

Seeking Virtuality:

*A Search for a Working Definition of Virtuality in the
Context of Interactive Cinema*

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1. INTRODUCTION:

Virtuality is often described by what it is not: “virtuality is **not** real,” “virtuality is **not** material; “virtuality is **not** the physical world,” etc. But it is counter-productive to constantly be defining a concept by what it is not, and thus there is a tremendous need amongst cybernetic theorists to come up with an accurate and useable definition for virtuality. A unifying definition that umbrellas all of virtuality’s possible meanings is perhaps unreasonable, however. Virtuality is probably something that is better defined within a certain context – such as virtuality within the realm of computer-mediated perception, virtual reality (VR), or hologram technology – because on one level, everything imagined and contained within the mind can be said to be virtual. For this reason, whenever one is dealing with an issue or concept around virtuality, I believe they must explicitly define the context and point-of-view from which it is to be discussed.

My particular research interests are in the realm of interactive cinema. The phrase *interactive cinema* is an intermediary term until a better description is established. Because of its ambiguous nature, I will devote a portion of this essay to describing my own particular research goals in interactivity and expanded cinema. Interactive cinema by any definition, however, is inextricably tied to concepts of virtuality, and so the purpose of this essay is to define virtuality within the context of interactive cinema.

2. INTERACTIVE CINEMA:

There is a clear trend in art and technology towards interactive systems where images, sound, and even the projection surfaces change in response to conscious and subconscious user activity. There is potential here for a future branch of cinema – an interactive environment where multiple movie screens respond to your position, movements, speech, and body temperature. *Interactive Cinema* is a term to describe this multi-input, multi-output, user-sensing participation media environment.

The term *interactive cinema* is broad, however, and encompasses many possibilities, from branching narrative structures to emergent avatar-based worlds governed by complex Artificial Intelligence (AI) systems. I am still in the process of developing a full working definition for my particular take on interactive cinema, but the following is a description of where I have progressed to so far:

2.1 ACTIVE CINEMA SPACE:

First and foremost, interactive cinema is a form of **digital cinema**. Lev Manovich (1995) states that digital cinema is a new media form, separate from, but drawing on, the concepts of traditional cinema (celluloid-based film material). Manovich defines digital cinema using the following equation:

“Digital film = live action material + painting + image processing + compositing + 2D computer animation + 3D computer animation.”

(Manovich, 1995)

Interactive cinema then, could be defined by adding interactivity to this equation, but we are still stuck with an overly ambiguous definition. For my research, I have tried to narrow the field down by creating a particular model to study that takes a non-traditional approach to movie content and to how a movie is displayed. I call this model *Active Cinema Space*, and it is my goal to study how this model affects the cinematic experience.

2.1.1 ACTIVE CINEMA SPACE DISPLAY:

The Active Cinema Space model is built around the idea of an interactive cinema environment – a configurable room containing multiple movies being simultaneously projected, whose content is connected together through a central program. Each of the movies has interactivity potential, and the content changes according to user feedback (movement, position, etc.). The movies can either be projected onto flat projection surfaces or onto other shapes, such as a sphere or cube, as appropriate to the narrative.

2.1.2 ACTIVE CINEMA SPACE CONTENT:

The Active Cinema Space model uses a database of film clips from which to draw and construct a narrative. The film clips can be any length – possibly only one frame long – such as to accommodate the narrative and unfolding of the story. It is important to realize that this model demands a non-traditional, or non-Aristotlian, approach to storytelling. The narrative is constructed by the assembling of the film clips into a particular order and spatial organization (on the multiple movie projection surfaces), based on the user’s interaction with the cinema space environment. What was originally recorded in a linear fashion could end up being played back in reverse, freezing on one frame for a given period of time, or played back at three times the speed. Bill Viola, a well known video installation artist, has similar ideas to the Active Cinema Space model, and believes that the way we approach making films and video is going to drastically change along these lines in the near future.

“The notion of a ‘master’ edit and ‘original’ footage will disappear. Editing will become the writing of a software program that will tell the computer how to arrange (i.e. shot order, cuts, dissolves, wipes, etc.) the information on the disc, playing it back in the specified sequence in real time or allowing the viewer to intervene... Different sections can be assigned to play back at specific speeds or reversed; and individual frames can be held still on the screen for predetermined durations.”

(Viola, 1982)

It is easy to see how a single storyline that follows the classic narrative arc (set-up, complication, development, and resolution), and which is simply divided into a number of film clips, would not produce a very satisfying interactive or narrative experience. The database of film clips approach requires one to think outside of the “box” – to film and construct a movie that is completely non-linear in nature, and yet which still can tell an interesting story through the arrangement of film clips and an encompassing narrative

flow. Rather than the movie content falling into complete abstraction, however, which would be one solution to this narrative complication, I am more interested in having each of the film clips follow their own narrative arc, and yet still all work together to create a larger, holistic story.

Bill Viola, in his article “Will There Be Condominiums in Data Space?” (1982), touches on this idea of non-linear information flow in his discussion of how information can be represented on a computer video disc:

“The most common [non-linear data structure] is called ‘branching’... In this system, the viewer proceeds from top to bottom in time, and may either play the disc uninterrupted (arrow), or stop at predetermined branching points along the way and go off into related material at other areas on the disc for further study (like a form of ‘visual footnoting’)... Even though the technology is interactive, this is still the same old linear logic system in a new bottle.”

(Viola, 1982)

Instead of the branching structure, Viola (1982) proposes a matrix organization structure as an alternative way to represent information patterns. A matrix structure is a non-linear array of information, such that when traveling in the matrix, all directions are equal.

“The viewer could enter at any point, move in any direction, at any speed, pop in and out at any place... Viewing becomes exploring a territory, traveling through a data space.”

(Viola, 1982)

This is where ideas of virtuality begin to emerge as a part of the Active Cinema Space model, for by using a matrix data structure as a way of telling a story, we are moving into the realm of an *idea* space, where thoughts and images as they exist in the brain become finely integrated into computer logic patterns.

“With the integration of images and video into the domain of computer logic, we are beginning the task of mapping the conceptual structures of our brain onto the technology.”

(Viola, 1982)

The challenge is to develop a matrix structure of film clips that allows for the construction of an interesting and compelling story and user experience. This is something that I am still in the process of exploring, but I believe that the process must begin by finding a definition for virtuality in the context of a matrix data structure (a matrix data structure being a part of my take on interactive cinema).

3. VIRTUALITY:

The first thing to consider when trying to develop a working definition for virtuality, is that **virtuality** is not **virtual reality**, although by some definitions the two are intricately related. In fact, many people use the phrase *virtual reality* when *virtuality* would be more appropriate. For example, Howard Rheingold believes that “VR originated in the initiation ceremonies that presumably took place in the painted caves of the Paleolithic Age” (Ryan, 1995). For Brenda Laurel, “the prototype of VR is ancient Greek theatre when theatre was ritual and not yet representation” (Ryan, 1995). These two examples, I believe, are more appropriately associated with virtuality, as by most definitions, virtual reality refers to a computer-generated environment:

“Virtual Reality: a medium composed of highly interactive computer simulations that sense the user’s position and replace or augment the feedback of one or more senses – giving the feeling of being immersed, or being present in the simulation.”

(Sherman & Craig, 1995)

Because of the pedantic and oxymoronic nature of the term *virtual reality*, many people prefer the phrase **virtual environment** (VE), although virtual reality has still managed to persist in the popular media (Vince, 1998).

Unlike VR or VE, the concept of virtuality can be said to have existed long before the computer – back to ancient Greek theatre or Paleolithic cave paintings, as in the above examples – for virtuality is a term that lives outside of any given technology. Merriam-Webster On-line defines *virtual* as “*being such in essence or effect though not formally recognized or admitted*” (www.m-w.com). Some describe being virtual as “immersion into an alternate reality or point-of-view” (Sherman & Craig, 1995).

For me, the heart of virtuality is in our perception of the real-virtual dichotomy. There are certain constraints (that may one day be overcome, but for the moment are locked into human existence) that “anchor” us to the physical world: (1) Our mortality, or the knowledge that one day our body will die; (2) The irreversible direction of time; and (3) The sense of preservation stemming from an instinctual avoidance of events that could cause personal injury (Ryan, 1995). As such, we may never completely get away from feelings of being tied, on some level, to the physical and material universe, but we can still relocate ourselves to a virtual existence through our minds and imagination. Virtuality, then, could be described as a way of experiencing a metaphysical world, a bridge to the alternate reality outside of our bodies.

N. Katherine Hayles (1999), in her book “How We Became Post-Human: Virtual Bodies in Cybernetics, Literature, and Informatics,” offers a different perspective on the real-virtual opposition structure, stating that virtuality plays off the duality of materiality on the one hand and information on the other. She offers the following definition for virtuality: “*Virtuality is the cultural perception that material objects are interpenetrated by information patterns*” (Hayles, 1999). This definition acknowledges that materiality

and information, the real and the virtual, are inextricably intertwined, and that one cannot exist without the other.

So how do these concepts of virtuality help us to understand its meaning in the context of interactive cinema? For the purpose of my research, I believe that the most useful definition of virtuality is: “*the potential contained within information patterns to be converted into material interpretations.*” This definition recognizes that information patterns contain potential – perhaps infinite potential – but that the information needs to be interpreted – it needs to be data-cut – in order to have meaning.

As mentioned previously, I am interested in a type of interactive cinema that involves the use of a data space that contains the film footage in a non-linear array. This matrix of film content is just information, meaning that it exists in virtual space. Being virtual, the matrix can be data-cut in an infinite number of ways to produce content in Active Cinema Space, but not all of the data-cuts would yield a meaningful or interesting cinematic experience. Thus, in order to understand how to best convert the matrix of information into the material world – to produce an interesting interactive cinematic experience – there needs to be a better understanding of the relationship between the real (the physical component of Active Cinema Space) and the virtual (the database of film clips).

Unriddling the complexity of this relationship is not a trivial task. After coming up with a working definition for virtuality in the context of interactive cinema, the next step is to continue to research concepts around virtuality – especially the materiality/information pattern duality – in the hopes of discovering valuable techniques or algorithms for interpreting the matrix of film content into an effective interactive cinema space. Bill Viola (1982) suggests “*mapping the conceptual structures of our brain onto the technology,*” which is interesting from a theoretical framework, but a daunting task to implement in practice.

It is clear that as the world becomes more and more driven to databases of information patterns, there will be more and more of a need for effective interpretation mechanisms. This will require extensive research by many disciplines, from social science to psychology to computer programming. Finding ways to make intelligent and interesting data-cuts of a database of film content in response to user interactions will no doubt be the most difficult task of my continued research into interactive cinema.

Works Cited

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