The Behaviours of Fluid Characterforms in Temporal Typography

Barbara Brownie

May 2012

The Behaviours of Fluid Characterforms in Temporal Typography

Abstract

This thesis identifies and characterises a particular kind of temporal typography in which verbal forms exhibit behaviours that have been identified by Eduardo Kac as 'fluid', and fluctuate between the verbal and pictorial or abstract. A typology will be constructed which identifies the various behaviours by which fluidity is exhibited, and provides terminology for their analysis, accompanied by analysis of how these behaviours address the relationship between the commonly distinct paradigms of verbal and pictorial signs.

The work identifies the distinction between fluidity and other forms of kineticism, and explores the various behaviours exhibited in fluid artefacts. When addressing local kineticism, gaps in existing research are filled by employing terms and observations from other fields. For example, Kac offers the term 'fluid' in description of his holographic poetry, which exhibits behaviours much like those presented in some examples of screenbased temporal typography. This thesis proposes that Kac's term, 'fluid', may be adopted in order to differentiate significant local change in verbal forms from the various other kinds of kineticism observable in temporal typography. Fluid behaviours are identified in examples including Martin Lambie Nairn and MPC's Channel 4 idents, the credit sequences of Kyle Cooper, and the typographic animations of practitioners including Komnios Zervos and Dan Waber.

This thesis demonstrates that the existing discourse surrounding temporal typography has been held back by a failure to make distinguish between global kineticism (effecting layout) and local kineticism (effecting individual characters). The distinction between the global and the local is considered vital in studies of perceptual organisation, particularly Gestalt psychology. By providing a coherent typology, and consistent terminology, this study has the potential to positively influence understanding and analysis of fluid characterforms.

Acknowledgements

This research could not have been completed without the professional and personal support of the following people. I would like to thank my supervisors, Grace Lees-Maffei and Alan Peacock, for providing valuable support and feedback throughout my PhD, and Steven Adams, for his equally valuable support during some of this time. I would also like to extend gratitude to my external examiners, Teal Triggs and Mary Dyson, and internal examiner, Steven Peacock, whose time and expertise will be invested in the examination of this thesis. I would further like to acknowledge the vital contribution of Eduardo Kac and Julia Friedman, who have supplied images of Kac's holopoems, and, in particular, Kac, for producing work which has been of vital importance to this thesis. In addition, I would like to thank the other practitioners who have also granted me access to their work: channel Five, Chris Labrooy and Peter Cho. For their personal support during the completion of this thesis, I would like to thank my husband, Mark, and my parents, Sarah and Ralph.

Contents

Foreword: Aims and Objectives of this Thesis	1
Part 1: Foundations	
Chapter 1: Introduction	
1.1 The Problem	6
1.2 Research Aims	14
1.3 The Remit of this Research	17
1.4 Outline of Dissertation	19
Chapter 2: Foundations	
2.1 Introduction to Chapter 2	24
2.2 Developments in Static Typography	25
2.3 Developments in Temporal Typography	34
2.3.1 Temporal Typography and Technology: Towards Definitions of	
the Various Forms of Temporal Typography	35
2.3.2 Global Displacement and Local Kineticism	57
2.3.3 Eduardo Kac and Fluidity in Holopoetry	67
2.3.4 Legibility and Asemisis in Fluid Forms	76
2.3.5 Problems Arising from the Use of the Terms 'Typography' and	
'Letterform'	84
2.4 Conclusion to Chapter 2	87
Chapter 3: Methodology	
3.1 Introduction to Chapter 3	90
3.2 Typologies and their Application in Typography	92
3.3 Gestalt and its Application in Typography	100
3.3.1 Current Thinking in Gestalt Psychology	109
3.3.2 Gestalt and Issues of Character Recognition	113
3.4 Gestalt as a Semiotic Code	119
3.4.1 A Semiotic View of Complex Signs in Typography	123
3.4.2 Recent developments of Semiotics in Film, Television and	
Credit Sequences	130
3.5 Issues of Audience Subjectivity	134

3.6 Conclusion to Part 1	138
Part 2: The Typology and Analyses	
Chapter 4: Typologies	
4.1 Introduction to Chapter 4	139
4.2 Typology of Temporal Typography	140
4.3 A Note on False Fluidity	150
Chapter 5: Typology of Fluid Behaviours	
5.1 Introduction to Typology of Fluid Behaviours	153
5.1.1 How this Typology Draws from Holopoetry	155
5.2 Construction	
5.2.1 Introduction to Construction	160
5.2.2 Construction, Anamorphosis and the Privileged Position in	
Eduardo Kac's Holopoety	164
5.2.3 The Requirement for Three-dimensional Space	172
5.2.4 Modular Construction	182
5.2.5 Alignment and Overlap	193
5.3 Metamorphosis	
5.3.1 Introduction to Metamorphosis	195
5.3.2 Existing Research, and Current Understanding of the Term	
'Metamorphosis'	198
5.3.3 The Relationship between Poles	203
5.3.4 Masquerade or Replacement of Identities	210
5.3.5 Figure/Ground Relationships in Metamorphosis	213
5.4 Revelation	
5.4.1 Introduction to <i>Revelation</i>	215
5.4.2 Revelation by Navigation or Rotation, and Illumination, in	
Three-dimensional Environments	215
5.4.3 Figure/Ground Relationships in Revelation	229
5.5 Conclusion to Chapter 5	237
Chapter 6: The Typology, Gestalt and Semiotics: Sample Analyses	
6.1 Introduction to Sample Analyses	238
6.2 Construction in Martin Lambie Nairn and MPC's Channel 4 Idents	239
6.3 Construction through Motion of Parts in Josh Rhett's Lubalin Graph	260
6.4 Revelation by Rotation in Kyle Cooper's True Lies	263

6.5 Metamorphosis in Komninos Zervos' Beer	268
6.6 Fluid Behaviours in Sky Idents	275
6.7. Conclusion to Chapter 6	282
Part 3: Conclusion	
Chapter 7: Conclusion	
7.1 The Need for a Typology of Fluid Behaviours	283
7.2 Limitations	285
7.3 Potential Further Applications of the Typology	288
Bibliography	299

Foreword: Aims and Objectives of this Thesis

This thesis presents an exploration of fluid behaviours, as exhibited in onscreen temporal typography. This document will propose, following Eduardo Kac, a definition of fluidity, and will go on to classify the range of behaviours through which fluid forms adopt new identities.

Categories of fluidity will be classified in a typology of the behaviours exhibited in artefacts. These behaviours are the processes by which a fluid form transforms. These behaviours will be classified using a combination of existing and new terms (see 3.5 and 5.1). Where existing terms are sufficient and appropriate to describe a behaviour, they have been used in accordance with established definitions that exist elsewhere (often transposed from another field of practice, but applicable in temporal typography). Where there is no existing terminology, terms have been developed that aim to clearly describe a behaviour and distinguish it from others. This typology aims to contribute to the field of temporal typography by enabling identification, description and differentiation of fluid artefacts, or artefacts that contain fluid forms. It is necessary to introduce terminology to this field, where it has not existed previously, because lack of such terminology would limit the field of practice. As per the Sapir-Whorf hypothesis of linguistic determinism, 'language... rigidifies channels of development'.¹ When language is limited, the artefacts it describes appear similarly limited, and so lack of terminology often holds back progress. It is only by introducing new language, to describe new artefacts or practices, that the unique properties of those artefacts and practices can be appreciated and that further development can be encouraged.

It is in this aim that the potential audiences for this thesis are revealed. Those that may benefit from the introduction of a typology of fluid behaviours include practitioners, theorists and commentators. Practitioners describe their work by likening it to relevant previous artefacts.² Practitioners, like critics, students and scholars, have sometimes fallen into the trap of describing their work using vague or misleading language, because there is no agreed-upon definition of a particular term, or because there is a lack of more accurate

¹ Benjamin Lee Whorf, 'The Relation of Habitual Thought and Behavior to Language,' in ed. John Carroll *Language, Thought and Reality.* (Cambridge, MA: MIT Press, 1956), 82.

 $^{^{2}}$ See, for example, the numerous animations that are described by their creators through reference to Kyle Cooper's *Transformers* sequence (see 6.6).

terms.³ The typology which forms a major original contribution of this thesis aims to provide these practitioners with the language to describe how their work is not only similar to, but also distinct from, existing works. The new terminology will inform practitioners, and others, of the possibilities of fluidity where they have not already been explored, and thereby encourage further experimentation and development of practice. Theorists and commentators currently make generalisations and omissions similar to those made by practitioners.⁴ These theorists and commentators will benefit from the typology by gaining terminology to more accurately define artefacts. This will in turn encourage clearer and more extensive analysis of fluid artefacts.

This audience of practitioners, theorists and commentators may exist in a number of different disciplines, as fluidity is not limited to a particular medium. Fluid behaviours may exist in a number of different media, including film and television, motion graphics, and digital arts, and may be created using a variety of different handmade or digital methods. It is therefore the case that the typology presented here will be useful to audiences in multiple disciplines. In order to address this diverse audience, the thesis uses examples from different fields and methods that have been applied in different disciplines. This interdisciplinary approach is becoming increasingly useful as, more than ever before, multi-platform artefacts exist between media, and thereby access diverse audiences. Film title sequences and television idents, for example, are frequently removed from their original context and placed online, where they will be viewed by various audiences, and set apart from whatever narrative may have followed or preceded them in their original, intended, context. Moreover, there has recently been an increase in 'hybrid fields' which may only be adequately explored through an interdisciplinary approach.⁵ The aim of this thesis is not to classify artefacts according to the medium in which they exist (a task which has already been carried out by, most notably Woolman and Bellantoni),⁶ but according to the behaviours they exhibit. As outlined in 1.3 and 3.4.1, fluid behaviours are independent of medium, and so it is necessary to explore them by looking beyond the medium in which any particular example is contained.

³ See, for example, how the term 'morph' is misapplied by Max Warner (see 1.1).

⁴ See, for example, how Paul Grainge describes the behaviour's exhibited in MPC's *Atlas* idents only by likening them to those previously created by Martin Lambie Nairn (see 6.2).

⁵ Julie Thompson Klein, *Interdisciplinarity: History, Theory, and Practice* (Detroit: Wayne State University Press, 1990), 11.

⁶ By classifying artefacts of temporal typography according to the medium in which they exist, Woolman and Bellantoni have missed opportunities to explore the similarities and differences that often exist across different media (see 2.3.1).

The method that will be applied in the formation of a typology of fluid behaviours, and in the subsequent analysis of fluid artefacts, combines elements from semiotics and Gestalt, as outlined in chapter 3 of this thesis document.

As shown in 3.4, Gestalt laws of perceptual organisation can be viewed as a semiotic code. Several noteworthy texts have acknowledged a connection between the two methods, and have found them to be compatible. Pete Willows has proposed that semiotics alone cannot offer a complete understanding of some temporal experiences, and applies Gestalt where he has found semiotics to be deficient.⁷ Similarly, Daniel Chandler warns that semiotics alone may not offer adequate ideas to appreciate all aspects of some temporal behaviours.⁸ Chandler separately demonstrates how Gestalt can be combined with semiotics when it is viewed as a code.⁹ Sean Hall's recent guide to the application of semiotics makes use of some key concepts from Gestalt. Hall explicitly refers to 'proximity', and implicitly to *similarity*¹⁰, in a brief explanation of grouping, and explores the 'perceptual switch' from 'foreground' and 'background' in the work of M.C. Escher.¹¹ These ideas are not presented as a divergence away from semiotics towards Gestalt, but, implicitly, as Gestalt ideas integrated into a semiotic understanding of the perception of artefacts.

These theorists apply a combination of semiotics and Gestalt in response to apparent deficiencies in either method. These deficiencies are made apparent when the process of perceiving a form is reduced to sequential parts. Several commentators acknowledge that the identification of a sign is a two-part process (see 3.4 and 3.5). Pelli et al. assert that there is a 'difference between discriminating and identifying' a sign.¹² Though they do not explicitly acknowledge Gestalt, they do propose that the first part of this process involves 'grouping', a process commonly associated with the Gestalt tenet that the whole is different from the sum of its parts.¹³ This 'grouping' process, Pelli et al. argue, is distinct from the subsequent

⁷ Ibid., 207.

⁸ Daniel Chandler, *Semiotics: The Basics*, 2nd Ed., (Oxon: Routledge, 2007), 207.

⁹ Chandler, Semiotics, 152.

¹⁰ Wertheimer's law of *similarity*, that will be introduced in 3.3, as opposed to the general concept of similarity. ¹¹ Sean Hall, *This Means This, That Means That: A User's Guide to Semiotics*, (London: Laurence King, 2007), 86: Ibid., 84.

¹² Pelli et al., 'Grouping in Object Recognition,' 38.

¹³ Though numerous texts summarise the central Gestalt tenet as 'the whole is more than the sum of its parts', accurate translations read 'the whole is different from the sum of its parts'. Pomerantz and Kubovy argue that, despite this misunderstanding, 'the commonly cited claim that the whole is greater than the sum of its parts correctly conveys the key notion that it is the particular *arrangement*... of the parts into perceptual wholes that

'object recognition', during which the viewer attributes meaning.¹⁴ As Douglas Goodman observes, semiotics can adequately account for the 'messages that are transmitted' by a sign, but not for how that sign is initially 'produced'.¹⁵ It is by proposing that Gestalt may work in conjunction with semiotics, as in 3.4, that it becomes possible to analyse both these stages in the perception process, and hence to present a holistic method of analysis that is not possible using one method alone.

This thesis refers to artefacts which appear in a number of different screen-based media, including film and television credit sequences, motion graphics, animation, and digital arts. This range of media reflects the range of environments in which temporal typography, and specifically fluid behaviours, may be found.

The range of artefacts that are subjected to discussion in this thesis have been selected to represent the breadth of practice in the field of temporal typography. Artefacts have been selected from a variety of different media (including television idents, film credit sequences, digital arts, typographic animation, and advertising) so as to demonstrate that fluid behaviours exist across this variety of media, and, crucially, that the medium does not dictate the category of behaviour exhibited in an artefact. Some of these examples are selected because they have already been acknowledged at significant or influential in their field. Martin Lambie Nairn's Channel 4 idents, and those created subsequently by MPC, for example, have been the subject of much previous discussion, and are upheld as prime examples of television idents (as will be shown in 6.2). With so much existing interest in this range of idents, it seems vital to classify the behaviours that they exhibit, in order to allow future commentators to more accurately describe their content. Further television idents, such as those created by BB/Saunders for channel Five (see 5.2.3 5.2.4, and 5.3.2) are not only evidence of Martin Lambie Nairn's considerable influence, but also show the variety of different forms that can undergo fluid transformation. Sky idents (see 6.6) have been selected because they implicitly acknowledge the variety of fluid behaviours by grouping idents by channel, with a different behaviour representing each of Sky 1, 2 and 3.

determines the appearance of identity of a stimulus'. James R. Pomerantz and Michael Kubovy, 'Theoretical approaches to perceptual organization: Simplicity and likelihood principles,' in *Handbook of perception and human performance, Vol. 2: Cognitive processes and performance*, ed. Kenneth R. Boff, Lloyd Kaufman, and James P. Thomas, (Oxford: John Wiley & Sons, 1986), 7.

¹⁴ Ibid., 38-39.

¹⁵ Douglas J. Goodman, 'Approaches to Law and Popular Culture,' *Law & Social Enquiry* 31, issue 3 (Summer 2006): 766, accessed July 19, 2011, http://www3.interscience.wiley.com/cgi-bin/fulltext/118597060/PDFSTART

Examples from film credit sequences include several by Kyle Cooper (see primarily 6.4, and chapter 7), who is celebrated for his contributions to the field.¹⁶ Examples of his work, and other credit sequences referenced in this thesis document, have been selected due to the extent that they focus on the transformation of characterforms. While other credit sequences may feature incidental fluidity alongside more prominent behaviours and effects, the examples presented here prioritise characterforms, and so provide clear examples of particular behaviours. A similar claim can be made about the selection of typographic animations that appear here. The work of Komninos Zervos (see primarily 6.5), Harm van der Dorpel (see 2.3.5, 3.3.2, 5.2.3, 5.2.4, and 5.2.5) and Dan Waber (see 3.3.2 and 5.3.3) all demonstrate fluid behaviours without distraction from other, pictorial elements or backgrounds, and so are useful in clarifying the features of behaviours.

It would be impossible for this thesis to acknowledge every example of fluidity that exists in current or past practice. The artefacts presented here have been selected to represent the clearest and most influential examples of fluidity in screen-based media. Although this selection is necessarily limited in size, it aims to be representative of the entire field. The field of fluid typography continues to expand, with new examples constantly emerging. These new examples may be readily classified according to the typology represented in this thesis, as its categories not only describe existing practice but aim to allow for the possibilities of new practice. In order to demonstrate the broad applicability of the typology, several additional examples have been included on the enclosed CD, and the website that accompanies this thesis, at www.fluidtype.org.

¹⁶ Andrea Codrington, Kyle Cooper (London: Laurence King, 2003).

Chapter 1: Introduction

1.1 The Problem

Existing accounts of typography have assumed it to be static. In print, type is fixed, and onscreen, though not permanent, type is largely inactive. Even with the introduction of hypertext, which allows navigation between documents, and for letterforms to become 'active' hyperlinks, text is still largely assumed to be an inactive tool of communication. However, with the dynamic capabilities of contemporary digital media, 'our static definitions of type appear increasingly imperilled', according to graphic design theorist Jessica Helfand.¹⁷ The problem of definition increases with temporal artefacts, which complicate existing notions of the nature of the letterform, through the addition of kinetic behaviours.

Literary scholar Teemu Ikonen suggests that 'one of the decisive dividing lines between digital literature and print literature' is 'textual motion'.¹⁸ Ikonen identifies 'analogy of motion' in works by Futurist typographers such as F.T. Marinetti and, later, 'Concretist poets', and observes that now, digital media offer the opportunity for typography that has a genuine temporal dimension, in which type letterforms can move and change. It is now possible for objects to 'move' on screen, insofar as they are perceived as being in motion when displayed sequentially in quick succession. As graphic design critic Michael Worthington observes, 'in a time-based medium, type has additional expressive qualities, additional layers of significance'.¹⁹ Though many contemporary static artefacts, including examples such as Colin Ord's Magic Moving Images, attempt to replicate the motion observed in digital media, the limitations of such artefacts exemplify the additional affordances of digital media that are impossible to recreate in print.²⁰

¹⁷ Jessica Helfand, 'Electronic Typography: The New Visual Language,' in Looking Closer 2: Critical Writings on Graphic Design, ed. Michael Beirut et al. (New York: Allworth Press, 1997), 51.

¹⁸ Teemu Ikonen, 'Moving Text in Avant-Garde Poetry: Towards a Poetics of Textual Motion,' Dichdungdigital.de 4, no. 30 (2003), accessed July 13, 2011, http://www.brown.edu/Research/dichtungdigital/2003/issue/4/ikonen/index.htm.

¹⁹ Michael Worthington, 'The New Seduction: Movable Type,' AIGA Journal of Graphic Design 16, no. 3

^{(1998), 9.} ²⁰ Colin Ord, *Magic Moving Images: Animated Optical Illusions* (Tarquin Publications, 2007); *See also* Rufus Butler Seder, Gallop: A Scanimation Picture Book (New York: Workman, 2007).

Increasingly in digital and temporal media, there is a trend for artefacts which contain what Motion design theorists Matt Woolman and Jeff Bellantoni have described as 'type in motion²¹ Temporal media offer typographers opportunities to 'dramatize' type, for letterforms to become 'fluid' and 'kinetic'.²² Film title credits present typographic information over time, often bringing it to life through animation. Motion graphics, particularly the brand identities of film and television production companies, increasingly contain animated type. Software such as Macromedia Flash has prompted the creation of many recent examples of animated poetry and kinetic typography. Examples of 'type in motion' in temporal media have become commonplace. Multimedia offers more than just the opportunity for motion. Michael Worthington observes that in digital screen-based media, a 'fully navigable', 'three-dimensional typographic environment' may be created.²³ As demonstrated in J. Abbott Miller's exploration of 'dimensional typography', it is no longer necessary to understand letterforms as being flat signs. Instead, they can be experienced as having both 'spatial and temporal dimensions'. Letters have become 'architectural, ergonomic and cinematic'. The space which letters occupy has also changed, from a flat plane to an 'environmental, immersive' space, in which type can be arranged and layered within four dimensions: three spatial, and one temporal.²⁴

In the new on-screen typographic environments we must consider verbal forms, including letters, numbers and other characters, in new ways.²⁵ Although there is an established discourse about the field of temporal typography as a whole, and identification of many of the key features of temporal and digital typographic environments, there is very little existing discussion of the various behaviours exhibited within contemporary typographic artefacts. Texts by Woolman and Bellantoni, and Johnny C. Lee et al., describe 'motion' or

²¹ Matt Woolman and Jeff Bellantoni, Type in Motion: Innovations in Digital Graphics (London: Thames & Hudson, 1999).

²² Woolman and Bellatoni, *Type in Motion*; Eduardo Kac, 'Key Concepts of Holopoetry'; Blake Engel, Patrick Ditterline, and Brian Yeung, 'The Effects of Kinetic Typography on Readability' (diss., Carnegie Mellon University, 2000), accessed July 19, 2011, http://a.parsons.edu/~gary320/05f/kinetictypography.pdf ²³ Worthington, 'The New Seduction,' 9.

²⁴ J. Abbott Miller, *Dimensional Typography* (New York: Princeton Architectural Press, 1996), 2.

²⁵ This thesis uses the term 'verbal' following Ferdinand de Saussure, to describe signs that are representations of spoken equivalents, such as letters and numbers. It is not the author's intention with the use of this term to exclude punctuation characters from discussion. For the sake of the clarity that accompanies familiarity and economy. Saussure's term will be assumed to include non-spoken characters, such as punctuation, for want of a more inclusive term. The lack of a term encompassing spoken and non-spoken, alphabetic, numeric, and punctuation characters will be discussed in relation to fluid signs in 2.3.4, where the term 'characterform' will be proposed to describe an individual form which may be alphabetic, numeric, punctuation, or belonging to other non-alphabetic character sets.

kineticism, but rarely differentiate between different kinds of kineticism.²⁶ In particular, motion and 'other temporal change' are rarely distinguished from one another, and where they are acknowledged, these 'other kinds of change' are not fully explored.²⁷

One notable inadequacy in existing texts is the failure to differentiate between global and local change, that is, change affecting overall layout, and change affecting individual forms. Many commentators fail to distinguish between global and local kineticism, often assuming that the behaviours may have universally the same consequences. This omission is perhaps responsible for the lack of discussion about the ways that local behaviours can affect the identity of individual letterforms. As Gordon L. Shaw observes, 'the *identity* of an object moving on the screen is constantly preserved'.²⁸ Letterforms, despite undergoing motion or change, are assumed to have a fixed linguistic identity, and to be permanently typographic. Contemporary artefacts show, however, that this is not the case. In examples such as MPC's Channel 4 idents (Fig. 1) and Komninos Zervos' *Beer* (Fig. 2), letters transform, abandoning their verbal identity in favour of another, or becoming verbal when they were initially presented as abstract, or pictorial. Such artefacts may not have previously been identified as representing a distinct category of typography because they are not consistently typographic. They blur the boundaries between type and image, being only temporarily verbal.

²⁶ See Woolman and Bellantoni, *Type in Motion*; Johnny C. Lee, Jodi Forlizzi, and Scott E. Hudson, 'The Kinetic Typography Engine: An Extensible System for Animating Expressive Text,' *Proceedings of the 15th annual ACM Symposium on User Interface Software and Technology* (2002): 81-90, accessed July 13, 2011, http://johnnylee.net/kt/dist/files/Kinetic Typography.pdf

²⁷ See, for example, Lee et al., 'The Kinetic Typography Engine,' 81.

²⁸ Gordon L. Shaw and Vilayanur S. Ramachandran, 'Interpolation during apparent motion' *Perception* 11, no. 4 (1982): 491.









Figure 1. MPC, *Alien*, Channel 4 ident, 2005. Source: 'Channel 4 ident – Alien – High Quality Version,' *YouTube*, 2008, accessed July 21, 2011, http://www.youtube.com/watch?v=IBCy0t1UM4

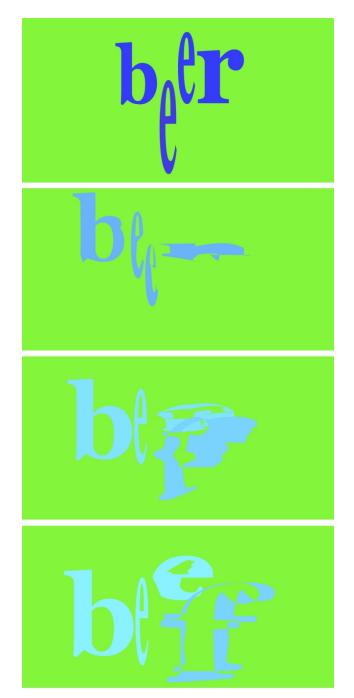


Figure 2. Komninos Zervos, *Beer*, 2005. Source: Komninos Zervos, 'Cyberpoetry Underground', *Other Voices International Project* 11 (2005), accessed July 13, 2011, http://www.othervoicespoetry.org/vol11/zervos/beer.html

Evidence that there is not yet adequate language to describe the transformations of many contemporary artefacts is shown in Max Warner's ident for MTV (2009, Fig. 3). Warner describes his ident as presenting a 'morph', yet this animation does not present the kind of

'smooth transition' that Coquaillart, and Jancéne's text on metamorphosis state is a requirement of a morph.²⁹ Close inspection reveals that the 'M' is constructed from moving panels which begin in a disorderly array and then rotate and align, locking together to form the contours of a single letter object. Warner's misuse of the term 'morph' would perhaps be understandable if the ident were to belong to a tradition of morphing objects, however, other MTV idents are also constructed from moving parts. Rauf Yasit's *Bubbles* and Ash Bollard's *Organic MTV* idents more overtly construct the MTV logo from moving parts (figs 4 and 5). The component parts of each configuration are have very different properties – Bollard's resemble fragments of rock, while Yasit uses bubbles of orange fluid – but both 'M' objects are clearly constructed from separate parts. The use of a more accurate term describing this *construction* of parts would have enabled Warmer to assert the similarity between his own and other MTV idents, and its difference from examples that can more accurately be defined as *metamorphosis*.

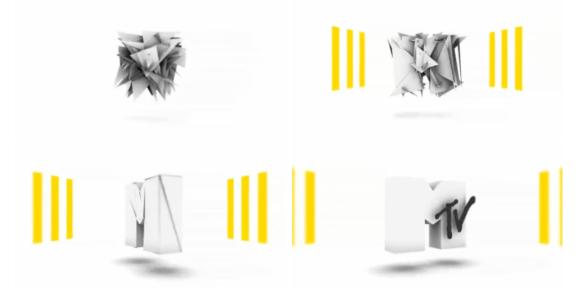


Figure 3. Max Warner, *MTV Morph Bumper*, 2009. The creator of this ident describes it as presenting a 'morph', although its behaviour does not appear to suit established definitions of metamorphosis. It could be more appropriately described as a kind of *construction*. Source: Warner, Max, 'MTV Morph Bumper,' *Behance*, 2009, accessed July 18, 2011, http://www.behance.net/Gallery/MTV-Morph-Bumper/344701

²⁹ Sabine Coquaillart and Pierre Jancéne, 'Animated Free-Form Deformation: An Interactive animation Technique,' *Computer Graphics* 25, no. 4 (1991): 23.

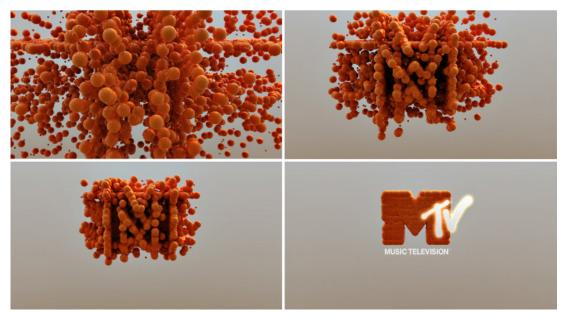


Figure 4. Rauf Yasit, *Bubbles*, 2009. In this ident, parts converge to construct the MTV logo. Source: Yasit, Rauf, 'Bubbles-MTV,' *Behance*, 2009, accessed July 18, 2011, http://www.behance.net/Gallery/MTV-BUBBLES/306992



Figure 5. Ash Bollard/Umeric, MTV Organic, 2010. This MTV ident is also constructed through the motion (and expansion) of abstract parts. Source: Umeric, 'MTV Organic,' *Behance*, 2010, accessed July 18, 2011, http://www.behance.net/Gallery/MTV-ORGANIC/431459

Though these kinds of transformation have not yet been identified as a key category of temporal typography, similar properties and behaviours have been acknowledged elsewhere,

for example, in the holographic poetry of experimental poet Eduardo Kac (Fig. 6). Kac observes 'fluid' behaviours in his holopoems, describing 'fluid signs' as those that 'escape that constancy of meaning' that is associated with print.³⁰ Kac's forms appear to transform as the viewer navigates around each hologram, so that each presents multiple identities over time.³¹ This behaviour is very similar to that which can be observed in on-screen examples, such as *Beer* and Channel 4 and MTV idents, where signs transform, thereby escaping the 'constancy of meaning' that Kac observes in print, and that also exists in other kinds of temporal typography.³² Although Kac offers appropriate terminology to describe transformation in temporal typography, his term has not yet been used in this field. In order to address the current lack of terminology to describe many screen-based artefacts, this study proposes that the selected artefacts examined here, and many others, can be defined using Kac's term, 'fluid', and that fluidity is complex enough to warrant division into subcategories. It will, further, propose that Kac's holopoetry can be used in the formation of a model with which to identify the various categories of fluidity.

³⁰ Kac, 'Key Concepts of Holopoetry.'

³¹ A form may be said to have identity when it can be identified as a sign, and is recognised as belonging to a particular paradigm set. Identity is distinct from particular features of appearance (such as colour or shape). An 'a', for example, may be identified as an 'a' regardless of its colour or font. Identity is also distinct from meaning, which may be affected by external influences, and therefore may be altered even when the object in question is stable. Identity may be taken for granted in static or stable forms; as literary theorist Reuven Tsur observes, 'stable objects preserve their identity'. For this reason, identity is often taken for granted in discussions of typography. As communication design theorist Jinsook Kim and artist William Curtis Seaman both observe, the question of identity only becomes significant when it is susceptible to change, as in fluidity. In order to be characterised as fluid, a form must transform to the extent that it adopts a new identity. Identities are not mutually exclusive. A form can be identified as broadly as a letter, as well as a specific letter, or a printed sign, etc. See Reuven Tsur, 'Picture Poetry, Mannerism, and Sign Relationships,' Poetics Today 21, no. 4 (Winter 2000):765, accessed July 13, 2011, http://muse.jhu.edu/journals/poetics_today/v021/21.4tsur.html; Jinsook Kim, 'Motion Gestalt for Screen Design: Applied Theory of Grouping Principles for Visual Motion Integrity' (PhD diss., Illinois Institute of Technology, 2007), 31; William Curtis Seaman, 'Recombinant Poetics: Emergent Meaning as Examined and Explored Within a Specific Generative Virtual Environment' (PhD diss., Centre for Advanced Inquiry in the Interactive Arts, 1999), 211-212.

 $^{^{32}}$ As will be shown in Part 2.3 motion typography exhibits a similar kind of 'constancy' to print, in that the identities of moving characters are stable.



Figure 6. Eduardo Kac, six points of view of *ADHUC*, 30x40cm, multicolour computer holographic stereogram, 1991, Jonathan Ross collection, London. Source: Eduardo Kac, 'Complete List of Holopoems,' *Kac Web*, 1999, accessed July 13, 2011, http://www.ekac.org/allholopoems.html

1.2 Research Aims

This thesis aims to present new, more coherent and consistent terminology for understanding and describing a range of temporal typographic artefacts. More precisely, it aims to show why Eduardo Kac's term 'fluid' is useful in the analysis of temporal media, how it can be applied, and how we can characterise 'fluid' behaviours in different contexts. Different kinds of temporal typography will be distinguished, marking a clear separation between motion and other kinds of change, and, more specifically, change which results in the introduction of additional identities and change which does not. This requires a distinction to be made between forms that are 'stable' (though not necessarily fixed in location), and those which are susceptible to change. As Reuven Tsur observes, 'stable objects preserve their identity'.³³ It must therefore be considered that unstable forms must be susceptible to changes in identity, as in Kac's fluidity. Once definitions of fluidity have been established, it will be possible to identify how fluidity varies in different artefacts. In order to do this, this dissertation will present a typology of fluid behaviours, identifying the many ways in which forms can adopt new identities in temporal environments.

During this discussion, a typology will emerge which is informed by Kac's holopoems and Gestalt laws of perceptual organisation. It will be proposed that these laws, which identify how whole forms are perceived, are useful in understanding the different behaviours by which fluid forms change. This method for analysis will be combined with some key ideas from semiotics, wherever Gestalt alone is not sufficient at providing a complete understanding of the behaviours and forms in fluid artefacts. In this way, the thesis will present an understanding of fluid behaviours that is informed by semiotics (a method commonly used in understanding typography and graphic design), and Gestalt, a neglected approach which has more recently been revived in discussions of temporal media.³⁴ Gestalt laws of perceptual organisation, applied as a semiotic code, will be proposed as a useful method of analysis for fluid artefacts. The usefulness of these Gestalt laws will be demonstrated through analysis of several examples of fluidity.

In the creation of this typology, this thesis aims to contribute new specialist terminology language to academic and practitioner communities. It sets out to increase the 'self-understanding of designers' and the ability to liken *to* or distinguish their work *from* the works of others, by providing them with the linguistic tools to classify and describe their own work, and the work of their peers.³⁵ It will also aim to encourage further, more specific and more informed exploration of the possibilities of fluidity, by identifying a palette of

³³ Tsur, 'Picture Poetry, Mannerism, and Sign Relationships,' 765.

³⁴ Semiotics is used in the following recent texts: Matthias Hillner, 'The poetics of transition: the ambiguous characteristics of virtual typography' (MPhil thesis, Royal College of Art, 2007); Tsur, 'Picture Poetry, Mannerism, and Sign Relationships'; Hartmut Stockl, 'Typography: body and dress of a text – a signing mode between language and image,' *Visual Communication* 9, no. 4 (November 2010), accessed July 13, 2011, doi: 10.1177/1470357205053403; Sabine Gross, 'The Word Turned Image: Reading Pattern Poems', *Poetics Today* 18, no. 1 (Spring 1997), accessed July 13, 2011, http://www.jstor.org/stable/1773231; Georges Longrée, 'The Rhetoric of the Picture Poem,' *PLT* 1, no. 1 (1976), cited in Tsur, 'Picture Poetry, Mannerism, and Sign Relationships,' 751. Gestalt laws of perception are most notably applied in a recent discussion of motion graphics: Kim, 'Motion Gestalt,' 31; Seaman, 'Recombinant Poetics.'

³⁵ Refined in a discussion following Barbara Brownie, 'Fluid Typography: Defining a new form of temporal typography', paper presented at *New Views 2*, (London, 9-11 July 2008).

behaviours that are different from those usually associated with 'motion typography'. For commentators as well as designers, the typology aims to offer a broadened view of what may be contained within the discipline of temporal typography, and of typography itself. It aims to challenge existing definitions of 'typography', so that future investigations may consider the verbal sign as neither fixed nor permanent. Although the ways in which typography combines verbal and pictorial signs in print have been extensively explored, this research will aim to promote awareness of the notion that the interaction of type and image may, in some instances, be a product of temporality.

Where parts of this thesis have been presented elsewhere,³⁶ there is evidence that readers have already found it useful.³⁷ KineticTypography.com presents a history of typography that acknowledges this research as providing a useful distinction between fluid and motion typography, thereby suggesting the utility of this distinction to the understanding of recent developments in kinetic typography.³⁸ Parts of the typology have also been applied in professional practice, in a description of Andrew Byrom's typographic furniture, which observes that Byrom's furniture may be navigated around to reveal typographic identities.³⁹ These texts acknowledge that published sections of this thesis are fundamental in establishing an understanding of the various forms of contemporary temporal typography.

³⁶ Research outcomes to date include: 'Fluid and Transient Letterforms in Screen-based Typographic Artefacts' (paper presented at the *Fourth Annual MeCCSA Postgraduate Network Conference*, University of West England, Bristol, 12-13 July 2007); 'The Death of the Letterform,' *AIGA* online (August 28, 2007), www.aiga.org/the-death-of-the-letterform; 'One Form, Many Letters: Fluid and Transient Letterforms in Screen-based Typographic Artefacts', *Networking Knowledge: Journal of the MeCCSA PGN* 1, no 2; 'Fluid Typography: Defining a New Form of Temporal Typography' (paper presented at *New Views 2: Conversations and Dialogues in Graphic Design*, London College of Communication, 9-11 July 2008); 'Fluid Typography: Type Meets Image in Temporal Media', (paper presented at *Writing Design: Object, Process, discourse, Translation,* the Annual Design History Society conference, University of Hertfordshire, 3-5 September 2009); Foreword to *Typography Today* (Hong Kong: ArtPower, 2010); 'Gestalt Perception of Fluid Typography', (paper presented at *SSAHRI Student Conference*, University of Hertfordshire, 9 June 2010); *Type Image* (Berkley: Gingko Press, 2011); 'Fluid Typography: Construction, Metamorphosis and Revelation,' in ed. Grace Lees-Maffei Writing Design: Words and Objects (Oxford: Berg, 2011).

³⁷ Olga Zemanovicova and Martin Sperka, 'Typography in Motion,' *Proceedings of the 6th International Symposium of Interactive Media Design* (2009): 109-110, accessed July 13, 2011,

http://newmedia.yeditepe.edu.tr/pdfs/isimd_08/martin_sperka.pdf; Seung Yoon Lee, 'Finding New Aspects of Typeface/Research on Interactive Dimensional Typography,' 2007, accessed June 2, 2010, http://www.soong-me.com/paper.pdf; L. Roxanne Russell and Joshua Cuevas, 'Designing Reading Modules for a High School Literature Classroom' (paper presented at Educational Design Research: Local Change & Global Impact, Georgia, March 26 – 27, 2010), 7, accessed July 13, 2011,

http://projects.coe.uga.edu/edrconference/EDR%20Proceedings/posters/Russell%20Poster.pdf; L. R. Russell and Joshua Cuevas, 'Animating the High School Student Reading Experience,' *Slideshare*. 2010, accessed July 13, 2011, http://www.slideshare.net/russellcuevasmodules/animating-the-high-school-student-reading-experience-a-diy-guide

³⁸ 'History of Kinetic Typography,' *Kinetic Typography*, n.d., accessed May 27, 2011,

http://kinetictypography.com/history-of-kinetic-typography/

³⁹ 'Andrew Byrom,' *Postmodern*, 2008, accessed July 13, 2011, http://dgapostmodern.blogspot.com/2008_04_01_archive.html

1.3 The Remit of this Research

A primary aim of this research is to identify the characteristics of fluid behaviours in Western (largely Anglophone) temporal typography. In order to facilitate this discussion, other artefacts and lines of enquiry are pursued to varying extents, while yet more lines of enquiry have been dropped, deemed tangential to the remit of this discussion for reasons outlined below. Where appropriate, the investigation has not engaged in lengthy discussions that can already be found elsewhere. Chapter 2, for example, is a selective history which focuses on historical developments germane to temporal typography, that are rarely acknowledged by other sources, rather than those which are commonly found to have informed recent practice in temporal typography.

As a foundation for this enquiry, however, it is useful to revisit and reassess some wellestablished ideas. It is necessary, for example, to identify the broad categories of temporal typography in order to highlight the ways in which they are distinct from fluid artefacts, and to illustrate the limitations of existing discourse in this field. The typology of temporal typography presented in Part 2 of this thesis therefore includes categories that have been described elsewhere, illustrating the place of fluid behaviours within a wider field of practice. Some of these categories of temporal typography are not discussed at length here, except where there is direct bearing on explorations of fluidity, either because they have already been explored by other researchers, or because it would detract from the central aims of this investigation. Serial presentation, for example, contains no motion or change, and has been explored at length in a number of studies related to onscreen language processing.⁴⁰ Likewise, issues of legibility will not be discussed in great detail partly due to the large number of texts that already deal extensively with the subject, including numerous studies of the legibility of on-screen typography, and several on the legibility of temporal typography. Issues of legibility on screen have, for example, been thoroughly explored by

⁴⁰ See, for example, Monica S. Castelhano and Paul Muter, 'Optimizing the Reading of Electronic Text using Rapid Serial Visual Presentation,' *Behaviour & Information Technology* 20, no. 4 (2001), accessed July 13, 2011, http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.128.3319&rep=rep1&type=pdf; Elizabeth M. Fine and Eli Peli, 'Scrolled and rapid serial visual presentation texts are read at similar rates by the visually impaired,' *Journal of The Optical Society* 12, issue 10 (1995): 2286-2292, accessed July 13, 2011, doi: 10.1364/IOSA A 12.002286; David F. Kieras. *New Methods in Reading Comprehension Research* (London:

^{10.1364/}JOSAA.12.002286; David E. Kieras, *New Methods in Reading Comprehension Research* (London: Laurence Erlbaum, 1984).

Mary C. Dyson, Carol Bergfeld Mills, and others.⁴¹ More specifically, on-screen legibility involving kinetic typography has been explored by Blake Engel et al. and Heidi Specht.⁴² Though it is vital that the viewer must be able to recognise a letter to appreciate fluidity, and legibility will be addressed when necessary, the focus of this thesis is the exploration of behaviours, and the properties which allow for those behaviours. A thorough study of legibility in fluid forms is not needed here. Indeed, in fluid artefacts, as will be observed in 2.3.4, the issue of specific letter recognition becomes less important than the wider issue of paradigm recognition; when a form has not simply been selected from a collection of 26 letters, but could be any number of signs from any number of paradigms.

This research will primarily respond to screen-based artefacts. However, it will acknowledge the importance of artefacts in other media, and call upon research that does not directly address screen-based environments. Screen-based media inevitably take cues from elsewhere, to the extent that they attempt to recreate or take inspiration from the events and properties seen in real-life environments, and in static print. There are, therefore, many parallels that can be drawn between physical (real-life) phenomena and screen-based events, and between non screen-based media and screen-based media were they share similar properties (such as temporality, or a plane surface). Some of the fluid artefacts introduced in this thesis incorporate behaviours that attempt to mimic the experiences of navigation through real-life environments. Others depict kinds of change that may also occur in physical objects. It is, therefore, pertinent to identify non screen-based artefacts which exploit the real-life environment to present equivalent behaviours to those seen in screenbased fluid artefacts. The typology presented here aims to offer a comprehensive classification system for on-screen fluid behaviours. However, as it learns from other media, its application is not restricted to on-screen phenomena. There is scope to apply the descriptions offered in this typology to other kinds of artefact. Indeed, this has already occurred, as terminology from this typology has been used in the description of Andrew Byrom's alphabetic furniture (see 1.2).

⁴¹ See, for example, Mary C. Dyson, 'How Physical Text Layout Affects Reading from Screen,' *Behaviour & Information Technology* 23, no. 6 (2004), accessed May 30, 2011,

http://www.eldritch.org/erskin/temp/layout_on_screen.pdf; Mary C. Dyson and Mark Hazelgrove, 'The influence of reading speed and line length on the effectiveness of reading from screen,' *International Journal of Human-Computer Studies* 54, issue 4 (2001), accessed July 13, 2011, doi: 10.1006/ijhc.2001.0458; Carol Bergfeld Mills and Linda J. Weldon, 'Reading Text from Computer screens,' *ACM Computing Surveys* 19, issue 4 (December 1987), accessed July 13, 2011, doi: 10.1145/45075.46162.

⁴² Engel, et al., 'The Effects of Kinetic Typography on Readability'; Heidi Specht, 'Legibility: How Precedents Established in Print Impact On-Screen and Dynamic Typography,' (MFA diss., West Virginia University, 2000), accessed July 13, 2011, https://eidr.wvu.edu/eidr/documentdata.eIDR?documentid=1426

In focusing this discussion largely on screen-based artefacts, questions inevitably arise about the kind of screen-based artefacts which may present fluid behaviours. Fluidity is observable in media including television and film credits, advertising, and numerous forms of animation. This research chooses to focus on the behaviours exhibited in fluidity, rather than on the locations in which such examples appear. To engage in lengthy discussion about the different arenas in which fluidity exists would likely shift the emphasis of this investigation away from the characteristics of behaviour, towards issues of audience and technical specifications. Such issues have already been discussed elsewhere, and the tendency to focus investigations in this way appears, in some cases, to be responsible for the lack of acknowledgement of the variety of different behaviours that exist within temporal typography.⁴³

1.4 Outline of this Dissertation

This thesis is separated into three main parts. Part 1 establishes foundations for this research, identifying relevant historical and theoretical precedents for this investigation into fluidity, while Part 2 will then go on to propose new ways of identifying, considering and classifying fluid behaviours. Part 3 provides sample analyses of fluid behaviours, demonstrating the application of the terminology and method of analysis introduced in parts 1 and 2 within a variety of artefacts from different media.

Part 1 continues with Chapter 2, which first identifies a particular history of static typography, highlighting three key developments without which any discussion of fluidity would be impossible. Since the focus of this thesis is local kineticism, these developments in static typography are distinct from those identified as important in histories of kinetic typography,⁴⁴ which tend to prioritise representations of motion, not transformation. These important developments include the introduction of the notion of a letterform as a form which may undergo distortion (in *Romain du Roi*), the notion of a letterfrom as a three-

⁴³ See, for example, Woolman and Bellantoni, *Type In Motion*, which focuses on the connection between technologies/media and temporal typography, at the expense of any discussion related to behaviour. In doing this, such texts have left a gap which this research hopes to fill.

⁴⁴ Melis Inceer 'An Analysis of the Opening Credit Sequence in Film,' *CUREJ: College Undergraduate Research Electronic Journal* 65 (2007), accessed July 13, 2011, http://repository.upenn.edu/curej/65; Woolman and Bellantoni, *Type In Motion*.

dimensional object (in nineteenth century typefaces), and modular construction of letterforms from abstract primitives (in the lettering of van Doesburg, Albers, and van der Leck).

Chapter 2 will then go on to identify salient issues in temporal typography. It assesses the extent to which temporal typography is technologically motivated, arguing that fluid behaviours are possible outside of digital and screen-based media, and that, although many contemporary examples are digital, the kinds of transformation exhibited in these examples can be seen as preceding, or existing outside, digital technologies. A literature review will then show that there is currently disagreement among theorists and commentators as to how we can classify forms of temporal typography. This section will show how existing texts use a variety of terminology to describe the many kinds of extant temporal typography, and that this terminology is often vague or misleading. In particular, this review will demonstrate that existing texts tend to focus on global, rather than local, kineticism. Perhaps as a consequence of the fact that existing texts aim to discuss the field of temporal typography as a whole, rather than focusing on specific behaviours, terminology has not been applied to adequately describe many of the local changes that can be seen in temporal typography, particularly changes which result in the transformation of verbal forms, to the extent that new identities are introduced. It is proposed therefore, that in order to define this particular kind of behaviour, we must look outside of the field of screen-based typography, to the work of Eduardo Kac, who has identified 'fluid signs' in his holographic poetry. This chapter will additionally question the appropriateness of the ubiquity of the term 'typography', suggesting that many artefacts currently labelled in this way do not adhere to established definitions of type. Alternative terminology will be introduced to redress this issue.

In Chapter 3, typologies will be identified as useful in presenting categories of typography, to differentiate between multiple artefacts, and encourage understanding. A method will be proposed for the creation of this typology, which is primarily informed by the Gestalt laws of perceptual organisation, and also by a selection of ideas from the field of semiotics. An approach which combines these methods – typologies, Gestalt, and semiotics - will be identified as particularly useful in understanding how typography functions, and the divide between type and image that is vital in fluid behaviours. The particular utility of Gestalt laws of perceptual organisation will be demonstrated, as there is clear correlation between those laws and some of the exhibited features of fluid forms. For example, the fact that some

fluid forms are modularly constructed requires the application of Gestalt's laws of *proximity*, and, in most cases, *similarity* and *closure* in order for the intended verbal identity to be perceived. While these laws are vital in the presentation of fluid forms, semiotics comes into play in the establishing of meaning in those forms, and the differentiation between different meanings adopted as those forms undergo transformation. In short, Gestalt will be used to show how a form is perceived, and semiotics to show that form is perceived as having particular significance.

Part 2, beginning with Chapter 4, models a typology of the main forms of temporal typography. This section distinguishes between serial presentation and kinetic typography, a distinction which remains unrecognised in existing texts.⁴⁵ It will continue by suggesting that there are several distinct varieties of kineticism. These are motion (affecting global layout, in *scrolling typography* and *dynamic layout*), and different kinds of local change, affecting individual forms, either in *elastic characterforms* (which exhibit distortion), or *fluid characterforms* (which exhibit the features identified in Eduard Kac's holopoetry, namely that a single form presents multiple identities over time). Chapter 4 concludes with a note on false fluidity, observing that there are some artefacts which may wrongly be identified as fluid, perhaps due to established cinematic convention. Cinematic transitions, for example, may have been established as representing transformations, but are in fact examples of serial presentation.

Chapter 5 will complete the typology by identifying the different behaviours that are exhibited in fluidity. This will expand upon Kac's descriptions of fluidity, firstly by demonstrating its use in the field of temporal typography, and then by identifying the many different behaviours that may result in the introduction of new identities. Some of these, as in Kac's holopoetry, are introduced as a result of *navigation*, while others exploit temporality, a feature that is not directly present in holopoetry itself (only in the experience of holopoetry).⁴⁶ Three main categories of fluidity are proposed: *construction* (in which new identities are constructed from parts), *metamorphosis* (in which forms distort in order to

⁴⁵ Woolman and Bellantoni, *Type In Motion*.

⁴⁶ Holopoems are themselves unchanging. Change is only experienced by the viewer while she moves through the space in which the poem is exhibited. A single viewer's experience of particular change is, therefore, solitary. Any other viewer who remains in front of the image will not experience change. In screen-based temporal environments, such as those which include most of the fluid behaviours discussed in this thesis, temporality and change are integrated into the artefact itself. Change is experienced by all viewers as it occurs independently of their motion.

adopt new identities), and *revelation* (in which external changes prompt the introduction of identities that already exist within an artefact but were initially hidden from view). These categories are sub-divided according to more precise differences between artefacts. *Construction* may either be achieved through *navigation* or through the independent *motion of parts*, and may result in either the *alignment* or *overlap* of parts. Where parts align, they present a whole configuration which has an identity that is distinct from the separate identities of the component parts, causing the presentation of two identities simultaneously, and where parts overlap, they may conceal one another's identities. In *metamorphosis*, a field which has already been widely theorised, though rarely in relation to verbal forms, the typology introduces categories of *direct* pole-to-pole transformation, or behaviours in which forms mitoically *split or combine*.⁴⁷ In the final category, *revelation*, it is proposed that revelation can occur either through *navigation or rotation* (which are, on a flat screen, interchangeable), ⁴⁸ *colour-shift*, or *illumination*. The last of these categories is less common, and have yet to be explored fully by practitioners, and so potential new directions for practice will be proposed.

Part 3 presents a series of sample analyses of fluid artefacts, demonstrating the application of the method proposed in Chapter 3, and the typology modelled in Chapter 4. These analyses will provide more thorough exploration of fluidity, and the possible consequences of fluid events. Examples have been selected to exemplify the categories identified in the typology, with minimal distraction from other temporal events. *Construction* will be explored through the Channel 4 idents of Martin Lambie Nairn and MPC (1982-2006). Lambie Nairn's 1982 ident, in particular, is considered pioneering, and has been widely recognised and influential in the field of television idents. Since the Chanel 4 idents are three-dimensional, and this three-dimensionality directly impacts upon the fluid behaviour, a two-dimensional example of *construction through motion of parts* is demonstrated through analysis of Josh Rhett's *Lubalin Graph* (2005). *Revelation* is identified in Kyle Cooper's *True Lies* (1994), which incorporates the transformation of an entire word. The category of *metamorphosis* will be examined with reference to Komninos Zervos' *Beer* (2005), selected for its simple aesthetics and lack of distraction from non-fluid forms. *Beer* also introduces problems which arise when words of different lengths are combined through *metamorphosis*,

⁴⁷ Mitoical change is that which resembles the biological process of mitosis (cell division).

⁴⁸ A study by Rock and Bosgole conducted in 1964 discovered that a projected image of a collection moving shapes could often be perceived as presenting static shapes, viewed from a changing viewpoint. *See* Irvin Rock, *Indirect Perception* (Cambrige, MA: MIT, 1997), xxiv.

showing how the behaviour is required to alter in order to allow for such transformation. This range of examples has been assembled to show as wide a range of identities as possible, demonstrating that fluidity may introduce transformations between identities belonging to a number of different paradigms, including transformation between figurative image and numeric character (in MPC's Channel 4 idents), between abstract shape and alphabetic forms (in *Lubalin Graph*), and between multiple different verbal forms, via abstract three-dimensional object (in *True Lies*), and via two-dimensional asemic glyph (in *Beer*). Further examples have been selected to introduce additional issues affecting possible interpretations of the categories in the typology, with the aim of clarifying how the typology may be applied. For example, MPC's series of idents for Sky 1, 2 and 3 have been selected for this purpose as they introduce potential ambiguity between categories of *metamorphosis* and *construction through motion of parts*. This series of idents also provides evidence that practitioners, although they may not explicitly identify categories of fluid type, practice in ways which acknowledge that different kinds of transformation exist.

The concluding chapter provides a summary of key findings, and identifies ways in which the proposed typology may be useful, both in the field of temporal typography and for future research in other fields. It reiterates the need for a typology of fluid behaviours. The limitations of the typology are identified, as are possible further applications of the typology in fields other than temporal typography.

Chapter 2: Foundations

2.1 Introduction

This chapter identifies selected developments in Western typography which have informed the creation of fluid type and allowed for the kinds of behaviours that can be seen in contemporary temporal typography. It presents evidence that theorists and commentators often fail to identify fluidity in temporal typography. Since fluid type is distinct from moving type, only some of the developments presented here are directly related to typographic kineticism. This chapter shows that while existing histories of temporal typography are of use, so too are ideas developed within static type, such as the introduction of the illusionistic three-dimensional letterform. Commentators have perhaps primarily on moving type because its history is easier to map than that of more complex temporal typography. Moving type has largely been confined to screen-based artefacts and its development can therefore be easily mapped onto histories of screen-based technologies. Part 2.2 shows that, while histories of moving type as described by Gerhard Bachfischer and Toni Robertson, and Woolman and Bellantoni, among others, are useful, there are additional antecedents, and parallel developments, which are essential to the appearance of fluidity.⁴⁹ Part 2.3 examines how recent surveys of temporal typography similarly prioritize type in motion, and do not allow for more complex behaviours, such as type which is seen to transform through fluid behaviours. Eduardo Kac's use of the term 'fluid', though originally applied outside of the field of screen-based typography, may be usefully applied to onscreen artefacts which cannot be adequately analysed using existing terms from within the field of typography. A brief analysis of legibility in fluid artefacts will consider the presence of asemic signs in fluid transformations. This chapter proposes that in the case of fluid signs, use of the term 'typography' may be misleading and exclude many examples. Verbal forms which undergo kineticism are often drawn or constructed, rather than typed, and fluid verbal signs are often not strictly typographic. Fluid forms may more reliably be described as characterforms.

⁴⁹ Gerhard Bachfischer and Toni Robertson, 'From Movable Type to Moving Type - Evolution in Technological Mediated Typography' (paper presented at the Apple University Consortium Conference, 2005), 1, accessed July 13, 2011. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.89.8900&rep=rep1&type=pdf; Woolman and Bellantoni, *Type in Motion*.

2.2 Developments in Static Typography

Temporal typography is often more complex than type which is simply in motion. Many additional properties and behaviours of temporal typography were established outside of temporal media, even, in some cases, before the introduction of screen-based technologies. Texts by Hillner and Ikonen are typical in identifying the influence of Futurist typographers such as F.T. Marinetti and, later, Concretist poets, as their typography sought to communicate temporal properties (such as rhythm) through static type, and most notably, 'analogy of motion'.⁵⁰ Marinetti's Patterns for Futurist dances of war (Fig. 7), for example, appears to represent the path taken by a bullet from source to target. In examples such as this, features of motion and sound (also temporal) are represented typographically.⁵¹ While Futurist typography can be said to share common features with 'type in motion', these similarities are most notable in overall (global) composition. It is with the relationship between letters that Futurists expressed temporality, not at a local level, with the characteristics of individual letterforms. While the style of an individual letter or character represents the qualities of a sound in some Futurist typography, progression of a temporal event was necessarily shown in Futurist work by distributing those characters across space. Temporality, therefore, is expressed by Futurist typography through global, not local, properties.

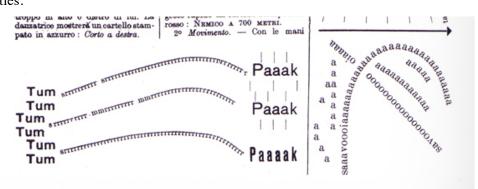


Figure 7. Filippo Tomasso Marinetti, detail from *Patterns for Futurist dances of war*, originally published in *L'Italia Futurista* (date unknown). The letter 'r' is repeated following a curved path. These repeated letters represent the sound and the motion of a bullet as is travels from source to target. Source: Alan Bartram, *Futurist Typography and the Liberated Text* (London: The British Library, 2005), 147.

⁵⁰ Hillner, 'The poetics of transition'; Ikonen, 'Moving Text.'

⁵¹ Teal Triggs, *The Typographic Experiment: Radical Innovation in Contemporary Type Design* (London: Thames & Hudson, 2003), 10.

While Futurist and Concretist poetry is undeniably important, three key developments in the history of typographic theory and practice, which are not directly associated with moving type, have created the precise conditions for fluidity in typographic forms. They differ from events acknowledged as important by other histories of temporal typography by being concentrated on local rather than global properties; they concern the treatment of individual characters rather than their position on a page. These three developments – *Romain du Roi*, three-dimensional typography, and modular lettering – are introduced here as a pre-history of on-screen fluidity, as it is only with these notions in place that further possibilities are introduced, most notably, the possibilities of manipulation, three-dimensional rotation, and the construction or dismantling of a character.

Aside from the independent significance of each of these three developments to various separate properties of fluid artefacts, they also reflect conditions in which the *process* by which the letter or character is formed is considered to be at least as important as the letter or character itself. It is not only the final appearance of the letter or character that is considered important, but also the means by which that alphanumeric form is (or appears to have been) created. Each of these three key developments identified introduces a new process by which a letter can be achieved, from the use of the transformable grid in the development of *Romain du Roi*, to three-dimensional nineteenth-century typefaces, to the modular lettering of Josef Albers, Theo van Doesburg and Bart van der Leck.

The first of two of these three developments introduce ideas about the relationship between a character and space, by presenting a flat letter as if it exists in three dimensions. The first of these, *Romain du Roi* (created by the *Académie des Sciences* in 1695, see Fig. 8) can be seen as marking a transition from lettering as a craft to type design as an intellectual, rational pursuit, distancing the printed letter from its origins in handwriting.⁵² The use of a grid in the creation of *Romain du Roi* introduces the concept of a typeface that may be manipulated to produce alternative states of the same form.⁵³ This thesis attaches particular significance to the process by which the slanted ('penché') form of each letter is achieved,

⁵² Throughout the history of typography and lettering, 'the letter' has been 'vulnerable to fashion'. See: Massin, *Letter and Image* (London: Studio Vista, 1970), 19. The design of alphanumeric characters has followed fashions, both scientific and creative, and involved a variety of different processes, each requiring a very different understanding of the nature of the written or printed form. The letter has been seen, variously, as an arrangement of strokes (as in calligraphy), a mathematically defined form (as in *Romain du Roi*), a three-dimensional object (as in extruded typography), and as a composition of smaller abstract primitives (as in modular typography). ⁵³ It should be noted that handwriting is variable, and never exactly reproduces any form. This variation is, however, distinct from the variation created with *Romain du Roi*, which is regulated, and precisely planned.

emphasizing the method of production rather than the end-result.⁵⁴ Arguably, it is this process, rather than the end-product, that has been most influential in the later development of temporal typography.⁵⁵ The committee created the slanted ('penché') version of *Romain du Roi*, by apparently 'deforming' the grid.⁵⁶ This established the notion that a sloped letterform can be an alternative version of an existing upright, as opposed to an entirely separate typeface.⁵⁷ Slanted versions of *Romain du Roi* letterforms were achieved by tilting the vertical lines of the grid, and thus type could be considered, implicitly, and potentially, malleable. This ultimately introduced the notion that type, although static in print, has the potential to be manipulated. The notion of deforming a typographic character allows for three very important ideas in relation to fluid typography: firstly, that a single form can have multiple alternative states or appearances; secondly that those different states may exist within the same object/space but at different times; and thirdly that a form may be permanent without being fixed.

Contemporary commentators (including Jammes, Spiekermann, and Eskilson) suggest that the *Académie's* most significant achievements are the use of the grid and the resultant change in the aesthetic of the printed letter,⁵⁸ but observations of Louis Simmoneau's original plates reveal that the creation of the 'penché' form of *Romain du Roi* introduced another significant notion, that of three-dimensional transformation.⁵⁹ In Simmoneau's plates, showing letterforms on a slanted grid, a shaded area appears to the right of each grid

⁵⁴ The ultimate goal of the *Académie des Sciences* was to develop a product (the *Romain du Roi* typeface) rather than focusing on its production process. The typeface was intended for practical use without the grid. There is evidence, however, that the process by which the typeface was created was viewed by some as significant. Plates in *Descriptions des Arts et Métiers*, demonstrate the process of construction for each letterform (placed within a grid and alongside the circular outlines that are used to construct each letter). The presence of the grid in the plates published in *Descriptions des Arts et Métiers* indicates that the *Académie* considered the *Romain du Roi* innovative not only in its appearance, but in the method used in its design. It may be argued that, although the *Romain du Roi* is not an example of temporal typography, the method used in its creation (and the publication of that method) had a significant impact on the emergence of fluid type, where the audience is directly shown a character coming into being. When we consider that the aim of the *Académie* was to separate type from craft, establishing it as a mathematical product, the inclusion of the grid as a diagram acts as both illustration and evidence of the new method of production, and hence the new way of thinking about the nature of the letterform. ⁵⁵ Though these plates exhibit letterforms within the grid, drawing attention to the production process,

letterforms are only displayed in their *before* and *after* states: upright and slanted. Without temporal environments, the process of typographic manipulation can only be described, not recorded. ⁵⁶ Andre and Girou, 'Father Truchet,' 10.

⁵⁷ Ibid. By placing a letterform onto a grid, it was possible to stretch it to produce alternative weights, and to skew it in order to create slanted versions of a letterform. See J. Abbott Miller and Ellen Lupton, 'A Natural History of Typography,' in *Looking Closer: Critical Writings on Design*, ed. Michael Bierut (New York: Allworth Press, 1994), 21.

 ⁵⁸ Jammes, 'Académisme et Typographie,' 71-95; Spiekermann, 'The Stroke,' and Eskilson, *Graphic Design*, 18.
 ⁵⁹ Ibid.

(see Fig. 9).⁶⁰ This shaded area implies a shadow cast by the plate onto a surface that is positioned behind and slightly away from the grid, as if the plate was propped up against a vertical wall. Tellingly, this shadow is not present alongside the upright grids. The shadow could therefore arguably be interpreted as indicating the presence of depth that does not exist in the upright forms.⁶¹ These diagrams suggest that the letterforms are not in fact deformed or skewed, but retain their original shape. The apparent slanting of the letter is an optical illusion achieved through transformation of the letter plane in illusionistic space.

This implies a fundamental shift in the understanding of the nature of the space occupied by a letter, replacing the idea of the flat page with the notion of the letter as an object within space. As an object, the letter may be viewed from multiple angles, slanted or rotated, and so may apparently distort without undergoing any actual manipulation.

⁶⁰ Plates reproduced in Jammes, 'Académisme et Typographie,' 71-95.

⁶¹ If this shadow can be understood as representing depth, then here is evidence to suggest that recent texts have failed to identify its significance, and have misinterpreted the production method of the 'penché' letterforms. Andre and Girou, and Rigby, interpret the French 'penché' as 'slanted' or 'italic', suggesting two-dimensional manipulation, not three-dimensional transformation. Only Jammes uses the term 'sloped', perhaps implying three-dimensional shift (though his text does not explicitly refer to depth or volume). Andre and Girou suggest that Simmoneau's plates show the apparent 'deformation' of *Romain du Roi* in order to achieve the 'penché' form of each letter. Even in its native French, the term 'penché' is vague, in that it can be understood either as two-dimensional slanting or three-dimensional leaning or sloping. As can be observed in the reproduction, the horizontal lines of the grid remain horizontal, while vertical lines slant to the right, thereby repositioning the top of the grid (and the letter contained within it), further right than the bottom. This grid, viewed alone, could justifiably be described as deformed, as it has been by Andre and Girou. However, to the right of this slanted grid is a triangular shadow, indicating that the grid is not skewed to the right, but is in fact sloped backwards, so that the top of the letter recedes in isometric three-dimensional space. See Andre and Girou, 'Father Truchet,' 11; Rigby, Steve, 'An Unbearable Lightness?' *Visual Communication* 6, no. 3 (2007): 288, accessed July 13, 2011, http://vcj.sagepub.com/cgi/reprint/6/3/281.pdf

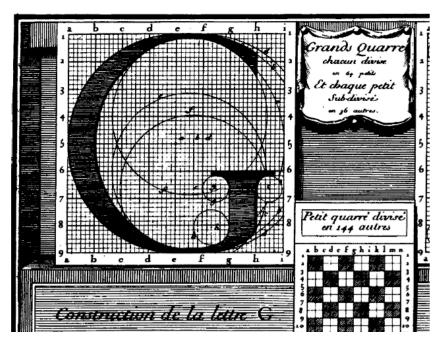


Figure 8. Illustrations of Philippe Grandjean's 'constructions les lettres', made in preparation of the typeface *Romain du Roi*, c. 1692. Engravings by Simonneau, 1917. Source: , Jacques Andre and Denis Girou, 'Father Truchet, the typographic point, the Romain du roi, and tilings' *TUGboat* 20, no.1 (1999): 11.

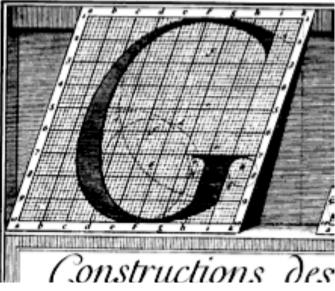


Figure 9. L. Simmoneau (engraving) and S. Truchet (design), the letter 'G' as depicted in *Constructions des Lettres*, cartoons of *Romain du Roi* penché, 1716, published in *Descriptions des Arts et Métiers*, 1761 – 1788. The grid appears to slope backwards, as if the top of the grid were isometrically receding. Source:
Andre and Girou, 'Father Truchet,' 11.

Since many contemporary examples of temporal typography feature letterforms that appear to have volume, it is important to observe the introduction of three-dimensional letterforms. The notion of a verbal form as a three-dimensional object is distinct from the notion of a verbal form as occupying three-dimensional space. As representations of objects, early nineteenth century three-dimensional letterforms began to treat the letter as a physical object as opposed to a flat sign (as in Robert Thorne's *Thorne Shaded*, c. 1810, Fig. 10), thereby paving the way for characters which may be navigated around in virtual space.⁶² Such examples are distinct from the 'penche' version of *Romain du Roi*, in which the forms remain planar despite being located in illusory space.



48 Pcint 5 A; about 16 lb.

Figure 10. Specimen showing Robert Thorne, *Thorne Shaded*, c. 1810. Source: Neil MacMillan, *A-Z of Type Designers* (London: Laurence King, 2006), 171.

Nineteenth century typographic illustrations establish the notion of the page as what Miller and Palmer et al. describe as 'environmental' space, which may contain three-dimensional typographic objects.⁶³ This introduction of illusionistic space establishes important precedents for the later introduction of virtual space. Indeed, many parallels can be drawn between *trompe l'oeil* in its many forms, and the virtual environments encountered in screen-based technologies.⁶⁴ Crucially for this investigation into fluid typography, threedimensional type introduces the idea that a character may have multiple surfaces which may

⁶² Eskilson observes that three-dimensional typefaces flourished from the 1850s. However, earlier specimens demonstrate that the concept of the verbal form as a three-dimensional object was well established in the preceding years, first in hand-drawn lettering, and then in type. Although typefoundry catalogues omit dates, a few dated specimens have been preserved and remain in more recent encyclopaedias of type. J.F. Rosart's *Enschedé*, produced in 1759, includes partly 'shaded capitals' that are 'almost three-dimensional in appearance'. *Enschedé's* capitals contain shaded areas to the right of each stroke, as if illuminated from the left. However this shading is omitted from some strokes and serifs, suggesting that the three-dimensional appearance is incidental. Fully three-dimensional forms began to emerge in the 1810s and 20s. *Thorne Shaded* (Robert Thorne, c. 1810, Fig. 16), uses similar shading to *Enschedé*, but extends it to all strokes and serifs, creating the impression of type which has been extruded. See Eskilson, *Graphic Design*, 26; Miller, *Dimensional Typography*; Jaspert and Johnson, *Enclyclopaedia of Typefaces*, 199.

⁶³ Miller, *Dimensional Typography*, 2; Stephen Palmer, Edward Simone, and Paul Kube, 'Reference frame effects on shape perception in two versus three dimensions' *Perception* 17, no. 2 (1988), 147.

⁶⁴ The relationship between *trompe l'oeil* and virtual reality is in for example, Oliver Grau, *Virtual Art* (London: MIT Press, 2003), 13-16.

be viewed from different directions. It is vital to this exploration of fluidity (particularly the behaviours described in 5.4, and some of those described in 5.2) that extrusion of a flat character imagines it as having multiple surfaces, with only the front surface of each three-dimensional object having the shape of a character while other faces are abstract, and not identifiable as alphanumeric.⁶⁵ As explored in 5.4, this allows for the sequential discovery of differently shaped surfaces, either through navigation, rotation, or interaction with environmental features such as lighting. Potentially, therefore, a three-dimensional character is capable of containing and presenting multiple different identities.⁶⁶

Though the use of three-dimensional space is a vital characteristic for some fluid typography, there are other features, not necessarily three-dimensional, that allow fluidity to occur in some contemporary artefacts. Modular lettering of the modernist era introduced two notions that are vital in enabling some fluid behaviours: firstly that the verbal form may be constructed from component parts; and secondly that those parts may serve multiple roles, as type and as image. Fundamental to some fluid behaviours (in particular, those identified in 5.2) is the suggestion that type can be constructed from smaller components, or 'primitives', as in 'modular' lettering.⁶⁷ Modular lettering became particularly prominent in modernist typographic practice, including Josef Albers' typeface *Stencil* (1925, Fig. 11) Theo van Doesburg's typeface for *De Stijl* magazine (1917), and Bart van der Leck's lettering for works including *Het Vlas* (1941).⁶⁸

⁶⁵ The side, top and bottom surfaces of an 'E', for example, all appear to be rectangles, and the alphabetic identity of the form is only revealed if the viewer is presented with what is considered to be the front surface.
⁶⁶ Although early three-dimensional characters are drawn to display the alphanumeric front face, the 3D character can be imagined as capable of displaying numerous non-verbal identities when viewed from another angle.

⁶⁷ Tara Rosenberger and Ronald L. MacNiel, 'Prosodic Font: Translating Speech into Graphics,' *CHI '99 extended abstracts on human factors in computing systems* (1999): 252 – 253, accessed July 13, 2011, http://alumni.media.mit.edu/~tara/CHI1999.pdf; Miller, *Dimensional Typography*, 5-6.

⁶⁸ These typefaces reflected modernist enthusiasm for regular and interchangeable component parts. The modernist era was a time of 'mass production and prefabrication', made possible through the 'standardisation of components...for the rapid erection and repair of objects'. It was possible to emulate the machine aesthetic through repetition, enhanced by the reductionism that was practiced, in particular, at the Bauhaus. These ideas led to verbal forms being broken down into their most primitive components, resulting in characters that were not complete wholes, but configurations. Each character was not a single form, but a collection of geometric parts, often with gaps between them to emphasize the modularity. See Paul Greenhalgh, *Modernism in Design* (London: Reaktion Books, 1990), 10; Paul Jobling and David Crowley, *Graphic Design: Reproduction and Representation Since 1800* (Manchester: Manchester University Press, 1996), 141; Mike Mills, 'Herbert Bayer's Universal Type in its Historical Contexts,' in *The ABCs of the Bauhaus and Design Theory*, eds. Ellen Lupton and J. Abbott Miller (London: Thames & Hudson, 1993), 41.

In 'modular construction', this process is one of building or assembly.⁶⁹ Bart van der Leck himself referred to such typographic works as 'compositions', describing characters that are built, as opposed to moulded, with each character 'systematically' constructed 'as if it were a building'.⁷⁰ Construction, as opposed to other methods of creation, leaves the component parts as whole forms or objects in their own right: part of a verbal character but still independent. Central to these modular typefaces is the notion that component parts are interchangeable. Only a limited number of primitives are used to construct the entire alphabet. In Albers' Stencil, only three 'primary forms', rotated and rearranged, are required to construct every one of the 26 letters and numbers in a standard character set.⁷¹ As can be observed in van Doesburg's cover for the first edition of De Stijl magazine (1917), and Bart van Der Leck's poster for Delft Salad Dressing (1919, Fig. 12), demonstrate a remarkable similarity between the primitives used to construct type, and those used to construct image. Components of letterforms are similar, or in some cases identical, to the components of images and abstract pictorial arrangements. Being interchangeable, these rectangles do not have a fixed typographic identity. If each block may be exchanged for another, so, too, can its identity be replaced, with each rectangle having the potential to serve as both image and type.⁷² An image may be dismantled in order to provide the component parts of a typographic sequence, and a verbal character may be dismantled and rearranged to form a part of an image; a process that is exhibited in the behaviours of many contemporary examples of fluid typography.

⁶⁹ Miller, Dimensional Typography, 6.

⁷⁰ David Ryan, *Letter Perfect: The Art of Modernist Typography 1896-1953* (California: Pomegranate, 2001), 40, 58.

<sup>58.
&</sup>lt;sup>71</sup> It was fundamental, in order to adhere to modernist principles, that variation among component parts was minimal. Mass production requires parts that are 'capable of adaption', so a single component part can be put to use in multiple different roles. See Greenhalgh, *Modernism in Design*, 10.

⁷² Since identities are not mutually exclusive. When forms are substituted for one another, as in modular construction, new identities can be introduced with or without replacing an old identity. Examples of this are shown in 5.2.4, in particular, BB/Saunders, *Free*.

abcdefghij klmnopqrs fvvwxyz

Figure 11. Joseph Albers, *Stencil*, 1925. Stencil exhibits modular construction, with each letter being composed from a set of primitive forms. Source: Tamara Maletic and Dan Michaelson, 'Linked by air,' 2007, accessed July 13, 2011, <u>http://linkedbyair.net/advanced/firstclass.pdf</u>



Figure 12. Bart Van der Leck, poster for *Delft Salad Dressing*, 89x59.9cm, 1919. Source: J. Tylor Flatt, 'Bart Antony Van Der Leck: Delft Salad Oil,' *Retained*, 2009, accessed July 13, 2011, <u>http://retained.blogspot.com/2009/06/bart-anthony-van-der-leck-delft-salad.html</u> These three historical developments are by no means alone in having shaped contemporary examples of fluidity, and others, such as the illusion of movement as it occurs in Futurist typography, are sufficiently discussed in histories of temporal typography.⁷³ The three developments are examined in detail here, not only because they have not, as yet, been adequately acknowledged as in such histories, but also because they are particularly significant in establishing the precise local conditions under which fluidity can occur.

2.3 Developments in Temporal Typography

Since screen-based media have only more recently allowed for the display of typography in temporal environments, key developments in temporal typography have been more recent than many in static typography. That is not to say, however, that developments in temporal typography have been entirely technologically motivated. As will be demonstrated in 2.3.1, temporal behaviours, and the notions which underlie them, have often emerged before the technologies with which theorists and commentators currently associate them. The evidence presented in this section suggests that, although digital technology may encourage the production of temporal typography, it cannot be considered responsible for it. This chapter will then go on to identify other gaps in existing texts in the field of temporal typography, largely focusing on problems of definition. Authors currently disagree about definitions of forms of temporal typography. They differ not only on terminology, but also on the features that may be observed in examples of temporal typography. Part 2.3.2 will identify these differences, then 2.3.3 will focus on a particularly common omission: the failure to distinguish between global change and local kineticism.⁷⁴ This will underpin the argument that we must look outside of the field of screen-based temporal typography, to Eduardo Kac, for a definition of a particular kind of local kineticism, in which forms perform extreme transformations.

⁷³ See, for example, Hillner, 'The poetics of transition.'

⁷⁴ The distinction between global and local characteristics and phenomena is vital to studies of perceptual organisation, and is therefore vital when applying methods of Gestalt analysis, as introduced in 3.3.

Finally, in 2.3.4, it will be argued that to describe fluid forms as typographic would be misleading, given that they frequently feature non-typographic verbal forms. It will be observed that the current terminology used in existing discussions of temporal typography contradicts use of the term 'typography' in texts relating to print. It will therefore be concluded that *fluid characterforms* is the most appropriate term to describe verbal signs which present multiple identities over time.

2.3.1 Temporal Typography and Technology: Towards Definitions of the Various Forms of Temporal Typography

Although this research primarily focuses on screen-based fluidity, it is vital to acknowledge that fluid behaviours are not wholly dependent on recent advances in technology. As was demonstrated in 2.2, temporal typography is informed by developments in static typography. As with print, trends in temporal typography have often been technologically motivated, in that they are enabled by the introduction of new digital tools, such as new software or plug-ins. However, examples also exist which favour more firmly established techniques, and attempt to make minimal use of digital technology. Others go so far as to present temporal typography in situ, without even relying on screen-based technologies to reach their audience. Such examples demonstrate that many of the behaviours seen in temporal typography can and do exist without the digital technologies with which many examples are currently created, or even without any kind of screen-based technology.⁷⁵

It is implicit in many discussions of temporal typography that motion and change in typography is impossible without screen-based technologies. However, as Carey Jewitt and Teal Triggs observe, 'notions and functions of the screen are continuously shifting', and so it is risky to make concrete links between the screen and anything contained within it.⁷⁶ Woolman and Bellantoni begin their history of temporal typography with early cinema, and

⁷⁵ Non-mechanical and non-digital tools may be considered technologies, including notable examples such as the printing press and moveable type. This section specifically addresses recent digital and screen-based technologies. Temporal typography that does not *require* screen-based or digital technologies. It has been produced using other technologies, including those that are not explicitly associated with temporal typography by texts in this field. In the case of *Mainstreet Meltdown* (see Fig. 15), for example, refrigeration technologies were employed.

⁷⁶ Carey Jewitt and Teal Triggs, 'Screens and the Social Landscape,' *Visual Communication* 5, no. 2 (2006): 131, accessed July 19, 2011, http://vcj.sagepub.com/content/5/2/131

closely align discussion of its development to that of advances in screen-based technologies.⁷⁷ Many more texts go so far as to suggest that it is not all screen-based technologies, but specifically digital or multimedia technologies, that make many kinds of temporal typography possible. David L. Small suggests 'new media' and 'computer techniques' are responsible for 'enabling designers to think of typography...as a dynamic event'.⁷⁸ Soo C. Hostetler makes a similar assertion, claiming that 'the combination of typography and motion' is a result of 'digital technology'.⁷⁹ Lee et al. suggest that 'text that uses movement or other temporal change' has only 'recently emerged', implying that it is a product of recent technologies and, furthermore, they identify it as not existing before the credit sequences of Saul Bass.⁸⁰ This assertion is contradicted by Woolman and Bellantoni's contention that 'type in motion' could be observed as early as 1899, long before Bass' first credit sequence.⁸¹ Teemu Ikonen also proposes that 'textual motion' is a 'recent' innovation, specifically one of 'digital environments'.⁸² These and other texts (including those by Douglas Soo, Bodine and Pignol, and Lewis and Weyers) discuss temporal typography in terms of the technology used in its production, implying an inextricable link between digital technology and temporal typography.⁸³

It is perhaps telling that commentary and analysis on the field of temporal typography did not begin to emerge until after the introduction of digital technologies. Guy Julier and Viviana Narrotzky have, somewhat contentiously, observed that design theory tends to lag behind practice.⁸⁴ As in many design fields, the quantity of theory on temporal typography

http://acg.media.edu/projects/thesis/DSThesis.pdf; David Small, 'Perception of Temporal Typography,' 1996, accessed July 13, 2011, http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.35.3157&rep=rep1&type=pdf ⁷⁹ Soo C. Hostetler, 'Integrating Typography and Motion in Visual Communication' (paper presented at the 2006 iDMAa and IMS conference, Miami, USA, April 6-8, 2006), accessed July 13, 2011, http://www.units.muohio.edu/codeconference/papers/papers/Soo%20Hostetler-2006%20iDMAa%20Full%20Paper.pdf

⁷⁷ Woolman and Bellantoni, *Type In Motion*.

⁷⁸ David L. Small, 'Rethinking the Book,' (PhD diss., MIT, 1999), accessed July 13, 2011

⁸⁰ Lee et al., 'The Kinetic Typography Engine,' 81.

⁸¹ Woolman and Bellantoni identify moving type as early as 1899, long before Bass' first credit sequence. See Woolman and Bellantoni, *Type in Motion*, 7.

⁸² Ikonen, 'Moving Text.'

⁸³ Douglas Soo, 'Implementation of a Temporal Typography System' (Masters diss., MIT, 1997), accessed July 13, 2011, <u>http://mit.dspace.org/bitstream/handle/1721.1/10274/37145274.pdf?sequence=1</u>; Kerry Bodine and Mathilde Pignol, 'Kinetic Typography-Based Instant Messaging', *CHI '03 extended abstracts on Human factors in computing systems*, (2003): 914-915, accessed July 13, 2011,

http://portal.acm.org/citation.cfm?id=765891.766067; Jason E. Lewis and Alex Weyers, 'ActiveText: a Method for creating Dynamic and Interactive Texts,' *CHI Letters 1*, no. 1 (1999), accessed July 13, 2011, doi: 10.1145/320719.322594

⁸⁴ Guy Julier and Viviana Narotzky, 'The Redundancy of Design History' (paper presented to the conference 'Practically Speaking,' Wolverhampton University, December 1998), accessed July 19, 2011,

http://www.lmu.ac.uk/as/artdesresearch/Projects/design_observatory/the_redundancy_of_design_history.htm

has not matched practice. Despite temporal typography having existed for many decades, theorists did not begin to significantly or specifically focus their research on temporal typography until after the introduction of digitally animated type. Academic research has only recently begun to classify temporal typography and identify its potential uses, with no key texts appearing before the 1990s. Helfand wrote in 1994 of a 'new visual language' of multimedia, in which 'traditional definitions of word and image and form' no longer apply. Other texts identified above (including those by Small, Hostetler, and Ikonen) were all produced in the last two decades, and almost all take for granted a connection between temporal typography and digital technology.⁸⁵

It may be the case that texts on temporal typography emerged so late because earlier artefacts could be more accurately described as containing lettering than typography. Examples before the introduction of digital media, including animator and director Norman McLaren's drawn letters for an advertisement for the Canadian Tourist Board (1961, Fig. 13), did not necessarily contain forms that could be defined as type. Of course, typography itself is not a recent invention, having existed in moveable type long before the emergence of the computer, so the fact that examples such as McLaren's contain drawn lettering cannot in itself be considered an explanation for the scarcity of earlier texts in the field. Indeed, many contemporaneous examples did contain typed forms (not least those by Saul Bass). The implications of this are explored in 2.3.5.

⁸⁵ Small, Rethinking the Book; Hostetler, 'Integrating Typography and Motion'; Ikonen, 'Moving Text'

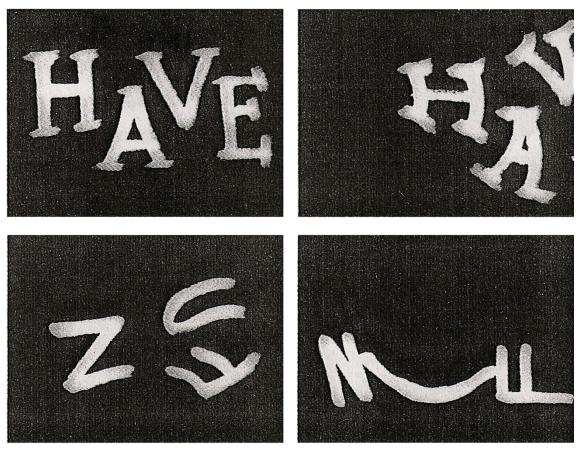


Figure 13. Norman McLaren, *New York Lightboard Animation*, 1961. In this part of McLaren's stopmotion sequence, the words 'have' and 'fun' move and distort as if brought to life. Source: Woolman and Bellantoni, *Type in Motion*, 7.

Even though hand-made examples do exist, it is certain that an overwhelming quantity of contemporary temporal typography has been created using digital production methods. Soonjin Jun suggests that, although digital technologies may not be required for the production of temporal typography, the cultural shift that favours such technologies has contributed greatly to the increase in motion graphics.⁸⁶ At the very least we must concede, with Hillner, that 'computer technology' does 'increase the possibilities' of temporal typography.⁸⁷ It is certainly true that many (if not most) examples of temporal typography

⁸⁶ Soojin Jun, 'The New Typography Today: Issues in Kinetic Typography from the Perspective of Jan Tschichold' (MA diss., Carnegie Mellon University, 2000), 16, accessed July 13, 2011, <u>http://www.contrib.andrew.cmu.edu/~soojin/documents/Jun_2000_new_typography_today.pdf</u>

⁸⁷ Matthias Hillner, 'Text in (e)motion', *Visual Communication* 4, no. 2 (2005): 166, accessed July 13, 2011, doi: 10.1177/1470357205053394

are displayed on a screen, and that, just as type is itself produced mechanically or digitally,⁸⁸ contemporary temporal typography may largely be seen as a multimedia phenomenon. Woolman observes that, in recent decades, seduced by new technology, designers found that the style of temporal typography they produced was 'often dictated by the software of the moment'.⁸⁹ Software such as *Adobe Flash* enables many of the behaviours exhibited in recent temporal typography, and various packages exist solely for the creation and presentation of temporal typography (including *ActiveText*, *Typographic Space* and *Kinedit*).⁹⁰

Even when recent software such as these, specifically designed for the production of temporal typography, have not been used, the mere fact that they exist, and that audiences are familiar with their output, informs the reception of artefacts of temporal typography. As technology itself evolves, so too does the audience's notion of the screen, and what it may contain. It is impossible to escape the fact that, when temporal typography is presented on the screen, notions of the screen and its function affect the ways in which its content is received. As Jewitt and Triggs observe, 'the changing concept of the screen is located in social/cultural histories'.⁹¹ Although temporal typography may not be reliant on a particular screen-based technology, the kind of screen on which it is viewed will appear to ground it in time and function, thereby contributing to the audience's understanding of its message.

Although the texts identified above suggest otherwise, there is substantial evidence to suggest that it is not the case that all developments in temporal typography have been motivated by digital technologies. More broadly, temporal typography is commonly encountered on screen-based media, many of which existed before the digital technologies which are now associated with motion graphics. Temporal typography is occasionally described as 'typographic animation',⁹² and although animation may also be considered by

⁸⁸ It is important to note that type is distinguished from lettering and writing by virtue of the fact that it is mechanically or digitally produced. Temporal typography (as opposed to temporal lettering) must, therefore, at some stage in its production, be a product of mechanical or digital technology.

⁸⁹ Matt Woolman, Type in Motion 2 (London: Thames & Hudson, 2005), 6.

⁹⁰ Lewis and Weyers, 'ActiveText'; David Small, Suguru Ishizaki and Muriel Cooper, 'Typographic Space', *CHI '94 Conference Companion* (1994): 437; Jodi Forlizzi, Johnny C. Lee, and Scott E. Hudson, 'The Kinedit system: affective messages using dynamic texts,' *Proceedings of the SIGCHI conference on Human factors in computing systems* (2003): 377 – 384, accessed July 13, 2011, http://portal.acm.org/citation.cfm?id=642611.642677

⁹¹ Jewitt and Triggs, 'Screens,' 132.

⁹² George Borzyskowski, 'Animated text: More than meets the eye?' *Proceedings of the 21st Ascilite Conference* (2004), accessed July 13, 2011, http://www.ascilite.org.au/conferences/perth04/procs/borzyskowski.html; Chloe

some as a product of screen-based technology, it existed in the 'pre-cinematic' era, in, for example, flip books, and praxinoscopes.⁹³ There are also a number of artefacts which demonstrate that temporal typography may be encountered without the use of digital or screen-based technologies. Alphabetic objects capable of motion and change may exist in real-life environments, as tangible objects, as can be seen in recent examples including Nora Ligorano and Marshall Reese's Main Street Meltdown (2008), in which the word 'economy', sculpted from ice, was allowed to melt on a plinth in Foley Square, New York. In this installation, each independently sculpted letterform lost its verbal identity as it melted, in representation of the 1929 Great Depression (see Fig. 14).⁹⁴ It is perhaps the case that examples such as this one are not included in surveys of temporal typography for two reasons. Firstly, they are not preserved on video, and so their temporal attributes cannot be experienced by new audiences, and secondly, they are sculpted rather than typed forms, with keyboards not having been involved in their production, and it would therefore be misleading to describe these forms as being typographic (an issue which will be addressed in more detail in 2.3.4). Whether it may be described as typographic or not, the fundamental notion that a verbal form may be experienced as a changing and moving object could, as this example shows, exist without screen-based technologies. Indeed, it may even be considered a notion that has been held historically. As was observed in 2.2.1, the notion of a changeable typographic form – one without a constant shape – existed long before the introduction of screen-based temporal media. The forms of Romain du Roi were considered malleable (in the production of alternative styles), and the component parts of modular lettering were considered interchangeable.⁹⁵ The process of creating these typefaces was itself a temporal process, and by prioritising these processes, designers highlighted the potential for change. Arguably, it is only the lack of temporal output media that prevented temporal typography from emerging long before it did.

It must be noted that even if such historical examples did introduce the notion of changeable verbal forms, they did not directly demonstrate this change to audiences. Plates depicting *Romain du Roi* could only draw attention to the production process by displaying forms in

Ming-shu Chao, 'Kinetext: Concrete Programming Paradigm for Animated typography' (BSc diss., Harvard University, 1998), 9.

⁹³ Paul Wells, *Understanding Animation* (London: Routledge, 1998), 1-2.

⁹⁴ Nora Ligorano, and Marshall Reese, 'Main Street Meltdown,' 2008, accessed July 13, 2011, http://mainstreetmeltdown.com/

⁹⁵ Contemporary software continues to treat type as malleable, so that its form may be made to differ over time. Even software designed for static outcomes, such as Adobe Illustrator, render the form malleable, and therefore suggest that type is not fixed.

their *before* and *after* states: upright and slanted. Without temporal environments, the process of typographic manipulation can only be described, not recorded. Due to the lack of recording and screening technologies the process itself could not be displayed to audiences. Though audiences of *Main Street Meltdown* may have directly witnessed the changing letterforms, with the melting process being so lengthy, it is likely that most audience members will only have experienced some of the change. Furthermore, this experience was site-specific, and access to the experience was therefore limited by location and presence. The examples of *Romain du Roi* and *Main Street Meltdown* demonstrate that, although the notion of a changing typographic artefact may exist outside of screen-based technologies, without screen-based technologies, audience size is limited. The experience of change cannot easily be shared among wider audiences without technology to record and display them. Recent examples such as *Frying Type* (viaLetter 2006, which shows the word 'fry' set alight and melting in a pan, see Fig. 15) may be created manually, but they are most commonly experienced via a recording. In this way, there has been a shift of priority from performance to review. Indeed, as Neil Bennet observes, regardless of the method of production, it is 'output' media that have 'helped to evolve the medium of motion typography', expanding audiences and increasing awareness among designers of the possibilities of typographic behaviours.⁹⁶ It can therefore be suggested that although screenbased technologies are not vital in the production of temporal typography, screen-based output media have been vital in expanding the field.



Figure 14. Nora Ligorano, and Marshall Reese, *Main Street Meltdown*, 2008. Source: Ligorano and Reese 'Main Street Meltdown,'

⁹⁶ Neil Bennet, 'Poetry In Motion,' *Digital Arts*, 2007, accessed July 13, 2011, http://www.digitalartsonline.co.uk/features/index.cfm?featureid=1547



Figure 15. viaLetter, *Frying Type*, 2006. Source: 'Frying Type,' *YouTube*, 2006, accessed July 18, 2011, http://www.youtube.com/watch?v=C6QtmZzfOZ8

Output media plays such a vital role in some examples of temporal typography, that it is solely responsible for adding the temporal dimension (motion or change) where the subject would be considered static if viewed directly. While examples such as *Frying Type* simply record/display temporal events, other artefacts rely on the recording process to create such events, often by exploiting relative motion. In Saul and Elaine Bass's credit sequence for Alcoa Premiere (1961), the camera navigates around a physical model of an urban landscape to reveal verbal identities (see Fig. 16). In this example, the model landscape is static, but the viewer's experience of this artefact is temporal. It is only via the recording (specifically, the motion of the camera) that this static object becomes an artefact of temporal typography. In examples such as this, the camera's ability to frame - to highlight key elements and to draw attention to a certain way of seeing – is perhaps more important than the subject. Through filming, in the syntagm of cinematic meaning, properties of a subject can be highlighted which may otherwise go unnoticed. This is the case, for example, with 3D models such as those used in Alcoa Premiere, where selective framing ensures that the two separate identities of the model (as city and as type) are revealed sequentially rather than simultaneously. So, to this extent, screen technology is not responsible for the typographic objects, but is responsible for creating, from those objects, a temporal experience.

In many cases, however, temporal typography does not involve directly filmed objects. In these cases, we must consider the extent to which technological development is responsible not only for the presentation of the temporal typography, but also the typographic forms and the behaviours they exhibit. Here too, there is evidence that temporal typography is not solely the product of recent technology. Woolman and Bellantoni identify examples of temporal typography on the analogue screen before the start of the twentieth century, such

as when George Méliès produced 'animated letterforms' for advertisements in 1899.⁹⁷ Such examples demonstrate the use of manual techniques for screen-based artefacts long before the emergence of recent digital technology. Once again, however, as with *Main Street Meltdown*, Melies' forms should not necessarily be defined as typographic, despite Woolman and Bellantoni's application of the term. Even in the face of such examples of animated lettering, commentators, including Hillner, still insist that some forms of temporal typography 'cannot exist outside the digital sphere'.⁹⁸ There are other similar contradictions evident among the array of temporal verbal artefacts that exist, and the texts which discuss the field. Helfand suggests that typography may, with new technology, be given 'a theatrical component'; that it can be 'dramatized'.⁹⁹ Helfand clearly identifies recent technologies as being responsible for this dramatization of typography, and in so doing denies hand-drawn examples such as Norman McLaren's 1961 advertisement for the Canadian Tourist Board, in which animated were letters 'dramatized', to the extent that they were given the characteristic 'swagger' of comedy performers (Fig. 13).¹⁰⁰

Despite the insistence to the contrary found in many texts, it appears that digital production methods are primarily used, not to create entirely new typographic behaviours, but rather to reproduce effects that were already seen in non-digital (and non-typographic) artefacts. This follows the theory of social construction of technology, which suggests that it is human action or need that determines technology rather than vice versa.¹⁰¹ New technology did not prompt the introduction of new behaviours in temporal typography, but made pre-existing behaviours easier to apply. The forms and events presented in *Alcoa Premiere* may be replicated in virtual environments. Software such as *Typographic Space* allows the creation of virtual models of three-dimensional verbal objects, similar to those described by *Design/Writing/Research* director and partner at Pentagram, J. Abbott Miller as 'dimensional typography'.¹⁰² In the virtual environment, verbal forms can move and revolve within virtual three-dimensional space presenting viewers with scenes of characters that

⁹⁷ Woolman and Bellantoni, Type in Motion, 7.

⁹⁸ Matthias Hillner, "**Virtual Typography**": **Time Perception in Relation to Digital Communication**, *LeonardoElectronic Almanac* **14**, **no. 05-06 (2006): 3**, **accessed July 13**, **2011**, http://leoalmanac.org/journal/vol 14/lea v14 n05-06/mhillner.html

⁹⁹ Helfand, 'Electronic Typography,' 51.

 ¹⁰⁰ Woolman and Bellantoni, *Type in Motion*, 8; Reginald Sales Hutchings, *Alphabet 1964: International Annual of Letterforms* (Birmingham: Kynoch Press, 1964), cited in Ibid.
 ¹⁰¹ Trevor J. Pinch and Wiebe E. Bijker, 'The Social Construction of Facts and Artifacts: Or How the Sociology

¹⁰¹ Trevor J. Pinch and Wiebe E. Bijker, 'The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other,' in *The Social Construction of*

Technological Systems: New directions in the sociology and history of technology, eds Wiebe E. Bijker, Thomas P. Hughes and Trevor Pinch (Mass: MIT Press, 1989)

¹⁰² Miller, Dimensional Typography.

appear skewed or distorted. 'Translation of the viewpoint', mimicking travel around real three-dimensional characters, exposes the viewer to familiar forms from unfamiliar angles.¹⁰³ The result is not dissimilar to that of Alcoa Premiere, but the process eliminates the need for physical models such as those used by Saul and Elaine Bass. Though *Typographic Space* is a modelling tool rather than an example of temporal typography, similar 'dimensional' verbal characters can appear in temporal artefacts. Jeffrey Shaw's Legible City (1989, 1990, and 1991), features virtual models of cities that have been constructed from three-dimensional letterforms (see Fig. 17). Alphabetic objects are stacked to form buildings, and users are given a simulated experience of navigating through the streets of a city via a modified bicycle that is placed in front of a large screen.¹⁰⁴ The experience of navigating through Legible City is very similar to that of viewing Alcoa *Premiere*. Both artefacts present three-dimensional objects that, at different times, appear verbal or architectural.

¹⁰³ Small, Ishizaki, and Cooper, 'Typographic Space,' 437.
¹⁰⁴ Jeffrey Shaw, 'The Legible City,' c. 2001, accessed July 13, 2011, <u>http://www.jeffrey-</u> shaw.net/html main/frameset-works.php

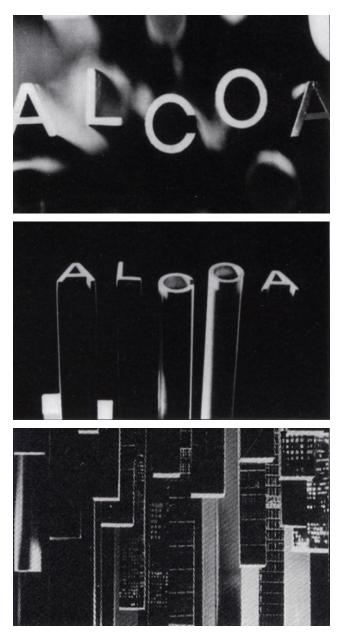


Figure 16. Bass, Saul and Elaine, title sequence for *Alcoa Premiere*, 1961. A real, static model was directly filmed for this sequence. The apparent shift from typographic to architectural scene is created through the motion of the camera as it tracks down the model. Source: Matt Woolman, *Type in Motion 2*, (London: Thames & Hudson, 2005), 164-5.

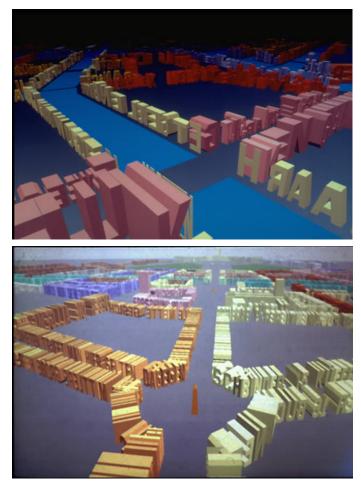


Figure 17. Jeffrey Shaw and Dirk Groeneveld, *Legible City*, 1989-1991. This virtual world imitates the features of the real model made for Bass' *Alcoa Premiere* title sequence. Source: Jeffrey Shaw, 'The Legible City,' c. 2001, accessed July 13, 2011, <u>http://www.jeffrey-shaw.net/html_main/frameset-works.php</u>

In other artefacts, the distortion created by three-dimensional motion and rotation is used to suggest the presence of an invisible form, as letters appeared to fold or curve around its contours. This also produces results that are not dissimilar to those seen in earlier, non-digital artefacts, such as Robert Brownjohn's sequence for *From Russia With Love* (1963, Fig. 18). In Brownjohn's title sequence, the opening credits were projected onto the body of a belly dancer. The dancer's movement causes it to stretch and skew as it flows across the curves of her body. Made illegible by this distortion, the text can only be read once the dancer has moved away, and the type lands on a flat backdrop. Although this sequence involved projected forms, and is viewed on screen, its production involved only analogue technologies, and is notable in its minimal use of contemporaneous technology. Brownjohn described his method as 'instant opticals', in reference to the immediacy of the filmed sequence in contrast to the lengthy laboratory processes that had previously been used to

create credit sequences.¹⁰⁵ Digital equivalents of this technique can be seen both in film and in experimental digital artefacts. In the title sequence for *Postcards from America*, words are skewed as if rotated ninety degrees apart, suggesting the presence of a cube.¹⁰⁶ Another artefact, by Matthew and Christopher Pancetti, presents text which stretches and increases in size, indicating the presence of an invisible sphere, over which the letters flow (see Fig. 19).

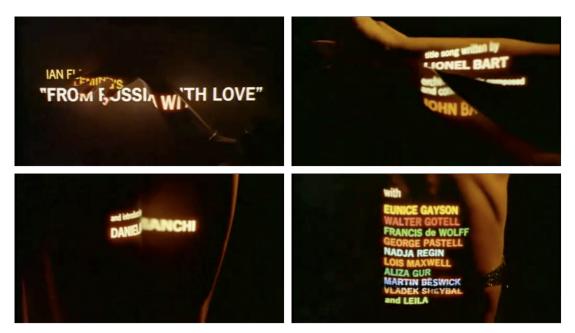


Figure 18. Robert Brownjohn, title sequence for *From Russia with Love*, 1963. This sequence was directly filmed, with all distortion arising from the motion and contours of the body on which the title credits were projected. Brownjohn considered this work noteworthy as a result of the fact that it did not involve the complex and more technologically advanced laboratory processes which were commonly used in other sequences of the same period. Source: 'From Russia With Love 1963,' *Daily Motion* (2008), accessed July 18, 2011, http://www.dailymotion.com/video/x483oe_from-russia-with-love-1963_tech

¹⁰⁵ Emily King, 'Taking Credit: Film title sequences, 1955-1965/ 7: Sex and Typography: From Russia With Love, 1963,' *Typotheque*, 1993, accessed July 13, 2011,

http://www.typotheque.com/articles/taking_credit_film_title_sequences_1955-

¹⁹⁶⁵_7_sex_and_typography_from_russia_with_love_1963#

¹⁰⁶ Bureau, *Postcards from America*, 1994, in Woolman and Bellantoni, *Type in Motion*, 55.



Figure 19. Matthew and Christopher Pacetti (p2), *Untitled Experimental Video*, 1998. Digital technology produced this outcome that presents similar effects to those seen in Brownjohn's *From Russia with Love* sequence. Letterforms are distorted, as if projected onto the surface of objects. In this case, no such objects can be directly seen, and only the distortion of the type implies their existence. Source: Woolman and Bellantoni *Type in Motion*, 57.

From these examples it is possible to conclude that, although digital technologies may have been used in the production of many examples of temporal typography, they cannot be considered responsible for the underlying concepts, nor the particular behaviours that are witnessed in contemporary temporal typography. Also evident in these examples, past and present, is considerable variety not just in the visual variety of typographic forms, but also in the behaviours that they exhibit. Though many texts take for granted the connection between digital media and temporal typography, there is disagreement over the terminology that should be used in identification and discussion of temporal typography in its various forms.

Many texts agree that the differences between 'temporal typography' and static typography are significant, and that investigation into the properties of temporal typography is necessary, however few demonstrate the full extent of the variation in typographic behaviours. Most recent hypotheses regarding temporal typography, which will be discussed here, are too recent and not substantial enough to have established a universally accepted model of analysis. Many texts fail to agree even on the vocabulary used to define key properties or categories of temporal typography. However, several theorists have begun to offer explanations and analysis, and are working towards establishing temporal typography as a significant field of research.¹⁰⁷

 $^{^{107}}$ Since the texts discussed here universally use the term 'typography', the authors' terms will be accepted for the purposes of this review; the question of whether this term is appropriate will be considered in detail in Part 2.3.4

Helfand, Hillner and Yin Yin Wong assert that temporal typography needs to be considered as significant in its own right, not simply as the offspring of static typography. They agree that ways of describing and addressing temporal typography should be distinct from those in the field of static typography, partly because, as Soonjin Jun observes, characteristics of static typography may have different meaning in a temporal environment, particularly where the flat screen is seen to represent a three-dimensional environment (large and small characters, for example, may be perceived on a screen as characters that are close and far away).¹⁰⁸ In the 1994 text, 'Electronic Typography: The New Visual Language', Helfand describes the 'new visual language' of multimedia, in which 'traditional definitions of word and image and form' no longer apply. She acknowledges how, in temporal media, time has become a 'powerful and persuasive design element', and suggests that as a consequence of temporality, the 'goals', 'purpose' and even 'identity' of typography must be readdressed.¹⁰⁹ Helfand's paper emphasizes the expressive potential of 'electronic typography', stressing that traditional, static characteristics, such as 'bold and italic', offer only a fraction of the expressive potential of dynamic properties. However, Helfand's paper is brief and, rather than offering any analysis itself, it describes the potential for further research. It tells us that 'our static definitions of typography appear increasingly imperilled' but does not go so far as to offer alternatives. Helfand's text acts as a call for new methods of analysis, and new language with which to describe these 'dynamic' artefacts.

Wong, in 1995 and 1996, produced the first extensive analyses of 'temporal typography', which remain the most likely to offer a vocabulary for the analysis of digital, dynamic typography. *Temporal Typography: Characterization of time-varying typographic forms* presents a model of analysis for 'temporal typography' (screen-based typography with a temporal dimension). Wong acknowledges that typographic theory, despite having developed thorough methods of analysis and description for static type, has yet to develop models for the 'characterization' of temporal typography.¹¹⁰ She recognizes that temporal typography introduces new 'issues' (such as those arising as a consequence of navigation around three-dimensional characters) which did not exist in print, and which therefore require new methods of analysis and description. In static typography, 'the development of theories and language for discussing spatial qualities of type have helped designers create,

¹⁰⁸ Jun, 'The New Typography Today,' 3.

¹⁰⁹ Helfand, 'Electronic Typography', 49-50.

¹¹⁰ Yin Yin Wong, 'Temporal typography: characterization of time-varying typographic form' (MS Thesis, MIT, 1995), 7, accessed July 19, 2011, http://hdl.handle.net/1721.1/29102

articulate and reflect on design solutions'. Wong proposes, however, that there is currently 'a lack of conceptual devices and terminology' for the description and analysis of all forms of temporal typography.¹¹¹ She suggests that a framework for description and analysis, equivalent to those used for static type, may prove equally as useful for designers and critics who operate within this emerging field as such a framework has done for typographers dealing with print media.

Wong proposes a 'characterization scheme' for the description of temporal typography, consisting of 'two basic parts: structural description and behavioural description.'112 'Structural characteristics' include those of 'physical form' and 'global composition', and may be used to describe temporal typography with reference to 'the physical attributes of typographic form such as color, weight, size and position' (referred to as 'dimension').¹¹³ Behavioural description characterises temporal typography with reference to the 'manner' in which forms change.¹¹⁴ Wong divides both of these categories of description into a hierarchy of 'visual technique' (a type of change, e.g. 'fade'), 'visual action' (the result of a combined techniques applied to a single form, word or collection of words), 'expression' (a composition of different actions applied to different forms or groups) and 'presentation' (the entire artefact). In 'structural description', these actions are quantified according to how they affect the 'typographic dimensions' of 'form/shape', colour, 'edge definition' and 'composition'.¹¹⁵ In 'behavioural description', 'visual technique' describes how 'a particular typographic dimension changes over time', for example, whether transition is 'hesitant' or 'confident'. Wong proposes that all such changes are a consequence of a combination of 'direction' and 'speed', where direction does not only describe change in location, but could also refer to motion along a 'range of change'. 'Direction of transparency' for example, 'is a two direction description' which can be reduced to the directions of 'fading in' and 'fading out'.¹¹⁶ 'Speed' refers to the speed at which this change occurs.

This 'direction' description draws attention to key limitations of Wong's text. It allows for any change which can be classified as having 'range' (such as scaling, up or down, or fading in and out), but does not allow for cyclical evolution or for extreme distortion leading to

¹¹¹ Ibid., 8.

¹¹² Ibid.,11.

¹¹³ Ibid., 11, 18

¹¹⁴ Ibid., 18.

¹¹⁵ Ibid., 14, 16, 17-18, 15.

¹¹⁶ Ibid., 18-19.

change in identity. It is possible to identify in examples such as Komninos Zervos' *Beer* (2005), which is discussed further in 5.3 and analysed in 6.5, extreme distortion in which letters transform to such an extent that they cease to be recognisable as letters, essentially losing their verbal identity. Wong's text assumes that the identity of a verbal form remains constant. It allows for change which may affect legibility or connotations, but does not allow for the introduction of additional identities. Wong's model, therefore, although perhaps suitable for many forms of kinetic typography, is insufficient to describe typography which undergoes complete metamorphosis or change at the level of the individual letterform.

Wong acknowledges these limitations by describing 'formal identity'. She observes that 'transformation' may result in a change in style of a letter ('transition') or in the perceived identity of a form ('deformation'). These descriptions, however, are not integrated into Wong's model of temporal forms, and there is no debate on the characteristics, causes or consequences of 'deformation'.¹¹⁷ This term is used to describe type which loses its identity through distortion, but Wong neglects to acknowledge in her definition that deformation could lead to the formation of other identities. In her further paper, *Temporal Typography: A Proposal to Enrich Written Expression*, Wong only goes so far as to acknowledge that these 'dynamic' activities may 'embellish the meaning of a word' or 'elaborate an expression', once again missing the opportunity to discuss change which is so significant as to alter identity and meaning.¹¹⁸

As was shown above, with examples such as *Main Street Meltdown*, a temporal experience need not be contained within screen-based media. This thesis will, therefore, seek solutions outside of investigations into screen-based typography when addressing the shortcomings of Wong's research. The limitations of Wong's work are thrown into relief in a 1996 text by Eduardo Kac, in which he discusses the 'key concepts' of his 'holopoetry'.¹¹⁹ Kac produced 'holopoems' from 1983 onwards. These visual poems, displayed as holograms, appear to 'change their configuration in time' in that, as the viewer moves around each piece, it not only appears to be in motion, but also to 'exhibit... behaviour'. From different locations, viewers can observe different formations of letters. When moving around a 'holopoem', the viewer's experience takes on a temporal dimension, as it appears that each letterform

¹¹⁷ Ibid., 21.

¹¹⁸ Yin Yin Wong, 'Temporal Typography: A Proposal to Enrich Written Expression,' *CHI 96 Conference Proceedings* (1996), accessed July 13, 2011, <u>http://acm.org/sigchi/chi96/proceedings/videos/Wong/yyw txt.htm</u> ¹¹⁹ Kac, 'Key Concepts of Holopoetry.'

changes over time. Some examples of Kac's holopoetry will be discussed in greater detail in 5.2.2 and 5.3.1, and texts describing his work are discussed in 2.3.3. Kac describes his works as containing 'fluid signs', or signs that alter over time, 'therefore escaping the constancy of meaning a printed sign would have'. They are capable of 'metamorphoses between a word and an abstract shape, or between a word and a scene or object'. Although Kac does not discuss digital temporal typography, the changes he observes in his holopoems bear distinct similarities to the events seen in some contemporary onscreen kinetic typography. Indeed, he uses some of the same terminology as Wong, including the term 'behaviour', to describe the processes operated by his verbal forms. Just as in Kac's holopoems, in other temporal typographic artefacts, verbal forms may evolve to the extent that they appear to adopt new identities. It is this characteristic that Wong fails to fully address, but that Kac, in a different context, describes as 'fluid'.

Following the publication of Wong's work in 1995-6, numerous texts appeared which explored temporal typography, each focusing on different aspects, but none fully acknowledging behaviours that could be termed 'fluid'. In 1999, Tara Rosenberger and Ronald L. MacNiel discuss a 'prosodic font' which could, through animation, express intonation, and other 'characteristics of voice', using changes in size and strength to imply changes in pitch or other intonation.¹²⁰ They establish that typographic animation, which is largely associated with the arts, has potential applications in practical environments.

Also in 1999, Woolman and Bellantoni offered the first survey of *Type in Motion*, from its roots in title cards to contemporary experimental animation. Woolman and Bellantoni have written extensively on typography that has a temporal dimension. They observe that type has adopted additional characteristics since it has been transported from print to screen, becoming 'behavioural, anthropomorphic and otherwise kinetic', able to liquefy and 'flow', often in virtual, three-dimensional space through which the user can navigate. Their texts identify type on-screen as falling into four main categories: 'time-based typography, kinetic typography, dimensional typography, motion graphics'.¹²¹ These categories are not mutually exclusive. Kinetic typography can, for example, also be dimensional. In *Type in Motion*, the authors go no further in describing or defining these categories, and devote most of their text to briefly describing specific examples. Although the chosen examples highlight the

¹²⁰ Rosenberger and MacNiel, 'Prosodic Font.'

¹²¹ Woolman and Bellantoni, *Type in Motion*, 9.

tremendous and important differences between printed text and text on-screen, at no point are these artefacts analysed or classified according to the behaviours they exhibit. Consequently, the authors' categories seem vague.

In describing their chosen examples, Woolman and Bellantoni introduce language which may suggest similarities between artefacts. These connections are not explicitly made by the authors, but emerge from observation of the artefacts, and the authors' descriptions. They describe 'interplay between letterform and counterform' in Kyle Cooper's title sequence for *True Lies* (1994), and letters that 'overlap' in R/GA's titles for *Altered States* (1980)¹²², perhaps suggesting that interaction between forms is a characteristic common to some kinetic typography. The term 'overlap' arises again in a description of Bureau's *Ratchet* titles, but no relationship is identified between this and the previous two stated examples. Randy Balsmeyer's titles for *Dead Man* (1995) is described as presenting letterforms that 'disintegrate'¹²³, and Kyle Cooper's *The Island of Dr. Moreau* (1996) is observed as including text that 'fractures', but again the authors fail to acknowledge an additional category, in which text breaks apart. In various other examples there are references to letters that appear 'liquid', 'malleable' or that 'metamorphosize'.¹²⁴ Again, an opportunity arises to identify a category of behaviour, but the authors neglect to seize it.

In their later book, *Moving Type* (2000), Woolman and Bellantoni develop their explanation of 'spacio-temporal typography'. The authors observe that the 'fundamentals of [static] typography' do not 'transfer themselves to the realm of time and space'.¹²⁵ They propose that 'moving type requires a number of principles and fundamentals of its own'; that new methods of description and analysis are needed. Woolman and Bellantoni suggest that this book offers only 'the beginnings of a discourse' on such 'fundamentals' of temporal typography. Their work still relies heavily on language more commonly used in the description of static, printed type, combining it with 'the principles of time-base media such as film and animation'. Like *Type in Motion, Moving Type*, yet again, reduces all forms of on-screen typography to a single definition. The term 'moving type', Woolman and Bellantoni propose, is an all-inclusive term which can be used to describe 'typography that

¹²² Ibid., 42, 30.

¹²³ Ibid., 54, 69.

¹²⁴ Ibid, .77, 107, 30.

¹²⁵ Matt Woolman and Jeff Bellantoni, *Moving Type* (Hove: Rotovision, 2000), 6.

moves, transforms, mutates, duplicates, blurs [and] interacts'.¹²⁶ The text even goes so far as to include discussion of title cards - 'initially the only method for putting type on the screen'.¹²⁷ Despite the inclusion of such examples in this collection of 'moving type', title cards are distinctly static; distinctly *not moving*. By grouping all forms of on-screen typography in this way, and neglecting to differentiate between one form of behaviour, motion or change and another, Woolman and Bellantoni have made generalisations that are not always applicable or useful.

Coinciding with the publication of *Moving Type*, Heidi Specht identifies 'dynamic typography', describing it in similar terms to Woolman and Bellantoni's 'moving type'. Specht, like Helfand, considers kinetic, 'screen-based letterforms' to be distinctly different from their counterparts in print, and suggests that 'type that moves and changes on a surface requires modification of basic layout principles'.¹²⁸ She focuses on the legibility of dynamic typography, insisting that letters which undergo temporal change are 'useless as word information if they cannot actually be read'.¹²⁹ She adheres to Beatrice Warde's 'crystal goblet' view that the purpose of the written word is to be read,¹³⁰ and consequently contradicts the implications of other theorists (notably, Helfand, above, and Lee et al., below), that one of the key benefits of temporal characteristics is that type may become more expressive, and that the concerns of a static typographer (such as legibility) should not necessarily be the main concerns of a temporal typographer.

In contrast to Specht's distinctly utilitarian assertions, other theorists discuss temporal typography in distinctly anthropomorphic terms, and in doing so emphasise its potential for expressing significance additional to verbal meaning.¹³¹ Several texts published before and after Specht's have established that typefaces can 'incorporate iconic elements and deliberately blur the boundaries between image and letterform', and theorists begin to acknowledge that, in temporal typography, additional meaning, and additional 'layers of

¹²⁶ Ibid., 7.

¹²⁷ Ibid., 15.

¹²⁸ Specht, 'Legibility,' 2, 12

¹²⁹ Ibid., 19.

¹³¹ Several other papers described 'kinetic typography' in distinctly human terms, likening its motion to human gestures. *See* Hostetler, 'Integrating Typography and Motion,' and Helfand, 'Electronic Typography,' 49-53.

significance' can be expressed through behaviour.¹³² Interaction designers and researchers Lee, Forlizzi and Hudson, in 2002, note the potential for motion to add anthropomorphic characteristics to text. They describe how 'kinetic typography' can 'convey emotion', bringing human 'expressions' and characteristics to letterforms in an act of theatrical portrayal.¹³³ In 2004, George Borzyskowski acknowledged that new software allows designers to give type 'temporal' dimensions (resulting in type in motion), and can offer 'morphological control'.¹³⁴ He observed that animated typography has been used for 'attention capture', 'indication of relationships' and to allow text to 'fulfil a didactic function beyond nomenclature'.¹³⁵

In 2005, independently of Bellantoni, Matt Woolman produced a further book, *Type in Motion 2*, which sought to update the collection of artefacts which appear in *Type in Motion*. Woolman categorises examples of 'type in motion' according to their intended purpose ('identifying, informing, storytelling, travelling, speculating').¹³⁶ Artefacts are not categorised in relation to typographic behaviour or characteristics, and descriptions are kept to a minimum, often only a few sentences, allowing little room for analysis.

Despite Woolman and Bellantoni's extensive research, Hillner agrees that their works are incomplete, and that they fail to offer a 'concise explanation' of 'type in motion' or 'moving type'. Hillner suggests that their work relies too heavily on 'the temporal appearance of static text', and misses the opportunity to fully explore type that actually moves or changes. Indeed, their books tend to categorise artefacts according to their intended purpose, not according to their typographic characteristics. Hillner is himself responsible for numerous fonts that have been designed specifically for temporal environments, constructed from, or containing, elements that move. His typographic animations exhibit behaviour that could be described using Kac's term, 'fluid'. They have the potential to inspire discussion of perceived fluctuation and metamorphosis, and yet Hillner's own text, *Text in [e]motion* (2005), fails to fully engage with the topic of transformation. He offers a definition of 'type in motion' that is startlingly strict. He suggests that 'kinetic type' could be defined as 'text

¹³² Theo Van Leeuwen, 'Typographic Meaning,' *Visual Communication* 4, no. 2 (2005): 141, accessed July 13, 2011, doi: 10.117/1470357205053749 : Worthington, 'The New Seduction,' 9; Small, et al., 'Typographic Space,' 438.

¹³³ Lee, et al., 'The Kinetic Typography Engine' 81.

¹³⁴ Borzyskowski, 'Animated Text,' 143.

¹³⁵ Ibid., 142.

¹³⁶ Woolman, *Type in Motion 2*, 7.

that moves in relation to screen dimensions', or that involves 'change in position of [typographic] objects in relation to each other'.¹³⁷ Neither of these descriptions allow for the perceived fluctuation of form that is evident in Hillner's own animations.

When discussing his own work, in *Virtual Typography: Time Perception in Relation to Digital Communication* (2006), Hillner focuses on the motion of 'individually moving text elements'.¹³⁸ He suggests that the terminology currently applied to 'screen based' typography is outdated and inadequate, and offers the term 'virtual typography' for use in defining 'text elements' which 'change their position in relation to one another' or that may be navigated through 'virtually'.¹³⁹ Although this definition is relatively clear and concise, there is considerable overlap between it and other authors' definitions of 'kinetic typography'.¹⁴⁰ Moreover, the use of the term 'virtual' strongly implies exclusion of nondigital artefacts. Hillner also does not divide 'virtual typography' into further sub-categories, despite the distinct differences between artefacts which could be grouped under this general heading. Furthermore, when Hillner refers to 'dynamic typography' later in his text, he labels it as 'responsive text' (i.e. text that only changes in response to user interaction), a definition that is in direct contradiction to other authors' implicit views that 'dynamic text' may move independently.¹⁴¹

Hillner begins to approach an identification of a distinct category of kinetic typography when he describes how, in his own work, 'letterforms may emerge from and merge into illegible visual elements'.¹⁴² This is a behaviour that is not currently universal to any defined category of kinetic or dynamic typography, and could therefore potentially be classified as distinct. Unfortunately, Hillner misses the opportunity to differentiate between this and other kinds of moving text. He still refers to these artefacts as 'virtual typography'¹⁴³, thereby implying that there is no distinct difference between text that appears to 'merge' and text that simply moves.

¹³⁷ Hillner, 'Text in (e)motion,' 166.

¹³⁸ Hillner, 'Virtual Typography,' 1.

¹³⁹ Ibid., 2.

¹⁴⁰ See Hostetler, 'Integrating Typography and Motion.' See also Lee, et al., 'The Kinetic Typography Engine.'

¹⁴¹ See Specht, 'Legibility.' See also Ikonen, 'Moving Text.'

¹⁴² Hillner, 'Virtual Typography,' 3.

¹⁴³ Ibid.

Theorists have yet to agree on the definition and appropriate uses for key terminology. Often, different theorists apply the same terms to describe very different artefacts, with contradictory implications. The terms 'temporal typography', 'kinetic typography' and 'dynamic typography' have all been broadly used to describe onscreen verbal forms that move, alter or are replaced over time.¹⁴⁴ Wong suggests that the term 'temporal typography' refers to any text, whether it is 'passive' or interactive, that changes 'dynamically' over time.¹⁴⁵ The term 'dynamic' is also used by other theorists. Specht and Hillner both describe 'dynamic typography', but while Specht suggests that it is an all inclusive term which describes any moving type, Hillner proposes its use specifically in reference to interactive artefacts.¹⁴⁶ Woolman and Bellantoni use the term 'moving type' to describe any type that is presented onscreen over time, whether its typographic elements are static or in motion, but their definition is vague and is not differentiated from 'temporal' or 'dynamic' type. Woolman and Bellantoni also use the phrase 'spatio-temporal typography' in their definitions, in acknowledgement of the environmental properties that are seen in many examples of temporal typography. Lee, Forlizzi and Hudson also describe typography that has both 'spatial and temporal' dimensions, but defines such artefacts as 'kinetic typography'.¹⁴⁷ Hillner uses the term 'kinetic' to describe type that moves or has moving parts, but his definition is too strict to allow for the 'other temporal change' that is included in the Lee et al.'s definition. All of these inconsistencies further reinforce the need for agreed and precise definitions of temporal typography in its varying forms.

2.3.2 Global Displacement and Local Kineticism

The texts identified in 2.3.1 pay little attention, in particular, to the kinds of temporal forms that exhibit local kineticism leading to transformation (those which, as will be further explored in 2.3.3, Eduardo Kac describes as 'fluid'). Fluid behaviours can be seen onscreen in examples including Kyle Cooper's title sequence for True Lies (1994), and more recent examples including Komninos Zervos' Beer (2005), and Dan Waber's Strings (2005) all of which will be discussed in later chapters. As Peter Cho observes, existing texts on temporal typography tend to focus on changes in size, orientation and position, assuming that forms,

¹⁴⁴ Jun, 'The New Typography Today,' 13.

 ¹⁴⁵ Wong, 'Temporal typography: characterization of time-varying typographic form.'
 ¹⁴⁶ Specht, 'Legibility'; Hillner, 'Virtual Typography.'
 ¹⁴⁷ Lee, et al., 'The Kinetic Typography Engine.'

though in motion, remain 'intact', thereby ignoring the fact that individual forms may be manipulated.¹⁴⁸ Many authors, such as Soo C. Hostetler, do not make distinctions between forms which move (undergoing displacement: a change in location), and those which change in other ways.¹⁴⁹ This distinction is perhaps not made because it requires an additional distinction to be made: between global and local events. This distinction is considered vital in the study of visual perception, particularly the field of Gestalt psychology (see 3.3), so its omission in texts discussing the perception of temporal typography may be responsible for some of the subsequent omissions and inadequacies identified in 2.3.1.¹⁵⁰ Motion is, by and large, a global phenomenon, affecting the relationship between separate forms and the space they occupy. The 'other temporal change' identified by Lee et al., including the 'deformation' identified by Wong, and Cho, can affect an individual character without affecting global layout.¹⁵¹ Fluidity is necessarily a local form of kineticism, affecting each form independently. This section will observe how few texts make this distinction, and why such a distinction is necessary.

The theorists whose work has been discussed above all agree that 'dynamic, or moving, typography raises issues that are different from those found in typography existing in printed form', and as a consequence, current typographic theory is often inadequate to define and analyse kinetic and fluid type.¹⁵² Heidi Specht suggests that, 'dynamic typography, by its very nature, negates many principles that can be applied to static typography'.¹⁵³ Common to all of the above texts is an assumption that kinetic typography largely concerns 'type in motion', that is, type which changes location over time, causing rearrangement of on-screen layout (a global event). They largely fail to differentiate between this kind of global change in layout, and change or a more local scale, within individual forms. Ford et al., for example, define kinetic typography as able to 'change colour, size, or position over time'¹⁵⁴ neglecting

¹⁴⁸ Peter Cho, 'Pliant Type: Development and temporal manipulation of expressive, malleable typography' (BSc diss., MIT, 1997), 10, accessed July 13, 2011, http://hdl.handle.net/1721.1/10553

¹⁴⁹ Hostetler, 'Integrating Typography and Motion.'

¹⁵⁰ Distinctions between global and local properties are explicitly acknowledged in, for example, Michael Kubovy and James R. Pomerantz, eds, Perceptual Organization (New Jersey: Lawrence Erlbaum Associates, 1981); and Gunnar Johansson, et al. eds, Perceiving Events and Objects (Hove: Lawrence Erlbaum Associates, 1994).

¹⁵¹ Lee, et al., 'The Kinetic Typography Engine,' 81; Wong, 'Temporal typography: characterization of timevarying typographic form,' 10. ¹⁵² Specht, 'Legibility,' 1.

¹⁵³ Ibid., 10.

¹⁵⁴ Ford, Shannon, Forlizzi, Jodi and Ishizaki, Suguru, 'Kinetic Typography: Issues in time-based presentation of text,' CHI 97Late Breaking/Short Demonstrations (1997), accessed July 13, 2011, http://doi.acm.org/10.1145/1120212.1120387

to acknowledge change in meaning, form or identity. Lee at al., define 'kinetic typography' vaguely as 'text that uses movement or other temporal change', discussing both global change (in layout) and local change (within individual forms) in the same terms, and in so doing, fail to acknowledge that the two are distinctly different.¹⁵⁵ Soo C. Hostetler defines 'kinetic typography' simply as 'the combination of typography and motion', and goes on to identify its common attributes.¹⁵⁶ She describes how a letterform may become 'abstract', no longer identifiable as a letter, because it has been 'manipulated by distortion, texture [or] enlargement'.¹⁵⁷ However, she fails to discuss this issue further, and misses the opportunity to speculate as to the possible consequences of this change, or identify it as significantly different to type which simply moves.

Although, as shown above, there is agreement that we must move away from discussions of static typography to address temporal typography, there is perhaps one key distinction that can be borrowed from static type in order to address a failure to distinguish between global motion and local kineticism/transformation. In static typography, there is a distinction between typographic layout and typeface design. Typographic layout and typeface design are viewed as distinct: to a great extent typographic compositions are viewed as a product, whereas typefaces are viewed as a tool. As Peter Bil'ak observes, 'fonts are essentially modest semi-products; they don't have much meaning until they are used'.¹⁵⁸ This distinction between global and local features exists in discussions of lettering as well as typography, and is well established. In his 1970 survey of historical 'letter and image', Massin observes how illustrated letters are 'removed from the milling throng of words and separated from... semantic implications', so that the letter 'becomes an entity in itself'.¹⁵⁹ In contrast, much later in his text, he notes that calligrams 'accept a global view', only revealing their pictorial meaning when viewed as a single complete arrangement.¹⁶⁰ As if to emphasize the necessity of this distinction, most of Massin's collection is divided according to features that may be perceived at a local or global level.¹⁶¹ In the field of temporal typography, similar distinctions must, this thesis argues, be made in order to sufficiently

¹⁵⁵ Lee et al., 'The Kinetic Typography Engine,' 81.

¹⁵⁶ Hostetler, 'Integrating Typography and Motion.'

¹⁵⁷ Ibid.

¹⁵⁸ Peter Bil'ak, 'In Search of a Comprehensive Type Design Theory,' *Typotheque*, 2005, accessed July 13, 2011, http://www.typotheque.com/articles/in_search_of_a_comprehensive_type_design_theory

¹⁵⁹ Massin, Letter and Image, 20.

¹⁶⁰ Ibid., 157.

¹⁶¹ Chapters 1 and 2 of Massin's text present illustrated and ornamental letters, whereas chapter 3 presents picture poetry.

acknowledge the difference between distinct categories of motion and change. Motion in temporal typography affects layout (by changing the distances between characters, and the distances between a group of characters and the frame), whereas local kineticism affects the form of a character (the form of a character traditionally being the feature that distinguishes a typeface). It is often the case that local kineticism appears where designers necessarily focus on individual, independent forms, as in typeface design, rather than larger quantities of text, as in typographic layout. This prioritization of the global over the local may be due to a feature of perception explored by David Navon: 'global precedence'. Navon observes that 'processing of a visual scene proceeds from...global-to-local', so that the viewer is likely to apprehend 'global features of a visual object...before its local features'.¹⁶² Navon argues that this is because knowledge about 'general structure is more valuable than few isolated details' in understanding a picture or scene.¹⁶³ This tendency to favour the global may account for the number of texts that focus on global features of temporal typography, at the expense of the local.

The field of typeface design is itself beginning to produce examples with temporal properties. Since the process of typeface design requires each character to be treated independently (prior to any application on page or screen), any temporal behaviours are necessarily local. Though animated typefaces may be a recent phenomenon, their origins can be seen in a number of works, as in 1991 when, as Bachfischer observes, Lucas de Groot took advantage of Adobe's *Multiple Master* tool, which enabled manipulation of typefaces. De Groot used the tool to 'generate movement': to morph 'between character and graphic icon' (Fig. 20).¹⁶⁴ Although Bachfischer identifies this example as important in the development of temporal typography as a whole (and in doing so sidesteps the local/global distinction), the example can be used to demonstrate a connection between local change and the process of typeface design. De Groot's *Move Me MM* was not an animated typeface, but it did demonstrate how a typeface could be animated, thus paving the way for more recent innovations.

 ¹⁶² David Navon, 'Forest Before the Trees: The Precedence of Global Figures in Visual Perception,' *Cognitive Psychology* 9 (1977): 354, accessed April 21, 2012, http://cvcl.mit.edu/SUNSeminar/Navon_global_CP77.doc
 ¹⁶³ Ibid., 356.

¹⁶⁴ Bachfischer and Robertson, 'From Movable Type to Moving Type.'



Figure 20. Letterforms morph into pictograms in Lucas De Groot, *Move Me MM*, 1994. Source: 'Multiple Master Fonts,' *PrePressure*, 2009, accessed July 13, 2011, <u>http://www.prepressure.com/fonts/basics/multiple_master</u>

Texts which directly address typefaces contain more reference to local change than the texts discussed so far on the subject of temporal typography. When Diane Gromala discusses morphing letterforms, she does so in reference to 'fonts' rather than the wider field of temporal typography.¹⁶⁵ Lewis and Nadeau's paper, 'Writing with Complex Type', discusses new alternatives to older typefaces, establishing as its focus new developments in fonts rather than the field of temporal typography. As a result, Lewis and Nadeau concern themselves explicitly with 'the letterform itself'.¹⁶⁶ The examples of recent typefaces described in the paper include some of Nadeau's own typefaces, many of which exhibit fluctuating contours or even more significant local change. In the *Hyrde* typeface (2009, Fig. 21), for example, Nadeau has created letterforms from independently moving particles, which, although loosely constrained within the shape of each letterform, have the freedom to move within and outside of each letter, with the result that contours are not fixed.

¹⁶⁵ Diane Gromala 'Biomorphic Typography,' *ACM SIGGRAPH 2002 conference abstracts and applications* (2002): 151, accessed July 13, 2011,

http://portal.acm.org/citation.cfm?id=1242164&dl=GUIDE&coll=GUIDE&CFID=88229345&CFTOKEN=9692 2949

¹⁶⁶ Jason E. Lewis and Bruno Nadeau, 'Writing with Complex Type', *Proceedings of the Digital Arts and Culture 2009 Conference* (2009), accessed July 13, 2011, <u>http://bruno.wyldco.com/papers/LewisNadeau-ComplexType.pdf</u>



Figure 21. Bruno Nadeau, *Hyrde* (g), 2009. Kineticism is an integral feature of each letter of this typeface, rather than a feature of a particular work of typography which may be created subsequently. Source: Nadeau, Bruno, 'Type Specimen Video: Hydre Regular,' *Complex Type*, 2009, accessed July 18, 2011, http://bruno.wyldco.com/complextype/hydre/

That is not to suggest that all local kineticism is restricted to the field of typeface design. Temporal typefaces may be distinct from temporal typography, where temporal typography is applied to an existing static typeface. However, the distinction may not always be clearcut, as the application of an existing typeface in temporal typography does sometimes involve manipulation of forms so that they no longer resemble characters in that typeface. Examples of temporal typography which focus specifically on independent characters (rather than longer texts: words, lists or prose), are also seen to focus on local kineticism. As with typefaces, studies of the alphabet require each letter to be presented independently, prompting designers to focus on the form of the letter. *Sesame Street's* animated alphabets offer numerous examples of transforming and distorting letterforms in examples from 1970 onwards. In this educational environment, where audiences are in the process of learning not only the sound of each letter but also its appearance, the form becomes particularly important. More recently, Peter Cho's *Letterscapes* (2001) and Colleen Ellis' *ABCing* (2010) treat each letter as an independent form, and in doing so focus on local properties of form rather than global properties of layout (see 5.2 and 5.4 for exploration of these artefacts). These examples represent investigations into the form of each letter rather than its possible applications in language.

Like artefacts that present the letters of the alphabet, brand identities tend to contain a small quantity of text and therefore offer the possibility of exploring each form independently. It is perhaps for this reason that, in the field of temporal typography, the television ident has played a significant role in the development of local kineticism. With the increasing number of television channels established in the late twentieth century, television idents became important tools of distinction and promotion. In the spirit of the medium in which they operated, television idents tended to contain motion graphics. Static logos were subjected to animation. Perhaps because the ident tends to display only a short name, or even a single digit (rather than the significant body of text that one would expect in a credit sequence), the focus is necessarily on one or few forms, and local properties arguably become more important. As a result, many television idents can be seen to exhibit change at a local level. In 1971, LWT (London Weekend Television) broadcast a new ident designed by Terry Griffiths (see Fig. 22), a 'ribbon' extended downwards from the top of the screen, then twisted and folded to form the corner of an 'L', a 'W', and the crossbar of a 'T'.¹⁶⁷ The motion and path of this ribbon was said to represent the flow of the river Thames. The launch of channel 4 was accompanied by an ident which clearly presented the brand identity of the new channel, without figurative distractions. Martin Lambie Nairn's Channel 4 ident

¹⁶⁷ Marcus Bernard, 'ITV London/LWT,' *TVArk*, 2004, accessed July 13, 2011, <u>http://www2.tv-ark.org.uk/itvlondon/lwt-main.html</u>

(1982) used the figure '4' as the subject of animation (see Fig. 23). The '4' logo was divided into independently moving objects, which converged towards the centre of the screen. This and more recent Channel 4 idents will be discussed in 6.2.



Figure 22. Terry Griffiths, *The Ribbon* (aka *The River*), LWT ident, 1971. Source: Dave Jeffery, *Andrew Wiseman's Television Room*, 2002, accessed July 13, 2011, http://625.uk.com/tv_logos/flash/lw_72.asp

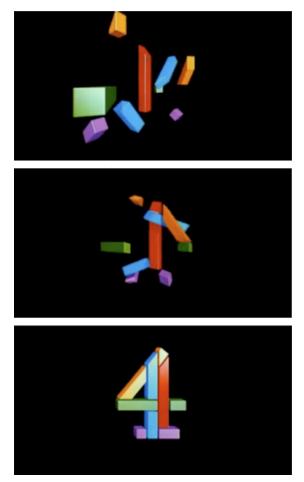


Figure 23. Martin Lambie Nairn, *Round and Back* (Channel 4 ident), 1982. Source : 'Channel 4 Ident,' *YouTube*, 2006, accessed July 18, 2011, <u>http://www.youtube.com/watch?v=3PK69O1KJHg</u>

When specifically addressing local kineticism, this investigation finds there are further distinctions that must be made, largely involving the extent to which change affects the form of a character. In examples such as Brownjohn's title sequence, letterforms are distorted, but retain their verbal identity. In examples such as Terry Griffith's Ribbon ident, the identity of the form changes. It is initially perceived as a ribbon, but then appears to become a 'w', having changed to such as extent that it loses its initial pictorial identity and adopts a verbal identity. There are also more recent examples which exhibit this kind of severe local change, and which thereby exhibit the behaviour termed by Kac as 'fluid' (see 2.3.3). Nikita Pashenkov, creator of Alphabot, a virtual robot that may transform to take the shape of any letter of the alphabet, has produced interactive artefacts that could fall into this category of local kineticism. In animations of the Alphabot, letterforms are 'malleable', capable of altering their form.¹⁶⁸ This transformation is distinctly different to global change in location (or, 'motion') and is more than a local change in style, as suggested by Woomlan and Bellantoni. It is a total change in the identity of the presented form. The 'robot' transforms, becoming the letter 'A', then the letter 'B', and so on. Without changing location (i.e. without moving), it changes; it assumes a new identity. In Beer (2001), a Flash animation by Komninos Zervos, letterforms transform, morphing from one shape into another, each form presenting multiple letters as it evolves over time (see 5.3.1 and 6.5). In Harm Van Der Dorpel's animations, Type Engine and I Wouldn't Normally do this Kind of Thing (both 2005, see 5.2.3), abstract elements are rearranged to form a phrase, then disassemble and reassemble to form another (see 5.2.3). In both these artists' examples, the letters are not so much in motion as in flux. They change within space rather than move across space. Likewise, numerous other artists have produced typographic artefacts that appear to fall into this category; works which are more than just kinetic.

These works do not just present change on a global scale (that is, change in overall layout or 'type in motion'), but extreme change at a local level; change within individual letterforms so severe that the initial verbal identity is lost, and is replaced with an entirely new pictorial, abstract or verbal identity. Such extensive transformation is rarely discussed in existing texts. Ellen Lupton acknowledges that digital technologies allow content to be 'interactive' and/or 'architectural', and for 'the possibility of continuous transformation'.¹⁶⁹ She suggests that

¹⁶⁸ TDC, "Alphabot" Interactive Design Work', *TDC Annual Awards*, 2001, accessed July 13, 2011, http://www.tdctokyo.org/awards/award01/01interactive_e.html

¹⁶⁹ Ellen Lupton, 'Fluid Mechanics: Typographic Design Now,' *Typotheque*, 2004, accessed July 13, 2011. http://www.typotheque.com/articles/fluid machanics typographic design now

typography may be subject to transformations that alter 'size, shape and colour'.¹⁷⁰ This observation could be readily applied to the typographic animations of Hillner (in which letterforms transform in a continuous loop). However, Lupton uses this description in relation to the state of the 'structures that accommodate...text', more than the text itself.¹⁷¹ Lee, Forlizzi and Hudson acknowledge that 'malleable' letterforms may be dramatically 'manipulated', but only insofar as they 'appear to be completely different type faces'.¹⁷² This does not allow for more extreme manipulation, which would result in a form becoming unrecognisable as a verbal form, or adopting a new abstract or possibly pictorial identity. Woolman and Bellantoni also acknowledge that text may 'transform' or 'distort', through 'blurring, fracturing and cropping', and that onscreen type may present 'transitions between the characteristics of a letter'.¹⁷³ However, their descriptions imply that these changes are slight, subtly altering legibility and mood but not resulting in total change.

Two texts offer discussions which acknowledge that letterforms may change to the extent that they undergo a change in identity. Peter Cho, in discussing 'malleable typography', acknowledges that type may be deformed to the extent that it loses legibility, and 'becomes no longer recognisable as a letter'. He observes that, in some cases, forms may even 'change shape and become a different letter'.¹⁷⁴ Ikonen offers a definition of motion that, more than any of the theorists cited so far, allows for kinetic typography to both move and change. He suggests that motion can refer to 'change of pace, rotation, pendulum motion...jointed motion, elastic motion,' 'flow', and, critically 'change of form'. Once this new definition of motion is acknowledged, the term 'type-in-motion' becomes suitable for use in describing not only type that changes location, but also type that alters in form. Ikonen identifies 'nonrigid objects' and 'a "dynamic grammar" in which...signs change their form', and acknowledges the work of Eduardo Kac as being particularly relevant to the potential for signs to change over time.¹⁷⁵ Ikonen acknowledges that there is a distinct similarity between Kac's holographic poems and the events seen in some onscreen, kinetic typography, such as the digital artefacts by Zervos and Van Der Dorpel. He observes that 'transitional stages between recognisable letters' occur in both Kac's work and more recent digital artefacts, and begs that 'the challenge...be taken to develop a means of analysing and describing' this

¹⁷⁰ Ibid.

¹⁷¹ Ibid.

¹⁷² Lee, et al., 'The Kinetic Typography Engine,' 84.

¹⁷³ Woolman and Bellantoni, *Moving Type*, 36, 34.

¹⁷⁴ Cho, 'Pliant Type,'1, 10.

¹⁷⁵ Ikonen, 'Moving Text in Avant-Garde Poetry'

transition. As Kac himself observed in relation to holopoetry, a 'fluid' sign 'escap[es] the consistency of meaning a printed sign would have'.¹⁷⁶ The same description can be applied to digital, onscreen, fluid typography. Fluid signs can present multiple meanings. A fluid form evolves over time to the extent that its meaning also changes. A fluid sign is 'not either one thing or another'; its form is constantly in flux, as is its identity.¹⁷⁷ A single form may be observed in one moment as having a verbal identity, and in another moment, once it has transformed, as presenting another identity. Though in typography we would normally expect form and identity to be inextricably linked, and fixed, here, an additional identity is introduced without the introduction of an additional form.

Ikonen and Cho are not the only theorists who have observed and described examples of fluid typography. However, these and other texts demonstrate a lack of formal vocabulary to describe or define fluid typographic behaviours and forms. Woolman, in discussing Tronic Studio's *Peel*, describes text that 'emerges from the scenery – from bending floorboards'.¹⁷⁸ This description wrongly implies that the text somehow enters the scene *through* the objects in the room. A more apt description would be of scenery that transforms into text. The scenery does not release the text, it *becomes* the text. As in Kac's 'fluid' typography, a single object presents different identities at different times.

2.3.3 Eduardo Kac and Fluidity in Holopoetry

From the texts discussed in 2.3.1 and 2.3.2, the work of Eduardo Kac provides the most useful acknowledgement of the behaviours that exist in contemporary temporal artefacts. In his holopoetry and related texts, Kac engages in discussion that highlights behaviours rarely acknowledged in texts on temporal typography.

Kac has produced holopoetry of increasing complexity since 1983, and in 1987 he began to exploit the capacity of computer holopoetry to create more 'dynamic' behaviours.¹⁷⁹ He

¹⁷⁶ Kac, 'Key Concepts of Holopoetry.'

¹⁷⁷ Ibid

¹⁷⁸ Woolman, Matt, *Type in Motion 2*, 28.

¹⁷⁹ Eduardo Kac, 'Holopoetry: from 'Holo/Olho" (1983) to "When?" (1988),' in *Holopoetry: Essays,* manifestoes, critical and theoretical writings, (Lexington: new Media Editions, 1995), 29; Truckenbrod, Joan, 'On Kac's computer holopoems', in *Holopoetry: Essays, manifestoes, critical and theoretical writings,* (Lexington: new Media Editions, 1995), 37.

continued to produce holopoems using computer technology until 1993.¹⁸⁰ All of Kac's holopoems display one or more words in a hologram, so that they appear to 'exhibit behaviour' when the viewer moves within the space in front of the hologram.¹⁸¹ In early holopoetry, such as Holo/Olho (1983) and Abracadabra (1984-5), the viewer's motion prompts an apparent shift in the visibility, position, and relative locations of letters. The changing relationships between letters introduce new words, which can only be viewed from some vantage points, or must be gathered sequentially from multiple points-of-view. 'The reader must move around the text' to seek out 'new meanings' in the form of new words.¹⁸² From 1986 onwards, Kac began to explore the 'possibility of a letter changing into an abstract colour image and vice-versa'.¹⁸³ In these holograms, including Havoc (1992, Fig. 24), Astray in Deimos (1992, Fig. 25) and Souvenir D'Andromeda (1990, Fig. 26), the motion of the viewer prompts apparent change in the holopoem, so that the identity of the depicted forms appear to alter. Letters cease to be letters, changing their appearance so that they appear as objects or abstract shapes. It is this behaviour that Kac later describes as 'fluid'.184

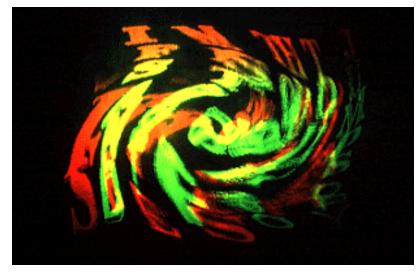


Figure 24. Eduardo Kac, Havoc, 30x120cm (tryptic), multicolour computer holographic stereogram, 1992, private collection of Eduardo Kac. Here, letterforms can be seen beginning to warp, thereby becoming unrecognisable as letters, and hence losing their verbal identity. Source: Eduardo Kac, 'Complete List of Holopoems (1983-1993),' Kac Web, 1999, accessed July 13, 2011, http://www.ekac.org/allholopoems.html

¹⁸⁰ Kac, Eduardo, 'Complete List of Holopoems (1983-1993)', Kac Web, 1999, accessed July 13, 2011, http://www.ekac.org/allholopoems.html ¹⁸¹ Kac, Eduardo, 'Key Concepts of Holopoetry.'

¹⁸² Kac, Eduardo, 'Holopoetry: from "Holo/Olho" (1983) to "When?" (1988),' 30.

¹⁸³ Ibid., 31.

¹⁸⁴ Eduardo Kac, 'Recent experiments in holopoetry and computer holopoetry', in *Holopoetry: Essays,* manifestoes, critical and theoretical writings, (Lexington: new Media Editions, 1995), 45.

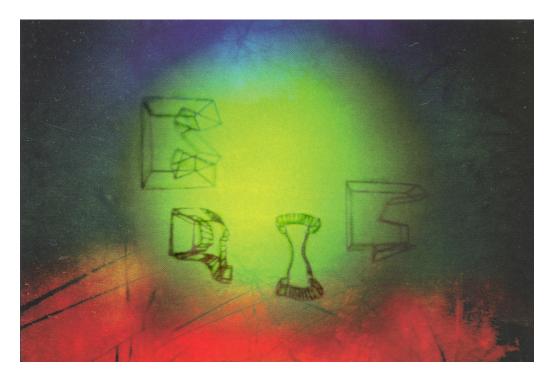


Figure 25. Eduardo Kac, Astray in Deimos, 30x40cm, multicolour computer holographic stereogram, 1992,
 Collection Museum of Holography, Chicago. In this view of the holopoem, letterforms are seen losing their verbal identity, becoming abstract wireframe shapes. Source: Eduardo Kac, Hodibis Potax (Ivry-Sur-Seine: Édition Action Poétique, 2007), 57.

Kac emphasizes the significance of the relationship between verbal and non-verbal elements that is exhibited by forms in his holopoetry. In his writing, the 'emphasis is on the passage from the poetic to the pictorial and vice versa', or from 'the verbal code (the word) to the visual code (the image)'.¹⁸⁵ The 'fluid signs' that he identifies in his holopoems 'blur the frontier between words and images'.¹⁸⁶ They are 'not either [sic] one thing or another thing', having, at times, verbal identities, and at others, pictorial or abstract identities.¹⁸⁷ He considers these separate identities to be 'poles' of a transformation.¹⁸⁸

Kac acknowledges his holopoems are not the first artefacts to challenge the boundary between verbal and pictorial forms. He acknowledges a 'long tradition of verbal-pictorial synthesis' in, for example, concrete poetry, where Kac identifies 'tension between the

¹⁸⁵ Eduardo, 'Holopoetry: from 'Holo/Olho'' (1983) to 'When?'' (1988),' 30-31.

¹⁸⁶ Eduardo Kac, 'Holopoetry, Hypertext, Hyperpoetry,' in *Holopoetry: Essays, manifestoes, critical and theoretical writings*, (Lexington: new Media Editions, 1995), 57.

¹⁸⁷ Kac, 'Recent experiments,' 45.

¹⁸⁸ Ibid.

symbolic (verbal) and the iconic (visual)¹⁸⁹ However, in these previous artefacts, word and image are 'bound by the rigidity of the page'.¹⁹⁰ In contrast, fluid signs escape this 'constancy'.¹⁹¹ In holopoetry, 'the boundary between word and image is assigned to time'.¹⁹² The verbal and visual identities do not co-exist, but instead are exchanged for one another. Temporality, therefore, is key in this relationship between word and image.

A consequence of the fluid transformation from verbal to visual is the creation of what Kac describes as 'nonsemantic in-between shapes'.¹⁹³ These are intermediate glyphs that emerge as a verbal form transforms into a pictorial form, or vice versa. These glyphs bear some resemblance to written or typographic signs, but cannot 'be substituted by a verbal description'.¹⁹⁴ Kac argues for the significance of these glyphs. He suggests that, in fluid type, we must also consider the intermediate stages of transformation as significant, proposing that they are 'a new kind of verbal unit' that lies part-way 'between a word and an abstract shape, or between a word and a scene or object'.¹⁹⁵ His suggestion that they are a 'new' kind of sign may be challenged by the identification elsewhere of signs which also bear resemblance to writing or type, yet that have no prescribed meaning. Tim Gaze observes apparently linguistic signs in numerous static artefacts, and describes them as 'asemic writing'.¹⁹⁶ Asemic writing will be explored in more detail in 2.3.5.

There has been extensive discourse in the field of typography concentrating on legibility, punctuated in the 1920s by the prioritisation of legibility in *The New Typography* and Beatrice Warde's *Crystal Goblet*.¹⁹⁷ The issue of legibility again became a popular topic of debate in the 1990s, following David Carson's questioning of the communicative value of legibility when compared to the other expressive possibilities of typography.¹⁹⁸ One may expect, therefore, discussions of any new typographic medium to inevitably turn to the question of legibility. On the few occasions when Kac references legibility directly, he does so to draw attention to the relationship between verbal and non-verbal poles. His discussion

¹⁸⁹ Kac, 'Recent experiments,' 40, 43.

¹⁹⁰ Ibid.

¹⁹¹ Ibid.

¹⁹² Kac, 'Holopoetry: from ''Holo/Olho" (1983) to "When?" (1988),' 35.

¹⁹³ Kac, 'Holopoetry, Hypertext, Hyperpoetry,' 60.

¹⁹⁴ Kac, 'Key Concepts of Holopoetry.'

¹⁹⁵ Ibid.

¹⁹⁶ Tim Gaze,, Asemic Movement 1 (January 2008): 2, accessed July 13, 2011,

http://vugg.wippiespace.com/vugg/gaze/asemicmovement1.pdf

¹⁹⁷ Tschichold, The New Typography; Warde, 'The Crystal Goblet.'

¹⁹⁸ Alan Pipes, *Production for Graphic Designers*, 4th edition, (London: Laurence King, 2005), 168.

focuses on the process of 'becoming illegible', rather than the state of legibility.¹⁹⁹ The process of becoming illegible is also discussed by Matthias Hillner, who observes that, in his 'virtual typography', there are 'variable levels of legibility'. This discussion returns us to Gaze's explorations of asemisis. Gaze identifies a continuum that exists 'between abstract image and legible writing', or 'between text and image'.²⁰⁰ This continuum illustrates the behaviours observable in holopoetry. Gaze argues that, at one end of the continuum lies 'legible writing', which sits beyond 'asemic writing', then 'abstract images', and finally 'recognisable images'.²⁰¹ Legibility is a concern in only a part of this continuum. So, as fluid forms transform from image to text, the question of whether text is legible becomes a question of whether forms are 'text' at all.²⁰² Hillner suggests, therefore, that the issue of legibility is less important than the question of whether forms may be recognised as having any verbal signification, and in so doing implies, like Kac, that to discuss issues of legibility would be to oversimplify the events that occur in transforming verbal signs. Issues of legibility therefore become overshadowed by issues of temporality, and entwined with the relationship between word and image.

Though Kac and others who have written about his work rarely discuss legibility, their texts do concern the process of reading. Several of Kac's writings prioritize the experience of reading rather than the degree of legibility which may enable, or interfere with, that process. Kac describes a viewer of his holopoems as a 'spectator' rather than a 'reader'.²⁰³ This suggests that Kac intends his works as spectacle rather than as works of recited poetry. He frequently makes reference to the features that make the experience of holopoetry different from that of reading, drawing attention in particular to its non-linearity.²⁰⁴ He further emphasizes the fact that, in holopoems such as *Abracadabra* (1984-1985), a complete set of letters forming a whole word can never be 'simultaneously perceive[d]', so that even when a viewer, or spectator, attempts to engage in reading, she cannot do so in the usual fashion.²⁰⁵

¹⁹⁹ Kac, 'Holopoetry, Hypertext, Hyperpoetry,' 60; Kac, 'Holopoetry: from "Holo/Olho" (1983) to "When?" (1988),' 35.

²⁰⁰ Tim Gaze, *Asemic Movement* 1, 2; Tim Gaze, 'Semiosis, by John Keane and Christopher Stackhouse,' review of *Semiosis*, by John Keane and Christopher Stackhouse, *Asemic Movement* 1 (January 2008): 13, accessed July 13, 2011, http://vugg.wippiespace.com/vugg/gaze/asemicmovement1.pdf

²⁰¹ Gaze, 'Semiosis,' 13.

²⁰² Matthias Hillner, 'Virtual(ly) Typography – Towards a Notion of Poetics,' *Icograda*, 2009, accessed July 13, 2011, <u>http://www.icograda.org/feature/currrent/articles291.htm</u>

 ²⁰³ Eduardo Kac, 'Holographic Poetry: the three dimensions of the verbal sign,' in *Holopoetry: Essays, manifestoes, critical and theoretical writings,* (Lexington: new Media Editions, 1995), 2.

²⁰⁴ Kac, 'Holopoetry: from ''Holo/Olho" (1983) to "When?" (1988),' 29; Kac, 'Recent experiments,' 43; Kac, 'Holopoetry, Hypertext, Hyperpoetry,' 65.

²⁰⁵ Kac, 'Holopoetry: from 'Holo/Olho" (1983) to "When?" (1988),' 31.

To access an entire word in *Abracadabra*, the viewer must gather each letter in his/her memory in turn, as she navigates the space in front of the holopoem. In this way she is 'forced to read discontinuously, in broken fashion'.²⁰⁶ Rather that referring directly to illegibility, Kac describes 'an atmosphere of uncertainty' that is produced by the varying visibility and clarity of his holographic words.²⁰⁷ He suggests that his works deliberately obstruct the reading process by rewarding any viewer who 'starts to look for words' with transformation that leads to transformation or even total disappearance of the word that she is trying to seek.²⁰⁸ In this way, words are presented as fleeting and elusive.

Kac further evades discussion of legibility by refusing to reproduce existing poetry in his holograms.²⁰⁹ To do so would be to invite the expectation that a poem could be recited, thereby prioritising the verbal experience over the spectacle of holography. Kac does not wish to prompt this expectation of reading, but rather to 'de-emphasize the acoustic dimension of the word'.²¹⁰ He does this by aiming to create words that 'cannot be recited', forcing the viewer to appreciate alternative aspects of the experience.²¹¹ Meaning, he suggests, should not be sought in the verbal meaning of the words, but in the 'new syntaxes, mobility... fluidity' and 'dynamic behaviour' of the hologram.²¹²

One could conclude from Kac's statements that the verbal signification of a word is unimportant in holopoetry. However, his choice of words provides evidence to the contrary. In his first holopoem, Holo/Olho (1983), Kac featured the word 'olho' (Portuguese for 'eye'). The choice of word drew attention to the fact that this first holopoem was intended as a 'manifesto for a new way of seeing'.²¹³ Kac has gone so far as to discuss the themes presented in his choice of words, thereby drawing attention to the significance of their verbal meaning.²¹⁴ It is not the case, therefore, that Kac's holopoems attempt to eliminate or evade verbal signification, simply that they prioritize other features that exist in addition to,

²⁰⁶ Ibid.

²⁰⁷ Kac, 'Recent experiments,' 50.

²⁰⁸ Kac, 'Holopoetry, Hypertext, Hyperpoetry,' 56.

²⁰⁹ Eduardo Kac, 'Statement on holopoems,' in Holopoetry: Essays, manifestoes, critical and theoretical writings, (Lexington: new Media Editions, 1995), 86. ²¹⁰ Eduardo Kac, as interviewed in Whitman, I. V., 'Holopoetry: The New Frontier of Language,' in *Holopoetry*:

Essays, manifestoes, critical and theoretical writings, (Lexington: new Media Editions, 1995), 91. ²¹¹ Ibid.

²¹² Eduardo Kac, 'The Story of an Idea,' in Holopoetry: Essays, manifestoes, critical and theoretical writings (Lexington: new Media Editions, 1995), 131. ²¹³ Ibid., 94.

²¹⁴ Ibid.

or extension of, verbal meaning. In Kac's terms, a holopoem does not avoid, but rather 'surpasses' a 'dictionary definition' of the featured word.

Kac's texts frequently draw attention to the relationship between the perception of meaning and the physical location of the viewer, and how a change in one of these conditions prompts a change in the other. Louis Brill also draws attention to temporal aspects when discussing Kac's holopoems. He observes that words in holopoems are 'conceived in a fourdimensional space where the point-of-view and time become the pivot of how a poem is expressed'.²¹⁵ Brill's observation highlights the inseparableness of time and space in holopoetry. The temporal behaviours exhibited in Kac's works are consequences of viewer navigation. The motion and location of the viewer are key in establishing the experience. As Kac suggests, 'choreography is as much part of the signifying process as the transforming verbal and visual elements themselves'.²¹⁶ 'The way one looks at it modifies the holopoem' so that it is possible to govern the apparent motion of the holopoem through personal choreography.²¹⁷ The viewer may behave so that the 'letters will be in constant motion', or restrict that motion by remaining in the same position.²¹⁸ In these observations, even Kac's own texts do not do justice to the complexity of the perceived events that may be prompted by the viewer's movement. It is not merely movement, but fluidity that is prompted by this choreography. The transition from word to image, and the 'new meaning' that arises from that fluidity, may only occur in conjunction with a changing viewpoint, as is the case in, for example, Souvenir D'Andromeda (1990, Fig. 26).²¹⁹ In this holopoem, as the viewer navigates around the hologram, a number of abstract polygonal objects appear to align to present the word 'LIMBO'. The relative position of the viewer causes those objects to appear to be arranged in different ways, and therefore by changing the relative locations of the viewer and objects (as when the viewer navigates around a holopoem) the objects can appear to align to construct a meaningful configuration.

²¹⁵ Louis Brill, 'Poetry in motion in the space-time continuum,' in Holopoetry: Essays, manifestoes, critical and *theoretical writings* (Lexington: New Media Editions, 1995), 53. ²¹⁶ Kac, 'Holopoetry, Hypertext, Hyperpoetry,' 56.

²¹⁷ Eduardo Kac, 'Holopoetry and Perceptual Syntax,' in Holopoetry: Essays, manifestoes, critical and theoretical writings, (Lexington: New Media Editions, 1995), 10.

²¹⁸ Kac, 'Holographic Poetry,' 2.

²¹⁹ Kac, 'Holopoetry: from 'Holo/Olho" (1983) to "When?" (1988),' 35.



Figure 26. Eduardo Kac, *Souvenir D'Andromeda* 30x40cm, digital transmission hologram, 1990, Collection Acqaviva-Faustino, Paris. Kac's holographic forms appear to float within the real space between the viewer and the surface of the hologram. The letters of the word 'LIMBO' are composed of apparently three-dimensional objects which align to form letters when seen from the 'viewing zone'. Image courtesy: Julia Friedman and Eduardo Kac.

The introduction of new meaning, as prompted by viewer's location, cannot be considered solely a property of holography. Kac's writing briefly refers to 'optical anamorphosis' in descriptions of his early holopoetry. The use of the term 'anamorphosis' equates holopoetry to a significant field of art practice, dating back to elongated drawings which appear in Leonardo da Vinci's *Codex Atlanticus* (c.1485), but more commonly identified in Hans

Holbein's *The Ambassadors* (1533).²²⁰ When da Vinci's sketches 'are looked at frontally, a regular progressive distortion... makes their recognition difficult. However, if one shifts one's position, closes one eye and looks at the drawings...from a sharp angle on the right side of them, the images recover their normal proportions. Unexpectedly, an eye and a baby's face seem to lift up from the surface.'²²¹ In Holbein's *The Ambassadors*, a strange figure appears towards the bottom of the painting which can be identified as a skull only when viewed from a 'specific vantage point'.²²² Possible connections between lettering and anamorphosis can be observed in Lucas Brunn's *Praxis Perspectivae* (1615), a collection of images of objects viewed from unlikely angles, including a number of three-dimensional letters.²²³ Though this history is not acknowledged by Kac himself, his one-time use of the term 'anamorphosis' indicates that holopoetry may draw upon a history of practice that functions in a similar way.²²⁴ Holopoetry, like anamorphosis, 'will change as it is viewed from different perspectives': it introduces new meaning, in the form of new identities, in response to changes in the viewer's location.²²⁵

Hubert Damisch describes in anamorphosis the emergence of a 'secret object', when the viewer 'adopts the appropriate point of view'.²²⁶ His use of the term 'secret' suggests that the viewer who can experience the hidden subject is privileged. There is a sense that she is honoured to encounter this subject, and to be able to uncover/expose its true identity. He further proposes that anamorphosis 'implie[s] being shown an example of spectacular coincidence between the viewing point and the vanishing point.'²²⁷ In referring to the experience as apparently one of 'coincidence', John V. Kulvicki also implies that the viewer is in a privileged position: that she may feel lucky to have encountered such a phenomenon.²²⁸ Kulvicki's description draws attention to the fact that this experience is fleeting; that it may easily be lost. In turn, this implies that the moment of recognition should be a moment to be treasured. This observation draws attention to a third similarity

 ²²⁰ Emanuele Tesauro, 'Beyond Anamorphosis,' in Felice Varini, Lars Müller, and Fabiola López-Durán, *Felice Varini: points of view* (Berlin: Springer, 2004), 97.
 ²²¹ Ibid. 97.

²²² Ibid., 99.

²²³ Lucas Brunn, *Praxis Perspectivae* (Nuremberg-Leipzig, 1615), plates found in Massin, *Letter and Image*, 20-21.

<sup>21.
&</sup>lt;sup>224</sup> Kac uses this term only once among his many papers, and does not discuss it, suggesting that he has considered anamorphosis in hindsight rather than as fundamental to the initial development of his holopoems.
²²⁵ Kac, 'Holopoetry: from "Holo/Olho" (1983) to "When?" (1988),' 30.

²²⁶ Hubert Damisch, *A theory of cloud: toward a history of painting* (Stanford, CA: Stanford University Press, 2002), 134.

²²⁷ Ibid., 284.

²²⁸ John V. Kulvicki, On Images: Their structure and content (Oxford: Oxford University Press, 2006), 188.

between anamorphosis in paintings and in fluid holopoems. In both cases, the viewer may only view the recognisable identity from a specific, or privileged, location. In viewing Kac's Souvenir D'Andromeda, the verbal identity may only be viewed from one location. Kac describes this priviledged position as a 'viewing zone'.²²⁹ The viewer who is at this location is advantaged, and others cannot view the same message until she gives up his/her position to another viewer.²³⁰ Anamorphosis will be discussed in more detail in 5.2.2.

Despite drawing from a history in static media, Kac's holopoetry offers viewers a temporal experience: 'its rules are conceived in a four-dimensional space'.²³¹ It is therefore appropriate that Kac's discussions of holopoetry would have resonance in the field of temporal media. The experience of holopoetry can be replicated, or at least imitated, on screen, with the tracked motion of a camera as a substitute for viewer navigation. Temporal artefacts which function in this way will be explored throughout this thesis, with particular acknowledgment of the similarity to Kac's work where it exists, as in, for example, MPC's Channel 4 idents (see 5.2 and 6.2), and Komninos Zervos' Beer (see 5.3 and 6.5).

2.3.4 Legibility and Asemisis

As observed in 2.3.3, Eduardo Kac's discussion of legibility is limited. In many respects, a thorough study of legibility in fluid forms would be tangential to the aims of this thesis. Though it is vital that the viewer must be able to recognise a letter to appreciate fluidity, and legibility with be addressed when necessary, the focus of this thesis is the exploration of behaviours, and the properties which allow for those behaviours. Indeed, in fluid artefacts, observed in 2.3.2, the issue of specific letter recognition becomes less important than the wider issue of paradigm recognition; when a form has not simply been selected from a collection of 26 letters, but could be one of a number of signs from any number of paradigms. However, there are specific issues related to legibility which must be discussed here, as they highlight some of the essential properties of verbal signs which transform, and, thereby, cease to be legible.

²²⁹ Kac, 'Key Concepts of Holopoetry.'
²³⁰ Kac, 'Recent experiments,' 45.
²³¹ Brill, 'Poetry in motion,' 53.

Kac's holopoem Astray in Deimos (1992, see 5.1.1) exhibits a transformation between the letters of two words that will later be described as metamorphosis (see 5.3). The in-between states present each form as a glyph, that lies somewhere 'between a word and an abstract shape, or between a word and a scene or object', and which Kac proposes conveys 'nonsemantic...meaning'.²³² He proposes that these forms, despite having no direct verbal equivalent, 'suggest other meanings beyond the two words located at the extreme poles of the process'.²³³ Kac does not quantify this meaning, and explains that it would be difficult to do so, but does argue that it is nevertheless significant.²³⁴ As observed in 5.3.1, similar glyphs also appear in many of the artefacts discussed in this thesis. In Zervos' Beer, Waber's Argument (see 5.3.3), and - an example to be discussed in more detail later in this section, and in 5.3.5 - Sesame Street's Psychedelic Alphabet (see Fig. 30), in direct transformation from one identity into another, features of lettering remain despite the loss of precise verbal meaning. These morphing signs therefore continue to retain characteristics of verbal signs, despite changes in their precise identity.

Kac proposes that these glyphs are 'a new kind of verbal unit' arising as a consequence of fluidity.²³⁵ However, as was observed in 2.3.3, signs which function in similar ways can be observed elsewhere, in static media, and have been described by Tim Gaze as 'asemic'.²³⁶ 'Asemic writing' is defined by Gaze as a form or collection of forms 'which appears to be writing', while 'having no worded meaning'.²³⁷ Asemic forms may bear the hallmarks of writing, either through their shape or organization, but have no specific verbal signification.

Gaze identifies a continuum that exists 'between abstract image and legible writing', or 'between text and image'.²³⁸ This continuum illustrates the behaviours observable in fluid characterforms. Gaze argues that at one end of the continuum lies 'legible writing', which lies beyond 'asemic writing', then 'abstract images', and finally 'recognisable images'.²³⁹ These four distinct categories can be observed as points in fluid transformation. Forms are often introduced as 'legible writing' (or, legible typographic forms), then transform, losing

²³² Kac, 'Key Concepts of Holopoetry.'

²³³ Ibid.

²³⁴ Ibid.

²³⁵ Ibid.

²³⁶ Gaze, Asemic Movement 1, 2.

²³⁷ Tim Gaze, 'The Word "Asemic",' Asemic Movement 2 (February 2008): 31, accessed July 13, 2011, http://vugg.wippiespace.com/vugg/gaze/asemicmovement2.pdf Gaze, Asemic Movement 1, 2; Ibid. 13.

²³⁹ Gaze, 'Semiosis,' 13.

their linguistic identity until they become asemic, then eventually abstract, and finally adopt an additional identity, that of a 'recognisable image'. This behaviour occurs in reverse in BB/Saunders *Love* ident (see 5.3.2), in which an image of an egg morphs into abstract shapes, then into asemic glyphs, then finally into legible characterforms. Not all fluid characterforms follow the entire continuum, as poles of transformation may be from the same paradigm. One letterform may transform into another. However, in order to achieve the adoption of a new identity, they must necessarily travel at least part way along Gaze's spectrum before returning, becoming, at the very least, asemic, as in Zervos' *Beer*.

The identification of asemic writing as distinct from 'legible writing' raises questions of legibility, which in turn raises the question of audience literacy. A fluid sign may only appear to transform from asemic to legible if the audience is able to recognise the poles as significant. Indeed, the relationship between literacy and asemic signs has been established historically, as many past examples of asemic writing (referred to by Helène Whittaker as 'pseudo-writing') can be found in artefacts produced by and for illiterate people.²⁴⁰ As Whittaker observes, Greek Archaic vases occasionally included 'fake letter-forms', and personal ornaments from Iron Age Scandanavia were inscribed with 'fake runic letters'.²⁴¹ In these cases, since literacy was reserved for the elite, pseudo-writing was 'associated with the expression of status and power'.²⁴² The purpose of 'fake writing' on, for example, Greek vases, 'was to increase the prestige and value of the vase'.²⁴³ Contemporary artefacts featuring asemic writing also address the issue of literacy. Asemic language appears within images in Shaun Tan's wordless picturebook, *The Arrival* (2006).²⁴⁴

The Arrival tells the story of an immigrant who arrives in an unfamiliar land, and struggles to find a role for himself in foreign society. Throughout the foreign land, the immigrant encounters an undecipherable foreign language, invented by the author to allow readers to share the sense of alienation that immigrants may feel when first arriving in their own country. Shaun Tan uses this pseudo-writing to represent a generic foreign language, with the aim of showing a sense of alienation. These images demonstrate that language, when it is not understood, can be isolating. The fact that these illustrations are not accompanied by a

²⁴¹ Ibid., 32-33.

²⁴⁰ Helène Whittaker, 'Social and Symbolic Aspects of Minoan Writing,' *European Journal of Archaeology* 8, no. 1 (2005): 29, accessed July 13, 2011, doi: 0.1177/1461957105058207

²⁴² Ibid., 30.

²⁴³ Ibid., 32.

²⁴⁴ Shaun Tan, *The Arrival* (Sydney: Hodder, 2007).

text-based narrative enhances this sense of isolation. Recognisable language is significantly absent, reminding us how integral language is to our everyday lives. Many of the scenarios presented in Tan's illustrations show how difficult it is to function when a written language is not shared. On one occasion, the unnamed protagonist is found to have unknowingly pasted a number of posters upside-down, being so unfamiliar with the signs printed on them that he cannot tell which way up they ought to appear (Fig. 27). In such scenes, it is suggested that the signs do indeed have meaning, and that their meaning is understood only by the privileged. The signs, therefore, are not meaningless, but their meaning is inaccessible to the immigrant and the reader. Though Tan's signs are intended to be meaningless, their context often provides at least a vague indication of what their meaning could be. When they appear on a map, we can conclude that they describe places, and when they appear on a telephone, we can assume that they are numerical (Fig. 28). The importance of context in deciphering written language is thus demonstrated.





Figure 27. An immigrant unknowingly pastes foreign posters upside-down in Shaun Tan's *The Arrival* (2006), being unfamiliar with Tan's asemic signs. The fact that the immigrant's employer objects suggests that the signs are not meaningless, but that their meaning is inaccessible to the immigrant and the reader. Source: Shaun Tan, *The Arrival* (Sydney: Hodder, 2007).



Figure 28. Context hints at the meaning of Tan's asemic writing. Here, we can assume that the symbols are numerical. Source: Tan, *The Arrival*.

Transforming verbal signs undergo what Hillner describes 'phases of legibility'.²⁴⁵ As fluid signs change, even though they do so between poles, there is not one single moment when an identity is recognisable, but a phase in which legibility varies. At the pole, the identity is at its clearest and most legible, but the identity may still be recognisable before and after this point, with varying legibility. The distinction between asemic and legible characterforms, and the point at which the change from legible to asemic sign occurs in fluid signs, may therefore be difficult to identify precisely. The moment at which the linguistic identity becomes legible may vary depending on a number of variables, including the viewer's expectation, or his/her familiarity with the alphabet.²⁴⁶ It is reasonable to expect that a verbal identity may be more easily and quickly identified if previous experience has told a viewer to expect a linguistic sign to appear.²⁴⁷ Artefacts such as *Beer*, prepare the viewer to expect linguistic signs because they present several in sequence. From the introduction of the first word, *Beer* establishes the fact that the morphing forms are linguistic (despite varying in specific meaning and form), thereby preparing the viewer to seek out the next word in the sequence.

²⁴⁵ Hillner, 'Virtual Typography,' 4.

²⁴⁶ To a viewer who is illiterate, the form may never acquire particular verbal meaning.

²⁴⁷ This is the case with long-lived examples such as the Channel 4 idents. Indeed, MPC's recent idents exploit the audiences familiarity with their behaviour, by increasing the speed of transformation. See 6.2

Asemisis itself performs a function in these 'phases of legibility', contributing to preparing the viewer to seek out language. In fluid forms which resemble verbal signs, even when their identity cannot be precisely identified, the audience may make use of visual signifiers of paradigm. The suggestion that these forms are some sort of language, though unidentifiable, helps to encourage the viewer to approach the artefact with the expectation of reading. Once they have prepared themselves to take the role of reader rather than viewer, they may more quickly identify the linguistic identity when it begins to emerge, in effect, increasing legibility. The appearance of, for example, ascenders and descenders during a metamorphosis can prepare the viewer to accept the forthcoming identity as verbal rather than pictorial. In Harm van der Dorpel's *Type Engine*, and *I Wouldn't Normally Do This Kind of Thing* (2005, see 5.2.3 and 5.2.4) the regular spacing and consistent baseline of abstract forms helps to suggest to the viewer that these forms will have linguistic meaning once fully formed (Fig. 29).



Figure 29. This still from Harm van der Dorpel's *I Wouldn't Normally Do This Kind of Thing* (2005),
captures a moment when the component parts that are used to construct letterforms are in the process of realignment. These forms exhibit many of the telltale features of letters, hinting at their potential for verbal signification. However, this particular moment, they have no precise verbal meaning. Source:
Harm van der Dorpel, 'I Wouldn't Normally Do This Kind of Thing,' *Harmlog*, 2005, accessed January 15, 2007, <u>http://www.harmlog.nl/harm/harmlog/main.asp?id=77&action=prev&sort=1</u>

The preparedness that is made possible by the emergence of asemic signs before a distinct verbal identity is arguably akin to learning. It enables viewers to use past knowledge of alphanumeric forms and reading to prepare for the introduction of new knowledge within a certain paradigm. Louise Krasniewicz proposes that all metamorphosis is in some way linked to learning. It can be suggested that the connection between transformation and learning is particularly strong in the transformation of verbal signs, because of the way in which they transform from asemic signs to verbal signs. Asemic writing is sometimes associated with the process of learning to write. By creating 'pseudo-writing', children familiarise themselves with the practice of writing, and many of its conventions, before

acquiring familiarity with specific sets of characters.²⁴⁸ Helène Whittaker observes that, in historical societies with low literacy rates, writing was viewed as 'part of an elite identity', symbolising 'authority'.²⁴⁹ Asemic writing, in these historical societies, existed to suggest 'prestige' to illiterate audiences.²⁵⁰ Among children learning to write, and the illiterate populations of historical societies, asemic writing is symptomatic of aspirations of literacy. In fluid artefacts, audiences experience asemic signs that become legible: abstract glyphs evolve until their linguistic meaning can be understood. This transformation, from asemic to linguistic, recalls the process of learning to read and write. When they are asemic, fluid forms reflect the ambition for literacy; they possess the characteristics of linguistic forms, without containing precise linguistic meaning. The desire to attribute meaning to the characters (to learn to read) comes as the characterforms evolve, becoming familiar linguistic forms.

Gaze's continuum, and examples of asemic writing, seem to assert difference from image without moving entirely into verbal paradigms. By being, according to Gaze's continuum, neither figurative nor abstract, and yet having no identifiable linguistic/verbal meaning, this writing asserts its otherness. As a result of its resemblance to writing, the audience may seek connections to language, but will find none. This appears to be at odds with the aim of fluidity, which asserts similarity between paradigms. It seeks to make connections, not to break them. By transforming into many identifiable signs (often from several paradigms), fluid forms make overt the process of making meaning. Asemic writing in Shaun Tan's *The Arrival* deliberately deny the reader the possibility of reading, or of finding prescribed meaning. Fluidity, however, often works to clarify or narrow meaning, through what Barthes describes as 'anchorage' (see 3.2).²⁵¹

The asemic signs of Shaun Tan and Xu Bing relate to issues of cultural misunderstanding and miscommunication, specifically the sense of discomfort that may be experienced when one is faced with signs that one is unable to decipher. They demonstrate that asemic signs

²⁴⁸ Roy Harris and Brett Wilbur observe that children, before learning to write, will invent asemic characters in 'pseudo-writing'. Roy Harris, *Signs of Writing* (New York: Routledge, 1995), 86; Brett M. Wilbur, 'Finding Self in the Nuts and Bolts – Hidden Quality in the Service of Organisation,' n.d, 3, accessed July 13, 2011, <u>http://www.metaphorms.com/uploads/Microsoft Word - Nuts and Bolts article.pdf</u>

²⁴⁹ Whittaker, 'Social and Symbolic Aspects,' 30.

²⁵⁰ Ibid., 32.

²⁵¹ Roland Barthes, *Image Music Text*, trans. Stephen Heath (London: Fontana Press, 1977), 40.

motivate the desire to understand, and then the frustration of never having that desire fulfilled. These examples show us that asemic signs can be unsettling as well as intriguing. This sense of discomfort leads audiences to anticipate the appearance of new meaning in fluid metamorphosis. It may be the case that, while the verbal language at a pole is familiar, the glyphs that appear between poles are disconcerting in their apparent meaninglessness, particularly when their similarity to verbal forms suggests that they ought to have verbal meaning, and that that meaning is inaccessible. There is, therefore, in these intermediate stages, anticipation for the arrival of the next pole, caused by the desire to escape this moment of apparent miscommunication.

The discomfort caused by unrecognisable asemic glyphs, compared to the pleasure of recognition in identifiable forms, plays a role in an example of *metamorphosis* (see 5.3) created for the educational children's television show, Sesame Street. A number of animated alphabets featured in Sesame Street (1969 onwards) present letters which transform or are serially presented. Sesame Street's Psychedelic Alphabet animation (episode 3702, 1998) features a total of 25 metamorphoses, as each letter of the alphabet transforms into the next (Fig. 30). The Sesame Street alphabetic animations are intended to be educational, to familiarise viewers with the relationship between letter-sounds and letterforms, as well as the sequence in which they appear in the alphabet. As noted above, Louise Krasniewicz proposes that metamorphosis is always linked to learning in some way. Through each stage in a morph, new meaning is conveyed, and new knowledge is required. A transforming subject may 'move laterally across categories to gather knowledge from each place of (however temporary) residence'.²⁵² It may reveal to the audience new information about its nature, its purpose and its destiny, or may itself acquire new knowledge, where transformation represents the personal development of a subject. In this animation, the pleasure in encountering identifiable letters within the transforming form is reinforced and rewarded with a voice-over which names each letter. Viewers learn that the intermediate stages, though resembling letterforms in some respects, have no specific verbal meaning, and so are not useful in communication. When each asemic glyph morphs into the letter that exists at the next pole, the child is rewarded with the same sense of satisfaction that she may get when learning any new information. Through education, and through this

²⁵² Louise Krasniewicz, 'Magical transformations: Morphing and Metamorphosis in Two Cultures,' in *Meta-Morphing: Visual Culture and the Culture of Quick Change*, ed. Vivian Sobchack (Minneapolis: University of Minnesota Press, 2000), 53.

metamorphosis, something that has previously been strange and frustrating becomes something that the child can identify and understand.

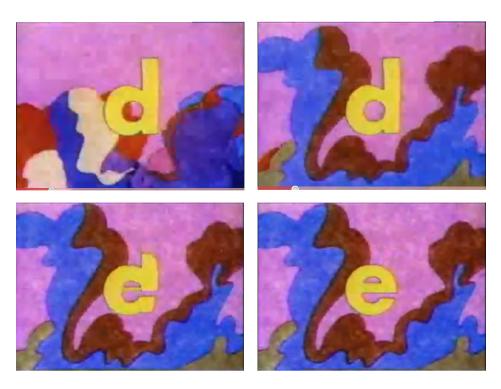


Figure 30. unknown animator, *Psychedelic Alphabet*, *Sesame Street* episode 3702, aired 1998. As the 'd' in these stills morphs into an 'e', it creates an asemic 'in-between' form which appears alphabetic but is neither 'd' nor 'e'. Source: 'Sesame Street – Psychedelic alphabet,' *YouTube*, 2006, accessed July 18, 2011, http://youtube.com/watch?v=rzF4FJIpxJg

2.3.5 Problems arising from the use of the terms 'typography' and 'letterform'

As observed in 2.3.1, texts discussing temporal typography, in their efforts to show its difference to static or printed forms, perhaps do not take enough cues from discussions of such static forms to develop a complete understanding of temporal equivalents. Not only could the distinction between local and global design be useful in classifying temporal artefacts, but so too could the varying definitions of verbal forms that appear in descriptions of static artefacts. In particular, the distinction between type and lettering needs to be addressed. There is no disagreement among texts referring to temporal typography (as identified in 2.3.1 to 2.3.2), on the use of the term 'typography'. Where texts differ on the

uses of the terms 'temporal', 'kinetic', 'dynamic', or 'motion', they all use the term 'typography'.²⁵³ However, as this section will show, this term may be misleading.

The invariable use of the term 'typography' in the aforementioned texts is in contrast to the situation in static media, where texts such as Willen and Strals' Lettering & Type distinguish between 'typography' and 'lettering'.²⁵⁴ 'Lettering' is a manual practice, in which letters are drawn or written (as in calligraphy and drawn or painted letterforms).²⁵⁵ 'Typography' is commonly used to refer to text that has been produced using a designed, or 'prefabricated' typeface.²⁵⁶ It has been typed using a keyboard (then displayed on screen or print), or is the product of a combination of movable type and a printing press. The difference between typography and lettering may therefore be considered a question of ownership. Essentially, as Tim Donaldson has observed, lettering is created by the reader, but typefaces are borrowed.²⁵⁷ In lettering, forms are created, but in typography, forms are recontextualized.

In many examples of 'temporal typography' which involve global change, forms are typographic, but when artefacts have a local focus they often feature forms that cannot be defined in this way. In the fluid artefacts that will be discussed in this thesis, many letterforms do not originate from the keyboard, perhaps rendering the term 'typography' inappropriate, but neither are many of these forms handwritten, making the term 'lettering' equally misleading.

There are examples which originate from typed forms, such as Harm van Der Dorpel's I Wouldn't Normally..., which uses fragmented parts of typed letters. In the case of channel Five idents (see 5.2), the contours used as the model for a configuration of objects are based on a typed form (using the same typeface as the Five logo). However, in other cases where a verbal form is constructed from component parts, there is no connection to a particular typeface. In Channel 4 idents, and in Harm van den Dorpel's Type Engine, each form is more fundamentally an arrangement of objects than it is type, presenting a form that does

²⁵³ Wong, 'Temporal typography: characterization of time-varying typographic form.' See also Cho, 'Pliant Type, '2; Lee et al., 'The Kinetic Typography Engine.'; Hillner, 'Text in (e)motion,' 166; Specht, 'Legibility,' 1; Woolman and Bellantoni, Type in Motion.

²⁵⁴ Bruce Willen and Nolen Strals, Lettering & Type (New York: Princeton Architectural Press, 2009).

²⁵⁵ Nicolete Gray, Lettering as Drawing (New York: Taplinger, 1982).

²⁵⁶ Timothy Donaldson, 'Practitioner Presentation' (paper presented at *Beyond the Margins*, Clare College, Cambridge, 12 September, 2009). ²⁵⁷ Ibid.

not belong to a particular character set. It is composed of image objects, not via the use of the keyboard.

There are also examples that can readily be referred to as lettering. Dan Waber's *Strings* is overt it its aesthetic similarity to handwriting. But again, there are examples which cannot be contained within this category, including those which can neither be defined as typography (Channel 4 idents, van den Dorpel's *Type Engine*, etc.).

Though many examples of fluid typography can be described as typographic, and sometimes as lettering, there are also many that fall into an undefined category which can neither be described as 'typography' nor as 'lettering'. These verbal forms may be, for example, moulded (as in Mike Atkin's *Animated Alphabet*), or constructed (as in the Channel 4 idents), but are neither typed nor written. These examples may require a more inclusive use of the term 'lettering'. Baines and Halsam observe that the term lettering may imply 'the use of a hand', it has more recently come to include lettering drawn indirectly, via a computer mouse. They suggest that, though lettering may be created by a number of different methods, what more fundamentally 'distinguishes it from type' is letters that are 'essentially "special" and made for a specific purpose only'.²⁵⁸ By this definition, even forms that were not created by hand could be considered 'lettering', provided they are intended for a specific use (in this case, specific application in a temporal artefact).

So, fluid forms can sometimes be described as 'typographic', and sometimes as 'lettering'. However, to create categories of fluidity using this division would be to interfere with the purpose of my typology: to identify/classify different behaviours. As acknowledged by Y.Y. Wong, behaviour is distinct from - and in many cases entirely independent of – the structural properties of a form (colour, etc., see 2.3.1).²⁵⁹ Since it would be inappropriate to divide the category of fluidity according to properties of form, this thesis must find a term which is applicable in all cases of fluidity, to encompass both fluid typography and fluid lettering.

²⁵⁸ Phil Baines and Andrew Halsam, *Type & Typography* (London: Laurence King, 2005), 90.

²⁵⁹ Wong, 'Temporal typography: characterization of time-varying typographic form,' 11.

Heller and Thompson, and Willen and Strals, whose texts deliberately focus on combinations of typography and lettering, offer the term 'letterforms'.²⁶⁰ This term is applicable in many cases, as letters may be written, drawn or typed. Furthermore, it is appropriate for this study in its focus on the individual form as opposed to the overall arrangement or artefact - previously identified as the distinction between local and global (see 2.3.2). However, the term 'letterform' is also restrictive, as it does not allow for verbal forms that are non-alphabetic (i.e. not letters). Numerical forms, and even punctuation, may be subject to the same treatment as letterform' as the 'character image', however, the use of the root 'letter' as opposed to 'character' would imply that the term excludes numerical and punctuation forms.²⁶¹ In order to include all possible characters, for the remainder of this thesis, where forms are alphabetic, they will be described as 'letterforms', and where other characters, or a combination of both, are used (written, typed or otherwise), they will be termed 'characterforms'.

2.4 Conclusion to Chapter 2

This chapter introduced developments in static and temporal artefacts that have informed the development of fluid behaviours. Three historical developments – skewed or slanted type, three-dimensional type, and modular type - introduce notions that are vital in allowing for the introduction of fluid behaviours. The experiments leading to *Romain du Roi* demonstrated that a letter can be viewed as flexible; nineteenth century three-dimensional type demonstrated that letters can be understood as objects as well as flat signs; modular type revealed the separation of letter and form, showing that a letter does not have to be a single form, and that the forms used in its construction may have their own separate identities. Although they emerged in static print, these developments transformed the understanding of how practitioners may treat a verbal character, moving away from established conventions while preserving verbal function.

²⁶⁰ Steven Heller and Christine Thompson, *Letterforms: Bawdy Bad & Beautiful* (New York: Watson-Gupthill, 2000); Willen and Strals, *Lettering & Type*, 1.

²⁶¹ Richard Southall, 'Presentation Rules & Rules of Composition,' in *Computers and Typography*, ed. Rosemary Sasson (Bristol: Intellect Books, 1993), 32.

These historical developments have been vital in progress towards the temporal typography that has emerged since. Typography which exhibits change at a local level, and presents multiple identities over time, is rapidly becoming commonplace. There are numerous examples of these artefacts containing type which could be described using Kac's definition of 'fluid'. To date, commentators have largely failed to identify or analyse this kind of behaviour, despite extensive discussion of temporal and kinetic typography. There is, at present, no substantial research into the properties and perception of fluid verbal signs. Current possible methods of analysis, which rely heavily on the pre-existing and, for our purposes, limited terminology of cinematography and static type, are inadequate to define and analyse fluid signs. Familiar methods for the analysis of typography have not developed to keep pace with the development of digital technologies. They do not allow for the additional behaviours that are seen in fluid forms, which are capable of performance and reactivity, and vitally, as I have described, which separate identity from form (presenting multiple characters within a single form, and vice versa). Therefore, our understanding of the nature of type, and how it may be analysed, must be modified and updated. This thesis will focus on advancing the understanding of the nature and perception of fluid signs, and aim to provide new and updated models with the aim of informing further analysis.

This chapter has observed that many existing texts in the field of temporal typography are misleading in their use of terminology, or contain omissions that must be addressed. In discussing the field of 'temporal typography' as a whole rather than focusing on the variation that exists among temporal verbal artefacts, theorists have not adequately addressed several issues of origins or classification. These texts, as observed throughout this chapter, fail to recognise the influence of definitions and explorations of static artefacts. This has led firstly to histories that focus on developments in temporal media, and, therefore, lack acknowledgement of the significance of some of the developments that have occurred in static type and lettering (particularly those which have transformed our understanding of the nature of the characterform from that of a flat and permanent form). Secondly, it has resulted in a failure to make distinctions between global and local kineticism: where texts refer to the field of 'temporal typography' they do so with regard to changes in layout more than to the nature of the characterform. Thirdly, there is a failure to differentiate, as texts do in print, between verbal forms that are typographic and those that are not.

In focusing too broadly on the whole field of 'temporal typography', existing texts do not offer adequate exploration of the many different behaviours that can be seen to exist in this field. There is disagreement as to what this field can contain (whether forms must be subject to motion or change, or that they merely exist within a temporal environment). Depending on authors' interpretations of what may be contained within the field, texts have found different terminology to be suitable in its definition, ranging from 'temporal', to 'kinetic', 'motion' or 'dynamic'. As this chapter has shown, the use of so many terms, and disagreement over their uses, can lead to confusion. Furthermore, as all of these terms are used to describe such a broad range of artefacts, they do not allow us to differentiate different kinds of artefact and behaviour, such as local change, and local change that results in change of identity. The term 'fluid' must be borrowed from descriptions of holographic poetry in order to effectively describe such behaviour.

Chapter 3 will introduce methods by which it is possible to address the problems and omissions identified here. It will propose that the lack of general agreement on the characteristics of temporal typography may be addressed through a typology of fluid behaviours, informed by Gestalt laws of perceptual organisation, to establish an adequate, shared, understanding of contemporary temporal typography.

Chapter 3: Methodology

3.1 Introduction to Chapter 3

This thesis presents a typology of fluid behaviours which is informed by Gestalt 'Laws of Organisation in Perceptual Forms'.²⁶² These two methods – the typological method, and Gestalt laws of perceptual organisation – will be explored in this chapter. Though the categories of behaviour are most directly informed by Gestalt, ideas from the field of semiotics are also applicable, in the analysis of artefacts which may be described using terms from the typology. For this reason, some ideas of particular relevance will also be introduced from this field, and Gestalt will be considered as a semiotic code.

Part 3.2 begins by identifying the value of the typological method, and demonstrates where it has been used elsewhere in typography. It will show how typologies have been used at length to categorise static forms of typography, with the aim of highlighting how, in contrast, the field of temporal typography has been subject to very few attempts to define or categorise artefacts. While typologies in static typography have introduced important distinctions between, for example, serif and sans-serif typefaces, there is no equivalent well-established categorisation for behaviours in temporal typography. Typologies outside of the field of typography, including Per Mollerup's *Collapsibles*, will also be introduced in order to highlight how this method is used in other fields which also have a bearing on this research.²⁶³

During 3.3-3.4, a method will be developed that combines Gestalt and semiotics, in order to provide a comprehensive understanding of fluidity. A combined method of analysis has been selected as fluidity involves not only the understanding of a full-formed sign, but also how it comes to be formed (through the behaviours identified in the typology). While Gestalt offers explanation as to the perception of the formation of a sign, semiotics offers an understanding of the meaning of that sign. As shown below, this perception and understanding of a fluid sign is a two-stage process, and so invites application of a compound method of analysis.

²⁶² Max Wertheimer, 'Special Problems, First Group: Perception, A. Perception and Organisation, Section 5: Laws of Organization in Perceptual Forms,' in Ellis, Willis D., *A Source Book of Gestalt Psychology*, (London: Routledge & Kegan Paul Ltd., 1938), 71-88.

²⁶³ Per Mollerup, Collapsibles: A Design Album of Space-Saving Objects (London: Thames & Hudson, 2001).

In 3.3, Gestalt will be introduced as a method for describing the configuration and identification of whole signs that can be perceived as having verbal (or other) meaning. Gestalt is infrequently associated with the field of typography, and even less so with temporal typography, but its potential use in this field has been acknowledged by some commentators and practitioners. Existing texts tend to offer Gestalt interpretations of typographic layouts, rather than the features of individual typographic forms.²⁶⁴ This chapter will identify the limitations of existing applications, and demonstrate further potential applications for Gestalt in typography.

This thesis will approach the Gestalt laws of visual perception as a semiotic code. Although most codes are 'culturally variable' and must be learnt, Daniel Chandler proposes that Gestalt laws of perceptual organization constitute an 'innate' code'.²⁶⁵ Though more recent theory has challenged notions of universality,²⁶⁶ Gestaltists held that their principles were 'laws', and these laws continue to be described as 'universal' in recent texts.²⁶⁷ Indeed, although Chandler engages more commonly with subjectivity, he acknowledges Gestalt laws of perceptual organisation as 'universal... in human visual perception'.²⁶⁸ As will be shown in 3.4, the laws of perceptual organization bridge the divide between subjective semiotic perception and objective Gestalt perception, and demonstrate that the perceptual code of visual organization is comparable to social codes such as verbal language. Semiotics, though arguably founded by Ferdinand de Saussure in linguistics, is a method of analysis that has been shown to be applicable to the visual appearance of type, offering a tool for the

https://uhvpn.herts.ac.uk/uploads/Courses/,DanaInfo=kobi.nat.uni-magdeburg.de+RockPalmer1990.pdf; Stephen A. Bernhardt, 'Seeing the Text,' *College Composition and Communication* 37, no. 1 (1986): 72, accessed July 19, 2011, doi: 10.1145/142350.142353; Mike Cuenca, 'Gestalt and Typography,' *Virtual Classroom*, 2000, accessed July 19, 2011, <u>http://www.mikecuenca.com/galleryImg/teach/gestalt/</u>; Femke Straatsma, *Typically Typographic: The effects of typographic layout on the process of product advertisements* (PhD diss., Virje Universiteit Amsterdam, 2009), 33-34, accessed July 19, 2011, http://dare.ubvu.vu.nl/bitstream/1871/13311/5/6725.pdf

²⁶⁴ Jacob Beck, 'Similarity Grouping and Peripheral Disciminability Under Uncertainty,' *The American Journal of Psychology* 85, no. 1 (1972), as cited in Irvin Rock and Stephen Palmer, 'The Legacy of Gestalt Psychology', *Scientific American*, (December 1990): 87, accessed February 24, 2011,

²⁶⁵ Daniel Chandler, Semiotics: The Basics, 2nd Ed., (Oxon: Routledge, 2007), 152.

²⁶⁶ Tim Woods, *Beginning Postmodernism* (Manchester: Manchester University Press, 1999), 11; Robin Kinross, 'The Rhetoric of Neutrality', *Design Issues* 2, no. 2 (Autumn, 1985), accessed October 20, 2011, http://links.jstor.org/pss/1511415

 ²⁶⁷ Max Wertheimer, 'Special Problems, First Group: Perception, A. Perception and Organisation, Section 5: Laws of Organization in Perceptual Forms,' in Ellis, *A Source Book*, 71-88; Jill Butler, Kritina Holden and William Lidwell, *Universal Principles of Design* (Massachusetts: Rockport Publishers, Inc. 2003), 170.

²⁶⁸ Chandler, *Semiotics*, 152. Geastlt papers consider their laws of perception to be universal, though never propose that they are a kind of code (an idea developed later). It fell to Chandler to connect semiotic notions of code with Gestalt principles.

analysis of visual appearance as well as verbal interpretation of typographic forms. Numerous recent studies in the field of typography make use of ideas from semiotics, including, most notably, texts by Hillner, Waller, Tsur, Stockl, Gross, and Longrée, which address many of the key issues that are pertinent to this thesis.²⁶⁹ Most commonly, writings on the semiotic analysis of typography identify a 'plurality' in typographic forms, whereby forms communicate two distinct messages - 'graphemic' and 'phonetic' - though opinions differ as to whether the multiple significations are 'parallel' or hierarchical.²⁷⁰ Other ideas from the field of semiotics are also considered useful in analyzing the features of fluid artefacts. In particular, the transformation from verbal character to pictorial form is dependent on the understanding of these as two distinct paradigms. 3.4 will therefore identify this and other ideas from semiotics that are useful in the description, understanding, and analysis of fluid artefacts.

3.2 Typologies and their Application in Typography

Part 2 of this thesis proposes a typology of fluid behaviours, classifying the various behaviours through which new identities are adopted by fluid characterforms. In discussions of new technologies and ideas, existing classifications can often be found to be inadequate, largely because previous typologies and taxonomies predate more recent advances in knowledge or technology. Those who develop classification systems often do so because, like Marnie Meylor et al., they find they are 'faced with a dizzying array of contradictory terms and categories'.²⁷¹ As Meylor et al. discovered on conducting investigations into pictorial language systems, there are sometimes 'no agreed-upon definitions for even the most basic vocabulary, no conceptual model for how these various terms might be organized into logical categories, in effect, no means to categorize and analyze' typographic

²⁶⁹ See Hillner, 'The poetics of transition'; Robert Waller, 'The Typographic Contribution to Language' (PhD diss. University of Reading, 1988); Tsur, 'Picture Poetry'; Stockl, 'Typography'; Gross, 'The Word Turned Image'; Georges Longrée, 'The Rhetoric of the Picture Poem,' *PLT* 1, no. 1 (1976).

 ²⁷⁰ Terrence Hawkes, *Structuralism and Semiotics* (London: Methuen & Co. Ltd, 1977), 111; Tsur, 'Picture Poetry,' 752; Gross, 'The Word Turned Image,' 20.
 ²⁷¹ Marnie Meylor, Mike Zender and Oscar Fernandez, 'Trying on Taxonomies: Research Developing

^{2/1} Marnie Meylor, Mike Zender and Oscar Fernandez, 'Trying on Taxonomies: Research Developing Taxonomies for Analyzing and Developing Icon-based Visual Language Systems,' (paper presented at *International Association of Societies of Design Research* conference, Seoul, 2009), accessed July 19, 2011, http://www.iasdr2009.org/ap/Papers/Orally%20Presented%20Papers/Design%20Method/Trying%20on%20Taxo nomies%20-

^{%20}Research%20Developing%20Taxonomies%20for%20Analyzing%20and%20Developing%20Icon-Based%20Visual%20Language%20Systems.pdf

artefacts.²⁷² If a suitable typology of temporal typography were to exist, it would provide a useful means for both analyzing what exists and for guiding new developments.²⁷³

Jonathan Hoefler suggests that a universally applicable' typeface classification system' is 'a Holy Grail of typography'. A 'comprehensive, adaptable', and 'accessible' 'taxonomy for type', Hoefler argues, 'would be of immense use to anyone connected with letters'.²⁷⁴ Systems of classification allow extensive collections of typefaces to be arranged rationally, according to various principles. Furthermore, they allow analytical comparisons of each category. Important declarations in typographic practice have been dependent on these classifications, not least The New Typography assertion that sans serif typefaces are more 'pure' (and therefore more legible) than serif faces. Perhaps most importantly, these classification systems provide a language with which artefacts and experiences of artefacts can be efficiently described.

The practice of separating artefacts into binary categories is artificial, and not always compatible with the variation and blurring of boundaries that exists in reality. However, typologies such as the one presented in this thesis do not deny that ambiguities exist. Typologies may even enable the identification of ambiguities and anomalies, by highlighting the ways in which they differ from the precise categories described in this document. The benefit of allowing for difference and variation within artefacts provides reason for presenting a typology, which identifies 'attributes', as opposed to a taxonomy, which identifies 'genesis'.²⁷⁵ In identifying the difference between typology and taxonomy, Kevin B. Smith observes that typologies 'represent concepts rather than empirical cases'.²⁷⁶ They are, he notes, 'neither exhaustive nor mutually exclusive'. Although Smith himself identifies this as a 'drawback' in his own field of policy studies, it can be viewed as an advantage of typologies over taxonomies when the subjects of classification are media artefacts, as it permits, for example, the possibility that an artefact may present features of multiple categories, and allows variation within a category.

²⁷² Ibid.

²⁷³ Ibid.

²⁷⁴ Jonathan Hoefler, 'On Classifying Type,' in *Texts on Type: Critical Writings on Typography*, eds Steven Heller and Phillip B. Meggs (New York: Allworth Press, 2001), 201.

²⁷⁵ Alberto Marradi, 'Classification, typology, taxonomy,' *Quality and Quantity* 24, no. 2 (1990), accessed August 8, 2011, doi: 10.1007/BF00209548
²⁷⁶ Kevin B. Smith, 'Typologies, taxonomies, and the benefits of policy classification,' *Policy Studies Journal* 30,

²⁷⁰ Kevin B. Smith, 'Typologies, taxonomies, and the benefits of policy classification,' *Policy Studies Journal* 30, issue 3 (2002): 381, accessed August 8, 2011, doi: 10.1111/j.1541-0072.2002.tb02153.x

Many existing classifications systems identify key categories of typeface for print (notably, Beatrice Warde and Maximilien Vox).²⁷⁷ Vox's Nouvelle Classification des Characters (of 1954) identifies 11 categories of type, and forms the basis for most contemporary classification systems.²⁷⁸ Though the terminology used by Vox has been updated by several more recent taxonomies, the basic structure of Vox's system underlies many common examples. Vox's category, 'lineal', for example, is now more frequently referred to as 'sans serif', though the description of the category remains largely unchanged.²⁷⁹

Shannon Ford et al. observe that existing taxonomies of 'typographic forms' for the screen have largely been based on the 'tradition of print typography'.²⁸⁰ Typologies and taxonomies of print typography are numerous, but, as the following commentators observe, largely inadequate for dealing with contemporary trends in typography. Despite being more than half a century old, Vox's system forms the basis for both ATypI's (Association Typographique Internationale) typeface classification, and the British Standard (referred to as 'BSI 2961', and not updated since 1967).²⁸¹ Such systems, argues former editor of Creative Review Lewis Blackwell, are outdated, and 'now prove inadequate for explaining the huge number of new typeface designs since.²⁸² As Catherine Dixon, curator of Central St. Martin's Lettering Record, observes, Vox's system was, at the time of publication, effective as 'an evaluation of typographic history and current practice', but 'as text is increasingly found in environments outside of print, so typeforms are being modified to the requirements of...the screen', inevitably acquiring attributes which cannot be classified according to any system that was designed before the advent of 'new technologies'.²⁸³ In particular, Dixon notes that a large proportion of contemporary typography can only be

²⁷⁷ Beatrice Warde, 'Type faces, Old and New,' *The Library* XVI, no. 2 (1935): 121-45, accessed July 19, 2011. doi: 10.1093/library/s4-XVI.2.121; Maximilien Vox, Nouvelle Classification des Characters (Paris: Ecole Estienne, 1954). ²⁷⁸ Fabio Luiz Carneiro Mourilhe Silva and Priscilla Farias, 'An Overview of Typeface Classifications' ('Um

panorama das classificações tipográficas'), Estudos em Design 11, no. 2 (2005): 69, accessed July 19, 2011, http://www.arcomodular.com.br/portugues/uploads/File/SILVA FARIAS-PanoramaClassif.pdf

²⁷⁹ Yannis Haralambous and P. Scott Home, *Fonts and Encodings* (CA: O'Reilly Media, 2007), 409; Catherine Dixon, 'Typeface Classification,' (paper presented at 'Twentieth Century Graphic Communication; Technology, Society and Culture,' Annual Conference of the friends of St. Bride, London, 2002), accessed July 21, 2011, http://www.stbride.org/friends/conference/twentiethcenturygraphiccommunication/TypefaceClassification.html See also, for example, Alex W. White, Thinking in Type: The Practical Philosophy of Typography, (New York: Allworth Communications, 2005), 249-255. ²⁸⁰ Ford et al., 'Kinetic Typography,' 269.

²⁸¹ ATypI, 'Type Classification-ATypI,' n.d., accessed February 10, 2010,

http://www.atypi.org/members/special-interest-groups/type-classification; Luc Devroye, 'British Standards for Type Classification,' 2001, accessed July 19, 2011, http://cg.scs.carleton.ca/~luc/britishstandards.html

Lewis Blackwell, 20th Century Type (London: Laurence King, 2004), 190.

²⁸³ Dixon, 'Typeface Classification.'

classified in the 'graphic' category, despite what is described by Aernout de Baufort Winholds as 'radical' variation in appearance.²⁸⁴ Although many more recent classification systems recognised the shortcomings of Vox's system, many have responded to the problem by simply choosing to ignore more recent trends. Alexander Lawson's Anatomy of a *Typeface* 'refrains from discussing... recent types', and Geoffrey Dowding's *Printing Types*, despite being reprinted in 1998, still presents an unrevised 1961 taxonomy.²⁸⁵ Although newer classifications do exist (largely designed and used by typefoundries including those of Adobe and Microsoft), they are not in common use.²⁸⁶

Dixon further reports that 'failure to incorporate [recent developments] within historical surveys has created an artificial endpoint in typeform history'. The failure to update outdated systems has, she argues, left 'much contemporary practice dislocated from... the past'.²⁸⁷ Without typologies that are able to fully incorporate the array of contemporary artefacts that exist as a consequence of new technologies, further progress will lack direction.

In temporal typography, the characteristics of a letterform include features other than typeface. The above classification systems are, therefore, only partly useful in assessing temporal typography. Alfred Bork's 'taxonomy of ways of displaying texts on screens' addresses this issue by considering 'both spatial and temporal factors'.²⁸⁸ In his role as Professor Emeritus of Information and Computer Science at the University of California, he is perhaps better placed than those from the world of print to identify aspects of screenbased and temporal media. Bork's categories identify temporal devices which can have equivalent functions to static formatting options. 'Flashing' or 'blinking', for example, may draw attention to a word on screen just as bold lettering may draw attention to a word in print.²⁸⁹ The taxonomy also identifies various ways in which type can move on screen (for example, 'panning' or 'scrolling'), but curiously, these are classified as methods of 'overflow handling', assuming that motion is a requirement of excess text contained within a

²⁸⁴ Ibid; Aernout de Beaufort Wijnholds, 'Typeface Classification,' Using Type: The Typographer's Craftsmanship and the Ergonomist's Research, 2006, accessed July 19, 2011, http://www.plainlanguagenetwork.org/type/utbo130.htm

⁵ Dixon, 'Typeface Classification.'

²⁸⁶ Silva and Farias, 'An Overview of Typeface Classifications,' 69.

²⁸⁷ Dixon, 'Typeface Classification.'

²⁸⁸ Alfred Bork, 'A Preliminary Taxonomy of Ways of Displaying Text on Screens,' Information Design Journal 3, no. 3 (1983): 207. ²⁸⁹ Ibid., 207.

small screen, rather than a design feature.²⁹⁰ This assumption may be largely due to the time at which Bork's taxonomy was compiled (in 1983 when the field of motion graphics was still in its infancy). Bork was perhaps not in a position to identify the more complex examples which had been produced before this time, using hand-made rather than digital means, and therefore perhaps not considered relevant to his study. A contemporary typology must allow for more recent trends in temporal typography, which, although possible using manual techniques, are largely created using recent technology and are often motivated by the presence of tools unique to digital media. In these environments, we must acknowledge not only motion but also other forms of kineticism, such as transformation.

This thesis presents a typology that is less about typefaces than it is about behaviours. In fluid artefacts, the form of a character (often a feature of a typeface) may dictate the means by which it can be transformed. Some fluid behaviours, for example, tend to feature modular characterforms as construction and deconstruction becomes more intuitive when primitives exist (see 5.2.4). However, these categories of behaviours are not dependent on typeface. As is evident from Harm van der Dorpel's 'I Wouldn't Normally...' (2005), letters may be deconstructed even if they are of a Roman (not modular) typeface. Other behaviours, such as *metamorphosis*, are also applicable to any typeface. As recent taxonomies show (notably that of Yin Yin Wong, the shortcomings of which are identified in 2.3.2), concerns other than typeface become relevant when addressing temporal typography.²⁹¹

Since the behaviours exhibited in temporal typography are not dependent on, or directly linked to typeface, we must also consider taxonomies of transformation in compiling a typology of fluidity. It is transformation (the adoption of new identities over time) which characterises fluid typography, and arguably, therefore, this typology may be more usefully informed by taxonomies of behaviour (specifically the transformation of objects) than of typefaces or typography.

Various typologies exist in those fields which describe processes of transformation. These must be distinguished from taxonomies of transitions, which identify the processes by which one thing may be replaced by another. Typologies which specifically focus on the ways in which a form may be transformed include Sophia Vyzoviti's investigation into the many

²⁹⁰ Ibid., 210-11.

²⁹¹ Wong, 'Temporal Typography: Characterization of time-varying typographic forms.'

ways a flat plane may be transformed into a three-dimensional object. Vyzoviti identifies numerous processes which can transform the shape of a flat surface (including 'crease, fold, twist, revolve, coil' and 'knot'), all of which are divided into the general categories, 'ruling', 'triangulating', and 'crumpling'.²⁹² Communication design writer Per Mollerup has produced two taxonomies that have informed this thesis, including a taxonomy of trademarks that divides trademarks according to semiotic categories, and Collapsibles, which identifies a number of processes through which a form may become 'collapsible'.²⁹³ In the second of these taxonomies, Mollerup categorises the ways in which volume may be redistributed, focusing on consumer products which collapse in order to 'reduce the physical space that [they] occupy'.²⁹⁴ Like Vyzoviti, he identifies 'folding', and 'creasing', but also introduces the further categories of 'assembling', 'hinging', 'rolling', 'sliding', 'nesting', 'inflation', 'fanning', and 'concertina'.²⁹⁵ Most of these transformations result in the adoption of one of 'two opposite states, one...passive, one...active'.²⁹⁶ In one state, collapsibles are functional, in the other, they serve no purpose except for the potential to be expanded into their active state. In their passive state, since they are inactive, they are not named and not given an additional identity. A folded umbrella is still an umbrella, just in a different state.

A key distinction which can be made between Vyzoviti's and Mollerup's studies is that Mollerup describes whole processes of transformation, whereas Vyzoviti identifies process parts. An assumption made by Vyzoviti is that there must be 'a chain of surface transformations' to complete the transformation from plane to object.²⁹⁷ Indeed, it is the case that many transformations do require a complex combination of processes in order to be fully transformed from one thing to another. The 'fold' as identified by Vyzoviti is a single fold, which rarely in itself completes the transformation. In other fields, notably origami, a combination of single folds (and other processes, such as inflating) are required to transform paper into models of objects. Existing classification systems for origami folds (see, for example, Robert J. Lang) identify the different styles of fold, none of which are

²⁹² Sophia Vyzoviti, *Supersurfaces* (Amsterdam: BIS Publishers, 2006), 7.

²⁹³ Per Mollerup, *Marks of Excellence* (London: Phaidon, 1998), Per Mollerup, *Collapsibles: A Design Album of Space-Saving Objects* (London: Thames & Hudson, 2001).

²⁹⁴ Ibid., 14.

²⁹⁵ Ibid., 34; 52; 77; 88; 126; 134; 145; 153; 163; 167.

²⁹⁶ Ibid., 11.

²⁹⁷ Vyzoviti, Supersurfaces, 8.

independently responsible for a complete transformation.²⁹⁸ Many folds must be combined, and it is the particular combination which decides the nature of the overall transformation. When Mollerup discusses 'folding', however, he identifies the act of folding as a combination of multiple folds, which, seen as a single complex process, does have the potential to radically change an object.

A central concern for studies of fluidity is the distinction between change in shape and change in identity. A form may become malformed without adopting a new identity. As well as forms that simply have active and passive states, Mollerup also identifies objects which have multiple active states, so that both poles of the transformation are equally functional. When transformation leads to different states which serve two distinct functions, each state is perceived as having its own, separate identity. The Ottakringer ladder-chair, for example, is in one state a chair, and in another a ladder.²⁹⁹ Its two states – folded and unfolded – serve two different functions and hence have two different identities. Because each state is useful, neither is considered passive or inferior. It is this kind of transformation that is exhibited in fluid artefacts. In fluid behaviours, all poles are significant, and are so significantly different that they are given two separate identities. Each pole is recognised as a sign with a distinct meaning, and so is perceived as having a distinct identity. The same object, in different states, has many identities, adopted at different stages of transformation. Each of these identities is as functional and as informative as the others.

Other texts, though they do not present extensive typologies, make useful distinctions between different kinds of transformation. Jonas Gomes et al. identify 'continuous deformations', such as growth and decay, which are distinctly more biological than the transformations identified by Mollerup and Vyzoviti.³⁰⁰ This kind of transformation, despite being continuous with no distinct steps, can lead to the adoption of distinct identities: a tadpole may become a frog, and a caterpillar may become a butterfly. With the tendency of human language and mind to manage our environment as signs, even continuous change, an analogue process, is perceived as having a number of stages or poles. By naming things, we reduce 'the continuous to the discrete', and perceive binary oppositions in our

²⁹⁸ Robert J. Lang, *Origami Design Secrets: Mathematical Methods for an Ancient Art* (Massachusetts: A K Peters, 2003).

²⁹⁹ Mollerup, Per, Collapsibles, 21.

³⁰⁰ Jonas Gomes, Lucia Darsa, Bruno Costa and Luiz Velho, *Warping and Morphing of Graphical Objects* (San Francisco: Morgan Kaufmann Publishers, 1999), 4.

surroundings.³⁰¹ Much communication, as Chandler observes, requires this reduction despite that fact that much of our world, and many human experiences, are analogue, involving 'graded relationships on a continuum'.³⁰² This factor will again become a concern when fluid *metamorphosis* is addressed in 5.3.3.

While permitting variation, the division of categories in a typology must follow a consistent method. As will be shown in 4.2, there is already consistent use of some terminology, enough to allow for the creation of a typology of the main categories of temporal typography using existing common ideas outlined in 2.3. More detailed aspects of the typology presented in this thesis, in particular the categories of fluid behaviour, have not been explored by existing texts enough to yield possible categories. It is therefore necessary to develop a method which identifies key features of fluid behaviours, and distinguishes them from one another. For this purpose, Gestalt laws of perceptual organisation will be employed. These laws, and their particular relevance to typography, will be explored in 3.3.

³⁰¹ Chandler, *Semiotics*, 46.

³⁰² Ibid.

3.3 Gestalt and its Application in Typography

The Gestalt movement, pioneered by Max Wertheimer (1880 – 1943), Kurt Koffka (1886 – 1941) and Wolfgang Köhler (1887 – 1967) emerged in Germany in 1912 and, until 1933, exercised 'a dominating influence on German psychology'.³⁰³ Key Gestalt papers focus on the perception and interpretation of grouped objects, and smaller objects located within larger objects or environments. These largely relate to the tendency to group or organise objects which may or may not be associated. Their theories generally 'stress the predominance of the whole over the parts' proposing that observers tend to perceive any object only in relation to its surroundings:³⁰⁴,

There are wholes, the behaviour of which is not determined by that of their individual elements, but where the part-processes are themselves determined by the intrinsic nature of the whole. It is the hope of Gestalt to determine the nature of such wholes.³⁰⁵

Here, Wertheimer proposes that the individual considers himself only in relation to his community or society, and acts with regard to 'their mutual concern'.³⁰⁶ These same principles are applied to our perception of other objects, including abstract patterns and shapes. Gestalt theories can broadly be broken down into two 'underlying principles', firstly 'the mosaic or "bundle" hypothesis' (that 'every "complex" consists of elementary contents or pieces'), and secondly 'the association hypothesis' (that if any object or scenario is frequently experienced alongside another, there is a tendency for one to 'call up' the other).³⁰⁷ The first of these principles is broadly applicable in all lettering and typography, in that letterforms can be considered a collection of parts (strokes in handwriting, or more regular parts in type), but are perceived as more complex wholes, and likewise that words are collections of letters. This distinction between the perception of the global and the local is recognised in typographic practice, where the practices of typeface design and typography (the application of typefaces) are considered distinct. However, as was observed in 2.3.3, it

³⁰³ David J. Murray, *Gestalt Psychology and The Cognitive Revolution*, (Hertfordshire: Harvester Wheatsheaf, 1995), 1.

³⁰⁴ Ibid., 12.

³⁰⁵ Max Wertheimer, 'General Problems, Section 1: Gestalt Theory,' in Willis D. Ellis, *A Source Book of Gestalt Psychology* (London: Routledge & Kegan Paul Ltd., 1938), 2.

³⁰⁶ Ibid., 6.

³⁰⁷ Ibid., 12.

is a distinction that is not explicitly addressed in existing texts which discuss temporal typography. This distinction, which is considered so vital in studies of perceptual organisation, is key to identifying forms of temporal typography that feature more complex change than simple directional motion.³⁰⁸

Key to studies of typography is Wertheimer's 1923 paper, 'Laws of Organisation in Perceptual Forms', which lists a number of core Gestalt theories of visual perception.³⁰⁹ These laws are of particular relevance to fluid artefacts, as fluid behaviours often take advantage of one or more of these methods of organization, and, as observed below, their significance to static typography has been acknowledged. Each of these laws describes ways by which separate parts are perceived as associated parts of a significant whole:

'The Factor of Proximity'³¹⁰ •

> This law states that objects that are located close to one another will be perceived as being associated with one another, i.e. as belonging to a group, or as parts of a larger whole (see Fig. 31).

'The Factor of Similarity'³¹¹

Objects which share similar properties are assumed to have association with one another. These similar properties may be, for example, visual properties such as shape or colour (see Fig. 32).

'The Factor of Uniform Destiny' (or 'Common Fate')³¹²

Objects which appear to share direction will be associated (see Fig. 33).

³⁰⁸ Distinctions between global and local properties are explicitly acknowledged throughout texts including Michael Kubovy and James R. Pomerantz, ed. Perceptual Organization; Johansson et al. eds Perceiving Events *and Objects.*³⁰⁹ Max Wertheimer, 'Special Problems, First Group: Perception, A. Perception and Organisation, Section 5:

Laws of Organization in Perceptual Forms,' in Ellis, A Source Book, 71-88.

³¹⁰ Ibid., 74.

³¹¹ Ibid., 75.

³¹² Ibid. p.78.

Figure 31. *The Factor of Proximity*. Objects located close to one another are perceived as belonging to a group. Adapted from Wertheimer, 'Special Problems, First Group,' 72, Fig. iii.

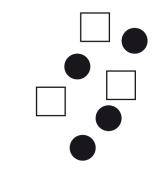


Figure 32. *The Factor of similarity*. Objects with similar properties are perceived as belonging to a group. Here, the squares and circles are perceived as 2 different groups. Adapted from Wertheimer, 'Special Problems, First Group,' 77, figs. xx and xxi.

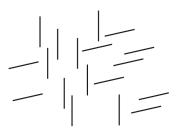


Figure 33. *The Factor of Uniform Destiny*. Objects which appear to share direction are associated.

Here, the vertical lines are perceived as one group, and the slanted lines as another. Adapted from Richard Karl Brath, 'Effective Informtaion Visualization: Guidelines and Metrics for 3D Interactive Representations of Business Data' (MSc diss., University of Toronto, 1999), accessed February 4, 2011, http://www3.sympatico.ca/blevis/ty hesis49.prev.html

'Prägnanzstufen' (also known as *'The law of Prägnanz'*, *'law of good configuration'*, *'law of simplicity'* or *'law of pregnancy'*³¹³)

The simplest arrangement of elements is likely to be perceived first (see Fig. 34). When presented with a series of complex elements, we are likely to perceive them as being parts of a simpler whole (where 'simple' arrangements are those 'having fewer rather than more elements, having symmetrical rather than asymmetrical compositions, and generally observing the other 'Gestalt principles of perception', or, as suggested by Julian Hechberg, the 'organisation which requires a minimum number of components (lines, angles and the like) to specify it').³¹⁴ Irvin Rock suggests that past experience may influence our

³¹³ Butler at al. Universal Principles, 120.

³¹⁴ Ibid.; Irvin Rock, *An Introduction to Perception* (New York: Macmillan, 1975), 271; Kendra van Wagner, 'Gestalt Laws of Perceptual Organisation: The Law of Pragnanz,' *About: Psychology*, 2006, accessed July 19, 2011, <u>http://psychology.about.com/od/sensationandperception/ss/Gestaltlaws 3.htm</u>

understanding of a form as 'simple'.³¹⁵ This law may, on such occasions, apply to common or familiar rather than physically simple forms.

• 'The Factor of Direction' (or 'the law of continuity', or 'good continuation')³¹⁶

When a line (or objects arranged in a way that indicates a line) is perceived, which appears to have one or more branches, the branch which follows the direction of the original line most faithfully is perceived as being the continuation of the original path, and others are perceived as appendages (see Fig. 35).³¹⁷

• 'The Factor of Closure'³¹⁸

Objects that are close together are perceived as being part of a whole, to the extent that gaps between them may be imagined to be 'closed', forming complete shapes or borders (see Fig. 36).³¹⁹ Wertheimer notes than in many cases this is not the dominant factor – others may predominate.

• 'The Factor of the 'Good Curve''³²⁰

If continuity from one line to another is perceived (for example, if the angle or direction of a single line is continued into another), this may override other perceived shapes or groupings, as would otherwise be perceived according to Gestalt laws.

³¹⁵ Rock, An Introduction to Perception, 274.

³¹⁶ van Wagner, 'Gestalt Laws of Perceptual Organisation'; Samba Silla, 'Gestalt Rules the Corner of your Eye,' 2003, 5, accessed July 19, 2011, <u>http://www.psych.nyu.edu/pelli/docs/SambaSillaIntel.pdf</u>; Wertheimer, 'Special Problems, First Group,' 81.

³¹⁷ Ibid.

³¹⁸ Ibid., 83.

³¹⁹ Ibid.; Silla, 'Gestalt Rules the Corner of your Eye,' 5.

³²⁰ Wertheimer, 'Special Problems, First Group,' 81.



Figure 34. The law of Prägnanz. When an arrangement may have different interpretations, the simplest possible arrangement will be perceived. Here, three circles with sections removed are perceived instead as three complete circles, with a larger triangle layered on top. This effect is dependent on perception of the global whole, as a single configuration rather than three unconnected shapes. Adapted from James R. Pomerantz, and Michael Kubovy, 'Perceptual Organization: An Overview,' in Kubovy and Pomerantz, Perceptual Organization, 447.

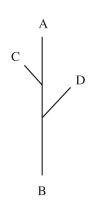


Figure 35. The Factor of Direction. A branch which appear to continue from the original direction of a line is perceived as a continuation of that line. Here, it is assumed that the line AB is a direct path, while C and D are perceived as appendages. Adapted from Wertheimer, 'Special Problems, First Group,' 81, Fig. 11.

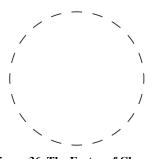


Figure 36. The Factor of Closure. Gaps in objects or lines are perceived as 'closed', to enable the perception of a single form rather than many separate forms. Adapted from T.M. Caelli, B. Julesz and E.N. Gilbert, 'On Perceptual Analyzers Underlying **Visual Texture discrimination:** Part II,' Biological Cybernetics 29 (1978): 201-214. Repoduced in Bela Julesz, 'Figure and Ground **Perception in Briefly Presented** Isodipole textures,' in Kubovy and Pomerantz, Perceptual Organization, 43, Fig. 2.16.

Several of these laws have been applied in analyses of typography. Processes of grouping, according to Wertheimer's laws, are discussed by several texts which make reference to their effects on type or lettering. *Similarity* and *proximity* are acknowledged as important in typographic layout by, for example, Mike Cuena and Femke Straatsma.³²¹ Straatsma proposes that 'information that is associated should have a similar typographic layout', and that 'headings [should be] put in close proximity with the text it is associated with [sic]'.³²² Cuena demonstrates how *proximity* affects readability, showing that word spacing must be larger than letterspacing, in order to allow readers to separate words. He further demonstrates the effect of *similarity* by showing how difference (in typeface, size, case, etc.) helps to distinguish between the different functions of type on a page (for example, to

³²¹ Cuenca, 'Gestalt and Typography'; Straatsma, *Typically Typographic*, 33-34.

³²² Ibid., 34.

distinguish headings from body text). Here, typeface becomes relevant in observations of similarity. Where the same type style (typeface, size, weight) is used, type is assumed to have the same function, and words are assumed to be directly associated.³²³ Bernhardt also acknowledges the importance of *similarity* in printed type, particularly in grouping separate parts of the document.³²⁴ Jacob Beck proposes that an arrangement of many elements, when grouped by similarity, will be perceived as a pattern.³²⁵ He further reveals that, when this occurs, forms that are of the same orientation are more likely to be perceived as associated than forms of the same shape (at different orientation).³²⁶ Beck's experiments demonstrate an arrangement of letterforms that is likely to be interpreted not as text but as a pattern or texture.327

Butler et al.'s Universal Principles of Design observes how Wertheimer's Factor of Proximity can influence legibility, referring to layout of whole words, but not to the individual letterforms.³²⁸ In describing the Factor of Common Fate, Universal Principles of Design utilizes Xs and Os³²⁹, but presents them as arbitrary symbols rather than as meaningful letters. The same text illustrates Prägnanzstufen (referred to in this instance as the 'Law of Prägnanz') with examples of faces constructed from symbol characters (colon, semi-colon, hyphen and bracket).³³⁰ It does not, however, acknowledge that alphabetic characters may be used similarly.

Among key Gestalt papers, there is one useful reference to the potential applications of Gestalt theory on typography.³³¹ In demonstrating *Prägnanz* and the *factor of direction*, Wertheimer shows how an unfamiliar arrangement can cause letters to become illegible. Wertheimer demonstrates that 'M' and 'W' can be arranged (with the 'W' directly above the 'M') so that they are no longer recognisable as letters, but are perceived as a diamond shape, flanked by two vertical lines (see Fig. 37).³³² His observation is particularly useful to this

³²³ Cuenca, Mike, 'Gestalt and Typography.'

³²⁴ Bernhardt, Stephen A., 'Seeing the Text,' 72.

³²⁵ Jacob Beck, 'Similarity Grouping and Peripheral Disciminability Under Uncertainty,' The American Journal of Psychology 85, no. 1 (1972), as cited in Rock and Palmer, 'The Legacy of Gestalt Psychology,' 87.

³²⁷ Ibid., 87 and 90.

³²⁸ Butler et al., Universal Principles of Design, 170.

³²⁹ Ibid., 40-41.

³³⁰ Ibid., 21.

³³¹ See Willis D. Ellis, A Source Book of Gestalt Psychology (London: Routledge & Kegan Paul Ltd., 1938).

³³² Wertheimer, 'Special Problems, First Group,' 87.

investigation of fluid typography, which, by definition, shifts between verbal and non-verbal identities.

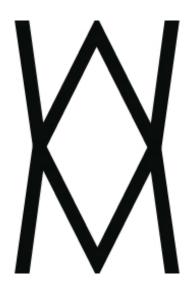


Figure 37. W and M arranged so that they are perceived as a single abstract form. Illustration adapted from Wertheimer, 'Special Problems,' 87, Fig. 35.

Wertheimer's observation appears to have directly influenced a few more recent texts. David Navon observes a similar phenomenon in discussing the reliability of Gestalt principles. Navon demonstrates that smaller letters may be arranged to present a single larger letter.³³³ Navon's intention is not to demonstrate a particular Gestalt factor, but to demonstrate the general Gestalt principle that the whole is identified more readily than its parts. The important distinction between his example and that of Wertheimer, is that there is no ambiguity between letter and image, only between the local and global view of the letter. This difference in the apparent identity of local components and the global whole is vital to this thesis (see 2.3.3).

Wertheimer was not the only Gestalt psychologist to introduce notions that are important to typographers. In 1921, Edgar Rubin observed that elements in an image 'can be interpreted either as object ('figure') or as the surface behind it ('ground').³³⁴ The principle of *surroundedness* suggests that 'the inner surrounded region tends to be seen as *figure*' and

³³³ Rock and Palmer, 'The Legacy of Gestalt Psychology,' 89.

³³⁴ Ibid., 85.

other regions or elements tend to be seen as ground.³³⁵ In artefacts where there is figure/ground ambiguity, this may be resolved by size, past knowledge or experience of the image, symmetry, or indicators that an element may be located below or above another. Several texts identify the importance of figure/ground relations to typography. Stephen Bernhardt and Femke Straatsma both observe that a strong *figure/ground* contrast make type more readable, while Elizabeth Keyes observes that an 'overloaded' layout can cause *figure/ground* reversal, leading to illegibility.³³⁶ A number of typographic works also explore the *figure/ground* relationship, including David Broderick's *Figure Ground* Typography (see Fig. 38). A recent work of temporal typography by Colleen Ellis, ABCing (2010), which may be classified as fluid, was directly inspired by Gestalt theory, and acts as an exploration between the typographic *figure* and the *ground* on which it appears. Ellis' project will be explored in more detail in Chapter 5.2.3. Woolman and Bellantoni, in their first collection of 'type in motion' also present projects by students at the California Institute of the Arts, produced in response to a brief which focused on 'figure-ground relationships'.³³⁷ This brief suggests that 'basic Gestalt theory' may be relevant to temporal typographic artefacts, but provides no further exploration or explanation. Woolman and Bellantoni's tentative links between *figure/ground* relationships and temporal typography suggest that further exploration is needed.

³³⁵ Ibid.

³³⁶ Bernhardt, 'Seeing the Text,' 72; Straatsma, *Typically Typographic*, 183; Elizabeth Keyes, 'Typography, Color, and Information Structure,' *Technical Communication* 40, no. 4 (1993): 644, accessed July 19, 2011, http://rpi.campusconcourse.com/get_file?file_id=173

³³⁷ Woolman and Bellantoni, Moving Type, 107.



Figure 38. David Broderick's *Figure Ground Typography: Q and G* (2008) shows how Gestalt principles have inspired typographers. In this example, figure becomes ground as 'G' is formed from negative space. Each possible interpretation of this arrangement – as black figure on white ground, or white figure on black ground – permits only one of the two letters. Source: David Broderick, 'It's Getting Heavy in Here,' 2008, July 18, 2011. <u>http://davidbroderickcomedes.blogspot.com/2008/09/figure-ground-typography.html</u>

With the exception of the few examples of temporal *figure/ground* interaction listed above, Gestalt laws of perception as described above seem largely applicable in static environments, but applications of these and other laws are also possible, and useful, in temporal environments. In addition to his initial laws of organization, Wertheimer later introduced principles that provided similar methods of analysis for environments in which objects are in motion. The factor of *'common fate'* describes the perception of objects in motion, suggesting that, where 'units move in the same direction at the same speed' they will be associated with one another'.³³⁸ Other theorists have also explored how Wertheimer's first group of laws may be useful in the analysis of temporal sequences. Mary C. Dyson and Anthony J. Watkins apply the Gestalt laws of *good continuation* and *proximity* to the temporal medium of melody.³³⁹ There is also some limited reference to specific Gestalt principles in discussions of temporal typography, in particular, texts which explore kinetic poetry. In discussing 'poetics of textual motion', Teemu Ikonen briefly acknowledges the

³³⁸ Ibid., 257-258.

³³⁹ Mary C. Dyson and Anthony J. Watkins, 'A figural approach to the role of melodic contour in melody recognition,' *Perception &Psychophysics* 35, no. 5 (1983): 478. accessed July 19, 2011. http://www.springerlink.com/content/h72m005u22k2423u/fulltext.pdf

connection between Wertheimer's *phi-phenomenon* and kinetic poetry.³⁴⁰ There are also texts that suggest a connection between temporal typography and other Gestalt laws, though these are few and far between, and they often do not reference Gestalt directly. Karprinska describes her interactive, transient poem, The Arrival of the beeBox (2003) as in part a demonstration of Tobler's 'first law of geography',³⁴¹ that 'near things are more related than distant things'.³⁴² This 'spatial dependence'³⁴³ is a property described in similar terms in Wertheimer's Factor of Proximity.³⁴⁴

3.3.1 Current thinking in Gestalt Psychology

In the years since Wertheimer and his peers formed their principles of perceptual organization, these laws have been reassessed, although never entirely undermined.³⁴⁵ Their continuing usefulness is evidenced in a number of texts which propose and assess the application of Gestalt laws in contemporary media and practices. In particular, recent texts have explored the applicability of Gestalt principles in temporal and screen-based media, such as those that contain temporal typography.

Some papers have gone so far as to reassess or even reject outright certain aspects of Gestalt thinking. Julian Hochberg presents a case for the rejection of 'gestalt explanations of form', arguing that they are not universally applicable or predictable, and that the reality of most 'normal conditions' does not match the tightly controlled and reductionist experiments carried out by Gestaltists.³⁴⁶ Hochberg instead favours a view previously expressed by Helmholtz, that a viewer's perception is a response to likelihood rather than simplicity.³⁴⁷

³⁴⁰ Ikonen, 'Moving Text.' Ikonen's text reads, 'the appearing and disappearing [observed in "textual motion"] can in some cases be perceived as motion (as in the "phi phenomenon" discussed in Gestalt psychology.

Aya Natalia Karprinska, 'The Arrival of the beeBox: an Exploration of Spacial Text,' 2003, accessed July 19, 2011, <u>http://technekai.com/box/beeBoxPaper.pdf</u> ³⁴² Waldo Tobler, 'A Computer Movie Simulating Urban Growth in the Detroit Region,' *Economic Geography*

^{46,} no. 2 (1970): 42, cited in Ibid. ³⁴³ Karprinska, 'The Arrival of the beeBox.'

³⁴⁴ Wertheimer, 'Special Problems, First Group,' 74.

³⁴⁵ See, for example, Rock and Palmer, 'The Legacy of Gestalt Psychology,'

³⁴⁶ Hochberg, 'Levels of Perceptual Organization,' in Kubovy and Pomerantz, Perceptual Organization, 263-266; Julian Hochberg, 'Gestalt Theory,' in The Oxford Companion to the Mind, 2nd edition, ed. Richard L. Gregory (Oxford: Oxford University Press, 2004), 374. ³⁴⁷ Hochberg, 'Gestalt Theory', 375; Herman von Helmholtz, *Treatise on physiological optics* Vol. 3, trans. J.P.

Southall (New York: Dover, 1962); James R. Pomerantz, and Kubovy. Michael, 'Theoretical approaches to perceptual organization: Simplicity and likelihood principles,' in Handbook of perception and human performance, Vol. 2: Cognitive processes and performance, ed. Kenneth R. Boff, Lloyd Kaufman, and James P. Thomas, (Oxford, England: John Wiley & Sons, 1986), 9.

The chance of viewer perception adhering to Gestalt principles is an issue of 'probability' rather than certainty, with the likelihood of a certain perception having been a result of 'the frequency with which [a form] occur[s] in the course of our acting with the world'.³⁴⁸

More often, where papers reassess Gestalt, they stress its continuing reliability and applicability. In their exploration of 'object recognition' Pelli et al. stress that 'nearly a century [after their conception], the laws have upheld well... None have been rejected'.³⁴⁹ Indeed, Lisa Graham observes that 'Gestalt theory is still... thriving', particularly in the field of 'visual communication'.³⁵⁰

In recent years, Gestalt laws of perceptual organization have been applied in the design and analysis of screen-based media, particularly in web-design and user-interface design.³⁵¹ These texts argue that Gestalt laws, which have previously been applied in static arts disciplines, may similarly be applied when artefacts 'include motion and interaction'.³⁵² As in analysis of static and temporal typography, these texts often focus on global layout rather than the design of individual forms at a local level. Increasingly, however, there are texts which refer to the screen-based presentation of typography in ways that have a bearing on individual letterforms. In exploring the applications of Gestalt theory in 'visual screen design', Chang et al. introduce the laws of Pragnanz and closure using examples of 'unfinished' letterforms.³⁵³ Though the text does not explicitly state that these letterforms may be on-screen, its subsequent investigation into interface design implies that the laws may be as applicable to letterforms in screen-based environments as they are in print. Similarly, Pelli et al. explore Gestalt perception of letterforms that have been 'perturbed' (shifted and degraded).³⁵⁴ In using software to achieve this experiment, show that any Gestalt understanding of a letterform that is applicable in a print medium is also applicable in screen-based environments.

http://dl.acm.org/citation.cfm?id=820062&dl=ACM&coll=DL&CFID=78073609&CFTOKEN=85642032 ³⁵² Graham, 'Gestalt Theory in Interactive Media Design,' 2.

³⁴⁸ Hochberg, 'Levels of Perceptual Organization,' 263.

 ³⁴⁹ Denis G. Pelli et al., 'Grouping in Object Recognition: The role of a Gestalt law in letter identification,' *Cognitive Neurophsychology* 26:1 (2009): 37, accessed April 18, 2012, doi: 10.1080/13546800802550134
 ³⁵⁰ Lisa Graham, 'Gestalt Theory in Interactive Media Design,' *Journal of the humanities and social sciences* 2, no.1 (2008): 2, accessed April 18, 2012,

http://subversion.assembla.com/svn/videojuegos2d/trunk/Libros/1288.pdf

³⁵¹ See, for example, Graham, 'Gestalt Theory in Interactive Media Design'; Dempsey Chang, Laurence Dooley, and Juhani E. Tuovinen, 'Gestalt Theory in Visual Screen Design – A New Look at an Old Subject,' *CRPIT '02 Proceedings of the Seventh world conference on computers in education conference on Computers in education: Australian topics* 8 (2002), accessed April 18, 2012,

³⁵³ Chang et al., 'Gestalt Theory in Visual Screen Design.'

³⁵⁴ Pelli et al., 'Grouping in Object Recognition,' 41.

As a result of increasing ubiquity of temporal media, other theorists have begun to explore the possibilities of Gestalt relationships in temporal environments. In a 2007 PhD thesis, Jinsook Kim explores theories of 'motion Gestalt'.³⁵⁵ Kim's thesis extends 'grouping principles in Gestalt theory to accommodate the element of time', applying Gestalt theory in the description and analysis of 'dynamic unfurling patterns' in on-screen environments.³⁵⁶ Kim notes that Wertheimer's law of *common-fate* (in Wertheimer's original terms, 'uniform destiny') implies motion, even when it is used to describe static arrangements.³⁵⁷ Other factors, which are intended to describe static groups, Kim argues, may be imagined as experiences rather than images. He observes that *proximity, similarity, common-fate* and *good-continuation* are present in music, a temporal medium, and may therefore be equally applicable in descriptions of visual temporal artefacts.³⁵⁸ Kim concludes that, in a temporal artefact: *proximity* may equate to frequency, so that elements are close in time rather than space; *similarity* may describe similarities in style of movement as well as visual properties; *good continuation* may be described loosely as 'flow', where events meet the audience's expectations.³⁵⁹

Kim's text proposes new terms for use in temporal media, each of which is equivalent to an existing Gestalt factor. The term 'motion proximity', for example, is proposed for the description of grouping by frequency.³⁶⁰ These new terms are required in addition to (rather than as replacements for) existing Gestalt laws, since there is a need to distinguish between the appearance and behaviour of objects. Both existing and new terms, and the factors they describe, may be simultaneously applicable. A temporal artefact may, for example, present forms that are proximate in space as well as in time, requiring the use of Wertheimer's factor of *proximity* alongside Kim's *motion proximity*.

It has been proposed that Gestalt laws, which govern human perception, can provide foundations for artificial simulations of perception. Angela Schwering et al. suggest that 'abstract knowledge of how humans perceive Gestalts allows [software] to [understand]

³⁵⁵ Kim, 'Motion Gestalt for Screen Design.'

³⁵⁶ Ibid., x.

³⁵⁷ Ibid., 31. The law of common-fate is described as 'uniform destiny', in Wertheimer, 'Special Problems, First Group,' 78.

³⁵⁸ Ibid., 45.

³⁵⁹ Ibid., 37-38.

³⁶⁰ Ibid., 44.

geometric figure[s] ... based on different Gestalt principles'.³⁶¹ Jun Ma proposes that some laws may be expressed as algorithms, which may be used to provide software with the ability to mimic human perception, and consequently draw conclusions about visual forms.³⁶² Ma outlines how the laws of *closure* and *good-continuation* may be expressed as an algorithm to 'recover' or 'fill-in' missing sections of incomplete images. Hence, Gestalt may be used to artificially 'recover structure' in 'a partly corrupt input image'.³⁶³ Similarly, Iguchi et al. propose an automated system that groups trademarks according to Gestalt laws of visual perception, aiming to artificially 'match human perception'.³⁶⁴ By reducing Gestalt laws to algorithms, the work of Ma, Schwering et al., and Ignuchi et al. imply that they are universal and objective. However, Ignuchi et al. observe that there are some 'factors [in human perception] that are difficult to quantify'. They recognize that 'subjective or past experience' influences human perception in a way that separates it from artificial, programmable models.

Other recent texts also question the universality of Gestalt laws, acknowledging that personal experience introduces subjectivity, and so influences the extent to which Gestalt laws govern perspective. Julia Moszkowicz observes that 'Gestalt is critiqued for its abstract and universalistic terms'.³⁶⁵ 'Post-war' interpretations of Gestalt principles, she argues, have tended to assume that the laws of Wertheimer and his peers described 'spontaneous brain functions' that were not influenced by 'experience... and learning'.³⁶⁶ 'Within these terms,' Moszkowicz acknowledges, 'Gestalt is problematic because it does not... embrace a conception of *meaning* or *reading* and is only interested in the *seeing* of forms'.³⁶⁷

Moszkowicz goes on to show that Wertheimer himself was 'critical of "logic", and that Gestalt's 'experiential concerns' were evidence of an 'interest in human subjectivity'.³⁶⁸

³⁶¹ Angela Schwering et al., 'Using Gestalt Principles to Communicate Analogies of Geometric Figures,' *Proceedings of the 29th Annual Conference of the Cognitive Science Society* (2007):1485, accessed April 18, 2012, http://csjarchive.cogsci.rpi.edu/proceedings/2007/docs/p1485.pdf

³⁶² Jun Ma, 'Image Filling-In: A Gestalt Approach,' *ICONIP* 2008 Part 1, LNCS 5506 (2009): 707-714, accessed April 18, 2012, doi: 10.1007/978-3-642-02490-0_86

³⁶³ Ibid., 708.

³⁶⁴ Hiromasa Iguchi et al., 'Recognition of Grouping Patterns in Trademarks Based on Gestalt Psychology,' *Electronics and Communication in Japan* 90, no. 10 (2009): 49, accessed April 18, 2012, DOI: 10.1002/ecj.10007

³⁶⁵ Julia Moszkowicz, 'Gestalt and Graphic Design: An Exploration of the Humanistic and Therapeutic Effects of Visual Organisation,' *Design Issues* 27, no. 4 (Autumn 2011): 57, accessed January 12, 2012, doi:10.1162/DESI a 00105

³⁶⁶ Ibid., 58.

³⁶⁷ Ibid., 58-59.

³⁶⁸ Ibid., 61, 66.

'Although Gestalt is bound up with *experiments* and... explicit laws, rarely is it suggested that these laws operate in exclusion of other types of thoughtful practice'.³⁶⁹ Indeed, as will be explored in 3.4, the use of Gestalt alongside 'other types of thoughtful practice', in this case, the semiotic method, may be one way of addressing this issue.

3.3.2 Gestalt and Issues of Character Recognition

Wertheimer's laws of perceptual organisation, outlined above, provide an explanation of how forms, groups, or 'wholes' are perceived. In typography, recognition of the whole – at a local level (the character) and at larger levels (the word and sentence) - is vital in communicating the presence of written language (in semiotics, a paradigm, see 3.4.1), and in organising those forms so that language can be subsequently be found meaningful. A few theorists and practitioners (including Patrick Moore and those identified in 3.3) have acknowledged the particular applicability of Gestalt to the analysis of typography.³⁷⁰ As with the texts introduced in 2.3, most of the explorations by Moore and others focus on the application of Gestalt to discuss global layout and juxtaposition of text and image, and in doing so take for granted the letter as a fully formed and fixed sign.³⁷¹ These texts satisfactorily deal with how Gestalt principles may be related to letter differentiation and defining letter context or function, but do not address the more fundamental issue of letter recognition. As Wertheimer himself observes, classifications too frequently ask audiences to make assumptions at an elemental level, and it is this problem that Gestalt attempts to address.³⁷² In typography, Gestalt remedies situations in which the letter is taken for granted within a whole paragraph or page. At this fundamental level, Gestalt describes how a reader may recognise a sign as a sign before she can become concerned with its precise value. There are some authors, including Andrew Williams, who acknowledge, if only implicitly, the importance of Gestalt factors in letter recognition. Williams notes that knowledge of some Gestalt factors (*similarity* and *proximity*) can lead to enhanced readability.³⁷³ Though

³⁶⁹ Ibid., 61.

³⁷⁰ Patrick Moore, 'Using Gestalt Theory to Teach Document Design and Graphics,' *Technical Communication* Quarterly 2, no. 4 (1993), accessed July 19, 2011,

http://www.public.asu.edu/~kheenan/courses/372/f03/Gestalttheory%20teaching.pdf ³⁷¹ Tova Rabinowitz, *Exploring Typography* (New York: Thompson Delmar Learning, 2003), 203; Moore, 'Using Gestalt'; Cuenca, 'Gestalt and Typography'; Straatsma, Typically Typographic, 33-34.

³⁷² Wertheimer, 'General Problems,' 4.

³⁷³ Andrew Williams, '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' (MSc

they make no distinction between typeface design and typographic layout, the authors do identify a particular 'Gestalt' typeface in which letterforms are only recognisable when appearing alongside other letters (and so are, in Barthes terms, 'anchored', see 3.4.1).³⁷⁴ It is particularly surprising to see so little discussion of letter recognition in Gestalt terms given that Wertheimer's original texts did, if only briefly, address this issue (see Fig. 37).

Stephen Bernhardt's 'Seeing the Text', is one of few discussions which deal directly with letter recognition/formation, observing that the laws of *closure* and *good continuation* are applicable in the process of reading 'poorly reproduced text'.³⁷⁵ Bernhardt observes that when letterforms are degraded so that parts are missing, readers 'fill in the missing gaps'.³⁷⁶ This observation about 'poorly reproduced text' is also applicable to other letterforms with incomplete contours, such as the modular lettering of Joseph Albers' Stencil (1926, Fig. 39). According to Gestalt's 'mosaic or "bundle" hypothesis', 'every "complex" consists of elementary contents or pieces', ³⁷⁷ Stencil is distinctly constructed from separate pieces, yet its letterforms are perceived as complex wholes. Al Wasco, though his text does not provide any detail, suggests that Josef Albers was among those influenced by Gestalt psychology, and Robert Waller notes the implicit influence of Gestalt theory in 1920s and 1930s typographic practice.³⁷⁸ Albers' *Stencil* typeface was produced only a few years after the publication of Wertheimer's Laws of Organisation in Perceptual Forms, and it is not inconceivable that Albers was aware of the factors of *closure* and *proximity*, which describes how the gaps between forms are imagined as closed so that the viewer may perceive a single complete sign as opposed to several separate shapes. Stencil presents modular letterforms that are compiled of interchangeable abstract parts. These parts, when viewed separately, may be perceived as entirely abstract, with no verbal meaning. It may be suggested, therefore, that without *closure* and *proximity*, these parts would not be perceived as parts of a more significant group, and therefore no verbal message would be communicated by Albers' typeface. Similarly, the De Stijl modular lettering addressed in 2.2.2 relies on the

diss., New Jersey Institute of Technology, 2006), 19, accessed July 19, 2011,

http://web.njit.edu/~aw59/pdf/writ_603.pdf

³⁷⁴ Barthes, *Image Music Text*, 40.

³⁷⁵ 'Good continuation' was originally described by Wertheimer as 'good curve', see Wertheimer, 'Special Problems, First Group,' 83; Bernhardt, 'Seeing the Text,' 72.

³⁷⁶ Ibid.

³⁷⁷ Max Wertheimer, 'General Problems, Section 2: The General Theoretical situation,' in Ellis, *A Source Book*, 12.

³⁷⁸ Al Wasco, 'Gestalt Principles,' *Introduction to Visual Communication*, 2004, accessed July 19, 2011, <u>http://www.awdsgn.com/classes/spr04/introvc/wk4/introvc-wk4.html</u>; Waller, 'The Typographic Contribution,' 26.

same perceptual process. The gaps between the regular primitives that are used in the construction of letterforms by van Doesburg and van der Leck require *closure* of the spaces between those letters to be conceived as whole.

abcdefighij klmnopqrs funnxyz

Figure 39. The modular letterforms of Joseph Albers' *Stencil* typeface (1926) are only recognised as complete verbal forms, as opposed to a collection of separate abstract shapes, as a result of *closure*. Source: Maletic, 'Linked by air.'

The application of Gestalt laws in these static environments introduces issues that are vital in understanding fluid behaviours. In fluid artefacts, characterforms come into being in view of the audience. The process of letter creation is thereby directly depicted, as behaviour. Therefore, the effects of those Gestalt laws that may be applied in the perception of whole forms in static typefaces, are directly observable in fluid artefacts. For example, just as collections of *proximal* abstract forms in Albers' *Stencil* are perceived as whole letterforms as a result of *closure*, Martin Lambie Nairn's Channel 4 idents directly depict separate shapes becoming *proximal*, and so achieving *closure*. In such examples, it is not only features of form, but also of motion that may be analysed according to gestalt laws; in this instance, *the factor of common fate* (also referred to as *uniform destiny*³⁷⁹). In the ident *Round and Back* (1982, Fig. 40), the *similarity* of coloured polygons, and of their speed and direction, causes them to become associated with one another, and disassociated from the

³⁷⁹ Wertheimer, 'Special Problems, First Group,' 78.

background. Their *proximity* as they converge enhances this perceived association. As they are converging, it is perceived that these polygons have a *common fate*. Then, as the polygons eventually align, *closure* causes them to be perceived as a single configuration. Throughout this sequence, the extent of the *similarity* between the polygons, and the strength of the need to perceive the gaps between them as closed, overrides the differences in their colour which may, in other circumstances, cause these polygons to be disassociated from each other. These and other Channel 4 idents will be discussed further in 6.2.

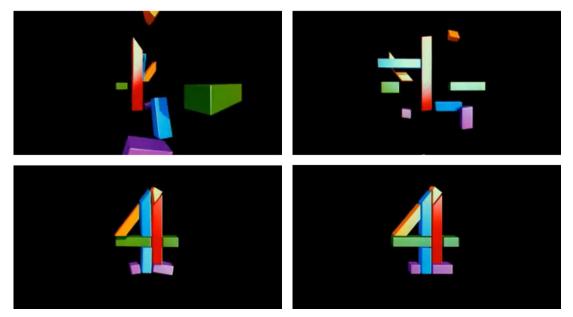


Figure 40. In Martin Lambie Nairn's Channel 4 ident (*Round and Back*, 1982), factors of *closure*, *similarity*, *proximity*, and *common fate* describe how a set of polygons are perceived as parts of a '4' configuration.
 This and other Channel 4 idents will be explored in more detail in 6.2. Source: 'Channel 4 ident,' *YouTube*, 2006, accessed July 18, 2011, <u>http://www.youtube.com/watch?v=R86TLuI51w</u>

Wertheimer's demonstration of a stacked 'M' and 'W' (see Fig. 37) closely resembles the outcome of some fluid behaviours. It is therefore reasonable to suggest that the same Gestalt principles could be used in the analysis of these contemporary examples. Overlapped letters appear in Harm van der Dorpel's *Propaganda Symbol Generator* (2005). As in Wetheimer's illustration, once the letters come into contact with each other, they can become unrecognisable as letters, instead appearing to present simpler shapes or patterns. In the stills shown here (Fig. 41), the letter 'r' is repeated in a ring. The letters remain legible until they converge, rotate and overlap. When this occurs, the 'r' form is no longer recognisable, instead the viewer perceives a single form, first a decorative spiral, and second, when the

letters rotate further, a spoked wheel. In the final stages of this sequence, the viewer is only aware of the form's verbal origins as a consequence of her past experience of earlier stages in the sequence. This occurs as a result of several Gestalt factors: *similarity, connectedness, continuation* (or *good curve*), and *Prägnanz*. When forms are similar, they cannot be distinguished from closely neighbouring forms according to their visual properties. Furthermore, when the direction of the contours of one letter appears to continue on from those of another letter, the two letters are assumed to be parts of the same form. These factors are aided overall by *Prägnanz*, which suggests that the viewer is more likely to perceive a single form that contains fewer elements, as opposed to multiple separate forms. For these reasons, the viewer is likely to perceive the separate forms as belonging to a single whole. This phenomenon occurs in many fluid characterforms, as letters in motion overlap so that the possibility of recognition of a verbal identity is held back. See 5.2.5 for further discussion of this artefact.



Figure 41. Stills captured from Harm van der Dorpel's *Propaganda Symbol Generator*, 2005. Here, similarity, connectedness, and continuation ensure that six separate 'r' letterforms are perceived as a single form when they overlap. When this has occurred, the separate verbal identities are lost, replaced by a single pictorial identity. Source: van der Dorpel, 'Propaganda Symbol Generator,' *Harmlog*.

Other consequences of temporality that are features of fluid behaviours may also be analysed according to Gestalt principles. Gestalt's central premise – that the whole is greater than the sum of its parts – is important in understanding how the different identities of a single form, if acquired at different stages of a sequence, are not independent but instead contribute to a whole, greater message. Forms proximal in time are as likely to be perceived as connected as those proximal in space, and fluid behaviours contribute to creating the connections between those forms and/or moments in a sequence. In Dan Waber's *Argument* (2005), a single 'string' reforms itself first into the word 'yes', then the word 'no' (see Fig. 42). Each of these is perceived as a different word, but each is formed from the same object. When they emerge in sequence, there is temporal *continuation* from one moment to another, so that the separate parts, 'yes' and 'no', contribute to the greater whole that is an 'argument'. This example will be explored further in 5.3.

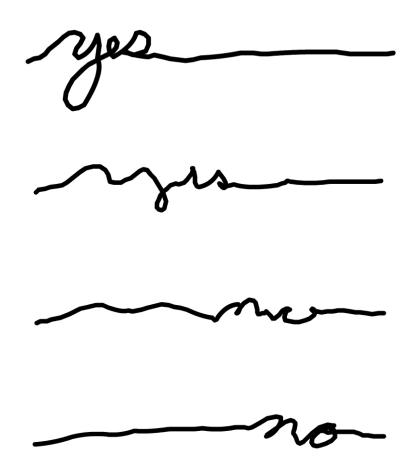


Figure 42. A string forms the word 'yes', then reforms into the word' no' in Dan Waber's *Argument*, 2005. The perception of this as an 'argument' depends upon the *good continuation* from one moment to another, and the subsequent understanding of each moment in the sequence as contributing to a greater whole, so that the words 'yes' and 'no' are responses to one another. Source: Dan Waber, 'Argument,' *Vispo*, 2005, accessed July 18, 2011, <u>http://www.vispo.com/guests/DanWaber/argument.html</u>

Examples such as these, which acquire meaning over time, may alternatively be described in semiotic terms, as having their meaning 'anchored' through temporal juxtaposition of signs.

This and further convergence of Gestalt and semiotics, and how both are useful in understanding fluidity, are explored next.

3.4 Gestalt as a Semiotic Code

Though this thesis focuses on the creation of a typology, and that typology is most directly influenced by Gestalt, there are also ideas from semiotics that inform the understanding of fluid artefacts. This section will introduce those notions in semiotics that are considered most important in analysing fluid behaviours and characterforms. The Gestalt principles of perceptual organisation, as introduced in 3.3, are vital in addressing how a fluid character is perceived as a whole form, however, it does not offer explanation as to how meaning is found in that form. Semiotics offers the concept of the sign, as differentiated from its surroundings (in many cases, equivalent to the Gestalt *figure* and *ground*), and the attribution of particular meaning to that sign. Where semiotics and Gestalt converge is in the understanding of Gestalt as a semiotic code.

There are several ideas from Gestalt which may be paralleled with ideas from semiotics. The Gestalt notion that individual forms are generally perceived as part of a larger group or whole, for example, reflects Ferdinand de Saussure's notion that we do not assess signs as independent units.³⁸⁰ For Saussure, whose *Course on General Linguistics*, along with the work of Charles S. Peirce, introduced many of the notions which are the foundations of the work of the more recent semioticians, proposed in this thesis that the meaning of signs is dependent on relations (syntagmatic and paradigmatic) and difference.³⁸¹ Gestalt theory also focuses on relationships; largely relationships between forms, or between forms and surroundings. Saussure's understanding of the sign and its context therefore mirrors a Gestalt understanding. Saussure's sign is a whole of interdependent parts (signifier and signified), and, in any instance of use of the sign, 'there are always larger units, composed of smaller units, with a relation of interdependence holding between both'.³⁸² The Gestalt suggestion that the whole is more than the sum of its parts aligns with Saussure's observation that in 'syntagmatic relation' 'the whole depends on the parts, and the parts

³⁸⁰ Ferdinand de Saussure, *Course in General Linguistics*, trans. Roy Harris (London: Duckworth, 1983), 127.

³⁸¹ Ibid., 126-127.

³⁸² Ibid., 69; Ibid., 126.

depend on the whole'.³⁸³ Although verbal units may be independent, they are generally interdependent in any given 'chain'.³⁸⁴ Moreover, semiotic analysis requires paradigmatic and syntagmatic relations to be analysed as parts of a whole, since these 'two dimensions cannot be considered in isolation'.³⁸⁵

Several other existing texts identify, or make implicit, junctures between semiotics and Gestalt. Where semiotics has not provided sufficient understanding of artefacts, theorists such as Pete Willows have used it in conjunction with Gestalt. Willows suggests that semiotics alone cannot wholly describe some temporal experiences, particularly change. Daniel Chandler warns that semiotics has particular limitations in temporal environments: in particular that using semiotics alone, it can be 'difficult to offer a critique of a shifting target which changes its form'.³⁸⁶ This limitation is a particular concern for this thesis, as it is this kind of transforming object, which 'changes its form', that appears in fluid typography. Pete Willows' analysis of mosaics addresses this limitation of semiotics by applying them in conjunction with ideas from Gestalt.³⁸⁷ Though not shifting or changing, mosaics offer the experience of a shift from tile to image, which is experienced temporally. Willows observes that, when encountering a mosaic, viewers must first be able to identify that an image exists within the tiles, before she can then go on to seek meaning in that image. That moment of understanding, when the viewer identifies that the arrangement of coloured tiles may be understood as an image, is described by Willows as a 'Gestalt shift'. A 'Gestalt shift' may occur in many similar scenarios, when viewers become aware of alternative visual arrangements in an artefact (when new knowledge or realization leads to the perception of a different pattern/arrangement/object). So, for example, a mosaic may initially be perceived as a number of separate coloured tiles, but a Gestalt shift occurs when the viewer is made aware of the image that the tiles are used to construct.³⁸⁸ This prompts what may be described in Semiotic terms as a paradigm shift, in which the tiles change from belonging to a paradigm of architectural objects, to a paradigm of image components. Fluidity involves similar shifts, which reflect Willow's accounts of mosaics. In fluid artefacts, Gestalt shifts occur as forms align or are revealed. These changes prompt paradigm shifts, from pictorial

³⁸³ Ibid.

³⁸⁴ Ibid. 126-127; Ibid. 70.

³⁸⁵ Daniel Chandler, *Semiotics: The Basics*, 2nd ed. (London?: Routledge, 2007), 83.

³⁸⁶ Ibid., 207.

³⁸⁷ Pete Willows, 'Gestalt Psychology, Semiotics and the Modern Arab Novel,' *AS/SA*, no. 15 (2005): 17-18, accessed July 19, 2011, http://www.chass.utoronto.ca/french/as-sa/ASSA-No15/article2en.html

³⁸⁸ Ibid., 17.

to alphanumeric, or vice versa: when objects change or realign, new Gestalt factors come into play, a Gestalt shift occurs, and a new sign is simultaneously revealed.

Although the texts discussed above identify overlap between Gestalt and semiotics, it is vital to note that the two cannot be considered substitutes for one another. Daniel Chandler proposes a means by which we can define the relationship between semiotics and Gestalt. Chandler suggests that the Gestalt laws of perceptual organisation can 'in semiotic terms... be seen as constituting a perceptual code'.³⁸⁹ The process of encoding discussed by semiotician Roland Barthes, involves organising what we see into a collection of signs.³⁹⁰ The Gestalt laws of perception explain precisely how objects and forms are allocated to one sign rather than another: how we encode our environment.

There is a notable difference between Gestalt laws of perception as a semiotic code, and other codes audiences may encounter. Codes are often assumed to be culturally variable.³⁹¹ Gestalt laws of perceptual organization, unlike many other codes, are unconscious and intuitive, applicable regardless of cultural origin. They are considered 'concrete', universal 'laws'.³⁹² It is argued that we are predisposed to interpret forms according to Gestalt factors of visual perception, regardless of knowledge or cultural background.³⁹³ This difference helps to resolve one of the limitations of semiotics. As Douglas Goodman observes, 'a semiotic approach can reveal anything about the messages that are actually transmitted', but 'what messages are produced, transmitted, and/or received are empirical questions, and they cannot be answered through any semiotic analysis into the possible meanings of the text'.³⁹⁴ Before meaning can be assigned to a sign, it must first be recognized, so that the viewer is prompted to seek meaning. Christian Lahausen observes how this situation applies throughout the field of graphic design. Lahaussen argues that 'human perception defines criteria for graphic design that are without semantic meaning' arising from ''natural'' conditions for the recognition of visual information'', such as those described in Gestalt

³⁸⁹ Chandler, Semiotics.

³⁹⁰ Roland Barthes, *Mythologies* (New York: Hill & Wang, 1987), 106.

³⁹¹ Thomas A. Sebeok, *Signs: An Introduction to Semiotics*, 2nd Ed., (Toronto: University of Toronto Press, 2001), 8.

³⁹² Wertheimer, 'General Problems', 3; Wertheimer himself describes his principles as 'laws'. See Wertheimer, Max, 'Special Problems, First Group,' 151.

³⁹³ Chandler, *Semiotics*, 152.

³⁹⁴ Douglas J. Goodman, 'Approaches to Law and Popular Culture,' *Law & Social Enquiry* 31, issue 3 (Summer 2006): 76, accessed July 19, 2011, <u>http://www3.interscience.wiley.com/cgi-bin/fulltext/118597060/PDFSTART</u>

psychology.³⁹⁵ It is only after 'human perception... configurates the visual [elements] into a figure' that 'culture defines, limits and potentiates the recognition of' a sign.³⁹⁶ Moszkowicz's reading of Wertheimer suggests that Wertheimer himself acknowledged a distinction between 'grasping a situation as it happens and making sense of it afterwards'.³⁹⁷ Perception and understanding of a meaningful sign is therefore a two-part process, which must involve first the recognition that a visual arrangement contains an arrangement, and second that the arrangement constitutes a particular sign. Within this study, Gestalt ideas are applied in addressing the first of these steps, and semiotics the second. Gestalt offers laws of perception which address the fundamental issues of how a form is recognised, and in doing so compensate for gaps left by semiotics alone. Conversely, semiotics offers a tool to understand meaning, and thereby addresses gaps left in the application of Gestalt alone. While semiotics may assign an interpretation to a sign, Gestalt can describe the sign at a more fundamental level, dictating how we identify a sign as distinct from its surroundings, and as at all significant.

In order to address the behaviours that lead to the formation of signs – the fluid behaviours that are the focus of this research – it is necessary to investigate what Lahaussen describes as the 'configuration' of signs,³⁹⁸ and Gestalt has been selected as a useful and cogent set of terms for analysing this. In order to understand the meaning of those signs once they have been configured, it is also necessary to introduce a method that explores the interpretation of signs, and semiotics has been applied within this study for that reason. The combination of Gestalt and Semiotics thereby provides, collectively, a more complete understanding of fluid forms than either method used in isolation, and the reading of Gestalt as a semiotic code helps to identify a point of convergence between these two separate methods. Examples of this method can be seen in Chapter 6, in particular in 6.2 where the formation of a sign (the figure 4) literally precedes the allocation of particular meaning to the sign once it is complete.

³⁹⁵ Christian Lahaussen, *The Rhetoric of Moral Protest: Public Campaigns, Celebrity Endorsement and Political Mobilization* (New York: de Gruyter, 1996), 170.

³⁹⁶ Goodman, 'Approaches to Law and Popular Culture,' 76.

³⁹⁷ Ibid., 62

³⁹⁸ Ibid.

3.4.1 A Semiotic View of Complex Signs in Typography

There are several other important ideas from semiotics which are applicable in studies of fluid artefacts. The semiotic method has been widely applied in studies of typography, including many of those outlined in Chapter 2 of this thesis.³⁹⁹ The oldest and most fundamental concept in semiotics, and one that is vital in exploring fluid characterforms, is that of the sign.⁴⁰⁰ The sign is a meaningful unit: in typography, this may be the character or word. In Saussure's model, the sign consists of the signifier (the physical part of the sign itself) and signified (its meaning). The signified may be divided further, into denotative meaning, and connotative meaning. The notion of the sign aligns with several ideas from Gestalt. First, it assumes that the meaningful 'sign' is distinct from its surroundings, and from other signs in that environment. The Gestalt notions of *figure* and *ground* explain a process by which a sign is perceived as distinct from its environment. Second, Gestalt focuses on the potential to perceive 'wholes': configurations that are perceived as having a shared purpose or identity. In linguistics, following Saussure, that whole may be a word, constructed from separate letters or phonemes that are associated, in Gestalt terms, by proximity. In typography, the whole may also be a letter, perceived as a single sign rather than a group of separate strokes as a result of those strokes' proximity, similarity, and good continuation.

The notion of the sign is fundamental to typography as it suggest that messages can be embodied in, and designated to, objects, shapes, etc. In static signs, as in print, meaning may be considered fixed to a certain extent. As Barthes argued, denotation (literal meaning) is as fixed as the sign itself, however connotations may vary depending on context, and the reader's unique knowledge and experience.⁴⁰¹ In fluid artefacts such as those that are the focus of this thesis, where characters change, single objects or shapes transform so that they become different signs. One fluid form, through transformation, comes to signify something new; adopting a new identity through a paradigm shift. It is the notion that a fluid form is a sign (that carries sets of particular meaning) that allows the transformation leading to the

³⁹⁹ See, among others, Hillner, 'The poetics of transition'; Tsur, 'Picture Poetry'; Stockl, 'Typography'; Gross, 'The Word Turned Image'; Georges Longrée, 'The Rhetoric of the Picture Poem,' *PLT* 1, no. 1 (1976); Robert Waller, 'The Typographic Contribution to Language' (PhD diss. University of Reading, 1988).

⁴⁰⁰ Paul Cobley, *The Routledge Companion to Semiotics* (Oxon: Routledge, 2010), 50; David S. Clarke, *Sources of Semiotic: readings with commentary from antiquity to the present* (Illinois: SIU Press, 1990), 11; Sebeok, *Signs*, 8.

 $^{^{40\}Gamma}$ It is important to note that this variation is usually limited to a common field of legitimate meanings. Barthes, *Image Music Text*, 142-148.

adoption of a new identity, to be distinct from a limited distortion that preserves the identity of the sign.

It is at this moment of change, when a new identity is adopted by a fluid form, that the notion of paradigm becomes important. Saussure introduced the 'systems' within which signs are categorised.⁴⁰² The sign is the 'basic unit' of any 'language', ranging from words to military signals, and it is within the context of this language that the sign is understood.⁴⁰³ Saussure viewed signs in relation to others, in the context, and in the same wider system. He identified 'associative' relations (more commonly, 'paradigmatic' relations) with other signs which could have been used in the same context.⁴⁰⁴ These alternative signs are vertically located within the same 'paradigm' (set of signs belonging to the same category).⁴⁰⁵ The context – in linguistics, the sentence – in which the sign appears, Saussure describes as the 'syntagm'. Saussure's text describes the meaning of signs as being affected by both syntagmatic and paradigmatic relations, and in doing so assumes that the sign appears alongside others signs from the same langue. The two broad paradigms which are of most significance to the interpretation or fluid typography are those of verbal character and image. Reflecting Saussure's experiences, it is frequently the case that signs are seen alongside others from the same paradigm. Characters, for example, frequently appear alongside one another in words, and words frequently appear alongside one another in a sentence. More recent semioticians have addressed this assumption by exploring the juxtaposition of signs from multiple paradigms. Social semiotician Roland Barthes, and media semiotician Jonathan Bignell, discuss signs which exist alongside those from other paradigms. Bignell observes how, in advertising, verbal and pictorial signs are juxtaposed to create a correlation between the meaning of the two.⁴⁰⁶ More specifically, Barthes observes 'anchorage', in which juxtaposed 'text *directs* the reader through the signifieds of the image, causing him to avoid some and receive others'.⁴⁰⁷By anchoring a sign, it is possible to establish a 'preferred reading'.408

⁴⁰² David Holdcroft, Saussure: Signs, System, and Arbitrariness (Cambridge: Cambridge University Press, 1991),

^{47.} ⁴⁰³ Gillian Rose, Visual Methodologies, 2nd ed. (London: Sage, 2007), 79; Saussure, Course in General *Linguistics*, 15 ⁴⁰⁴ Saussure, *Course in General Linguistics*, 123.

⁴⁰⁵ Hawkes, Structuralism and Semiotics, 26.

⁴⁰⁶ Jonathan Bignell, *Media Semiotics*, 2nd edition (Manchester: Manchester University Press, 2002), 34.

⁴⁰⁷ Barthes, *Image Music Text*, 40.

⁴⁰⁸ Stuart Hall, 'Encoding/decoding,' in Culture, Media, Language: Working Papers in Cultural Studies, ed. Centre for Contemporary cultural Studies (London: Hutchinson, 1877), 128-38, as cited in Chandler, Semiotics, 238.

In typography, particularly in fluid artefacts, signs transcend paradigmatic boundaries. In static typography, it is often the case that a form has features which locate it in several different paradigms simultaneously. For example, Björn Johansson's Typeface Anatomy (Fig. 43), may be read as a verbal sign (the letter 'R'), but also has pictorial characteristics. The letterform is depicted as having a skeletal structure, and is laden with anatomical connotations, made more overt by the stylistic similarity to illustrations in Gray's Anatomy (1918) and other medical texts. Saussure described the written word, in most cases, as 'arbitrary' or 'unmotivated', bearing no rational connection to its signifier, but in typographic examples such as this, there are pictorial features that are motivated by the appearance of objects that exist outside of the sign itself (in this case, bones and medical illustrations).⁴⁰⁹ Though Saussure provides useful insight into the linguistic interpretation of typographic signs such as this, the pictorial aspects may be more appropriately analysed by exploring, following Roland Barthes, the relationship between 'arbitrary' and 'iconic' signs.⁴¹⁰ In contrast to the arbitrary signs explored by Saussure, whose meaning must be learnt, 'iconic' signs visually resemble their signified, and so their meaning can be inferred intuitively. Broadly, character signs can be understood as arbitrary, and images (in their varying styles) as iconic. Johansson's Typeface Anatomy has arbitrary aspects (the 'R' has no natural connection to is signified meaning, which must be learnt) and iconic aspects (the visual features resemble real and illustrated bones). The various properties of many typographic signs can be split in this way, as having both arbitrary and iconic features, sometimes with similar or convergent meanings, thereby anchoring a preferred reading, or divergent meanings, thereby presenting two different or conflicting messages within a single sign.⁴¹¹ Recent texts have discussed this amalgamation of paradigms in typography.⁴¹² These

⁴⁰⁹ Saussure described words as 'arbitrary', 'unmotivated', or having 'no natural connexion in reality'. See Saussure, *Course in General Linguistics*, 67 – 69. However, he did observe that some words are motivated in their construction by patterns in language. For example, the word 'nineteen' is motivated in that its construction follows a pattern, and to that extent its meaning can be deduced, but its component part, the root 'nine', is itself arbitrary. It is noteworthy that Saussure described such examples in Gestalt terms, observing that 'the value of the term as a whole is never equal to the sum of the value of its parts'. See Saussure, Ferdinand de, *Course in General Linguistics*, 130-131.

⁴¹⁰ Barthes, Image Music Text, 25-26.

⁴¹¹ Juxtaposed or overlaid text and image may reinforce or contradict each other's meaning. David Lewis offers a more extensive list of functions, observing several different ways in which juxtaposed text and image operate together in illustrated text. In 'symmetry', the words and image reinforce an agreed meaning, in 'enhancement' the overall aims of the words and image are the same, but one enhances the other by being more detailed or elaborate, in 'counterpoint' or 'deviation', the words and image provide slightly different meaning, and in 'contradiction' the meaning of the words and image are binary opposites. Solos and Wendell offer an equivalent typology of image-text interaction. They identity 'separation', in which overlaid type 'ignores' the features of the image; 'fusion', in which 'type and image blend to form a unity'; 'fragmentation' in which 'type and image disturb or disrupt each other'; 'inversion', in which 'type and image trade places'. David Lewis, *Reading*

texts acknowledge that typographic signs may be both 'graphemic' and 'phonetic' (or verbal) simultaneously, blurring the boundaries between image and word, so that, as Sabine Gross observes, 'text generates meaning through both symbolic and iconic signification'.⁴¹³

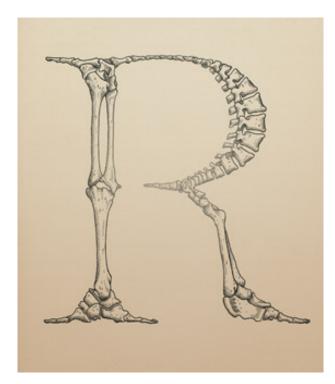


Figure 43. Bjorn Johansson, *Typeface Anatomy*, 2008. Source: Bjorn Johansson, 'Typeface Anatomy,' *Behance*, 2008, accessed July 18, 2011, <u>http://www.behance.net/gallery/Typeface-Anatomy/54940</u>

Though her observation is fundamental in understanding typography, Gross' use of the term 'graphemic' is limiting, particularly in light of typographic experiments that have occurred in the fourteen years since her text was published. The term, 'graphemic', suggests that type may be iconic only to the extent that it is graphical, but recent artefacts have moved beyond the graphical to present features that may be considered more iconic, exploring, for example, photorealism.⁴¹⁴ A complex relationship between the paradigms of type, image and architecture are explored in Chris Labrooy's *Bauhaus* (2009, Fig. 44). Here, the forms are rendered to resemble photographed objects. This architectural scene spells out the word

Contemporary Picturebooks (London: Routledge, 2001), 38, 34. Nancy Solos and Thomas Wedell, *Type, Image, Message: A graphic design layout workshop* (Gloucester, MA: Rockport, 2006), 14. ⁴¹² Tsur, 'Picture Poetry'; Jean-Gérard Lapacherie and Anna Lehmann, 'Typographic Characters: Tension

⁴¹² Tsur, 'Picture Poetry'; Jean-Gérard Lapacherie and Anna Lehmann, 'Typographic Characters: Tension between Text and Drawing,' *Yale French Studies* 48 (1994): 65, accessed July 19, 2011, http://www.jstor.org/stable/2930180; Gross, 'The Word Turned Image.'

⁴¹³ Tsur, 'Picture Poetry,' 752; van Leeuwen, 'Typographic Meaning,' 141; Gross, 'The Word Turned Image,' 17.
⁴¹⁴ There is not space for discussion of the various forms of iconicity of typographic signs. In Peircian terms, typography is becoming increasingly indexical, exploring, for example, photorealism.

'Bauhaus', with each letter serving the dual function of architectural object and verbal sign, which in turn creates ambiguity of scale. A close inspection of the stem of the 'B' reveals it to resemble the entrance of the school at Dessau. The word 'Bauhaus' anchors the preferred meaning of the image, ensuring associations with excellence and innovation in architectural and typographic design. It also draws attention to the significance of the use of primary colours in the outbuildings, and the choice of typeface (in reference to, respectively, Kandinsky and Bayer). Labrooy's efforts to replicate the features of real objects make his work less 'graphical', and more 'iconic' than Johansson's, or, in Peircian terms, indexical of reality. As Susan Sontag observes, photography is viewed less as an act of creation, and more as one of appropriation.⁴¹⁵ Photographic media and, by extension, computer-generated photorealism, are regarded as able to provide 'accurate transcriptions of reality', largely as a result of the fact that this ability was once 'thought to be guaranteed by the technology'.⁴¹⁶ Gross' observations may need updating in light of this and other recent developments in typography, which present forms that combine the two poles of arbitrariness and iconicity.

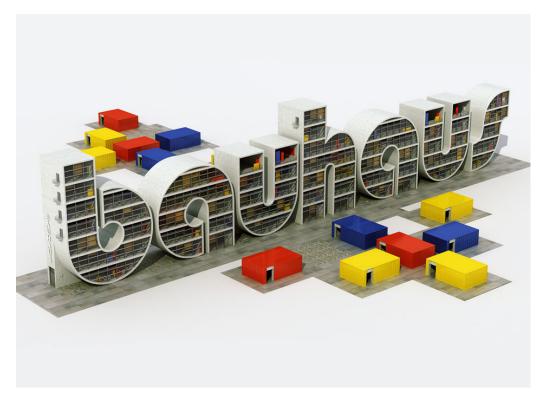


Figure 44. Chris Labrooy, Bauhaus, 2009. Image courtesy: Chris Labrooy.

⁴¹⁵ Sontag, Susan, On Photography (London: Penguin Classics, 2002), 4.

⁴¹⁶ Price, Derrick, 'Surveyors and Surveyed: Photography out and about,' in *Photography: A Critical Introduction*, 3rd ed., ed. Wells, Liz, (London: Routledge, 2004), 68.

Like typography, forms of picture poetry and concrete poetry present both pictorial and verbal meaning simultaneously. Theorists, including Gross, observe that they have 'parallel signification': a 'double signification of...image and word', thus forming a 'super-sign'.⁴¹⁷ Although these messages are presented at the same time in the same forms, Georges Longrée notes that 'the iconic message is perceived all at once, whereas the verbal message requires a more deliberate and analytical reading'.⁴¹⁸ Although the two messages are transmitted simultaneously, Clara Elizatheth Orban argues that they are not received simultaneously in typographic works such as Marinetti's Zang Tumb Tumb (1914). 'They are at once images and texts, and when they are being "decoded" in one code, we must freeze reception of the other'.⁴¹⁹ Likewise, Gross suggests that 'as soon as letters and words are perceived as images – and thus decoded as iconic signs – they disappear as symbolic signifiers', at least while they are being 'processed as images'. These observations mirror those of Gestaltists, who suggest that it is difficult to perceive simultaneously the global and local understanding of groups.⁴²⁰ It is possible to experience a 'Gestalt shift' from one interpretation to the other (and hence from one paradigm to another), but one is always dominant.⁴²¹ 'Symbolic and iconic signification' are therefore, as Gross proposes, 'mutually exclusive'.⁴²² Jean-Gérard Lapacherie and Anna Lehmann likewise observe that 'it is impossible to read a text in a sustained fashion and at the same time look at the printed characters'.⁴²³ There is a 'conflict between characters considered as signs representing units of language' and the additional pictorial signs contained within the same characters.⁴²⁴ However, in his taxonomy of word-and-image relations, A. Kibédi Varga argues that, in some cases, when there is 'complete union of verbal and visual elements, we cannot switch from one way of perceiving to another; we in fact perceive in two different ways at the same time'.425

The fluid characterforms explored in this thesis have a similarly complex relationship with the notion of paradigm. Like static typography, fluid forms may present pictorial as well as

⁴¹⁷ Gross, 'The Word Turned Image,' 16-20.

⁴¹⁸ Georges Longrée, 'The Rhetoric of the Picture Poem', cited in Tsur, 'Picture Poetry,' 751.

 ⁴¹⁹ Clara Elizabeth Orban, *The Culture of Fragments: Words and Images in Futurism and Surrealism*, (Amsterdam – Atlanta, Rodopi, 1997), 48.
 ⁴²⁰ Some Gestaltists argue that 'global' identity is 'primary', while others 'believe the reverse to be true'. See

⁴²⁰ Some Gestaltists argue that 'global' identity is 'primary', while others 'believe the reverse to be true'. See Rock and Palmer, 'The Legacy of gestalt Psychology', 87-88.

⁴²¹ Willows, 'Gestalt Psychology,' 18.

⁴²² Gross, 'The Word Turned Image,' 17.

⁴²³ Lapacherie and Lehmann, 'Typographic Characters,' 65.

⁴²⁴ Ibid.

⁴²⁵ A. Kibedi Varga, 'Criteria for Describing Word and Image Relations,' *Poetics Today* 10, no. 1 (1989), 37, accessed July 19, 2011, http://www.jstor.org/stable/1772554

verbal characteristics. In transformation, they may adopt identities from multiple paradigms, becoming first a verbal sign, then a pictorial object. Like the static typography explored above, they can present both verbal and pictorial features, but unlike in static typography, these features may alter over time, and so too may the paradigm to which they belong. When this occurs, ideas from semiotics that explore signs juxtaposed in space, can be applied to signs juxtaposed in time. For example, in temporal media, we can consider the possibility of anchorage over time; where forms change or are presented sequentially, anchorage can be disrupted and becomes unreliable. The viewer's understanding or expectation may be challenged, so that meaning appears to dramatically alter. Many of the fluid artefacts discussed in this thesis exhibit the kind of paradigm shift experienced in Pete Willow's observation of mosaics, in which a form first belongs to one paradigm, and then to another (see Chapter 6). These artefacts exploit the fact that audiences are accustomed to signs being grouped with those from the same paradigm (as assumed by Saussure), or, at the very least, belonging consistently to the same paradigm or paradigms (though, as Bignell observes, with the introduction of 'interactive media' this is becoming decreasingly certain).⁴²⁶ The assumption that a form must be consistently identified with a single paradigm is challenged by fluid artefacts. Fluid characterforms are unconventional in their defiance of this norm, and it is this that makes them surprising and appealing.

When there is potential for a form to adopt features from any number of alternative paradigms, the viewer's task is not merely to identify the sign from those in a single system, but first to identify which system is being used. In this way, issues related to the use and identification of particular verbal signs, such as legibility, become overshadowed by the larger question of identification of paradigm (see 1.3 and 2.3.4). The shift between paradigms offers viewers a unique challenge. The viewer's role is not simply to read, by applying knowledge of English and the alphabet (or whatever language appears in the artefact), but to apply her much broader knowledge of many different paradigms, and to negotiate the connections between them. In this way, the decoding process is far more complex than that required by readers of static writing.

Although the shift from image to character, and vice versa, is a defining characteristic of fluid characterforms, it is also important to note in this discussion of semiotics that the medium also contributes to meaning. As this study focuses primarily on screen-based fluid

⁴²⁶ Bignell, Media Semiotics, 217.

artefacts, it is important not only to consider the semiotics of temporal media alongside issues from the study of type and image. It is important to at least briefly acknowledge that screen-based media have systems of their own, and so influence the perception of their content. Where temporal typography appears on television, it is subject to these same conventions, this is particularly the case when fluid artefacts depict apparently photorealistic scenes.

3.4.2 Recent developments of Semiotics in Film, Television and Credit Sequences

This chapter has so far provided an outline of semiotic analysis of typography, on and off the screen. Although this thesis focuses on the behaviours exhibited in fluid artefacts, not the medium that contains them, fluidity only appears in temporal media. The study of film and television, both temporal media, can reveal much that may be applicable in more specific analysis of temporal typography.

Since Christian Metz's *Film Language* pioneered ideas about the languages of film in 1974, a number of studies of film have approached film through semiotic methods.⁴²⁷ In 1981, Sol Worth argued that, of many possible methods of analysis, 'semiotics...covers the broadest range of phenomena under which film might be examined', and more recent texts have continued to apply semiotics in the analysis of film, such as Robert Stam's edited collection of 1992.⁴²⁸ As recently as 2004, Johannes Ehrat argued for the continuing relevance of the ideas of Charles Peirce. Television is also examined according to semiotic ideas and principles, and as, Ellen Seiter writes, 'contemporary television criticism derives much of its vocabulary from semiotics'.⁴²⁹ Bignell observes that certain conventions in television production, such as the lighting or quality of camera motion, connote certain meanings.⁴³⁰ A shaky camera, for example, connotes the unmediated reality of documentary.⁴³¹ Seiter observes that much of film and television code consists of

 ⁴²⁷ Christian Metz, *Film Language: a Semiotics of the Cinema* (Oxford: Oxford University Press, 1974).
 ⁴²⁸ Sol Worth, *Studying Visual Communication* (Philadelphia: University of Pennsylvania Press, 1981),

^{38;} Robert Stam (ed.), New Vocabularies in Film Semiotics: Structuralism, Poststructuralism and Beyond (London: Routledge, 1992); Johannes Ehrat, Cinema and Semiotic: Peirce and Film Aesthetics, Narration, and Representation (Toronto: University of Toronto Press, 2004).

⁴²⁹ Ellen Seiter, 'Semiotics and Television', in *Channels of Discourse: Television and Contemporary Criticism*, ed. Robert Clyde Allen (London: Methuen, 1987), 17.

⁴³⁰ Ibid, 139.

⁴³¹ Ibid.

nonrepresentational conventions. While television often connotes reality, and appears 'naturally meaningful', many of these conventions are 'actually historical, changeable, and culturally specific'. Seiter provides the example of a 'fade to black', a transition that has come to signify the end of a film or show, but, in other contents may signify an 'experimental... style' or 'amateur direction'. Many of these nonrepresentational cinematic conventions and 'photographic techniques' identified by Seiter may also be present in film credit sequences, and may be applied to temporal typography. Particular use of 'perspective, colour, lighting, lens focal length, and subject to camera distance' may have similar connotations when applied to temporal typography as when applied to live-action footage. This is particularly the case when fluid artefacts depict apparently photorealistic scenes. For example, in the Channel 4 idents, *Pylons* and *Corn Field* (explored in 6.2), the camera appears to be handheld by the passenger of a car. This suggests that the sequence is a direct depiction of reality. In establishing the expectation of reality, the moment of the emergence of a verbal form from the scene (the figure '4'), becomes even more surprising than it may otherwise have been. Similarly, film has conventions that impact upon meaning, some similar to, and some different from, those in television. The widescreen ratio that distinguishes cinema from television connotes a certain level of spectacle. Bignell observes that the widescreen format is used in the credit sequence of Star Wars to connote 'immense scale of spectacle⁴³² The same can be said of film credit sequences that feature fluid behaviours, such as the True Lies sequence explored in 6.4.

In the context of this thesis, semiotic analyses of tile sequences and television graphics are likely to yield ideas that are more directly applicable to temporal typography than general studies of film and television semiotics. Although much semiotic analysis of film and television focuses on live-action footage, or figurative subjects, there are texts which address the use of motion graphics alongside such footage. Ellen Seiter observes that 'broadcast TV... uses graphics to clarify the meaning of its images' in addition to 'title sequences'. To Seiter, the use of overlaid graphics, such as captions or sponsors' messages, reinforce the continuing relevance of Barthes ideas about 'anchorage' (see 3.2).

John Laudisio proposes that one vital distinction between credit sequences and the rest of film and television is that they are a denser, and more intense, collection of signs. Due to their short length, credit sequences only contain elements that have been 'meticulously'

⁴³² Ibid., 192.

considered, and so are more loaded with meaning than any similarly lengthed scene in the show or film that they precede. 'Every single clip', he argues, 'has been encoded with different signs, consisting of signifiers and signified objects'.⁴³³ Laudisio identifies some of the many messages that must be communicated through a title sequence. The sequence must establish context, genre, and introduce key themes and characters.⁴³⁴ Often, this is a condensing of the entirety of the film or programme. In so little time, these messages cannot be represented literally, and so must be signified through an established code of metaphors and symbols.435

There are numerous semiotic analyses of title sequences in their field of film and television studies, however, these texts to focus on the pictorial, not typographic content. Ellen Seiter's semiotic analysis of the credit sequence for *The Cosby Show*, for example, describes and analyses minute details of the actors' appearance and actions, including the colours of every garment they wear, and the various positions of their limbs as they dance, but does not even identify the colour or style of the overlaid graphics, nor does it describe how the text appears or moves.⁴³⁶ It appears that she has considered the appearance and behaviour of the actors as vital, but the appearance and behaviours of the typography as inconsequential. Similarly, despite providing a useful demonstration of the semiotic analysis of title sequences, Laudisio's analysis of The Sopranos title sequence does not mention the overlaid typographic elements, focusing instead on the live-action footage behind it.⁴³⁷ In her analysis of the credit sequence for Deadwood, Amanda Ann Klein observes how imagery signifies aspects of America's wild west, by connoting, for example 'the arrival of civilisation' in a 'savage' land, but does not identify how the overlaid typography may or may not contribute to these messages.⁴³⁸ In his comparative analysis of hospital drama title sequences, Jason Jacobs even goes so far as to suggest that 'our judgement of them will not need to spend much time on' the 'communicative' elements, since, he argues, 'a basic competent rendering of the show's title... is likely to be successful in this respect'.⁴³⁹

⁴³³ John Laudisio, 'Media Analysis: The Sopranos' Title Seuqnce', A Collection of Essay, Papers, and Ideas, 2010, accessed April 25, 2012, http://johnlaudisio.wordpress.com/20120/06/22/medi-analysis-the-sopranos/ ⁴³⁴ Laudisio, 'Media Analaysis'.

⁴³⁵ Laudisio, 'Media Analaysis'.

⁴³⁶ Seiter writes that there are 'graphics over image' and lists the words that appear, but does not provide any details about their appearance or movement. Seiter, 'Semiotics and Television', 32-38. ⁴³⁷ John Laudisio, 'Media Analysis: The Sopranos' Title Seugnce', A Collection of Essay, Papers, and Ideas,

^{2010,} accessed April 25, 2012, http://johnlaudisio.wordpress.com/20120/06/22/medi-analysis-the-sopranos/ ⁴³⁸ Klein, 'The Horse Doesn't Get Credit,' 97.

⁴³⁹ Jason Jacobs, 'Issues of judgement and value in television studies,' *International Journal of Culture Studies* 4, No. 4 (2001): 438. DOI: 10.1177/136787790100400404

As Amanda Ann Klein observes in her analysis of the credit sequence for *Deadwood*, title sequences serve a dual purpose. They must establish 'the films' overall themes... provide a prologue for the narrative, or establish a mood,' while simultaneously serving the 'utilitarian' function of introducing 'the show's cast [and] creators'.⁴⁴⁰ She proposes that the credits themselves are functional, and that only the more 'expressive' elements are worthy of analysis. In analysing the title sequence for *ER*, Jacobs describes how various imagery expresses the show's 'flavour', while 'at the same time text credits introduce the central actors', thereby implicitly suggesting that the 'text credits' cannot be expressive, and do not contribute to signifying the themes of the programme that is to follow.⁴⁴¹

From these texts it appears that typographic elements are not explored in analyses of credit sequences because they are viewed, at least in the field of film and television studies, as denotative, and therefore apparently have little to contribute to the expression of key themes. One reason for this perception may be that, while the imagery represents the fiction of the programme or film, the typography represents the reality of its production. Most texts agree that the purpose of title sequences is to establish themes, locations and characters of the fiction that is to follow. ⁴⁴² The content of the typography refers to real actors (not the characters that are depicted in the imagery) and production crew. Therefore, in its combination of imagery (signifying the fiction of the narrative) and typography (denoting the reality of the production) it establishes a connection between the real word of which the audience is a part, and the fiction of the show that they are about to watch. In this respect, it acts as a bridge between reality and fiction, preparing the viewer to suspend disbelief for the duration of the show.

It is understandable that film and television theoreticians tend to consider the study of temporal typography to be beyond their remit, even when it appears in credit sequences. As demonstrated in 2.3, temporal typography has been predominantly explored by those with a specific interest in typography. This thesis is positioned as interdisciplinary, and

 ⁴⁴⁰ Amanda Ann Klein, 'The Horse Doesn't Get a Credit: The Foregrounding of Generic Syntax in Deadwood's Opening Credits', in *Reading Deadwood* ed. David Lavery (London: I.B. Taurus, 2006), 93.
 ⁴⁴¹ Inspire of indement and when it to be in the interval of the second second

 ⁴⁴¹ Jacobs, 'Issues of judgement and value in television studies,' 438. Contradicting himself, Jacobs later goes on to describe how the aesthetic appearance of the title 'ER' imitates the features of an x-ray. Arguably, this feature of the typography contributes to the connotations of 'the monitoring of life and death'.
 ⁴⁴² Marissa Carolina De Ana, 'Tomorrow is Forever: Examining Narrative Structure and Cultural Archetypes in

⁴⁴² Marissa Carolina De Ana, 'Tomorrow is Forever: Examining Narrative Structure and Cultural Archetypes in Three Mexican Telenovelas' (MA Thesis, University of Alabama, 2009), 12, accessed April 25, 2012, http://acumen.lib.ua.edu/content/u0015/0000001/0000050/u0015_0000001_0000050.pdf

acknowledges that fluid typography learns from the history and theory of temporal media as well as typography (static and temporal, print- and screen-based). However, for the purposes of this study, detailed explorations of the features of any particular medium would be a distraction. In 2.3.2, it was argued that Woolman's decision to present artefacts of temporal typography according to their function was unwise (as in *Type in Motion 2*), as it distracts from the similarities in behaviours that are exhibited in different media, with different functions. The fluid behaviours identified in this study transcend medium. The same behaviours are possible in many different screen-based media, and therefore to imply connections between a medium and the behaviour contained within it would artificially limit the possibilities of fluidity.

3.5 Issues of Audience Subjectivity

The classification of fluid behaviour presented in this thesis has been developed in response to received knowledge systems of semiotics and Gestalt. The terms applied in the typology attempt, where possible, to present objective descriptions of behaviour. Some of these terms are already in use. Where definitions exist, as with Kac's definition of fluidity (see 2.4.3), the typology has aimed to adhere to this established meaning. In some cases, however, there has existed ambiguity as to the precise meaning of a term. The term, *metamorphosis*, for example, is already in common use in a number of fields, not least screen-based media. This term, in its previous usage, has described different behaviours. As observed in 5.3.2, texts do not always agree on its precise meaning, or appear to misapply it. In such cases, this thesis has sought and applied the most agreed-upon definition. In the case of some behaviours classified in this thesis, there is no existing terminology. In these cases, terms have been appropriated from other contexts, where comparable or equivalent behaviours exist. The term *construction* (see 5.2), for example, may not have previously been used in defining behaviours in temporal typography, but is in common use elsewhere, and its meaning is understood to describe the piecing together of a whole from parts, as can be observed in some fluid artefacts. Insofar is as this and other terms in the typology are descriptive, they aim to be objective. Moreover, these categories respond in part to Gestalt laws of perceptual organisation, which, to varying extents, may be considered objective or at the very least established and readily applied in other contexts.

As discussed in 3.3.1, the value of Gestalt theory has been called into question by texts that object to its use of 'universalistic' terms.⁴⁴³ Moszkowicz argues that Gestalt principles of perceptual organisation have been viewed as 'outmoded', particularly since the emergence of postmodernism in the 1960s.⁴⁴⁴ The reputation of these principles has perhaps suffered from their associations with modernism, which has led many to a 'binaristic, reductive view of the [Gestalt] discipline'.⁴⁴⁵ Ideas proposed in post-structuralist texts such as Roland Barthes' 'The Death of the Author', presented a new vision of an audience whose reading of a text would be informed by personal experiences.⁴⁴⁶ This idea of the entirely subjective audience seemed at odds with the apparently objective Gestalt view of perception.

However, Moszkowicz's reading of Wertheimer suggests that Wertheimer himself acknowledged a distinction between 'grasping a situation as it happens and making sense of it afterwards'.⁴⁴⁷ As proposed in 3.4, perception and subsequent identification or understanding of a sign is a two-stage process. Pelli et al. assert 'the difference between discriminating and identifying'.⁴⁴⁸ Their text argues that 'mere grouping is not object recognition', but merely the first stage in a more complex process of perception, in which a viewer must first appreciate the presence of a form before she is then able to 'recognise' or attribute meaning to it.⁴⁴⁹ It is by proposing that Gestalt may work in conjunction with semiotics, as in 3.4, it becomes possible to analyse both these stages in the perception process, and hence to address the extent to which perception may be subjective.

While the extent to which Gestalt allows for subjectivity may be open to debate, research in semiotics has directly addressed the subjectivity of audiences.⁴⁵⁰ In her study of cinema spectatorship, Camilla Carboni writes that the semiotic notions of 'encoding and decoding' are essential in this discussion, as the filmmakers' chosen code may or may not be wholly recognized by the viewer, and so the resulting text is 'a combination of the filmmakers'

⁴⁴³ Moszkowicz, 'Gestalt and Graphic Design,' 57; See also: Hochberg, 'Levels of Perceptual Organization'. ⁴⁴⁴ Moszkowicz, 'Gestalt and Graphic Design,' 56.

⁴⁴⁵ Ibid., 57.

⁴⁴⁶ Roland Barthes, 'The Death of the Author,' 1967, reproduced in Barthes, *Image Music Text*, 142-148.

⁴⁴⁷ Moszkowicz, 'Gestalt and Graphic Design,' 62

⁴⁴⁸ Pelli et al., 'Grouping in Object Recognition,' 38.

⁴⁴⁹ Ibid., 38-39.

⁴⁵⁰ See, for example: Camilla Carboni, 'Film spectatorship and subjectivity : semiotics, complications, satisfactions' (MDrama Thesis, University of Ilenbosch, 2007), accessed April 21, 2012.

https://uhvpn.herts.ac.uk/handle/10019.1/.DanaInfo=scholar.sun.ac.za+2203 : Benjamin Lee. Talking Heads: Language, Metalanguage, and the Semiotics of Subjectivity, (Durham, North Carolina: Duke University Press, 1997); Vincent Michael Colapietro, Peirce's Approach to the Self: A Semiotic Perspective on Human Subjectivity, (Albany: State University of New York Press, 1989).

denotative image, and the viewer's personal associations with it'. In this way, the reading can be considered a negotiation between filmmaker and each 'subjective individual' viewer.⁴⁵¹

Carboni further observes that, while they must recognize each viewer as a 'subjective individual', filmmakers must necessarily 'accommodate mainstream customer preference'. Therefore 'the notion of subjectivity is marginalized in a preference for broad generalisations'.⁴⁵² The film industry tends to respond to the demands of the masses, and so to aggregate audience response data. The same may be said of television, which must cater for equally large audiences in many cases. It is the case, therefore, that many of the examples of temporal typography that appear in this thesis, when they appear in film title sequences or idents for mainstream television broadcasters, have been developed for a 'generalised... "audience" as opposed to a group of individual viewers.⁴⁵³

'Generalised notions of "audience", and data on audience profiles may provide vital information about the suitability of screen-based content, but such data is beyond the remit of this thesis as it has no bearing on the qualities or categories of fluid behaviours. The typology that is presented in this thesis aims to primarily classify behaviours, and these behaviours exist apart from any discussion of audience or medium (see 1.4, where the remit of this research is discussed in more detail). Even when context and audience changes, the behaviour presented in a fluid artefact remains the same (and, therefore, the artefact remains in the same typological category). The qualities of an audience have no direct bearing on the qualities of a behaviour, only, perhaps, on which behaviour may be selected for a particular context. That is not to say that the audience may be discounted. In order for a form to be perceived as fluid, the viewer must be capable of appreciating aspects of the form and its transformation. To that extent, the audience must be expected to have certain knowledge, and to be capable of certain kinds of perception.

There is, in the viewing of fluid typography, a requirement for the audience to be able to read (to know numerals and the alphabet) in order to appreciate the emergence of meaningful poles of transformation (see 2.3.5) and hence to perceive fluidity. Without this

⁴⁵¹ Carboni, 'Film spectatorship and subjectivity,' 101-102.

⁴⁵² Carboni, 'Film spectatorship and subjectivity,' 3.

⁴⁵³ Ibid.

knowledge, a transforming form would be perceived as having an identity that is consistently abstract, rather than changing from abstract to meaningful and vice versa. Pelli et al. observe that 'one of the hallmarks of object recognition is categorical perception', therefore, knowledge of a paradigm, and the perception that the pole of a fluid form belongs to a certain paradigm, is vital in the move towards 'object recognition'.⁴⁵⁴

Knowledge and, as observed in 2.3.5, recognition of a paradigm, plays a vital role in the perception of a fluid form. In the task of identifying or recognizing a fluid form at its poles, the viewer must first reduce the possible number of paradigms to which that form may belong. In order to do this, the viewer may take cues from his previous experience of the form or artefact, and from other elements that are concurrently visible on the screen. This requires viewers to consider the artefact globally. As David Navon observes, 'the identification of the global features is a very useful device of narrowing down the range of candidates for accounting for a certain local region'.⁴⁵⁵ Typographic context would help the viewer to indentify a single form as alphanumeric, or, in the case of fluid artefacts, would encourage the viewer to seek out an alphanumeric character in the transforming form.⁴⁵⁶

In order to analyse examples of fluid behaviour, it has been necessary to make a number of generalisations about the audience, not least that they are literate and therefore able to appreciate the transformation from abstract to alphanumeric identity. The audiences for fluid artefacts vary considerably, as fluidity exists in a variety of different media, including film, motion graphics, and digital art. In each of these contexts, and with each audience, fluid behaviours may be described in the same terms, as outlined in this thesis. However, in each context, the meaning of these behaviours, and of the affected forms, may change. In order to provide a complete analysis of any fluid artefact it is therefore necessary to play the role of viewer: to represent the wider audience by reading artefacts on their behalf, taking into account established and broadly accepted ideas from the fields of semiotics and Gestalt.

⁴⁵⁴ Pelli et al., 'Grouping in Object Recognition,' 39.

⁴⁵⁵ Navon, 'Forest Before the Trees,' 356.

⁴⁵⁶ This global context may extend beyond the artefact itself to its location and category of artefact. Certain artefacts, viewed in certain locations, may be more likely to contain characterforms, and therefore to prepare the viewer to receive alphanumeric information. In the case of film title credits, for example, the viewer may be more prepared to accept a graphical or typographical form than in the rest of the film, when she would be more likely to anticipate directly filmed objects. To that extent, knowledge of a 'code' becomes important in deciphering a fluid form.

3.6 Conclusion to Part 1

Part 1 of this thesis has identified gaps in the existing understanding of temporal typography, particularly in descriptions and analysis of characterforms that undergo transformation. It has observed that the notions which underlie this transformation are well-established, having developed long before the advent of digital technology, and yet there is still a lack of sufficient explanation of the features and effects of this transformation in old and new artefacts. The work of experimental poet Eduardo Kac has been introduced as it provides insights which are not available in texts which directly address temporal typography.

Chapter 3, the final chapter of Part 1, has proposed that a typology can be a useful method of making important distinctions between categories of fluid behaviour, and explored ways in which that typology may be informed by Gestalt laws of visual perception. It has also shown that semiotics informs an understanding of fluidity. These methods, when combined, allow fluid artefacts to be understood to a more precise degree than has been achieved by existing texts such as those identified in Chapter 2. This method – a convergence of three discrete methods - further allows a particular and broad understanding that would not be possible using a single method in isolation.

This thesis will now proceed by applying the strategies proposed here. A two-part typology will be proposed that, in Chapter 4, presents the categories of temporal typography, thereby clarifying the wider field of practice in which fluid artefacts reside. The second, and main part of the typology, will be proposed in Chapter 5, where the categories of fluid behaviour will be explored. Throughout these chapters the Gestalt laws of visual perception will be shown to correlate with the features of fluid behaviours, and it will be demonstrated that semiotics provides an understanding of how those behaviours influence the perceived meaning of fluid characterforms.

Part 2 Chapter 4: Typologies

4.1 Introduction to Chapter 4

Chapter 4 will introduce a typology of temporal typography, identifying categories that exist alongside fluid artefacts. As well as identifying the range of existing forms of temporal typography, this typology will clarify the distinctions that can be made between categories, and thereby highlight essential differences between fluidity and other temporal behaviours. This general typology serves the purpose of contextualising the focused typology of fluid behaviours that is to appear in Chapter 5, and in particular, establishing where fluid artefacts lie within the larger field of temporal typography.

The typology of temporal typography, presented in 4.2, will establish *fluid* behaviours within the wider category of *kinetic typography*. Within this category, fluid behaviours can be located as an example of *local change*, but distinct from *elasticity*. These categories of local kineticism exist in the typology alongside categories of *global change*, effecting overall layout, as in *motion typography*.

In order to prevent confusion between the categories presented in this typology of temporal typography, this chapter will conclude with a note on false fluidity. Section 4.3 will identify forms of motion and transition which have been developed to give the false impression of fluidity. In identifying such artefacts, this section aims to clarify the distinction between different forms of temporal typography.

This exploration will pave the way for the main focus of this thesis, a typology of fluid behaviours, that will be presented in Chapter 5

4.2 A Typology of Temporal Typography

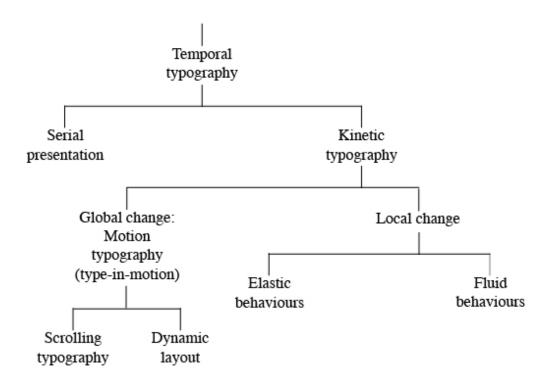


Figure 45. Typology of temporal typography, including fluid behaviours.

Using existing terminology, as reviewed in 2.3, it is possible to make distinctions between different kinds of temporal typography. Though these existing terms may currently be used interchangeably, by arranging them in a typology it is possible to begin to differentiate between different temporal behaviours that are exhibited in temporal typography.

This part of the typology aims, where possible and effective, to use terminology which is already in use, thereby preserving a familiarity which will help future readers to understand these categories. It is well established that the focal field as a whole is defined as involving 'typography', and even artefacts involving handwritten lettering are described in this way, so, in order to achieve clarity that comes with convention, the field as a whole will be described as 'temporal typography'. As was established in 2.3.4, the term 'typography' may be inappropriate when dealing with individual letterforms, as many artefacts which feature local change present verbal signs that are not typographic. Therefore, when individual examples do not contain typographic forms, this thesis will describe them accordingly (as letterforms, letter objects, or characterforms). The typology of fluid characterforms as

introduced in 5.5, which offers the core contribution to knowledge of this thesis, will attempt to use terms that are as informative as possible, varying the use of the terms typography, letterform, letter object and characterform where appropriate.

As seen in 2.3.2, Wong has already identified serial presentation as distinct from typography which exhibits motion or change.⁴⁵⁷ *Serial presentation*, though existing in temporal media, presents a series of still typographic arrangements, none of which are independently reliant on a temporal dimension. This distinction between the serial presentation of static typographic arrangements, and typography which exhibits temporal behaviours, is the first division for this typology.

In *serial presentation*, where words or letters are 'presented serially through time', words neither move nor change, and are, in all respects, arranged and displayed in the same way as words on a printed page.⁴⁵⁸ Still arrangements of words are presented in sequence, as in early title cards. For these, 'type was printed on a card which was filmed directly'.⁴⁵⁹ Static text is still seen in title credits, as well as in advertising and other temporal media, though this method has since been improved and updated, now involving digital production of the text. Serial presentation of static typographic compositions has also been used in research into reading processes and legibility. One method of presentation used in cognitive psychology research has been referred to as *RSVP* ('Rapid Serial Visual Presentation') in which text is presented 'in the same location serially'.⁴⁶⁰

Serial presentations may feature a number of transitions which can create the impression that the text is in some way dynamic. Cinematic transitions including fades (between two different still frames) or wipes (which reveal the next frame as if it were hidden behind the last) can be used as an alternative to a simple cut from one still typographic composition to the next.⁴⁶¹ Although these transitions may themselves be kinetic, the text compositions to which they are applied remains static, and will still be classified as such.

⁴⁵⁷ Wong, 'Temporal Typography: characterization of time-varying typographic form'; Wong, 'Temporal Typography: A Proposal to Enrich Written Expression.'

⁴⁵⁸ Wong, 'Temporal Typography: characterization of time-varying typographic form.'

⁴⁵⁹ Woolman and Bellantoni, *Moving Type*, 15.

⁴⁶⁰ Wong, 'Temporal Typography: characterization of time-varying typographic form.'

⁴⁶¹ Woolman and Bellantoni, *Moving Type*, 58.

A Cautionary Tale, by Claire Mason (2006, Fig. 46), demonstrates serial presentation in an animated form. In this animation, the rhythm of the presentation of words imitates spoken dialogue. Each typographic scene alters over time, which may suggest motion, but the words that appear are static, and are introduced sequentially.

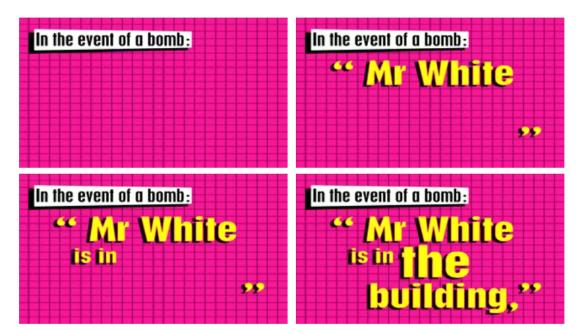


Figure 46. Claire Mason, A Cautionary Tale, 2006. In this example of serial presentation, static words appear in sequence over time. Source: Claire Mason, 'A Cautionary Tale - Typography,' YouTube, 2006, accessed July 18, 2011, http://www.youtube.com/watch?v=NjmKkiMGdnk

The second category of temporal typography includes all onscreen type that is not static; type that moves or changes in any way. Lee et al. offer the term 'kinetic typography' to describe moving or changing text.⁴⁶² As Soonjin Jun agrees, this term can be used to broadly define not only type that is 'moving', but type which exhibits any kind of motion or change.⁴⁶³ A distinction must therefore be made at the next level of the typology, between motion and change. The term *motion typography* though used to broadly identify many terms of temporal typography by commentators such as Woolman and Bellantoni⁴⁶⁴, is used by Lee et al. to specifically identify type which changes location. This category may be divided further, into typography which is rearranged, in *dynamic layout*, and type which moves as part of a fixed arrangement, in scrolling typography. In dynamic layout, the

⁴⁶² Lee, et al., 'The Kinetic Typography Engine,' 81.
⁴⁶³ Jun, 'The New Typography Today.'

⁴⁶⁴ Woolman and Bellantoni, *Type in Motion* and *Moving Type*.

relative distances between different typographic elements change. In *scrolling typography*, these distances remain fixed, while the whole arrangement moves in relation to the fixed screen. As with serially presented text, research into the legibility of scrolling text has been carried out, specifically in regard to text presented using the 'Times Square method', in which text is moved 'from right to left in a continuous manner'.⁴⁶⁵ In everyday environments, scrolling text is most commonly encountered in closing credits in film or television.

Both *scrolling typography* and *dynamic layout* involve global motion, but not local change affecting individual letterforms. As Shaw observes, 'the *identity* of an object moving on the screen is constantly preserved'.⁴⁶⁶ In simple *scrolling typography* even the layout of the typographic elements remain intact, only the relationship between the frame and the type varies. This gives the impression of a single, large typographic arrangement (often a list), over which a camera pans. David do van Minh offers an example of dynamic layout in *Les Voyages en Train Grand Corps Malade* (2006, see Fig. 47). Here typographic elements change their location both in relation to the frame and 'in relation to each other', so that the distances between forms (and hence, layout) is not fixed.⁴⁶⁷ In this animation, words and phrases move independently of one another. Some phrases scroll while others rotate, resulting in constant change in the arrangement of the words on the screen. In both if these examples, although there is substantial change to typographic layout, the properties of letterforms remain constant, as they would in print.

⁴⁶⁵ Wong, 'Temporal typography: characterization of time-varying typographic form,' 48.

⁴⁶⁶ Shaw, 'Interpolation,' 491.

⁴⁶⁷ Hillner, 'Text in (e)motion,' 166.



Figure 47. David do van Minh, *Les Voyages en Train Grand Corps Malade*, 2006. In this example of *dynamic layout*, the relative positions of words change. Source: 'Les Voyages en Train Grand Corpes Malade,' *YouTube*, 2006, accessed May 21, 2007, http://www.youtube.com/watch?v=FzR4J2kHenU

As identified by Ikonen and Wong, type may exhibit kinetic behaviour other than directional motion. It may become 'elastic', or 'deformed'.⁴⁶⁸ Likewise, Woolman and Bellantoni have identified how letters can be stretched or distorted. This kind of kineticism may occur at a local level, affecting the properties of individual letterforms. Deformation may be slight, distorting the form of a letter without affecting its apparent identity, as illustrated in the *Soft Sketches* of Jason E. Lewis (Fig. 48). These *elastic* characterforms do not have a consistent shape, but do have a consistent identity.

⁴⁶⁸ Ikonen, 'Moving Text in Avant-Garde Poetry'; Wong, 'Temporal typography: characterization of timevarying typographic form,' 21.

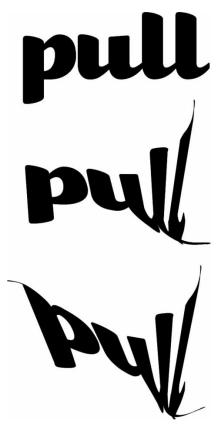


Figure 48. Jason E. Lewis, *It's Alive*, 2001. The word 'pull' is subjected to an *elastic behaviour*. Its contours are stretched and distorted, but its verbal meaning remains fixed: despite distortion, it continues to read 'pull'. Source: Jason E. Lewis and Bruno Nadeau, 'Post PostScript Please,' *Digital Creativity* 21, no. 1 (2001): 21, accessed July 18, 2011, http://dx.doi.org/10.1080/14626261003654632

Elasticity may have a function beyond the distortion of letterforms. In some cases, the properties of the distortion become meaningful, communicating additional information. In the *Letterforms in Film* project (Fig. 49), planar letters are distorted so that they appear to indicate the presence of an additional identity, that of a staircase. The letterforms bend 'at right angles to assume the footers and risers of a stairway'.⁴⁶⁹ There is no indication that the three-dimensional form of the steps exists, other than the distortion of the letterforms as they apparently pass over the imagined surface. This follows along the principles of concrete poetry, in which a form is only indicated by the silhouette of an arrangement of text. In this example, the distortion of letterforms does lead to the introduction of a new identity, but this pictorial identity is separate to the identity of the letterforms. The forms retain their verbal identity despite distortion. Each identity is retained consistently, throughout the duration of

⁴⁶⁹ Bellantoni and Woolman, *Type in Motion*, 133.

the artefact. Two identities (that of the word 'tritt', and that of the stairs) exist alongside one another.



Figure 49. Students at the Basle School of Design, *Letterforms and Film*. Here, the distortion of the elastic characterforms suggest the presence of an additional form – a three-dimensional step. Source: Bellantoni, Jeff and Woolman, *Type in Motion*, 133.

In some artefacts, letterforms undergo more substantial transformation to the extent that identities are replaced. This is the kind of transformation remains largely unacknowledged by texts discussing screen-based artefacts, but is described by Eduardo Kac as *fluid* when exhibited in his holopoetry (as observed in 2.3.2 and 2.3.3).⁴⁷⁰ A fluid charcterform does not have fixed contours. It may be interrupted, mutated, fractured or changed in numerous other ways by *fluid behaviours*. In this choice of terminology, it is important to clarify the distinction between fluid characterforms and fluid behaviours. A fluid characterform is one which exhibits fluid behaviour. Following Wong, the behavioural and structural properties of a characterform are two separate characteristics of the same kinetic sign.⁴⁷¹ The properties of characterform may enable the behaviour. Modularity in a characterform, for example, enables *construction*. This typology classifies fluid artefacts according to their behaviours, as it is these behaviours that makes the artefacts distinct. What Wong terms the 'structural properties', which describe the appearance of a characterform, may exist in static type and do not in themselves constitute or cause fluidity. In each category of fluidity identified in this typology, artefacts share common behaviours, but not necessarily common structural properties. For this reason, the categories of local change shown here are classified according to behaviours (fluid behaviours and elastic behaviours).

Not all changes which occur at the level of individual characterform cause it to become fluid. Among examples of kinetic typography, letters that alter their style and perceived meaning are relatively common; even a simple transition such as a fade may alter the silhouette of a letterform, and our impression of the stability of that form. Wong observes that the 'meaning' of a word or phrase in temporal typography can be altered or even 'reversed'

⁴⁷⁰ Kac, 'Key Concepts.'

⁴⁷¹ Wong, 'Temporal typography: characterization of time-varying typographic form,' 11.

through changes in the rhythm of a presentation. She suggests, for example, that 'a slowed presentation speed may express uncertainty'.⁴⁷² It is important to note that this kind of change does not equate to fluidity. The change in meaning that Wong describes is not a result of a change in identity, but of new connotations that are perceived when the form changes slightly, or its 'manner of movement' is altered.⁴⁷³ New characteristics may be added or removed to the extent that a letterform appears to take on a new persona, however its underlying identity may remain fixed, and the form may therefore be described as *elastic*. Fluidity is distinct from *elasticity* in that it is more than simply a subtle adjustment to the silhouette of a form. In order to be defined as 'fluid', a form must exhibit change so extensive that it results in new identities and new meanings. In Kac's terms, it must 'escape the constancy of meaning a printed sign would have'.⁴⁷⁴ A fluid sign is 'not either one thing or another'; its form is constantly in flux, as is its identity.⁴⁷⁵ A single form may be observed in one instance as having a letter identity, and at another instance, once it has transformed, as presenting another identity: that of an image, an object, or a different letter. An additional identity is introduced without the introduction of an additional form.

Woolman and Bellantoni acknowledge that new media and digital technologies are 'placing the simple letterforms – the symbols of language and communication – in formal and functional jeopardy'.⁴⁷⁶ In fluid artefacts, forms do not function purely as letters. The word 'letter' (or 'character') is only partially or momentarily applicable in describing forms, as fluid forms are only fleetingly letters, and otherwise something else. A form may present a letter identity, and be perceived as a letterform, but that form changes, becoming an abstract glyph, an object or a shape. There is, therefore, a separation of letter and form, or of character and form. This separation of letter and form can be observed in static type, particularly in modular typography (see 2.2.2) where, since a letter is constructed from many forms, the form and the letter are not one and the same. In fluid characterforms, however, this separation of letter and form is a temporal event: a *fluid behaviour*.

As a fluid characterform changes, newly introduced identities can reinforce the initial perception of a form, clarify it, or, in some cases, contradict it. In Dan Waber's series of

⁴⁷² Ibid., 41.

⁴⁷³ Ibid.

⁴⁷⁴ Kac, 'Key Concepts.'

⁴⁷⁵ Ibid

⁴⁷⁶ Woolman and Bellantoni, *Moving Type*, 7.

animations, entitled *Strings* (2005), which will be discussed in more detail in 5.3.2, a single 'string' adopts the form of a word, then becomes slack and adopts another. These separate words, and separate identities, presented over time within a single form, often contradict one another. In *Argument*, for example, the words 'yes' and 'no' are formed sequentially. The single, string form, expresses two opposing ideas. In contrast, Randy Balsmeyer's title sequence for *Dead Man* (1995) presents two identities which reinforce a single meaning. The letterforms of the title, 'Dead Man', are constructed out of images of bones. When the letters disassemble, the 'bone' identity becomes more prevalent than the identity of each bone as a part of a letter, reinforcing associations with decay.

Though fluid characterforms do present verbal identities, the aim of fluid artefacts is not entirely to present letters or characters. It is the nature of fluidity that other shapes and signs are also presented within the same forms or arrangements. Fluid forms fluctuate between more abstract identities and more meaningful signs. There is a moment at what Kac terms the 'poles' in which they present a perfect letter or sign, but between the poles abstract shapes are presented as one letter disassembles, and the next is formed.⁴⁷⁷ In *Beer*, for example (Fig. 50), the forms fluctuate between legible letter and more abstract glyph. These 'in-between' forms are 'as important... as the meanings produced momentarily at the poles'.⁴⁷⁸ In the following advertisement for Audi (Fig. 51), the letters that spell out 'vorsprung durch technik' (meaning 'progress through technology'⁴⁷⁹) are initially parts of a car. Kac argues that these identities – the identities that are *not* letters - are just as important as the letter identities. They may be abstract glyphs or shapes (like the *glyphs in* Beer), or may be meaningful objects (like the Audi car), but always contribute to the intended purpose and meaning of the artefact.

Though the different identities of a fluid sign are separated by time, they are able to influence each others' meanings, as they contribute to the collective meaning of the whole fluid behaviour. All aspects of the fluid artefact, including the process, aesthetic characteristics, and the various identities that are introduced over the course of a fluid transformation, contribute to a Gestalt whole. The fact that the identities are linked by a transformation suggests to the viewer that the different identities are connected. In Bathes'

⁴⁷⁷ Kac, 'Key Concepts of Holopoetry.'

⁴⁷⁸ Ibid.

⁴⁷⁹ Gary Martin, 'Vorsprung Durch Technik,' *The Phrase Finder*, 2007, accessed July 19, 2011, http://www.phrases.org.uk/meanings/399450.html

terms, the meaning of an identity at one pole may 'anchor' the meaning of another, as they are entwined within the same form.⁴⁸⁰ In *Beer*, for example, though many of the words which appear during the transformation do not appear to directly relate to drunkenness (words such as 'book'), once viewed within the same fluid transformation as other apparently random words, and the word 'beer', they seem connected inasmuch as they appear to represent the stream-of-consciousness of drunken ramblings. Though each word has a separate meaning, the Gestalt whole has meaning that is greater than the sum of its parts, and appears to unite the array of different verbal identities.

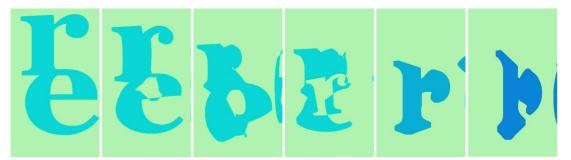


Figure 50. In Komninos Zervos' *Beer*, the letters 'r' and 'e' morph and merge, creating intermediate glyphs before they begin to re-form into the letter 'h'. Source: Zervos, 'Cyberpoetry Underground.'

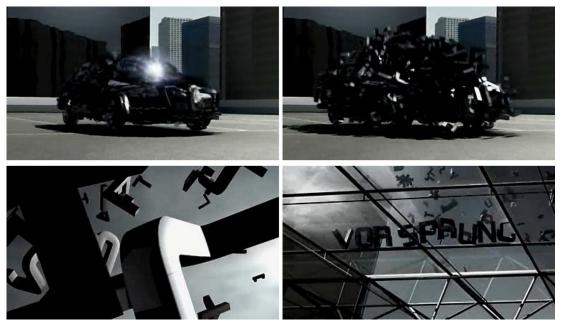


Figure 51. Blink, *Vorsprung Durch Technik*, television advertisement for the A6, 2005. Source: 'Audi A6 -Vorsprung Durch Technik,' *Ephinx*, 2006, accessed July 19, 2011, http://www.ephinx.com/tvadverts/17/audi-a6-vorsprung-durch-technik-advert.html

⁴⁸⁰ Barthes, *Image Music Text*, 40.

Fluidity – transformation leading to the adoption of new identities – may occur in a number of different ways. Various behaviours may lead to the adoption of new identities, and various different kinds of transformation may be exhibited by fluid forms. The next chapter will introduce various categories of fluid behaviour, identifying the different ways in which new identities are introduced. However, before addressing the various kinds of fluidity, it is important to acknowledge that there are some artefacts which may exhibit *false fluidity*, apparently presenting fluid forms that in fact belong to other categories of temporal typography. These are addressed next, in 4.4.

4.4 A Note on False Fluidity

There are artefacts which may aim to present typographic transformations, which may be wrongly identified as fluid. Such artefacts imply transformation but are in fact complex examples of other categories of temporal typography. Artefacts also exist which, when observed 'veridically' (truthfully or objectively), may appear fluid, but that are subjectively perceived as remaining constant (and, therefore, as *not* fluid).⁴⁸¹ The identities of the characters are not perceived as changing, even though the forms themselves do change.

Cinematic transitions may be applied in *serial presentation* to imply transformation where no fluidity actually occurs. In cinematic convention, a number of these transitions may imply transformation. A cross-dissolve between two similar scenes may, for example, represent a transformation from one to the next. In such examples, although no transformation is directly witnessed, the audience understands, according to cinematic convention, that a transformation has been implied. Kevin Fisher cites, for example, the apparent transformation of *The Wolf Man* (George Wagner, 1941), as implied by a series of dissolves between a series of 'static frames', sequentially revealing 'the actor in various stages of make-up'.⁴⁸² In temporal typography, a sequence of static typographic arrangements may also involve such slow cinematic transitions, rather than sudden cuts. In

⁴⁸¹ Rock, An Introduction to Perception, 2.

⁴⁸² Kevin Fisher, 'Tracing the Tesseract: A Conceptual Prehistory of the Morph,' in *Metamorphing: Visual transformation and the Culture of Quick-change*, ed. Socbchack, Vivian (Minneapolis: University of Minnesota Press, 2000), 118.

such cases, one typographic arrangement does not transform into another; it is replaced by another (see Fig. 52). These examples cannot, therefore, be defined as fluid.

ABBBFigure 52. The letters 'a' and 'b' undergoing cross-dissolve, or superimposition. In the intermediate stage,
both letters exist, layered on top of one another. Each letter is a distinctly separate form. 'A' does not
transform into 'b'; it is replaced by 'b'. According to cinematic convention, this may be seen to represent
the transformation of 'A' into 'B'.

In some examples of three-dimensional temporal typography, on-screen contours must necessarily transform in order to convey changes in distance and rotation. Since threedimensional objects are represented on a two-dimensional screen, three-dimensional motion must be represented as two-dimensional change. When observed veridically, threedimensional motion is represented as two-dimensional fluctuation. Irvin Rock notes that 'if a sharp shadow of a three-dimensional figure is thrown on a screen and the figure rotates, then the shadow of the figure will undergo a transformation...This transforming shadow pattern will look strikingly three-dimensional ... Logically, the transforming shadow pattern is ambiguous as to what it represents and could be perceived as a distorting two-dimensional figure' but instead the viewer perceives a figure that remains constant, and is rotating.⁴⁸³ A similar scenario occurs when a three-dimensional form appears on a flat screen. Threedimensional letterforms are reduced to a flat representation on a single plane. Volume may be suggested when a form distorts, implying 'spatial rotation'.⁴⁸⁴ This occurs because 'perceived qualities... tend to remain constant, despite the fact that the proximal stimulus [or on-screen image] of objects is constantly changing'.⁴⁸⁵ One example of this is 'shape constancy': 'an implicit assumption that objects are permanent'.⁴⁸⁶ The law of *Prägnanz* determines perception in such cases, suggesting that 'there is a preference to perceive whichever outcome is the simplest'.⁴⁸⁷ A constant, revolving shape is simpler (and more regular), and therefore perceived as more likely, than a morphing form. These objects are not perceived as transforming, but as moving and rotating (as in Fig. 53). It is only when

⁴⁸³ Rock, An Introduction to Perception, 117

⁴⁸⁴ Woolman and Bellantoni, *Moving Type*, 64.

⁴⁸⁵ Rock, An Introduction to Perception, 10.

⁴⁸⁶ Ibid., 69; Ibid. 10.

⁴⁸⁷ Ibid., 131.

such objects rotate to present an alternative identity that these examples can be considered fluid.

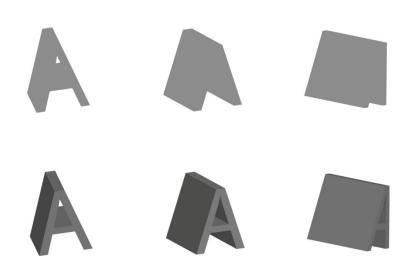


Figure 53. Two-dimensional representation of a revolving three-dimensional shape, shown (top) in outline, and (bottom) as three-dimensional object. Although the contours transform, the shape is perceived as constant, and its aspect is perceived as changing.

Artefacts which could be described in the above terms cannot be classified as fluid, either because they do not exhibit transformation (merely imply it as a result of a cultural code), or they only exhibit transformation when viewed veridically, as a result of three-dimensional representation on a two-dimensional surface. Here, there can be a fine line between fluid and non-fluid artefacts, as an identical process may or may not result in an apparent change of identity. This is true of all forms of fluidity, where behaviours carried out to a limited extent may not yield new identities, but those same behaviours (as described in Chapter 5) may be applied to prompt more significant change, leading to new identities.

Chapter 5: Typology of Fluid Behaviours

5.1 Introduction to Fluid Behaviours

This chapter presents an overview of the categories of fluid behaviours. It identifies three main categories of fluidity (*construction*, *metamorphosis* and *revelation*), of which *construction* and *revelation* are further subdivided. *Construction* may occur either through *motion of parts*, or *through navigation*, causing parts to either *align* or *overlap*; *metamorphosis* may be *direct*, or it may include forms which *split* or *combine*; and *revelation* may either occur by *rotation or navigation*, by *colour shift*, or by *illumination*.

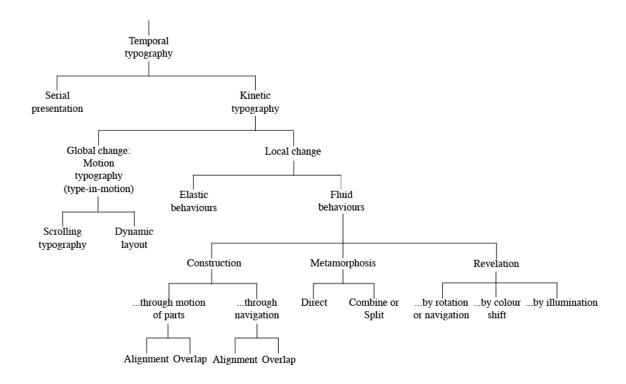


Figure 54. Diagram of typology, showing proposed categories of fluidity.

This chapter will proceed with 5.1.1, which identifies how the work of Eduardo Kac has informed this typology. In 'Key concepts of Holopoetry', in which he defines 'fluid signs', Eduardo Kac describes how he uses 'the illusion of three-dimensional space' to create forms which 'oscillate' 'between a word and an abstract shape'.⁴⁸⁸ His holographic forms appear to

⁴⁸⁸ Kac, 'Key Concepts.' For discussion of Kac's use of the term 'word' in this context, see 5.1.1.

have volume, and to float within the empty space that lies between the viewer and the actual surface of the hologram. By navigating around a holopoem, the viewer observes an apparent transformation, as forms.⁴⁸⁹ Each of the categories presented in this chapter share the defining features of Kac's 'fluid signs'. Each behaviour causes linguistic forms to 'change [their] overall visual configuration in time, therefore escaping the constancy of meaning a printed sign would have'.⁴⁹⁰ They transform into 'abstract shape' or 'scene or object', and in doing so acquire new meanings.⁴⁹¹

The experience of fluidity in Kac's holopoetry is perhaps most similar to the fluidity exhibited in *construction by navigation*. In viewing holopoetry, a viewer must navigate around the poem to reveal new identities. In *construction by navigation*, new identities are also revealed by navigation around objects. Here, however, the navigation is most usually tracked by a camera, rather than involving the real navigation of the viewer within a real-life environment. It is apparent navigation rather than actual navigation. Also like holopoetry, this behaviour exploits the features of virtual three-dimensional space, in particular, the possibility of 'parallax', enhanced by the flattening of space that occurs in 'indirect perception' on a flat screen.⁴⁹² This behaviour is evident in many of Channel 4's most recent idents, in which architectural components apparently align to form the figure '4' when viewed from an appropriate angle. Other Channel 4 idents construct the figure '4' with similar results, using component parts which align independently, and are therefore not reliant on viewer/camera navigation. This can be termed *construction through motion of parts*. Both of these categories of *construction* are explored in 5.2.

In other artefacts, new identities are revealed when an existing form contorts, in a behaviour which can be described as *metamorphosis*, and will be explored in 5.3. This behaviour is exhibited in Komninos Zervos' *Beer* (2005). Of the three main categories of fluidity, this is perhaps the behaviour that can be most commonly identified in non-typographic environments. Numerous existing texts discuss metamorphosis in non-linguistic screenbased artefacts, acknowledging how it leads one identity to be replaced by another.⁴⁹³

⁴⁸⁹ Ibid.

⁴⁹⁰ Ibid.

⁴⁹¹ Ibid.

⁴⁹² Rock, Indirect Perception, 374-377.

⁴⁹³ Categories of fluid behaviour in temporal typography have been italicised throughout this thesis for emphasis and clarity. The term 'metamorphosis' does not appear in italics in this instance as it does not refer to a fluid

Although many existing texts discuss metamorphosis without differentiating between further sub-categories, it is necessary to make the distinction between forms that undergo a direct pole-to-pole metamorphosis, and those that divide mitoically (in a way that resembles cell mitosis), thereby varying the number of forms present.

The third main category of fluidity *revelation*, will be explored in 5.4. This behaviour involves the *revelation* of identities that already exist within the artefact but have been hidden from view. These identities may be discovered as a consequence of either *rotation or navigation* around a three-dimensional form or space, of *colour shift* which establishes the difference between figure and ground, or of *illumination*, which may likewise reveal the difference between figure or ground, by causing the linguistic figure to cast a shadow on the background surface.

Each of these categories causes the introduction of new identities according to different sets of Gestalt laws of observation. In *construction by alignment*, letterforms must necessarily be constructed from separate parts. The presentation of a linguistic identity must therefore, at a minimum, involve the apparent *closure* of gaps in the strokes of the letter, and *similarity* of component parts (and often *similarity* of their behaviour). In *revelation* and *metamorphosis*, *figure/ground* relationships become important in establishing the identity of a form.

This chapter will discuss the three main categories of fluid type as identified above, and will introduce issues arising from fluid behaviours in each category. A number of examples will be analysed in demonstration of the applicability of Gestalt laws of visual perception to this kind of artefact.

5.1.1 How this Typology Draws from Holopoetry

In Eduardo Kac's holopoetry, a number of different changes occur, and it is therefore possible to identify a number of different behaviours. These can be considered as different categories of fluidity. These different behaviours, as can be identified in Kac's holopoetry, align with the main categories of fluidity identified in the typology presented in 5.1.

behaviour in temporal typography, but to a more general field already acknowledged by other texts. Where the term is used as other categories in the typology, as a fluid behaviour, it appears in italics.

Those of Kac's holopoems which may be classified as containing fluid signs, in that they 'operate [transformation] between a word and an abstract shape, or between a word and a scene or object', do so through the different behaviours exhibited in the following examples.⁴⁹⁴ It is useful to note that when Kac discusses fluidity in his holopoems, he observes transformation affecting a 'word', not 'letter' or 'character'. All of the following examples contain whole words, and those whole words are involved in each transformation. Kac's use of the term 'word' is misleading for several reasons. First, one of the examples below (Multiple, 1989) contains a pole that is numerical, and so not a 'word'; second, it occurs at the level of the individual letter; third, as Kac notes when addressing legibility, many of his holopoems never simultaneously present the viewer with a complete set of letters forming a whole.⁴⁹⁵ This again raises the issue of local verses global change that was introduced in 2.3.3. Even when letters transform simultaneously, leading to a change in the meaning of the entire word, it is at the level of the individual alphanumeric sign that the properties of a fluid behaviour may be observed (see 6.4 for an illustration of this fact). In order to assess each kind of transformation that occurs in these examples, it is necessary to inspect how it alters each individual letter.

In both *Souvenir D'Andromeda* (1990, see 2.3.4, and 5.2.2), and *Maybe then, if only as* (1993) the viewer's navigation results in the apparent construction of letterforms from smaller objects. In *Souvenir D'Andromeda*, polygonal shapes appear to align to form the word 'LIMBO' when the viewer moves into a privileged position, or 'viewing zone'.⁴⁹⁶ The letters may be perceived as being constructed or as breaking apart depending on the direction of the viewer's movement as she enters the viewing zone. As with all holograms, the viewer may retrace his steps to view the behaviour forwards or in reverse, giving the impression of a 'time-reversal transition'.⁴⁹⁷ In *Maybe then, if only as*, fluidity is observable in the first of four neighbouring holograms, containing the phrase 'WHERE ARE WE?' As the viewer navigates around the hologram, the word 'WHERE' appears to break apart into 'falling snow flakes', which fall until they land on, and partially conceal, the words 'ARE' and 'WE'.⁴⁹⁸

⁴⁹⁴ Kac, 'Recent experiments,' 45.

⁴⁹⁵ Kac, 'Holopoetry: from "Holo/Olho" (1983) to "When?" (1988),' 31.

⁴⁹⁶ Kac, 'Key Concepts.'

⁴⁹⁷ Kac, 'Recent experiments,' 44.

⁴⁹⁸ Kac, 'Holopoetry, Hypertext, Hyperpoetry,' 61.

Both of these examples may be classified as presenting *construction*, as letterforms are constructed from, and break apart into, a collection of separate objects. In both cases, it is the navigation of the viewer that prompts this process. It would, therefore, appear possible to classify both of these holopoems as containing *construction through navigation*. However, in the case of holopoems, it must be acknowledged that all behaviours occur as a result of viewer navigation, as this is fundamental to the viewing of any hologram. When this is taken into account, and the two holograms are viewed, it is possible to identify an important difference in the apparent process. According to the viewer's subjective perception, the behaviour that appears to occur in *Souvenir D'Andromeda* is, as suggested, *construction through navigation*. However, in *Maybe then, if only as*, the viewer does not have the sensation of parts separated as a consequence of changing viewpoint, rather of parts appearing to fall apart as if they are in independent motion, which happens to coincide with the viewer's navigation. The word 'WHERE' appears to dissolve into snowflakes as if each snowflake is falling to a new location. Therefore, this second example can be classified as *construction through motion of parts*.

Two of the holopoems that Kac created in 1992, *Astray in Deimos* and *Havoc*, present behaviour that Kac himself describes as 'typographic metamorphosis'.⁴⁹⁹ In *Astray in Deimos*, a collection of wireframe letters spell the words 'EERIE' and 'MIST' at the two poles of a transformation (see fig. 55). At a privileged location (Kac's 'viewing zone') the viewer may be presented with either word, and then, moving towards another vantage point, will observe the letters of that word undergo a 'topological transformation'.⁵⁰⁰ Four of the letters in the word 'EERIE' each metamorphose so that they become the letters of 'MIST', while the additional letter vanishes. In *Havoc* (see fig. 56) 'an abstract shape morphs into the word 'WHEN' which morphs again into an abstract shape'.⁵⁰¹ This metamorphosis takes the form of a twirl. The letters become stretched and distorted, as if sucked into a vortex, until they lose their verbal identity, becoming entirely abstract. This behaviour reverses itself as the viewer moves to and from the privileged viewing zone.

499 Ibid., 58.

⁵⁰⁰ Ibid.

⁵⁰¹ Ibid., 60.

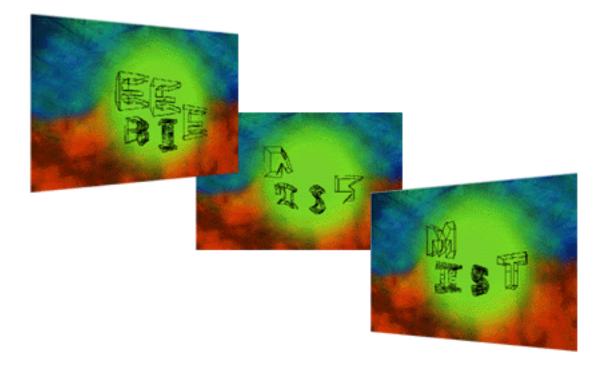


Figure 55. Eduardo Kac, three views of Astray in Deimos, multicolour computer holographic stereogram, 1992, collection of the Museum of Holography, Chicago. Source: Eduardo Kac, 'Complete List of Holopoems (1983-1993),' Kac Web, 1999, accessed July 13, 2011, http://www.ekac.org/allholopoems.html

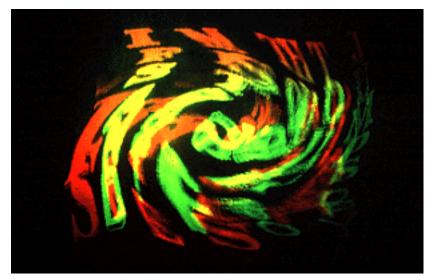


Figure 56. Eduardo Kac, *Havoc*, 30x120 cm (triptych), multicolour computer holographic stereogram, 1992, personal collection of Eduardo Kac. Source: Kac, 'Complete List.'

Though *Astray in Deimos* presents a transformation between two verbal poles, and *Havoc* presents a transformation from word to abstract shape, Kac hypothesises that it would also be possible for one pole of a metamorphosis to be a pictorial 'scene' or 'object'.⁵⁰² Several such metamorphoses will be introduced in 5.3, in for example, BB/Saunders' *Love* (2006), in which the non-verbal pole is a human egg.

A third kind of transformation, revelation, can be observed in Multiple (1989, see fig. 57). In this holopoem, three-dimensional numbers can be observed from one viewing zone. As the viewer moves, she initially expects to be able to experience the illusion of walking around these numbers to view them in reverse. However, as the numbers pivot in response to the viewer's movement, the reverse view of these numbers is revealed to be a series of letters, spelling the word 'POEM'. It appears, therefore, that the numbers have transformed into a word as the viewer navigates around them.⁵⁰³ It is revealed that the front face of the first figure reads '9', while its back face reads 'P', and so on. This exploits the similarity of the letters in POEM to the reversed shape of the numbers '9', '0', and '3'. '3', for example, when reversed, closely resembles as 'E'. The final digit, another '3', is presented at an angle so that it may easily be read as 'm', when anchored by the presence of other alphabetic, rather than numeric, characters. This piece draws attention to the similarity between alphabetic and numeric characters, but examples from temporal media described in 5.4 will show that it is possible for *revelation by rotation or navigation* to move beyond the exploitation of the existing or natural characteristics of alphanumeric forms, through the use of more complex three-dimensional shapes.

⁵⁰² Kac, 'Recent experiments,' 45.

⁵⁰³ Ibid., 48.

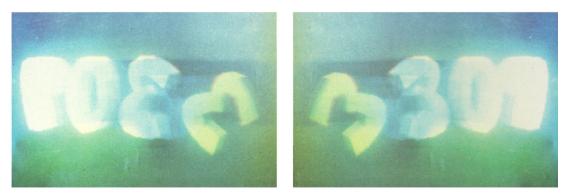


Figure 57. Eduardo Kac, two views of *Multiple*, 20x25 cm, achromatic computer holographic stereogram,
 1989, Susan Cowles Collection, New York; Yannis Ziogas Collection, Marousi. Source: Kac, Eduardo,
 Hodibis Potax (Ivry-Sur-Seine: Édition Action Poétique, 2007), 38.

The typology presented in 5.1 identifies categories and sub-categories that do not appear in Kac's work. Kac's holopoetry to date does not fully explore all the possibilities of fluidity that may be encountered in screen-based fluidity, and so there is a requirement for these additional categories. For example, though *revelation by rotation* is represented in holopoetry, other forms of *revelation* are not. It is not necessarily the case that these additional categories could not exist in holographic media, but simply that they have not yet been produced.

5.2 Construction

5.2.1 Introduction to Construction

This section will introduce the fluid behaviour that is arguably most similar to the kinds of transformation seen in Eduardo Kac's holopoetry. In holopotery, fluidity is experienced in the three-dimensional space which exists between the viewer and the hologram, and forms are experienced as occupying that space. Viewers navigate around this space, causing forms to change, losing their initial identity and adopt new identities which may be either abstract or verbal.⁵⁰⁴ Some on-screen artefacts replicate this experience quite accurately, presenting, as with holopoetry, imagined three-dimensional space, within which navigation can reveal new identities through the apparent transformation of existing forms.

⁵⁰⁴ Kac, 'Key Concepts.'

Such events occur in MPC's Channel 4 idents, including *Pylon* (2005, Fig. 58). In this ident, the figure '4' is constructed from sections of pylons that remain static, floating in space. The viewer's perspective is that of a passenger in a car which passes the arrangement of objects. The '4' configuration is created as the viewing angle changes, causing the objects to apparently align. As in Kac's holopoetry, navigation around environmental space causes the introduction of a new identity within existing forms. The behaviour which causes the introduction of the '4' identity is one of *construction*. The '4' is constructed from a collection of different parts, which appear to align to present a configuration. This behaviour can be described as *construction through navigation*.

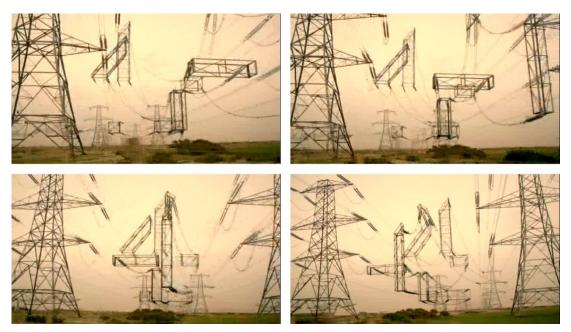


Figure 58. MPC, Pylons, Channel 4 ident, 2005. The figure '4' is apparently constructed as the viewer navigates around the configuration of static objects. Source: 'Four to the Floor: The Ever Growing Complete-ish Collection of channel 4 Idents,' *Idents.tv*, 2006, accessed July 17, 2011, http://idents.tv/blog/category/uk-channel-4/page/4/

The diagram below (Fig. 59) demonstrates how this kind of *construction through navigation* can occur. Forms separated within three-dimensional space can appear to be abstract (or, in some cases, pictorial or linguistic), and located away from one another, when viewed from some angles, while at other angles, a complete letterform is observed. Navigation around this collection of forms causes them to apparently align and flatten to become a single sign.

This alignment is aided in onscreen examples of fluid *construction through navigation* by the flat screen which does not allow 'binocular disparity' that, in real-life environments, is a cue to the varying distances of objects.⁵⁰⁵ As Solos and Wedwell observe, 'letters and their forms do not customarily exist in three-dimensional space. Letterforms themselves have no intrinsic third dimension'.⁵⁰⁶ For this reason, the viewer perceives the separate shapes as being flattened onto a single plane - a configuration that is, according to the Gestalt law of *Prägnanz*, simpler.



Figure 59. In *construction through navigation*, multiple abstract forms that are separated within environmental space can be perceived as a single letterform when the viewer is shown the arrangement from certain angles (in this case, the front or back).

In other Channel 4 idents, a similar outcome is achieved without navigation. *Alien* (MPC, 2005) features a '4' that is constructed through the motion of extraterrestrial parts (Fig. 60). This behaviour requires parts to move independently of one another. They are perceived, therefore, as part of a more significant whole not due to a change in the viewer's perspective, but as a result of being repositioned close to one another. Here, as in *Pylons*, the '4' is a configuration constructed from parts. But unlike in *Pylons*, the construction of a new identity is achieved through the independent motion of the parts. This behaviour can therefore be described as *construction through motion of parts*. Although Channel 4 are by no means the only company to employ *construction through motion of parts*, highlights the similarities and differences between these two behaviours. The two behaviours, and the forms to which they are applied, are so similar that they are easily recognised as belonging to a single set of idents, representative of the same brand.

⁵⁰⁵ Rock, Indirect Perception, 371.

⁵⁰⁶ Solos and Wedell, *Type, Image, Message,* 10.



Figure 60. MPC, *Alien*, Channel 4 ident, 2005. Here, the figure '4' that is constructed is not dissimilar to that constructed in fig. 1, but in this example, the separate objects move independently. Source: 'Four to the Floor'



Figure 61. Abstract shapes converge to form an 'A' configuration.

Fig. 61 (above) shows how *construction through motion of parts* may occur. As with *construction through navigation*, an arrangement of abstract shapes is initially presented. In some cases, these separate forms may be pictorial or typographic. These forms converge, moving independently of one another, until they converge to present a whole configuration that can be identified as a letterform.

Although *construction through motion of parts* does require motion of forms, it is distinct from *dynamic layout*. In *construction*, motion occurs at a local level, within individual characterforms, causing the introduction of new identities that characterises fluidity. In

dynamic layout, the motion may be similar, but only global layout is changed while the form of individual characters remains unaffected.

5.2.2. Construction, Anamorphosis and the Privileged Position in Eduardo Kac's Holopoetry

When Kac's holopoems were introduced in 2.3.4, it was observed that holopoems have much in common with examples of anamorphosis. Just as the skull in Holbein's The Ambassadors may only be viewed from a privileged viewpoint, the areas in front of Kac's holopoems contain 'viewing zones' from which spectators can view the verbal poles of each fluid characterform.⁵⁰⁷ As with anamorphic paintings and drawings, holopoems appear to 'change as [they are] viewed from different perspectives'.⁵⁰⁸ In early examples of anamorphosis, including those by Holbein and da Vinci, the subject appears on the 'plane surface' of the canvas, and so could not take advantage of physical three-dimensional space.⁵⁰⁹ They were simply 'deformed' or 'extremely oblique' images.⁵¹⁰ The viewer's navigation around the canvas, and the resulting apparent compression of space, does not cause separate parts to align, as in *construction*, but merely the compression and distortion of a single form, so that it becomes recognisable. This behaviour may therefore be likened to distortion rather than construction. For this reason, further exploration of anamorphosis will be provided in 5.3, where it will be discussed in relation to metamorphosis. However, there are many more recent works, which have been described as 'anamorphic', that exhibit what may be more appropriately equated to *construction through navigation*. These works will be explored here.

Emanuele Tesauro indentifies the work of Felice Varini as using 'anamorphic devices'.⁵¹¹ Felice Varini uses the surfaces of architectural structures as a canvas for large-scale abstract paintings. Like Kac's holopoems, Varini's paintings reveal shapes to the viewer as a consequence of his/her navigation through real-life space. Her abstract shapes, which are

⁵⁰⁷ Kac, 'Key Concepts.'

⁵⁰⁸ Kac, 'Holopoetry: from 'Holo/Olho" (1983) to "When?" (1988),' 30.

⁵⁰⁹ Tesauro, 'Beyond Anamorphosis,' 98.

⁵¹⁰ Damisch, *A theory of cloud*, 134; John V. Kulvicki, *On Images: their structure and content* (Oxford: Oxford University Press, 2006), 185.

⁵¹¹ Tesauro, 'Beyond Anamorphosis,' 101.

painted on various walls and surfaces, appear to align to create more regular forms when the viewer takes a certain position directly in front of the painted architecture. These forms are systematically distorted by the artist, and then returned to their normal proportions by the illusionistic compression of space.⁵¹² For Cercle et Suite D'éclats (2009), Varini painted curved white forms on the walls and rooves of chalets in Vercorin, Switzerland. From most viewpoints, these curved shapes appear visually similar and related, but separate. When viewed on entering the town, the curves appear to align and join, as if breaking free of the surfaces to which they are fixed, creating an abstract arrangement of circles on a single flat plane in illusory space (see fig. 62). It is this distortion, leading to the illusionistic compression of forms, that can be identified as characteristic of anamorphosis. Varini's work illustrates how shapes located at various distances from the viewer may be imagined as belonging on the same plane, even when the surrounding environment provides context that would suggest otherwise. The familiarity of a regular shape like these circles can cause them to apparently become disconnected from their environment, through an apparent flattening of space. In Gestalt terms, Varini's shapes are unconsciously selected as figure, while the surrounding landscape is designated as ground. The simplicity of a circle, as per the law of *Prägnanz*, makes it a more likely form than the separate distorted curves which appear in reality.

⁵¹² Damisch, A theory of cloud, 134.

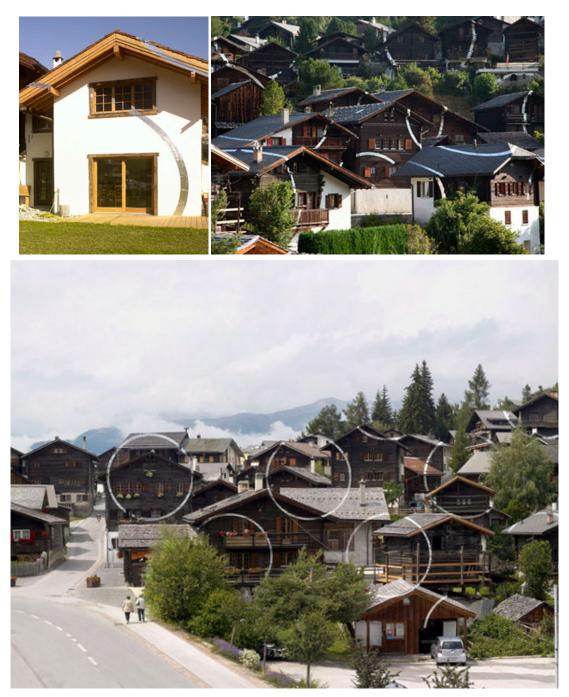


Figure 62. Felice Varini, *Cercle et suit d'éclats*, 2009. Source: 'Cercle et Suite D'éclats : Beautiful Swiss Geometry,' *The Coolist*, 2009, accessed July 18, 2011. http://www.thecoolist.com/cercle-et-suite-d'eclatsbeautiful-swiss-geometry/

Though it is the use of oblique forms, and apparent compression of those forms from a privileged position, that defines her work as anamorphic, Varini introduces an additional element of *construction*. This *construction*, including the apparent compression of space,

also occurs as a consequence of viewer navigation. These separate forms are only considered part of the same shape when viewed from a single privileged vantage point, equivalent to Kac's 'viewing zone'. Only from that viewpoint do the Gestalt factors of *similarity* and *the good curve* act to bring together these separate parts. ⁵¹³

Very similar behaviours can be seen in other recent works which feature verbal forms displayed across physical environments. Charlie Mitchell's *Helvetica* (2010) uses the surfaces of a stairwell to present an arrangement of typographic forms. On emerging from the staircase, the viewer is surrounded by almost abstract glyphs. Each letter is skewed and elongated, or sliced into sections, and no discernable verbal message is communicated. On moving away from the stairs, the viewer may observe an entirely different presentation: a complete typographic message (see fig. 63). The word 'Helvetica' emerges from the architectural space, but is an illusion. Many of its letters are not in fact whole, but are modularly constructed, and only perceived as whole as their parts appear to align when viewed from an appropriate angle.

⁵¹³ Wertheimer, 'Special Problems, first Group,' 75; Ibid., 83.



Figure 63. Charlie Mitchell, *Helvetica*, 2010. Source: Mitchell, Charlie, 'Anamorphic Helvetica,' *Behance*, 2009, accessed July 18, 2011. http://www.behance.net/gallery/Anamorphoic-Helvetica/330746

A similar behaviour is captured on video by Joseph Egan and Hunter Thomson, who created and filmed a series of works of 'anamorphic typography' (2010). These works feature

broken and distorted letterforms arranged within real-life architectural space. The film which accompanies the project begins with the privileged view from the end of a corridor, from which the letterforms appear to be whole (Fig. 64). As the camera tracks down the corridor, the letters break into their component parts. Many of these forms are revealed as grossly distorted as the camera passes by. As in historical examples of anamorphosis, they are distorted to such an extent that they become 'unrecogniseable', recovering 'their normal proportions' only when viewed, 'from a sharp angle'.⁵¹⁴ The verbal message revealed in this way reflects the sentiments of Eduardo Kac (as explored in 2.3.4), telling us that 'it's more than just print'.

The fact that this experience may be captured on camera demonstrates that there may be screen-based equivalents of this phenomenon. Egan and Thompson's video shows how the compression of space to reveal new identities can be contained within a flat surface, and so may become screen-based fluid typography. Indeed, by filming this installation, Egan and Thomson have eliminated the cues provided by 'binocular disparity' that the forms may be separated by distance. The fact that, in Egan and Thompson's video, the whole audience at once encounters the privileged position does not diminish the feeling of spectacular coincidence. The experience remains fleeting, as the camera continues to track through space, and the verbal identities dissipate. There is, therefore, not only a privileged position, but also a privileged moment. In reality, this experience is perhaps even more fleeting than that of viewing anamorphic paintings. In viewing a painting, so long as the viewer can remain immobile, he can retain his privileged access to the hidden form. However, in screen-based fluidity, the experience must be fleeting as it is a product of temporality. The revelation of a new identity is aligned with a moment in time rather than space.

⁵¹⁴ Tesauro, 'Beyond Anamorphosis,' 97.



Figure 64. Joseph Egan and Hunter Thomson, Anamorphic Typography, 2010. Egan and Thomson filmed their anamorphic illustration, demonstrating how the effects can be replicated, even enhanced, in screenbased temporal media. Source: 'joseph egan + hunter thomson: anamorphic typography,' Design Boom, 2010, accessed July 18, 2011, http://www.designboom.com/weblog/cat/8/view/11093/joseph-egan-hunterthomson-anamorphic-typography.html

In Kac's holopoetry, we can substitute the physical separation of forms (as used by Varini, Mitchell and Egan and Thompson) for a virtual separation of forms within the hologram. In holopoetry, though forms are actually contained on the surface of the hologram, they are perceived as being spread across physical space, and so may be perceived as being at different locations. This makes it possible for holopoetry to present a similar experience to that of viewing the anamorphic works of Varini, Mitchell and Egan and Thompson.

Kac's *Souvenir D'Andromeda* (1990) is perhaps the best example by which to illustrate the similarities between Kac's holopoetry and the above examples of anamorphosis. In this holopoem, as the viewer navigates around the hologram, a number of abstract polygons appear to align to present the word 'LIMBO' (see fig. 65). This example shows how the location of the viewer, in relation to a collection of objects distributed across (virtual or

illusory) space, can cause those objects to appear to be arranged in different ways; and therefore, changing the relative locations of the viewer and objects (as when the viewer navigates around a holopoem) the objects can appear to align to construct a meaningful configuration.



Figure 65. Eduardo Kac, three views of *Souvenir D'Andromeda* 30x40cm, digital transmission hologram, 1990, Collection Acqaviva-Faustino, Paris. Image courtesy: Julia Friedman and Eduardo Kac.

5.2.3 The Requirement for Three-dimensional Space

Just as anamorphosis relies on the viewer's navigation through real space, *construction* through navigation also exploits the features of three-dimensional space. In this fluid behaviour there is a requirement for forms to exist in (virtual) three-dimensional space. This is contradictory to the conventional or 'customary' appearance of written or printed characters as two-dimensional forms.⁵¹⁵ As Solos and Wedwell observe, 'Letterforms themselves have no intrinsic third dimension'.⁵¹⁶ Therefore, in order to perceive the presence of a letter that is constructed through navigation, a viewer must experience the apparent flattening of space. In this behaviour, as parts of a letter configuration do not actually align, an illusion is created that the separate static parts are coming together. As the viewer's location relative to the forms changes, it appears that the relative positions of the forms also change. Forms that are arranged across virtual, environmental space will, from most pointsof-view, be perceived veridically, as separate forms.⁵¹⁷ However, from certain angles, the forms will be 'imposed in front of [one] another so that only part of the more distant [form] is visible', or will appear to align, forming a single group.⁵¹⁸ Despite being spaced apart along all 3 axes, they create layers which may, from some viewing angles, appear to overlap or align. In this way, the multiple, separate forms may appear to be one, single form on a flat plane, because there is no longer any evidence for the space which separates them. As in anamorphosis, there is an illusionistic compression of space.⁵¹⁹

This flattening of space can be seen in animations of Hillner's *Cubico St.* (2003, see fig. 66), in which groups of three-dimensional shapes revolve synchronously within virtual threedimensional space (implying user navigation around the configuration) until they align, presenting letterforms. In their initial rotational position, several planes are visible on each form. The viewer is made aware of these planes because each is shaded in a different tone (coding the effect of directional light on surfaces). When the forms have aligned, several objects become part of each single letterform.

⁵¹⁵ Solos and Wedell, *Type, Image, Message*, 10.

⁵¹⁶ Ibid.

⁵¹⁷ Similarly, relative sizes will be judged according to the perception that they are located at different distances. See Rock, *Indirect Perception*, 374.

⁵¹⁸ Rock, An Introduction to Perception, 83.

⁵¹⁹ Damisch, A theory of cloud, 134.

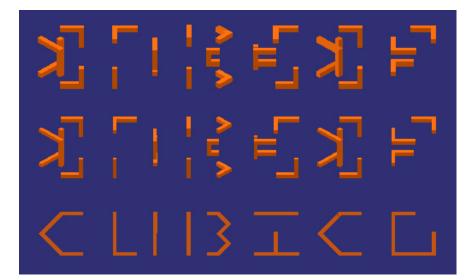


Figure 66. Matthias Hillner, *Cubico St.* 'virtual' font, 2003. Source: Matthias Hillner, 'Cubico St,' *Virtual Typography*, 2005, accessed July 18, 2011, http://www.virtualtypography.com

In this example, a particular feature of virtual three-dimensional space – directional illumination - becomes important. When the shapes that form the letters of 'cubico' are initially presented, their three-dimensionality is indicated by the presence of several different tones of orange, implying different degrees of illumination on different surfaces. In the final letterforms, only a single orange tone is presented, suggesting that only a single plane is visible, and that it faces directly forward. The arrangement of three-dimensional shapes appears to have been flattened. In this way, there are two distinct shifts in the viewer's perception of the onscreen forms. Firstly, there is a shift from apparently three-dimensional objects to two-dimensional shapes, and simultaneously, a shift from abstract to verbal forms, belonging to two different paradigms. The first of these shifts – the flattening of space – enables the second – the appearance of verbal signs.

This apparent flattening is vital in ensuring that the separate abstract shapes are perceived as belonging to a single linguistic form. If the separate forms were not seen as existing on a single plane, they would not be perceived as belonging to a single group, and therefore would not be perceived as part of a letter configuration. Gestalt factors can explain why this apparent flattening occurs. The law of *Prägnanz* states that there is a 'tendency towards simplicity', whereby viewers are most likely to perceive the simplest possible interpretation

of a visual arrangement.⁵²⁰ A three-dimensional form, such as the cube below (Fig. 67), when shaded as if illuminated, will be perceived as a cube since it is a simple, regular shape. When illumination/shading is removed from a representation of a three dimensional form (as in Figs. 68 and 69), it may be interpreted as representing a simpler, two dimensional form. In Figs. 68 and 69, a two-dimensional form is likely to be perceived because a regular, flat hexagon is simpler than a three-dimensional shape.⁵²¹ When similar conditions are applied to multiple objects that are arranged within environmental space, a similar outcome is seen. One surface is indistinguishable from another, and is therefore assumed to be on the same plane.



Figure 67. A cube viewed under directional light. Shadows and highlights enable the viewer to distinguish one surface from another.

Figure 68. A cube drawn as an isometric frame, with no surfaces shown.



Figure 69. A cube viewed under ambient light. Here there no shadows or highlights, and therefore no tonal differences to distinguish one surface from another.

This phenomenon of flattening is not always reliant on changes in illumination. Where light is ambient rather than directional, or whenever there is no distinct variation in illumination at different distances from the viewer, the law of *Prägnanz* functions in a similar way. As in MPC's *Pylons* ident (Fig. 58), objects can be perceived as existing on a single plane purely as a result of their apparent alignment. Here, it is still simpler to perceive a single figure '4' than to perceive a number of separate abstract objects. Since *Prägnanz* dictates that the perception of such an arrangement will be of the 'organisation which requires a minimum number of components', it will be assumed that there is one layer rather than several, and one form rather than many.⁵²² A similar outcome is achieved in *Fear*, a channel Five ident

⁵²⁰ Wilhelm Fuchs, 'Completion Phenomena in Hemianopic Vision,' in Ellis, A Source Book, 352.

⁵²¹ Rock, An Introduction to Perception, 132.

⁵²² Ibid., 271.

by BB/Sunders (2006, Fig. 70). For this and a series of other idents, designers working on behalf of channel Five have adopted a similar *construction through navigation* behaviours as those used by Channel 4, preferring to present four letter words that relate to programme content rather than the channel logo. In *Fear* ethereal dots slowly drift through an empty corridor. Although the corridor is a three-dimensional environment, the dots themselves are two-dimensional, spaced along the x, y and z axes. As the camera tracks through the corridor, the arrangement can be seen at an angle from which it momentarily appears to present the word 'fear'. The ethereal appearance of the dots is suggestive of a ghostly apparition, while the temporary and ephemeral nature of the text identity connotes an uncertainty and insecurity that is a feature of many horror films/programmes. These dots are not only unfamiliar, but unexpected in the corridor setting, making it simpler to perceive them as part of familiar linguistic forms, understood as a graphic overlay of a kind that is common to television idents.



Figure 70. BB/Saunders, *Fear*, ident for Five, 2006. Source: 'Five Fear Ident,' *YouTube*, 2007, accessed July 18, 2011, http://www.youtube.com/watch?v=s05nmKGT7yk

This channel Five ident, like recent Channel 4 idents, presents typographic forms as if they were real-life objects, embedded in a live-action setting. One feature of a three-dimensional space is that tracked motion through that space can replicate the experience of navigation through a real-life environment. In presentations of an apparently real-life environment, with the familiar characteristics of a real space, objects are expected to reliably behave as they do 'in real life'.⁵²³ Indeed, every effort has been made to ensure that the component parts of the

⁵²³ Both Barthes and Peirce acknowledge the trap of interpreting photographs, and as implied by extension, film, as an accurate representation of reality. While semioticians stress that efforts should be made to understand that most photographed or filmed scenes are staged or artificial in other ways, there is an expectation among viewers that their 'appearance corresponds to a reality'. This reality would not be expected to include signs from a verbal

'4' are 'plausible' as architectural objects.⁵²⁴ The presentation of a graphical element (such as a logo) within this space is therefore unexpected, belonging to a paradigm that is normally contained within a graphical environment, and its emergence from the scene is a spectacle.⁵²⁵ It forces a sudden shift from an apparently environmental space, to a graphical space.

In the reading of MPCs Channel 4 idents, *Tokyo* (2006, Fig. 71), *Pylons* (2004, see Fig. 58), *Diner* (2004) and *Urban Street* (2004), that will be explored in more detail in 6.2, the introductory moments establish presence in everyday environments. Objects within the environment appear familiar, and are expected to reliably behave as they do in everyday settings.⁵²⁶ When these objects align and become typographic, they appear to break the rules of reality. The scene is abruptly cast out of reality, and suddenly becomes 'spectacle'. However, throughout this process, the separate parts of the '4' configuration retain the appearance of architectural objects, with 'rendered textures...to ensure that they appear to be part of the environment'.⁵²⁷ This heightens the spectacle, increasing the impression that the '4' is not simply an overlaid graphic, but a much more elaborate arrangement, comparable (as will be shown in 6.2) to a theatrical illusion.

paradigm, except when contained within likely graphical artefacts, such as signage. See Barthes, *Image Music Text*, 17 and Charles Peirce, *Collected Writings* (Cambridge, MA: Harvard University Press, 1931-5), 4.447, as cited in Chandler, *Semiotics*, 42. ⁵²⁴ This plausibility is key in establishing spectacle comparable to that of theatrical illusion. See Slater,

⁵²⁴ This plausibility is key in establishing spectacle comparable to that of theatrical illusion. See Slater, 'Photography and Modern Vision,' 232.

⁵²⁵ For viewers who have already encountered one of these idents, the revelation of the '4' is expected. The 'reallife' introductory moments become a period of anticipation. This expectation has been exploited in MPCs recent Channel 4 idents, as will be explored in 6.2.

⁵²⁶ See footnote 35.

⁵²⁷ Jeff Heusser, John Montgomery and Sydney Seymour, 'MPC London's Award Winning Channel 4 Idents,' *FX Guide*, February 2, 2007, accessed July 19, 2011,

http://www.fxguide.com/featured/MPC_Londons_Award_Winning_Channel_4_Idents/



Figure 71. MPC, *Tokyo*, Channel 4 ident, 2006. Source: MPC, 'Channel 4 Idents,' *The Moving Picture Company*, 2006, accessed July 17, 2011. http://www.moving-picture.com/index.php?option=com_content&view=article&id=341&catid=38&Itemid=926

Three-dimensional construction, however, need not always aim to represent real-life space. Peter Cho's Letterscapes (2005), an interactive animation, presents every letter of the alphabet undergoing a series of different behaviours, each prompted by the movement of the user's cursor. Cho's letters 'E' and 'i' (Figs. 72 and 73) demonstrate that construction through motion of parts may occur in three-dimensional space without appearing to mimic real environments. The letter 'E' is planar, and overtly a graphical object. Its presence within a three-dimensional space is indicated only by the inclusion of a shadow, cast on a surface beneath the letter. As the cursor moves across the screen, the letter breaks apart into rectangular planes which leap forward or backward within the virtual three-dimensional space and then construct another 'E', relocating the letter closer or further from the user. The letter 'i' is also constructed through motion of parts. In this case, the space represented by the screen appears planar, but the 'i' itself resembles a tall pile of isometric cubes. The use of isometric depth (as opposed to a vanishing point) reaffirms associations with a flat surface, since isometric depth is encountered in diagrammatic drawings on flat pages, rather than in real three-dimensional environments. When the 'i' splits apart, its component pieces retain the appearance of cubes, but also adopt a degree of ambiguity, as only some of the cubes have complete contours. The missing contours of several of the cubes hints that they

were intended to be joined like the pieces of a puzzle; they have potential that is only achieved as part of the 'i'.

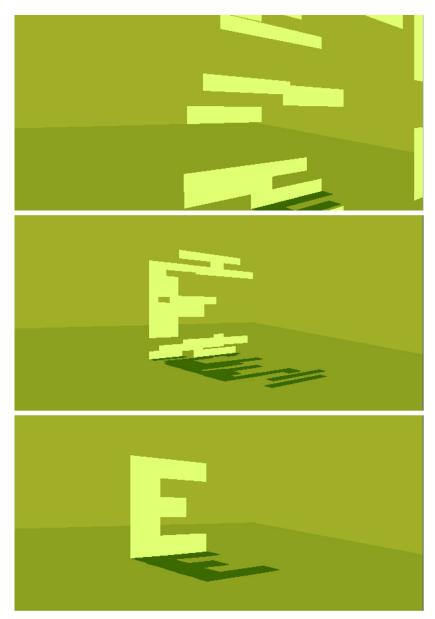


Figure 72. Peter Cho, *Letterscapes (E)*, 2005. Source: Peter Cho, 'Letterscapes,' *TypoTopo*, 2005, accessed July 18, 2011, http://www.typotopo.com/letterscapes/

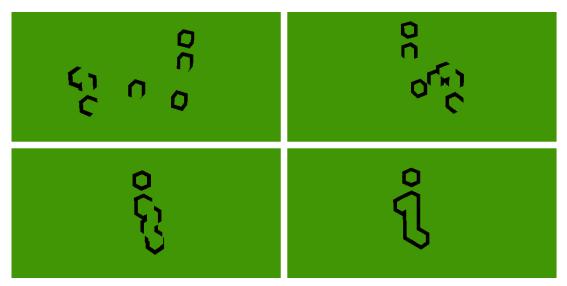


Figure 73. Peter Cho, Letterscapes (i), 2005. Source: Cho, 'Letterscapes,'

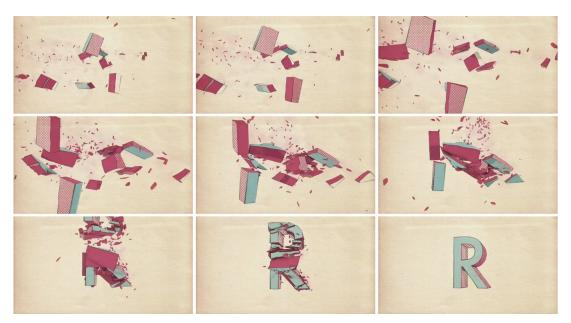


Figure 74. Jess Gorik, *The Letter 'R'*, 2009. Source: Jess Gorrik, 'The Letter 'R,' *Vimeo*, 2009 accessed July 18, 2011, http://vimeo.com/5428633

In construction through motion of parts, we can also see examples which bridge the divide between virtual and illustrated space. In Jess Gorik's *The Letter* 'R' (2009, Fig. 74), the fragments used in the construction of an 'R' are three-dimensional, but have the appearance of hand-drawn illustrations rather than VFX models. Gorik combines behaviours that one would normally expect to associate with virtual models, with an aesthetic that would more commonly appear in print. The separate parts which come together to form this threedimensional 'R' appear fractured and splintered, as if broken apart by some force of nature rather than the purposeful and calculated actions of the designer. This adds an additional curiosity: although the 'r' is a regular and geometric form, its destruction (seen in reverse), is quite the chaotic and unpredictable.

Although *construction through navigation* is only possible in three-dimensional space, when component parts are free to move independently, three-dimensional space is no longer necessary. Many examples of construction by motion of parts do contain three-dimensional space and objects (including, for example, Martin Lambie Nairn's original set of converging '4' idents (1982), and a number of more recent Channel 4 idents: Lawn (2005), and Alien (2006) which will be discussed in detail in 6.2), but there are also many examples which are two-dimensional, existing entirely on a single plane. In Harm van den Dorpel's Type Engine (2005, fig. 75) kinetic parts rearrange to form letters. Each collection of abstract shapes is rearranged several times, presenting a series of several different letters. Although the space and forms presented here are two-dimensional, this construction behaviour is very similar to that seen in three-dimensional *construction through navigation*. When observed veridically (as a retinal or screen-based image without external cues to the contrary), navigation through virtual, environmental space is identical to a synchronised motion of all visible elements, since the only way to present the impression of navigation on a static screen is to move objects in a way that reflects changes in the apparent relative positions of object and viewer.⁵²⁸ This allows for remarkably similar behaviours of *construction* to occur either through navigation within three-dimensional space, or through motion of parts on a single plane. This similarity can be seen when comparing *Type Engine* to Martin Lambie Narin's early Channel 4 idents. In these idents (1982-), the figure' 4' is constructed from an array of independently moving polygons, which converge towards the centre of the screen in representation of the bringing together of television programmes produced by numerous different production companies.⁵²⁹ As in *Type Engine*, the separate components are coloured rectangular forms, and there is little to separate these two examples beyond the use of threedimensionality or planarity. This similarity demonstrates that *navigation through motion of parts* is not contingent on a particular kind of space.

⁵²⁸ Rock, Indirect Perception, 374-5.

⁵²⁹ Woolman and Bellantoni, *Type in Motion*, 34.

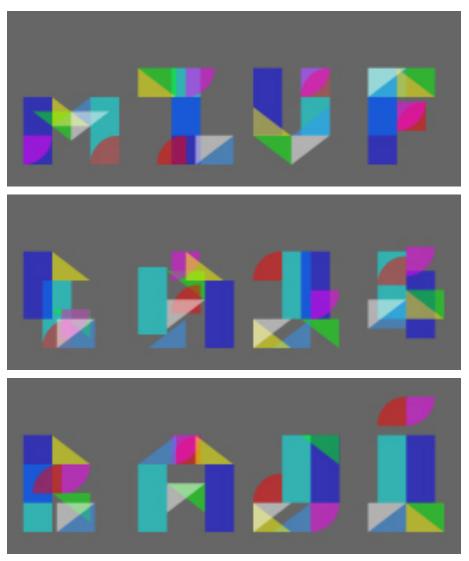


Figure 75. Letters rearrange their geometric parts to form other letters in Harm van der Dorpel's, *Type Engine*, 2005. Source: van der Dorpel, 'Type Engine,' *Harmlog*, .

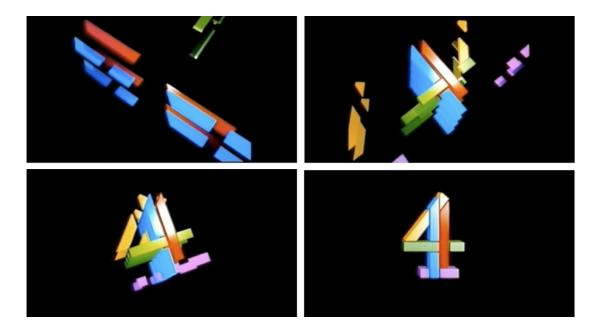


Figure 76. Martin Lambie Nairn, *Interlock*, 1986. This Channel 4 ident demonstrates *construction through motion of parts*. Although it involves three-dimensional parts, this behaviour, and the component parts of the character itself, bear remarkable similarity to those in Harm van der Dorpel's *Type Engine*, above. Source: 'Channel 4 ident 1986,' *YouTube*, 2008, accessed July 17, 2011, http://www.youtube.com/watch?v=C7sjJFSU0cQ

5.2.4 Modular Construction

Construction requires the characterforms involved to be modular, arranged from a number of different component parts. In Gestalt terms, each letter is not a single form, but a 'complex' made from several separate parts (described by Rosemberger and MacNiel as 'primitives').⁵³⁰ As shown in Chapter 2.2.2, modular lettering was established in the static environment of print. Just as in Theo van Doesburg's modular lettering for *Delft*, the modular components of letterforms such as those seen in the Channel 4 and Five idents, and other examples of *construction*, are abstract or pictorial rather than linguistic. It is only when the separate parts are viewed as part of a larger configuration that they adopt a shared linguistic identity.

⁵³⁰ Wertheimer, 'General Problems, Section 2,' 12; Rosenberger and MacNiel, 'Prosodic Font,' 252.

The role of any part of a modular letter is not necessarily fixed. As in historical static examples, component parts are regarded as interchangeable. Their independent identities, therefore, are not tied to the identity of the whole configuration. In static examples such as Joseph Albers' Stencil (1925), or the De Stijl lettering of Bart van der Leck and Theo van Doesburg (see 2.2.2), the same primitives serve several different functions, in several different letters (a single rectangle may be a stem, or, when rotated, a crossbar). In fluid construction, component parts are actively seen to exchange one role for another. By being removed from one configuration and becoming part of an alternative configuration, a single shape or object may be seen to form part of several different identities, as is the case in Harm van der Dorpel's Type Engine (Fig. 75) and I Wouldn't Normally Do This Kind of Thing (2005, Fig. 77). In both of van der Dorpel's animations, each form plays multiple roles. The same set of primitives is used to construct all the complete letterforms that are required to spell out the lyrics to a song. Here, the same shapes are utilized in various ways to construct multiple letters at different times, as each line of the song is presented sequentially. In both of these animations, the interchangeability of the component parts is emphasized by the fact that each set of primitives appears identical when unused, returning to a non-linguistic pile of abstract pieces. In I Wouldn't Normally, even when no letterform is on display, the structural characteristics of each component part hints at its potential for verbal meaning. Many have serifs or drop-terminals, and so bear the hallmarks of Roman typographic forms. This encourages the viewer to seek out verbal meaning, rather than any alternative from another paradigm.

UNY CIRY INFEEL INFEEL INCING

Figure 77. Harm van der Dorpel, *I Wouldn't Normally...*, 2005. In this example of *construction through motion of parts*, the features of each abstract shape hint at the possibility of verbal meaning. Each abstract part has the telltale sign of a typographic form, such as a serif or drop-terminal. Source: van der Dorpel, 'I Wouldn't Normally Do This Kind of Thing,' *Harmlog*.

The recognisable identities of van der Dorpel's configurations are all verbal, so there is a temptation to view component parts as potentially only serving a notable role as part of a letterform. However, as identified by Kac, fluid forms may present identities that are not linguistic, but pictorial.⁵³¹ In Karst-Janneke Rogaar & Roel Wouters's credit sequence for *Matzes* (2004, see fig. 78), the same set of white lines that is used in the construction of the film title initially presents itself as part of a pattern.

⁵³¹ Kac, 'Key Concepts.'



Figure 78. Karst-Janneke Rogaar & Roel Wouters, *Matzes* title sequence, 2004. In this sequence, a pattern breaks apart and its parts independently realign to present the title of the film. Source: 'Matzes Titles,' *YouTube*, 2009, accessed June 8, 2011, http://www.youtube.com/watch?v=6Zw7SXX4MDE

The identity of each component part is not only dictated by how it is used in a configuration. While outside of the configuration, parts may have entirely independent identities. Each component part in van den Dorpel's animations has its own identity: that of an abstract shape. In other examples, the separate component parts may additionally have the independent identities of objects. In *Tokyo*, for example, each component part is an architectural object or billboard (see fig. 71). Luigi de Aloisio's *Mecho 3* (Fig. 79) constructs letterforms out of mechanical arms. When the letters disassemble in response to the movement of the cursor, the 'arm' identity becomes more prevalent than the identity/purpose of each arm as a part of a letter, reinforcing associations with mechanical technology.



Figure 79. Luigi de Aloisio, *Mecho 3*, interactive animation. Here, each component part of every letterform has its own, pictorial identity, that is distinct from the verbal identity of the whole arrangement. Source: Woolman, *Type in Motion 2*, 166.

When component parts of a configuration have their own pictorial identities, the transformation from text to image or vice versa can reinforce, clarify or contradict the meaning of the text. As with written or spoken language, the meaning of the artefact 'unfolds during a passage of time'.⁵³² In the channel Five ident, Free (BB/Saunders, 2006, see Fig. 80), the initial scene depicts balloons floating in the sky. The balloons may be associated with children's parties, flight, or any number of related events/ideas. As the balloons align to form the word 'free', unwanted connotations are eliminated, and the 'preferred meaning'⁵³³ of the scene is emphasized. The text also has the number of possible connotations restricted as a result of its appearance in the same sequence as floating balloons. The meaning of a word which may, in other situations, be associated with financial cost, is narrowed/restricted to meanings that are shared with the drifting balloons. The viewer is made aware that 'free' refers to a natural, unrestricted freedom that has been connoted by the 'free' movement of the balloons in the breeze. A.J. Greimas obdserves that it is the act of 'transcoding', of translating from one language to another, that generates meaning.⁵³⁴ Meaning, therefore, 'arises from the *interplay* of signs'.⁵³⁵ In this example, the 'interplay' is overt. The transition from text to image is a defining characteristic. This transition, according to Greimas' observation, is what gives the artefact meaning. By being juxtaposed in time, the connotations of the image and text are shared. A 'transfer of meaning'⁵³⁶ occurs in conjunction with the alignment of the balloons. When a form retains properties in this way, despite change, it creates an 'objective correlate'⁵³⁷ between the identities seen at the two poles.

⁵³² Hawkes, *Structuralism and Semiotics*, 25.

⁵³³ Hall, 'Encoding/decoding,'128-38, as cited in Chandler, *Semiotics*, 238.

⁵³⁴ Rose, Visual Methodologies, 121.

⁵³⁵ Ibid., 122.

⁵³⁶ Ibid., 90.

⁵³⁷ Ibid.

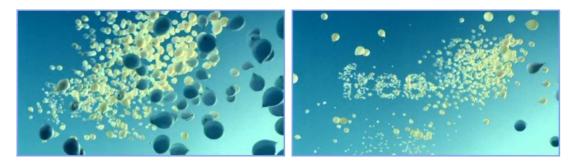


Figure 80. BB/Saunders, *Free*, 2006. Source: 'Channel 5 Idents: January 2006-October 2008,' *This is Five*, n.d., accessed July 18, 2011, http://www.thisisfive.co.uk/ident2006a.shtml

In *construction*, due to the modular nature of the forms, several issues arise that may be considered of particular relevance to Gestalt analysis of these artefacts. Firstly, there is inconsistency in the number of present forms and the number of present identities. As forms are first introduced, they seem to be greater in number than the identities that they ultimately present. In the Channel 4 idents, for example, the '4' is constructed from eight different objects. There are, therefore, eight forms but only one verbal identity: that of the whole configuration. In *Free*, there are many balloons, but only four letterforms. The number of present forms is not consistent with the number of observed identities. This can be discussed in terms of the underlying principle of Gestalt, that the whole is more than the sum of its parts.

Several individual Gestalt laws are also applicable in examples of *construction*. As was observed in 2.2.2, modular construction invites the application of the laws of *closure*, *similarity* and *proximity*. Peter Cho offers a simple demonstration of the relevance of Gestalt factors in *Letterscapes (D)*. In this interactive animation, upper and lowercase 'd's are constructed from red and blue dots (see Fig. 81). As the user's cursor moves over the screen, the dots fly apart, disrupting the arrangements and leaving a chaotic array of differently coloured particles.⁵³⁸ When the letters reform, the *factor of similarity* ensures that the red and blue dots are perceived as belonging to different groups, distinguishing the 'D' and 'd' from one another. Meanwhile, the *factor of closure* ensures that the gaps between the dots

⁵³⁸ The addition of reactivity adds an additional dimension to this artefact. In the range of artefacts presented in this thesis, fluidity may occur automatically, or be triggered by user action. The exploration of reactivity is considered beyond the remit of this thesis, as it does not alter the fundamental properties of the fluid behaviour that this thesis seeks to define.

are imagined as closed, prioritizing the perception of two alphabetic forms over that of many separate circular forms.

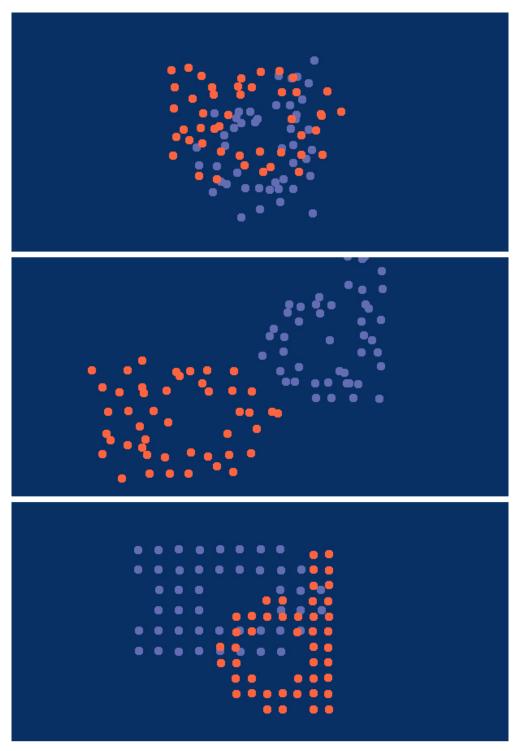


Figure 81. Peter Cho, *Letterscapes (D)*, 2005. Source: Cho, 'Letterscapes.'

These same factors are applicable in three-dimensional, photorealistic examples of *construction*. In *Free* (Fig. 80), for example, the word 'free' is constructed as drifting balloons align in the sky. Initially, the balloons are perceived as floating 'freely', following the natural flow of the breeze. Their motion then becomes artificially constrained, and the balloons shift into formation, presenting letterform configurations. As the breeze continues to blow, the 'free' configuration eventually dissipates. According to Gestalt laws, the balloons, which share similar properties, are associated with one another, and are hence perceived as belonging to a single group, with each group adopting the form of a letter. The grouped balloons are simultaneously disassociated from the sky through the same process, since the sky displays different properties. Those balloons that are closest together are perceived as belonging to a single group, while those that drift away from the group are perceived as belonging together, the *factor of closure* suggests that the gaps between the balloons are filled, presenting the letter configurations as apparently solid, 'closed' forms.

In this example, even when the word 'free' is perceived, there are balloons which remain *similar* and in close *proximity* to the 'free' configuration, and yet are not perceived as belonging to it. Here, the *factor of direction* ensures that other balloons are not interpreted as belonging to the letterforms. The *factor of direction*, when applied to the contours of the configuration, divides the balloons into those which are to be perceived as existing within the contours of the configuration, and those that are outside of it. Where a letter configuration exists in an area of empty sky, the contours of that configuration are established. Where rogue balloons obscure parts of the contour, the direction that has been established elsewhere.

In a temporal environment, Gestalt factors may be applicable when discussing temporal behaviours as well as properties of form, following Jinsook Kim's theories of 'motion Gestalt'.⁵³⁹ *Similarity*, for example, may be observed in the characteristics of kineticism as well as in the visual properties of an object. In MPC's *Alien* (2004, see Fig. 60) the illuminated floating objects which appear in the sky above a car share not only similarity in

⁵³⁹ Kim, 'Motion Gestalt for Screen Design.'

shape, colour, and surface quality, but also exhibit *motion similarity*. Each alien object moves in a tentative, jerky motion. This motion is distinctly different from the smooth, controlled motion that is seen in other channel 4 idents, giving the impression that these floating objects are each controlled by an independent alien pilot, unfamiliar with Earth's territory.

In some cases of *construction*, *figure/ground* relationships become a feature of the transformation. Colleen Ellis' *ABCing* (2010) uses negative space to construct a series of 26 images, one for each letter of the alphabet. By creating each letter large enough to dissect its containing frame, thereby leaving a number of separate background spaces, Ellis presents a collection of abstract shapes. These shapes are then rearranged to form a scene or object. The stills below (Fig. 82) show stages in the construction of a dog, from the negative spaces of a 'd'. Initially, a white 'd' lies on a black and red background. Its contours overlap the edges of the frame so as to dissect the background into 4 parts. The separate parts of the background move, rotate, and shrink, until they converge to form an image of a dog, with the black parts forming the dog's body, and the red part its collar.

Ellis' project was directly inspired by Gestalt notions of *figure/ground*, and its purpose is in part to demonstrate this principle.⁵⁴⁰ As soon as the motion occurs in this animation, there is a shift from figure to ground. The 'd', initially perceived as a complete form, does not move as a whole. Instead, the parts of *ground* which surround it move independently of one another. This immediately destroys the perception of the white area as an alphabetic figure, prioritizing the black and red areas and asserting their role as *figure* rather than *ground*. Unlike other examples of *construction through motion of parts*, the pictorial subjects in *ABCing* are not directly constructed from parts of a letter. The component parts of the dog have at no time been parts of a verbal form. The role of the 'd' is therefore different to many other examples of fluid characterforms. By shifting from *figure* to *ground*, it cannot form part of a subject. In order to do so, it would have to remain in its role as *figure*. It does, however, form part of the pictorial whole in its new role as a plain white background.

⁵⁴⁰ Colleen Ellis, 'Introduction,' ABCing, 2010, accessed July 18, 2011, http://www.abseeing.com

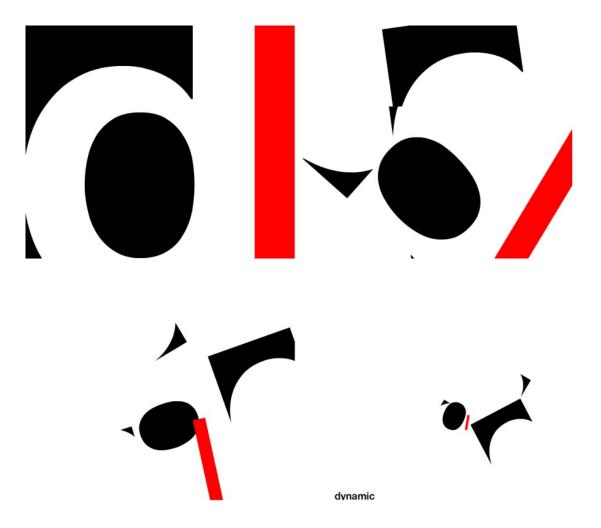


Figure 82. Colleen Ellis, *ABCing (d)*, 2010. Source: Colleen Ellis, 'ABCing' 2010, accessed July 18, 2011, http://www.abseeing.com



Figure 83. Vincent Viriot, *Virgin 17 Ident*, 2009. Source: Viriot, Vincent, 'Virgin 17 ident', Behance Network, 2009, accessed July 18, 2011, http://www.behance.net/Gallery/VIRGIN-17-IDENT/329967

Vincent Viriot's ident for Virgin 17 (Fig. 83) uses layered shapes to construct the negative space around a letter. Coloured panels slide into place, aligning to present the contours of the word 'pub'. Here, it is the *ground* that is modularly constructed, framing the spaces that can be read as letterforms. The letterforms themselves have the features of stencil lettering: the 'P' and 'B' contain protrusions from the contours instead of the usual holes. This feature is caused by necessity, as any hole would have to be formed from a shape that would be separate from the sliding panels. This is the inverse of lettering such as Joseph Albers' *Stencil* (see 2.2.2). While Albers' lettering represents the forms that are created through the use of a stencil, this artefact represents the stencil itself.

5.2.5 Alignment and Overlap

Wherever characterforms are constructed from separate parts, those parts may be seen to either *align* or to *overlap*, with different consequences. When parts *align*, their initial identities are retained, remaining in full view of the audience. When parts *overlap*, sections are hidden behind other forms, often concealing the original identity of each separate part.

In most of the examples discussed in 5.2.3 and 5.2.4, new identities are presented when forms simply align in the formation of a configuration. When this occurs, each component part remains entirely visible. Despite its new role as part of a letterform, the original identity of each form is still visible.

In other cases, where forms overlap, one form conceals part of another so that the multiple forms appear to merge into a single form. In Harm van der Dorpel's *Propaganda Symbol Generator* (2006, Fig. 84), users can input and rearrange letters so that they overlap to construct a single, abstract shape. The identity of each individual letter is lost as it moves behind other letters, and a new configuration identity is introduced. In the stills captured for Fig. 84, that new identity resembles first a flower, and then a spoked wheel. Unlike the examples of *construction* shown previously, this artefact initially presents a verbal identity. The letters themselves are the primitives which form a larger whole. The linguistic identity of these forms is lost as they overlap. There is, in this way, a disruption of local identities. Due to *similarity* in colour, when these forms overlap, their contours are lost, and the letterforms appear to merge into a single more complex shape. As with other examples, *Prägnanz* applies here, as it is simpler to perceive a single shape than an array of several separate forms.



Figure 84. An arrangement of 'r' letterforms overlap and apparently merge to form 2 alternative shapes in van der Dorpel's *Propaganda Symbol Generator*, 2006. Source: Harmvan der Dorpel, 'Propaganda Symbol Generator,' *Harmlog.*

In some examples, overlap can directly cause an apparent shift in the nature or identity of a form. In *Lubalin Graph* (Fig. 85), overlapping forms exploit *figure/group* relationships. In this example, an array of red and white shapes is initially presented on a white background. The white shapes are distinguished from the background by their red outlines, establishing them as *figures*. When these white shapes move over the red shapes their outlines are no longer visible, and so there is nothing to differentiate them from the background. These white shapes, which initially appeared as *figures*, become negative space (or *ground*), perceived as holes in the red shapes that are layered behind them. In this example, therefore, there is not only *construction*, but also subtraction. This example will be discussed in more detail in 6.3.

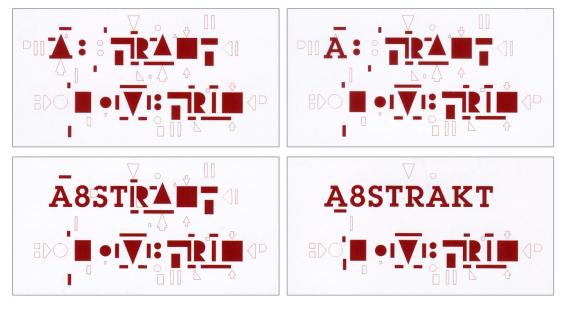


Figure 85. Josh Rhett, Lubalin Graph, c. 2005. Here, some of the forms appear to shift from figure to ground in order to collaborate with other forms in the creation of a shared identity. Source: Woolman, Type in Motion 2, 59.

5.3. Metamorphosis

5.3.1 Introduction to Metamorphosis

This section will introduce the second main category of fluidity: metamorphosis. This is a behaviour in which new identities can be introduced through the distortion of existing forms, and for which Eduardo Kac himself provides terminology.⁵⁴¹ Whole forms with flexible contours may be distorted so that the form is 'reshaped'.⁵⁴² The notion of the flexible letterform, as observed in 2.2.1, can be traced back to experiments by the Académie des Sciences in the creation of 'penche' versions of Romain du Roi letterforms. The idea of malleable letterforms is further manifested in temporal environments, in *elastic* behaviours. When this kind of distortion occurs to the extent that the initial letter identity is abandoned, and a new identity is introduced, it can be described as fluid. Figs. 86 and 87 illustrate the difference between *elasticity* and *metamorphosis*. Though both of these behaviours involve

 ⁵⁴¹ Kac, 'Holopoetry, Hypertext, Hyperpoetry,' 58.
 ⁵⁴² Wolf, 'A Brief History of Morphing,' 83.

distortion of the characterform, this distortion, in *metamorphosis* (Fig. 86) results in the replacement of identities, whereas in *elasticity* (Fig. 87) the initial identity is retained.

AAABB

Figure 86. An 'A' morphs into a 'B'. The contours of the 'A' distort until the 'A' identity is lost, and the form adopts an alternative 'B' identity. Abstract glyphs are formed in the intermediate stages.

ΑΑΑΑ

Figure 87. An *elastic* 'A', distorts without losing its identity.

Metamorphosis can be seen in examples such as Komninos Zervos' animation, *Beer* (2005, Fig. 88). In *Beer*, each letter distorts, while also gradually changing colour, until its silhouette is that of a different letter. Each form therefore has multiple identifiable, letter-identities, and also presents more abstract glyphs during transition from one letter to the next. Here, the characteristics of the morph are as effective as the words at communicating the meaning of the artefact, with languid metamorphosis reflective of the lethargic slur of drunken speech, or the stagger of the inebriated. This behaviour creates glyphs, which are often identifiable as approaching letters but not always legible, creating 'an expectation of a textual-pictorial anamorphosis'.⁵⁴³ This artefact will be analysed in more detail in 6.5.

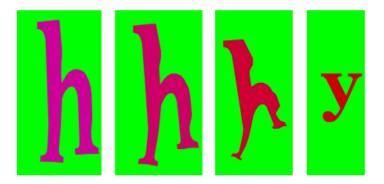


Figure 88. An 'h' morphs into a 'y', producing several intermediary glyphs, in detail from Komninos Zervos' *Beer*, 2005. Source: Zervos, 'Cyberpoetry Underground.'

⁵⁴³ Ikonen, 'Moving Text.'

A three-dimensional equivalent to this kind of change can be seen in the typography of David Jhave Johnston, who experiments with 'algorithmically-generated...typography and poetry'.⁵⁴⁴ In *Human-Mind-Machine* (2008), Johnston presents and systematically destroys the linguistic identities of a series of three-dimensional words. The surfaces of the letter objects are warped and bloated, as if made from a malleable substance. This sustained mutation over time causes the words to become progressively less legible, and ultimately to become unrecogniseable as linguistic objects (see Fig. 89). Though the animation is digital (created using a purpose-built application, *Mr. Softie*), the distortion has the appearance that is being performed manually. This animation is one of a series which feature similar distortion. In this series, some artefacts feature total destruction of linguistic identities, while others feature less extreme distortion, leaving the linguistic identity intact.⁵⁴⁵ The fact that this series features some behaviours which are *fluid*, and others which are merely *elastic*, highlights a trend that exists in practice, as well as in theory (see 2.3), of failing to distinguish between change that results in new identities, and change that does not.

⁵⁴⁴ David Jhave Johnston, 'New Media Jelly: Motile Typography in a Programmable Era' (paper presented at *Beyond the Margins*, Clare College, Cambridge, 12 September 2009).

⁵⁴⁵ See *pLife* (2008), and *Free(dumb)* (2008), available at *Vispo*, http://vispo.com/jhave/



Figure 89. David Jhave Johnston, Human-Mind-Machine, 2008. Source: Johnston, David Jhave, 'Sound Seeker by David Jhave Johnston', Vispo, 2008, accessed July 18, 2011, http://vispo.com/jhave/

5.3.2 Existing Research, and Current Understanding of the term 'Metamorphosis'

It was noted in 5.1.1 that Eduardo Kac observes 'typographic metamorphosis' in some of his holopoetry.⁵⁴⁶ Kac defines this term as meaning a 'topological transformation', describing a behaviour in which letterforms undergo elastic deformation leading to the adoption of an entirely new shape, which can be identified as having a distinctly different identity.⁵⁴⁷ In 2.3, it was observed that existing texts do acknowledge that typographic forms may distort. A few practitioners go further, acknowledging that this distortion may occur to the extent that a form adopts new identities. Peter Cho discusses 'pliant type', as forms that undergo a

 ⁵⁴⁶ Kac, 'Holopoetry, Hypertext, Hyperpoetry,' 58.
 ⁵⁴⁷ Ibid.

distortion of shape.⁵⁴⁸ Cho's text observes that letterforms have elastic contours, and may, where this distortion is extreme, transform into new letters. This kind of transformation is present in, for example, Komninos Zervos' *Beer* (Fig. 88), in which the distortion of forms bears startling resemblance to the diagram's in Cho's text (Fig. 90). Given the similarity between Cho's diagrams and fluid forms such as those in *Beer*, it can be argued that Cho's investigations are therefore effective at identifying a particular kind of fluidity in two-dimensional artefacts.

hhhhhm

Figure 90. Cho, Peter, illustration of 'transition from lowercase h to lowercase n', 1997. Source: Cho, 'Pliant Type.'

David Jhave Johnston also offers terminology to define his distorting linguistic artefacts (including Fig. 89). Johnston describes his own type as 'mutable', and 'mutational'.⁵⁴⁹ However, as was observed in 5.3.1, Johnston's collection of animations presents forms that retain their identity as well as those that lose their identity, and both are described in the same terms. Johnston's term 'mutational' therefore describes the characteristics of a particular quality of local behaviour without making the distinction between elasticity or fluidity; without identifying that or how it may affect identities. Cho's term 'pliant' also implies any degree of elastic change. The terms 'pliant' and 'mutational', though effective at conveying the elasticity of contours, is ineffective at highlighting the complete change of identity that is associated with fluidity. In order to find terminology which is effective at communicating the change of identity that can occur as a result of distortion, and which adheres to Kac's definition of this process, we must once again look outside of the field of temporal typography, to similar behaviours that are identified as existing in non-linguistic temporal artefacts. Where this kind of distortion exists elsewhere, is often referred to as metamorphosis.

⁵⁴⁸ Cho, 'Pliant Type.'

⁵⁴⁹ Johnston, 'New Media Jelly.'

Though existing investigations focus on pictorial forms and objects rather than characterforms, there is already a substantial body of existing research on metamorphosis. 'Metamorphosis' is identified by Gomes et al. as a 'shape evolution', much like the examples depicted in Figs. 88-90, but, unlike the term 'pliant', expects deformations to result in new identities.⁵⁵⁰ 'Metamorphosis' is used to identify not simply *elastic* distortion, but more specifically distortion between poles. It is as a result of the introduction of a new identity that we can describe forms as fluid rather than simply *elastic*. In *metamorphosis* (or, colloquially, 'morphing'), the 'identity of the distorted image can no longer be traced to the original, it is assumed that the two are different [identities]'.⁵⁵¹

Metamorphosis is a unique category of fluidity in the extent to which it has already been explored elsewhere. While the categories of construction and revelation are not adequately addressed in texts relating to any kind of artefact, particularly typography, metamorphosis is a well-established and thoroughly-explored elsewhere. There are numerous texts which discuss metamorphosis in the fields of multimedia and animation, as in the several texts collected in Vivian Sobchack's Meta-Morphing: Visual Culture and the Culture of Quick Change, and many more from other fields, particularly computer science and biology.⁵⁵² Metamorphosis also appears frequently in fiction (as will be explored in 5.3.5). Though texts on the subject of metamorphosis generally do not discuss verbal forms, they often refer to the same technical behaviours that are applied in some fluid artefacts, and exhibit many of the key characteristics that one could expect to observe in morphing characterforms. Galin and Akkouche's text on 'blob metamorphosis', for example, discusses processes that are very similar to those seen in the behaviours of morphing characterforms (see Galin's example, Fig. 90).⁵⁵³ Here, as in morphing characterforms, one form distorts, losing its initial identity and eventually adopting another. In the intermediate stages, the form takes on unfamiliar characteristics and, during these stages, it is difficult to attribute any particular identity to the form. Such examples reveal that local transformations, leading to the adoption

⁵⁵⁰ Gomes, et al., *Warping and Morphing*, 5.

⁵⁵¹ Jseba Gabilondo, 'Morphing Saint Sebastian: Masochism and Masculinity in Forrest Gump' in *Meta-Morphing: Visual Culture and the Culture of Quick Change*, ed. Vivian Sobchack (Minneapolis: University of Minnesota Press, 2000), 189.

 ⁵⁵² Some of the texts most relevant to this research include: Sobchack, *Meta-Morphing*; Gomes, et al., *Warping and Morphing of Graphical Objects*; E. Galin and S. Akkouche, 'Blob Metamorphosis based on Minkowski Sums,' *Eurographics* 15, no. 3 (1996), accessed July 19, 2011. doi: 10.1111/1467-8659.1530143
 ⁵⁵³ Ibid.

of new identities, are acknowledged and understood by numerous practitioners and theorists in fields unrelated to typography.

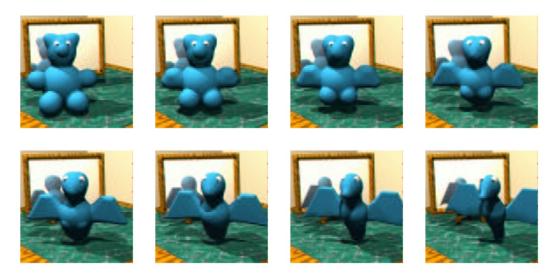


Figure 91. E. Galin, S. Akkouche, *Blob Metamorphosis based on Minkowski Sums*, 2002. Galin's examples demonstrate that metamorphosis, leading to the introduction of a new identity, is a concept that is well established outside of the field of typography. Source: Galin and Akkouche, 'Blob Metamorphosis'

Many examples of *metamorphosis* in fluid typography display characteristics that remind the viewer that *metamorphosis* is not a product of the digital age. Screen-based technologies (such as timelapse video) have enabled audiences to experience natural processes of growth, decay and other forms of transformation, at an accelerated rate. Sequences created using this technology accelerate a natural process so severely that it appears to become magical. Meanwhile, the abundance of these sequences in natural history film and television have suggested the myth that accelerated metamorphosis is found in nature. The fact that metamorphosis is experienced in nature is exploited in BB/Saunders' channel Five ident, *Love* (2006, Fig. 92), in which a human egg is fertilised, then divides into four separate cells. Each of these metamorphose into a letter to spell the word 'love'.



Figure 92. BB/Saunders, *Love*, 2006. In this complex *metamorphosis*, forms mitoically divide as they morph. Source: 'Channel 5 Idents: January 2006-October 2008,' *This is Five*, n.d., accessed July 18, 2011, http://www.thisisfive.co.uk/ident2006a.shtml

Kac's application of the word 'metamorphosis' in relation to verbal forms is unusual. This may be explained by the fact, as shown above and in 2.3, that most existing texts do not go beyond acknowledging elasticity in typographic transformation. However, as also shown above, extreme elasticity, leading to total deformation to the point of the introduction of new identities, is discussed extensively in other disciplines. Existing texts devote their discussions to metamorphosis in a variety of contexts, ranging from screen-based environments to nature. Texts devoted to screen-based environments, such as those collected in Sobchack's *Meta-Morphing*, provide thorough discussions of many of issues that are applicable in examples of morphing characterforms. Since the term 'metamorphosis', and related issues have been thoroughly explored in existing texts, this section will discuss metamorphosis selectively. This thesis will focus on issues which are of particular relevance to morphing characterforms, and will introduce issues that have not previously been addressed in relation to metamorphosis, but that are relevant when morphing forms have verbal meaning.

5.3.3 The Relationship Between Poles

BB/Saunder's *Love* ident introduces a feature that complicates *metamorphosis*, by involving forms which divide as well as distort. Many texts in the field of multimedia and animation which use the term 'metamorphosis' assume the presence of two identities, expecting there to be two poles of transformation. In some cases, including Lazarus and Verrous, and Surakhsky et al., they are explicit in this assumption.⁵⁵⁴ There is an initial identity, which is lost through metamorphosis, and eventually replaced by a second identity. It is often the case, however, that a single form can metamorphose into many different shapes. In examples such as Zervos' *Beer* (Fig. 93), each single form presents several different linguistic identities over time, having, in effect, many poles. In addition to presenting single forms morphing from one identity to another, some of the words presented on the screen contain more letters than others. As a result the number of forms must, on occasion, change, as is the case in Fig. 93, in which two forms ('r' and 'e') become one ('h'). Here, one form is consumed by another to allow a reduction in the number of forms present. This is similar to the kind of transformation which occurs in *Love* (Fig. 92), when a single distorting form divides into four.

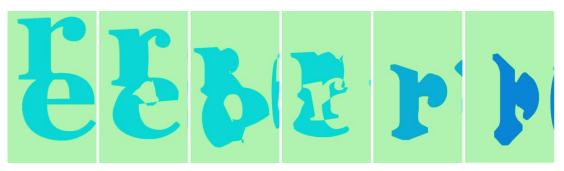


Figure 93. In this detail from Komninos Zervos' *Beer*, the letters 'r' and 'e' morph and merge, to form a single 'h'. Source: Zervos, 'Cyberpoetry Underground.'

Love aims to reflect, explicitly, the biological process of conception and mitosis; biological metamorphosis is often seen as a 'continuous deformation', rather than a process of change from one 'pole' to another.⁵⁵⁵ In digital metamorphosis, two poles are in most cases, defined

⁵⁵⁴ Francis Lazarus and Anne Verrous, '3D Metamorphosis: A Survey,' *The Visual Computer* 4 (1998): 373, accessed July 19, 2011, http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.48.2949; Tatiana Surazhsky, Vitaly Surazhsky, Gill Barequet and Ayellet Tal, 'Blending Polygonal shapes with different topologies', *Computers & Graphics* 25 (2001): 29, accessed July 19, 2011, http://webee.technion.ac.il/~ayellet/Ps/stitcher.pdf

⁵⁵⁵ Kac, 'Key Concepts'; Gomes, et al., Warping and Morphing of Graphical Objects, 4.

by the designer, whereas the shapes of any forms which appear during the transformation are calculated by whichever software has been used for interpolation. During the intermediate stages, as Kac observes in his holopoetry, the form may only be recognisable as an abstract glyph, 'with in-between meanings that are neither one thing or another'. 'The meanings of in-between configurations', Kac suggests, 'can not be substituted by a verbal description, or by a synonym', as was discussed in 2.3.5.⁵⁵⁶ In biological transformation, however, the subject generally retains its identity during metamorphosis. It never ceases to have an identifiable name, as with digitally morphed forms. Despite the continuous analogue metamorphosis, the change in identity is digital. By naming things, reducing our environment to signs, we reduce the 'continuous to the discrete', and artificially reduce our analogue world to digital representations⁵⁵⁷: a human may transform continuously from child to adult, but any intermediate stages are labelled, given distinct identities (e.g. teenagers). In reality, however, much of our world is analogue, involving 'graded relationships on a continuum'.558

When only two poles exist, 'it is particularly telling that [metamorphosis] tends' to occur 'between two poles that are clichés of opposition'.⁵⁵⁹ This transformation 'attempts to erase' binarism, to identify a continuum along which two extremes may rest, and, in some cases, to not prioritize the poles over the variations that exist between them.⁵⁶⁰ Dan Waber's Strings (Fig. 94) is a series of several artefacts in which a single 'string' reforms itself into first one word, then another.⁵⁶¹ Each word is perceived as having a different meaning - a different identity - but is formed from the same 'string'. Strings presents two contradictory meanings, bound within the same form. The identities at the poles, 'yes' and 'no', are binary opposites, but Strings presents them on an analogue continuum. The positive 'yes', becomes uncertain as it gradually loses its identity, and as the 'no' forms, it becomes progressively more certain, and eventually clear.

⁵⁵⁶ Kac, 'Key Concepts.'

⁵⁵⁷ Chandler, 'Signs.

⁵⁵⁸ ibid.

⁵⁵⁹ Vivan Sobchack, 'At the Still Point of the Turning World: Meta-Morphing and Meta-Stasis,' in Meta-Morphing: Visual Culture and the Culture of Quick Change (Minneapolis: University of Minnesota Press, 2000), 139. 560 Ibid.

⁵⁶¹ See Waber, Dan, 'Strings', Vispo, n.d., accessed July 18, 2011, http://www.vispo.com/guests/DanWaber/

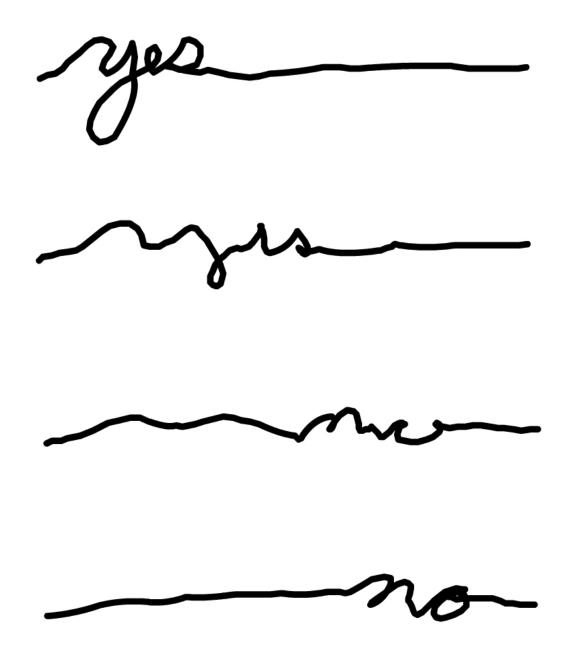


Figure 94. A string forms the word 'yes', then reforms into the word' no' in Dan Waber's *Argument*, 2005. Source: Dan Waber, *Argument*, 2005, accessed July 18, 2011, http://www.vispo.com/guests/DanWaber/argument.html

While the requirement that metamorphosis assumes the presence of at least two identities is standard, commentators differ on whether these identities are seen as belonging to the same form. Some texts describe metamorphosis as the coming together of two forms (as in Galin and Akkouche); others as one form becoming another (as in Donald Williamson); and others as one form being consumed by another (as implied by Lazarus and Verrous).⁵⁶² This disagreement is a particular concern for this study, as the use of the term 'fluid', requires a single form to adopt a new identity, not to be replaced by another form. In digital animation, the field of practice that yielded, among other examples, Zervos' Beer, metamorphosis is less commonly understood as one object becoming another than it is as two separate objects coming together. Galin and Akkouche suggest that metamorphosis is a 'transformation between two soft objects', suggesting the assumption that there are not only two distinct identities but also two distinct and separate objects.⁵⁶³ Indeed, the technical process of metamorphosis often involves warping the first object 'until it matches' (but does not become) 'the target object'.⁵⁶⁴ If this were the case, metamorphosis could not justifiably be termed fluid according to Kac's definition. This view of metamorphosis perhaps exists because, as Turk and O'Brien observe, digital morphing requires both forms to be created before interpolation applications can generate the morph.⁵⁶⁵ However, this suggestion prioritizes the view of the animator over that of the viewer, since the outcome, as presented to the audience, does not show distinct separation of one form from another. These metamorphoses communicate the impression of a single form adopting a new identity: of one form *becoming* another, as in fluidity. Some texts do begin to approach the suggestion that a metamorphosis is a process of becoming, which can justifiably be termed fluid. Ahn and Lee suggest that, in metamorphosis, 'the source...gradually changes into the target'.⁵⁶⁶ Likewise, Lazarus and Verrous define metamorphosis as 'the process of transforming one shape into another', and Kent et al., as 'the first image changing into the second', thereby allowing for the notion of a single form which sequentially adopts multiple identities.⁵⁶⁷

http://graphics.cs.berkeley.edu/papers/Turk-STU-1999-08/Turk-STU-1999-08.pdf

⁵⁶² Galin and Akkouche, 'Blob Metamorphosis'; Donald Williamson, 'Caterpillars evolved from onychophorans by hybridogenesis,' *Proceedings of the National Academy of Sciences of the United States of America* 106, no.47 (2009): 19901-19905, accessed July 19, 2011, http://www.pnas.org/content/106/47/19901.abstract; Lazarus and Verrous, '3D Metamorphosis,' 373; James R. Kent, Wayne E. Carlson and Richard E. Parent, 'Shape Transformation for Polyhedral Objects,' *Computer Graphics* 26, no. 2 (1992): 47, accessed July 19, 2011, http://design.osu.edu/carlson/history/PDFs/shape-transform.pdf

⁵⁶³ Galin and Akkouche, 'Blob Metamorphosis.'

⁵⁶⁴ Lazarus and Verrous, '3D Metamorphosis,' 374.

⁵⁶⁵ Greg Turk and James F. O'Brien, 'Shape Transforming Using Variational Implicit Functions,' *Computer Graphics Proceedings, ACM SIGGRAPH 99* (1999): 445, accessed July 19, 2011,

⁵⁶⁶ Minsu Ahn and Seungyong Lee, 'Mesh Metamorphosis with Topology Transformations,' Proceedings of the

^{10&}lt;sup>th</sup> Pacific Conference on Computer Graphics and Applications (2002): 481, accessed July 19, 2011, doi: 10.1109/PCCGA.2002.1167908

⁵⁶⁷ Lazarus and Verrous, '3D Metamorphosis,' 373; Kent, et al., 'Shape Transformation for Polyhedral Objects,' 47.

However, as observed in relation to Zervos' Beer and BB/Saunders' Love ident, the metamorphosis behaviour of fluid characterforms is often more complex than a straightforward pole-to-pole transformation. In both of these examples, *metamorphosis* increases or reduces the number of forms present. Later in their text, Lazarus and Verrous identify metamorphosis as 'transformation that takes the first shape into the other'.⁵⁶⁸ This perhaps suggests the notion that one form is consumed by the other. This kind of consumption or absorption of an identity may arguably be observed in Zervos' Beer, whenever two forms merge, and the number of present forms is reduced. The opposite occurs in Love, when a single form splits, giving birth to several new forms. This introduces a feature that may separate some forms of metamorphosis from others. In much *metamorphosis*, there is a *direct* morph from pole to pole, in which one form replaces a single initial identity with a single new identity (as in Cho's illustration, Fig. 90). In examples such as Beer, and BB/Saunder's Love ident, offspring are produced during the morph. The fluid category of *metamorphosis* can therefore be identified as presenting forms that combine, or split yielding multiple new forms, each with its own separate identity. Beer offers both kinds of *metamorphosis* simultaneously. Some forms morph directly from one pole to another, while other forms split or combine. This split or combination of forms is not separate from the morph. It is a mitoic behaviour that occurs during the *metamorphosis*, so that contours continue to distort even while the forms interact with one another. This feature is important in distinguishing this behaviour from *construction through motion of* parts, in which separate parts have fixed contours.

Whether forms must *split* and/or *combine* during *metamorphosis* is not necessarily connected to inconsistencies in the number of letter identities presented at each pole. In *Beer*, since each letterform is separate, when one word requires more or fewer letters, there must inevitably be some splitting or combination of forms. However, as Dan Waber's *Strings* series demonstrates, this is not always the case. Waber's *Haha* (2005, Fig. 195) represents a fit of laughter, beginning with a chuckle and climaxing in uncontrollable hysteria before diminishing. The laughter is represented in a single string, which initially presents a single 'ha'. The string reforms, sequentially introducing an increasing number of 'ha's. During this *metamorphosis*, the number of letter identities present increases from two to many, however, the number of forms does not. There is always a single 'string'. At no point, therefore, do forms ever divide, despite the increase in the number of identities. The difference between

⁵⁶⁸ Lazarus and Verrous, '3D Metamorphosis: A Survey,' 373.

Beer and *Haha* that allows these different kinds of *metamorphosis* is in the style of the letters. In *Beer*, letters are typographic, and therefore, separate forms. In *Haha* (indeed, in all of Waber's *Strings* series), the lettering is cursive, as if drawn with a single stroke of a pen. This allows the number of letter identities to increase without the introduction of new forms by the division of existing ones. The use of handwritten lettering as opposed to type helps to further blur the divide between text and image. As Tim Ingold observes, there is little to separate the written line from the drawn line, and it is often context, rather than form, that distinguishes the two.⁵⁶⁹

hr. har

ha ha ha ha

Figure 95. Dan Waber, *Haha*, 2005. Source: Dan Waber, 'Haha,' *Vispo*, 2005, accessed July 18, 2011, http://www.vispo.com/guests/DanWaber/haha.htm

Whether forms *split or combine*, or perform *direct metamorphosis*, may depend on their apparent properties. This is particularly the case when forms appear to be made from a familiar substance, and audiences have preconceptions about how that substance may behave. One of the most 'fluid' kinds of *metamorphosis* involves characterforms which transform by mimicking the properties of liquids. Prologues' title sequence for *Dawn of the Dead* (2004, Fig. 96) initially presents apparently solid lettering, which appears to melt,

⁵⁶⁹ Tim Ingold, *Lines: A Brief History* (London: Routledge, 2007), 121-125.

becoming a red liquid which then seeps across a planar background as if propelled by a strong gust of wind. The revelation that the letterforms may be made of blood transforms the mood of the typographic arrangement from one that is perhaps nondescript to one that is distinctly morbid, thereby establishing the genre of the film, and preparing the audience for a grisly experience. Prologue's sequence presents the letterforms as flat, but many more recent examples appear to present three-dimensional characterforms, constructed from liquids. ActivMedia's promotional sequence, *Active* (2009, Fig. 97), presents a typographic logo which appears to turn to liquid when exposed to an invisible force. With fluid motion, the letters merge into a single three-dimensional mass, which flows outwards in all directions. Many such recent examples are technologically motivated. Artefacts including *Liquefaction* are prompted by the introduction of *Realflow* (Next Limit Technologies⁵⁷⁰), a software package for the simulation of flowing liquids.⁵⁷¹



Figure 96. Prologue, *Dawn of the Dead*, 2004. Source: 'Dawn of the Dead', *Prologue*, 2004, accessed July 18, 2011, http://prologue.com/media/film/categories/main-titles-special-sequences/projects/dawn-of-thedead



Figure 97. ActivMedia, *Active*, 2009. Source: 'Fluid Explosion', *YouTube*, 2009, accessed July 18, 2011, http://www.youtube.com/watch?v=zvf5QUIWw3Y



Figure 98. Tomas Markevičius, *Liquefaction*, 2010. Source: Thomas Markevičius, 'Liquefaction', *Vimeo*, 2010, accessed July 18, 2011, http://www.vimeo.com/11308415

⁵⁷⁰ Next Limit Technologies, 'Realflow,' 2010, accessed July 19, 2011, http://www.realflow.com/

⁵⁷¹ Thomas Markevičius, 'Liquefaction.'

These apparently liquid characterforms must often undergo an apparent transformation of substance in order to subsequently transform their shape. The Dawn of the Dead sequence must become liquid in order to metamorphose, and likewise, the Active initially gives the impression of solid forms, that only become liquid once they begin to change. Many examples of this kind of metamorphosis involve letters that are initially independent, but merge together as they begin to morph. As liquids are not capable of independently maintaining a form under normal conditions, it is inevitable that neighbouring forms *combine* in this way. The fact that these forms are initially capable of maintaining their contours suggests that they are not initially liquid, but become liquid. There is, therefore, an implication that the substance from which the forms are made is also transformed, along with the shape. Alternatively, as in Markevičius's Liquefaction (2010, Fig. 98), where the liquid is seen filling each letter, some invisible force may be responsible for containing the liquid. Where these invisible containers exist, they prevent the separate quantities of liquid from combining. This apparent shift from solid to liquid is comparable to the shifts seen in some examples of other fluid behaviours. In 5.2.3, it was observed that Hillner's *Cubico St*. (Fig. 66) appears to involve a shift from three-dimensional objects to flat forms in order to enable the transformation from abstract object to verbal form. Likewise, in these examples of *metamorphosis*, a shift from solid to liquid enables the transformation of the letterforms. In all of these cases, the shift in substance enables the simultaneous paradigm shift.

5.3.4 Masquerade or Replacement of identities

Metamorphosis is distinct from other kinds of fluidity in part because it involves a more complete replacement of identities than other behaviours. The consequence of *metamorphosis* is that the original identity must be sacrificed in order to allow for another to emerge. Unlike in *construction* (see 5.2) where the identity of component parts can remain even after a new linguistic identity has been introduced, and unlike in *revelation* (see 5.4) where all identities are permanent, *metamorphosis* requires the loss of the initial identity. A single morphing form does not present several identities simultaneously. This fact sometimes becomes important in the meaning of the artefact. In Dan Waber's *Argument* the two words, 'yes' and 'no' are formed from a single elastic line. The line distorts to form each word sequentially. The words 'yes' and 'no' are binary opposites, and as such cannot co-exist. 'Yes' must be sacrificed in order to achieve a 'no', and vice versa. In *construction*, as observed in 5.2.3, the second identity can be a masquerade. The letterforms are a performance, a disguise which can be easily removed as component parts dissipate and return to their original, separate selves. The architectural objects in MPC's channel 4 idents remain architectural, but momentarily fool the viewer into believing that they are in fact parts of a '4' (see 5.2.3 and 6.2). Likewise, the balloons in BB/Saunders Five ident, *Free*, remain recognisable as balloons even while collaborating in the presentation of the word 'free' (see 5.2.4). In *metamorphosis*, however, artefacts acknowledge that some things are inherently incompatible. The introduction of a new identity requires the abandonment of another.

This total replacement of identity does not necessarily occur where metamorphosis occurs elsewhere. In literature, for example, it is often the case that identifiable characteristics of a subject remain despite metamorphosis. Notable metamorphoses in literature include that of Kafka's Gregor Samsa into a cockroach (*Metamorphosis*, 1913), numerous transformations in Ovid's *Metamorphoses* (20BC-14AD), and Shakespeare's *A Midsummer Night's Dream* (1593-94).⁵⁷² Vivian Sobchack observes that (while the process itself 'affirms a distance') these metamorphoses 'assert... sameness across difference'.⁵⁷³ In Kafka's *Metamorphosis*, Gregor Samsa continues to feel affection for his human family after becoming a cockroach, and despite the fact that he increasingly feels the urges of an insect, he thinks with the mind of a human. In *A Midsummer Night's Dream* (Act II, Scene III), Bottom's head is transformed by Puck into that of an ass, making his inner character visible. Bottom is a 'fool', therefore to make him an ass would be to show him for what he really is, to assert a similarity between Bottom and an ass. 'Essentially as an ass, Bottom has become his own metaphor, representing innocence and stupidity'.⁵⁷⁴ Wendy Olmstead observes that, in Ovid's *Metamorphoses*, despite significant transformation there always tends to be

 ⁵⁷² Franz Kafka, 'Metamorphosis,' *Metamorphosis and Other Stories*, trans. Michael Hoffman (London: Penguin Classics, 2007), 85-147; Ovid and David Raeburn, *Metamorphoses* (London: Penguin, 2004); William Shakespeare, *A Midsummer Night's Dream, The Complete Works of William Shakespeare: Volume 1* (New York: Nelson Doubleday, 1974), 125-145.
 ⁵⁷³ Scott Bukatman, 'Taking Shape: Morphing and the Performance of Self,' in *Meta-Morphing: Visual Culture*

³⁷³ Scott Bukatman, 'Taking Shape: Morphing and the Performance of Self,' in *Meta-Morphing: Visual Culture and the Culture of Quick Change*, ed. Vivian Sobchack (Minneapolis: University of Minnesota Press, 2000), 240; Sobchack, 'At the Still Point of the Turning World,' 139.

⁵⁷⁴ Paul Williams, 'A Midsummer Nights Dream,' *Authors Den*, 2004, accessed July 19, 2011, http://www.authorsden.com/categories/article_top.asp?catid=54&id=16484

'continuity', which binds the different identities of a metamorphosed subject.⁵⁷⁵ Change leads to the adoption of new 'identities', but despite their new identity, the transformed person still exists, 'traversing [the] boundaries' between both identities.⁵⁷⁶ Olmstead links this to 'potential' (a view shared with Charles Deleuze on all forms of transformation), whereby every entity has not only one identity, but also potentially many others.⁵⁷⁷ In these descriptions of fictional metamorphosis, each initial identity is another identity in-waiting, and to transform is to achieve one's potential. In morphing characterforms we can see that, although verbal identities are abandoned, there is, as there is in the literature outlined above, a preservation of key characteristics throughout the *metamorphosis*. Some features of style remain despite the loss of identity in, for example, Waber's *Strings* (figs. 94 and 95). In Waber's animations, all identities are constructed from a string. Although the linguistic identities are replaced, the string is not. The forms remain black and linear, helping to preserve the connection between the two linguistic identities. Similar consistency in visual characteristics can be seen in other examples of morphing linguistic forms and objects, as in David Jhave Johnston's Human-Mind-Machine (Fig. 89), and BB/Saunders' Love (Fig. 92). Even where the properties of forms appear to change (as in Prologue's Dawn of the Dead title sequence, in which flat type appears to transform into liquid, Fig. 96), there is always consistency in at least one key feature (in this case, the forms are always red). This consistency helps to reinforce the perception of 'sameness across distance' that is identified when metamorphosis occurs in other fields of practice.⁵⁷⁸

⁵⁷⁵ Wendy Olmstead, 'On the Margins of Otherness: Metamorphosis and Identity in Homer, Ovid, Sidney and Milton,' *New Literary History* 27, no. 2 (1996): 169, accessed July 19, 2011,

http://www.jstor.org/stable/20057345

⁵⁷⁶ Ibid., 168.

⁵⁷⁷ Olmstead, 'On the Margins,' 169; Matthew Krissel, 'Gilles Deleuze: the architecture of space and the fold,' *Philosophy of Materials and Structures*, 2004, accessed July 19, 2011, http://www.krisselstudio.com/000-docs/2-research/Gilles%20Deleuze.pdf

⁵⁷⁸ Sobchack, 'At the Still Point,' 139.

5.3.5 Figure/Ground Relationships in Metamorphosis

Mark Wolf proposes that, in any screen-based metamorphosis, the relationship between figure and ground is essential in allowing the audience to keep track of the morphing form. 'The effective morph' he suggests, 'requires the relative, oppositional stability of either figure or ground'. A morphing form, he observes, must transform against 'a nonmorphing environment'.⁵⁷⁹ Following this observation, it is often the case that morphing characterforms are presented on a plain, even empty background. Zervos' *Beer* presents morphing type on a plain green background (Figs. 88 and 93), and Dan Waber's *Strings* features morphing type in an entirely empty white space (Figs. 94 and 95). Both of these examples prioritize the morphing characterforms to the point of excluding any other elements. Even where some detail does appear in the background, it is often simple or indistinct. In BB/Saunders' *Love* (Fig. 92), the initially egg-like form is suspended in a liquid amongst the sperm that may be responsible for its fertilization. Nothing of note occurs in this background environment, and it serves only to provide context for the *metamorphosis*.

There are examples of morphing letters on far more complex backgrounds. In *Sesame Street's Psychedelic Alphabet* (1998, Fig. 99), letters transform against a visually complex background. In this example, there is not only development of the linguistic form, but also of the ground on which it lies. Here, unlike in the other examples explored in this section, not only is the backdrop complex, but it also undergoes metamorphosis throughout the duration of the animation, thereby apparently contradicting Wolf's assertion that the background must be stable. This process, however, succeeds in avoiding visual confusion, as neither *metamorphosis* is smooth and continuous. Stills of the animation reveal that while the background undergoes metamorphosis the letterform is fixed, and when the letterform begins to transform the background metamorphosis pauses until the next letter identity is achieved. Either *figure* or *ground* is fixed while the other undergoes its next change. As per Wolf's advice, there is always 'stability of either figure or ground'.

⁵⁷⁹ Wolf, 'A Brief History of Morphing,' 104.

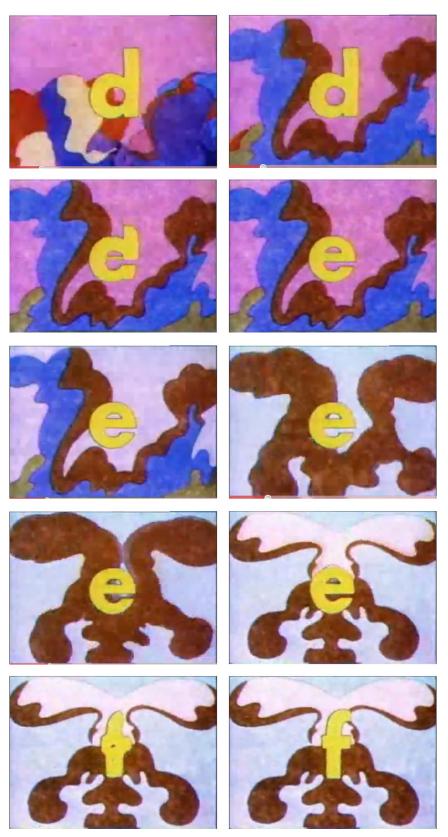


Figure 99. unknown animator, *Psychedelic Alphabet*, *Sesame Street* episode 3702, aired 1998. Source: 'Sesame Street'

5.4 Revelation

5.4.1 Introduction to Revelation

The third main category of fluidity does not allow the audience to directly observe the creation of identities. Instead, it involves the revelation that those identities already exist. In this final category, characterforms are revealed to the audience as already existing within an established scene, having been initially hidden from view. Here, as in *construction* and *metamorphosis*, the nature of a scene defies audience expectations: forms which are initially assumed to have one identity are ultimately revealed to have another.

When verbal identities are revealed to be present, although the forms may be constant, the experience of the viewer is one of fluidity. This experience is the result of misinterpretation. Though the letter object or letterform itself may not actually change, the viewer's initial assumptions about the meaning and nature of that form are forced to transform. The changes that occur in the artefact are independent of the letterform itself: external forces change the perception of the letter, but do not actually transform the letter. These changes reveal new information about the nature of a scene, challenging the viewer's assessment of that scene by revealing previously hidden identities. These hidden identities may either be revealed by *navigation* (or *rotation* of a letter object that sits alone in an empty environment that provides no cues to differentiate *navigation* from *rotation*), or by *colour-shift* or *illumination*. Though revelation by navigation is increasingly commonplace, examples of revelation by *colour-shift* or *illumination* have only recently begun to emerge.

5.4.2 Revelation by navigation or rotation, or by illumination, in three-dimensional environments

As when *navigation* causes *construction* of identities (see Chapter 5.3), revelation by navigation or rotation requires virtual three-dimensional space. Letters in virtual, three-

dimensional spaces can assume 'architectural' qualities.⁵⁸⁰ They are no longer perceived as flat glyphs, but as tangible objects, often assumed to have adopted all the qualities one would normally associate with the three-dimensional objects encountered in real-life space. One expects a virtual three-dimensional letterform to present different faces when viewed from different angles, and that these alternative views may be accessed either by navigation around the object, or by movement and rotation of the object itself. This provides the possibility of concealing and revealing surfaces.

In his study of 'dimensional typography', Miller, observes that 'among the ways in which letters have been rendered dimensional, extrusion is probably the most prevalent'.⁵⁸¹ As was observed in 2.2.1, apparently three-dimensional letterforms existed as static typefaces long before the introduction of screen-based technologies.⁵⁸² However, a static, printed impression of a three-dimensional object depicts only one of many possible angles of presentation. It is only when *navigation* around (or *rotation* of) such a form is possible that the verbal identity of a letter can be hidden. The direct or virtual observation of a threedimensional object is made possible in temporal media, as it is in real-life environments, but not in print. An extruded charcterform presents, as its face, the planar shape of the character as one would expect to see it in print. The reverse of the object presents the same shape in reverse, as if reflected or as in a printing block. These two surfaces, front and rear, are both easily recognisable as characterforms, as they present familiar silhouettes. When viewed from any other angle, however, extruded characterforms present abstract shapes that are not normally associated with verbal communication (often simple geometric shapes) and have few or no distinguishing features to set them apart from other characters. 'B' and 'M' for example, when extruded and viewed from the left will both present a rectangular face (see Fig. 100). The identity of either of these letters, therefore, if only viewed from the side, is perceived as being that of a square, not a letter. It is only through navigation or rotation that these 'objects' can become distinguishable from one another, and recognisable as letters.

⁵⁸⁰ Miller, *Dimensional Typography*, 2.

⁵⁸¹ Ibid, 3.

⁵⁸² While the three-dimensional woodblock typefaces on the nineteenth century addressed in 2.2.1 appeared to represent dimensional objects, it is worth noting that the woodblocks themselves were three-dimensional, with printers often using both the front and back faces of a block for different letters.

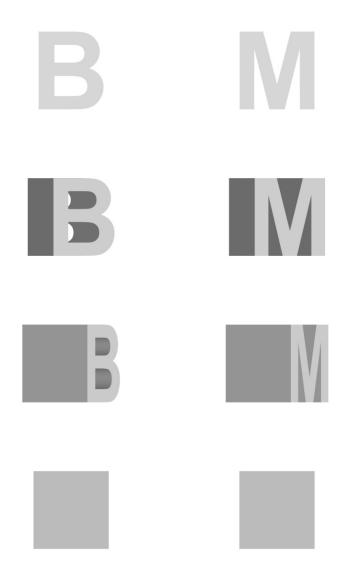


Figure 100. An extruded 'B' and 'M' show that, when rotated, the verbal identity may be hidden, and alternative surfaces are revealed. These other surfaces may appear to have a different identity. Both the 'B' and 'M', when viewed from the side, appear to be identical abstract squares.

The possible ambiguity presented when an extruded letter is presented at an unconventional angle is exploited by Peter Cho. Cho's *Letterscapes (M)* presents a wireframe 'M' object (Fig. 101). When the user's cursor is located to the sides of the screen, the 'M' is rotated and brought forward, so that its identity appears abstract: the screen shows an apparently meaningless arrangement of diagonal white lines and yellow polygons. The 'M' identity is only revealed when the cursor moves towards the centre of the screen, and the 'M' recedes and revolves to present its front face.

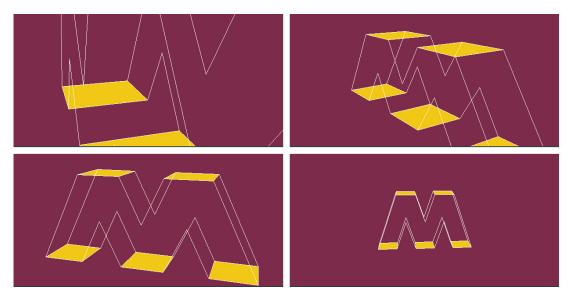


Figure 101. Peter Cho, *Letterscapes (M)*, 2005. In the first frame of this sequence, an apparently abstract arrangement is shown. By pulling back from this object, the viewer can reveal its verbal identity. Source: Cho, 'Letterscapes.'



Figure 102. Like Minded Studio, *B*, 2009. This video imagines the three-dimensional object that was depicted on the flat surfaces of woodblock typefaces such as *Lettres Ornees*. In this video, the virtual object is revolved, or navigated around, so that it often appears ambiguous in its shape and meaning. Source: Like Minded Studio, 'B', *Behance*, 2009, accessed July 18, 2011, http://www.behance.net/Gallery/B/333754

Like Minded Studio presents a similarly misleading three-dimensional model in *B* (2009, fig. 102). *B* initially appears to present an imposing black structure, but as the camera navigates

around the structure it is revealed as a three-dimensional model of an ornamental 'B'.⁵⁸³ This object celebrates woodblock letters, with features resembling those of nineteenth century ornamental typefaces such as *Lettres Ornées* (see 2.2). The organic decorations, which would normally be carved into the flat surface of the woodblock, escape from the surface as bulbous organic growths. As the form revolves further, part of the inky black surface is revealed to have been stripped away, revealing the wooden core of the object. Further ambiguity is added by the variation in viewpoint from which the object is received. When viewed from beneath, it appears large and imposing, benefitting from the cinematic convention that suggests an object viewed from below must be large in scale. On other occasions, the object appears as small as the woodblocks which inspired its creation. In presenting its many faces, the animation reveals the properties of woodblock letters that were not usually encountered by nineteenth century audiences, when only the flat printed outcome was shared. The illusionistic form of ornamental woodblock print is made manifest, revealing previously unexplored territory in its alternative faces and surfaces.

In both these examples (Cho's *Letterscapes (M)*, and Like Minded Studio's *B*) there seems to occur a transition from what Saussure describes as 'motivated' object to verbal sign.⁵⁸⁴ Initially, each object appears to be pictorial, resembling a real-life object. However, until the verbal identity is revealed, it is unclear what these objects may represent. Even before the letter is revealed, there is ambiguity. When the 'B' is initially presented, although it does not yet look typographic, is also does not resemble any other familiar object. It seems that its form is 'motivated' by a real-life object, but its identity appears uncertain, or incomplete, ensuring the anticipation that more visual information will be revealed. Even when the verbal identity is revealed, there is not necessarily a shift towards the arbitrary. Although, as verbal signs, the 'M' and 'B' are arbitrary, as representations or three-dimensional objects, these signs are motivated: the 'B', not least because of its verbal nature and woodgrain surfaces, resembles a printing block. In this sense, it is highly motivated.

⁵⁸³ It is unclear whether this video presents navigation around this object, or rotation of that object, as there are no cues from the empty background.

⁵⁸⁴ Saussure, Course in General Linguistics, 130-131.



Figure 103. Bart Overly, *Ligature*, 1995. This object contains several verbal identities which exist simultaneously, and could be revealed by rotation of the object. Source: Miller, *Dimensional Typography*, 55.

As demonstrated by Bart Overley's *Ligature* (1995, Fig. 103), the side faces of a threedimensional letter object may be more complex than those of an extruded letterform, and may even present an alternative verbal identity. Here, each object 'has alternate readings from different perspectives'.⁵⁸⁵ Overly presents both 'A' and 'B' in the same object. When viewed from directly above, an 'A' form is visible, but when viewed from either side, 'B' is presented. In this way, a single object can have multiple letter-identities. Though Overly's virtual models are not intended for consumption in temporal environments, this object demonstrates the possibility of presenting a number of alternative verbal identities within a single three-dimensional object. Many of the objects presented in fluid artefacts have similar properties, allowing fluidity when displayed in a temporal environment, including the forms in Kyle Cooper's title sequence for *True Lies* (see Fig. 108).

As with all fluid type, there is, in such objects, inconsistency between the number of perceived identities, and the number of objects that are present. In *Ligature*, a single object presents two verbal identities ('A' and 'B'), as well as a number of possible abstract identities as it is viewed from, for example, the surface facing bottom-left in the depiction

⁵⁸⁵ Miller, Dimensional Typography, 55.

shown here (Fig. 103). As in *metamorphosis*, numerous different identities are contained within a single form. In *metamorphosis*, those identities are formed sequentially. Here, however, all identities are present simultaneously in the object.

Similarly combined letters appear in Zach Lieberman's Intersection (2001, Fig. 104). With his interactive animation Lieberman aims to create, in three dimensions, combinations of existing letterforms which yield 'hybrid letterforms' and 'new shapes'.⁵⁸⁶ Users are able to input up to three letters, leading to the generation of a three-dimensional object constructed of cubes. Beginning with a large cube, the programme removes smaller cubes until the faces present all of the user's chosen letters, leading to a modular shape, with surfaces that resemble pixelated letterforms. Those surfaces that do not present letterforms, present 'hybrid shapes', combining the reverse and side faces of the present letters. The user may drag the shape within three-dimensional space to view alternative surfaces, creating the temporal experience of a revolving object which presents a sequence of multiple verbal and abstract identities. Although Intersection attempts to generate this object from a combination of all the user's chosen letters, is reveals the difficulty of combining multiple letters within a single object. It is effective at combining two letters, able to present them either on opposite or neighbouring sides, depending on the compatibility of strokes. However, difficulties arise when a third letter is introduced. The programme finds it impossible, for example, to generate a form that includes 'E, 'C' and 'H', since the central stroke of the 'E' interferes with the shapes of other letters. The programme is forced to compensate by rendering the stroke partially visible (as a wireframe, see Fig. 105). This provides evidence that, through revelation by rotation, the number of possible identities is limited. Since all identities must exist simultaneously, the number of possible identities is restricted by the number of surfaces that exist within that particular object. When objects contain voids, through which the viewer can see alternative faces, as in *Intersection*, the inclusion of a high number of identities becomes even more problematic.

⁵⁸⁶ Zach Lieberman, 'Intersection: A Study in typographic Space,' 2001, accessed July 23, 2009, http://www.thesystemis.com/intersection/index.html#

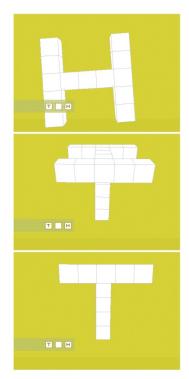


Figure 104. 'H' and 'T' presented in Zach Lieberman's *Intersection*, 2001. Source: Zach Lieberman, ,'Intersection: A Study in typographic Space,' 2001, accessed July 23, 2009, http://www.thesystemis.com/intersection/index.html#

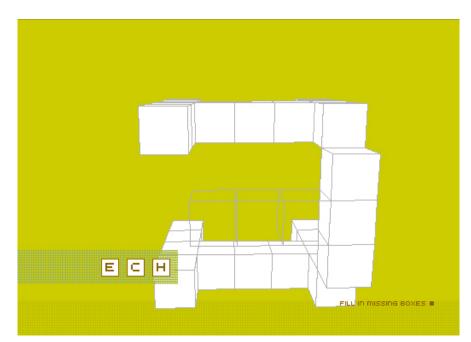


Figure 105. When Lieberman's *Intersection* attempts to incorporate 'E', 'C' and 'H' into a cube, it cannot display the stroke of the 'E' without destroying the identities of the other letterforms. Source: Lieberman, 'Intersection'

Similar problems are handled differently in Vincent Viriot's *Evil/Love/Hate* (2008, Fig. 106). Viriot also presents a three-dimensional virtual model which contains three different verbal identities. As the film progresses, the camera navigates around the model to sequentially reveal the words 'hate', 'evil', and 'love'. Each object, being three-dimensional, has several surfaces. Some of these surfaces are illuminated with an apparently blue light, others with a pink light, and others are left unlit. Those surfaces which are unlit remain the same white as the backdrop, allowing for each object to appear noticeable when viewed from its coloured/illuminated side, but to blend into the background when its undecorated surfaces are presented. As the camera swings in a loop around the arrangement of objects, each of the four structures presents, in turn, one of the four letters of each word. The differently coloured surfaces allow for an apparent reduction in the number of strokes when the same object must present, for example, the three strokes of an 'A', in 'hate' and then the single stroke of an 'I' in 'evil'. By blending *figure* into *ground* in this way, Viriot avoids the problems that arise in Lieberman's *Intersection*.

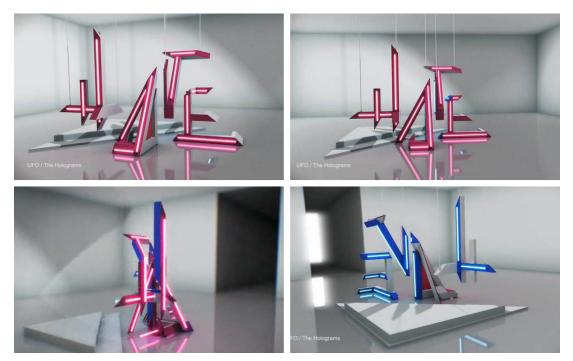


Figure 106. Vincent Viriot, *Evil/Love/Hate*, 2008. Source: Vincent Viriot, 'Evil/Love/Hate,' *Behance*, 2008, accessed July 18, 2011, http://www.behance.net/fmk_7/Frame/145974

Saul and Elaine Bass's title sequence for *Alcoa Premiere* (1961, Fig. 107) demonstrates that, in three-dimensional forms, the revealed identities may be from an entirely different paradigm to those which are initially presented. Using a three-dimensional model, the Basses present the text 'ALCOA' as extruded objects, with the letters forming 'the tops of tall, slender monoliths'. As the camera navigates to reveal the side surfaces of the extruded shapes, the viewer's perception of the objects shifts. They are no longer perceived as letters, but as 'skyscrapers'.⁵⁸⁷

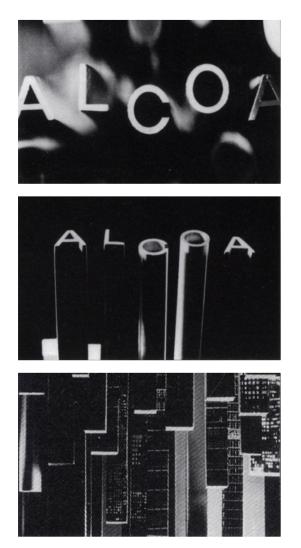


Figure 107. Saul and Elaine Bass, *Alcoa Premiere* title sequence, 1961. Each of the models presented here has two identities that are revealed sequentially: one verbal, and one architectural. Source: Woolman and Bellantoni, *Type in Motion*, 20.

⁵⁸⁷ Bellantoni and Woolman, *Type in Motion*, 20.

Revelation in three-dimensional space may reveal more than new identities, it may also reveal new properties, challenging established perceptions not only of the identity of a form, but also of its nature. Kyle Cooper's title sequence for *True Lies* (1994, Fig. 108), initially presents apparently planar letters spelling the word 'true'. These letters then revolve, revealing themselves to be three-dimensional, and simultaneously revealing the word 'lies', carved as voids into the side surfaces of the existing letters. In this example, the viewer's initial assumptions about the nature of the on-screen space, and the nature of the type, are challenged as additional information is revealed. The screen space apparently transforms from planar to environmental as the seemingly flat forms are revealed as three-dimensional objects, while simultaneously the verbal identity is seen to change from 'true' to 'lies'. The contradicting identities tell the viewer that truth and lies are polar opposites which cannot co-exist, yet are inextricably linked. This example will be discussed further in 6.4.

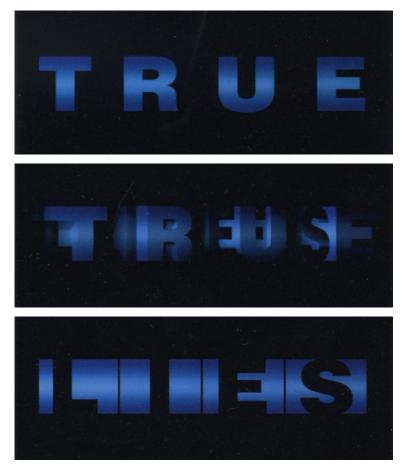


Figure 108. Kyle Cooper, *True Lies*, 1994. In this brief title sequence, apparently flat letters spelling the word 'true' revolve to reveal the word 'lies' carved into voids in the side of each letter object. Source: Woolman and Bellantoni, *Type in Motion*, 42.

Planarity may also be exploited in a three-dimensional environment, as in Stanislay Tomsej's Typo Mood (2009, Fig. 109), in which a series of planar letterforms revolve in three-dimensional space. Here, each form contains two planar letters, attached at rightangles. The rotation causes each front-facing letter to present its slimmest side to the viewer, and essentially vanish, as its partner appears to take its place. In this part of the sequence, a 'T' transforms into 'Y'. Part-way through the rotation, both letters are visible as part of the same form, presenting an abstract combination of the two letters. The perception of this form as two interconnected planar shapes is reliant on the viewer's willingness to accept that the flat screen can represent three-dimensional space, and therefore, that a warping or distorting form may in fact have static contours, and be undergoing three-dimensional relocation of rotation. In real environments, we can differentiate between 'change in position' and 'change in form' by making 'compensatory motions' (for example, by moving slightly to one side it is possible to differentiate between an increase in size and a decrease in distance).⁵⁸⁸ Whenever motion allows us to compensate for a change, the object must be changing location, whereas whenever we cannot compensate for a change, the object must be undergoing distortion of form. In a virtual environment, user navigation is often impossible, or restricted, and it may be impossible to make 'compensatory motions'. It is therefore often not possible to make a reliable judgment as to whether the represented object is changing or moving (or performing a combination of both). Because a viewer's exploration of a virtual scene is limited, she must rely on a number of visual cues within the artefact. Her perception of the events that occur on-screen are governed largely by Gestalt factors, most often, the law of *Prägnanz*, which suggests that it is simpler to perceive a form with a consistent shape than a changing one. In the case of Tomsej's revolving 'T' and 'Y', the changes that are witnessed in the white typographic form could either be perceived as two-dimensional distortion of form, of three-dimensional rotation. The viewer is likely to favour the perception of a revolving form, because 'there is an implicit assumption that objects are permanent'.⁵⁸⁹ 'Perceived qualities... tend to remain constant, despite the fact that the proximal stimulus [or on-screen image] of objects is constantly changing'.⁵⁹⁰ One example of this is 'shape constancy'.⁵⁹¹ An object is assumed to have a fixed size and shape.

⁵⁸⁸ Gunnar Johansson, 'Perception of Motion and Changing Form,' in eds. Gunnar Johansson, Sten Sture Bergtrom and William Epstein, *Perceiving Events and Objects* (Hove: Lawrence Erlbaum Associates, 1994), 138; H. Poincare, *The Value of Science* (New York: Science Press, 1913), as cited in Ibid., 139.

⁵⁸⁹ Rock, An Introduction to Perception, 10.

⁵⁹⁰ Ibid.

⁵⁹¹ Ibid., 69.

If a letterform becomes skewed, it is assumed to have been rotated away from the viewer, not to have become malformed. Although the actual image is changing, the perception is of a form that remains constant rather than one that becomes malformed.⁵⁹²

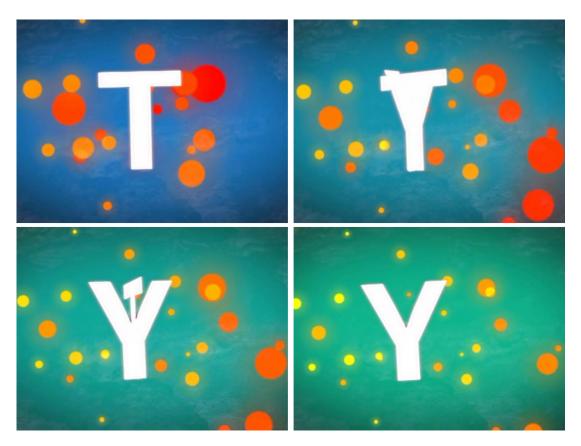


Figure 109. Stanislav Tomsej, *Typo Mood*, 2009. Source: Stanislav Tomsej, 'Motion Typography,' *Behance*, 2009, accessed July 18, 2011,http://www.behance.net/Gallery/Motion-Typography/292954

As observed in 5.2.2, three-dimensional objects are often shown to have volume by the varying illumination of different surfaces. This varying illumination can be represented as variation in colour or tone on different surfaces of an object, or through the appearance or change of shadows. This illumination can be exploited just as much as the structural properties of a three-dimensional object in order to conceal and reveal identities (just as colour shifts aid the fluidity in Hillner's *Cubico St.*, see 5.2.2). Peter Cho's *Letterscapes (H)*

⁵⁹² Veridically, there is little difference between Tosej's forms and those presented in Komninos Zervos' *Beer* (see 5.3, figs 36 and 41). When viewed objectively, on a flat screen, both artefacts present a distorting form. However, the way that the forms distort in *Typo Mood* is consistent enough with real three-dimensional rotation that the simplest possible interpretation is of a constant revolving form. In *Beer*, however, the forms move in different directions, and distort differently, occasionally splitting into two, making it impossible to assume that the forms are constant.

(2005, Fig. 110) depicts an anonymous three-dimensional object. In response to the movement of the cursor, the object is temporarily illuminated from different directions, causing various *colour shifts*. When light is cast from some directions, the object appears to be an arrangement of four tall polygons. Alternative lighting reveals several crossbars, joining the polygons and suggesting the presence of one or two three-dimensional 'H'-shaped objects. Even once these typographic identities have been revealed, the nature and position of the object remains uncertain, as Cho uses shifts in tone and colour to create optical illusions, causing the surface of each letter to apparently shift to a new angle and location. Cho's work illustrates that fluidity does not always require the actual transformation of a characterform, and may describe an apparent or perceived transformation prompted by external changes.

Much like the Penrose triangle, Letterscapes (H) presents an 'impossible object'. 'Impossible objects' are two-dimensional depictions which contain cues that suggest threedimensionality but that are misapplied, thereby inspiring a single overall interpretation that would be impossible to create as a real object.⁵⁹³ Such drawings are 'interpreted as representing objects, but the objects represented could not be constructed because the spatial constraints of the environment have been contravened⁵⁹⁴ These images appear to obey rules of three-dimensional representation 'in local regions but defy them globally...This creates the impossibility when an interpretation of the whole figure is attempted'.⁵⁹⁵ In any single frame of Letterscapes (H) the object does not necessarily appear to be impossible: many frames present a feasible, three dimensional 'H' object. The object is only revealed as impossible over time, as user interaction reveals identities that are incompatible. It becomes clear over time that the object presented at any one time cannot conceivably exist alongside those presented at other times. The perception of these flat formations as being representative of impossible objects relies heavily on the law of *Prägnanz*.⁵⁹⁶ Isometric illusions could be interpreted 'veridically', as feasible linear drawings, but the 'insistence' to find the simplest possible solution results in a three-dimensional interpretation, even when this solution contradicts logic.⁵⁹⁷

⁵⁹³ Kevin Fink, 'Impossible Figures in Perceptual Psychology', *Pitzer Psychology 106 – Perception*, 1991, accessed July 19, 2011, http://fink.com/papers/impossible.html

⁵⁹⁴ Ibid.

⁵⁹⁵ Ibid.

⁵⁹⁶ Ibid.

⁵⁹⁷ Ibid.

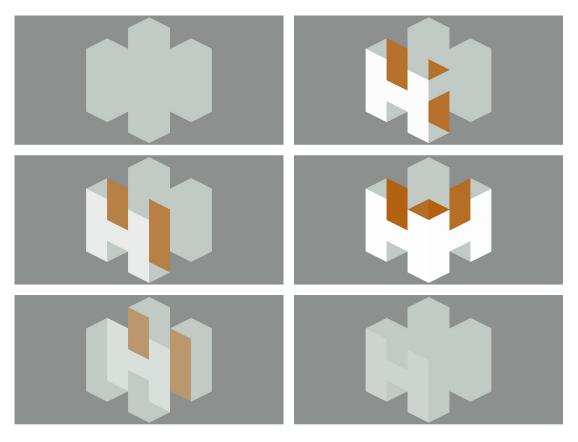


Figure 110. Peter Cho, *Letterscapes (H)*, 2005. Here, *Colour shift* implies illumination of alternative surfaces, with different shifts appearing to reveal contradictory properties of the form. Source: Cho, 'Letterscapes'

5.4.3 Figure/Ground Relationships in Revelation

Revelation can occur in ways that exploit *figure/ground* relationships. Simple shifts in colour or illumination can reveal forms hidden on a planar surface or within threedimensional space. A verbal form can appear to emerge from a surface as when shifts in colour or tone reveal a letter-shaped area as *figure* rather than *ground*.

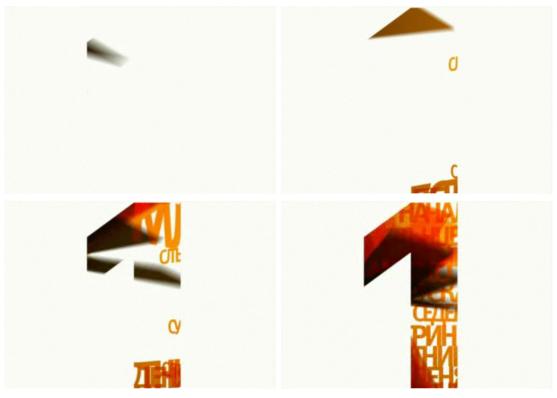


Figure 111. Maxim Ivanof, TV7 ident, 2007. Source: Maxim Ivanof, 'TV7 Channel Idents and Bumpers,' *Behance*, 2007, accessed July 18, 2011, http://www.behance.net/Gallery/TV7-Channel-Idents-and-Bumpers/112723

Colour is used to distinguish *figure* from *ground* in Maxim Ivanof's ident for TV7 (2007, Fig. 111). The ident begins with what appears to be an empty white screen. When colour begins to seep into the frame, it becomes evident that it is contained within previously unseen contours. As more colour is introduced, the contours are seen to belong to a figure '1'. In this way, an area of the apparently empty ground is revealed as in fact being a numerical figure.

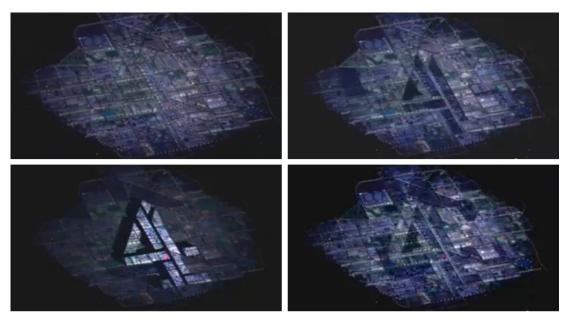


Figure 112. Gracie Productions, *Simpson's* ident, 2009. This ident breaks with the tradition of construction. Here, the '4' is fully formed, revealed through illumination. Source: 'The Simpson's very own Channel 4 ident', *Idents.tv* (2007), accessed July 17, 2011, http://idents.tv/blog/2007/07/14/the-simpsons-very-own-channel-4-ident/

Gracie Productions invents a comical scenario leading to the inadvertent presentation of the Channel 4 logo by Homer Simpson, in promotion of the airing of new episodes of The Simpsons (Fig. 112). In the Simpson's ident, Homer Simpson attempts to drink from a beer can which has become attached to a powerline. On contact with the beer can, the electricity supply to the town of Springfield is interrupted. An aerial view of the town shows that the interruption to the electricity supply is affecting different parts of the town at different times, as lights flicker on and off periodically. In the aerial view, the pattern created by the illumination of parts of the town takes the shape of the figure '4'. As in other presentations of the '4' logo, the configuration is depicted as three-dimensional. While the front surface of the '4' is indicated by illuminated areas, the areas alongside it are plunged into darkness, indicating the side surfaces of a three-dimensional object. In this way, the illuminated areas, while being defined as figure, also give the impression of forms that are extruded from the ground. The result is one of ambiguity. Viewers are left uncertain as to what is figure and what is ground, and whether the space is planar or three-dimensional. This ident will be discussed further in 6.2, alongside other Channel 4 idents which feature different fluid behaviours.

It is possible to envision an additional consequence of *illumination*, leading to a slightly different behaviour of *revelation*. The presence of a form may be indicated when illumination causes a shadow to be cast within a scene. In a virtual world, where every aspect is controlled by a designer, shadows do not exist as they do in reality. When they do appear, it is by design, and so the properties of the shadow serve a specific purpose, either to heighten the sense of realism, or to convey a more complex message. With directional light, a figure may cast a shadow, either on the ground or against other figures, thereby revealing the presence of the form. Though not a virtual example, the capacity for shadow to reveal the presence of a form is demonstrated in David Lichtenwalter's Doubt (2010, Figs. 113-4). Though Lichtenwalter's project was not recorded in temporal media, it demonstrates what would be possible to duplicate (either manually or digitally) for screen-based temporal media. In Doubt, models of letters are placed behind a closed door. When illuminated from behind, the letters cast a shadow on the floor in front of the door. When the door is closed, the letters cannot be seen directly, but the shadows that they cast on the floor remain visible. If recorded in temporal media, the source of illumination, if revealed gradually, could reveal the presence of the letters over time. Equally, similar situations could be modelled in a virtual environment. The use of shadows raises questions over what could be considered *figure*, and what could be considered *ground*. The shadows are not themselves figures, merely indicators that figures exist. In Peircian terms, the shadows are indexical of the letterforms. They may be considered part of the ground, since they help to form the colour and tone of the surface. However, they are not so integrated into the ground that they would not disappear if the forms were removed. In short, they are cast on the ground, but provide information about the *figures*.



Figure 113. Letter objects are taped to a doorframe in the preparation of David Lichtenwalter's *Doubt*, 2010. Source: David Lichtenwalter, 'Doubt,' *Behance*, 2010, accessed July 18, 2011, http://www.behance.net/Gallery/Doubt/382267



Figure 114. David Lichtenwalter, Doubt, 2010. Source: Lichtenwalter, 'Doubt'

Though the survey of fluidity conducted for this study did not reveal any examples, it is possible to imagine future temporal artefacts which use shadows to reveal the presence and identity of a letter over time. As shown here, in Fig. 115, the figure 'A', when layered over an identically coloured ground, is only visible when a directional light source is introduced, casting a shadow on the background layer. This experiment could be reproduced in a temporal environment, perhaps with many layers of overlapping forms, to create examples of *revelation by illumination*. As with many examples of *revelation*, this causes a shift from apparently two-dimensional to three-dimensional space. Without the shadow, a flat plane is perceived, but when the shadow appears, there is an impression that the letterform is layered slightly forward of the background.



Figure 115. How a drop shadow may reveal the presence of an 'A' layered in front of a flat background as a light source is introduced.

Shadows may also be cast by a form which stands upright on a surface, so that the figure is at right angles to the ground (as in *Doubt*, Figs. 113-4). This situation is shown here, in Fig. 116, where an 'A' stands on an identically coloured surface. If illumination is introduced, the shadow would be cast at right angles to the letterform, and therefore, depending on the angle of the light source, distorted. If the light source were to move, as in Fig. 116, the cast shadow would appear to become *elastic*. In some circumstances, this elasticity, combined with the interference of the figure itself, and any other figures on the surface, can lead to the loss of the verbal identity.



Figure 116. How a cast shadow may appear to reveal the presence of an 'A' standing on a surface, as a source of illumination moves around the letterform.

As noted in 3.3, the transforming shadow may appear to represent a form with a consistent shape (and, therefore, a consistent verbal identity) as a result of the law of *Prägnanz* (leading to the assumption of 'shape constancy').⁵⁹⁸ However, when multiple forms are introduced (or multiple light sources), and shadows begin to interfere with one another, the result becomes not dissimilar to *metamorphosis* with *split* or *combined* forms, and it is much harder for the viewer to retain an impression of fixed and separate verbal identities. It must be noted that, despite the similarities between what is observed here and the behaviours seen in 5.3, this kind of *revelation by illumination* is a different kind of fluidity to *metamorphosis*. In *metamorphosis*, the forms themselves change, whereas in *revelation*, the forms are constant, and so too are any verbal identities. The identity of a form is revealed through the shadow, and is hidden or revealed as the shadow distorts.

Loss of verbal identity in a cast shadow may be most likely when the letterform is threedimensional, since several surfaces would contribute to casting the shadow. Although it is a sculpture rather than a temporal artefact, Alex Eylar's *Shadow Puppet* (2010, Fig. 117) shows how the shadows of three-dimensional objects could appear in examples of *revelation by illumination*. Eylar's sculpture, much like the objects in Zach Liebermann's *Intersection* (see Figs. 104-5), incorporates objects which present one letter when viewed from one angle, and a different letter when viewed from an alternative angle. In this case, the alternative verbal identities are revealed in the shadow that they cast against a wall. This allows viewers to experience both verbal identities from the same viewing angle (with the position and direction of the light source acting as a substitute for the viewer's possible alternative position). A sculpture such as this could be used in a similar way to the model that Saul and

⁵⁹⁸ Rock, An Introduction to Perception, 69.

Elaine Bass used as the subject for their *Alcoa Premiere* title sequence (see Fig. 107). For display in a temporal medium, a static camera could film the introduction of a moving light source to this scene. The moving light source might initially reveal an apparently abstract shadow, or one which did not appear to contradict the facing 'puppet' identity of the sculpture. As the source of illumination moved, however, the shadow would appear to morph to reveal the presence of the word 'shadow' in the sculpture.

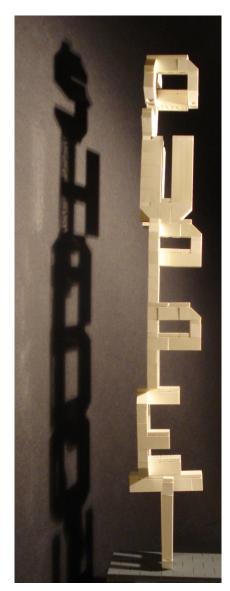


Figure 117. Alex Eylar, Shadow Puppet 2010. This sculpture appears to have a different verbal identity to its shadow. Though this sculpture is not itself fluid, it would be possible to film or virtually reproduce a similar scenario, to reveal each of these identities over time. Source: Alex Eylar, 'Shadow/Puppet,' *Flickr*, 2010, accessed July 18, 2011, http://www.flickr.com/photos/hoyvinmayvin/4268547280/

5.5. Conclusion to Chapter 5

This chapter identified categories of fluid behaviours which can be observed in contemporary fluid artefacts, or that have the potential to be contained within such artefacts. The three main categories of fluid behaviour were introduced, including *construction*, *metamorphosis* and *revelation*. Though there are many contemporary examples of *construction* and *metamorphosis* (a category that is already well-recognised), *revelation* has yet to be fully explored by practitioners. As shown in 5.4.3, there is potential for the category of *revelation* to expand further, and for practitioners to experiment with ways of revealing verbal identities through *illumination*, particularly involving the casting of shadows.

The examples presented in this chapter represent only a sample of an ever increasing number of fluid artefacts. The CD accompanying this thesis features a wider range of examples, revealing to a greater extent than this text, the kinds of fluid artefacts that exist in each category. Despite the continuing expansion of the field, the three basic categories outlined here remain useful as classifications for new fluid artefacts.

Chapter 6: The Typology, Gestalt and Semiotics: Sample Analyses

6.1. Introduction to Sample Analyses

This chapter demonstrates the value of the methods and terms introduced during the course of this thesis, through a series of sample analyses of fluid artefacts. The range of examples presented here have been selected for the extent to which they exemplify the categories identified in the typology, and typify the range of fluid behaviours that are exhibited in contemporary temporal typography, with minimal distraction from other temporal events. In 6.2, *Construction* will be explored through the Channel 4 idents of Martin Lambie Nairn and MPC (1982-2006). In particular, Lambie Nairn's 1982 ident has been selected as it can be considered pioneering, and has been hugely influential in the field of television idents. Since the Chanel 4 idents are three-dimensional, and this three-dimensionality directly impacts upon the fluid process, a layered two-dimensional example of *construction through motion* of parts will then be analysed in 6.3, in the form of Josh Rhett's Lubalin Graph (2005). In 6.4, Revelation will be shown in Kyle Cooper's True Lies (1994). This example demonstrates, in particular, the transformation of an entire word. The category of metamorphosis will be represented by Komninos Zervos' Beer (2005), selected for its simple aesthetics and lack of distraction from non-fluid forms, which make it a clear example of this category. Beer also introduces problems which arise when words of different lengths are combined by *metamorphosis*, showing how the behaviour is required to alter in order to allow for such transformation. The examples have also been selected in order to show as wide a range of identities as possible, including characterforms that become verbal, pictorial and abstract, demonstrating that fluidity may introduce identities from a number of different paradigms. This range of examples shows transformation between figurative image and numeric character (in MPC's Channel 4 idents), between abstract shape and alphabetic forms (in Lubalin Graph), and between multiple different characterforms, via abstract three-dimensional object (in *True Lies*), and via twodimensional asemic glyph (in *Beer*). Further examples have been selected as representative of additional issues affecting possible interpretations of the categories in the typology, and to clarify how the typology may be applied. For example, MPC's series of idents for Sky 1, 2 and 3 introduce potential ambiguity between categories of *metamorphosis* and construction through motion of parts as well as showing how although they may not

explicitly identify categories of fluid type, practitioners practice in ways which acknowledge that different kinds of transformation exist.

6.2 Construction in Martin Lambie Nairn and MPC's Channel 4 Idents

Construction through motion of parts, and through navigation, can be observed in a range of on-screen artefacts with dramatically different visual characteristics, as illustrated by the examples presented in 5.2, such as Peter Cho's Letterscapes (D) (2005), Vincent Viriot's Virgin 17 Ident (2009), and Colleen Ellis' ABCing (d) (2010). These examples are all useful in demonstrating how *construction* behaviours may be applied to visually different forms, including positive and negative forms, and how the Gestalt laws of *similarity*, *proximity*, closure and Prägnanz can be considered important in describing the construction of a characterform. These examples are largely independent, in that they do not form part of a set, or where they do form part of a set, the other artefacts in that set tend to exhibit a range of different behaviours, as in Peter Cho's *Letterscapes*. There are, however, a few examples in which the *construction* behaviour is demonstrated consistently throughout a set with slight variation. This is the case with the collections of idents for channel Five and Channel 4, both of which include *construction through navigation*, and *construction through motion of parts*, applied to a range of visually and thematically different objects. In the case of the Channel 4 idents, the *construction* behaviour has come to play as integral a role as the presence of the channel logo in establishing the brand identity. The range of idents produced for Channel 4 have exhibited *construction* behaviours for almost three decades, and in that time have become widely influential (their influence can be seen in, among others, BB/Saunders' channel Five idents). These idents are ideal subjects for thorough analysis not only because of their longevity but also due to the variation that is shown in their demonstration of *construction* behaviours.

Martin Lambie Nairn's first Channel 4 idents, produced from 1982 onwards, were intended to signify the practice that set Channel 4 apart from other British television broadcasters at the time: that of sourcing a variety of television shows from a range of production companies.⁵⁹⁹ This practice is illustrated in the coming-together of visibly different elements

⁵⁹⁹ Woolman and Bellantoni, *Type in Motion*, 34.

in the construction of the Channel 4 logo. In Lambie Nairn's first series of idents, coloured polygons converge towards the centre of the screen, against an empty black background, and align to form the figure '4'. At this moment the polygons appear to undergo a change in identity, becoming parts of a verbal sign, and achieving particular purpose and verbal meaning. A single identifiable sign emerges, and the polygons appear to shift from one paradigm to another: pictorial or abstract, to verbal. Despite the different appearance of these polygons, which are of different colours and lengths, they are similar enough in shape that, when Gestalt factors of *proximity*, *closure*, and *uniform destiny* come into play, they are perceived as belonging to a single '4' configuration. These same Gestalt factors continue to be applicable in describing the perceptual process that occurs in response to many more recent Channel 4 idents, which have built upon Lambie Nairn's early ideas.

As the very first thing to be broadcast on Channel 4, even before the first programme, the ident had responsibility for communicating the channel's values and objectives to a new audience.⁶⁰⁰ In his role as the designer of this ident, Lambie Nairn was responsible for establishing Channel 4 as distinct from the UK's only other commercial channel at the time, ITV.⁶⁰¹ In displaying fluid behaviour the Channel 4 ident set itself apart from other British TV idents of the same time. Though kinetic elements existed in other idents, the core components of logos were rarely treated as dynamic. At the launch of Channel 4 in 1982, ITV did not have common branding for the entire UK. Regional idents were used exclusively until 1989.602 These regional idents of the 1980s reveal a fashion for moving geometric three-dimensional objects, as in those for Grampian Television, which initially presents a series of moving and revolving spheres and planes, and Scottish Television, in which a thistle is constructed from cubes and spheres.⁶⁰³ In these and other examples of the same decade, only pictorial elements are involved in kinetic behaviour, while verbal elements, including the name of each regional station, are either presented as static, or exhibit only simple motion.⁶⁰⁴ In most instances, kinetic events involve only pictorial forms and precede the introduction of the name of the regional channel. Likewise, the BBC1 ident

⁶⁰⁰Dorothy Hobson, *Channel 4: the early years and the Jeremy Isaacs legacy* (London: I.B. Taurus & Co, 2008), 1.

^{1.} ⁶⁰¹ Ibid.; Christine Fanthome, 'Creating an iconic brand – an account of the history, development context and significance of channel 4's idents,' *Journal of Media Practice* 8, no. 3 (2007): 257.

⁶⁰² Icon Group International, *Brandies: Webster's Quotations, Facts and Phrases* (San Diego: ICON Group International, 2008), 118.

⁶⁰³ See 'ITV Station Identifiers 1980s,' YouTube, 2006, accessed July 19, 2011,

http://www.youtube.com/watch?v=oQ4nBvzgo9E

⁶⁰⁴ Ibid.

of the same time included some kineticism, but this was applied to additional pictorial elements rather than the verbal forms of the logo. The BBC1 ident, which broadcast with little variation except a change of typeface between 1974 and 1985, contained a revolving globe, but the BBC1 logo itself was static.⁶⁰⁵ BBC2 did present fluidity in their idents, in the form of metamorphosis. The BBC2 ident from 1981 to 1986 presents two white strips which extend to become the inner and outer contours of the '2'.⁶⁰⁶ Notably, a similar metamorphosis can be seen in BBC2's idents as early as 1967.⁶⁰⁷ This behaviour closely resembles that exhibited in Terry Griffith's LWT logo of 1971, in which a 'ribbon' extends downwards from the top of the screen, then twists and folds to resemble the path of the river Thames, and in doing so forms the corner of an 'L', a 'W', and the crossbar of a 'T' (see 2.3.4 for a more detailed description of this ident).⁶⁰⁸ These idents reveal that, although it was well-established that television idents could contain kinetic elements, and even that this kineticism may involve the metamorphosis of verbal forms, there had not yet been established a tradition of constructing characterforms from moving parts. However, given that some idents did construct images from moving geometric parts (as in Grampian Television and Scottish Television) and others contained fluidity in the verbal elements of the logo (as in BBC2 and LWT) the next logical development was a combination of these two practices, leading to the fluid construction of what Mollerup's taxonomy of trademarks describes as 'name marks'.⁶⁰⁹

For the launch of Channel 4, Lambie Nairn produced a range of idents which demonstrate the construction of the figure '4' through the motion of its parts. In this way he followed the fashion for arrays of moving three-dimensional objects exhibited by the idents described above, and, additionally, used those objects to fluidly construct a verbal form intended to assert Channel 4's difference from existing broadcasters. In particular, he wished to communicate the channel's aim to provide 'diversity and innovation' in its programming.⁶¹⁰ The innovation, which set this ident apart from those used by ITV and the BBC at the time,

⁶⁰⁵ 'BBC One: 1974 – September 1981', *The TV Room*, n.d., accessed July 19, 2011. http://thetvroom.com/bbc-uk/bbc-1-10-01.html; 'BBC One: September 1981- February 1985', *The TV Room*, n.d., accessed July 19, 2011. http://thetvroom.com/bbc-uk/bbc-1-15-01.html

⁶⁰⁶Darren Meldrum, 'BBC 2 Idents: The Eighties', *The Ident Zone*, n.d., accessed July 19, 2011, http://www.meldrum.co.uk/mhp/identzone/bbc2/bbc2_part2.html

⁶⁰⁷ BBC TWO Ident/Timeline 1964-2007,' *YouTube*, 2011, accessed July 19, 2011, http://www.youtube.com/watch?v=3H2BT01EobM

⁶⁰⁸Marcus Bernard, 'ITV London/LWT,' *TVArk*, c.2004, accessed July 17, 2011, http://www2.tv-ark.org.uk/itvlondon/lwt-main.html

⁶⁰⁹Per Mollerup, *Marks of Excellence* (London: Phaidon, 1999), 111.

⁶¹⁰David Docherty, David E. Morison and Michael Tracey, *Keeping the Faith? Channel Four and its Audience* (London: John Libbey, 1988), 6.

came in the form of the combination of three-dimensional elements and fluid behaviour. This innovation was acknowledged by others in the branding and graphic design industry, as Lambie Nairn's work was seen as heralding a new era in television branding, and won numerous awards.⁶¹¹ Diversity was also viewed as particularly important in establishing the character and methods of the new channel. As opposed to the production role of other channels, Channel 4 saw itself as a 'publisher', selecting and broadcasting programmes produced elsewhere.⁶¹² This role as a publisher was one way in which it aimed to promote diversity, as it gave minority groups the opportunity 'to express their views unmediated by television bureaucrats'.⁶¹³ Through its use of *construction through motion of parts*, Lambie Nairn's ident effectively conveys not only Channel 4's role as publisher, but also the relationship between this role and the ambition for diversity. The convergence of several differently coloured polygons acts as a metaphor for the sourcing of programmes from different production companies, and for collaboration between culturally diverse groups.

All of Lambie Nairn's idents aim to communicate these values of innovation and diversity, using the construction of the figure '4' from separate parts. However, each ident involves slightly different motion of parts, and differently shaped components. This capacity to adapt communicates to audiences the message that the channel is not only diverse, but able to respond to change and constantly reinvent itself without compromising its core values. In the very first of Lambie Narin's idents, Round and Back (1982, Fig. 118), the viewer is presented with the '4' logo from the very beginning breaking apart into its component polygons. The polygons are flung outwards from a revolving central column - the vertical stroke of the '4' – and then spin as if caught in a vortex, before returning to their original positions, as if attracted by a gravitational force. This motion is chaotic, with little synchronicity in the motion of the separate parts. In 1983, the sequence first seen in *Round* and Back was extended so that the second appearance of the '4' was followed by its breaking apart again, with the separate polygons flying out of the frame so that they may be imagined entering the real space occupied by the viewer.⁶¹⁴ Other idents subjected the polygons to entirely different motion. In Implosion (1982) the same polygons are used, but their motion is different. They originate from off-screen, and enter from every direction,

⁶¹¹ Fanthome, 'Creating an iconic brand,' 258.

⁶¹² Docherty, Morison and Tracey, *Keeping the Faith*, 8.
⁶¹³ Ibid., 36.

⁶¹⁴ 'Channel 4 close 1983,' YouTube, n.d., accessed July 17, 2011,

http://www.youtube.com/watch?v=t1eBN5ioh8A&feature=related

revolving as they converge on the centre of the screen, where they align to present the '4' configuration. In a few other examples, not only the motion of parts, but also the appearance of those parts, is changed. The familiar polygons are replaced with differently shaped objects, as in *Interlock* (1982, see Fig. 119), in which the '4' is contructed from an array of planar objects. Alternative versions of this ident continued to be developed, each with a variation of the same process of *construction through motion of parts*.

Round and Back differs from Lambie Nairn's later idents in two key ways. Firstly, it offers viewers a preview of what is to come: viewers see the figure '4' at the beginning and the end of the sequence. There is, therefore, no doubt about the intended purpose of the separate polygons, and their identity as part of a group. Secondly, *Round and Back* presents more chaotic motion than can be seen in other Channel 4 idents. In further idents (*Implosion*, for example) the motion of separate parts is often similar in pace and direction, implying, in Gestalt terms, *uniform destiny*, and association by *similarity* of motion. The presence of the figure '4' at the very beginning of *Round and Back* perhaps explains why this first ident can sustain more chaotic motion than is exhibited in other idents. Since the '4' appears at the beginning of the sequence, and the viewer directly witnesses it breaking apart, she can rely on her past knowledge of the configuration, as presented in the first moments of the sequence, to affirm the identities of the separate polygons as part of a group. It is therefore not necessary for the characteristics of the motion to suggest that the moving parts are associated with one another. In short, the chaos of the motion is compensated for by the presence of two identical poles, where there is more commonly only one.

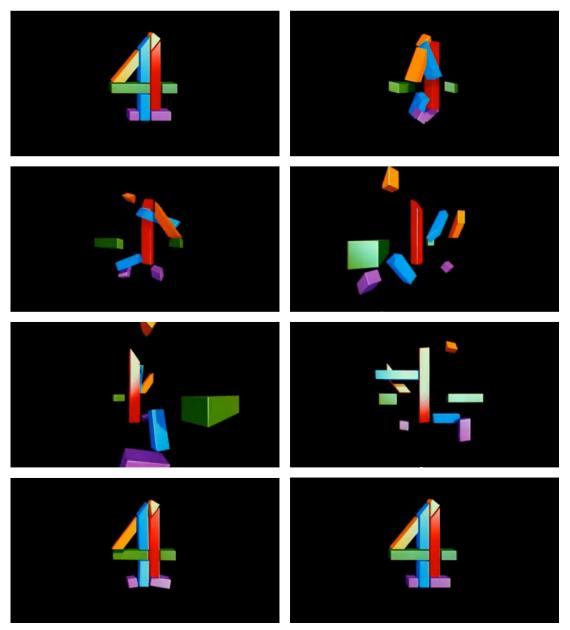


Figure 118. Martin Lambie Nairn, *Round and Back*, 1982. In this, Lambie Nairn's first Channel 4 ident, the figure '4' breaks apart into coloured polygons, which are flung outwards and trapped in a vortex created by the revolving central column of the upward stroke. The polygons are then pulled back towards the centre of the vortex, and return to their original positions in the '4' configuration. Source: 'Channel 4 at 25th Birthday Idents', *YouTube*, 2007, accessed July 17, 2011, http://www.youtube.com/watch?v=q6UBuO9n6U8&NR=1

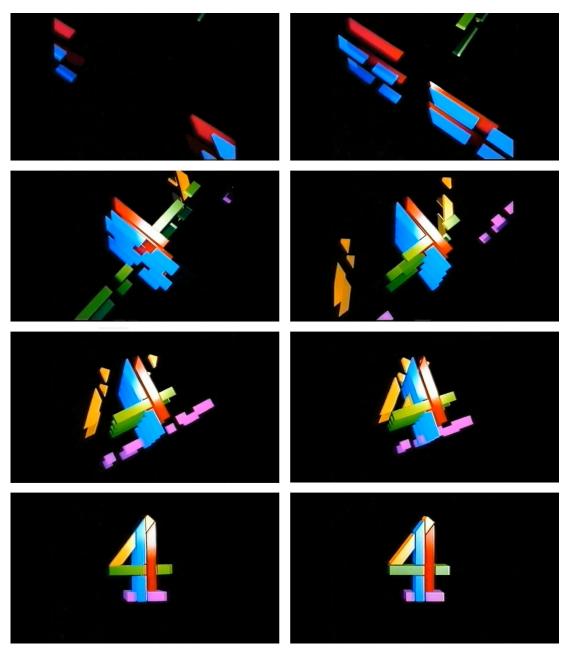


Figure 119. Martin Lambie Nairn, *Interlock*, 1982. In this ident, the '4' is constructed from a greater number of polygons than in other channel idents. Here, a large number if polygons are arranged into separate groups, which converge to construct the figure '4'. Source: 'Channel 4 ident 1986,' *YouTube*, 2008, accessed July 17, 2011, http://www.youtube.com/watch?v=C7sjJFSU0cQ

It was not long before Martin Lambie Nairn was able to exploit the audience's familiarity with the '4' and its component parts; there was no longer a need to show the '4' identity at both ends of the sequence. Later idents relied upon a greater number of Gestalt factors to unite the component polygons, thereby ensuring that the separate parts were associated despite initially appearing at a variety of different locations within (and sometimes beyond) the frame of the screen. In *Interlock* (see Fig. 119), the coloured polygons converge from outside the frame of the screen. In this ident, the separate polygons appear to be converging on a single location, and so the Gestalt factor of *uniform destiny* prompts the perception of association between the shapes, even though, in this sequence, they have not previously been viewed together. When they reach their destination at the centre of the screen, and align, the Gestalt factors of *proximity*, *similarity* (in shape and surface texture, though not in colour) and *closure* ensure the perception of a '4' configuration. The resulting '4' configuration is identical to those in previous idents, and in static uses of the Chanel 4 logo at that time, however, the component parts which are used in this construction do not resemble those in the previous idents. There are not simply the nine polygons that exist in other examples, but a much larger array of flat, layered shapes. These flat planes are layered in groups (or, perceived as belonging to groups as a result of their *similarity* in colour and motion), which converge in synchronised motion. As each group independently joins the larger group of the final configuration, the space between the layered planes decreases, and they eventually merge into the three-dimensional polygons with which the audience is more familiar. In this way the behaviour does not simply present the alignment of primitives into a single group, but the alignment of an array of groups into a single, greater group.

Variations on Lambie Nairn's ident were used until Channel 4's rebranding in 1996. After a number of other short-lived idents that 'failed to generate plaudits from within or outside the industry', Channel 4 retrieved and updated the behaviours in Lambie Nairn's original idents.⁶¹⁵ For a series of new idents, entitled *Atlas* (2004-2010), The Moving Picture Company (MPC) was employed to retrieve some of the core characteristics of Lambie Nairn's processes, while introducing new features to demonstrate the radical change that had come about as a consequence of the introduction of 'the arrival of many new digital channels'.⁶¹⁶ The *Atlas* idents present similar *construction* behaviour to Lambie Nairn's idents, but incorporate significant visual difference with the addition of figurative objects, digitally modelled to imitate live-action footage. In these idents, the component parts of the '4' are 'subtly disguised as elements in each environment shown'.⁶¹⁷ More so than many

⁶¹⁵ Fanthome, 'Creating an iconic brand,' 261.

⁶¹⁶ Ibid., 264.

⁶¹⁷ MPC, 'Channel 4 idents', n.d., accessed July 19, 2011. http://www.moving-

picture.com/index.php?option=com_content&view=article&id=341&Itemid=873&contentview=single§ion=1&pagenum=1

other examples of fluidity, MPC's idents exhibit what Barthes conceived as an 'amalgamation' of 'graphic and iconic' signs.⁶¹⁸ Photorealistic scene and graphical symbol are so integrated that fluidity occurs in the emergence of one from the other. As explored below, parts of the '4' masquerade as architectural elements, and introduce an additional element of surprise when each element is revealed to have an alternative identity to that suggested by its initial appearance. In examples including Tokyo (2006, Fig. 120), and Road Signs (2004, Fig. 121), the introductory moments depict everyday scenes and activities. Objects within the environment appear familiar, and are expected to reliably behave as they do in real-life settings.⁶¹⁹ When these objects align, they appear to defy the rules of reality. The scene is abruptly cast out of reality, and suddenly becomes spectacle. As in the earliest forms of mechanically created spectacle, 'we know what we are seeing to be impossible and yet the pleasure of the experience is in seeing – before our very eyes – the most realistic staging of something which cannot happen'.⁶²⁰



Figure 120. MPC, Tokyo, 2006. In MPC's idents, the '4' is constructed from apparently environmental objects. These objects appear to be part of the landscape until they apparently align to construct the '4'. Source: MPC, 'Channel 4 Idents,' The Moving Picture Company, 2006, accessed July 17, 2011, http://www.moving-

picture.com/index.php?option=com_content&view=article&id=341&catid=38&Itemid=926

⁶¹⁸ Barthes, Image, Music, Text, 26.

⁶¹⁹ For viewers who have already encountered one of these idents, the revelation of the '4' is expected. The everyday introductory moments become a period of anticipation. ⁶²⁰ Slater, 'Photography and Modern Vision,' 219



Figure 121. MPC, *Road Signs*, 2004. In this ident, the viewer is made aware that the alignment of the component parts of the '4' is a consequence of apparent viewer navigation, as indicated by the presence of the dashboard and rear-view mirror which frame the scene. Source: 'Four to the Floor: the ever growing complete-ish collection of Channel 4 idents,' *Idents.tv*, 2006, accessed July 17, 2011, http://idents.tv/blog/category/uk-channel-4/page/4/

These idents can be likened to two forms of spectacle: theatrical illusion, and computergenerated special effects. As theatrical illusion, they may be described in terms identified by Reginald Foakes, as 'scenic illusion'.⁶²¹ Scenic illusions, like nineteenth century dioramas, involve the creation of a spectacle within an artificial landscape. Unlike other forms of theatrical illusion, this takes place without the apparent presence of 'human action', with all illusion contained within the elements of an apparently inanimate scene.⁶²² In this respect, MPCs idents can be described as scenic illusion, but they also have key features in common with 'dramatic illusion'.⁶²³ The moment of revelation, when the apparently environmental objects align to present a '4', is comparable to the climax of a dramatic illusion: 'a moment of surprise... when the spectator suddenly realises his expectations were wrong'.⁶²⁴ In assessing the legacy of Gestalt, Rock and Palmer observe that 'when people let go of implicit assumptions, their understanding of a problem is sometimes dramatically

 ⁶²¹ Reginald A. Foakes, 'Making and Breaking Dramatic Illusion', in *Aesthetic Illusion: Theoretical and Historical Approaches*, eds. Frederick Burwick and Walter Pape (New York: Walter de Gruyter, 1989), 271.
 ⁶²² Ibid

 ⁶²³ Peter Lamont and Richard Wiseman, *Magic in Theory: An Introduction to the Theoretical and Psychological Elements of Conjuring* (Hertfordshire: University of Hertfordshire Press, 2005), 50.
 ⁶²⁴ Ibid.

reorganized, enabling them suddenly to "see" the solution, complete with the accompanying "aha!" experience'.⁶²⁵ This moment can be compared to the moment that the viewer enters the 'viewing zone' when viewing Eduardo Kac's holopoetry. In this moment, the environmental objects that construct the figure '4' are initially perceived as belonging to the landscape (in Gestalt terms, the ground), but are revealed as belonging to a different paradigm (the *figure*). However, despite the fact that they adopt a new identity, the physical appearance of these objects does not change. Each polygon may still be identified as a separate architectural object. Therefore, in these idents, as in illusions, 'there are two or more quite different interpretations from a single stimulus'.⁶²⁶ Objects are simultaneously environmental and typographic. Both interpretations are correct, but also distinctly different.627

Theatrical illusions succeed at creating spectacle because they result in the unexpected. In order to ensure that the climax is unexpected, the illusionist must first lull the viewer into a false sense of security. This is done by disguising the illusionist's tools as everyday objects.⁶²⁸ In this disguise, 'naturalness' and 'consistency [are] key to conviction'.⁶²⁹ As long as the objects on stage are perceived as common objects, the viewer will assume that they have properties commonly associated with those objects and are not capable of anything extraordinary. In film, as in theatrical illusion, events or effects leading up to a moment of spectacle must appear 'plausible'. This plausibility is achieved when 'representations are internally consistent' and 'coherent'.⁶³⁰ In computer-generated spectacle (usually 3D animation), objects must be rendered to such a high level of believability that they eliminate all suspicion.⁶³¹ In MPC's Channel 4 idents, the illusionist's tools are replaced by the components of the fluid '4' configuration, which are 'rendered [with]...textures...to ensure that they appear to be part of the environment'.⁶³² The objects blend seamlessly into the

⁶²⁵ Rock and Palmer, 'The Legacy of Gestalt,' 89.

⁶²⁶ J.R. Block, 'What is an Illusion?' Sandlot Science, 2002, accessed July 17, 2011,

http://www.sandlotscience.com/EyeonIllusions/whatisanillusion.htm

⁶²⁷ This uncertainty as to the nature of the objects within the scene could create anxiety, but instead creates 'a desired experience of confusion'.

⁶²⁸ Bruce Tognazzini, 'Principles, Techniques, and Ethics of Stage Magic and Their Application to Human Interface Design,' Proceedings of InterCHI '93 (1993), 356, accessed June 20, 2011, doi: 10.1145/169059.169284

⁶²⁹ Dariel Fitzkee, Magic By Misdirection (Ohio: Lee Jacobs, 1945), as cited in Tognazzini, 'Principles, Techniques, and Ethics,' 355.

⁶³⁰ Slater, 'Photography and Modern Vision,' 232.

⁶³¹ Tognazzini, 'Principles, Techniques, and Ethics,' 357.

^{632 &#}x27;Channel 4: December 2004-Present,' The TV Room, 2006, accessed July 17, 2011, http://thetvroom.com/ch-4/ch-4-04-01.html

backdrop, as if they are no more capable of magic than the surrounding scenery. This disguise fools the viewer into believing that these objects are everyday architectural objects, with no potential for transformation. The perception that these objects are in no way special, or distinct from the surroundings, ensures that the emergence of the '4' will be 'a moment of surprise'.⁶³³

That the component parts of each '4' configuration resemble photographed or filmed objects transports Channel 4 idents from the field of motion graphics to that of live-action film and video effects (VFX). The visually more complex objects in MPC's idents therefore belong, at least in this way, to a different paradigm from the abstract primary-coloured polygons of Martin Lambie Nairn's earlier idents, which bear more similarity to graphic design than to photography or film. The addition of visual complexity to the component parts of the scene is balanced with a simplification of the fluid process. MPC's processes are more consistent than those seen in Lambie Nairn's range of idents. MPC always presents only nine component parts, and always constructs the '4' at only one moment in the sequence. They have, however, introduced a significant alternative behaviour to this set of idents, in the form of *construction through navigation*. MPCs idents can be divided into two categories: those which present *construction through motion of parts*, in which 'moving material' aligns into the '4' configuration; and those which exhibit *construction through navigation*, in which a 'first person perspective camera moves through the sequence to reveal the Chanel 4 logo at the midpoint'.⁶³⁴

⁶³³ Lamont and Wiseman, *Magic in Theory*, 50.

⁶³⁴ MPC, Channel 4 idents



Figure 122. MPC, *Alien*, 2004. In this ident, the component parts of the '4' move independently of one another and of the camera/viewer. The fact that their motion appears to be independent and unsynchronised enhances the impression that the appearance of the '4' is coincidental. Source: 'Four to the Floor'

In idents including *Alien* (2004, Fig. 122) and *Bowling* (2004) the '4' configuration is constructed as it is in Lambie Nairn's idents, through the independent motion of separate parts, which present as a configuration through choreographed alignment. Other idents: *Toyko* (2006, Fig. 120), *Road Signs* (2004, Fig. 121), *Pylons* (2004, Fig. 123), and *Corn Field* (2004, Fig. 124), involve *construction through navigation*. Several of these (*Pylons* and *Road Signs*) draw attention to the involvement of navigation by presenting the scene framed within car windscreens, with the dashboard and window frames creating the impression that the scene has been serendipitously encountered on a car journey. This imbues them with the features of anamorphosis, as described in 2.3.3 and 5.2.2. The emergence of the '4' configuration occurs at the moment when the tracked camera encounters a privileged position, described by MPC Creative Director Mike Appleford as the 'hit point', or, in Eduardo Kac's terms, 'viewing zone'.⁶³⁵ As when anamorphosis occurs in static artworks, this privileged position must be discovered by the viewer. Appleford describes his aim as inviting the impression that the '4' has been 'found' by the viewer,

⁶³⁵ Jeff Heusser, John Montgomery and Sydney Seymour, 'MPC London's Award Winning Channel 4 Idents,' *FX Guide*, 2007, accessed July 19, 2011.

http://www.fxguide.com/featured/MPC_Londons_Award_Winning_Channel_4_Idents/ ; Kac, 'Key Concepts.'

rather than deliberately presented to her.⁶³⁶ Despite the emergence of the '4' configuration, the car does not slow or compensate in any way for the presence of this unexpected phenomenon. It continues to move through the scene, and the configuration appears to dissipate. In several of the idents, at least one of the parts of the '4' aligns as a result of an event that appears to be uncontrolled and coincidental.⁶³⁷ These features and events ensure that the appearance of the '4' is fleeting. As if to reinforce the view that the channel's content is constantly evolving, there is a sensation of 'spectacular coincidence', and that the exact location and exact moment of the appearance of the '4' may never be recaptured.⁶³⁸



Figure 123. MPC, *Pylons*, 2004. In the first of these frames, the frame of a car windscreen is visible, framing the scene. This increases the feeling of immersion, which in turn enhances the sense that this is an extraordinary encounter in an otherwise ordinary landscape. Source: 'Four to the Floor'

⁶³⁶ Heusser, Montgomery and Seymour, 'MPC'

⁶³⁷ Ibid.

⁶³⁸ Hubert, A theory of cloud, 284.

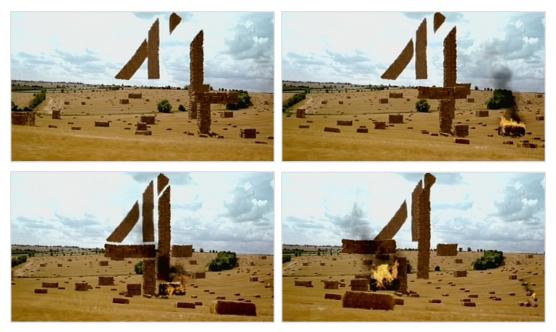


Figure 124. MPC, Corn Field, 2004. Source: 'Four to the Floor'

In this collection of idents there is a trend towards an ever more abbreviated alignment. The time for which the '4' configuration is in alignment has decreased to the extent that recent indents, such as Blackpool (2011), Abbey (2011) and Airplanes (2011), reveal it so fleetingly that viewers must be dedicated to seeking it out in order to notice its split-second appearance. In some cases (as in Abbey, see Fig. 125) the '4' never fully completes its alignment, providing viewers with only enough alignment to demonstrate the potential for '4' rather than a fully complete figure. This trend illustrates the extent of the success of this set of idents, and the familiarity of their behaviour to the target audience. The audience has become so familiar with the behaviours exhibited in this set of idents that they no longer cause surprise, but instead present a challenge to the viewer, to anticipate the point of alignment by seeking out the component parts of the '4' before they align. The idents are, therefore, no longer simply spectacles, but rather games, involving participation from the audience. The apparent need for the alignment to be abbreviated can be considered in light of the findings of Sarah Kettley, who has observed that, when audiences are faced repeatedly faced with ambiguous but similar artefacts, 'the rates of visual output... had to be substantially speeded up in order to hold the attention of viewers.⁶³⁹ Kettley's research

⁶³⁹Sarah Kettley, 'Framing the Ambiguous Wearable,' *Convivio Journal* 2 (November 2005), accessed April 15, 2011,

 $http://www.sarahkettleydesign.co.uk/sarahkettley/friendship_Jewellery_01_sarah_kettley_files/Framing\%20 the \%20 Ambiguous\%20 Wearable.pdf$

would suggest that the increasing speed of the behaviour is required to fend off fatigue in an audience who has been exposed to similar behaviours for almost three decades.



Figure 125. MPC, *Abbey*, 2011. In this ident the figure '4' never fully aligns. The viewer is provided with a lengthy introductory sequence, in which she may seek out possibilities for the appearance of the '4', and then finally is rewarded with enough alignment to prove the existence of the complete figure, without ever revealing it in its complete state. Source: 'Channel 4 Ident – Abbey,' *TV Ark*, 2011, accessed April 18, 2011, http://www.tv-

ark.org.uk/mivana/mediaplayer.php?id=41886355a79876c761ed176d549f0b80&media=channel4_id_abbe y_2011&type=mp4

As in all examples of *construction through navigation*, including non-verbal and real-world examples such as the painted buildings of Felice Varini (see 5.2.2), the verbal character or graphical form may only be perceived if there occurs an apparent flattening of space. As the Gestalt law of *Prägnanz* suggests, it is simpler to perceive a single flat form than multiple forms arranged at varying distances.⁶⁴⁰ In this respect, such examples bear similarity to impossible objects such as the Penrose triangle (Fig. 126) which appears to be a complete form but is revealed to be disjointed when the viewer moves to another viewing position. In viewing the Penrose triangle from a privileged position, there is an 'insistence' on finding the simplest possible interpretation, which is, according to the *law of Prägnanz*, a complete

⁶⁴⁰ Kevin Fink, 'Impossible Figures in Perceptual Psychology,' *Pitzer Psychology 106 – Perception*, 1991, accessed July 17, 2011, http://fink.com/papers/impossible.html

and flat shape.⁶⁴¹ Space is imagined as compressed, and the two separate terminals are perceived as connected, in order to make this perception possible. In MPC's Channel 4 idents, the same flattening of space occurs. Despite prior knowledge that the objects in the scene are positioned at different distances from the viewer (as provided in the opening frames of the sequence), the tendency to seek a complete and simple form in this array drives him/her to perceive a flattened '4' configuration.

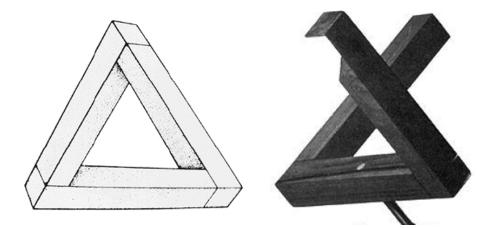


Figure 126. Two views of a Penrose triangle, showing how two ends, separated in space, may be perceived as connected on a single plane when viewed from a privileged viewing position. Source: Gunnar Sparr, 'On the "reconstruction" of impossible objects,' (paper presented at *Swedish Symposium on Image Analysis*, 1992), 4, accessed July 17, 2011, http://citeseer.ist.psu.edu/332247.htm

This flattening of space is most overtly illustrated outside of these idents, in the installation that appeared outside of the Channel 4 headquarters from 2008. In celebration of Channel 4's 25th anniversary, a 48-foot tall steel model of the logo was constructed and installed at the company's headquarters (see Fig. 127).⁶⁴² The component parts of the giant logo were not positioned on a single plane, but spaced apart, so that they could only be viewed in alignment from a position directly in front of the building. This '4', as a real-life arrangement of objects rather than computer generated models contained within a screen, highlights the fact that the behaviours seen in the 4 idents are not merely a product of temporal media, but are reproducible in real-life. Audiences approaching the building are granted control over the process of construction, and made more aware that it is navigation that reveals the '4' identity, rather than a behaviour integral to the '4' or its component parts.

⁶⁴¹ Ibid.

⁶⁴² Levent Ozler, 'Channel 4 Brings Its Logo to Life to Launch Big Art in 2008,' *Dexigner*, 14 October, 2007, accessed July 19, 2011. http://www.dexigner.com/news/12348

In offering the audience this sense of control, it becomes clear that the behaviour is the result of a parallax, in which the relative position of objects appears to change depending on the viewer's location. The experience of moving past and under the installation on entering the building further emphasizes that no actual flattening of space occurs in order to reveal the '4', but rather this flattening is perceived as a result of the law of *Prägnanz*, which suggests that it would be simpler to perceive these objects as belonging on a single plane, thereby presenting a single and meaningful arrangement.



Figure 127. Freestate, *Big 4* installation, 2007. Source: 'This art installation brought to you by Channel 4', *Idents.tv*, 2008, accessed April 15, 2011, http://idents.tv/blog/2008/01/21/this-art-installation-brought-toyou-by-channel-4/#more-646

Although numerous texts acknowledge the significance of Martin Lambie Nairn and MPC's idents, none adequately explore the behaviour that makes them distinct.⁶⁴³ Many focus on what Wong describes as 'structural characteristics': the features of physical form (see 2.3.2).⁶⁴⁴ Despite intending to provide a thorough exploration of Channel 4 branding, Christine Fanthome devotes very little of her text to describing kinetic features, instead focusing on its structural attributes including its three-dimensionality and colours.⁶⁴⁵ Though perhaps prompted by Fanthome, even Brett Foraker of 4Creative, who was directly involved in the design of Channel 4's more recent Atlas idents, appears to focus on the use of 'dimensional and solid' components rather than on the way in which these components align.⁶⁴⁶ Paul Grainge describes, in detail, some of the architectural scenes and objects that feature in the Atlas idents, but does not describe the behaviour except through the observation that it aims to imitate that of Lambie Nairn's originals.⁶⁴⁷ Though these structural features are an essential part of Channel 4's idents, they also exist in the static version of the logo, intended for print, and so do not sufficiently distinguish it from static artefacts. When texts discuss the temporal features of the channel 4 idents, they generally acknowledge that it involves construction, in that it presents 'various parts [that] converge in space', 'come together', or 'unite'.⁶⁴⁸ These descriptions, however, are rarely thorough enough to explain how that construction occurs. When they attempt more specific description, the outcome is often vague or misleading. Fanthome's description of Round and Back, for example, tells readers that the components of the '4' 'simply rotated through threehundred and sixty degrees'.⁶⁴⁹ As is shown above, closer inspection of this ident reveals that its components engage in more complex behaviour than rotation. It is perhaps ironic that these texts so enthusiastically relate the success and originality of Lambie Nairn's idents, and yet seem largely unable to accurately describe, explain and analyse them. One may argue that it is the lack of adequate descriptive terms for fluid behaviours that underlies these limitations.

 ⁶⁴³ Graeme Aymer, 'Lambie Nairn,' *Computer Arts* 120 (March 2006), accessed July 17, 2011, http://www.computerarts.co.uk/in_depth/interviews/lambie-nairn#Scene_1; Woolman and Bellantoni, *Type in Motion*, 34; Heusser, Montgomery and Seymour, 'MPC'; Fanthome, 'Creating an iconic brand.'
 ⁶⁴⁴ Wong, 'Temporal typography: characterization of time-varying typographic form,' 11.

⁶⁴⁵ Fanthome, 'Creating an iconic brand,' 258.

⁶⁴⁶ Brett Foraker, 'interview with the author conducted at Channel 4, 9 October 2006' as cited in Fanthome, 'Creating an iconic brand,' 267.

⁶⁴⁷ Paul Grainge, 'Lost Logos: Channel 4 and the Branding of American event Television,' 2009, accessed July 17, 2011, http://web.mit.edu/uricchio/Public/television/grainge%20uk%20branding%20lost.pdf

⁶⁴⁸ Woolman and Bellantoni, *Type in Motion*, 34; Heusser, Montgomery, and Seymour, 'MPC'; Fanthome, 'Creating an iconic brand,' 255.

⁶⁴⁹ Ibid., 259.

Another feature that goes unacknowledged in existing discussions is the paradigm shift that occurs as the construction of the '4' configuration occurs. Mike Appleford describes how, at the 'hit point', 'the logo forms'.⁶⁵⁰ Likewise, Dorothy Hobson identifies a moment at which the separate polygons arrange 'themselves into the giant number 4', and Christine Fanthome similarly observes the formation of the '4'.⁶⁵¹ In these observations, there is only implicit acknowledgement of the introduction of a new paradigm. There is acknowledgement of the introduction of the '4', but no discussion of the notion that it belongs to a distinctly different category of object to those presented previously. In Eduardo Kac's texts, the shift from pictorial to verbal sign, or, from one paradigm to another is vital to fluidity. Therefore, in classifying Channel 4 idents, it is important to make explicit acknowledgement of this phenomenon. Existing discussions clearly acknowledge the distinction between logo and not-logo in before and after states of the transformation, but, perhaps because they are concerned specifically with this example of branding rather than a broader survey of instances of similar behaviour, they do not note the transition from identities that must be understood visually, to one that can be understood verbally. Moreover, they do not explicitly acknowledge that the formation of the '4' also involves the transition from individual and separate identities, to a single shared or group identity. By not highlighting the distinction between wholes and configurations, these texts perhaps draw attention to the usefulness of a method of analysis that combines semiotics and Gestalt. Semiotics provides an understanding of paradigms and syntagms, and thereby makes the transition from one paradigm to another significant. Meanwhile, Gestalt furnishes us with an understanding of wholes and parts - of separate and group identities - thereby drawing attention to the fact that, in this and other examples of *construction*, there is a transition from separate to shared identity. Without this combination of methods, existing texts have been unable to sufficiently analyse the behaviours exhibited in the various Channel 4 idents.

⁶⁵⁰ Heusser, Montgomery, and Seymour, 'MPC'; Kac, 'Key Concepts.'

⁶⁵¹ Hobson, *Channel 4*, 1; Fanthome, 'Creating an iconic brand,' 258.

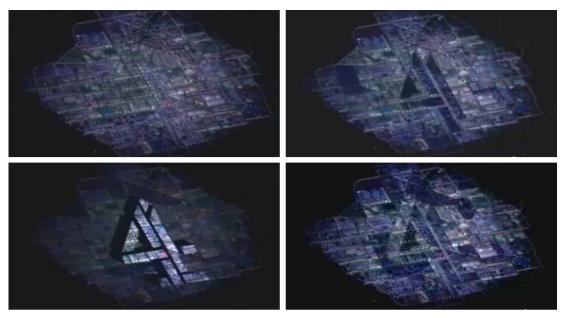


Figure 128. Gracie Productions, *Simpson's* ident, 2009. This ident breaks with the tradition of construction. Here, the '4' is fully formed, revealed through illumination. Source: 'The Simpson's very own Channel 4 ident.'

In the increasing collection of Channel 4 idents, there is one anomaly that does not present the figure '4' through construction. An additional behaviour was introduced when Gracie Productions (as opposed to MPC) created a *Simpsons*-themed ident in 2007 (Fig. 128).⁶⁵² As shown in 5.4.3, this ident presents the figure '4' through *revelation by illumination*; the '4' is revealed without the need for construction or perceived compression of space. As a result of the use of a different fluid process, this ident raises new issues. The relationship between figure and ground is particularly important in the perception of the '4' identity in this sequence, since the '4' lies on a flat plane. There is no perceived distance, only contrast between light and dark to mark figure from ground. What most notably separates this from previous channel 4 idents is the absence of *construction*. Construction was integral to Lambie Nairn's first idents, as it represented the channel's bringing together of programmes from multiple sources. Here, however, the '4' is shown fully formed, as if the company has come of age.

As a sizeable body of work, the Channel 4 idents represent a significant contribution to the field of fluid characterforms. Since their introduction, other television broadcasters have

⁶⁵² 'The Simpson's very own Channel 4 ident,' *Idents*, 2007, accessed July 17, 2011, http://idents.tv/blog/2007/07/14/the-simpsons-very-own-channel-4-ident/

followed suit with idents that display similar fluid processes, and take advantage of the same Gestalt factors of *similarity*, *proximity*, *closure*, and *Prägnanz*. These include the channel Five idents discussed in 5.2.3 and 5.2.4.

6.3 Construction through Motion of Parts in Josh Rhett's Lubalin Graph

Although the Channel 4 idents presented in 6.2 do present considerable variation, they are not representative of the full extent of possibilities offered by construction by motion of *parts*. All of the Channel 4 idents exploit three-dimensional space to some extent, usually presenting three-dimensional forms in environmental space. As observed in 5.2.3, construction through motion of parts may occur with planar forms, on planar surfaces. Component parts may align, being juxtaposed on a single plane throughout the process of construction, as is the case with Peter Cho's Letterscapes (D) (2005) (see 2.3.4). In other cases, component parts may overlap as if positioned on multiple flat layers, requiring compression of those layers in the construction of the characterform. In Lubalin Graph (c.2005), Josh Rhett presents characterforms that are *constructed through motion of parts*, revealing how construction may differ from those behaviours exhibited in the Channel 4 idents explored in 6.2. Here, the forms are two-dimensional, having only one plane, and the construction involves elements of both figure and ground. The motion of parts leads to an interaction of positive and negative shapes, causing figure to become ground. In short, this example shows the behaviour of constructing characterforms by assigning voids to abstract shapes.

Matt Woolman includes this animation in his collection of 'type in motion', as an example of how typographic 'animation is becoming increasingly prevalent'.⁶⁵³ He offers no analysis of this artefact, but tells readers that Rhett's animation is one of a series produced by students at Virginia Commonwealth University in response to a brief which asked them to demonstrate the characteristics of a given font.⁶⁵⁴ This animation identifies abstract geometry as a defining feature of the font, Lubalin Graph. Drawing on the suggestion that characters in this font are essentially constructed from geometric components, this animation initially presents a series of entirely abstract geometric shapes. One set, which remains static,

⁶⁵³ Woolman, *Type in Motion 2*, 58.

⁶⁵⁴ Ibid.

is red, while the other, which slides across an invisible horizontal grid, is white with fine red contours. As the white shapes slide across the screen, they encounter the red shapes, and come to a halt when the two sets of shapes overlap. When the white forms are entirely contained within the red shapes, their red contours are no longer visible, as they blend seamlessly into the similarly-coloured shapes behind them. What remains of each white shape appears only to be its white area – the same white as the background - and so this appears to become a void within the red shape over which it is laid. In Gestalt terms, the figure of the white shape becomes ground within the red shape. As each white shape arrives at its destination, a verbal message is revealed from the overlapping forms, identifying the font's distinguishing characteristic, 'abstract geometrix'.

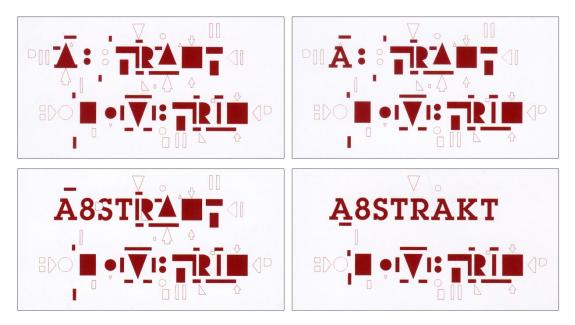


Figure 129. Josh Rhett, *Lubalin Graph*, c. 2005. In this animation, white shapes move over red shapes, overlapping so that they appear to become voids. In this way, the white and red shapes collaborate in constructing the figure and ground of chracterforms. Source: Woolman, *Type in Motion 2*, 59.

As with many of MPC's Channel 4 idents, *Lubalin Graph* demands a kind of flattening to create whole forms. Unlike the Channel 4 idents, however, this flattening involves the compression of layers, rather than compression of space. These forms are never perceived as being separated by space, but are perceived as overlaid layers. Typographic design, and by extension, temporal typography, have been considered 'the most two-dimensional of all the

visual disciplines'.⁶⁵⁵ Despite the relatively common use of three-dimensional lettering since the nineteenth century (as identified in 2.2), characterforms in print, even those that are three-dimensional, tend to exist juxtaposed on a single plane, following the tradition of linear arrangement of characters for reading.⁶⁵⁶ The layering of graphical objects so that they overlap one another is a relatively recent phenomenon, which is commonly associated with design created in 'digital... environments'.⁶⁵⁷ Just as the process of reading is linear, so there tends to be an expectation of characterforms that are linearly juxtaposed. Lubalin Graph begins by appearing to adhere to this expectation. The geometrical forms that are presented appear to exist on a single layer, juxtaposed. However, when the white shapes move so that they begin to overlap the red shapes, it becomes apparent that there are actually two layers contained within the artefact: a background layer containing the red shapes, and a foreground layer containing the white shapes. The viewer's perception of the artefact must shift in order to allow for what she witnesses on the screen. This behaviour occurs in reverse when the white shapes of the foreground layer settle in their final resting places. As soon as they are contained within the outlines of the red shapes – fully contained so that their outlines cannot be identified on the background shapes of the same colour – and are perceived as flattened into a single layer. The separate forms once again appear to be part of the same layer, becoming voids (or ground) in the red figures.

In many fluid artefacts, as explored in 6.2 and 6.4, the viewer is initially presented with a scene that appears to be straightforward or familiar. This sense is then challenged by an 'unexpected twist' or 'moment of surprise'.⁶⁵⁸ However, Rhett's *Lubalin Graph* initially presents apparently abstract shapes that have no clear verbal or pictorial meaning. This, and many other fluid artefacts, can therefore be considered in terms of Espen J. Aarseth's discussions of 'epiphany' and 'aporia'.⁶⁵⁹ Aarseth observes, in computer games, 'aporia' or doubt and confusion that 'prevents us from making sense of the whole because we do not have access to a particular part'.⁶⁶⁰ He further observes that a 'sudden revelation' or

⁶⁵⁵ Megan Uhl, April Greiman: A Pioneer Made in Space, n.d., 3, accessed July 17, 2011, http://www.briarcliff.edu/students/uhlm/images/graphicproduction1/aprilgreiman.pdf
⁶⁵⁶ Ibid., 4.

⁶⁵⁷ Steven Heller, 'Cult of the Ugly', *Typotheque*, 2004, accessed July 17, 2011, http://www.typotheque.com/articles/cult_of_the_ugly; Poynor, *No More Rules*, 102.

⁶⁵⁸ Beryl McAlhone and David Stuart, *A Smile in the Mind* (London: Phaidon, 1996), 15; Karin Fong, 'A Moment for Surprise,' *Trace: AIGA Journal of Design* 1, no. 1 (2001): 37, accessed July 17, 2011, http://www.danamcclure.com/parsons/readings/time/AigaJournal.pdf; Ibid., 30.

⁶⁵⁹ Espen J. Aarseth, *Cybertext: Perspectves on ergodic literature* (Baltimore: John Hopkins University Press, 1997), 91.

⁶⁶⁰ Ibid.

'epiphany' may occur which casts light on the significance and/or meaning of particular elements.⁶⁶¹ The viewer may have a similar experience when viewing Rhett's animation (and some other examples of fluidity).⁶⁶² The meaning of the abstract geometric shapes that are presented in the first frames of this sequence is unclear. Their arrangement is relatively chaotic, yet regular enough that their placement may be assumed to be purposeful, and significant. Furthermore, since they are positioned close together, the Gestalt law of proximity suggests that there is meaning in the scene that has not yet been revealed, or in Aarseth's terms, aporia. The moment of alignment, when the white forms become completely contained within the red forms, and appear to become voids, becomes a moment of epiphany. In this epiphany, the relationship between the forms is revealed to be one of figure and ground, and the verbal meaning of the arrangement becomes clear.

6.4 Revelation by Rotation in Kyle Cooper's True Lies

As shown in 5.4, practitioners have yet to entirely explore the possibilities of *revelation*. As yet, there are few, if any, artefacts that could be said to have influenced this field of practice to the same extent that Martin Lambie Nairn and MPC have influenced the application of *construction*. However, a noteworthy example of *revelation* is Kyle Cooper's title sequence for *True Lies* (1994, Fig. 130), which was produced by the most prominent title designer of recent decades, and is arguably the most widely recognised of the examples surveyed for this study, with the greatest potential, therefore, to influence future practice. Kyle Cooper's title sequence for *True Lies* features the film's title as the two poles of a behaviour of *revelation by rotation*. In this sequence, four apparently planar letters are presented, spelling the word, 'true'. These letters are then seen to revolve, revealing themselves as three-dimensional, and simultaneously revealing the word 'lies', carved as voids into the side surfaces of the existing letters. In this way, the verbal identity of the forms is seen to change, first reading 'true', and then 'lies'. As the rotation begins, the viewer's initial assumptions about the nature of the forms are challenged. Although the letters, when they face forward, appear planar, revolution reveals them to be three-dimensional. Consequently and

⁶⁶¹ Ibid.

⁶⁶² Other examples which also appear to initially withhold meaning are R/Greenberg Associates' *Altered States* title sequence (1980), Colin Sebestyen's *The Beast: Futura Animated* (2010), and Matthias Hillner's *Cubico St.* (2003).

simultaneously, the viewer's assumptions about the space which these letters occupy are also challenged. The screen space, which is at times assumed to be a single plane on which the letters lie, is revealed as environmental, by virtue of the fact that a three-dimensional form can only be contained within three-dimensional space.

The forms in this sequence, like many of those produced by Cooper and his team, appear 'caught between a flat and three-dimensional world'.⁶⁶³ The nature of the space and objects presented in this artefact are deceptive . When facing the viewer, both words, 'true' and 'lies', appear planar, having none of the usual 'depth cues' that one would expect in a threedimensional scene.⁶⁶⁴ The letters do not, for example, cast shadows on their surroundings. Wherever there is 2D/3D ambiguity in any artefact, the viewer will take cues from surrounding objects in order to assess the nature of a scene.⁶⁶⁵ By a process of 'relational determination', a 'perceived quality is determined by the relationship of one thing to another'.⁶⁶⁶ If, as in *True Lies*, an apparently flat letterform appears on a plain background with no depth cues, it may be assumed to be two-dimensional, and exist only on a flat plane. Without depth cues, the viewer assumes the simplest possible interpretation according to the law of Prägnanz: that the scene is flat. However, as soon as the objects begin to revolve, the perception of planarity is challenged. The 'proximal stimulus' (or on-screen image) begins to change, so that the contours of each letter transform, and differently shaded areas appear.⁶⁶⁷ In order to continue to perceive each object as flat, the viewer would have to interpret it as having fluctuating contours.⁶⁶⁸ However, a simpler interpretation would involve the assumption of 'shape constancy': 'an implicit assumption that objects are permanent'.⁶⁶⁹ This occurs because, in this part of the sequence, it would be simpler to perceive a rotating three-dimensional form than 'a distorting two-dimensional figure'.⁶⁷⁰ Therefore, according to the law of Prägnanz, the distortion of the shapes' contours suggests 'spatial rotation', and this spatial rotation requires depth.⁶⁷¹ The viewer must therefore reassess the scene and all forms contained within it. The realisation that the letters exist

⁶⁶³ Fong, 'A Moment for Surprise,' 37.

⁶⁶⁴ Julian Hochberg, 'Levels of Perceptual Organisation,' in Perceptual Organization, eds Michael Kubovy and James R Pomerantz (New Jersey: Laurence Erlbaum, 1981), 265.

⁶⁶⁵ Rock, An Introduction to Perception, 49-50.

⁶⁶⁶ Ibid., 57. 667 Ibid., 10.

⁶⁶⁸ Ibid., 36.

⁶⁶⁹ Ibid., 69; 10. 670 Ibid., 36.

⁶⁷¹ Woolman and Bellantoni, *Moving Type*, 64.

within environmental space, rather than on a flat black plane, comes as the letters are themselves revealed to be three-dimensional, and meaning is called into question.

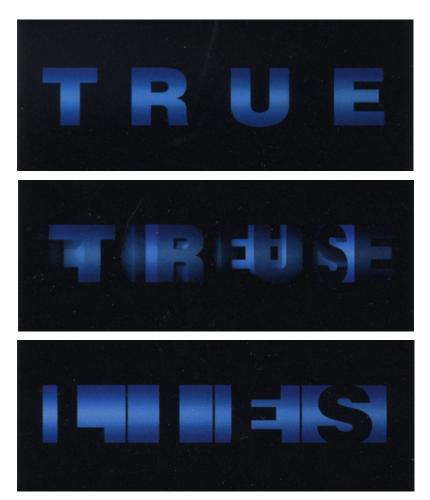


Figure 130. Kyle Cooper, True Lies, 1994. In this brief title sequence, apparently flat letters spelling the word 'true' revolve to reveal the word 'lies' carved into voids in the side of each letter object. Source: Woolman and Bellantoni, Type in Motion, 42.

Andrea Codrington notes that the *True Lies* sequence is just one of several examples of 'typographic method acting' created by Kyle Cooper. She lists, as other notable examples, the titles sequences for Twister (1996) and Spiderman (2002).⁶⁷² In Twister, threedimensional letter objects are battered by a storm and ripped away from the rest of the word.⁶⁷³ In *Spiderman*, letters are trapped in a spider's web.⁶⁷⁴ Neither of these examples exhibit fluidity - the identities of the letterforms are never called into question - but other

 ⁶⁷² Andrea Condrington, *Kyle Cooper* (London: Laurence King, 2003), 24; Ibid., 15.
 ⁶⁷³ Ibid., 54.

⁶⁷⁴ Ibid., 100.

sequences by Cooper and his colleagues do display a moment of surprise similar to those encountered in fluidity. Karin Fong, who works alongside Cooper at Imaginary Forces, identifies the *True Lies* sequence as an example of an 'a-ha! moment in film', equating it to several other examples in which the viewer is encouraged to 'make unlikely connections between two things', particularly with 'clever transitions'.⁶⁷⁵ Fong observes that this moment of surprise is not incidental or serendipitous, but is 'constructed' by the designer.⁶⁷⁶ The designer systematically engages in an act of misdirection, bluffing about the true nature of the elements that appear onscreen, and then revealing 'with elegant sleight of hand' an alternative identity.⁶⁷⁷

Fong describes the transition from 'true' to 'lies' as 'a simple' motion'.⁶⁷⁸ The behaviour is indeed simple, involving straightforward rotation around vertical axes. This sequence is made to appear more complicated as a result of the complexity of the affected forms. The on-screen forms are shaped to present both positive and negative letters, combined into single objects. In the design of these forms, Cooper exploits coincidence. He is said to have 'started with the observation that the words "true" and "lies" both have four letters'.⁶⁷⁹ To this extent, it is much like Komninos Zervos' Beer (see 6.5) which also exploits the visual similarity of different words, by selecting words that are similarly spelt. In *True Lies*, the visual similarity between the words is heightened by Cooper's use of upper case letters. Advice commonly given to typographers is to avoid the use of entirely upper case type, as capital letters are so visually similar that it becomes difficult to distinguish one letter from another.⁶⁸⁰ Cooper ignores this advice, and exploits the quality that many typographers perceive as problematic. In upper case, the letters of 'true' and 'lies' fit neatly into blocks of identical sizes. It is this similarity that allows 'the two words to coexist as flip sides of each other'.⁶⁸¹ In the decision to use upper case letters, Cooper prioritizes the transition over the legibility of the effected words. He demonstrates significance in the connection between the two words, rather than in their separate verbal meanings.

⁶⁷⁵ Fong, 'A Moment for Surprise,' 37; Ibid., 30.

⁶⁷⁶ Ibid.

⁶⁷⁷ Ibid., 37.

⁶⁷⁸ Ibid.

⁶⁷⁹ Ibid.

⁶⁸⁰ See David Jury, *About Face: Reviving the rules of Typography* (Hove: Rotovision, 2004), 70; See also Bruce Willen and Nolen Strals, *Lettering & Type*, 38.

⁶⁸¹ Fong, 'A Moment for Surprise,' 37.

Jon Crasner observes how this 'effect succeeds at illustrating the title's oxymoron'.⁶⁸² As acknowledged in 5.3.3, Sobchack has observed that metamorphosis often occurs between two 'clichés of opposition'.⁶⁸³ On-screen metamorphosis, she observes, 'attempts to erase' binarism. Cooper's sequence demonstrates that other kinds of fluid transformation may also engage the relationship between binary opposites. Here, the different visual features of the two words reinforce their difference. The fact that 'true' is figure, while 'lies' appears as ground, emphasizes that they are opposite in every respect. Furthermore, that one word is hidden in order to reveal the other suggests that truth and lies are two polar opposites that cannot co-exist. However, as with metamorphosis, this revelation 'attempts to erase' binarism.⁶⁸⁴ It reveals that, despite their vast differences, truth and lies are inextricably linked, as emphasized by the mid-point of the transformation, in which both 'truth' and 'lies' are partially visible and the letters of each are interposed (see Fig. 130). The value of truth may only be appreciated when it is set in contrast with lies, and lies are only effective when told to an audience who expects truth. Karin Fong proposes that the transition from 'true' to 'lies' however, achieves something much greater and more specific than exposing an oxymoron. She suggests that it addresses 'the much bigger idea of duplicity'.⁶⁸⁵ The film tells the story of a secret agent who hides the truth about his profession from his wife by masquerading as a computer salesman. Elements of his identity and lifestyle that are presented as truth are revealed over the course of the film to be lies. The idea of masquerade is conveyed in the dual identity of the on-screen forms, and the way in which the word 'true' initially conceals the word 'lies'.

It is noteworthy that each separate letter revolves individually in this sequence. This observation recalls a point first made in 5.1.1, and the subsequent decision within this research to identify and explore fluid characterforms rather than whole fluid words. As noted in 5.1.1, Eduardo Kac's descriptions of his holopoetry discuss the transformation of entire 'words'.⁶⁸⁶ However, this and other fluid behaviours may be observed at the level of the individual characterform. Even in examples such as this, in which an entire word is involved, each letter revolves as if around its own separate axis. Although each characterform undergoes identical and simultaneous transformation, thereby reinforcing its

⁶⁸² Crasner Jon S., Motion Graphic Design: Applies history and aesthetics (Oxford: Focal Press, 2008), 193.

⁶⁸³ Sobchack, 'At the Still Point,' 139.

⁶⁸⁴ Ibid.

⁶⁸⁵ Fong, 'A Moment for Surprise,' 37.

⁶⁸⁶ Kac, 'Recent experiments,' 45.

place alongside others within a word, each rotation is independent, and fluidity can therefore be said to operate at a local level.

6.5 Metamorphosis in Komninos Zervos' Beer

The final category of fluidity, *metamorphosis*, is represented here by Komninos Zervos' *Beer* (2005). This Flash animation presents a sequence of apparently unrelated words, in a continuous loop. In this animation, the letters of the word 'beer' progressively morph to display a sequence of four and three-letter words. The incoherence of the sequence of words, and the languid features of the *metamorphosis*, cause it to resemble a slurred stream-of-conciseness of drunken speech. This animation displays direct pole-to-pole transformation, as well as the merging and division of forms, in *metamorphosis*.

The words in this sequence apparently bear no relation to one another other than their spelling. Each new word is only one letter different to the last (or, on a few occasions, two letters). 'Reel', for example, precedes 'heel', which in turn precedes 'help'. With each new pole, one letter is replaced, while the others remain the same as in the previous pole. Despite this, all letters are involved in the continuous *metamorphosis*. Even when its identity remains constant for several poles, a letter continues to shift in colour, size, proportions and location, in preparation for the adoption of a new identity that will eventually occur. This ensures that none of the letterforms appear static or invulnerable to change. Even when its identity remains constant through several poles, its continuing distortion suggests that its identity is flexible, and vulnerable to more significant change. In Fig. 131, the word 'boa' is seen morphing into 'bet'. Throughout this part of the sequence, the first letter on the left remains a 'b'. Though its identity is constant, its contours are elastic (see 4.2). This 'b' is initially small and brown, but over several frames it stretches, becoming tall and narrow, and its colour fades to beige. It remains a 'b' for several more moments, as the word undergoes transformation to 'beat', 'beet', 'beer', and 'beef', before it finally distorts to the extent that it becomes the 'r' of 'reef'. Throughout this process, it undergoes continuous distortion and colour shift. The letterform's eventual adoption of the shape of an 'r' is not unexpected, as its continuous distortion throughout the sequence prepares the viewer for this change. This highlights the similarity between what this thesis has identified as *elasticity* (see 4.2) and metamorphosis (see 5.3). Elasticity and metamorphosis involve essentially the same

268

behaviour – the distortion of contours – but applied to different extents. *Elasticity* can become *metamorphosis* when it is applied to the extent that a new identity is introduced.

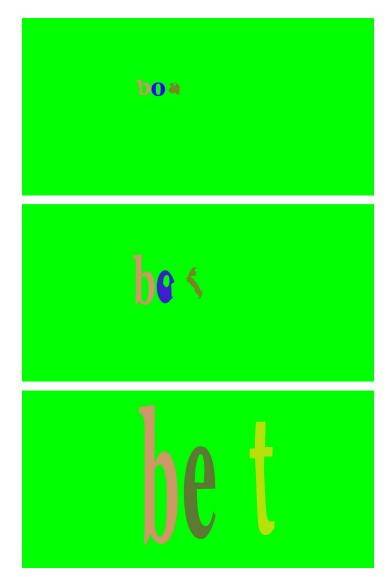


Figure 131. Komninos Zervos, *Beer*, 2005. The word 'boa' morphs into the word 'bet', as the letters 'o' and 'a' morph into 'e' and 't'. Even though the identity of the letter 'b' remains constant in this part of the sequence, its contours and colour fluctuate so that the viewer is reminded that it is susceptible to change. Source: Komninos Zervos, 'Cyberpoetry Underground.'

The consistent identity of the 'b' is not characteristic of all of the verbal identities that appear to be retained during this sequence. There are other parts of the sequence in which, despite there being little difference in the spelling of the words at two neighbouring poles, most or all of the letters adopt new identities. This is the case when 'malt' becomes 'mart', as shown in Fig. 132. Despite the presence of an 'a' in both words, they are two different

forms. The 'a' of 'malt' does not retain its identity; it becomes the 'r' in 'mart', thereby shifting its position from second to the third letter in the word. Meanwhile, an additional shape peels away from the 'm' to form the 'a' in 'mart'. This additional shape initially presents a negative impression of the 'm', formed from ground rather than figure. As it draws away from the original 'm', its contours fold in on themselves, producing the figure of the 'a'. A negative shape is also presented in the 'a' of 'malt' as it becomes the 'r' of mart. The 'r' is formed from the hole at the centre of the 'a', so that the 'r' is initially formed through an exchange of figure and ground. The addition of an extra letter is resolved at the other end of the word, as the 't' of 'malt' disappears behind the 't' of 'mart', so that there are momentarily two overlapped 't's; five forms in total. In this observation, two characteristics can be identified that are not present in the transformation from 'boa' to 'bet' described in the previous paragraph. The first of these, in Gestalt terms, is the presence of a transformation from ground to figure, and the second is the unnecessary addition of forms, requiring one form to be absorbed by another in order to return the correct number of forms required for the next word.

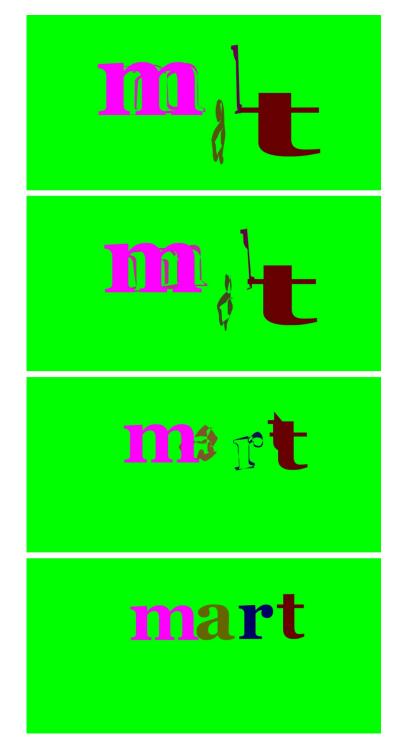


Figure 132. Komninos Zervos, *Beer*, 2005. The transformation of the word 'malt' to 'mart' is not as straightforward as it could be. In this process, additional forms are created, and existing forms are absorbed by the remaining letterforms. Source: Zervos, 'Cyberpoetry Underground'

The inconsistency in the number of forms again arises when Zervos chooses to transform three-letter words into four-letter words, and vice versa, as 'bet' transforms into 'beet', and

'cold' transforms into 'cot'. When this occurs, there must necessarily be the introduction of an additional form, or the absorption of an unwanted form, as is present but unnecessary in the transformation from 'malt' to 'mart' (see Fig. 132). In order to achieve the addition of new forms, Zervos uses two methods: the peeling-away of a new form from the old (as observed above), or the splitting of a single form into two, in a behaviour that resembles cell mitosis. A similar example of this can be seen in the Five ident, *Free*, discussed in 5.3.2 and 5.3.3. When the number of forms must be reduced, a reverse of this behaviour occurs, with two separate forms merging into one, or simply the layering of forms, so that one vanishes behind another. This complicates the application of the term *metamorphosis*, as there are several distinctly different behaviours observable in these cases. Therefore, it is necessary to classify separate parts of this sequence according to the sub-categories of *metamorphosis* identified in the typology of fluid characterforms (see 5.1). The typology may be used to distinguish between the *direct metamorphosis* that occurs in the transformation of 'o' to 'e' in 'boa' to 'bet', and *split* and *combined* forms wherever the transformation gives birth to new forms and consumes existing forms.

The apparent inconsistency created by the occasional addition of unnecessary forms contributes to the sensation that this sequence represents intoxication. Rather than taking the logical and direct route from one word to the next, letters are needlessly introduced or substituted for one another. Letters are not straightforwardly replaced, but emerge clumsily and untidily. The appearance of intermediate glyphs between the poles further enhances the impression of a slur. These asemic glyphs (as identified in 5.3.3) appear to be an attempt at familiar language, but take time to present themselves as such. They awkwardly morph, as if they are searching for the correct form, just a drunken speaker searches for the intended phoneme.

Zervos classifies himself as a poet, and *Beer* as cyberpoetry. *Beer* was distributed in collections of poetic works, and is most commonly discussed in the context of 'new media poetry'.⁶⁸⁷ This establishes a smaller and more select audience than is likely to view the title sequences of Kyle Cooper (see *True Lies*, 6.4) or Lambie Nairn and MPC's idents (see 6.2). It also suggests that audiences will have different expectations of this artefact than of those

⁶⁸⁷ Beer was distributed in Zervos' own CD ROM collection of cyberpoetry, and via websites including 'Cyberpoetry Underground,' Other Voices International Project 11; Beer is discussed in Hazel Smith, 'New Media Travels,' in The Writing Experiment (Sydney: Allen & Unwin, 2005), and online including 'Net Art Review,' 22 March 2003, accessed July 17, 2011, http://netartreview.net/logs/2003_03_16_backlog.html

discussed so far in this chapter. With the expectation of poetry, a viewer of *Beer* may seek out the properties of what Hawkes describes as 'poetic language'.⁶⁸⁸ The viewer may, for example, 'seek narrative motivation' as a way of 'rendering' the 'relationships' between the words in the sequence as 'intelligible'.⁶⁸⁹ However, even if the viewer's instinct is to seek out narrative in this sequence, she will find none. The sequence reads, 'beef', 'reel', 'heel', 'help', 'yelp', 'yell', 'tell', 'tale', 'sale', 'salt', 'malt', 'mart', 'mark', 'bark', 'bank', 'book', 'look', 'hood', 'hold', 'cold', 'cot', 'got', 'boa', 'bet', and 'beet'. In this continuous loop, there is no identifiable beginning, middle and end, and no possibility of finding a grammatically coherent phrase. It most closely resembles a string of words compiled by the free-association of a drunken mind.

Jenny Wright suggests that, in digital contexts, verbal narrative should not necessarily be sought as it is in printed or spoken poetry. In discussing the interpretation of 'computerbased' literature and poetry, Weight reminds us that 'humans...seek narrative experience', but goes on to suggest that 'digital textuality [has the] capacity for variation with oral tradition'. 690 It favours 'variation' over 'permanence', as so, in 'computer-based' artefacts, 'traditional ideas of literature seem to have been sidelined'.⁶⁹¹ In their 'randomness' and apparent spontaneity, such narratives offer the possibility of continuous exploration, rather than a closed 'standard narrative trajectory'.⁶⁹² She cites Marie-Laurie Ryan in proposing that 'narrative coherence is impossible to maintain' in the 'complex systems' of digital media.⁶⁹³ She stresses, however, that narrative still exists in this poetry, but in the 'apparatus' - the digital poetic environment and its features - rather than in the verbal content of the poetry.⁶⁹⁴ It may be suggested, therefore, that narrative should not be sought in the string of verbal signs that are presented in *Beer*, but in the way that they morph; in the properties of the fluidity. This fluidity, like other 'computer-based' narratives, 'present[s] possibility rather than closure'.⁶⁹⁵ Poetry exists not in the words, but in the possibility of continuous transformation.

⁶⁸⁸ Hawkes, Structuralism and Semiotics, 63.

⁶⁸⁹ Jane Stadler, 'Losing the Plot: Narrative Understanding and Ethical Identity in *Lost Highway*,' in *Film and Knowledge: essays on the integration of images and ideas*, ed. Kevin L. Stoehr (Jefferson, North Carolina: McFarland & Company Ltd., 2002), 18-19.

 ⁶⁹⁰ Jenny Weight, ⁴I, Apparatus: You: A Technosocial Introduction to creative Practice, '*Convergence: The International Journal of Research into New Media Technologies* 12, no. 4 (2006): 434; Ibid., 435.
 ⁶⁹¹ Ibid., 433; Ibid., 432.

⁶⁹² Ihid.

⁶⁹³ Marie-Laurie Ryan, *Narrative as Virtual Reality* (Baltimore: John Hopkins University Press, 2001), 11, as cited in Ibid., 433.

⁶⁹⁴ Ibid., 432.

⁶⁹⁵ Ibid., 433.

Those texts that discuss *Beer* do not propose that there is any particular significance to this string of words. Instead, they focus on the behaviour by which one word becomes another. Hazel Smith describes how *Beer* 'moves from one word to another by changing some letters and not others'; Ikonen observes how *Beer* 'combines change and movement as the letters transform into other ones, approach and withdraw...lose their recognisable form, and then shape into new...words'; Carrie Noland tells us that *Beer* 'operates by distorting the shapes of letters until they form other letters'.⁶⁹⁶ That these texts prioritize behaviour over content suggests that the poetry is indeed in what Weight describes as the 'apparatus', rather than in the verbal content.⁶⁹⁷ It would perhaps, therefore, be inappropriate to try and seek a particular significance in the array of words that Zervos presents in his 'cyberpoem'.⁶⁹⁸

There is one review of this artefact that does find significance in Zervos' choice of words. Eduardo Navas' brief discussion of *Beer* describes the cyberpoem as a 'careful exposure of the intricate linguistic communication network', exploring 'themes of spontaneous expression'.⁶⁹⁹ Zervos' words could therefore be understood, unlike other poetry, as a depiction of an unplanned, 'spontaneous' utterance. It reminds us how it can be, at times, difficult to express coherently when we have no time to arrange our thoughts, or when we are under the influence of alcohol. The lack of narrative coherence draws attention to how we do not always select words for their appropriateness in a particular phrase. Words may be selected for their sound, or even their visual appearance. Indeed, Carrie Noland suggests that 'the shape of a letter' may have been a motivating factor in Zervos' choice of words.⁷⁰⁰ With this interpretation, *Beer* can be understood as a visual exploration of the shapes of letters, and of the asemic forms that are produced when one morphs into another, in which verbal meaning is almost incidental.

⁶⁹⁶Hazel Smith, 'New Media Travels,' *The Writing Experiment* (Sydney: Allen & Unwin, 2005), 245; Ikonen, 'Moving Text'; Carrie Noland, 'Digital Gestures,' n.d., 49, accessed July 17, 2011,

http://www.uiowa.edu/~poroi/seminars/nmtt/resources/noland.doc

⁶⁹⁷ Weight, 'I, Apparatus.'

⁶⁹⁸ Komninos Zervos, 'Cyberpoetry Underground,' *Other Voices International Project* 11, n.d., accessed July 18, 2011, http://www.othervoicespoetry.org/vol11/zervos/index.html

⁶⁹⁹ Navas, 'Net Art Review'

⁷⁰⁰ Noland, 'Digital Gestures', 49.

6.6 Fluid Behaviours in Sky Idents

The literature review presented in 2.3 reveals that there are currently limits to the exploration of transformation in typography, and that texts largely do not acknowledge local change in temporal typography. There is, however, clear acknowledgement among some practitioners that different kinds of transformation are possible. In a collection of idents for Sky's three main television channels, MPC mimics the different behaviours of three different substances, each undergoing a different kind of transformation. This set of idents is useful in demonstrating that, though theorists may not yet have achieved this level of understanding, practitioners do acknowledge that local change may occur according to different behaviours, and that those behaviours may be considered alternative or equivalent to one another in a typology.

In these idents, '1' is constructed from sharp fragments, '2' forms from a flow of thick liquid, and '3' emerges from a plume of sparkling pink dust (see figs. 133-5). MPC's aim was to represent three different kinds of substance -'solids', 'liquids' and 'particles'- with behaviours that reflect the behaviour of 'rigid bodies, fluid dynamics and particle dynamics'.⁷⁰¹ Although, for the purposes of this research, the most notable feature of these artefacts is the transformation behaviour that each exhibits, MPC distinguishes these examples from one another according to the alternative substances from which each ident is apparently created. MPC's concept draws attention to the connection between an object's substance and its behaviour. It shows us that we may consider there to be an innate connection between some substances and some fluid processes. Construction, as in the Sky 1 ident, involves solid parts, and *metamorphosis*, as in the Sky 2 ident, involves liquids. Equivalent connections between substance and behaviour can be seen elsewhere in the examples gathered for this thesis. 5.1 introduced examples of construction, such as Martin Lambie Nairn's and MPC's Channel 4 idents, all of which construct the figure '4' from solid objects. 5.3.3 introduced many examples of *metamorphosis* that involved liquids, including Prologue's Dawn of the Dead title sequence (2004), and Tomas Markevičius's Liquefaction (2010). These examples follow MPCs implication that there is a link between substance and process. However, there are examples to the contrary, which show us that this

⁷⁰¹ MPC, 'Sky Rebrand,' 2008, accessed July 17, 2011, http://www.movingpicture.com/index.php?option=com_content&view=article&id=456&catid=38&Itemid=926

is not a universal rule. For example, *metamorphosis* is also observed in Dan Waber's *Strings* collection (2005), discussed in the same chapter.



Figure 133. MPC, Sky 1 *Box Ident*, 2008. Solid fragments escape from a box and are arranged like pieces of a puzzle to construct a large '1' object. Source: Andrew J Wood, 'Sky One,' *The Ident Gallery*, 2010, accessed July 17, 2011, http://www.theidentgallery.com/sky1-2008.php



Figure 134. MPC, Sky 2 *Box Ident*, 2008. A similar scene to the Sky 1 ident depicts the same sequence of events, repeated with a liquid instead of solid substance. Source: Andrew J. Wood, 'Sky Two,' *The Ident Gallery*, 2010, accessed July 17, 2011, http://www.theidentgallery.com/sky2-2008.php

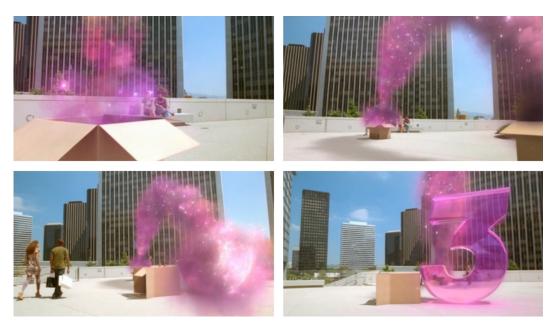


Figure 135. MPC, Sky 3 *Box Ident*, 2008. In this ident, the material from which the numerical ident is constructed is substituted for partices. Source: Andrew J. Wood, 'Sky Three,' *The Ident Gallery*, 2009, accessed July 17, 2011, http://www.theidentgallery.com/sky3-2008-aug.php

These processes are not confined to a single set of idents. They are seen as integral to the identities of the 3 Sky channels, to the extent that they appear in a variety of idents. In each ident, the characterform exhibits the same behaviour, prompted by a variety of dramatic external events. Each characterform is exposed to the same external forces, highlighting the differences in the properties of each numerical object. In Figs. 136 and 137 below, the '1' and '2' are exposed to flying debris. While the impact of a car causes the '1' to shatter into pieces, it causes the '2' to splatter. In these alternative idents, each character is always made from the same substance: the '1' is always solid, the '2' always liquid, and '3' always particles. As a result, the processes by which they change are always consistent. This consistency does not become mundane, as in each alternative scenario the fluid behaviour is prompted by different events. These events range from the tornado shown in Twister (Figs. 136-7), to a more playful destruction by hammer at the hands of teenagers playing a 'Whack-a-mole' carnival game in *Whack* (2008). Some of these events, like the tornado in Twister and the whack-a-mole game in Whack, are destructive, leading to the destruction of the character identity, while others are creative, causing the identity of the channel to come into being. These creative processes, as seen in Figs. 133-5, offer the channel's identity as a gift to the viewer. Each is first contained within a box, then escapes to fulfil its destiny as a whole ident.



Figure 136. MPC, *Twister*, 2008. This series of idents demonstrates how different materials, solid, liquid and particles, behave differently when subjected to the same external force. Source: Wood, 'Sky One.'



Figure 137. MPC, Twister, 2008. Source: Wood, 'Sky Two.'

The idea of the channel's identity as a gift is continued in MPC's Christmas 2008 idents. Like many other broadcasters, Sky uses idents to mark a new season, and in particular at Christmas, to attract new audiences during this break from regularly scheduled programming. In these seasonal idents each character transforms into a Christmas tree (Figs. 138-140). The figure '1' cracks and then breaks into fragments. These fragments float through space and become rearranged in the form of a tree, then continue to float as if each bough of the tree is revolving around the trunk like the merry-go-round in the background. In the Sky 2 ident, the '2' liquefies as if melting from top to bottom. The green ooze flows down the melting object and reforms into a tree. In the final ident, the '3' bursts apart as if exploded by fireworks. The particles crackle and sparkle, and a display of tiny colourful explosions forms the shape of the Christmas tree. Each number is thereby transformed into a spectacular Christmas display, suggesting that, at this special time of year, the ordinary becomes extraordinary, and regular programming is replaced by Christmas specials.



Figure 138. MPC, *Christmas*, 2008. In this series of the idents the numerical identity of the channel is fully formed from the beginning of the ident, and breaks apart to reform as a Christmas tree. As with Sky's other idents, this behaviour differs according to the properties of the different substances from which the numbers of the Sky channels are formed. Source: 'Sky 1, 2 & 3 Ident – "Christmas" Dir. John Yeo,' *YouTube*, 2008, accessed July 17, 2011, http://www.youtube.com/watch?v=7HoTNE0q5II



Figure 139. MPC, Christmas, 2008. Source: 'Sky 1, 2 & 3 Ident - "Christmas".'



Figure 140. MPC, Christmas, 2008. Source: 'Sky 1, 2 & 3 Ident - "Christmas".'

One thing that connects *Christmas*, *Boxes*, and other Sky idents including *Lost* (2008), Fringe (2009) and 24 (2010, Fig. 141) is a human presence. In all of these idents, the transformation of the channel identity is synchronised with the human observation. In *Christmas* and *Boxes*, the transformation occurs when people pass by. The transformation appears spontaneous, but is prompted by the presence of these passers-by, as if the ident is aware that it is being watched, and is consciously putting on a display for this audience, just as Sky is. A series of themed idents to promote some of Sky's promoted programmes follow the same rule. In Lost, each number stands on a platform in the centre of an underground laboratory until a personality from the programme enters the room. In response to his entrance, each number breaks apart in its usual way (into solid fragments, liquid, or particles), and engulfs him. In Fringe (2009), the solid pieces which construct the figure '1' appear in a microscopic array. On increasingly closer inspection by a personality from the show, the component parts of this array are revealed to be spontaneously multiplying, and rearranging to form the '1' configuration. In 24 (2010) the transformation occurs between two numeric poles when a character from the show leaves her car and walks alongside the numerical object. Initially, the figure '24' is presented as if constructed from threedimensional versions of the modular lettering seen on digital clocks, appearing to be made from the same solid blue substance as the usual Sky 1 ident. The '2' and '4' collapse into pieces, which contract into a single form: that of the figure '1' (Fig. 141).

In each of these cases, the transformation of the ident occurs when it is being observed. It is for this reason that this fluidity may be described as Kac described the processes in his holopoems, as 'behaviour'.⁷⁰² Each letter object appears aware of its surroundings, enough so that it may choose to transform at an appropriate moment. It appears as though the transformation is a conscious attempt to attract the attention of the observer. Notably, in most of these examples, the performance is in vain. In Christmas, Boxes, and 24, the transformation of the number object goes unnoticed. The observers continue to pass by, barely acknowledging the number or the display in which it is engaged, except with a brief and disinterested glance. Given the scale of the spectacle - a transformation involving objects at least as tall as each of the passers-by – it seems impossible that these events would not attract the attention of an observer. This enhances the perception that these are magical events, which occur outside of reality. While the observers are absorbed in their everyday lives, events occur that would never normally happen in an everyday scene, and yet they appear so mundane to the observers that they barely warrant a sideways glance. This communicates the message that on Sky, magical things happen all the time; in the world of Sky broadcasting, spectacle is commonplace.



Figure 141. MPC, 24, 2010. In one of several themed idents, the number of the channel is encountered by a character from a television show. Here, as in many other Sky idents, the presence of the giant number is barely acknowledged the people who pass by. The number must perform a fluid transformation in an attempt to attract their attention. Source: 'Sky 1 Ident: 24,' *YouTube*, 2010, accessed July 17, 2011, http://www.youtube.com/watch?v=GTnEB0yrZvo

⁷⁰² Kac, 'Key Concepts.'

It is worth noting that at present, a limited number of practitioners have something of a monopoly on fluid typography. MPC are responsible for a large number of the idents presented in this text, including Sky and Channel 4 idents. Kyle Cooper, and his companies Prologue and Imaginary Forces, are responsible for the title sequences for *True Lies* and *Transformers* (see 6.4 and 7.3), and numerous other examples created by Cooper and his colleagues, including the credit sequence for *Terminator Salvation* (2009). Where other practitioners have developed fluid typographic artefacts, it has been a matter of 'following suit' rather than conceiving of new ideas. BB/Saunders' channel Five idents are a response to the success of MPC's idents for Channel 4. Some practitioners are unashamed to admit that their transformations are 'based on' other examples, including a high number of animators who have replicated the behaviour seen in the *Transformers* credit sequence.⁷⁰³

6.7 Conclusion to Chapter 6

This chapter analysed examples of fluid characterforms, selected to demonstrate and explore some of the categories identified in the typology first presented in chapter 5. The issues raised in this chapter have been discussed in relation to specific examples, but the resultant observations are more broadly applicable. Many of these issues occur frequently in examples of the same category, or across several categories of fluidity. Some may even be considered characteristic of fluidity. This is the case with, for example, the presence of an 'unexpected twist' as identified in MPC's Channel 4 idents (see 6.2) or epiphany as in John Rhett's *Lubalin Graph* (see 6.3).⁷⁰⁴

⁷⁰³ See Timo Design, 'Animation Transformers', Vimeo, 2010, accessed July 17, 2011,

http://vimeo.com/groups/347/videos/9493846 ; Joe Staley, 'Michael Bay Titles', *Vimeo*, 2010, accessed July 17, 2011, http://vimeo.com/10950910 ; Wayne Dahlberg , 'Transformers', *Vimeo*, 2010, accessed July 17, 2011, http://vimeo.com/9906128 ; Marco Dell'Ana, 'Plasm Transformers', *Vimeo*, 2010, accessed July 17, 2011, http://vimeo.com/11021391

⁷⁰⁴ McAlhone and Stuart, *A Smile in the Mind*, 15; Aarseth, *Cybertext*, 91.

Chapter 7: Conclusion

7.1 The Need for a Typology of Fluid Behaviours

This thesis will conclude with observations about the importance and applicability of the findings of this research. It will begin here, in 7.1, by summarising the need for a typology of fluid behaviours. In 7.2, the limitations of this research will be discussed, where the possibility of artefacts which are difficult to classify will be acknowledged. Finally, 7.3 will propose further applications of the typology, suggesting that the behaviours introduced in this thesis may also be identified in fields other than temporal typography.

Where typologies exist elsewhere, they have been vital in establishing distinctions between artefacts, and have in many cases led to significant further academic and practical exploration. The classification of static typefaces, as discussed in 3.2, introduces distinctions such as that of serif and sans-serif typefaces. This distinction was fundamental in further explorations into the comparative legibility of different kinds of typeface.⁷⁰⁵ The same distinction also played a vital role in the progression of typeface design, as, for example, *The New Typography* explicitly favoured the use of sans serif and the abolition of Roman (serif) typefaces.⁷⁰⁶ The significant influence of these classifications of static typefaces reveal that the introduction of typologies is vital in the progression of typographic practice, and in the academic study of that practice. If the typeface of fluid behaviours were adopted, it would serve the purpose of allowing academic research and practice to become more focused, more explicit, and therefore more insightful.

As shown in Chapter 2.3 of this thesis, existing texts which discuss temporal typography disagree on the terminology that can be used to define different kinds of temporal behaviours, and rarely differentiate between different processes. These gaps in existing research are perhaps due to the fact that they focus on global change rather than local

⁷⁰⁵ Numerous studies on the legibility of typography highlight the differences in the legibility of serif and sans serif typefaces. Most suggest that serifs increase the ease of reading, including E.C. Poulton, 'Letter differentiation and rate of comprehension in reading,' *Journal of Applied Psychology* 49, no. 5, 1965; David Ogilvy, 'Typography – The Eye Is a Creature of Habit,' in *Text on Type, eds* Steven Heller and Philip M. Meggs, New York: Allworth Press, 2001.

⁷⁰⁶ Jan Tschichold, *The New Typography*, trans. Ruari McLean. Los Angeles: University of California Press, 1998. Originally published as *Die Neue Typographie: Ein Handbuch für Zeitgemäss Schaffende*, Berlin: Brinkmann & Bose, 1928.

kineticism, at the level of the individual letterform. The lack of adequate language to differentiate between different kinds of local kineticism extends to practitioners, who are often unsure of how to classify their work, even to the extent that it is labelled misleadingly.

This mislabelling of artefacts such as Max Warner's ident for MTV, shown in 1.1 (Fig. 3), exposes the limitations of language currently used in the descriptions of fluid behaviours, and reveals that one consequence of this lack of appropriate terminology can be misleading descriptions. Warner's use of the term *metamorphosis*, for his ident which actually displays the behaviour of *construction through motion of parts*, suggests that many practitioners consider all transformations in the same terms, thereby denying the substantial differences that exist in current practice. The introduction of a typology hopes to address this problem by providing practitioners with the means by which to adequately describe their work.

This typology also identifies categories that have yet to become so commonplace as *metamorphosis* or *construction*. As was shown in 5.4, *Revelation* is a category of fluid behaviour which is under-represented in contemporary temporal typography. As was shown in 5.4.3, practice in this category of fluidity has not yet developed to its full potential, having not yet adequately explored the possibility of *revelation by illumination*. It is hoped that by identifying this category, and the more commonly applied categories that have proven successful in their use of other fluid behaviours, practitioners may be encouraged to experiment and expand, in new ways, the body of fluid artefacts that already exists.

Despite the lack of precise agreement on the nature of fluid behaviours, there is at least clear acknowledgement among practitioners that different kinds of transformation are possible. As was observed in 6.6, MPC's idents for Sky's three main television channels acknowledge that characterforms may transform in different ways in their selection of three different processes. This exploration into the possibilities of alternative processes of transformation is perhaps an indication that MPC are at the forefront of practice in this field. Notably, as also observed in 6.6, other practitioners are imitators rather than pioneers, preferring to mimic the processes in artefacts by MPC, Kyle Cooper, and a limited number of other leading practitioners rather than to explore alternatives. The introduction of a typology that is independent of any particular professional practice should go some way to enabling practitioners to think of fluid processes as distinct from mimicking particular artefacts. Practitioners should, with the terminology presented in this text, be able to clearly define

284

their processes, rather than simply identifying their work as similar to other examples. As observed in 6.6 of this thesis, many practitioners currently appear to think of fluid characterforms in terms of other examples that have come before, rather than in terms of particular categories of behaviour as identified in this typology. Those practitioners who equate their work with the artefacts of their peers and predecessors may use this typology to define and describe their work independently of these other examples.

Furthermore, the typology presented here aims to prompt further explorations into the possibilities of fluid type. By identifying fluid characterforms as distinct from global change in temporal typography, this typology aims to encourage practitioners to concentrate on methods of transformation, and perhaps even to develop methods of transformation that lie outside of the typology, what will require the introduction of additional categories.

7.2 Limitations

Although the typology of fluid characterforms presented in this thesis identifies distinct categories of fluidity, it can often be difficult to identify an artefact as belonging to only one of these categories, particularly at the level of sub-categories. It is difficult to say with certainty, for example, whether Peter Cho's Letterscapes (H) (see Chapter 5.4.2) reveals new identities as a result of *colour shift* or of *illumination*. Objectively, parts of the form change colour, presenting neighbouring areas of different tones and hues. However, the presence of these new colours can be perceived as the consequence of illumination, as they reflect the shading that is used in depictions of three-dimensional objects (with varying tones used to identify the angle at which a surface catches the light). This confusion arises from Cho's unconventional use of colour. His forms are not merely coloured with areas of lighter or darker tones (representing shadow and highlight), but with hue. In real-life settings, the addition of orange would not occur as a result of illumination (except where the light itself is coloured, and this would colour the entire illuminated area, not just surfaces facing one direction). Arguably, therefore, the ambiguity is in Cho's artefact, not in the typology. The categories of *revelation by illumination*, and *revelation by colour shift*, are the most under-explored of all the behaviours described in this typology, and so perhaps it is necessary to await further exploration among practitioners before it will be possible to clarify definitions in cases such as this.

285

In other instances, it may be difficult to categorise an artefact because it contains a number of different processes. There are instances of artefacts which combine several different kinds of fluidity, even in a single transformation, and in some such cases, the processes are so integrated that it becomes difficult to distinguish them from one another. In MPCs Sky 3 idents (see 6.6), a cloud of particles is used in the creation of a '3'. The cloud is not a single fluid form, but a collection of separate particles. The particles are so small that they are difficult to distinguish from one another, and are perceived as a single cloud. The whole cloud appears as a single entity, not a collection of separate particles. If we were to describe the cloud as a collection of particles, which rearrange to form the '3', this behaviour could be described as *construction through motion of parts*. However, if we interpret the cloud as a single elastic object, the behaviour could be considered one of *metamorphosis*. In this ident, individual particles are not distinguishable, so it is perhaps the case that the viewer would perceive the cloud as a single fluid form: a Gestalt whole. A clearer example of this kind of ambiguity can be seen in recent idents for FX UK. Though not verbal, these idents display a fluid behaviour that could be applied to characterforms, and offer a clearer illustration of how separate primitives can behave as a single metamorphing form. These idents, produced by Artillery Studio in 2009, present a collection of red paper-like rectangles which come together to form a large fluid mass. In *Pool*, the seething mass fills a pool, and transforms into a turbulent sea. A wave forms, and is transformed first into an octopus, then a ship, and finally a whale, before the water is sucked down a drain, leaving behind a few solitary red rectangles (Fig. 142). Richard Tilley, creative director of the project, describes this behaviour as involving the 'shattering and deconstructing' of objects.⁷⁰⁷ This statement clearly conveys the sense of the red shapes as separate objects, and the behaviour as one of *construction*. However, the collection of shapes behaves, in many respects, like a single fluid form, with malleable contours. Indeed, Tilley goes on to describe the collection of shapes, once they have entered the pool, as a 'seething maelstrom', suggesting that, at this point at least, the separate shapes are behaving as a single 'flurry'.⁷⁰⁸ Furthermore, making-of footage reveals that this 'maelstrom' was modelled as a single mass,

 ⁷⁰⁷Neil Bennet, 'Artillery Flexes its Guns with Six CGI idents for the FX Channel,' *Digital Arts*, 2009, accessed July 18, 2011, http://www.digitalartsonline.co.uk/features/index.cfm?featureId=1907&pn=2
 ⁷⁰⁸ Ibid.

with the properties of a liquid (see Fig. 143).⁷⁰⁹ If understood in this way, as a single liquid object, the behaviour can be interpreted as *metamorphosis*.

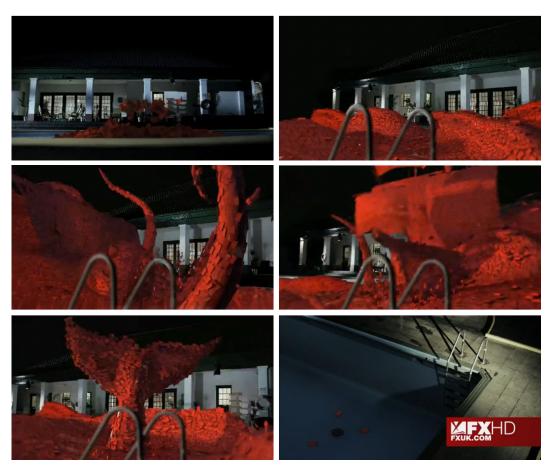


Figure 142. Artillery Studio, *Pool*, 2009. The transforming objects in this FX ident are made from a large number of separate parts which collectively behave like a single fluid form. Source: Artillery Studio, 'FX Ident Pool,' *YouTube*, 2009, accessed July 18, 2011, http://www.youtube.com/watch?v=e1yYv7O2D5g

⁷⁰⁹ See Artillery Studio, 'FX idents making of film,' *YouTube*, 2009, accessed July 18, 2011, http://www.youtube.com/watch?v=YMEe6fGkdXo



Figure 143. Artillery Studio, *The Making of FX Idents*, 2009. In this concept sketch, it is clear that the red area was conceived and modelled as a single mass, rather than many separate forms. Source: Artillery Studio, 'FX idents making of film,' *YouTube*, 2009, accessed July 18, 2011, http://www.youtube.com/watch?v=YMEe6fGkdXo

7.3 Potential Further Applications of the Typology

Although the typology of fluidity has been specifically designed to describe linguistic forms, there is the possibility that it may be applied elsewhere. As can be seen in FX's recent idents (see 7.2), non-linguistic forms may also undergo transformation in onscreen environments, and can be seen to exhibit similar behaviours to those described in this thesis.

It is already well-established that *metamorphosis* exists in stop-motion, cell animation, and more recently digital animation, presenting a kind of fluidity referred to by Sergei Einstein as 'plasmaticness', that allows freedom from a fixed form, and distortion to the point of acquiring new identities.⁷¹⁰ The term 'metamorphosis', and therefore perhaps the term 'fluid', could be used in the description of a number of behaviours exhibited by artefacts ranging from Fleisher studios' *Koko the Clown* (1919) (who is turned into a shape-shifting ghost, capable of adopting numerous different guises), *Willow* (Ron Howard, 1988, in which many audiences were introduced to digital morphing for the first time), and *Terminator 2*

⁷¹⁰ Einstein, Sergei, as cited in Matthew Solomon, 'Twenty-Five Heads under One Hat: Quick Change in the 1890s,' in Sobchack, *Meta-Morphing*, 16.

(James Cameron, 1991, which demonstrated 'seamless' morphing from a human-like form first into liquid metal, and then other solid objects).⁷¹¹ Arguably, examples such as these paved the way for metamorphosis in fluid characterforms by 'spark[ing] the interest of the graphics community in metamorphosis techniques'.⁷¹² In contemporary motion graphics, metamorphosis of non-verbal graphical objects can be seen in examples such as Sehsucht's advertisement for Häagen Dazs (2010, Fig. 144). In this animation, ice cream appears to melt and metamorphose into a leaping cat, before splitting into several additional fluid objects which themselves morph into flowers, birds, and curvilinear forms. Although this sequence does include a small number of morphing characterforms, most of the fluid objects presented never adopt a verbal identity. In this animation, the morphing forms cannot be distinguished from one another in the properties of their behaviour; only by the fact that some do, and some do not, introduce verbal identities.



Figure 144. Sehsucht GmbH, *Häagen Dazs*, 2010. In this advertisement, most of the metamorphosis involves pictorial and abstract forms which, although continually morphing, never adopt a verbal identity. This process is similar to the morphing that occurs in fluid characterforms, with the only exception being that it cannot be classified as temporal typography. Source: 'Häagen Dazs,' *Motion Served*, 2010, accessed July 18, 2011, http://www.motionserved.com/gallery/HAGEN-DAZS/418407

Norman Klein identifies a recent fatigue for digital morphing processes, caused largely by their overuse, reflected in a current trend for reviving manual methods. In Fallon's '*Play-Doh*' advertisement for Sony Bravia in 2007, stop-motion is used to transform coloured modelling clay into hundreds of small rabbits which converge on a city square (Fig. 145).⁷¹³

⁷¹¹ Norman M. Klein, 'Animation and Animorphs: A Brief Disappearing Act' in Sobchack, *Meta-Morphing*, 27; Krasniewicz, 'Magical Transformations,' 46.

⁷¹² Gomes, et al., Warping and Morphing, 14.

⁷¹³ Fallon, 'Sony Bravia "Play-Doh",' *We Are Fallon*, 2007, accessed July 18, 2011, http://www.fallon.co.uk/work/sony/bravia/playdoh/

The brightly coloured rabbits then merge together to form a colossal wave which rolls across the square, breaks apart into ice-bergs, and then merge together again to form a single giant rabbit. The scenes are filmed within a real urban environment, with onlookers and passing pedestrians. The jerky motion of these onlookers, and the surrounding everyday activity, draws attention to the stop-motion method (as opposed to digital imitations), and provides viewers with evidence of the considerable time and effort that was required for the production of the advert. These overtly hand-made transformations reflect a general loss of respect for computer-generated trickery. As Klein observes, processes such as the digital morph have become so familiar, and so simple to create, that audiences increasingly favour more time-consuming 'hand-made' methods.⁷¹⁴



Figure 145. Fallon, *Play-Doh*, 2007. Source: 'Sony Bravia: Play-Doh,' *Daily Motion*, 2007, accessed July 18, 2011, http://www.dailymotion.com/video/x34n9o_sony-bravia-playdoh_tech

Other kinds of transformation can also be seen in other onscreen artefacts, which could be

⁷¹⁴ Klein, 'Animation and Animorphs,' 36.

described using terms presented in the typology of fluid behaviours. Often, animation uses transformation as a metaphor. 'Like verbal metaphors that involve relating seemingly disparate entities', entities can combine in onscreen transformation 'to create new elements and new meaning'.⁷¹⁵ Jan Svankmejer's *Dimensions of Dialogue* (1982) presents characters who are broken apart in representation of fierce argument and later merge into one another as they make love.⁷¹⁶ Here, different kinds of transformations are given distinctly different tones. Transformation by division into parts is presented as distinctly destructive and chaotic, whereas transformation through metamorphosis is presented as a positive process. When Svankmejer's subjects break apart and reform, the transformation is similar to that observed in fluid *construction*. Objects which have separate identities (fruit, or kitchen utensils) come together to construct the form of a human head (Fig. 146). This behaviour could be described as *construction through motion of parts*.



Figure 146. Jan Svankmejer, Dimensions of Dialogue, 1982. A head is constructed through motion of parts, which otherwise have separate identities as fruit and kitchen utensils. Source: 'Jan Svankmajer – Dimensions of Dialogue,' Daily Motion, 2007, accessed July 18, 2011, http://www.dailymotion.com/video/x2gtpo_jan-svankmajer-dimensions-of-dialog_shortfilms

As with *metamorphosis*, both stop-motion and newer digital technologies have been utilized in order to create recent examples of *construction through motion of parts*. Matthew Roberts' promo for the *Sunday Times' Style* supplement (2009) uses stop-motion animation to

⁷¹⁵ Krasniewicz, 'Magical transformations,' 54-55.

⁷¹⁶ Klein, 'Animation and Animorphs,' 31.

construct a teapot (Fig. 147). Initially, the animation presents an arrangement of paper cutout circles. These come together and *overlap* to create a birds-eye-view of a teapot. The pile of flat circles is then substituted for a real teapot (in an act of *serial presentation*). This transformation highlights how objects can appear to be abstract when viewed from an unfamiliar angle. Devyanin's *Field* (2009, Fig. 148), an experimental animation featuring alternative meanings of the word 'field' in agriculture, mathematics and physics, shows a computer-generated 'mystical form' undergoing a series of transformations, each of which involves *construction through motion of parts*. As the animation begins, drops of water rise from the ground into the sky, pooling in the air to create an abstract floating structure. The liquid structure crystallizes and fragments. Its broken parts are then rearranged to form a rectangular structure.

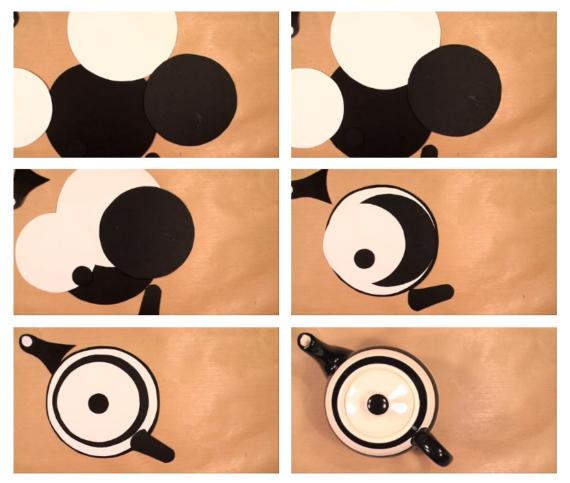


Figure 147. Matthew Roberts, promo for *Style*, 2009. Here, a teapot is constructed from flat circles which are layered so that they appear to become a single object. Source: Roberts, Matthew, 'The Sunday Times,' *Kupon*, 2009, accessed July 18, 2011, http://kupon.co.uk/#27148/The-Sunday-Times

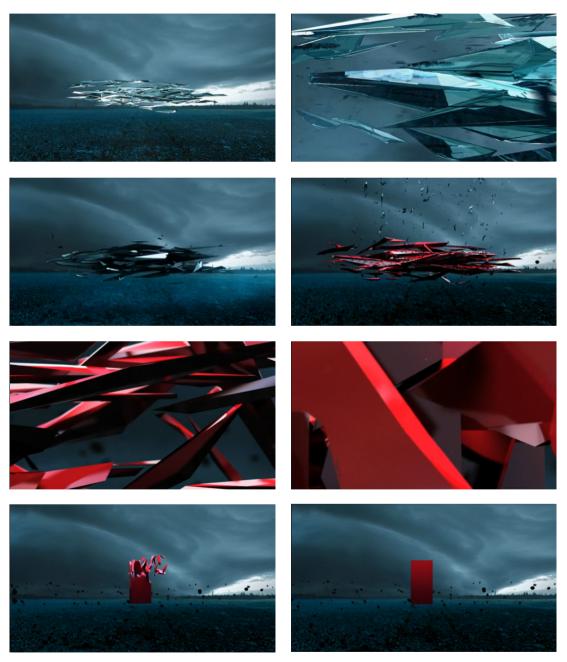


Figure 148. Alexey Devyanin, *Field*, 2009. In this animation, an abstract object is constructed by the rearrangement of moving shards, exhibiting a similar process to the *construction through motion of parts* that has been identified in this thesis. Source: Alexey Devyanin, 'Field,' *Behance*, 2009, accessed July 18, 2011, http://www.behance.net/gallery/Field/353160

Perhaps less frequently than *construction*, *revelation* is also present in non-linguistic artefacts. RSA Films' advertisement for Toyota reveals, in a single car, the four identities of Toyota's latest range. Each car is revealed sequentially, as drivers peel away the surface of their car to reveal a different class of car beneath (Fig. 149). This form of *revelation* mimics

the theatrical sleight-of hand that existed for many centuries before the introduction of screen-based technologies. Theatrical illusion often involves transformations of a similar kind, in which speed or 'physical dexterity' combine to create unexpected and 'striking transformations'.⁷¹⁷ In Sichuan opera, this *revelation* of hidden identities becomes the focus of the performance. Performers change their masks on stage, in full view of their audience, using sleight-of-hand. In 'bian lian' ('face changing', which originated in the 17th century), great skill is involved achieving change as quickly and smoothly as possible.⁷¹⁸ One method, the 'pulling mask', requires the performer to wear several layers of thin masks, which she or he peels off a layer at a time throughout the performance.⁷¹⁹ This centuries-old tradition has been updated for Western contemporary television and cinema in the form of prosthetic disguises, which are peeled back to reveal the true identity of a character, as in *Mission: Impossible* (Brian De Palma, 1996).



Figure 149. RSA Films, Unveiled, 2009. This advertisement could arguably be described as an example or revelation. Source: RSA Films, 'Toyota-Unveiled,' RSA, 2009, accessed July 18, 2011, http://www.rsafilms.com/d/rsa/companies/rsa-usa/director/brett-foraker/toyota-range-65

⁷¹⁸ Jeffrey Scott, 'A Dialogue Between Sichuan and Beijing Opera (review),' *Asian Theatre Journal* 25, no. 2 (2008), accessed July 18, 2011, http://muse.jhu.edu/journals/asian_theatre_journal/v025/25.2.scott.html
 ⁷¹⁹ Shiao-Ling Yu, *Chinese Drama after the Cultural Revolution: 1979-1989* (New York: Edwin Mellen Press,

 ⁷¹⁷ Matthew Solomon, 'Twenty-Five Heads under One Hat: Quick Change in the 1890s,' in Sobchack, *Meta-Morphing*, 3.
 ⁷¹⁸ Jeffrey Scott, 'A Dialogue Between Sichuan and Beijing Opera (review),' *Asian Theatre Journal* 25, no. 2

⁷¹⁹ Shiao-Ling Yu, *Chinese Drama after the Cultural Revolution: 1979-1989* (New York: Edwin Mellen Press, 1996), 13.

Just as in fluid artefacts, a single artefact may contain combinations of different kinds of transformation. Triada Studio's commercial for *Aregak* (2008, Fig. 150) features an arrangement of buildings which transform through motion of parts into sequentially more advanced architectural structures. Each object unfolds as if it were a cardboard box, while other elements sprout from existing surfaces. This transformation is a complex hybrid of different forms of fluidity, with parts of the transformation being identifiable as *metamorphosis*, and others as *construction through motion of parts*.

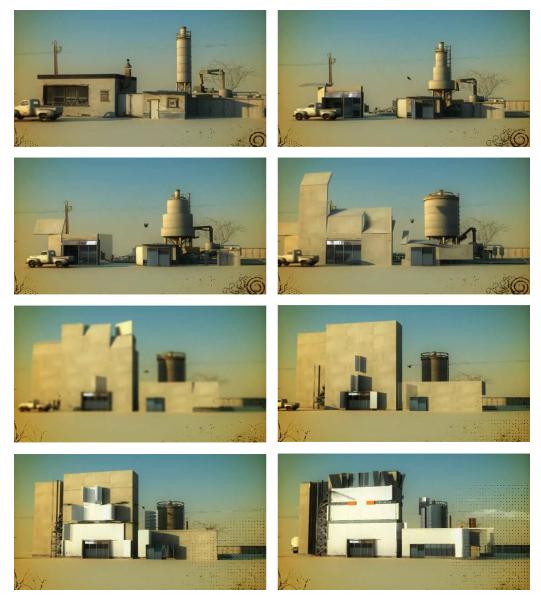


Figure 150. Triada Studio, commercial for *Aregak*, 2008. In this animation, an entire landscape appears to collapse and reform to present an alternative scene. Source: Triada Studio, 'Aregak,' *Behance*, 2009, accessed July 18, 2011, http://www.behance.net/Gallery/Aregak/179857

These examples suggest that the typology developed for this thesis may have applications in other screen-based practice, featuring pictorial and abstract subjects as opposed to characterforms. Much of the analysis that has taken place in this thesis is applicable to these non-verbal artefacts. Many contain, for example, in-between states, in which objects are neither one thing nor another. Triada Studio's *Aregak* commercial features objects at the mid-point of a transformation that are neither one building nor another, and in that respect comparable to the asemic glyphs that exist in fluid artefacts such as Harm van der Dorpel's *I Wouldn't Normally*, and *Sesame Street's Psychadelic Alphabet* (see 2.3.5).

It may even be possible to apply the terms and ideas presented in this thesis to artefacts that are not presented on the screen. Many screen-based fluid artefacts are inspired by other artefacts, and it is possible to look at these sources of inspiration for examples of fluid behaviours in other fields. Imaginary Forces' title sequence and teaser trailer for the film Transformers (Michael Bay, 2006) features a fluid behaviour, construction through motion of parts. In the teaser trailer (Fig. 151), the 'robust' metallic letters of the title, 'Transformers', break apart into pieces, then 'reconfigure', first to present the release date of the film, and then an 'Autobot symbol'.⁷²⁰ Art Director Sean Koriakin conceived of alphabetic and numerical objects constructed from 'panels' that would fit together like pieces of 'a giant jigsaw puzzle'.⁷²¹ These pieces, when rotated and rearranged, play several roles, first alphabetic, then numerical, then pictorial. This behaviour was directly inspired by the behaviours exhibited by the titular alien robots, found in the Japanese television show, the Transformers, and the range of toys of the same name which can be manipulated so that they transform from one machine to another (see Fig. 152).⁷²² Though each Transformer is a single object, it is 'designed to have two different states' and two different identities.⁷²³ A Transformer may be both a robot and a plane, or a robot and a car, but not both simultaneously. One identity must be sacrificed in order to reveal the other, however the object itself is not destroyed during this process. It remains a complete Transformer throughout the transformation. Transformation is the defining feature of the Transformers

 ⁷²⁰ Levent Ozler, 'Imaginary Forces Designs Mega Titles in Transformers Teaser Trailer,' *Dexigner*, 2006, accessed July 18, 2011, http://www.dexigner.com/design_news/6922.html
 ⁷²¹ Ibid.

⁷²² Gonzalo Frasca, *Videogames of the Oppressed: Videogames as a means for critical thinking and debate,* (MSc thesis, Georgia Institute of Technology, 2001), 31, accessed July 18, 2011,

http://www.ludology.org/articles/thesis/FrascaThesisVideogames.pdf

⁷²³ Ibid., 34.



franchise, to the extent that associated media, whether onscreen or off screen, exhibit a similar behaviour.

Figure 151. Imaginary Forces, *Transformers* teaser trailer, 2006. Source: 'Imaginary Forces Designs Mega Titles in Transformers Teaser Trailer,' *Dexigner*, 2006, accessed July 18, 2011, http://www.dexigner.com/design_news/6922.html



Figure 152. A transformer toy in three states: first, presenting its robot identity, then its 'in-between' identity, and finally as a tank. Source: 'Owl T3 Transforming Solar Robot,' *Robot Shop*, n.d., accessed June 9, 2011, http://www.robotshop.com/eu/owi-t3-transforming-solar-robot-5.html

There is, therefore, potential to explore fluidity, and the various fluid behaviours, in onscreen and off-screen artefacts, ranging from graphical (but non-verbal) animations, to toys, or the everyday objects identified by Per Mollerup as 'collapsibles' (see 4.2).⁷²⁴ Each of the artefacts discussed in this chapter features a behaviour similar to one identified in this thesis, and there is scope to conduct a study of fluid behaviours in many fields, not just temporal typography.

Designers tasked with creating transformations recognise the similarities between the kinds of transformation seen in different artefacts, as is shown across the Transformers franchise, and in the imitation of certain notable transformations, such as those seen in the Transformers titles sequence, and other examples presented in this thesis, including, for example, the many Channel 4 idents. This acknowledgement of similarities between various artefacts is not, however, enough to allow for a sufficient understanding of fluid behaviours. In order for designers to sufficiently identify and understand their artefacts, and to help move their practice forward, there is a requirement for the application of a typology, such as the one presented in this thesis.

⁷²⁴ Mollerup, Collapsibles.

Bibliography

Author not named. 'History of Kinetic Typography.' *KineticTypography.com*, Not dated. Accessed July 19, 2011. <u>http://kinetictypography.com/history-of-kinetic-typography/</u>

Author not named. 'Andrew Byrom.' Postmodern. 2008. Accessed July 13, 2011. <u>http://dga-postmodern.blogspot.com/2008_04_01_archive.html</u>

Aarseth, Espen J. *Cybertext: Perspectives on ergodic literature*. Baltimore: John Hopkins University Press, 1997.

Ahn, Minsu, and Seungyong Lee. 'Mesh Metamorphosis with Topology Transformations.' *Computer Graphics and Applications: Proceedings of the 10th Pacific Conference on Computer Graphics and Applications* (2002): 481-482. Accessed July 19, 2011. doi: 10.1109/PCCGA.2002.1167908

Andre, Jacques and Denis Girou. 'Father Truchet, the typographic point, the Romain du Roi, and tilings.' *TUGboat* 20, no. 1 (1999),:8-14. Accessed July 13, 2011. http://www.tug.org/TUGboat/Articles/tb20-1/tb62andr.pdf

Armstrong, Frank. 'Hearing Type.' *Loop: AIGA Journal of Interactive Design Education* (June 27, 2005). Accessed July 19, 2011. http://www.designingwithtype.com/chico/images/Armstrong HearingType.pdf

Armstrong, Helen, ed. *Graphic Design Theory*. New York: Princeton Architectural Press, 2009.

Artillery Studio. 'FX idents making of film.' *YouTube*. 2009. Accessed July 18, 2011. http://www.youtube.com/watch?v=YMEe6fGkdXo

ATypI. 'Type Classification-ATypI.' Not dated. Accessed February 10, 2010. http://www.atypi.org/members/special-interest-groups/type-classification

Aymer, Graeme. 'Lambie Nairn.' *Computer Arts* 120 (March 2006). Accessed July 19, 2011. http://www.computerarts.co.uk/in_depth/interviews/lambie-nairn#Scene

Bachfischer, Gerhard and Toni Robertson. 'From Movable Type to Moving Type -Evolution in technological mediated Typography.' Paper presented at the *Apple University Consortium Conference*, 2005. Accessed July 13, 2011. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.89.8900&rep=rep1&type=pdf

Baines, Phil, and Andrew Halsam. Type & Typography. London: Laurence King, 2005.

Barthes, Roland. *Elements of Semiology*. Translated by Annette Laves. London: Jonathan Cape, 1967.

Barthes, Roland. *Image Music Text*. Translated by Stephen Heath. London: Fontana Press, London, 1977.

Barthes, Roland. Mythologies. New York: Hill & Wang, 1987.

Bartram, Alan. *Futurist Typography and the Liberated Text*. London: The British Library, 2005.

Bayliss, Gordon C., Jon Driver, and Peter McLeod. 'Movement and Proximity Constrain Miscombinations of Colour and Form.' *Perception* 21 (1992): 201-218.

Beier, Thaddeus, and Shawn Neeley. 'Feature-Based Image Metamorphosis.' *Computer Graphics* 26, no. 2 (July 1992): 35-42. Accessed July 19, 2011. http://www1.cs.columbia.edu/~cs4162/slides/p35-beier.pdf

Bennet, Neil. 'Poetry In Motion.' *Digital Arts* (January 2007). Accessed July 13, 2011. <u>http://www.digitalartsonline.co.uk/features/index.cfm?featureid=1547</u>

Bennet, Neil. 'Artillery Flexes its Guns with Six CGI idents for the FX Channel.' *Digital Arts* (October 2009). Accessed July 19, 2011. http://www.digitalartsonline.co.uk/features/index.cfm?featureId=1907&pn=2

Beohm, John. 'The Simpson's very own Channel 4 ident.' *Idents*. 2007. Accessed July 19, 2011. http://idents.tv/blog/2007/07/14/the-simpsons-very-own-channel-4-ident/

Bernard, Marcus. 'ITV London/LWT.' *TVArk*. 2004. Accessed July 13, 2011. http://www2.tv-ark.org.uk/itvlondon/lwt-main.html

Bernhardt, Stephen A. 'Seeing the Text.' *College Composition and Communication* 37, no. 1 (1986): 66-78. Accessed July 19, 2011. doi: 10.1145/142350.142353

Biggs, Michael A. R. 'What Characterizes Pictures and Text?' *Literary and Linguistic Computing* 19, no. 3 (2004): 265-272. Accessed July 19, 2011. http://llc.oxfordjournals.org/cgi/reprint/19/3/265

Bignell, Jonathan. *Media Semiotics: An Introduction*. 2nd Edition. Manchester: Manchester University Press, 2002.

Bil'ak, Peter. 'In Search of a comprehensive Type Design Theory.' *Typotheque*. 2005. Accessed July 13, 2011.

http://www.typotheque.com/articles/in_search_of_a_comprehensive_type_design_theory

Blackwell, Lewis. 20th Century Type. London: Laurence King, 2004.

Block, J.R. 'What is an Illusion?' *Sandlot Science*. 2002. Accessed July 19, 2011. http://www.sandlotscience.com/EyeonIllusions/whatisanillusion.htm

Bodine, Kerry, and Mathilde Pignol. 'Kinetic Typography-Based Instant Messaging.' *CHI* '03 extended abstracts on Human factors in computing systems, (2003): 914-915. Accessed July 13, 2011. http://portal.acm.org/citation.cfm?id=765891.766067

Bolter, Jay David. 'Electronic Signs.' In Writing Space: The Computer, Hypertext, and the History of Writing. New Jersey: Laurence Erlbaum Associates, 1991, 85-106.

Bork, Alfred. 'A Preliminary Taxonomy of Ways of Displaying Text on Screens.' *Information Design Journal* 3, no. 3 (1983): 206-214.

Borzyskowski, George. 'Animated Text: More than meets the eye?' *Beyond the Comfort Zone: Proceedings of the 21st ASCILITE Conference* (2004): 141-144. Accessed July 13, 2011. http://www.ascilite.org.au/conferences/perth04/procs/borzykowski.html

Brath, Richard Karl, 'Effective Information Visualization: Guidelines and Metrics for 3D Interactive Representations of Business Data.' MSc diss., University of Toronto, 1999. Accessed February 4, 2011. <u>http://www3.sympatico.ca/blevis/tyhesis49.prev.html</u>

Brill, Louis. 'Poetry in motion in the space-time continuum.' In *Holopoetry: Essays, manifestos, critical and theoretical writings*. Lexington: New Media Editions, 1995, 52-53. Accessed July 19, 2011. <u>http://www.ekac.org/holopoetrybook.pdf</u>. Originally published in *Computer Graphics World* 12, no. 11 (November 1992): 2-7.

Bukatman, Scott. 'Taking shape: Morphing and the Performance of Self.' In *Meta-Morphing: Visual Culture and the Culture of Quick Change*. Edited by Vivian Sobchack. Minneapolis: University of Minnesota Press, 2000, 225-249.

Burt, Cyril. A Psychological Study of Typography. Cambridge: Cambridge University Press, 1959.

Butler, Jill, Kritina Holden, and William Lidwell. *Universal Principles of Design*. Massachusetts: Rockport Publishers, Inc. 2003.

Carboni, Camilla. 'Film spectatorship and subjectivity : semiotics, complications, satisfactions.' MDrama Thesis, University of llenbosch, 2007. Accessed April 21, 2012, https://uhvpn.herts.ac.uk/handle/10019.1/,DanaInfo=scholar.sun.ac.za+2203

Caslon. Catalogue of Typefaces. London: Caslon and Co., Not dated.

Castelhano, Monica S., and Paul Muter. 'Optimizing the Reading of Electronic Text using Rapid Serial Visual Presentation.' *Behaviour & Information Technology* 20, no. 4 (2001): 237-247. Accessed July 19, 2011.

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.128.3319&rep=rep1&type=pdf

Chandler, Daniel. Semiotics: The Basics, 2nd edition. Oxon: Routledge, 2007.

Chang, Dempsey, Dooley, Laurence, and Tuovinen, Juhani E. 'Gestalt Theory in Visual Screen Design – A New Look at an Old Subject.' *CRPIT '02 Proceedings of the Seventh world conference on computers in education conference on Computers in education: Australian topics* 8 (2002). Accessed April 18, 2012, http://dl.acm.org/gitation.com/gitati

http://dl.acm.org/citation.cfm?id=820062&dl=ACM&coll=DL&CFID=78073609&CFTOK EN=85642032

Chao, Chloe Ming-shu. 'Kinetext: Concrete Programming Paradigm for Animated typography.' BSc diss., Harvard University, 1998. Accessed July 19, 2011. http://acg.media.mit.edu/projects/kinetext/msthesis/page1to4.ps

Christie, Edward. 'The Image of the Letter: From the Anglo-Saxons to the Electronic Beowulf.' *Culture, Theory and Critique* 44, no. 2 (2003): 129-150. Accessed July 19, 2011. http://dx.doi.org/10.1080/1473578032000151058

Cho, Peter. 'Pliant Type: Development and temporal manipulation of expressive, malleable typography.' BSc diss., MIT, 1997. Accessed July 13, 2011. http://hdl.handle.net/1721.1/10553

Clarke, David S. Sources of Semiotic: readings with commentary from antiquity to the present. Illinois: SIU Press, 1990.

Cobley, Paul. The Routledge Companion to Semiotics. Oxon: Routledge, 2010.

Colapietro, Vincent Michael. *Peirce's Approach to the Self: A Semiotic Perspective on Human Subjectivity*, Albany: State University of New York Press, 1989.

Colapietro, Vincent Michael. 'Semiosis and Subjectivity : A Peircean Critique of Umberto Eco.' *The Southern Journal of Philosophy* 25, no. 3 (1987): 295-312.

Condrington, Andrea. Kyle Cooper. London: Laurence King, 2003.

Coquaillart, Sabine, and Pierre Jancéne. 'Animated Free-Form Deformation: An Interactive animation Technique.' *Computer Graphics* 25, no. 4 (1991), 23-26.

Crasner, Jon S. *Motion Graphic Design: Applied history and aesthetics*. Oxford: Focal Press, 2008.

Crow, David. Left to Right. Switzerland: AVA, 2006.

Cuenca, Mike. 'Gestalt and Typography.' *Virtual Classroom*. 2000. Accessed July 19, 2011. http://www.mikecuenca.com/galleryImg/teach/gestalt/

Damisch, Hubert. A theory of cloud: toward a history of painting. Stanford, CA: Stanford University Press, 2002.

De Ana, Marissa Carolina. 'Tomorrow is Forever: Examining Narrative Structure and Cultural Archetypes in Three Mexican Telenovelas.' MA Thesis, University of Alabama, 2009. Accessed April 25, 2012.

http://acumen.lib.ua.edu/content/u0015/0000001/0000050/u0015_0000001_0000050.pdf

De L'imprimerie Royal. *Medailles sur les principaux evenements du regne de Louis le Grand, Avec des Explications Historiques*. Paris, 1702.

Devroye, Luc. 'British Standards for Type Classification.' 2001. Accessed July 19, 2011. <u>http://cg.scs.carleton.ca/~luc/britishstandards.html</u> Extract from British Standards Institution, *British Standards 2961*. London: British standards Institution, 1967.

Devroye, Luc. 'Formatting font Formats.' *TUGboat* 24, no. 3 (2003): 588-596. Accessed July 19, 2011. <u>http://www.tug.org/TUGboat/Articles/tb24-3/devroye.pdf</u>

Dixon, Catherine. 'Typeface Classification.' Paper presented at *Twentieth Century Graphic Communication; Technology, Society and Culture,* Annual Conference of the friends of St. Bride. London, 2002. Accessed July 21, 2011.

http://www.stbride.org/friends/conference/twentiethcenturygraphiccommunication/Typeface Classification.html

Docherty, David, David E. Morison, and Michael Tracey. *Keeping faith? Channel Four and its Audience*. London: John Libbey, 1988.

Dodd, Robin. From Gutenburg to Opentype. East Sussex: Illex, 2006.

Donaldson, Timothy. 'Practitioner Presentation.' Paper presented at *Beyond the Margins*. Cambridge, 12 September, 2009.

Drucker, Johanna. 'Typographic Manipulation of the Poetic Text in the Early Twentieth-Century Avant-Garde.' *Visible Language* 25 (1991): 231-256.

Drucker, Johanna. 'What is a Letter?' In *The Education of a Typographer*. Edited by Steven Heller. New York: Allworth Press, 2004, 78-90.

Duncker, Kark,.'Induced Motion.' In Willis D. Ellis, *A Source Book of Gestalt Psychology*. London: Routledge & Kegan Paul Ltd., 1938, 161-172. Originally published as 'Über induzierte Bewegung (Ein Beitrag zur Theorie optisch wahrgenommener Bewegung).' *Psychol. Forsch.* 12 (1929): 180-259.

Dyson, Mary, C. 'How Physical Text Layout Affects Reading from Screen,' *Behaviour & Information Technology* 23, no. 6 (2004): 377-393. Accessed May 30, 2011. http://www.eldritch.org/erskin/temp/layout_on_screen.pdf

Dyson, Mary C. and Hazelgrove. Mark 'The influence of reading speed and line length on the effectiveness of reading from screen.' *International Journal of Human-Computer Studies* 54, issue 4 (2001): 585-612. Accessed July 13, 2011. doi: 10.1006/ijhc.2001.0458

Dyson, Mary C., and Watkins. Anthony J. 'A figural approach to the role of melodic contour in melody recognition.' *Perception & Psychophysics* 35, no. 5 (1983): 477-488.

Accessed July 19, 2011. http://www.springerlink.com/content/h72m005u22k2423u/fulltext.pdf

Ellis, Colleen. 'Introduction.' *ABCing*. 2010. Accessed July 18, 2011. http://www.abseeing.com

Ellis, Willis D. A Source Book of Gestalt Psychology. London: Routledge & Kegan Paul Ltd., 1938.

Elam, Kimberley. *Expressive Typography: the word as image*. New York: John Wiley & Sons Inc, 1989.

Engel, Blake, Ditterline, Patrick, and Yeung, Brian. 'The Effects of Kinetic Typography on Readability.' diss., Carnegie Mellon University, 2000. Accessed July 19, 2011. http://a.parsons.edu/~garyj320/05f/kinetictypography.pdf

Eskilson, Stephen J. Graphic Design: A New History. London: Laurence King, 2007.

Euan of Scotland. 'ITV Station Identifiers 1980s.' *YouTube*. 2006. Accessed July 19, 2011. http://www.youtube.com/watch?v=oQ4nBvzgo9E

Fallon. 'Sony Bravia "Play-Doh".' *We Are Fallon*. 2007. Accessed July 19, 2011. http://www.fallon.co.uk/work/sony/bravia/playdoh/

Fan Street Foundry. *Selections from the Specimen Book of the Fann Street Foundry*. London: Reed and Fox, 1873.

Fanthome, Christine. 'Creating an iconic brand – an account of the history, development context and significance of channel 4's idents.' *Journal of Media Practice* 8, no. 3 (2007): 255-271.

Fine, Elizabeth M. and Eli Peli. 'Scrolled and rapid serial visual presentation texts are read at similar rates by the visually impaired.' *Journal of The Optical Society* 12, issue 10 (1995): 2286-2292. Accessed July 13, 2011. doi: 10.1364/JOSAA.12.002286

Fink, Kevin. 'Impossible Figures in Perceptual Psychology.' *Pitzer Psychology 106 – Perception*. 1991. Accessed July 19, 2011. <u>http://fink.com/papers/impossible.html</u>

Fisher, Kevin. 'Tracing the Tesseract: A Conceptual Prehistory of the Morph.' In *Metamoorphing: Visual Transformation and the Culture of Quick-change*. Edited by Vivian Sobchack. Minneapolis: University of Minnesota Press, 2000, 103-129.

Fiske, John. Introduction to Communication Studies. 2nd edition. London: Routledge, 1990.

Foakes, Reginald A. 'Making and Breaking Dramatic Illusion.' In *Aesthetic Illusion: Theoretical and Historical Approaches*. Edited by Frederick Burwick and Walter Pape. New York: Walter de Gruyter, 1989, 217-228.

Fong, Karin. 'A Moment for Surprise.' *Trace: AIGA Journal of Design* 1, no. 1 (2001): 30-39. Accessed July 19, 2011.

http://www.danamcclure.com/parsons/readings/time/AigaJournal.pdf

Ford, Shannon, Jodi Forlizzi, and Suguru Ishizaki. 'Kinetic Typography: Issues in timebased presentation of text.' *CHI 97Late Breaking/Short Demonstrations* (1997): 269-270. Accessed July 13, 2011. <u>http://doi.acm.org/10.1145/1120212.1120387</u>

Forlizzi, Jodi, Johnny Lee, and Scott E. Hudson. 'The kinedit system: affective messages using dynamic texts.' *Proceedings of the SIGCHI conference on Human factors in*

computing systems (2003): 377 – 384. Accessed July 13, 2011. http://portal.acm.org/citation.cfm?id=642611.642677

Frasca, Gonzalo.'Videogames of the Oppressed: Videogames as a means for critical thinking and Debate.' MSc thesis, Georgia Institute of Technology, 2001. Accessed July 19, 2011. http://www.ludology.org/articles/thesis/FrascaThesisVideogames.pdf

Fuchs, Wilhelm. 'Completion Phenomena in Hemianopic Vision.' In Willis D. Ellis, *A* Source Book of Gestalt Psychology. London: Routledge & Kegan Paul, 1938, 344-356. Originally published as 'Untersuchung über das Sehen der hemianopiker und Hemiambloyopiker II. Die totalisierende Gestalauffassung.' Zeitschr. F. Psychol. 86 (1921): 1-143.

Gabilondo, Jseba. 'Morphing Saint Sebastian: Masochism and Masculinity in Forrest Gump.' In *Meta-Morphing: Visual Culture and the Culture of Quick Change*. Edited by Vivian Sobchack. Minneapolis: University of Minnesota Press, 2000, 183-207.

Galin, E., and S. Akkouche, 'Blob Metamorphosis based on Minkowski Sums.' *Eurographics* 15, no. 3 (1996). Accessed July 19, 2011. doi: 10.1111/1467-8659.1530143

Gaze, Tim. *Asemic Movement* 1 (January 2008). Accessed July 13, 2011. http://vugg.wippiespace.com/vugg/gaze/asemicmovement1.pdf

Gaze, Tim. 'Semiosis, by John Keane and Christopher Stackhouse.' Review of *Semiosis*, by Keane, John, and Stackhouse, Christopher. *Asemic Movement* 1 (January 2008): 12-13. Accessed July 13, 2011. http://vugg.wippiespace.com/vugg/gaze/asemicmovement1.pdf

Gaze, Tim. 'The Word "Asemic".' Asemic Movement 2 (February 2008): 31. Accessed July 19, 2011. <u>http://vugg.wippiespace.com/vugg/gaze/asemicmovement2.pdf</u>

Gaze, Tim. 'My Asemic Writing.' *Asemic Movement* 2 (February 2008): 32. Accessed July 19, 2011. <u>http://vugg.wippiespace.com/vugg/gaze/asemicmovement2.pdf</u>

Gomes, Jonas, Lucia Darsa, Bruno Costa, and Luiz Velho. *Warping and Morphing of Graphical Objects*. San Francisco: Morgan Kaufmann Publishers, 1999.

Goodman, Douglas J. 'Approaches to Law and Popular Culture.' *Law & Social Enquiry* 31, issue 3 (Summer 2006): 757-784. Accessed July 19, 2011. doi: 10.1111/j.1747-4469.2006.00029.x

Gottschaldt, Kurt, 'Gestalt Factors and Repetition.' In Willis D. Ellis, *A Source Book of Gestalt Psychology*. Routledge & Kegan Paul Ltd., London, 1938. Originally published as 'Über den Einfluss der Erahrung auf die Wahrnehmung von Figuren, I.: Über den Einfluss gehäufer Einprägung von Figuren auf ihre Sichtbarkeit in umfassenden Konfigurationen.' *Psychol. Forsch.* 8, (1926), 261-317.

Graham, Lisa. 'Gestalt Theory in Interactive Media Design.' *Journal of the humanities and social sciences* 2, no.1 (2008): 1 – 12. Accessed 18/04/2012, http://subversion.assembla.com/svn/videojuegos2d/trunk/Libros/1288.pdf

Grainge, Paul. 'Lost Logos: Channel 4 and the Branding of American event Television.' *Reading Lost*. Edited by Roberta E. Pearson. London: IB Taurus, 2009, 95-115.

Grau, Oliver. Virtual Art. London: MIT Press, 2003.

Gray, Nicolete. Lettering as Drawing. New York: Taplinger, 1982.

Greenhalgh, Paul. Modernism in Design. London: Reaktion Books, 1990.

Gregory, R.L. 'Perceptual Illusions and Brain Models.' *Proc. Royal Society* B 171 (1968): 179-296. Accessed July 16, 2011.

http://www.richardgregory.org/papers/brainmodels/illusions-and-brain-models.pdf

Gromala, Diane. 'Biomorphic Typography.' ACM SIGGRAPH 2002 conference abstracts and applications (2002): 151. Accessed July 13, 2011. doi: 10.1145/1242073.1242164

Gross, Sabine. 'The Word Turned Image: Reading Pattern Poems.' *Poetics Today* 18, no. 1 (Spring 1997): 15-32. Accessed July 61, 2011. http://www.jstor.org/stable/1773231

Guiraud, Pierre. Semiology. London: Routledge & Kegan Paul Ltd., 1975.

Hall, Sean. *This Means This, That Means That: A User's Guide to Semiotics*. London: Laurence King, 2007.

Haralambous, Yannis, and Home, P. Scott. Fonts and Encodings. CA: O'Reilly Media, 2007.

Hawkes, Terrence. Structuralism and Semiotics. London: Methuen & Co. Ltd, 1977.

Heller, Steven. 'Cult of the Ugly.' In *Looking Closer: Critical Writings on Graphic Design*. Edited by Michael Beirut, William Drenttel, Stephen Heller, and D. K. Holland. New York: Allworth Press, 1994, 155-160. Originally published in *Eye Magazine* 9, no. 3 (1993).

Heller, Steven, and Christine Thompson. *Letterforms: Bawdy Bad & Beautiful*. New York: Watson-Gupthill, 2000.

Helfand, Jessica. 'Electronic Typography: The New Visual Language.' In *Looking Closer 2: Critical Writings on Graphic Design*. Edited by Michael Beirut, et al. New York: Allworth Press, 1997, 49-53. Originally published in *Print*, May/June 1994.

Helmholtz, Herman von. *Treatise on physiological optics Vol. 3*. Translated by J.P. Southall. New York: Dover, 1962.

Hershenson, M. 'Structural constraints: further evidence from apparent motion in depth.' *Perception* 22, no. 3 (1993): 323 – 334.

Heusser, Jeff, Montgomery, John, and Seymour, Sydney. 'MPC London's Award Winning Channel 4 Idents.' *FX Guide*, February 2, 2007. Accessed July 19, 2011. http://www.fxguide.com/featured/MPC_Londons_Award_Winning_Channel_4_Idents/

Higgins, Hannah B. The Grid Book. Mass: MIT Press, 2009.

Hillner, Matthias. 'Text in (e)motion.' *Visual Communication* 4, no. 2 (2005): 165-171. Accessed July 19, 2011. doi: 10.1177/1470357205053394

Hillner, Matthias. Virtual Typography: Time Perception in Relation to Digital Communication.' *Leonardo Electronic Almanac* 14, no. 5-6 (2006). Accessed July 13, 2011. <u>http://leoalmanac.org/journal/vol_14/lea_v14_n05-06/mhillner.html</u>

Hillner, Matthias. 'The poetics of transition: the ambiguous characteristics of virtual typography.' MPhil thesis, Royal College of Art, 2007. Accessed July 19, 2011. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.94.9180&rep=rep1&type=pdf

Hillner, Matthias. 'Virtual(ly) Typography – Towards a Notion of Poetics.' *Icograda*. 2009. Accessed July 13, 2011. <u>http://www.icograda.org/feature/currrent/articles291.htm</u>. Originally published in *Leonardo Electronic Almanac* 19, no. 5 (2009).

Hobson, Dorothy. *Channel 4: the early years and the Jeremy Isaacs legacy*. London: I.B. Taurus & Co, 2008.

Hochberg, Julian. 'Levels of Perceptual Organization.' In Kubovy and Pomerantz, *Perceptual Organization*. Edited by Michael Kubovy and James R. Pomerantz. New Jersey: Laurence Erlbaum, 1981, 255-278.

Hochberg, Julian. 'Gestalt Theory.' In *The Oxford Companion to the Mind*. 2nd edition. Edited by Richard L. Gregory. Oxford: Oxford University Press, 2004, 372.

Hoefler, Jonathan. 'On Classifying Type.' In *Texts on Type: Critical Writings on Typography*. Edited by Steven Heller, and Phillip B Meggs. New York: Allworth Press, 2001, 201-209. Originally published in *Émigré* 42 (1997).

Hoefler, Jonathan, and Tobias Frere-Jones. 'A Treasury of Wood Type Online.' *Hofler & Frere-jones*, 2009. Accessed July 13, 2011. http://www.typography.com/ask/showBlog.php?blogID=184

Holdcroft, David. Saussure: Signs, System, and Arbitrariness. Cambridge: Cambridge University Press, 1991.

Holemstein, Elmar. 'Double Articulation in Writing', in *Writing in Focus*. Edited by Florian Coulmas, and Konrad Ehlich. New York: Walter de Gruyter, 1983, 45-62.

Holmes, David. 'The Fallacies and Fortunes of 'Interactivity' in Communication Theory.' 2007. Accessed July 19, 2011.

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.107.823&rep=rep1&type=pdf

Hostetler, Soo C. 'Integrating Typography and Motion in Visual Communication.' Paper presented at the 2006 *iDMAa and IMS conference*, Miami, USA, April 6-8, 2006. Accessed July 13, 2011.

http://www.units.muohio.edu/codeconference/papers/papers/Soo%20Hostetler-2006%20iDMAa%20Full%20Paper.pdf

Icon Group International. *Brandies: Webster's Quotations, Facts and Phrases*. San Diego: ICON Group International, 2008.

Identchannel, 'BBC TWO Ident/Timeline 1964-2007.' *YouTube*. 2011. Accessed July 19, 2011. <u>http://www.youtube.com/watch?v=3H2BT01EobM</u>

Iguchi, Hiromasa, Abe, Koji, Misawa, Tadanobu, Kimura, Haruhiko, and Dido Yoshimasa. 'Recognition of Grouping Patterns in Trademarks Based on Gestalt Psychology.' *Electronics and Communication in Japan* 90, no. 10 (2009): 49-60. Accessed April 18, 2012, doi: 10.1002/ecj.10007

Ikonen, Teemu. 'Moving Text in Avant-Garde Poetry: Towards a Poetics of Textual Motion.' *Dichdung-digital.de* 4, no. 30 (2003). Accessed July 16, 2011. http://www.brown.edu/Research/dichtung-digital/2003/issue/4/ikonen/index.htm

Inceer, Melis. 'An Analysis of the Opening Credit Sequence in Film.' *CUREJ: College Undergraduate Research Electronic Journal* 65 (2007). Accessed July 16, 2011. http://repository.upenn.edu/curej/65

Ingold, Tim, Lines: A Brief History. London: Routledge, 2007.

Jacobs, Jason. 'Issues of judgement and value in television studies.' *International Journal of Culture Studies* 4, no. 4 (2001): 427-447. DOI: 10.1177/136787790100400404

Jammes, André. 'Académisme et Typographie: The Making of the Romain du Roi.' *Journal* of the Printing Historical Society 1. (1965): 71-95.

Jaspert, W. Pincus, W. Turner Berry, and A. F. Johnson, *Enclyclopaedia of Typefaces*, 4th edition. London: Cassell & Co., 1970.

Jewitt, Carey, and Teal Triggs. 'Screens and the Social Landscape.' *Visual Communication* 5, no. 2 (2006): 131-140. Accessed July 19, 2011. http://vcj.sagepub.com/content/5/2/131

Jobling, Paul, and David Crowley. *Graphic Design: Reproduction and Representation Since* 1800. Manchester: Manchester University Press, 1996.

Johansson, Gunnar, Sten Sture Bergstöm, and William Espstein, eds. *Perceiving Events and Objects*. Hove: Lawrence Erlbaum Associates, 1994.

Johansson, Gunnar. 'Perception of Motion and changing Form.' In *Perceiving Events and Objects*. Edited by Gunnar Johansson, Sten Sture Bergstöm, and William EspsteinWilliam. Hove: Lawrence Erlbaum Associates, 1994, 135-168. Originally published in *Scandinavian Journal of Psychology* 5 (1964): 181-208.

Johnston, David Jhave. 'New Media Jelly: Motile Typography in a Programmable Era.' Paper presented at *Beyond the Margins*, Cambridge, September 12, 2009.

Julesz, Bela. 'Figure and Ground Perception in Briefly Presented Isodipole textures.' In *Perceptual Organization*. Edited by Michael Kubovy, and James R. Pomerantz. New Jersey: Laurence Erlbaum, 1981, 27-54.

Julier, Guy and Viviana Narotzky. 'The Redundancy of Design History.' Paper presented to the conference 'Practically Speaking,' Wolverhampton University, December 1998. Published at *Design Observatory*, occasional papers, Leeds Metropolitan University. Accessed July 19, 2011.

http://www.lmu.ac.uk/as/artdesresearch/Projects/design_observatory/the_redundancy_of_de sign_history.htm

Jun, Soojin. 'The New Typography Today: Issues in Kinetic Typography from the Perspective of Jan Tschichold.' MA diss., Carnegie Mellon University, 2000. Accessed July 13, 2011.

http://www.contrib.andrew.cmu.edu/~soojin/documents/Jun_2000_new_typography_today.pdf

Jury, David. About Face: Reviving the rules of Typography. Hove: Rotovision, 2004.

Kac, Eduardo. 'Holographic Poetry: the three dimensions of the verbal sign.' In *Holopoetry: Essays, manifestos, critical and theoretical writings*. Lexington: New Media Editions, 1995, 1-2. Accessed July 19, 2011. <u>http://www.ekac.org/holopoetrybook.pdf</u>. Originally published in the catalogue of *VII National Salons of Fine arts*. Museum of Modern Art, 1984.

Kac, Eduardo. 'Holopoetry: from "Holo/Olho" (1983) to "When?" (1988).' In *Holopoetry: Essays, manifestos, critical and theoretical writings*. Lexington: New Media Editions, 1995, 29-36. Accessed July 19, 2011. <u>http://www.ekac.org/holopoetrybook.pdf</u>. Originally published in *Leonardo* 22, no. 3/4 (1989): 397-402.

Kac, Eduardo. 'Recent experiments in holopoetry and computer holopoetry.' In *Holopoetry: Essays, manifestos, critical and theoretical writings*. Lexington: New Media Editions, 1995, 40-51. Accessed July 19, 2011. <u>http://www.ekac.org/holopoetrybook.pdf</u>. Originally published in *Holography* (fourth international symposium). *Prog. SPIE* 1600 (1991): 229-236.

Kac, Eduardo, 'Holopoetry, Hypertext, Hyperpoetry', in *Holopoetry: Essays, manifestos, critical and theoretical writings*. Lexington: New Media Editions, 1995, 54-67. Accessed

July 19, 201. <u>http://www.ekac.org/holopoetrybook.pdf</u>. Originally published *Holographic Imaging and Materials*. *Proc. SPIE* 2043 (1993): 72-81.

Kac, Eduardo. 'The Story of an Idea.' In *Holopoetry: Essays, manifestos, critical and theoretical writings*. Lexington: New Media Editions, 1995, 130-136. Accessed July 19, 2011. <u>http://www.ekac.org/holopoetrybook.pdf</u>

Kac, Eduardo. 'Statement on holopoems.' In *Holopoetry: Essays, manifestos, critical and theoretical writings*. Lexington: New Media Editions, 1995, 86. Accessed July 19, 2011. <u>http://www.ekac.org/holopoetrybook.pdf</u>. Originally published in *Creative Holography Index* 2, issue 1. Bergisch Gladbach – Germany: Monard Press, 1994.

Kac, Eduardo. 'Key Concepts of Holopoetry.' *Electronic Book Review* (January 3, 1997). Accessed July 16, 2011.

http://www.electronicbookreview.com/thread/electropoetics/uncontrollable . Originally published in *Experimental-Visual-Concrete: Avant-Garde Poetry Since the 1960s*. Edited by David Jacksin, Eric Vos, and Johanna Drucker. Amsterdam—Atlanta: Rodopi, 1996, 247-257.

Kac, Eduardo. 'Complete List of Holopoems (1983-1993).' *Kac Web*. 1999. Accessed July 13, 2011. http://www.ekac.org/allholopoems.html

Kac, Eduardo. Hodibis Potax. Ivry-Sur-Seine: Édition Action Poétique, 2007.

Kafka, Franz. *Metamorphosis and Other Stories*. Translated by Michael Hoffman. London: Penguin Classics, 2007.

Karprinska, Aya Natalia. 'The Arrival of the beeBox: an Exploration of Spacial Text.' 2003. Accessed July 19, 2011. <u>http://technekai.com/box/beeBoxPaper.pdf</u>

Kent, James R., Wayne E. Carlson, and Richard E. Parent 'Shape Transformation for Polyhedral Objects.' *Computer Graphics* 26, no. 2 (1992): 47-54. Accessed July 19, 2011. <u>http://design.osu.edu/carlson/history/PDFs/shape-transform.pdf</u>

Keyes, Elizabeth. 'Typography, Color, and Information Structure.' *Technical Communication* 40, no. 4 (1993): 638-654. Accessed July19, 2011. http://rpi.campusconcourse.com/get_file?file_id=173

Kettley, Sarah. 'Framing the Ambiguous Wearable.' *Convivio Journal* 2 (November 2005). Accessed April 15, 2011.

http://www.sarahkettleydesign.co.uk/sarahkettley/friendship_Jewellery_01_sarah_kettley_fi les/Framing%20the%20Ambiguous%20Wearable.pdf

Kieras, David E. *New Methods in Reading Comprehension Research*. London: Laurence Erlbaum, 1984.

Kim, Jinsook. 'Motion Gestalt for Screen Design: Applied Theory of Grouping Principles for Visual Motion Integrity.' PhD diss., Illinois Institute of Technology, 2007.

King, D. Brett and Michael Wertheimer. *Max Wertheimer and Gestalt Theory*. 2nd edition. New Jersey: Transaction Publishers, 2005.

King, Emily. 'Taking Credit: Film title sequences, 1955-1965/ 7: Sex and Typography: From Russia With Love.' *Typotheque*. 1993. Accessed July 13, 2011. <u>http://www.typotheque.com/articles/taking_credit_film_title_sequences_1955-1965_7_sex_and_typography_from_russia_with_love_1963#</u> King, Emily. 'Robert Brownjohn: Design his Way.' *Designboom*. Not dated. Accessed July 19, 2011. <u>http://www.designboom.com/brownjohn.html</u> Originally published in *Robert Brownjohn: Sex and Typography*. New York: Princeton Architectural Press, 2005.

Kinross, Robin, 'The Rhetoric of Neutrality.' *Design Issues* 2, no. 2 (Autumn, 1985): 18-30. Accessed October 20, 2011, <u>http://links.jstor.org/pss/1511415</u>

Kirschenbaum, M. 'Lucid mapping: information landscaping and three-dimensional writing spaces.' *Leonardo* 32, no. 4 (1999): 261-8. Accessed July 19, 2011. http://www.jstor.org/stable/1576717

Klein, Amanda Ann. 'The Horse Doesn't Get a Credit: The Foregrounding of Generic Syntax in Deadwood's Opening Credits.' In *Reading Deadwood*. Edited by David Lavery. London: I.B. Taurus, 2006, 93-100.

Klein, Norman M. 'Animation and Animorphs: A Brief Disappearing Act.' In *Meta-Morphing: Visual Culture and the Culture of Quick Change*. Edited by Vivian Sobchack. Minneapolis: University of Minnesota Press, 2000, 21-39.

Köhler, Wolfgang, 'Physical Gestalten', ('Die physischen Gastalten in Ruhe und im stationären Zustand'), in Willis D. Ellis, *A Source Book of Gestalt Psychology*. London: Routledge & Kegan Paul Ltd., London, 1938, 17-54. Originally published in *Eine naturphilosophische Untersuchung*, *Erlangen*, 1920.

Köhler, Wolfgang. 'Some Gestalt Problems' ('Gestaltprobleme und Anfänge einer Gestalttheorie'). In Willis D. Ellis, *A Source Book of Gestalt Psychology*. London: Routledge & Kegan Paul Ltd., London, 1938, 55-70. Originally published in *Jahresbericht ü. D. ges. Physiol.* 3 (1922): 512-539.

Kolstrup, Soren. 'The Semiotics of Visual Communication.' *The Semiotics of Multimedia*. 1998. Accessed January 4, 2008. <u>http://semiotics.imv.au.dk/modul_3/sctn_1.htm</u>

Krasniewicz, Louise. 'Magical Transformations: Morphing and metamorphosis in two Cultures.' In *Meta-Morphing: Visual Culture and the Culture of Quick Change*. Edited by Vivian Sobchack. Minneapolis: University of Minnesota Press, 2000, 41-58.

Krissel, Matthew. 'Gilles Deleuze: the architecture of space and the fold.' *Philosophy of Materials and Structures*. 2004. Accessed July 19, 2011. http://digitalprocess.files.wordpress.com/2011/01/gillesdeleuze_fold.pdf

Kubovy, Michael, and James R. Pomerantz, eds. *Perceptual Organization*. New Jersey: Laurence Erlbaum Associates, 1981.

Kulvicki, John V. *On images: their structure and content*. Oxford: Oxford University Press, 2006.

Kumar, Ranjit. Research Methodology. 2nd edition. London: SAGE Publications, 2005.

Lahaussen, Christian. *The Rhetoric of Moral Protest: Public Campaigns, Celebrity Endorsement and Political Mobilization*. New York: de Gruyter, 1996.

Lamont, Peter, and Wiseman, Richard. *Magic in Theory: An Introduction to the Theoretical and Psychological Elements of Conjuring*. Hertfordshire: University of Hertfordshire Press, 2005.

Lanham, Richard A. 'What's Next for Text?' *Education, Communication and Information* 1 (2001). Accessed July 19, 2011. <u>http://iat.ubalt.edu/courses/old/pbds756.085_F01/zui-</u>readings/nextfortext.pdf

Lang, Robert J. Origami Design Secrets: Mathematical Methods for an Ancient Art. Massachusetts: A K Peters, 2003.

Lapacherie, Jean-Gérard, and Anna Lehmann. 'Typographic Characters: Tension between Text and Drawing.' *Yale French Studies* 48 (1994): 63-77. Accessed July 19, 2011. http://www.jstor.org/stable/2930180

Laudisio, John. 'Media Analysis: The Sopranos' Title Seuqnce.' A Collection of Essay, Papers, and Ideas, 2010. Accessed April 25, 2012, http://johnlaudisio.wordpress.com/20120/06/22/medi-analysis-the-sopranos/

Laursen, Bjorn. 'Visuals – Competencies of Expression: Static Pictures.' *The Semiotics of Multimedia*. 1997. Accessed July 19, 2011. http://rudar.ruc.dk/bitstream/1800/302/1/visuals_competencies.pdf

Laursen, Bjorn. 'Topological Pictures.' *The Semiotics of Multimedia*. 1997. Accessed January 4, 2008. <u>http://semiotics.imv.au.dk/modul_3/sctn_2a.htm</u>

Lazarus, Francis, and Anne Verrous. '3D Metamorphosis: A Survey.' *The Visual Computer* 4 (1998): 373-389. Accessed July 19, 2011. http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.48.2949

Lee, Benjamin. *Talking Heads: Language, Metalanguage, and the Semiotics of Subjectivity*. Durham, North Carolina: Duke University Press, 1997.

Lee, Johnny C., Jodi Forlizzi, and Scott E. Hudson, 'The Kinetic Typography Engine: An Extensible System for Animating Expressive Text.' *Proceedings of the 15th annual ACM Symposium on User Interface Software and Technology* (2002): 81-90. Accessed July 19, 2011. <u>http://johnnylee.net/kt/dist/files/Kinetic_Typography.pdf</u>

Lee, Seung Yoon. 'Finding New Aspects of Typeface / Research on Interactive Dimensional Typography.' 2007. Accessed June 2, 2010. <u>http://www.soong-me.com/paper.pdf</u>

Leung, Simon and Janet A. Kaplan 'Pseudo-Languages: A Conversation with Wenda Gu, Xu Bing, and Jonathan Hay.' *Art Journal* 58, no. 3 (1999): 86-99. Accessed July 19, 2011. http://www.jstor.org/stable/777863

Lewis, David. Reading Contemporary Picturebooks. London: Routledge, 2001.

Lewis, Jason E., and Bruno Nadeau. 'Writing with Complex Type.' *Proceedings of the Digital Arts and Culture 2009 Conference* (2009). Accessed July 13, 2011. http://bruno.wyldco.com/papers/LewisNadeau-ComplexType.pdf

Lewis, Jason E., and Alex Weyers. 'ActiveText: a Method for creating Dynamic and Interactive Texts.' *CHI Letters 1*, no. 1 (1999): 131-140. Accessed July 13, 2011. doi: 10.1145/320719.322594

Ligorano, Nora, and Marshall Reese 'Main Street Meltdown.' 2008. Accessed July 13, 2011. http://mainstreetmeltdown.com/

Longrée, Georges. 'The Rhetoric of a Picture Poem.' PLT 1, no. 1 (1976): 63 -84.

Lupton, Ellen, and Miller, Abbott J. *The ABCs of the Bauhaus and Design Theory*. London: Thames & Hudson, 1993.

Lupton, Ellen. 'Romain du Roi.' *Thinking with Type*. 2004) Accessed July 13, 2011, http://www.papress.com/thinkingwithtype/teachers/type_lecture/history_RomainDuRoi.htm

Lupton, Ellen. 'Fluid Mechanics: Typographic Design Now.' *Typotheque*. 2004. Accessed July 13, 2011.

http://www.typotheque.com/articles/fluid_machanics_typographic_design_now. Originally published in *Design Culture Now: National Design Triennial*. Edited by Albrecht, Donald, Holt, Steven and Lupton, Ellen. New York: Princeton Architectural Press and Cooper-Hewitt, National Design Museum, 2000.

Lynam, Edward. The Mapmakers Art. London: Batchworth Press, 1953.

Ma, Jun. 'Image Filling-In: A Gestalt Approach.' *ICONIP 2008* Part 1, LNCS 5506 (2009): 707-714. Accessed April 18, 2012, doi: 10.1007/978-3-642-02490-0_86

Maasik, Sonia and Jack Solomon. 'The Semiotic Method.' *Signs of Life in the USA*. 1994. Accessed July 19, 2011. <u>http://courses.wcupa.edu/fletcher/solomon.htm</u>

Marradi, Alberto. 'Classification, typology, taxonomy.' *Quality and Quantity* 24, no. 2 (1990): 129-157. Accessed August 8, 2011. doi: 10.1007/BF00209548

Masden, Michael. 'Letters Demand Things.' *Poems That Go* 12 (Winter 2004) Accessed July 19, 2011. http://www.poemsthatgo.com/gallery/winter2004/madsen/statement.html

Martin, Gary. 'Vorsprung Durch Technik.' *The Phrase Finder*. 2007. Accessed July 19, 2011. http://www.phrases.org.uk/meanings/399450.html

Massin. Letter and Image. London: Studio Vista, 1970.

McAlhone, Beryl, and David Stuart. A Smile in the Mind. London: Phaidon, 1996.

Meadows, Mark Stephen. Pause and Effect. Indianapolis: New Riders, 2003.

Meldrum, Darren. 'BBC 2 Idents: The Eighties.' *The Ident Zone*. Not dated. Accessed July 19, 2011. <u>http://www.meldrum.co.uk/mhp/identzone/bbc2/bbc2_part2.html</u>

Metz, Christian. *Film Language: a Semiotics of the Cinema*. Oxford: Oxford University Press, 1974.

Metzger, Wolfgang. *Perceived Movement*. Translated by Ulric Neisser. Frankfurt am Main: Kramer Verlag, 1958. Originally published as 'Von gesehener Bewegung.' *Gesetze des Sehens*. 2nd edition. Frankfurt am Main: Kramer Verlag, 1953.

Meylor, Marnie, Mike Zender, and Oscar Fernandez. 'Trying on Taxonomies: Research Developing Taxonomies for Analyzing and Developing Icon-based Visual Language Systems.' Paper presented at *International Association of Societies of Design Research Conference*, Seoul, 2009. Accessed July 19, 2011.

http://www.iasdr2009.org/ap/Papers/Orally%20Presented%20Papers/Design%20Method/Tr ying%20on%20Taxonomies%20-

 $\frac{\%20 Research \%20 Developing \%20 Taxonomies \%20 for \%20 Analyzing \%20 and \%20 Developing \%20 Icon-Based \%20 Visual \%20 Language \%20 Systems.pdf$

Miller, J. Abbott, and Ellen Lupton. 'A Natural History of Typography.' In *Looking Closer: Critical Writings on Design*. Edited by Michael Bierut. New York: Allworth Press, 1994, 19-25. Originally published in *Design Writing Research*. Edited by J. Abbott Miller, and Ellen Lupton. New Jersey: New York and the Jersey City Museum, 1992.

Miller, J. Abbott. Dimensional Typography. New York: Princeton Architectural Press, 1996.

Mills, Carol Bergfeld, and Linda J. Weldon. 'Reading Text from Computer screens.' *ACM Computing Surveys* 19, issue 4 (December 1987): 329-358. Accessed July 13, 2011, doi: 10.1145/45075.46162

Mills, Mike. 'Herbert Bayer's Universal Type in its Historical Contexts.' In *The ABCs of the Bauhaus and Design Theory*. Edited by Ellen Lupton, and J. Abbott Miller. London: Thames & Hudson, 1993, 38-45.

Mitchell, W. J. T. Iconology. Chicago: The University of Chicago Press, 1986.

Moholy-Nagy, László. 'Typophoto.' In *Graphic Design Theory*. Edited by Helen Armstrong. New York: Princeton Architectural Press, 2009, 33-34. Originally published in *Painting*, *Photography*, *Film*. Lund Humphries: London, 1969, 38-40.

Mollerup, Per. Marks of Excellence. London: Phaidon, 1998.

Mollerup, Per. Collapsibles: A Design Album of Space-Saving Objects. London: Thames & Hudson, 2001.

Moore, Patrick. 'Using Gestalt Theory to Teach Document Design and Graphics.' *Technical Communication Quarterly* 2, no. 4 (1993): 389-410. Accessed July 19, 2011. http://www.public.asu.edu/~kheenan/courses/372/f03/gestalttheory%20teaching.pdf

MPC. 'Channel 4 idents.' *The moving Picture Company*. Not dated. Accessed July 19, 2011. http://www.moving-

picture.com/index.php?option=com_content&view=article&id=341&Itemid=873&contentvi ew=single§ion=1&pagenum=1

MPC. 'Sky Rebrand.' *The Moving Picture Company*. 2008. Accessed July 19, 2011. http://www.moving-

picture.com/index.php?option=com_content&view=article&id=456&Itemid=873&contentvi ew=single§ion=1&pagenum=3

Moszkowicz, Julia. 'Gestalt and Graphic Design: An Exploration of the Humanistic and Therapeutic Effects of Visual Organisation.' *Design Issues* 27, no. 4 (Autumn 2011): 56-67.

Murray, David J. *Gestalt Psychology and The Cognitive Revolution*. Hertfordshire: Harvester Wheatsheaf, 1995.

Navas, Eduardo. Post on *Net Art Review*. 22 March 2003. Accessed July 19, 2011. http://netartreview.net/logs/2003_03_16_backlog.html

Navon, David. 'Forest Before the Trees: The Precedence of Global Figures in Visual Perception.' *Cognitive Psychology* 9 (1977): 353-383. Accessed April 21, 2012, http://cvcl.mit.edu/SUNSeminar/Navon_global_CP77.doc

Noland, Carrie. 'Digital Gestures.' (Not dated. Accessed July 19, 2011. http://www.uiowa.edu/~poroi/seminars/nmtt/resources/noland.doc

Noble, Ian and Russel Bestley. Visual Research, AVA Publishing, Switzerland, 2005.

Olmstead, Wendy. 'On the Margins of Otherness: Metamorphosis and Identity in Homer, Ovid, Sidney and Milton.' *New Literary History* 27, no. 2 (1996): 167-184. Accessed July 19, 2011. <u>http://www.jstor.org/stable/20057345</u>

Orban, Clara Elizabeth. *The Culture of Fragments: Words and Images in Futurism and Surrealism*. Amsterdam – Atlanta, Rodopi, 1997.

Ord, Colin. Magic Moving Images: Animated Optical Illusions (Tarquin Publications, 2007)

Orliaguet J-P, S. Kandel, and L-J. Boë. 'Visual perception of motor anticipation in cursive handwriting: Influence of spatial and movement information on the prediction of forthcoming letters.' *Perception* 26, no.7 (1997): 905 – 912.

Ovid, and David Raeburn. Metamorphoses. London: Penguin, 2004.

Ozler, Levent. 'Channel 4 Brings Its Logo to Life to Launch Big Art in 2008.' *Dexigner*. 14 October, 2007. Accessed July 19, 2011. <u>http://www.dexigner.com/news/12348</u>

Ozler, Levent. 'Imaginary Forces Designs Mega Titles in Transformers Teaser Trailer.' *Dexigner*. 2006. Accessed July 19, 2011. <u>http://www.dexigner.com/design_news/6922.html</u>

Palmer, Stephen, Edward Simone, and Paul Kube. 'Reference frame effects on shape perception in two versus three dimensions.' *Perception* 17, no. 2 (1988): 147-163.

Palmer, Stephen and Irvin Rock. 'Rethinking Perceptual Organisation: The role of uniform connectedness.' *Psychonomic Bulletin & Review* 1, (1994): 29-55. Accessed July 19, 2011. www.linguistics.pomona.edu/lcs11fall04/readings/PalmerRock94.pdf

Papazian, Hrant H. 'Unintended Letters.' *Typophile*. 2006. Accessed July 19, 2011. http://www.typophile.com/node/20111

Peirce, Charles Sanders. *Peirce on Signs: Writing on Semiotic*. Edited by James Hoopes. Chapel Hill: University of North Carolina Press, 1991.

Pelli, Denis G., Majaj, Najib J., Raizman, Noah, Christian, Christopher J., Kim, Edward, and Palomares, Melanie C. 'Grouping in Object Recognition: The role of a Gestalt law in letter identification.' *Cognitive Neurophsychology* 26, no.1 (2009): 36-49. Accessed April 18, 2012 doi: 10.1080/13546800802550134

Pinch, Trevor J. and Wiebe E. Bijker. 'The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other.' In *The Social Construction of Technological Systems: New directions in the sociology and history of technology*. Edited by Wiebe E. Bijker, Thomas P. Hughes, and Trevor Pinch. Mass: MIT Press, 1989, 17-22.

Pipes, Alan. Production for Graphic Designers. 4th edition. London: Laurence King, 2005.

Price, Derrick. 'Surveyors and Surveyed: Photography out and about.' In *Photography: A Critical Introduction*. 3rd edition. Edited by Liz Wells. London: Routledge, 2004.

Pomerantz, James R., and Michael Kubovy. 'Perceptual Organization: An Overview.' In *Perceptual Organization*. Edited by Michael Kubovy, and James R. Pomerantz, New Jersey: Lawrence Erlbaum Associates, 1981, 423-456.

Pomerantz, James R., and Kubovy, Michael, 'Theoretical approaches to perceptual organization: Simplicity and likelihood principles.' In *Handbook of perception and human performance, Vol. 2: Cognitive processes and performance.* Edited by Boff, Kenneth R., Kaufman, Lloyd, and Thomas, James P. Oxford: John Wiley & Sons, 1986, 1-46.

Poynor, Rick. *No More Rules: Graphic Design and Postmodernism*. London: Laurence King Publishing, 2003.

Promax UK. 'BBC One: 1974 – September 1981.' *The TV Room*. Not dated. Accessed July 19, 2011. http://thetvroom.com/bbc-uk/bbc-1-10-01.html

Promax UK. 'BBC One: September 1981- February 1985.' *The TV Room*. Not dated. Accessed July 19, 2011. http://thetvroom.com/bbc-uk/bbc-1-15-01.html

Rabinowitz, Tova. Exploring Typography. New York: Thompson Delmar Learning, 2003.

Rigby, Steve. 'An Unbearable Lightness?' *Visual Communication* 6, no. 3 (2007): 281-304. Accessed July 13, 2011. <u>http://vcj.sagepub.com/cgi/reprint/6/3/281.pdf</u>

Rock, Irvin. An Introduction to Perception. New York: Macmillan, 1975.

Rock, Irvin. Indirect Perception. Cambridge, MA: MIT Press, 1997.

Rock, Irvin and Stephen Palmer. 'The Legacy of Gestalt Psychology.' *Scientific American* (December 1990): 84-90. Accessed July 19, 2011. http://kobi.nat.uni-magdeburg.de/uploads/Courses/RockPalmer1990.pdf

Rogers, Sheena, ed. 'Gunnar Johansson: A Practical Theorist: An Interview with William Epstein.' In *Perceiving Events and Objects*. Edited by Gunnar Johansson, Sten Sture Bergtrom, and William Epstein. Hove: Lawrence Erlbaum Associates, 1994, 3-25.

Rollestone, Giles. 'Dynamic Typography and Emotion: Typographic Interpretations of Emotion (Prosody) Expressed in Oral Histories of Urban Life in Kings Cross, London.' Paper presented at *New Views 2*, London College of Communication, July 9-11, 2008.

Rose, Gillian. Visual Methodologies. 2nd edition. London: Sage, 2007.

Rosenberger, Tara, and Ronald L MacNiel. 'Prosodic Font: Translating Speech into Graphics' *CHI 99 Conference Proceedings* (1999). Accessed July 13, 2011. http://alumni.media.mit.edu/~tara/CHI1999.pdf

Rumsey, David. 'Cartouches or Decorative Map Titles.' *David Rumsey Map Collection*. 2010. Accessed July 17, 2011. <u>http://www.davidrumsey.com/blog/2010/2/25/cartouches-decorative-map-titles</u>

Russell L. R., and J. Cuevas. 'Animating the High School Student Reading Experience.' *Slideshare*. 2010. Accessed July 13, 2011.

 $\underline{http://www.slideshare.net/russellcuevasmodules/animating-the-high-school-student-reading-experience-a-diy-guide}$

Russell, L. Roxanne, and Joshua Cuevas. 'Designing Reading Modules for a High School Literature Classroom.' Paper presented at *Educational Design Research: Local Change & Global Impact*, Gerorgia, March 26 – 27, 2010. Accessed July 13, 2011. http://projects.coe.uga.edu/edrconference/EDR%20Proceedings/posters/Russell%20Poster.p df

Ryan, David. *Letter Perfect: The Art of Modernist Typography 1896-1953*. California: Pomegranate, 2001.

Sapnar, M. 'Reactive Media Meets e-poetry.' *Poems that Go* 12 (Winter 2003). Accessed July 19, 2011. <u>http://www.poemsthatgo.com/gallery/winter2003/print_article.htm</u>

Sassoon, Rosemary. Computers and Typography. Bristol: Intellect Books, 1993.

Saussure, Ferdinand de. *Course in General Linguistics*. Translated by Roy Harris. London: Duckworth, 1983.

Schneider, Daniel B. 'F.Y.I.' *The New York Times* (online) (June 18, 2000). Accessed July 19, 2011. http://www.nytimes.com/2000/06/18/nyregion/fyi-761672.html?n=Top/Reference/Times%20Topics/Subjects/C/Comedy%20and%20Humor

Schwering, Angela, Krumnack, Ulf, Kuhnberger, Kai-Uwe, Gust, Helmar. 'Using Gestalt Principles to Communicate Analogies of Geometric Figures.' *Proceedings of the 29th Annual Conference of the Cognitive Science Society* (2007): 1485-1490. Accessed April 18, 2012, http://csjarchive.cogsci.rpi.edu/proceedings/2007/docs/p1485.pdf Scott, Jeffrey. 'A Dialogue Between Sichuan and Beijing Opera (review).' *Asian Theatre Journal* 25, no. 2 (2008): 370-373. Accessed July 19, 2011. http://muse.jhu.edu/journals/asian_theatre_journal/v025/25.2.scott.html

Seaman, William Curtis. 'Recombinant Poetics: Emergent Meaning as Examined and Explored Within a Specific Generative Virtual Environment.' PhD diss., Centre for Advanced Inquiry in the Interactive Arts, 1999.

Search, Patricia. 'The Semiotics of the Digital Image.' Leonardo 28, no. 4 (1995): 311-317.

Sebeok, Thomas A. Signs: An Introduction to Semiotics. 2nd edition. Toronto: University of Toronto Press, 2001.

Seder, Rufus Butler. Gallop: A Scanimation Picture Book. New York: Workman, 2007.

Seiter, Ellen. 'Semiotics and Television.' In *Channels of Discourse: Television and Contemporary Criticism.* Edited by Robert Clyde Allen. London: Methuen, 1987, 17-41.

Shakespeare, William. 'A Midsummer Night's Dream.' *The Complete Works of William Shakespeare: Volume 1*. New York: Nelson Doubleday, 1974, 125-145.

Shaw, Gordon L., and Vilayanur S. Ramachandran. 'Interpolation during apparent motion' *Perception* 11, no. 4 (1982): 491 – 494.

Silbergeld, Jerome. 'Book from the Sky: A work by Xu Bing.' 2003. Accessed July 13, 2011.

http://etcweb.princeton.edu/asianart/assets/archivedmaterials/Xu%20Bing%20handout.pdf

Silla, Samba. 'Gestalt Rules the Corner of your Eye.' 2003. Accessed July 19, 2011. http://www.psych.nyu.edu/pelli/docs/SambaSillaIntel.pdf

Silva, Fabio Luiz Carneiro Mourilhe and Priscilla Farias. 'An Overview of Typeface Classifications.' ('Um panorama das classificações tipográficas') *Estudos em Design* 11, no. 2 (2005): 67-81. Accessed July 19, 2011.

 $http://www.arcomodular.com.br/portugues/uploads/File/SILVA_FARIAS-PanoramaClassif.pdf$

Simanek, Donald E. 'Adding Depth to Illusions.'2002. Accessed July 19, 2011. http://www.lhup.edu/~dsimanek/3d/illus2.htm

Slater, Don. 'Photography and Modern Vision: The Spectacle of Natural Magic.' In *Visual Culture*. Edited by Chris Jenks. London: Routledge, 1995, 218-237.

Small, David, Suguru Ishizaki, and Muriel Cooper. 'Typographic Space.' *CHI* '94 *Conference Companion* (1994): 437-438. Accessed July 19, 2011. http://doi.acm.org/10.1145/259963.260437

Small, David. 'Perception of Temporal Typography.' 1996. Accessed July 13, 2011. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.35.3157&rep=rep1&type=pdf

Small, David L. 'Rethinking the Book.' PhD diss., MIT, 1999. Accessed July 13, 2011. http://acg.media.edu/projects/thesis/DSThesis.pdf

Smith, Kevin B. 'Typologies, taxonomies, and the benefits of policy classification.' *Policy Studies Journal* 30, issue 3 (2002): 379-395. Accessed August 8, 2011. doi: 10.1111/j.1541-0072.2002.tb02153.x

Smith, Hazel. 'New Media Travels.' *The Writing Experiment*. Sydney: Allen & Unwin, 2005.

Sobchack, Vivan. 'At the Still Point of the Turning World: Meta-Morphing and Meta-Stasis.' In *Meta-Morphing: Visual Culture and the Culture of Quick Change*. Edited by Vivan Sobchack. Minneapolis: University of Minnesota Press, 2000, 131-158.

Solos, Nancy, and Wedell, Thomas. *Type, Image, Message: A graphic design layout workshop*. Gloucester, MA: Rockport, 2006.

Solt, Mary Ellen. 'Typography in the Visual Poem.' In *Concrete Poetry: A World View*. Indiana: University Press, 1968. Accessed July 19, 2011. <u>http://www.ubu.com/papers/solt/typo.html</u>

Solomon, Matthew, 'Twenty-Five Heads under One Hat: Quick Change in the 1890s.' In *Meta-Morphing: Visual Culture and the Culture of Quick Change*. Edited by Vivian Sobchack. Minneapolis: University of Minnesota Press, 2000, 3-20.

Solos, Nancy, and Thomas Wedell, *Type, Image, Message: A graphic design layout workshop*. Gloucester, MA: Rockport, 2006.

Sontag, Susan. On Photography. London: Penguin Classics, 2002.

Soo, Douglas. 'Implementation of a Temporal Typography System.' Masters diss., MIT, 1997. Accessed July 13, 2011. http://mit.dspace.org/bitstream/handle/1721.1/10274/37145274.pdf?sequence=1

Southall, Richard. 'Presentation Rules & Rules of Composition.' In *Computers and Typography*. Edited by Rosemary Sasson. Bristol: Intellect Books, 1993, 32-50.

Sparr, Gunnar. 'On the "reconstruction" of impossible objects.' *Proc. Swedish Society for Automated Image Analysis* (1992): 109-112. Accessed July 19, 2011. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.37.1967&rep=rep1&type=pdf

Specht, Heidi. 'Legibility: How Precedents Established in Print Impact On-Screen and Dynamic Typography.' MFA diss., West Virginia University, 2000. Accessed July 13, 2011. https://eidr.wvu.edu/eidr/documentdata.eIDR?documentid=1426

Spencer, Herbert, and Rick Poynor. *Pioneers of Modern Typography*. Cambridge, MA: MIT Press, 2004.

Spiekermann, Erik. 'The Stroke.' Review of *The* Stroke by Gerrit Noordzij. *Hyphen Press Journal*, (September 26, 2006). Accessed July 13, 2011. http://www.hyphenpress.co.uk/journal/2006/09/26/stroke_spiekermann_review

Stadler. Jane. 'Losing the Plot: Narrative Understanding and Ethical Identity in *Lost Highway*.' In *Film and Knowledge: essays on the integration of images and idea*. Edited by Kevin L. Jefferson Stoehr. North Carolina: McFarland & Company Ltd., 2002, 17-36.

Stöckl, Hartmut. 'Typography: body and dress of a text – a signing mode between language and image.' *Visual Communication* 9, no. 4 (November 2010): 204-214. Accessed July 19, 2011. doi: 10.1177/1470357205053403.

Stone, Brian R., Daniel P. Alenqnquer, and Jeffrey Borisch. 'Type, Motion and Emotion: A Visual Amplification of Meaning.' In *Design and Emotion*. Edited by Deana McDonagh, Paul Hekkert, Jeroen van Erp, and Diane Gyi. New York: Taylor & Francis, 2004, 190-194.

Straatsma, Femke. 'Typically Typographic: The effects of typographic layout on the process of product advertisements.' PhD diss., Virje Universiteit Amsterdam, 2009. Accessed July 19, 2011. http://dare.ubvu.vu.nl/bitstream/1871/13311/5/6725.pdf

Sudnick, Barbara and Frank Armstrong. 'Acting Like a Character.' *Voice: AIGA Journal of Design*, (July 27, 2005). Accessed July 19, 2011. <u>http://www.aiga.org/content.cfm/acting-like-a-character</u>

Surazhsky, Tatiana, Vitaly Surazhsky, Gill Barequet, and Ayellet Tal. 'Blending polygonal shapes with different topologies.' *Computers & Graphics* 25 (2001): 29-39. Accessed July 19, 2011. http://webee.technion.ac.il/~ayellet/Ps/stitcher.pdf

Tan, Shaun. The Arrival. Sydney: Hodder, 2007.

Tesauro, Emanuele. 'Beyond Anamorphosis.' In Felice Varini, Lars Müller, Lars, and Fabiola López-Durán, *Felice Varini: points of view*. Baden: Lars Müller Publishers, 2004.

TDC. "Alphabot" Interactive Design Work.' *TDC Annual Awards*. 2001. Accessed July 13, 2011. <u>http://www.tdctokyo.org/awards/award01/01interactive_e.html</u>

Ternus, Josef. 'The Problem of Phenomenal Identity.' In Willis D. Ellis, *A Source Book of Gestalt Psychology*, London: Routledge & Kegan Paul Ltd., 1938, 149-160. Originally published as 'Experimentelle Untersuchung über phänomenale Identität,' *Psychol. Forsch.* 7 (1926), 81-136.

Tognazzini, Bruce. 'Principles, Techniques, and Ethics of Stage Magic and Their Application to Human Interface Design.' *Proceedings of InterCHI '93* (1993): 355-362. Accessed June 20, 2011. doi: 10.1145/169059.169284

Triggs, Teal. *The Typographic Experiment: Radical Innovation in Contemporary Type Design*. London: Thames & Hudson, 2003.

Truckenbrod, Joan. 'On Kac's computer holopoems.' In *Holopoetry: Essays, manifestos, critical and theoretical writings*. Lexington: new Media Editions, 1995, 37. Accessed July 19, 2011. <u>http://www.ekac.org/holopoetrybook.pdf</u>. Originally published in the catalogue of the exhibition *Holopoetry 1983-1990*. New York: Museum of Holography, April-June 1990, 5.

Trummel, Paul. 'Rhetoric + Typography: Creative Interaction in Modern Communication.' *IEEE Transaction on Professional Communication* 31, no. 3 (1988): 124-129. Accessed July 19, 2011. <u>http://contracabal.us/NewFiles/209-05-00-88-0900.pdf</u>

Tschichold, Jan. *The New Typography*. Translated by Ruari McLean. LA: University of California Press, 1998. Originally published as *Die Neue Typographie: Ein Handbuch für Zeitgemäss Schaffende*, Berlin: Brinkmann & Bose, 1928.

Tschichold, Jan. *The Form of the Book: Essays on the Morality of Good Design*. Vancouver: Harley & Marks, 1997.

Tsur, Reuven. 'Picture Poetry, Mannerism, and Sign Relationships.' *Poetics Today* 21, no. 4 (Winter 2000): 751-781. Accessed July 19, 2011. http://muse.jhu.edu/journals/poetics_today/v021/21.4tsur.html

Tubaro, Antonio and Ivana. Lettering. London: Thames and Husdon, 1994.

Turk, Greg, and James F. O'Brien. 'Shape Transforming Using Variational Implicit Functions.' *Computer Graphics Proceedings, ACM SIGGRAPH 99* (1999): 335-342. Accessed July 19, 2011. http://graphics.cs.berkeley.edu/papers/Turk-STU-1999-08/Turk-STU-1999-08.pdf

Uhl, Megan. 'April Greiman: A Pioneer Made in Space.' Not dated. Accessed July 19, 2011. http://www.briarcliff.edu/students/uhlm/images/graphicproduction1/aprilgreiman.pdf Van Leeuwen, Theo. 'Typographic Meaning.' Visual Communication 4, no. 2 (2005): 137-143. Accessed July 13, 2011. doi: 10.117/1470357205053749

van Wagner, Kendra. 'Gestalt Laws of Perceptual Organisation: The Law of Pragnanz.' *About: Psychology*. 2006. Accessed July 19, 2011. http://psychology.about.com/od/sensationandperception/ss/Gestaltlaws 3.htm

Varga, A. Kibedi. 'Criteria for Describing Word and Image Relations.' *Poetics Today* 10, no. 1, (1989): 31-53. Accessed July 19, 2011. http://www.jstor.org/stable/1772554

Vickers, Graham. 'On the Pretext.' Creative Review, 16 (February 1996): 41-42.

Vox, Maximilien. *Nouvelle Classification des Characters*. Paris: Ecole Estienne, 1954. Accessed June 22, 2010.

http://yharel.free.fr/data/informatique/logiciels/bureau/traintement_de_texte/typographie/typ ographie_caracteres.htm

Vyzoviti, Sophia. Supersurfaces. Amsterdam: BIS Publishers, 2006.

Warde, Beatrice. 'The Crystal Goblet or Printing Should Be Invisible.' An address before the British Typographers' Guild at St. Bride's Institute, London, 1930. Accessed July 13, 2011. <u>http://glia.ca/conu/digitalPoetics/prehistoric-blog/wp-content/uploads/ward.pdf</u>. Reproduced from *The Crystal Goblet: Sixteen Essays on Typography*. Cleveland, 1956, 11-17.

Warde, Beatrice. 'Type faces, Old and New.' *The Library* XVI, no. 2 (1935): 121-45. Accessed July 19, 2011. doi: 10.1093/library/s4-XVI.2.121

Wasco, Al. 'Gestalt Principles.' *Introduction to Visual Communication*. 2004. Accessed July 19, 2011. <u>http://www.awdsgn.com/classes/spr04/introvc/wk4/introvc-wk4.html</u>

Weight, Jenny. 'I, Apparatus: You: A Technosocial Introduction to creative Practice.' *Convergence: The International Journal of Research into New Media Technologies* 12, no. 4 (2006): 413-446. Accessed July 19, 2011. http://www.deepdyve.com/lp/sage/i-apparatus-you-a-technosocial-introduction-to-creative-practice-g4uAInZMFK

Wells, Paul. Understanding Animation. London: Routledge, 1998.

Wertheimer, Max. 'Special Problems, first Group: Perception, A. Perception and Organisation, Section 5: Laws of Organization in Perceptual Forms.' In Willis D. Ellis, *A Source Book of Gestalt Psychology*. London: Routledge & Kegan Paul Ltd. 1938, 71-88. Originally published as 'Untersuchungen zur Lehre von der Gestalt, II', *Psychol. Forsch.* 4 (1923), 301-530.

Wertheimer, Max. 'General Problems, Section 1: Gestalt Theory.' In Willis D. Ellis, *A* Source Book of Gestalt Psychology. London: Routledge & Kegan Paul Ltd., 1938, 2-11. Originally 'Ügestattheorie.' An address before the Kant Society, Berlin, 17th December 1924.

Wertheimer, Max. 'General Problems, Section 2: The General Theoretical situation.' In Willis D. Ellis, *A Source Book of Gestalt Psychology*. London: Routledge & Kegan Paul Ltd., 1938, 12-16. Originally published as 'Untersungen zur Lehre von der Gestalt, I.' *Psychol. Forsch.* 1, no. 192 (1922), 47-58.

WGBH Educational Foundation. 'Xu Bing's *A Book from the Sky.' Culture Shock*. 1999. Accessed July 13, 2011.

http://www.pbs.org/wgbh/cultureshock/flashpoints/visualarts/xubing.html

White, Alex W. *Thinking in Type: The Practical Philosophy of Typography*. New York: Allworth Communications, 2005.

Whitman, I. V. 'Holopoetry: The New Frontier of Language.' In *Holopoetry: Essays, manifestos, critical and theoretical writings*. Lexington: new Media Editions, 1995, 87-96. Accessed July 19, 2011. <u>http://www.ekac.org/holopoetrybook.pdf</u>. Originally published in 'Display Holography (Fifth International Symposium).' *Proc. SPIE* 2333 (1995), 138-145.

Whittaker, Helène. 'Social and Symbolic Aspects of Minoan Writing.' *European Journal of Archaeology* 8, no. 1 (2005): 29-41. Accessed July 13, 2011. doi: 0.1177/1461957105058207

Whorf, Benjamin Lee. 'The Relation of Habitual Thought and Behavior to Language.' In *Language, Thought and Reality*. Edited by John Carroll. Cambridge, MA: MIT Press, 1956.

Wijnholds, Aernout de Beaufort. 'Typeface Classification.' *Using Type: The Typographer's Craftsmanship and the Ergonomist's Research*. 2006. Accessed July 19, 2011. http://www.plainlanguagenetwork.org/type/utbo130.htm

Wilbur, Brett M. 'Finding Self in the Nuts and Bolts – Hidden Quality in the Service of Organisation.' Not dated. Accessed July 13, 2011.

http://www.metaphorms.com/uploads/Microsoft_Word_-_Nuts_and_Bolts_article.pdf

Willen, Bruce, and Nolen Strals. *Lettering & Type*. New York: Princeton Architectural Press, 2009.

Williams, Andrew. '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.' MSc diss., New Jersey Institute of Technology, 2006. Accessed July 19, 2011. http://www.andrewzwilliams.com/pdf/writ_603.pdf

Williams, Paul. 'A Midsummer Nights Dream.' *Authors Den*. 2004. Accessed July 19, 2011. http://www.authorsden.com/categories/article_top.asp?catid=54&id=16484

Williamson, Donald. 'Caterpillars evolved from onychophorans by hybridogenesis.' *Proceedings of The National Academy of Sciences of The United States of America* 106, no. 47 (2009): 19901-19905. Accessed July 19, 2011. doi: 10.1073/pnas.0908357106

Willows, Pete. 'Gestalt Psychology, Semiotics and the Modern Arab Novel.' *AS/SA* 15 (2005):14-24. Accessed July 19, 2011. http://www.chass.utoronto.ca/french/as-sa/ASSA-No15/article2en.html

Wolf, Mark J. P. 'A Brief History of Morphing.' In *Meta-Morphing: Visual Culture and the Culture of Quick Change*. Edited by Vivian Sobchack. Minneapolis: University of Minnesota Press, 2000, 83-101.

Wong, Yin Yin. 'Temporal Typography: characterization of time-varying typographic form.' MS thesis, MIT, 1995. Accessed July 19, 2011. http://hdl.handle.net/1721.1/29102

Wong, Yin Yin. 'Temporal typography: A Proposal to Enrich Written Expression.' *CHI 96 Conference Proceedings* (1996). Accessed July 13, 2011. http://acm.org/sigchi/chi96/proceedings/videos/Wong/yyw_txt.htm

Woods, Tim. Beginning Postmodernism. Manchester: Manchester University Press, 1999.

Woolman, Matt, and Jeff Bellantoni. *Type in Motion: Innovations in Digital Graphics*. London: Thames & Hudson, 1999.

Woolman, Matt and Jeff Bellantoni. Moving Type. Hove: Rotovision, 2000.

Woolman, Matt. Type in Motion 2. London: Thames & Hudson, 2005.

Worth, Sol. *Studying Visual Communication*. Philadelphia: University of Pennsylvania Press, 1981.

Worthington, Michael. 'The New Seduction: Movable Type.' AIGA Journal of Graphic Design 16, no. 3 (1998): 9-10.

Yu, Shiao-Ling. *Chinese Drama after the Cultural Revolution: 1979-1989*. New York: Edwin Mellen Press, 1996.

Zemanovicova, Olga, and Martin Sperka. 'Typography in Motion.' *Proceedings of the 6th International Symposium of Interactive Media Design* (2009): 109-114. Accessed July 13, 2011. <u>http://newmedia.yeditepe.edu.tr/pdfs/isimd_08/martin_sperka.pdf</u>.

List of Artefacts

Unknown animator. *Psychedelic Alphabet. Sesame Street* episode 3702, aired 1998. Video at 'Sesame Street – Psychedelic alphabet.' *YouTube*. 2006. Accessed July 18, 2011. http://youtube.com/watch?v=rzF4FJIpxJg

ActivMedia, *Active*, 2009. Video at 'Fluid Explosion.' *YouTube*. 2009. Accessed July 18, 2011. <u>http://www.youtube.com/watch?v=zvf5QUIWw3Y</u>

Albers, Joseph. Stencil. 1925. Reproduced in Ryan, David. Letter Perfect: The Art of Modernist Typography 1896-1953. California: Pomegranate, 2001, 103.

Alfieri, Pablo. *Playful*. 2007-8. Image at Alfieri, Pablo. 'Playful.' *Behance*. 2008. Accessed July 18, 2011. <u>http://www.behance.net/Gallery/Playful/105021</u>

Artillery Studio. *Pool*. FX ident. 2009. Video at Artillery Studio. 'FX Ident Pool' *YouTube*. 2009. Accessed July 18, 2011. <u>http://www.youtube.com/watch?=e1yYv7O2D5g</u>

Basle School of Design. *Letterforms and Film*. Stills in Bellantoni, Jeff and Woolman, Matt. *Type in Motion*. London: Thames & Hudson, 1999, 133.

Bass, Saul and Elaine. *Alcoa Premiere*. Title sequence. 1961. Stills in Woolman, Matt, *Type in Motion 2*. London: Thames & Hudson, 2005, 164-5.

BB/Saunders. *Free*. Five ident. 2006. Stills at 'Channel 5 Idents: January 2006-October 2008.' *This is Five*. Not dated. Accessed July 18, 2011. http://www.thisisfive.co.uk/ident2006a.shtml

BB/Saunders. Love. Five ident. 2006. Stills at 'Channel 5 Idents: January 2006-October 2008.' This is Five. Not dated. Accessed July 26, 2011. http://www.thisisfive.co.uk/ident2006a.shtml.

BB/Saunders. *Fear*. Five ident. 2006. Video at 'Five Fear Ident.' *YouTube*. 2007. Accessed July 18, 2011. <u>http://www.youtube.com/watch?v=s05nmKGT7yk</u>

Bing, Xu. A Book from Sky. 1988. Images at 'Fei Dawei and '85 New Wave.' CriEnglish.com, Not dated. Accessed July 18, 2011. http://english.cri.cn/4406/2007/12/10/1141@303162.htm

Blink. *Vorsprung Durch Technik*. Television advertisement for the Audi A6. 2005. Video at 'Audi A6 - Vorsprung Durch Technik.' *Ephinx*. 2006. Accessed July 19, 2011. http://www.ephinx.com/tvadverts/17/audi-a6-vorsprung-durch-technik-advert.html

Bollard/Umeric. *MTV Organic*. MTV ident. 2010. Video at Umeric. 'MTV Organic.' *Behance*. 2010. Accessed July 18, 2011. <u>http://www.behance.net/Gallery/MTV-ORGANIC/431459</u>

Broderick, David. *Figure Ground Typography: Q and G.* 2008. At Broderick, David, 'It's Getting Heavy in Here.' 2008. Accessed July 18, 2011. http://davidbroderickcomedes.blogspot.com/2008/09/figure-ground-typography.html

Brownjohn, Robert. *From Russia with Love*. Title sequence.1963. Stills at 'From Russia With Love 1963.' *Daily Motion*. 2008. Accessed July 18, 2011. http://www.dailymotion.com/video/x4830e from-russia-with-love-1963 tech

Chermayeff, Ivan. 9. 1972. Images at Sherwood, Will. 'Ivan Chermayeff.' Success Secrets of the Graphic Design Superstars. 2008. Accessed July 18, 2011.

http://willsherwood.com/?p=42 and unnamed author. 'Ivan Chermayeff's "Red 9" sculpture.' *Inmagine*, Not dated. Accessed July 10, 2009. http://www.inmagine.com/dp008/dp1815226-photo

Cho, Peter. *Letterscapes*. 2005. Flash animation at Cho, Peter. 'Letterscapes.' *TypoTopo*. 2005. Accessed July 18, 2011.<u>http://www.typotopo.com/letterscapes/</u>

Cooper, Kyle. *True Lies*. Title sequence. 1994. Stills in Bellantoni, Jeff, and Woolman, Matt. *Type in Motion*. London: Thames & Hudson, 1999, 42.

Dahlberg, Wayne. *Transformers*. 2010. Video at 'Transformers.' *Vimeo*. 2010. Accessed July 17, 2011. <u>http://vimeo.com/9906128</u>

de Aloisio, Luigi. *Mecho 3*. Not dated. Stills in Woolman, Matt. *Type in Motion 2*. London: Thames & Hudson, 2005, 166.

Deberny & Pignot. *Lettres Ornée*. 1820. In Jaspert, W. Pincus, Berry, W. Turner, and Johnson, A. F. *Enclyclopaedia of Typefaces*, 4th Ed. London: Cassell & Co., 1970, 136.

de Groot, Lucas. *Move Me MM*, 1994. Stills at 'Multiple Master Fonts.' *PrePressure*. 2009. Accessed July 13, 2011. <u>http://www.prepressure.com/fonts/basics/multiple_master</u>

Dell'Ana, Marco. *Plasm Transformers*. 2010. Video at 'Plasm Transformers.' *Vimeo*. 2010. Accessed July 17, 2011. <u>http://vimeo.com/11021391</u>

de Vaugondy, Didier and Gilles Robert. *Atlas Univsersel*. 1757. Rumsey, David. 'Cartouches or Decorative Map Titles.' *David Rumsey Map Collection*. 2010. Accessed July 14, 2011. http://www.davidrumsey.com/blog/2010/2/25/cartouches-decorative-map-titles

Devilfish and The Hive. *Midges*. Five ident. 2004. Video at 'Channel 5 idents: November 2004 – January 2006.' *This is Five*. Not dated. Accessed July 18, 2011. http://www.thisisfive.co.uk/ident2005a.shtml

Devyanin, Alexey. *Field*. 2009. Video at Devyanin, Alexey, 'Field,' *Behance*. 2009. Accessed July 18, 2011. <u>http://www.behance.net/gallery/Field/353160</u>

do van Minh, David. *Les Voyages en Train Grand Corps Malade*. 2006. Video at 'Les Voyages en Train Grand Corpes Malade.' *YouTube*. 2006. Accessed May 21, 2007. http://www.youtube.com/watch?v=FzR4J2kHenU

Egan, Joseph, and Hunter Thomson. *Anamorphic Typography*. 2010. Video at 'joseph egan + hunter thomson: anamorphic typography.' *Design Boom*. 2010. Accessed July 18, 2011. http://www.designboom.com/weblog/cat/8/view/11093/joseph-egan-hunter-thomson-anamorphic-typography.html

Ellis, Colleen. *ABCing*. 2010. Flash animation at Ellis, Colleen. 'ABCing.' 2010. Accessed July 18, 2011. <u>http://www.abseeing.com</u>

Eylar, Alex. Shadow Puppet 2010. Images at Eylar, Alex, 'Shadow/Puppet.' *Flickr*. 2010. Accessed July 18, 2011. http://www.flickr.com/photos/hoyvinmayvin/4268547280/

Fallon, *Play-Doh*, 2007. Video at 'Sony Bravia: Play-Doh.' *Daily Motion*. 2007. Accesed July 18, 2011. <u>http://www.dailymotion.com/video/x34n9o_sony-bravia-playdoh_tech</u>

Figgins, Vincent. *Egyptian*. 1817. In Tubaro, Antonio and Ivana. *Lettering*. London: Thames and Husdon, 1994, 30.

Freestate. *Big 4*. 2007. Images at 'This art installation brought to you by Channel 4.' *Idents.tv*. 2008. Accessed April 15, 2011. <u>http://idents.tv/blog/2008/01/21/this-art-installation-brought-to-you-by-channel-4/#more-646</u>

Gorik, Jess. *The Letter 'R.'* 2009. Video at Gorrik, Jess. 'The Letter 'R.' *Vimeo*. 2009. Accessed july 18, 2011. <u>http://vimeo.com/5428633</u>

Gracie Productions. *Simpson's ident*. 2009. Video at 'The Simpson's very own Channel 4 ident.' *Idents.tv*. Not dated. Accessed July 17, 2011. http://idents.tv/blog/2007/07/14/the-simpsons-very-own-channel-4-ident/

Grandjean, Philippe. 'constructions les lettres.' Made in preparation of the typeface *Romain du Roi*, c. 1692. Engravings by Simonneau. 1917. Reproduced in Andre, Jacques and Girou, Denis. 'Father Truchet, the typographic point, the Romain du roi, and tilings.' *TUGboat* 20, no. 1 (1999), 11. Accessed July 13, 2011. <u>http://www.tug.org/TUGboat/Articles/tb20-1/tb62andr.pdf</u>

Griffiths, Terry. *The Ribbon* (aka *The River*). LWT ident/ 1971. Video at Jeffery, Dave. *Andrew Wiseman's Television Room*. 2002. Accessed July 13, 2011. http://625.uk.com/tv_logos/flash/lw_72.asp

Hillner, Matthias. *Cubico St.* 2003. Flash animation at Hillner, Matthias. 'Cubico St.' *Virtual Typography*. 2005. Accessed July 18, 2011. <u>http://www.virtualtypography.com</u>

Imaginary Forces. *Transformers*. Teaser trailer. 2006. Video at 'Imaginary Forces Designs Mega Titles in Transformers Teaser Trailer.' *Dexigner*. 2006. Accessed July 17, 2011. http://www.dexigner.com/design_news/6922.html

Ivanof, Maxim. *TV7 ident*. 2007. Video at Ivanof, Maxim. 'TV7 Channel Idents and Bumpers.' *Behance*. 2007. Accessed July 18, 2011. http://www.behance.net/Gallery/TV7-Channel-Idents-and-Bumpers/112723

Johansson,Bjorn. *Typeface Anatomy*. 2008. At Johansson, Bjorn. 'Typeface Anatomy.' *Behance*. 2008. Accessed July 18, 2011. <u>http://www.behance.net/gallery/Typeface-Anatomy/54940</u>

Johnston, David Jhave. *Human-Mind-Machine*. 2008. Video at Johnston, David Jhave. 'Sound Seeker by David Jhave Johnston.' *Vispo*. 2008. Accessed July 18, 2011. http://vispo.com/jhave/

Kac, Eduardo. *Multiple*. Achromatic computer holographic stereogram, 20x25 cm. 1989. Susan Cowles Collection, New York. Stills in Kac, Eduardo. *Hodibis Potax*. Ivry-Sur-Seine: Édition Action Poétique, 2007, 38.

Kac, Eduardo. *ADHUC*. Multicolour computer holographic stereogram, 30x40cm. 1991. Johnathan Ross collection, London. Stills at Kac, Eduardo. 'Complete List of Holopoems.' *Kac Web*. 1999. Accessed July 13, 2011. <u>http://www.ekac.org/allholopoems.html</u>

Kac, Eduardo. *Havoc*, 30x120cm (tryptic), multicolour computer holographic stereogram, 1992, private collection of Eduardo Kac. Stills at Kac, Eduardo, 'Complete List of Holopoems (1983-1993),' *Kac Web*. 1999. Accessed July 13, 2011. http://www.ekac.org/allholopoems.html

Kac, Eduardo. *Astray in Deimos*. Multicolour computer holographic stereogram, 30x40cm. 1992. Collection Museum of Holography, Chicago. Stills in Kac, Eduardo. *Hodibis Potax*. Ivry-Sur-Seine: Édition Action Poétique, 2007, 57. Kac, Eduardo. *Souvenir D'Andromeda*. Digital transmission hologram, 30x40cm. 1990. Collection Acqaviva-Faustino, Paris. Stills courtesy Julia Friedman and Eduardo Kac.

Kultnation. *OFFF Barcelona Partner Titles*. 2011. Video at 'Offf Barcelona Partner Titles.' *Vimeo*. 2011. Accessed June 26, 2011. <u>http://vimeo.com/24569413</u>

Lambie Nairn, Martin. *Round and Back*. Channel 4 ident. 1982. Video at 'Channel 4 Ident.' *YouTube*. 2006. Accessed July 18, 2011. <u>http://www.youtube.com/watch?v=3PK69O1KJHg</u>

Lambie Nairn, Martin. *Implosion*. Channel 4 ident. 1992. Video at 'Channel 4 Ident - Implosion' *YouTube*. 2010. Accessed July 18, 2011. http://www.youtube.com/watch?v=L5n469g_zzo

Lambie Nairn, Martin. *Explosion*. Channel 4 ident. 1992. Video at 'Channel 4 Ident - Explosion' *YouTube*. 2010. Accessed July 18, 2011. http://www.youtube.com/watch?v=S24tailb1jM

Lambie Nairn, Martin. *Interlock*. Channel 4 ident. 1986. Video at 'Channel 4 ident 1986.' *YouTube*. 2008. Accessed July 17, 2011. <u>http://www.youtube.com/watch?v=C7sjJFSU0cQ</u>

Labrooy, Chris. Bauhaus. 2009. Image courtesy Chris Labrooy.

Lemen, Brian. *Experimental Typography*. Reproduced in Woolman, Matt. *Type in Motion 2*. London: Thames & Hudson, 2005, 158.

Lewis, Jason E. *It's Alive*. 2001. Stills at Lewis, Jason E., and Nadeau, Bruno. 'Post PostScript Please.' *Digital Creativity* 21, no. 1 (2001), 21. Accessed July 18, 2011. http://dx.doi.org/10.1080/14626261003654632

Lieberman, Zach. *Intersection*. 2001. Flash animation at Lieberman, Zach. 'Intersection: A Study in typographic Space.' 2001. Accessed July 27, 2009. http://www.thesystemis.com/intersection/index.html#

Ligorano, Nora, and Marshall Reese. *Main Street Meltdown*. 2008. Images at Gunter, C. 'Main Street Meltdown.' 2008. Accessed July 18, 2011. http://mainstreetmeltdown.com/

Lichtenwalter, David. *Doubt*. 2010. At Lichtenwalter, David. 'Doubt.' *Behance*. 2010. Accessed July 18, 2011. <u>http://www.behance.net/Gallery/Doubt/382267</u>

Markevičius, Thomas. *Liquefaction*. 2010. Video at Markevičius, Thomas. 'Liquefaction.' *Vimeo*. 2010. Accessed July 18, 2011. <u>http://www.vimeo.com/11308415</u>

Mason, Claire. *A Cautionary Tale*. 2006. Video at Mason, Claire. 'A Cautionary Tale – Typography.' *YouTube*. 2006. Accessed July 18, 2011. http://www.youtube.com/watch?v=NjmKkiMGdnk

Mati, Massimiliano. *Realflow Text Morph*. 2010. Video at 'Realflow text morph.' *YouTube*. 2010. Accessed July 18, 2011. <u>http://www.youtube.com/watch?v=7n3B1O5F1X8</u>

Mitchell, Charlie. *Helvetica*. 2010. Images at Mitchell, Charlie. 'Anamorphic Helvetica.' *Behance*. 2009. Accessed July 18, 2011. http://www.behance.net/gallery/Anamorphoic-Helvetica/330746

MPC. *Abbey*. 2011. Video at 'Channel 4 Ident – Abbey.' *TV Ark*. 2011. Accesed April 18, 2011. ttp://www.tv-

ark.org.uk/mivana/mediaplayer.php?id=41886355a79876c761ed176d549f0b80&media=cha nnel4_id_abbey_2011&type=mp4

MPC. *Alien*. Channel 4 ident. 2005. Video at 'Four to the Floor: The Ever Growing Complete-ish Collection of channel 4 Idents.' *Idents.tv*. 2006. Accessed July 17, 2011. http://idents.tv/blog/category/uk-channel-4/page/4/

MPC. *Boxes*. Sky 1, 2 and 3 idents. 2008. Video at 'Sky 1,2 & 3 Ident "Boxes". Dir. John Yeo.' *YouTube*. 2009. Accessed June 25, 2011. http://www.youtube.com/watch?v=BmUHYOIQtyo

MPC. *Christmas*. Sky 1, 2 and 3 idents. 2008. Video at 'Sky 1, 2 & 3 Ident – "Christmas" Dir. John Yeo.' *YouTube*. 2009. Accessed July 17, 2011. http://www.youtube.com/watch?v=7HoTNEOq5II

MPC. *Corn Field*. 2004. Video at 'Four to the Floor: The Ever Growing Complete-ish Collection of channel 4 Idents.' *Idents.tv*. 2006. Accessed July 17, 2011. http://idents.tv/blog/category/uk-channel-4/page/4/

MPC. *Lost*. Sky 1, 2 and 3 idents. 2008. Video at 'Sky 1, 2 & 3 Ident "Lost". Dir John Yeo.' *YouTube*. 2009. Accessed July 18, 2011. http://www.youtube.com/watch?v=EmlWR-SWZS4

MPC. *Pylons*. Channel 4 ident. 2005. Video at 'Four to the Floor: The Ever Growing Complete-ish Collection of channel 4 Idents.' *Idents.tv*. 2006. Accessed July 17, 2011. http://idents.tv/blog/category/uk-channel-4/page/4/

MPC. *Road Signs*. 2004. Video at 'Four to the Floor: the every growing complete-ish collection of Channel 4 idents.' *Idents.tv*. 2006. Accessed July 17, 2011. http://idents.tv/blog/category/uk-channel-4/page/4/

MPC, *Tokyo*. Channel 4 ident. 2006. Stills at MPC. 'Channel 4 Idents.' *The Moving Picture Company*. 2006. Accessed July 17, 2011. http://www.moving-picture.com/index.php?option=com_content&view=article&id=341&catid=38&Itemid=926

MPC, *Twister*, Sky 1, 2 and 3 idents, 2008. Video at 'Sky 1,2 & 3 Ident "Twister". Dir. John Yeo & Simon Ramsay.' *YouTube*. 2009. Accessed June 25, 2011. http://www.youtube.com/watch?v=_b-tyA2F04o

MPC. *Whack*. Sky 1, 2 and 3 idents. 2008. Video at 'Sky 1, 2 & 3 Ident "Whack". Dir John Yeo.' *YouTube*. 2009. Accessed July 18, 2011. http://www.youtube.com/watch?v=EvlikFccdFs

MPC. 24. Sky 1 ident. 2010. Video at '24.' *YouTube*. 2010. Accessed 17 July, 2011. http://www.youtube.com/watch?v=GTnEBOyrZvo&NR=1

Nadeau, Bruno. *Hydre*. 2009. Animation at Nadeau, Bruno. 'Type Specimen Video: Hydra Regular.' *Complex Type*. 2009. Accessed July 18, 2011. http://bruno.wyldco.com/complextype/hydre/

Orgdot. *The ABC Game*. 2002. Interactive Flash game at 'ABC.' *Orgdot*. Not dated. Accessed July 18, 2011. http://www.orgdot.com/ABC/

Overly, Bart. *Ligature*. 1995. Images in Miller, J. Abbott. *Dimensional Typography*. New York: Princeton Architectural Press, 1996, 55.

Oz Read and Spell, *Letters of the ABC*. Not dated. Video at 'Letters.' *Oz Read and Spell*. 2010. Accessed June 16, 2011. <u>http://www.ozreadandspell.com.au/home.htm</u>

Pacetti, Matthew and Christopher (p2). *Untitled Experimental Video*. 1998. Stills in Bellantoni, Jeff, and Woolman, Matt. *Type in Motion: Innovations in Digital Graphics*. London: Thames & Hudson, 1999, 57.

Pavlov, Petar. *Type as Image*. 2008. At Pavlov, Petar. 'Type as Image.' *Behance*. 2008. Accessed July 18, 2011. http://www.behance.net/gallery/Type-as-image/142738

Rhett, Josh. *Lubalin Graph*, c. 2005. Stills in Woolman, Matt, *Type in Motion 2* (London: Thames & Hudson, 2005), 59.

Prologue. *Dawn of the Dead*. 2004. Video at 'Dawn of the Dead.' *Prologue*. 2004. Accessed July 18, 2011. http://prologue.com/media/film/categories/main-titles-special-sequences/projects/dawn-of-the-dead

Quinn, Andrew. *Cântico dos Cânticos*. 2008-2011. Concept video at 'Alfabeto com Sombras 1' *YouTube*. 2008. Accessed July 18, 2011. http://www.youtube.com/watch?v=uGP15i0D9e0. Images of final installation at 'Cântico dos Cânticos.' *Balbucio*. 2011. Accessed July 18, 2011. http://balbucio.com/blog/2011/06/19/cantico-dos-canticos/

Roberts, Matthew. *Promo for Style*. 2009. Video at Roberts, Matthew. 'The Sunday Times.' *Kupon*. 2009. Accessed July 18, 2011. <u>http://kupon.co.uk/#27148/The-Sunday-Times</u>

Rogaar, Karst-Janneke, and Roel Wouters. *Matzes*. Title sequence. 2004. Video at 'Matzes Titles.' *YouTube*, 2009. Accessed June 8, 2011. http://www.youtube.com/watch?v=6Zw7SXX4MDE

RSA Films. *Unveiled*. 2009. Video at RSA Films. 'Toyota-Unveiled.' *RSA*. 2009. Accessed July 18, 2011. http://www.rsafilms.com/d/rsa/companies/rsa-usa/director/brett-foraker/toyota-range-65

Sebestyen, Colin. *The Beast – Futura Animated*. 2010. Video at 'The Beast – FUTURA_ANIMATED.' *Motion Served*. 2010. Accessed July 19, 2011. http://www.motionserved.com/gallery/The-Beast-FUTURA_ANIMATED/461925

Shaw, Jeffrey, and Dirk Groeneveld. *Legible City*. 1989-1991. Stills at Shaw, Jeffrey. 'The Legible City.' c. 2001. Accessed July 13, 2011. <u>http://www.jeffrey-shaw.net/html_main/frameset-works.php</u>

Sehsucht GmbH. *Häagen Dazs*. 2010. Video at 'Häagen Dazs.' *Motion Served*. 2010. Accessed July 18, 2011. http://www.motionserved.com/gallery/HAGEN-DAZS/418407

Simonneau, L. (engraving), and S. Truchet, (design). *Constructions des Lettres*. Cartoons of *Romain du Roi*. 1716. Reproduced in Jacques Andre and Denis Girou. 'Father Truchet, the typographic point, the Romain du roi, and tilings.' *TUGboat* 20, no. 1 (1999), 11. Accessed July 13, 2011. <u>http://www.tug.org/TUGboat/Articles/tb20-1/tb62andr.pdf</u> Originally published in *Descriptions des Arts et Métiers*. 1761 – 1788.

Staley, Joe. *Michael Bay Titles*. 2010. Video at 'Michael Bay Titles.' *Vimeo*. 2010. Accessed July 17, 2011. <u>http://vimeo.com/10950910</u>

Stephane, Roland. *Flow Negative Gravity*. 2010. Video at 'Flow negative Gravity.' *Vimeo*. 2010. Accessed July 18, 2011. <u>http://www.vimeo.com/10914025</u>

Svankmejer. *Dimensions of Dialogue*. 1982. Video at 'Jan Svankmajer – Dimensions of Dialogue.' *Daily Motion*. 2007. Accessed July 18, 2011. <u>http://www.dailymotion.com/video/x2gtpo_jan-svankmajer-dimensions-of-dialog_shortfilms</u> Thorne, Robert. *Thorne Shaded*. c. 1810. Reproduced in MacMillan, Neil. A-Z of Type Designers. London: Laurence King, 2006, 171.

Timo Design. *Animation Transformers*. 2010. Video at 'Animation Transformers.' *Vimeo*. 2010. Accessed July 17, 2011. <u>http://vimeo.com/groups/347/videos/9493846</u>

Tomsej, Stanislav. *Typo Mood*. 2009. Video at Tomsej, Stanislav. 'Motion Typography.' *Behance* . 2009. Accessed July 18, 2011. <u>http://www.behance.net/Gallery/Motion-Typography/292954</u>

Tory, Geoffroy. *Champ Fleury*. 1529. Engravings reproduced at 'The History of Visual Communication.' Not dated. Accessed July 18, 2011. http://www.citrinitas.com/history_of_viscom/masters.html

Triada Studio. Commercial for *Aregak*. 2008. Video at Triada Studio. 'Aregak.' *Behance*. 2009. Accessed July 18, 2011. <u>http://www.behance.net/Gallery/Aregak/179857</u>

Trochut, Alex. Untitled typography. 2008. At Trochut, Alex. 'Typography.' *Behance*. 2008. Accessed July 18, 2011. <u>http://www.behance.net/Gallery/Typography/53832</u>

Van der Dorpel, Harm. *Propaganda Symbol Generator*. 2005. Flash animation at van der Dorpel, Harm. 'Propaganda Symbol Generator.' *Harmlog*. 2005. Accessed January 15, 2007. http://www.harmlog.nl/?thing=propagande-symbol-generator

Van der Dorpel, Harm. *I Wouldn't Normally Do This Kind of Thing*. 2005. Flash animation at van der Dorpel, Harm. 'I Wouldn't Normally Do This Kind of Thing.' *Harmlog*. 2005. Accessed January 15, 2007. http://www.harmlog.nl/harm/harmlog/main.asp?id=69

Van der Dorpel, Harm. *Type Engine*. 2005. Flash animation at van der Dorpel, Harm. 'Type Engine.' *Harmlog*. 2005. Accessed January 15, 2007. http://www.harmlog.nl/harm/harmlog/main.asp?id=77&action=prev&sort=1

Van der Leck, Bart. Poster for *Delft Salad Dressing*. 89x59.9cm. 1919. Reproduced at Flatt, J. Tylor. 'Bart Antony Van Der Leck: Delft Salad Oil.' *Retained*. 2009. Accessed July 13, 2011. http://retained.blogspot.com/2009/06/bart-anthony-van-der-leck-delft-salad.html

Van Doseburg, Theo. Cover for *De Stijl*, 1917. Reproduced at 'Twentieth Century Art.' *Marianopolis College Library*. 2005. Courtesy SDRC: University of Iowa Libraries. Accessed July 13, 2011.

http://faculty.marianopolis.edu/m.spriggs/20thcArtHistory/Assignments/Test2Slides.html

Varini, Felice. *Cercle et suit d'éclats*. 2009. Images at 'Cercle et Suite D'éclats : Beautiful Swiss Geometry.' *The Coolist*. 2009. Accessed July 18, 2011. http://www.thecoolist.com/cercle-et-suite-d'eclats-beautiful-swiss-geometry/

viaLetter. *Frying Type*. 2006. Video at 'Frying Type.' *YouTube*. 2006. Accessed July 18, 2011. <u>http://www.youtube.com/watch?v=C6QtmZzfOZ8</u>

Viriot, Vincent. *Evil/Love/Hate*. 2008. Video at Viriot, Vincent. 'Evil/Love/Hate.' *Behance*. 2008. Accessed July 18, 2011. <u>http://www.behance.net/fmk_7/Frame/145974</u>

Viriot, Vincent. Virgin 17 Ident. 2009. Video at Viriot, Vincent. 'Virgin 17 ident.' Behance. 2009. Accessed July 18, 2011. http://www.behance.net/Gallery/VIRGIN-17-IDENT/329967

Waber, Dan. *Argument*. 2005. Flash animation at Waber, Dan. 'Argument.' *Vispo*. 2005. Accessed July 18, 2011. <u>http://www.vispo.com/guests/DanWaber/argument.html</u>

Waber, Dan. *Haha*. 2005. Flash animation at Waber, Dan. 'Haha.' *Vispo*. 2005. Accessed July 18, 2011. <u>http://www.vispo.com/guests/DanWaber/haha.htm</u>

Warner, Max. *MTV Morph Bumper*. 2009. Video at Warner, Max. 'MTV Morph Bumper.' *Behance*, 2009. Accessed July 18, 2011. <u>http://www.behance.net/Gallery/MTV-Morph-Bumper/344701</u>

Yasit, Rauf. *Bubbles*. 2009. Video at Yasit, Rauf. 'Bubbles-MTV.' *Behance*, 2009. Accessed July 18, 2011. <u>http://www.behance.net/Gallery/MTV-BUBBLES/306992</u>

Zervos, Komninos. *Beer*. 2005. Animation at Zervos, Komninos. 'Cyberpoetry Underground.' *Other Voices International Project* 11, 2005. Accessed July 18, 2011. http://www.othervoicespoetry.org/vol11/zervos/beer.html