



Lev Manovich
The Language of
New Media

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[7]

A hundred years after cinema's birth, cinematic ways of seeing the world, of structuring time, of narrating a story, of linking one experience to the next, are being extended to become the basic ways in which computer users access and interact with all cultural data.

[1]

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[9]

It is the opposite of the first:
separate realities form
contingent parts of a single
image... examples [of montage
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few images and multiple screens
used by the avant-garde
filmmakers in the
1920's (for instance,
superimposed images in Vertov's
Man with a Movie Camera
and a three-part screen in Gance
Abel's 1927 Napoléon).

[11]

While the dominant use of digital compositing is to create a seamless virtual **space**, it does not have to be subordinated to this goal.

[6]

This prologue consists of a number of stills from the film.

[7]

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Theoreticians of cinema have distinguished between many kinds of montage but, for the purposes of sketching the archeology of the technologies of simulation leading to digital compositing, I will distinguish between two basic techniques.

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[9]

The first technique is temporal montage: separate realities form consecutive moments in time.

[18]

This process of discovery is film's main **narrative** and it is told through a catalog of discoveries being made.

[20]

Indeed, millions of computer users communicate with each other through the same computer interface.

[14]

It is a realistic representation of human vision in the future when it will be augmented by computer graphics and cleansed from noise.

[9]

Editing, or montage, is the key
twentieth **technology** for
creating fake realities.

[10]

As theorized by Vertov, through [temporal] montage, film can overcome its indexical nature, presenting a viewer with **objects** which never existed in reality.

[15]

Along with Greenaway, Dziga Vertov can be thought of as a major 'database filmmaker' of the twentieth century.

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As theorized by Vertov, through [temporal] montage, film can overcome its indexical nature, presenting a viewer with objects which never existed in reality.

[19]

If modern visual **culture** exemplified by MTV can be thought of as a Mannerist stage of cinema, its perfected techniques of cinematography, mise-enscene and editing self-consciously displayed and paraded for its own sake, Waliczky's film presents an alternative response to cinema's classical age, which is now behind us.

[13]

Along with Greenaway, Dziga Vertov can be thought of as a major 'database filmmaker' of the twentieth century. Man with a Movie Camera is perhaps the most important example of database imagination in modern media art.

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As theorized by Vertov, through [temporal] montage, film can overcome its indexical nature, presenting a viewer with **objects** which never existed in reality.

[26]

It would be only a small leap to relate this density of "pictorial displays" to the density of contemporary information displays such as Web portals which may contain a few dozen hyperlinked **elements**; or the interfaces of popular software packages which similarly present the user with dozens commands at once.

[12]

The cameraman, whom Benjamin compares to a surgeon, 'penetrates deeply into its [reality] web'; his camera zooms in order to 'pry an object from its shell.'

[1]

The Language of New Media

[6]

The avant-garde masterpiece A
Man With a Movie Camera
completed by Russian director
Dziga Vertov in 1929 will serve
as our guide to the language of
new media.

[15]

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It would be only a small leap to relate this density of "pictorial displays" to the density of contemporary **information** displays such as Web portals which may contain a few dozen hyperlinked elements; or the interfaces of popular software packages which similarly present the user with dozens commands at once.

[21]

Avant-garde aesthetic strategies
became embedded in the commands
and interface metaphors of
computer software.

[6]

The prologue thus acts as a
visual index to some of the
book's ideas.

[18]

Why in the case of Witney's
computer films and music videos
the effects are just
effects, while in the hands of
Vertov they acquire meaning?

[31]

Tetronics is a vector rather than raster terminal, which means that it does not update its screen in real time.

[22]

Cinema's birth from a loop form
was reenacted at least once
during its history.

[9]

Editing, or **montage**, is the key
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[14]

It is a realistic **representation** of human vision in the future when it will be augmented by computer graphics and cleansed from noise.

[24]

Cinema followed this logic of industrial production as well.

[14]

It is a realistic representation
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computer **graphics** and cleansed
from noise.

[6]

This prologue consists of a
number of stills from the film.

[31]

At the same time, along with existing cultural forms, during the 1990s computers came to host an array of new forms: Web sites and computer games, hypermedia CD-ROMs and **interactive** installations—in short, “new media.”

[36]

So I settle for a **composition**
made out of these primitive
forms.

[7]

A hundred years after cinema's birth, **cinematic** ways of seeing the world, of structuring time, of narrating a story, of linking one experience to the next, are being extended to become the basic ways in which computer users access and interact with all cultural data.

[24]

Spatial montage represents an alternative to traditional cinematic temporal montage, replacing its traditional sequential mode with a spatial one.

[21]

The avant-garde move to combine
animation, printed texts and
live action footage is repeated
in the convergence of animation,
title generation, paint,
compositing and editing systems
into single all-in-one packages.

[11]

While the dominant use of digital compositing is to create a seamless virtual space, it does not have to be subordinated to this goal.

[13]

“Modernization is accompanied by the process of disruption of **physical** space and matter, the process which privileges interchangeable and mobile signs over the original objects and relations.

[6]

Each still is accompanied by
quote from the **text** summarizing
a particular principle of new
media.

[21]

Under the black semi-spherical ceiling with mandatory models of planets and stars, a young artist was methodically painting an abstract painting.

[9]

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"As theorized by Vertov, through [temporal] montage, film can overcome its indexical nature, presenting a viewer with objects which never existed in reality."

[30]

It is more difficult because, in contrast to casts of male heads such as Socrates, it does not have well-defined facets; the surfaces join smoothly together as though constructed using a spline modeling program.

[9]

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[17]

Rather, it proposes an untamed, and apparently endless unwinding of cinematic techniques, or, to use contemporary language, 'effects', as cinema's new way of speaking."

[131]

Synthetic Realism and its
Discontents

[23]

Programming involves altering the linear flow of data through control structures, such as 'if/then' and 'repeat/while'; the loop is the most elementary of these control structures....

[23]

A computer **program** progresses
from start to end end by
executing a series of loops.

[11]

The borders between different worlds do not have to be erased; the different spaces do not have to be matched in perspective, scale and lighting; the individual layers can retain their separate identity rather than being merged into a single space; the different worlds can clash semantically rather than form a single universe.

[13]

Modernization is accompanied by the **process** of disruption of physical space and matter, the **process** which privileges interchangeable and mobile signs over the original objects and relations.

[30]

I have just finished my night shift at Digital Effects, one of the first companies in the world devoted to producing 3D computer animation for film and television.

[24]

Ford's assembly line relied on the separation of the production process into a set of repetitive, sequential, and simple activities.

[35]

In answering these questions, I draw upon the histories of art, photography, video, telecommunication, design and, last but not least, the key cultural form of the twentieth century—cinema.

[24]

Spatial montage represents an alternative to traditional cinematic temporal montage, replacing its traditional sequential mode with a **spatial** one.

[9]

The second technique is montage
within a shot.

[16]

One level is the story of a cameraman filming material for the film.

[32]

Theory of the Present

[18]

Where were they at the moment when the **designers** of Myst were debugging their code, converting graphics to 8-bit and massaging QuickTime clips?

[8]

Directing the virtual camera becomes as important as controlling the hero's actions... the computer games are returning to "The New Vision" movement of the 1920s (Moholy-Nagy, Rodchenko, Vertov and others), which foregrounded new mobility of a photo and film camera, and made unconventional points of **view** the key part of their poetics.

[15]

Along with Greenaway, Dziga Vertov can be thought of as a major 'database filmmaker' of the twentieth century.

[6]

The prologue thus acts as a
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[12]

Along with disregarding the scale, the unique locations of the objects are discarded as well as their photographs brought together within a single picture magazine or a film newsreel, the forms which fit in with the demand of mass democratic **society** for 'the universal equality of things.'

[20]

A Man with a Movie Camera is not only a database of city life in the 1920s, a database of film techniques, and a database of new operations of visual epistemology, but it is also a database of new interface operations which together aim to go beyond a simple human navigation through a physical space.

[76]

When you use the Internet,
everything you access – texts,
music, video, **navigable** spaces –
passes through the interface of
the browser and then, in its
turn, the interface of the OS.

[8]

The incorporation of virtual camera **controls** into the very hardware of a game consoles is truly a historical event.

[38]

In putting the word "language" into the title of the book, I did not want to suggest that there is some "single" language of new media or that we need to return to the structuralist phase of semiotics in understanding new media.

[6]

The number in brackets indicates
a **page** from which the quote is
taken.

[8]

The incorporation of virtual camera controls into the very hardware of a game consoles is truly a **historical** event.

[7]

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[35]

The computerization of culture not only leads to the emergence of new cultural forms such as computer games and virtual worlds; it redefines existing ones such as photography and cinema.

[7]

And if in 1985 I had to write a long computer program in a specialized computer language just to put a picture of a shaded cube on a computer screen, ten years later I can choose from a number of inexpensive, menu-based 3D software tools which run on ordinary PCs and which come with numerous ready-made 3D models, including detailed human figures and heads.

[13]

The **concept** of modernization fits equally well Benjamin's account of film and Virilio's account of telecommunication, the latter just being a more advanced stage in this continual process of turning objects into mobile signs.

[32]

Classical art, abstraction and a Nintendo Dataglove; electronic music and early twentieth century modernism; discussions of virtual reality (VR) in a Planetarium located in this classical city which, like Venice, is obsessed with its past—what for me, coming from the West, were incompatible historical and conceptual layers were here composited together, with the Nintendo Dataglove being just one layer in this mix.

[16]

Just as new media objects contain a hierarchy of levels (interface – content; operating system – application; Web page – HTML code; high-level programming language – assembly language – machine language), Vertov's film consists of at least three levels.

[7]

In this way, the computer fulfills the promise of cinema as a visual Esperanto which pre-occupied many film **artists** and critics in the 1920s, from Griffith to Vertov.

[26]

Avant-garde **aesthetic** strategies
became embedded in the commands
and interface metaphors of
computer software.

[13]

Before, different physical locations met within a single magazine spread or a film newsreel; now, they meet within a single **electronic** screen.

[16]

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[34]

What is unique about how new media objects create the **illusion** of reality, address the viewer, and represent space and time?

[25]

Since the Xerox Park Alto workstation, GUI used multiple windows.

[8]

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[14]

Synthetic computer-generated
image is not an inferior
representation of our reality,
but a realistic representation
of a different reality.

[13]

We may expect that computer-based cinema will eventually have to follow the same direction – especially when the limitations of communication bandwidth will disappear, while the resolution of displays will significantly increase, from the typical 1-2K in 2000 to 4K, 8K or beyond.

[26]

Just as painting before it,
cinema presented us with
familiar images of visible
reality – interiors, landscapes,
human characters – arranged
within a rectangular frame.

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