bringing about novel structures, behaviors and relationships as well as in providing stages upon which the complex and interconnected relationships between the design organism and its environment can be acted out.

For Text Invader the desired outcome is seen to be a creation of such novel structures, behaviors and relationships that will manifest not solely in the graphic

design field but at the intersection of two fields, namely typography and semantics. Thus the aim is to bring about a transdisciplinary creative system in which designers and writers can find fertile ground for collaboration, as well as undertake personal artistic investigations which may bear novel forms of semantic as well as aesthetic expressions.

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