

Unwrapping Virtual Space through the Myth of Total Cinema

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ABSTRACT

Visionary promises of a 3D virtual future are unfulfilled. Online 3D platforms such as VRML, Second Life, and Open Sim sought a 3D web of worlds and delivered, at best, mixed results. To understand the broad creative and cognitive challenges that drive the design of 3D virtual spaces, a cross-disciplinary design review of early cinema, a technical precursor, is needed. 150 years ago, a simulation oriented “Myth of a Total Cinema” guided and limited the development of the earliest films (Bazin 1958, Manovich 2001). Cinema was first seen as a realistic mirror world made of captured images. It would take decades for film makers to discover how to leave the myth and create montage, literally breaking a simulated reality apart in service to narrative. This text retraces the creative process of discovery, the tension between montage and the myth of total cinema, and then proposes a virtual design foundation stemming from an overlooked aspect of videogame theory.

Author Keywords

Cinema; Film; Total Cinema; Virtual World; Videogame; Simulation; Narrative; Interactivity.

ACM Classification Keywords

H.5.m. Information interfaces and presentation: H.5.2 User interfaces: H.5.1 Multimedia Information Systems.

General Terms

Design, Theory.

INTRODUCTION

Twenty plus years have passed since the ACM SIGGRAPH Panel “*Hip, Hype, Hope: the Three Faces of Virtual Worlds*” peered into the future of 3D virtual spaces. Over the years every major software company and countless smaller ones would take on the challenge of 3D virtual space. Thousands of scholars and billions of dollars would be invested in bringing the virtual into reality. Technology has advanced, growing smaller and faster. VPL goggles and data gloves gather dust at major universities, while the next generation of designers creates Unity3D games for Xbox and a Kinect. Technology has advanced, but the

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understanding of virtual space has not (Manovich 2001). Successful designs are merely tied to videogames and educational simulations. Deeper application of 3D virtual space for true social and productive tasks remains unaddressed.

Outside of video games, 3D virtual spaces geared toward non-game social interaction or business productivity have been far less successful than their 2D counterparts. With YouTube, Twitter, Google Docs, and Facebook, the internet became 2D streams rather than 3D spaces. Streams of data, coupled with smartphones, tablets, and various sensors are making the physical world more and more virtual. In contrast, 3D virtual spaces within the computer seem unable to embrace innovative design.

The dominant industry goals are mimetic: increasing the realism of responsive narrative agents and the rendering of realistic scenes (Manovich 2001). Design goals outside of realism are outside mainstream conventions and left to a handful of artistic statements. A guiding myth of perfect simulation leaves the vast possibilities and affordances of computer generated virtual space untouched.

The challenge of breaking this current myth of a total virtual space requires a look back to its remediating myth in cinema. In the earliest days of cinema, the challenge was not one of cutting film but to keep the film from tearing apart. The goals of industry included the addition of color and sound, the increase and smoothing of film frames per second, the long term durability of film, and more critically – keeping film stocks from catching fire. Early cinematic films were short affairs, only a few minutes in length at most. In this context, with these deep technical challenges, the idea of purposely tearing film apart was an anathema.

Editing, the cutting of film and the changing of camera views away from the realistic continuous flow of reality for the purposes of improving the story, lay outside the experiences of the directors and of the public’s imagination. At the turn of the century, cinema was at best a mimetic theatrical stage and the full mediated potential of film and screen unknown. The camera was a seated audience member or a rooted voyeur spying on their neighbors through a “*knot hole in a nearby fence*” (Bordwell 1985).

For early film theorist Andre Bazin, this lack of experience and imagination leads to the cinema’s very first existence away from narrative storytelling and even theater itself. Reviewing the concept of moving images in the mid-1800s,

up to the dominant *Actuality* film genre pursued by the Lumière brothers and Thomas Edison. Bazin notes a pre-existing mythic ideal of realistic virtual worlds (Bazin 1958). In Bazin's essay entitled "*The Myth of Total Cinema*" he explains:

"There are numberless writings, all of them more or less wildly enthusiastic, in which inventors conjure up nothing less than a total cinema that is to provide a complete illusion of life which is still a long way away."

Building on these writings, Bazin declares:

"The guiding myth, then, inspiring the invention of cinema, is the accomplishment of that which dominated in a more or less vague fashion all the techniques of the mechanical reproduction of reality in the nineteenth century, from photography to the phonograph, namely an integral realism, a recreation of the world in its own image, an image unburdened by the freedom of interpretation of the artist..."

Near the end of the text, he offers:

"The real primitives of the cinema existing only in the imaginations of a few men of the nineteenth century, are in complete imitation of nature."

Combined, these statements offer insight into the mental model of the earliest cinema. It was of *Actuality*, a non-fiction style that mirrored documentary photography. This media whose dominant goal was the complete imitation of nature gave early film makers little creative direction or license. Goals of color and sound are useful and necessary – yet they also provide no conceptual outcomes other than realism. With incomplete ideas running counter to the dominant realistic ideology, directors struggled to gain support in exploring the potential of the new media and confronting the cultural, political, and economic forces of the times. The guiding myth of realistic representation required "*no interpretation of the artist.*"

The insufficiency of realism alone to hold an audience's attention, the creative nature of individual directors, and technological advances eventually allowed cross-disciplinary leaps of creative faith. Over the course of decades, early cinematic artists tore reality apart and edited their captured imagery into a new language. Designing screen movement and camera placement grew to consider the power of its sequential presentation. The new power of editing allowed unreal and never before seen actions to become a part of the lexicon of reality. Jump-cuts, crane-shots, flashback, and gently blurred close-ups of Hollywood starlets tumbled into structured existence as the public children of a theatrical culture learned to interpret signs set on silver screens.

Challenges of a Creative Media

The process of discovery and shared interpretation did not come easily. Understanding the new media of cinema for oneself, and then developing a language interpretable and useful to the general public is difficult. An even greater challenge lies in gathering necessary support from others,

especially when the mythic goal of visual realism conflicted with then emergent needs of filmic narrative.

One clear example of the increasing conflict between realism and narrative is in the development of soft focus and its gently blurred outcome. Explored in the 1900s, major Hollywood studios in the 1930s used this approach often, yet relied on lenses adapted from photographic cameras or a cotton mesh fitted over the lens. Despite having the technical skills, engineered lenses created specifically for moving pictures would come only later.

At the core of this delay lies the conundrum of an engineering community rightly set on creating realism and ever-greater clarity of imagery being asked to purposely blur it instead. A mental model of total cinema excludes soft focus. Without an understanding of the role of narrative in their own community, and only a rudimentary understanding of film narrative within the arts, the call to purposely take scenes out of focus must have sounded absurd to many individuals.

Documents from the early decades of the Society of Motion Picture Engineers (SMPE) discuss the struggle to comprehend the artistic and imprecise demands of a young Hollywood, a struggle that the SMPE leadership would themselves admit that they were often ill equipped to handle (Bordwell 1985). 1930s SMPE president A. N. Goldsmith would claim that the engineer strives for "*total realism*" while the film artist (director, writer) "*alters the illusion of reality*" (Goldsmith 1934). Film engineers sought standards and believed in a perfect simulation of total realism, while Hollywood directors sought unique spectacles and aesthetics to serve the audience and their own artistic voices. Divergent design goals, realism vs. its alteration, and standards vs. individual voices emerge as sides of the historical chasm between engineers and artists.

Bridging this chasm of art and engineering was not done by simply embracing both art and engineering. The massive cognitive shift from an ideal of perfect simulation in total cinema into the deep exploration of film editing owes everything to cross-disciplinary interaction and design. The composition of great novels, the spectacle of magic, and even the mindset of a revolution all shook the myth of total cinema from its realistic foundations.

The current myth of virtual worlds seeks a perfect reality with the narrative power of the edited domain of cinema. Cinema history suggests that a different path will emerge. Cinema's own developmental process broke from mimetic realism to create a new and different filmic realism (Bazin 2004) now coveted by virtual worlds and videogames. As virtual worlds embrace their own potential, they too must break from past myths and create reality anew. Early film editing, as described by the earliest accounts, showcases cross disciplinary discovery and cooperation, evolving mindsets of intuitions and individuals, and also the multi-stage effort of directors in pursuit of unimaginable worlds.

BREAKING REALITY, AN OVERVIEW OF FILM HISTORY

As the 20th century prepared to dawn, Georges Méliès, French theatre owner – stage director – magician, known for his theatrical special effects, sat in amazement at the first public screening of the Lumière brothers' films at the Grand Café in Paris. With a background in magic, possessing technical skill and owning a venue, it is easy to understand Méliès' ability to bridge disciplines. A telling point is the differing application of the stop-trick between Méliès and Edison. The stop-trick, the stopping of film to create an effect, had allowed Edison to fake a decapitation in *The Execution of Mary Stuart* (1895). Méliès discovered the trick accidentally and interpreted the outcome very differently. While filming a street scene his camera froze for a moment and later upon replaying, he discovered a Madeleine-Bastille bus had magically changed into a hearse and women had changed into men (Wakeman 1987).

While Edison had used the technique to fake a bloody reality, Méliès saw both a magic trick and a new reality. Appreciation of Méliès' adaptation of an accidental jam of his camera requires us to also ask how often primitive cameras froze for early filmmakers. Clearly jams and even bad edits occurred countless times before. Méliès saw the cutting of film, the editing of its sequence, as a force capable of creating new magical meanings.

Finding a framework beyond that of magic or special effect that could shape and master that editing force would fall upon others. Edward Porter soon would discover that he could reuse old film footage for new stories. The idea that the original intent of the director was not permanently embedded in the image was a powerful discovery for a community that had assumed otherwise (Reisz 1964). Existing images could be cut and reused in different films for different purposes. Porter also leveraged the panels of comic strips to tell a story within a scene, taking multiple shots to tell a story rather than having more theater based single scene captured by a stationary camera. Coming on the heels of Méliès and Porter was a thirty-year-old unsuccessful playwright, stagehand, stage actor, and former bookstore employee named D.W. Griffith.

Griffith's path to directing began in 1907 with a rejection of a script to Edison Studios that turned into an offer of an acting part. One year later, Griffith was an actor at American Mutoscope and Biograph Company, where, subsequently, the primary director would fall ill and thus created an opening for the unsuccessful playwright, and former bookstore employee. Griffith's writerly background informed his understanding of narrative as transposed into a series of moving images; he immediately saw storytelling in screen movement and camera placement. Griffith was also among the first film directors to employ an iterative process to refine his works - a process called rehearsal.

Blending narrative composition with his appreciation of the techniques and magic of Méliès, Griffith would leap forward and pioneer sequential visual storytelling within a

2D frame. Exposing Griffith's uniqueness, and as well as his struggle to develop his work, is documented by one who would immediately follow Griffith and built on a creative force immediately preceding him: Soviet film pioneer Sergei Eisenstein, and the most popular writer of his generation, Charles Dickens.

In his 1949 book, *Film Form*, Eisenstein explores Griffith's relationship with Dickens. "*THE KETTLE began it...*" With those words Charles Dickens began his work "*Cricket on the Hearth*"; a beginning that Eisenstein believed read by and sunk deeply into the mind of D.W. Griffith, a written beginning that would reemerge as a new beginning in cinema. Key for Eisenstein was the following:

"As soon as we recognize this kettle as a typical close-up we exclaim: Why didn't we notice it before!"

Let's repeat that: "Why didn't we notice it before!"

It is a simple phrase with a deeply complex answer applicable to countless discoveries that are obvious only in hindsight. For Griffith, the written words placed by Dickens cut through time, space, and scenery, each in turn begged the director to follow suit by focusing tightly on the kettle, then cutting away. His personal connection between writing and cinema pushed Griffith to explore new cinema forms in pursuit of a previous literary functionality, the form of a close-up, a cut of film, took on the function of an intimate moment that situates the story, sharing hidden details. Throughout his chapter on Dickens and Griffith, Eisenstein remarks on issues of rhythm, composition, and story. Features of individuals merge with those of skyscrapers as he draws deep examples of the relationship through a range of narrative metaphors. Behind this connection of Dickens and Griffith lies another: one of story and cinema.

Griffith himself plainly states his relationship with Dickens as recounted by his first wife in a discussion of *Enoch Arden* (*After Many Years*, 1908) which held a parallel cut-back of Annie Lee waiting for her husband's return to be followed by a scene of Enoch cast away on a desert island that was deemed too distracting by a critic.

"How can you tell a story, jumping about like that? The people won't know what it's about."

"Well," said Mr. Griffith, "Doesn't Dickens write that way?"

"Yes, but that's Dickens; that's novel writing; that's different."

"Oh, not so much, these are picture stories; not so different."

In the space of the few sentences above, Griffith takes the core mechanics of literary storytelling into a new media format. Equally remarkable is that the initial criticism encapsulates the walled off mentality between storytelling via novels and storytelling via cinema. Eisenstein looks back to the writing of Dickens and offers some insight on how the mechanics of literary and cinematic composition came to be overlooked:

“... Dickens and for the American cinema, which so surely and delicately plays upon the infantile traits in its audience. We were even less concerned with the technique of Dickens's composition: for us this was non-existent-but captivated by the effects of this technique...”

Eisenstein continues to explore Dickens:

“As children, we paid no attention to the mechanics of this. As adults, we rarely re-read his novels. And becoming filmworkers, we never found time to glance beneath the covers of these novels in order to figure out what exactly had captivated us in these novels and with what means these incredibly many-paged volumes had chained our attention so irresistibly.

Apparently Griffith was more perceptive ...”

Finding time to figure out what captivates us remains a struggle for developers of all media. Knowing where to look for inspiration is often a significant challenge as successful compositions hide their structure as they are seen as unified wholes rather than discreet noticeable parts. In pursuit of that narrative whole that plays out line-by-line, scene-by-scene, the viewers' attention is bound and blind to all else. Issues of “*infantile traits*” and “*captivated by the effects*” ring ever truer.

Thus, it is understandable that Griffith ties himself to Dickens only when success of his experiment is in question. At the time, and without further proof, the other person in the conversation may not have even been persuaded by Griffith's reasoning; after all, they themselves had been confused by the jumping of scenes. A call upon Dickens may justify an experiment, but it would not create success. Equally important, Griffith's own standing as a successful filmmaker carries no weight. The year of this film was 1908, his first as a director.

Commercial success did however come, and Griffith continued to further the connectivity between the mechanics of novel writing and the editing of cinematic reality. Establishing connections to cinema from more distant disciplines would require a revolution and as it happened – one was occurring in Russia. As his discussion on Griffith and Dickens closes, Eisenstein inserts himself:

“I wish to recall what David Wark Griffith himself represented to us, the young Soviet film-makers of the 'twenties. To say it simply and without equivocation: a revelation.

Try to remember our early days. In those first years of the October socialist revolution... The young Soviet cinema was gathering the experience of revolutionary reality, of first experiments (Vertov) of first systematic ventures (Kuleshov)...”

Soviet filmmakers literally sought to remake reality and in doing so smashed the goal of total cinema and recreating reality at its core. It was this outright rebellion that allowed them past the gates of traditional narrative forms and into a multidisciplinary domain that borrowed from advances in

science, industry, as well as new academic fields such as psychology and sociology.

Eisenstein explains:

“Here we find a key to the reason why the problem of abstraction is not once stumbled upon by Griffith's montage method. The secret of this is not professional-technical, but ideological-intellectual...”

Culture itself both creates and inhibits innovative goals. A confrontational political ideology that sought to remake the status quo inspired its fellows in arts to do the same. Seeking to remake the world and connect all things to a streamlined and mechanical age, Soviet cinema opened the door to the study of true cross-disciplinary design.

A second issue impacting Soviet development, and perhaps pridefully overlooked by Eisenstein, was the lack of camera film to be had by its early adherents. In a time of revolution, supplies of all types run bare and a novel material like film stock is no exception. Necessity is the mother of invention. Scraps of film and the unused portions at the ends of reels, was a precious resource and never wasted. Thus, editing was required for films of any length. For practice, Soviet students edited existing films, reworking every moment and combination. Even Griffith's film *Intolerance* was taken apart and reassembled many times. (Mast & Kawin, 2007).

TO BREAK THE VIRTUAL FROM REALITY

Despite our acknowledgement of cross-disciplinary approaches and the vast number of businesses and universities pursuing it, it's unclear if our ability to see connections between disciplines has truly improved. The core question “*Why not make interfaces better than 3D reality?*” has been raised, and in fact the preceding quote is the title of an article by noted HCI scholar Ben Shneiderman. The article itself notes the potential to go beyond realism, but stays safely within the singular domain of interface design. In other words, it does not cross disciplines. In this light, Eisenstein's: “*Why didn't we notice it before!*” remains true as the leap between disciplines requires an openness to see and a willingness to jump rather than academic or professional expertise.

Recalling Eisenstein and his issues, it appears we have less “*time*” than ever to discover what “*captivates us.*” Additionally, the world grows ever more capable of playing upon our “*infantile traits.*” Capitalistic economics demand continual improvement and invention, yet this too, and despite its power, becomes a singular cultural mindset. Venture capital seeks profitable ventures, and it seeks to fund ideas that offer quick and sure returns.

A recent failed venture is the story of Vivaty. It raised over 9 million dollars in funding, was supported by skilled engineers, and tied its path to becoming a 3D chat and social space within Facebook and other online media. Mistakenly believing a more realistic space would equal greater social interaction and stickiness, the Vivaty team

spent great sums of money creating the ability for its user's avatars to sit anywhere. Lost was the question of what happens after the user sits. Little effort was directed towards examining the success of related media and creating offshoots native to virtual space. Deep explorations akin to Méliès, Griffith, or Eisenstein never occurred.

In fairness, Vivaty ought not to be singled out. As social and business oriented virtual spaces have all equally been bound to the myth of total cinema, the field of 3D as a whole still privileges greater realism in rendering and in the behavior of agents. 150 years later, the goals of total cinema remain intact. Much like the days before the success of cinema, recreating reality is seen as only inherent good.

However, there now is a maturity in looking to cinema history for a sense of placement in the development of virtual space. Unlike its early days in the 1990s, the hipness and the hype of virtual space (Jacobson, Barlow, Dyson, Leary, Bricken, Robinett and Lanier 1990) are gone.

While hope remains, the lack of success found in VRML, VPL gear, and even Second Life has dimmed the singular goal of recreating reality. The numberless, wildly enthusiastic writings that conjured a complete illusion of life gather dust. The longing for the realism of total cinema remains, but the conceptual openness to new design directions is rising with the global appreciation of cross-disciplinary design.

Shigeru Miyamoto replaces Charles Dickens

One discipline in particular now dominates the discussion of virtual space and largely obscures all else. Videogames, profitable, popular, and academically intriguing are the touchstone for understanding virtual space. (Grove & Williams, 1998). Academics often use videogames to describe virtual space (Murray, 1997; Nitsche, 2009). Videogame composition is often described in a broad frame of narrative fiction and rules of interaction (Juul 2005). This frame allows reality to be whatever the game requires. Total cinema (realism) devolves from a goal onto itself into a critical, yet only supportive, role in the quest for total fun.

Leaping into the design structure of videogames, and its universally acknowledged mixing of interactivity and narrative, raises a simple notion: the editing of reality for improved interactivity rather than narrative. Whereas Griffith looked to Charles Dickens, the interactive domain requires leaps into Edward Tufte, Donald Norman, and others. For the sake of good videogames and through the efforts of Wil Wright, Sid Meier, and Shigeru Miyamoto this leap is already being made. The next trick is to step from game design into virtual space.

One can imagine a Griffith-like conversation:

"How can you understand a space that jumps about like that? The people won't know what it's about."

"Well," said Virtual Griffith, "Doesn't Shigeru Miyamoto design that way?"

"Yes, but that's Shigeru Miyamoto; that's game design; that's different."

"Oh, not so much, these are still a mix of narrative and interaction; not so different."

Editing reality for improved interactivity is common within games (Jorgenson 2004), yet games themselves are often bound by a fictional reality (Juul 2005). Fiction demands that all interactions are consistent with its internal imaginary narrative and so a new limitation on the design potential of virtual space is raised. This also creates potential tension and disconnection between interaction and narrative. Good game designers negotiate this relationship into a unified whole, and much like Dickens's mechanics, are unseen by the player. The relationship of interaction and narrative when referenced to cinema reveals a sweeping functional disconnection. Film scholar Noel Carroll discusses the differences in functionality between a farmers plow in a field and one seen in a film (Carroll 1985).

In a film, a plow's function is to support the narrative. Its form is driven by the needs of the story. It can be old, new, broken, clean, Japanese or American. Its form is a copy of reality, shaped by the story, not the need to grow food. Its use requires it only to be understood to be a plow. Its form, then, is a convention. Furthermore, conventions are arbitrary; they require the acceptance of the viewer to function. New conventions evolve from the reality around us and ride waves of popular culture for the purposes of better communication. Frameworks of communication such as books and film, in turn, remediate prior conventions and alter the form as needed (Bolter & Grusin 1999).

The physical plow is an invention and inventions do not remediate, as there is no media. Inventions require no belief to function. The plow's form is for practical purposes shaped to best suit the soil, the animals, the available materials and the existing technology. To rephrase this, a plow's form is determined by the interactions between soil, seeds, and available resources. A plow used by a farmer is built of wood and metal, while one used by the moviegoer is comprised of images on film.

The clearness of the separation between filmic and farmer plow highlights the foundational divide between interaction and narrative. Virtual space destroys this clarity. Goals of interaction and narrative vary with each individual designer and viewer of virtual space. Both media form and non-media reality, virtual space is, in a post structuralistic world, almost quarklike in its ability to be both signifier and referent. Unlike Dickens's literary kettle, the virtual plow within a 3D space could give priority to either interaction or narrative.

Virtual spaces viewed as videogames give preference not just to narrative, but also to fiction. If Juul's separation of fiction from narrative holds true for videogames (Juul 2005) then perhaps the reverse: narrative without fiction can be applied to a mental model of interface design.

Interface design uses visual narrative to situate knowledge (Norman 1993). A 2D icon of a 3D folder on a desktop has become a learned convention, its original intent as an invention to hold documents now remediated as a holder of digital information. As an accepted convention, the 2D icon as the image of a 3D folder only loosely implies an interaction of being a real folder opened by one's hands and holding physical paper.

The Editing of Space, Addition & Subtraction

A language of interface design is emerging in videogames and simulations. In videogames, reality is no longer being copied. For example, the insertion of health bars above 3D characters is commonplace, as are numerical values that drift smoke-like from enemy characters taking damage. 3D elements both obvious and subtle are added to inform the player in support of game play and ease the interactive demands of actions not needed by game play. Diegetic interfaces incorporating realistic elements may seem like they are in service to maintaining the total cinematic approach, yet they more truthfully act to subvert it. On a base level, Diegetic interface designs rely on repetition and consistency to function, which breaks them from an unruly and often inconsistent reality. It is subtly additive in nature.

Editing reality via subtraction is dramatically occurring. Doors in games such as World of Warcraft (WoW) are almost nonexistent. One look at the architecture of the WoW's Blood Elves brings an acknowledgement that Railings and walls have gone missing. A quick glance to architecture in SecondLife reveals doors, walls, and railings are often found to be a hindrance, or at a minimum merely unneeded in a virtual space. In SecondLife, it is not unusual for structures to be missing roofs. In a domain that values flight-based travel, its architecture edits space in support of the new interaction methodology. In turn, it begs the question "Why didn't we notice it before!" One reason may lie in the preoccupation of game designers with another conceptual challenge.

Game designers work to unify the sometimes conflicting goals of narrative and interaction (Rollings 2004). As the need for inventions within virtual space rises, they struggle against narrative conventions. The image of a 3D folder as an icon was straightforward compared to the conflicting narrative and interactive goals of chairs in virtual spaces. Often simplified to being a mere block in SecondLife, these chairs are almost the equivalent of 2D folder icons. They shape user behavior by creating a visual reference for proper character placement. The past role of removing the physical burden from one's legs no longer exists. In most videogames, characters stand and chat. Sitting is a visual behavioral cue indicating a pause, a break from the interactions of game play.

The act of sitting in videogames also takes on the hue of a literary convention and returns us to narrative. In WoW, sitting tells a visual story of waiting, boredom, or being

unthreatened. In WoW, sitting often occurs on the ground. When a chair is added to sitting, its shape implies the qualities of filmic narratives: the comfort of a sofa, the power of a throne, the learning at a classroom desk.

Comfort, power, and learning are admirable goals, yet a curious issue arises. Interaction and narrative clash. For example: educators stress the interactive and explorable nature of virtual spaces, but many academic spaces bind students to rows of faux desks in an attempt to inspire the narrative of a classroom.

There is certainly madness in this, for countless schools and universities are trying to break from this very model and spending millions of dollars on digital technology to do so in the physical world. It is here that the inability of virtual space to be more than a simulation of existing reality is most apparent. In context, the future role and form of the classroom desk and chair within the virtual realm takes on deep significance. To image a future space that simply copies reality ignores both the historical example of cinema and the digital advancements of tomorrow.

CLOSING

Virtual space poses design challenges as deep and demanding as those for early cinema. To succeed, the continuing myth of total cinema, of perfect simulation, needs to be overthrown. Whereas fictional narratives sparked the innovative spirit of Griffith and others, today's media must deal with interactivity.

Interaction brings forth a vast hidden complexity of issues, including reinterpreting the reemergence of the previously discarded goal of total cinema, the: "*complete imitation of nature.*" The current stage of development seems promising relative to early cinema. Game designers have broken the myth and seek the power of film-like editing within the domain of interactive fictional narratives. The next step, the blending of interaction and narrative without fiction is occurring. The digital reality of games and virtual spaces slowly moves toward a new spatial language as elements are added and subtracted. Whether a world-breaking event on a par with a revolution in Russia in the 1920s is needed remains to be seen. What is clear is that like cinema, virtual space will have a style and use all its own. Like cinema, someone will one day declare:

"Why didn't we notice it before!"

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