

## **Michael Benedikt and Ken Hillis**

A Critique on 'Cyberspace: Proposals' / 'Digital Sensations'

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## **Benedikt's Introduction: Two from a Series of Ten**

*“Cyberspace: Its corridors form wherever electricity runs with intelligence. Its chambers bloom wherever data is gathered and is stored. Its depths increase with every image or word or number, with every addition, every contribution, of fact or thought. Its horizons recede in every direction; it breathes larger, it complexifies, it embraces and involves. Billowing, glittering, humming coursing, a Borgesian library, a city; intimate, immense, firm, liquid, recognizable and unrecognizable at once.*

...

*Cyberspace: Through its myriad, unblinking video eyes, distant places and faces, real and unreal, actual or long gone can be summoned to presence. From vast databases that constitute the culture's deposited wealth, every document is available, every recording is playable, and every picture is viewable. Around every participant, this: a laboratory, an instrumented bridge; taking no space, a home presiding over a world. ... and a dog under the table.*

...

*Cyberspace as just described—and, for the most part, as described in this book—does not exist.”* Michael Benedikt, Editor and Contributor, “Cyberspace: First Steps” The MIT Press 1991.

In writing *Neuromancer*, the author William Gibson sparked an explosion of imagination. Hundreds of scientists, artists, and new media theorists wrote about, sometimes drew and occasionally built three dimensional environments that they supposed would be harbingers of the new home of the mind—cyberspace. Michael Benedikt, a Professor of

Architecture at the University of Texas was one of the most poetic writers on the subject as well as someone who early on saw and actually constructed a series of reasonable proposals on native architecture for virtual space. In the book *Cyberspace: First Steps*, Benedikt penned a chapter entitled *Cyberspace: Some Proposals*. Reading it for the first time in October 2002, I was struck by the similarity of issues he confronts and those dealt with in my own research. If I had seen his book when I got started in 1996, it might have saved me a lot of time. As it stands now I cannot credit Benedikt with influencing my thinking, it does however, offer me a much-needed unifying structure to wrap my scattered thoughts around. Sadly, then as I consider Benedikt to be among the best of what was written in the earliest days of cyberspace, I also consider the bulk of his conclusions incomplete or false. His true value lies in the clarity in which he approaches the problems of cyberspace from which a great deal of valuable knowledge can be obtained.

This is not the first critique of Benedikt's proposals. Ken Hillis uses the cultural context, hype and speculation to show the errors in Bendikt's perception. Hillis's book "*Digital Sensations*" discusses Benedikt on pages 43-44, and takes up the comparison of the camera obscura and VR. "*Porta's camera obscura is a mechanism used by individuals for seeing and comprehending a shared external world given by God. Benedikt sees VR as allowing access to a subjectively given world that, despite his claims to the contrary, cannot be shared precisely because each user's world can be so completely different.*" Hillis takes Benedikt to task further in paraphrasing the latter's philosophy. "*In other words, Benedikt hopes for a machine on the wish expressed in the phrase 'if you could*

*see what I mean'. Such a wish forgets that visual symbols and images like language are always culturally and overdetermined. It also promotes the wishful thinking that VR as communication space would somehow the need for discourse and negotiation of meaning."* I believe the cultural hype of the time is reflected in Benedikt's writings and these drive the conflicting conclusions being drawn.

Despite Hillis's commentary, the core arguments Benedikt makes ought not to be quickly dismissed. Granted all language has a symbolic, user interpreted aspect assigned to it, but were words alone the best way to share knowledge and information entire industries cease to exist. PBS documentaries, PowerPoint presentations, and Sesame Street would never be viewed. A middle ground is feasible, Hillis does not offer one, nor does he look at the bulk of Benedikt's writings which deal less with language and more with architecture.

*(authors note: What Benedikt really lacks is a controlled metaphor for delivery. Using the entire world is simply overkill – a better method is through the user's avatar. I'm biased on the subject, this is my graduate thesis project.)*

## IMAGES FROM THE EARLY DAYS

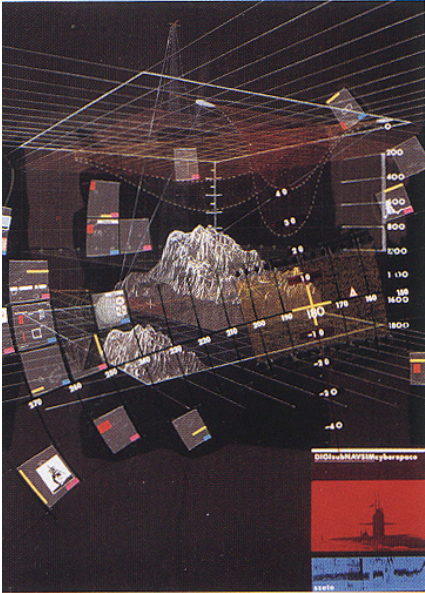


Plate 16

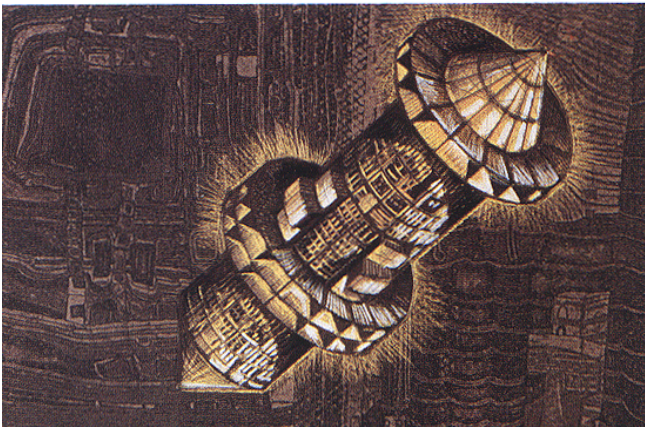
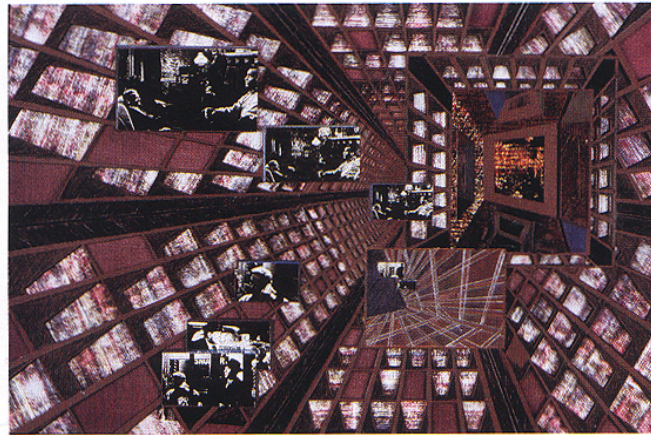
*Gong Szeto, 1990.* A data cell with an active surface approached "subaqueously." A spherical scrim of windows, analytical tools, support data, and navigational displays rotates over the scene.

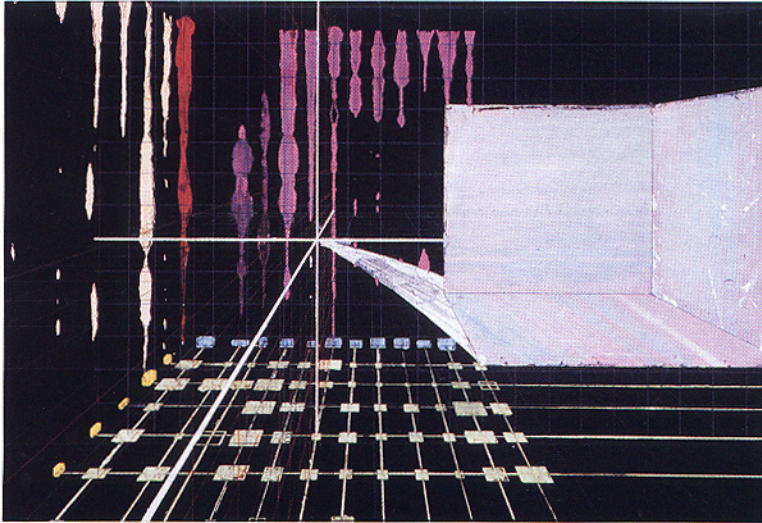
Plate 17

*Daniel Komberg, 1990.* Floating steadily through an infinite video and movie store—a gothic cathedral of sorts, its stained glass windows animated. The user plucks scenes and fragments, searching, creating new experiences. Windows to other parts of the construct.

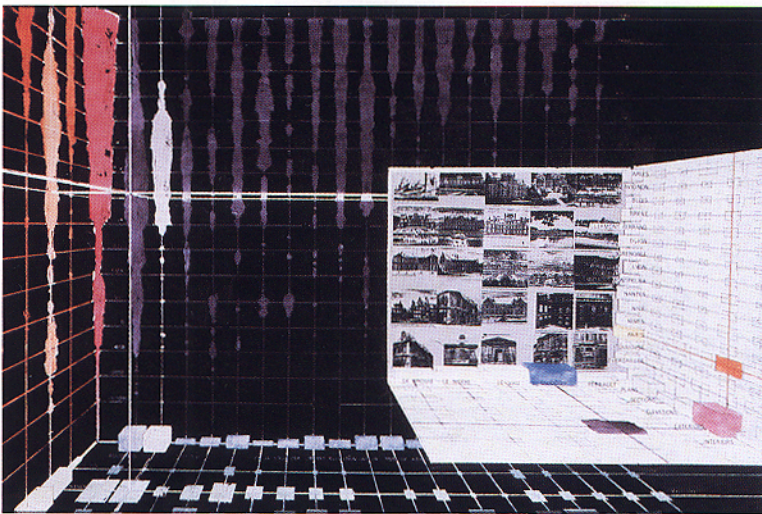
Plate 18

*Danielle Sergent, 1990.* An auction house somewhere in cyberspace; a circular museum with displays viewable from within, and without. Its shape changes with the contents of the auction underway.





**Plate 1**  
*Daniel Wise, 1988.* One vast data cell providing access to a visual database. Data available at the intersection of the three “crosshairs” opens into a subspace of three further dimensions.



**Plate 2**  
 Two surfaces of the subspace continue to display navigation data (as well as quantitative indications of content) while the third surface is beginning to show destination data, that is, the sought images.

Within Benedikt’s writings, one tries to create a mental picture of a virtual world. Given the flexibility of the imagination and vast possibilities of the virtual, it is difficult to gain a sense of clarity. Luckily for us, a series of screen captures of early virtual work were included in the book and in which can be seen the influencing factors behind his philosophy.

# CYBERSPACE: REVISITING PROPOSALS

## Overview of Terminology and Some History

The early nineteen nineties saw a blitzkrieg of all things virtual. Into this Benedikt looks to the far future and sets out to plot its methodology. At the onset, cyberspace is declared one of many virtual worlds and a pondering of what laws and axioms of nature ought to be retained. Second, the questions of how will we navigate such spaces and what we will do there is discussed. These then form the two sections of the paper. Also, to be fair, he states then that the proposals presented are not meant to be “*serious and rigorous*” rather “*They are presented, rather, as comparative notes, as mediations on the way to a rich, viable, consensual, and “virtual” parallel one (world).*”

Benedikt writes that “*Cyberspace is related to “virtual reality (VR)” , “data visualization” , “graphic user interfaces (GUIs)” , “networks” , “multimedia” , “hypergraphics” , and other such catchwords...*”. He furthermore “*in some sense*” includes them as disparate segments of Cyberspace and asserts that Cyberspace is a common target or project for all of them. For Benedikt, Cyberspace is a full-blown, consensual virtual reality available to the public.

As we seek to define the term, it’s worth noting that the term “*virtual reality (VR)*” has both a broad definition in use by the general public and cripplingly narrow one used by academia. The broad definition is in a sense interchangeable with Cyberspace, while the narrow one only applies to electronic environments that seek to mirror exactly the real

world. Unfortunately for those defending the narrow definition, reality is exceedingly flexible and ever changing through technology and cultural contexts.

Those fighting for the narrow definition appear to have won the battle, but lost the war.

Though still in use by Hollywood, few people in the field use the term any more.

Mirroring reality has been shown to be an ineffective path to empower people within three dimensional, computer driven spaces.

The term Cyberspace also seems to have fallen from favor. Over fifteen years have passed and the lack of successful application has made it sound old and perhaps even naive. Its implied technological nature, rooted in the prefix “Cyber”, is ill suited to the application to natural laws and axioms that Benedikt and others, (myself included) want to apply. At present, the phrase “Virtual Environment (VE)” has been deemed by the developer community the best way to describe the current generation of these digital, data driven worlds. Sadly, given the past failures to create a “*full-blown, consensual, and public virtual reality*”, the sense of community found in the term cyberspace is not apparent in the concept of a virtual environment. The hype is over, the work remains.

## **Influences of Culture**

Benedikt’s thoughts on why cyberspace is a romantic vision steeped in individual control and dynamic clarification. A clarification that; “*..by sheer contrast, (shows) the value of unmediated realities...*”. Here, Hillis would likely return to the critiques of wishful



thinking. His final paragraph in *Digital Sensations* begins “*The promise and hype of VR and ITs more generally is part of an ideology of the future, produced in an amnesia and loss of history that forgets the broken promises of past technologies such as the “universal educator” TV and “to cheap to meter” (nuclear power.)*” Hillis forgets that hype is simply hype and that it is an irremovable part of all innovative research. The study and use of virtual environments is clearly in its infancy. Sweeping dismissals on cultural grounds blames the process by which we create not the work created. Secondly, attempting to leave reality, to exist without certain defined aspects of it is a logical manner to determine our relationship with it. The failures of separation to date, are not failures at all. To the contrary, they indicate the deep roots we have to this physical realm.

We cannot look to Hillis for answers. He does not propose any vision of virtual space. His criticisms of the early work and philosophy of cyberspace are of value and as we continue with a look at the proposals of Michael Benedikt we will be careful not to rely on hype and romantic notions of better living through science.

# **BENEDIKT: SEVEN PRINCIPLES**

## **A Brief Overview**

Utilizing five essentially topological rubrics: “ dimensionality, continuity, curvature, density and limits” Benedikt seeks to create the type of space proposed in the early writings of William Gibson. To do so, he suggests seven guiding principles for the creation of cyberspaces.

The Principle of Exclusion (PE)

The Principle of Maximal Exclusion (MPE)

The Principle of Indifference (PI)

The Principle of Scale (PS)

The Principle of Transit (PT)

The Principle of Personal Visible (PPV)

The Principle of Commonality (PC)

## **The Principle of Exclusion (PE)**

The Principle of Exclusion is an interesting way of accepting the infinite dimensionally of cyberspace and attempting to work backwards. By dimensionality, we mean the ability to embed data into the visual constructs of virtual space. Akin to data visualization, it appears to be a method for creating the types of space written by William Gibson.

Unfortunately, a multidimensional pie chart makes for lousy living quarters. It is a classic mistake is made by the sci-fi romantic notion of existing abstractly in data. Data in this

form demands attention. Worlds in which every object is linked statistically to some unrelated knowledge is no place for casual conversation. If one was a programmer or artist the experience the interface may hold value. From this comes a sense that virtual worlds can perhaps be flipped from state to state depending on use. A similar visual process allows a programmer can rewrite a program by looking at lines of text or within a GUI based editor. Furthermore, a user can manipulate the positions and availability of tools in software. In a shared, three-dimensional environment, it is likely they will be able to do the same.

The philosophical point of Principle of Exclusion is valid, but it is superceded by the user's ability to comprehend and the user's direct needs.

### **The Principle of Maximal Exclusion (MPE)**

Maximal Exclusion can be seen as a philosophic visual compression algorithm. It would be required by such infinitely data driven worlds as supposed by Benedikt. It also quickly leads to a second criticism. The understanding of data is most clear when presented in its simplest form. This often leads not to the multidimensional spaces of Gibson but down to very simple and clear two-dimensional formats. The nature of visual information comes into play. Charts and graphs work well because they have no ulterior motive for existence. Added information or "dimensions" can be given in terms color, shading, texture. By placing charts, dials, or graphs side by side or in overlays, easy to read comparative, unified sets of data can be interpreted. Animation can show time. Unlike a three-dimensional space, they do not change via the random movement of a user. Even if

a user could control their movement to a precision required, would that still be the most effective method of interfacing with the information? More problems pile up quickly. Shading used to make objects appear three-dimensional and the scalar distortion caused by differences in an objects distance adds unwanted, uncontrolled information into a scene. No developer that I am aware of, aside from myself, has tried to incorporate these design issues into a theory of three-dimensional data visualization. It would seem possible to use the narrative created via the changing positions to tell a story. One has created a form or found data that would be properly presented in this manner. Sadly, there is another issue; by definition, two or more users would see the same data differently. If collaboration involving the data is needed a fundamental problem is found.

Benedikt makes a series of descriptive statements on the scale and folding of virtual space.

### **The Principle of Indifference (PI)**

The Principle of Indifference states *“that the felt realness of any world depends on the degree of indifference to the presence of a particular user and on its resistance to his or her desire.”* Again, Benedikt is trying to narrow an infinite number of potential worlds. In this principle he begins to subtract the dreamscape by applying cognitive science. *“Real worlds push back”* Indeed they do, but here Benedikt misses a critical distinction between interfaces and environments. Interfaces serve the users needs and whims (or try to) without question, environments do not. Environments have an existence all there own. In 1996, I had a conversation with VRML guru Bob Crispen. He reviewed one of my

worlds and said I'd get better performance if the text wasn't flying around all the time. If I used a trigger to make it appear when the user was in range it would be more accessible to the user and the other lines of text in the distance, (which couldn't be read anyway) would be inactive, thus helping my rendering time. My response was simple. I am sorry Bob, but I want a world that exists outside the whim of the user. I want a world that demands the user respond to it rather than vice-versa. The feeling of seeing other texts in the distance and maybe the just missed being able to read it is important to the nature of the work. Benedikt points to this, but doesn't recognize the direct opposition to the primary goal he has set, namely the access of data. Who wants an interface that does not respond to your needs? The solution is simple enough, place interfaces within the environment.

### **The Principle of Scale (PS)**

The next assault on infinite comes from the Principle of Scale. It "forms a connection between the amount of space in space and the amount of information in space."

Unfortunately, the usability of such information does not follow Cartesian rules. It can be represented in such a fashion, but not all information makes use of additional ability to express itself. Again if clarity is the key, then the forced expansion of data onto an environment is less than helpful. His own Principle of Maximal Exclusion plainly puts information into its least dimensioned form.

## **THE REMAINING PRINCIPLES**

### **Issues of the Multi-user**

Benedikt is aware that two or more users in a scene causes problems for his entire theory. Rather than accept that the multi-user environments serve a different purpose than single user ones, he applies three philosophic patches to cover the holes. The Principle of Transit, the Principle of Personal Visibility and the Principle of Commonality each undergirds a more sweeping truth. The primary benefit of three dimensional space lies not in the access to databased information, it is in the ability to reach out to other consciousnesses. To meet and collaborate with other people is the driving factor behind cyberspace.

### **The Principle of Transit (PT)**

In Transit, we find a belief that a user must travel phenomenally through all the points between them and their destination. The reason for this is not the user, but to those onlookers who watch the user. Benedikt acknowledges this later *“The most likely problem to arise would be confusing the perceptions others might have of where/who/what/how many you are.”* Note that this principle suddenly expands from more than just position but identity and function as well. Sensing this Benedikt, applies another philosophic patch.

## **The Principle of Personal Visible (PPV)**

The construction of the Principle of Personal Visibility is hinged not to benefit the user, but to those trying to interact with and evaluate the user in a space. The need for this is found in interface design. To interact one needs to have a distinct method of marking or tagging individual elements on a page. Visually these tags cue the user to the type of activity one can perform on or with them. In the case of other individuals in cyberspace, the tag is a user's avatar accompanied by a text-based name floating over its head. Benedikt dives in to hacker culture on invisibility and then adds a paragraph on not feeling alone. Hacking is a future possibility, but the threat would be masking not the outward visibility but the underlying digital footprints. Feeling alone and visual tags forget that the arms, legs and head of a real body are more than just a tag or marker, they are the foundation for human interaction. They were designed either by natural selection and/or god to work within a three-dimensional world. In turn, we design all physical objects (art may be excluded), tables, equipment, and tools with a concept of the body in mind. The visible body forms the basis for a great deal of the world we've built and methods we use to interact within it.

## **The Principle of Commonality (PC)**

The final principle is that of Commonality. Whereas the principle of Indifference set the relationship between user and space, this is between user and user. Cyberspace acts as the mediator. Benedikt copes with the fact that virtual space can show different data to users sharing an environment, "*I might sit on a leather chair that in your world is a wooden bench*". He is correct in pointing out the possibility, yet doesn't find a practical

application. In a general sense, it is easy to agree with him that it could be a major problem. Even in worlds where everyone sees (mostly) the same things people disagree over what they are and what they mean. Within the problem is a silver lining; here lies an opportunity to layer environments. In the real world, the plumbing, wiring, the hot water heater, air conditioner system is hidden away. In programming terms this is somewhat like viewing the source code on a website. In designing and in interacting within worlds, there may be a purpose for viewing the environment differently. A possible example is as programming diagram overlaid on the usually visible objects.

Benedikt incorporates his term “*isovist*” which means a closed region of space, combined they form “*territories*” In the physical world, we call them “*rooms*” and the grouping of them a “*building*”. In this new media realm walls no longer hold up the roof, they separate quantities of data. To push the analogy further doors are like links and windows a method of preview. The mixed as it is interesting and in essence correct, but this not a direction Bendikt takes. Nor does he follow on the notion that the differences in space allow for a user to have a personal reality. Not in the grand sense, but more of a wallet or PDA interface that the user brings with them. In essence, it is the extension of the OS GUI. In traveling to many different worlds, a user ought to have a set of tools, commands, available to them, set by their preferences and in a format they feel comfortable with.



## **Benedikt and the Nature of the Virtual**

Benedikt pursues the abstract and theoretical course set in motion and then abandoned (to a large degree) by William Gibson. While his mathematics are producible in a virtual space, little is given to assess the value of doing it. The fact that his style work is producible reflects the core nature of virtual environments. Cyberspace holds infinite possibilities of expression. Anything you imagine is possible (not necessarily good or practical). It is a radically new genre in which we are not limited by what we can create, but by what we can comprehend.

As we deal with physical limitations of mouse and screen and of processing power, we ought to remember virtual reality is a medium defined by science fiction. Its true nature will be designated in the ever-expanding future. For now, we strike a balance. We accept the legacy of physical reality and how current design issues will shape the future. We also give deference to the empowerment allowed by this media. It will likely reflect back, change reality and present a jolt of hyperreality. In the end, little is certain, except for this; we will not exist as flesh inside cyberspace; only as memories of flesh.