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**VIRTUAL REALITY? MARSHALL McLUHAN AND A PHENOMENOLOGICAL
INVESTIGATION OF THE CONSTRUCTION OF VIRTUAL WORLDS**

by

**Jude Kornelsen
B.A., University of Victoria, 1989**

**THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF ARTS
in the Department
of
Communication**

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ABSTRACT

Recent technological developments in real-time computer simulation, namely Virtual Reality technology, have been met with excitement and enthusiasm by many who see the potential it has for altering our communicative, educational and recreational environments. I have recognized one fundamental question that the technology poses: What will the nature of reality in virtual reality be, and how will we determine it? This thesis investigates two areas: the ontology of virtual reality and the intersection between the work of Marshall McLuhan and phenomenology as a heuristic method of investigating the problem.

For the phenomenological framework this thesis references Alfred Schutz, primarily his work on how we “construct” our social and physical reality expressed in *The Constructions of the Life-World*, (volumes I and II). I also incorporate Berger and Luckman’s *Social Construction of Reality* into the discussion. I refer to Don Ihde’s work on phenomenology applied to technology and Drew Leder’s work on disembodiment.

My consideration of McLuhan and phenomenology yields four broad areas of intersection, each containing further intercesses within. These categories are (1) The Body; (2) The Environment; (3) Language; and (4) McLuhan’s Tetrad.

In my discussion of the body I note that both McLuhan and the phenomenologists regard it as the starting point from which all understanding of the world originates thus privileging the role of the senses and perception. Specific complementary areas I consider include the extension - disembodiment dynamic and the amputation - disappearance relationship. The second point of intersection examines two perspectives on how we manipulate the environment and how it, in turn, manipulates us, focusing specifically on various “levels” of reality and how we move through them. The third point of conversion considers how the “language” of a technology structures perception, returning to the implications of McLuhan’s phrase, “the medium is the message”. I end by presenting McLuhan’s Tetrad as a significant area of convergence with the process of phenomenological reduction and apply the model to an analysis of virtual reality.

In concluding this thesis I suggest that McLuhan's work, grounded as it is in the senses, and phenomenology, grounded as it is in the philosophy of perception and experience, can provide a way of illuminating the ontology of virtual reality. The two models are helpful when intersected as each deal with an area of concern in a manner complementary to the other. I speculate on the nature of the reality of virtual reality, noting the inevitable relationship it must have to our lived, social reality and suggest several areas for further investigation.

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Any errors or oversights in this work are, of course, completely my responsibility.

TABLE OF CONTENTS

Abstract	iii
Acknowledgements	v
Table of Contents	vi
List of Figures	viii
Introduction	1
Introduction to the Discussion	1
Introduction to Virtual Reality	9
Definition of Terms	9
A Brief History of Virtual Reality	12
Chapter One: The Body	15
The Body and Life-World Apprehension	17
A Phenomenological Interpretation	17
The Body and Perception: McLuhan's Interpretation	22
The Body in Virtual Reality	26
Our Extended Self – Our Disembodied Self	30
McLuhan' s Extensions	31
Phenomenological Disembodiment	35
The Search for a Virtual Body	38
Amputation and the Disappearance of the Body	42
Chapter Two: The Environment	50
Construction of the Environment	52
McLuhan and the Environment as Process	52
The Social Construction of the Life-World	53
The Social Construction of Virtual Worlds	60
Figure and Ground	64
McLuhan's Figure and Ground	64
Phenomenological Figure and Ground	66
Virtual Figures and Changing Ground	68
Alternate Realities	69
Schutz's Multiple Realities	71
Virtual Reality as a Finite Province of Meaning	75
Chapter Three: The Language of Technology	79
Language and the Perception of the Life-World	79

McLuhan and Language: From New Criticism to the Language of Technology	84
The Language of Virtual Reality	90
Chapter Four: A Phenomenologically Based Tetradic Analysis of Virtual Reality	95
McLuhan's Four Laws of Media	95
A Tetradic Analysis of Virtual Reality	98
The Enhancement of Awareness	98
The Obsolescence of Temporal – Spatial Constraints in Communication	100
The Retrieval of Paramount Reality	104
The Reversal of the Symbol	107
Conclusion	112
Bibliography	117

LIST OF FIGURES

Figure 1: Virtual Interface Environment	11
Figure 2: Woman's Face	67
Figure 3: Representation of Virtual Time	76
Figure 4: Apple Desktop	102

INTRODUCTION

Introduction to the Discussion

I have worked for a number of years in the field of interactional computer-based program development, and along with my colleagues have witnessed the birth and introduction of virtual reality (VR) technology first into the computer industry and then into the public mind. Like others I have seen the incredible potential for altering our communicative, educational and recreational environment that the technology seems to suggest but at the same time I recognize one fundamental question the technology poses: What will the nature of reality within virtual reality be, and how will we determine it? This thesis investigates two areas; the nature of reality in VR and the intersection between McLuhan and phenomenology as a method of investigation.

McLuhan's work, grounded as it is in the senses, and phenomenology, grounded as it is in the philosophy of perception and experience can provide a way to illuminate the nature of the reality of virtual reality. Having come to the conclusion of my heuristic investigation, a thesis has been developed to show that a synthesis of McLuhan and phenomenology (or, more precisely, media studies expounded by McLuhan and select phenomenologists) provides us with a potent way to do this. The two models are helpful when intersected as each illuminates an area of concern in a manner complementary – as opposed to antagonistic – to the other. McLuhan, as a theorist of electronic media who focuses on perception and sensory organization as the primary influence in our interpretation of reality, emphasizes the technological properties which structure perception. The phenomenologists, who also privilege interpretation and reflection in the analysis of human and social life, direct their focus to the cognitive aspects of reality-apprehension, namely how the dynamic interplay between our internal mechanisms and the environment structure perception. By considering both the "external" (technology) and the "internal" (social conditions) factors in the

construction of virtual worlds, I am able to engage in a more comprehensive discussion than if I were to use either model in isolation.

Aside from providing a framework from which the question of reality in virtual reality can be considered, my investigation produces interesting residual areas of consideration, namely that media theory expressed by McLuhan and many aspects of phenomenology compliment each other. Although I see a valid and useful relationship between the two areas for examining the nature of virtual reality and have chose to craft a methodology based on them, I can also see other methods which would be useful in investigating virtual reality, such as Innis and the structuralist tradition.

Although I use the broad title “phenomenology” (or “phenomenologist”) throughout this work, I am in fact only referring to a small part of the tradition, that is, the theory of how we “construct” our reality (“life-world”) as expressed by Alfred Schutz, primarily through his two volumes, *The Constructions of the Life-World* and, in the same tradition, Berger and Luckman’s *Social Construction of Reality*. I will also be referring to two of Don Idhe’s works, *The Consequences of Phenomenology* and *Technology and the Life-World* for their discussion of phenomenology applied to technology. Finally, I have incorporated Drew Leder’s work, *The Absent Body*, into my discussion of disembodiment. I have chose to privilege the work of Schutz *et al.* because of its obvious application to a comparative discussion of the construction of virtual worlds, but acknowledge that others in the phenomenological tradition, most notably Martin Heidegger and his discussion of technology and Merleau-Ponty and his discussion of perception, could also provide a valuable framework for examining the issues.

By expressing an interest in the nature of the reality of virtual reality, I am, in effect, investigating the “ontology” of virtual reality. I am aware that there are conflicting traditions in the history of ontology, although it is not within the realm of this discussion to engage in that debate. Instead I will use the term as defined by Michael Hiem, who has investigated the ontology of word processing in his book, *The Electric Language*. Hiem builds his discussion

on several crucial assumptions which imply a functional definition of “ontology”, the most fundamental being posed as a philosophical question. He asks how contemporary contact with reality is affected by the new writing technology, assuming that there is necessarily a transformative element to technological innovations. More specifically he asks: “What is it that we can examine consistently and fruitfully which will allow us to perceive the unique challenges to reality apprehension that are raised by word processing?”¹ He later answers his questions by suggesting an approach, rather than specific focus for investigation, an approach that privileges an examination of thought under changing conditions caused by electronic symbol manipulation. Hiem’s method does not rest solely on investigating the nature of thought alone, however, but also pursues an investigation of subsequent changes in our interaction with signs and changes in skills developed to manipulate these signs. Briefly, Hiem’s ontological investigation is involved with the way our interaction with reality is affected by word processing and, to a lesser extent, the mode in which these “realities” become identifiable and intelligible. It is Hiem’s functional definition of ontology that will inform my investigation of virtual reality.

For further clarification regarding the intended meaning of ontology, Hiem contrasts a mode of investigation which falls outside of his ontological framework when he notes that we may be inclined to consider word processing as a tool and thus engage in an analysis conducive to evaluation based on utilitarianism and efficiency, an approach which would “fail to touch on what is essential in the interface between human and machine”.² Also, it may lead us away from a focus on what is happening *to us* and *with us*. Virtual reality, then, will not be considered as a tool, but as a cultural phenomenon.

Finally, Hiem provides this investigation with a model and subsequent rationale for considering a technology upon its introduction (as opposed to after it has become sedimented in our social structure) which maintains theoretical harmony with the phenomenological tradition (i.e., considering the introduction of new social institutions in their nascent phase). Hiem acknowledges that it would be easier to evaluate the phenomenon after “historical

distance” has been established and historical accounts become available.³ Yet it is precisely at the point of introduction that, says Hiem, “the past becomes clear as past, as obsolescent, and the future becomes clear as destiny, a challenge of the unknown”.⁴ The advantage of the study of VR in its infancy, then, is the sense of novelty generated by the lack of transparency which may yield a more comprehensive awareness of transformations.

My consideration of McLuhan and phenomenology has yielded four broad areas of intersection, each containing further complementary areas within. These categories, although not arbitrary, are not the only areas where McLuhan and the phenomenological tradition may cross, but instead provide what I consider to be the primary areas of concern when considering the ontological nature of virtual reality. The four themes, each investigated in a chapter of its own, are (1) the body; (2) the environment; (3) language; and (4) the tetrad.

I begin with a discussion of the body as both the phenomenologists and McLuhan regard it as the starting point from which all understanding of the world originates. McLuhan emphasizes the alignment of our senses as fundamental to reality apprehension and the phenomenologists focus on the role of perception, which is necessarily bodily-based, in the interpretation (thus phenomenological construction) of our world. This intersection and its implications for emergent virtual reality technology illuminate the dual nature of VR as on one hand being a forum conducive to disembodied experiences (when considered from an “internal” cognitive perspective) and, on the other, being sense-affirming and grounding us very much in our carnal, perceiving physical condition. Specific complementary areas I consider include the extension - disembodiment dynamic and the amputation – disappearance relationship, both of which emphasize McLuhan’s external, metaphorical contribution (extension and amputation) and the phenomenologists cognitive contribution (disembodiment and disappearance).

From a discussion of the body I move to consider the environment in which we (and our bodies) exist. The second point of intersection examines two perspectives on how we manipulate the environment and how it, in turn, manipulates us. Within this discussion I look

at various levels of reality and how we move through them, sometimes aware of the shifting properties, sometimes not. I suggest that these discrete realms of reality are bound by a “permeable membrane” through which information passes in both directions, again suggesting a dynamic relationship. I suggest that our embodied experience of the environment and reality will affect and be effected by experiences in virtual reality.

The third point of conversion in my discussion focuses on language, more specifically, how the “language” of a technology structures perception. The role of language, in a literal sense, is of paramount concern to the phenomenologists as they regard it as one of the primary instruments of socialization and contend that it structures perception in that the grammatical constraints, syntax and terminology - sets necessarily limit what and how we perceive. McLuhan is also concerned with the structural influence of language in perception (as evidenced by his attention to the Sapir-Whorf hypothesis) but extends his interest to a metaphorical level when he considers “the language of a technology”. The step from considering the confines that language necessarily imposes to a consideration of similar confines imposed by technology paves the way for a comprehensive discussion of the potential ontological impact the technology may have. Don Idhe has elaborated on this theme through the development of a classification system for different kinds of perceptual realtionships we may have with the world based on the nature of our relationship with mediating technology. My discussion of language does not focus on the terminology set that is developing to describe virtual reality or the influence of the “cyberpunk” tradition within the science-fiction genre, although I acknowledge them as important factors shaping our understanding of VR and in need of investigation. Instead I am returning to the implications of McLuhan’s phrase, “the medium is the message”.

In my fourth chapter I focus on what upon first consideration appears to be solely the domain of Marshall McLuhan, but upon further investigation is revealed to be one of the most significant points of intersection between McLuhan and the phenomenological tradition: the tetrad. McLuhan’s tetrad, or “laws of media”, incorporate earlier work McLuhan did in

developing the “figure-ground” methodology for investigating the unforeseen consequences an artifact may have on its environment. By focusing on four (albeit broad) usually overlooked areas of investigation, the tetrad, in effect, performs the function of phenomenological reduction where usual assumptions about the world are put in “brackets” so fresh insights may be had. Although the tetrad was presented as a set of scientifically rigorous “laws”, I will be considering it only as a construct for generating questions for further discussion and not as a method of scientific investigation. In my application of the tetrad to VR I consider each law only in relation to the phenomenological tradition, maintaining the investigative paradigm set for this work.

As noted earlier my chosen points of intersection are certainly not the only areas where McLuhan and the phenomenological tradition may intersect. For example, McLuhan emphasizes the important social function of “the artist”, who he describes as “the man in any field, scientific or humanistic, who grasps the implications of his actions and of new knowledge in his own time. He is the man of integral awareness.”⁵ He also contends that through “artistic play [artists] discover what is actually happening and thus appear to be ahead of their time”. He makes specific mention of science fiction, which, according to McLuhan, “presents situations that enable us to perceive the potential of new technologies”.⁶ Alfred Schutz also acknowledges the insights of the artist, for much the same reason as McLuhan, when he says, “The poet and the artist are much closer to an adequate interpretation of the worlds of dreams and phantasms than the scientists and the philosopher, because their categories of communication themselves refer to the realm of imagery. They can, if not overcome, at least make transparent the underlying dialectical conflict”.⁷

Early in my investigation I note a tension between McLuhan’s approach, which emphasizes the *external* ramifications of technological change through metaphor’s which highlight technology as an extension of the body, including amputation, pain and shock, and the phenomenological approach which sees change as occurring in perception and cognition, or *internally*. This tension, which serves to provide a more comprehensive analysis of the subject,

however, was not the only area of dynamic interplay that emerged during my investigation. The second area was between two contradictory readings of McLuhan. He is often interpreted as contending that upon the introduction of a new technology, society is thrown into a chaotic furor resulting from the wide spread change brought about by the technology, an analysis that neglects consideration of his later work on the tetrad. It is because of the lack of consideration of the *retrieval* aspect of McLuhan's work that I felt it imperative to include a discussion and application of the tetrad in my analysis.

Before I formulated a framework from which to examine the phenomenon of virtual reality, I was intrigued by the attention the popular press had given to McLuhan in regards to the new technology. I wondered if perhaps the aphorisms that made him famous were easily applicable to the conditions brought about by the computer age because of their prophetic insight (as his supporters would suggest) or because of their ambiguous and sometimes contradictory nature (as his detractors would charge). I was amused by the title in *Mondo 2000*, an alternative California-based magazine which read, "Marshall McLuhan: The Cognitive Agent as Cyberpunk Godfather". Several articles in the Autumn, 1990 issue of *Mondo 2000* cited McLuhanesque concepts such as "hot and cold media", "The Global Village", and media as "extensions of our central nervous system". In an article called "Digits Run Riot!" author Jas Morgan says: "As we accelerate... increasingly towards lightspeed and into hyperreality it's only natural that we as a culture re-investigate and reinvigorate the ideas of Marshall McLuhan".⁸ He goes on to say that he hopes "McLuhanism can be forced into a kind of science through which the effects that new media have on perception will be understood".⁹ My curiosity was heightened when I noticed that attention has been directed at McLuhan's work as a way of examining VR also from within academe. In "Modernism, McLuhan and the Evolution of Cyberspace" Donald Theall, the author of *The Medium is the Rear View Mirror* (a comprehensive critique of McLuhan's rendering of James Joyce), contends that the conceptual evolution of cyberspace can be studied in the works of McLuhan and that in the context of virtual reality, "his ideas speak

with a new precision of the here-and-now".¹⁰ In "Elements of a Cyberspace Playhouse", Randy Walser notes that it was over a quarter century ago when McLuhan prophesied about electronic media and Walser suggests that perhaps now we are in an environment where we can understand what he said. Others have also incorporated McLuhan into discussions of VR (see Jevans 1991; Laurel 1991; Sack 1991; and Levinson 1990). In my own reading of McLuhan I have come across several of what I call "virtual prophesies"; observations on the future of computers which seem to describe the conditions unfolding around VR. For example, in *The Global Village* McLuhan notes "Communication media of the future will accentuate the extensions of our nervous systems, which can be made disembodied and totally collective".¹¹ He also says, "As man succeeds in translating his central nervous system into electronic circuitry, he stands on the threshold of outerring his consciousness into the computer".¹² And even earlier, in *Understanding Media* he said, "An immediate simulation of consciousness would by-pass speech in a kind of massive extrasensory perception, just as global thermostats could by-pass those extensions of the skin and body we call houses".¹³ Such prophesies, although perhaps exaggerated, force one to consider the work of Marshall McLuhan in this age of virtual environments (while keeping in mind, of course, the fact that in his later years when the personal computer revolution was beginning he was totally disinterested in the computer as a new and powerful technological force).

The useful application of McLuhan's concepts to a discussion of virtual reality technology, however, does not depend on his immediate popularity, but instead on his ability to provide a comprehensive framework for the analysis of the nature of a new media. McLuhan was not known for his ability to develop and synthesize his (often disparate) facts into a comprehensive analysis: in fact his writing style (called "aphoristic", based on "probes" instead of theories) was exactly the opposite. I am aware of the debate surrounding the validity of McLuhan's work, and although it is not within the scope of this discussion to become involved in it, I do acknowledge that attempting to build a methodological analysis from McLuhan's work would be problematic at best, which is why I have elected to integrate

his often insightful probes with a more rigorous phenomenological discussion. Through this integration it is hoped that I will be able to make use of McLuhan's innovative work on electronic media with the supports of a more systematic method of investigation.

An Introduction to Virtual Reality

As noted above, Michael Hiem suggests that considering the implications of a nascent technology before it has become sedimented into the social structure (and thus "transparent") is a privileged time for philosophical consideration. It also presents, however, certain challenges when one is faced with defining terms as care must be taken not to force a description for clarity but instead to derive a working definition from information available. In this section I will make an effort to "define" virtual reality (alternately called "cyberspace", "artificial reality" or "telepresence") through available definitions and a brief history of the technology.

Definition of Terms

In his introduction to the First Conference on Cyberspace in 1990, Michael Benedikt, author of "Cyberspace: Some Proposals" noted that "no one knows exactly what form cyberspace will eventually take"¹⁴. He nevertheless goes on to provide one of the most comprehensive definitions of the term to date, describing it as

...a globally networked, computer-sustained, computer-accessed and computer-generated, multi-dimensional, artificial, or "virtual" reality. In this world, onto which every computer screen is a window, actual, geographical distance is irrelevant. Objects seen or heard are neither physical, nor, necessarily, representations of physical objects, but are rather – in form, character, and action – made up of data, of pure information. This information is derived in part from the operations of the natural, physical world, but is derived primarily from the immense traffic of symbolic information, images, sounds, and people, that constitute human enterprise in science, art, business, and culture.¹⁵

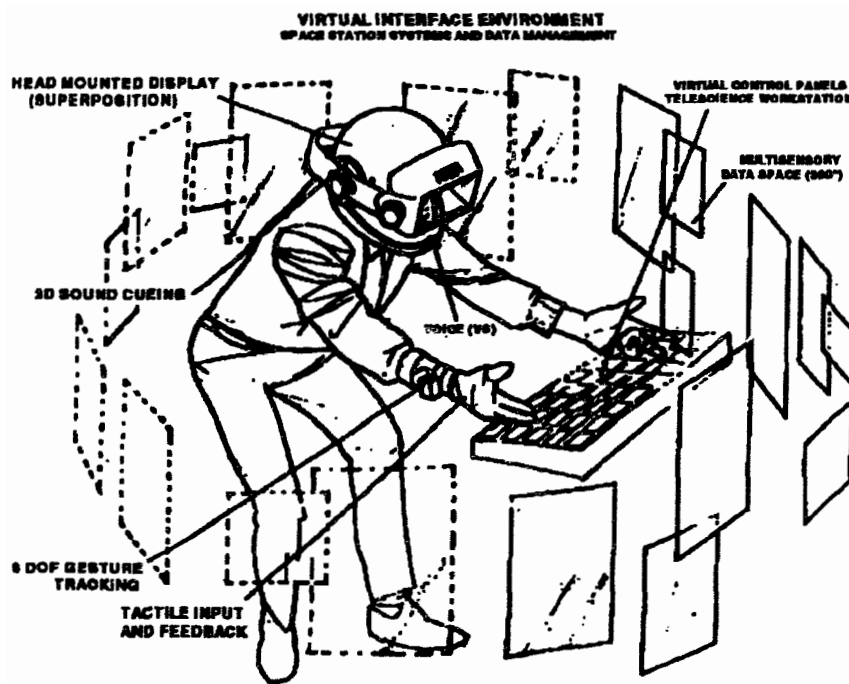
Benedikt goes on to say that in cyberspace, institutions take on new forms as do people. He notes that cyberspace will likely have a geography and code of human law; "it will be bounded technically only by the limits of data transmission and computing speed, and psychologically only by desire and imagination".¹⁶ This definition, however, illustrates another problematic element of defining emergent technology; that is, its dual consideration as both a phenomenon lending itself to philosophical reflection and also a specific configuration of technology. Another example of this dual consideration is the way in which VPL Research, a California-based developer of VR technology, describes VR on its brochure; "The easiest way to understand VR is to compare it to the physical world. Physical reality is the thing we find on the other side of our sense organs: eyes, ears, and skin. Virtual Reality is perceived when computerized clothing is worn over the sense organs."¹⁷ This definition, McLuhanesque in tone, also considers VR as a total environment, an *experience*, as opposed to an actual technology.

One might assume that to find definitions or descriptions of the technological configuration, then, one could turn to literature on the components of virtual systems – whether written by system architects, computer scientists or software and hardware developers. This is partly true. In the users guide of *Swivel 3-D*, a three dimensional drawing program used to create virtual worlds, the building of computer models is described as "an opportunity to create your own small universe, because *Swivel* is a lot more than a three dimensional drawing/modeling program. It has 3-D space and can move in "time" (if you consider its powerful animation capabilities)",¹⁸ a description that again verges on the ontological as opposed to the technological. Perhaps a consideration of the semantic origins of the terms will provide us with insight into the technology.

In "The Metaphysics of Virtual Reality" Michael Hiem notes that in contemporary usage, the term "virtual" comes from software engineering and is applied to "any sort of computer phenomenon, from virtual mail to virtual workgroups on computer networks" where the reality referred to is not a "formal, bonafide reality"¹⁹. The term serves to bridge

the gap between our formally unified reality and our diverse experiences.²⁰ Today, the technology that allows us to create informal, “unbonafide” realities includes a helmet that presents each eye with a built-in graphic screen and a glove or an entire suit fitted with position sensors and laced with fibre-optic cables that tell the computer how the user is moving. The two graphic screens in front of each eye relay computer-generated images processed by two super computers that redraw the image every time the head changes position. One configuration of VR technology may look like this:

FIGURE ONE: VIRTUAL INTERFACE ENVIRONMENT



In his article, “Through the Looking Glass” John Walker provides a concise description of VR:

I define a cyberspace system as one which provides the user a three-dimensional interaction experience that provides the illusion one is inside a world rather than observing an image. At the minimum, a cyberspace system provides stereoscopic imagery of three dimensional objects, sensing the user’s head position and rapidly updating the perceived scene. In addition, a cyberspace system provides a means of interacting with simulated objects.²¹

A Brief History of VR

VR has been a topic for public consumption for the past two or three years, but the history of the technology extends back at least to 1965 when MIT researcher Ivan Sutherland introduced the idea of immersion in a simulated world coupled with user control through input-output devices. In his article, “A Head-mounted Three Dimensional Display” written in 1968, Sutherland described his vision of a three-dimensional display that would move as the user changed perspective. He noted that although stereo presentation was important in creating the illusion of existing in 3D, it was not as important as the shift in world presentation that naturally happens when we move through reality.²² It was Sutherland and his colleagues who first worked on the Head Mounted Display technology that has been adopted and refined in contemporary VR development.

Even before Sutherland, however, work was being done – albeit of a less technical nature – to realize the dream of a simulated environment that incorporated a mix of sensory cues to present the user with the illusion of existing in an alternate reality. This work was done by Morton Heilig, inventor and creator of “Sensorama Simulator”, “an apparatus to simulate a desired experience by developing sensations in a plurality of the senses”.²³ The Sensorama Simulator was an arcade-type game that simulated a motorcycle ride through Brooklyn in the 1950’s, complete with vibrations from the seat and handlebars, full motion 3-D film of the scenery and the wafting smell of pizza and garbage. Scott Fisher, a VR developer at NASA Ames Research Centre contends that “the sensorama display was one of the first steps toward duplicating the viewer’s act of confronting a real scene. The user is totally immersed in an information booth designed to imitate the mode of exploration while the scene is imaged simultaneously through several senses”.²⁴

Other major developments in VR technology grew out of research being done at NASA, described by Howard Reingold as “the institution that launched the first real public exploration of cyberspace”.²⁵ In 1984 NASA started the Virtual Visual Environment Display project (VIVED), which led to the Virtual Interactive Environment Workstation

Project (VIEW). The objective of research at NASA is “to develop a multi-purpose, multi-modal operator interface to facilitate natural interaction with complex operational tasks and to augment operator awareness of large-scale autonomous integrated systems”.²⁶ Virtual Reality was formally introduced to the general public, however, on June 6, 1989 at two trade shows by VPL Research and Autodesk, two private companies located in southern California. Both companies presented devices for interacting with three-dimensional, computer-generated worlds, and it is largely through their promotion that the term “virtual reality” has become mainstream parlance.

This cursory history is by no means complete in its mention of events that have shaped the history of virtual reality technology. Missing, for example, is a discussion of the role flight simulation for pilot and tank warfare training played in the development of the technology, as well as a discussion of earlier computer technologies which converged to allow VR to become a reality (for example, developments in computer graphics and increased efficiency in speed and memory capacities). Also absent is a discussion of conceptual influences, such as computer arcade games, and even non-computer role-playing games such as “Dungeons and Dragons”.

It must be acknowledged here that the vision of VR as a realistic simulation of reality, where one is virtually unable to distinguish between the two, is still a long way off. Problems exist with the current speed for calculating and re-drawing the computer graphics. Also, olfactory cues as well as a sense of tactility are still in early development stages. The rate of development, however, can be expected to advance quickly and steadily. For the purposes of this discussion it is the *vision* of the technology expressed by those working in the field of VR research and development that I am interested in; in short, what it promises and what we must prepare for.

¹Michael Hiem, *Electric Language: A Philosophical Study of Word Processing* (New Haven and London: Yale University Press, 1987), p. 97.

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- ²Ibid., p. 27.
- ³Ibid., p. 6.
- ⁴Ibid.
- ⁵Marshall McLuhan, *Understanding Media: The Extensions of Man* (Markham: Penguin Books Canada Limited, 1964), p. 71.
- ⁶McLuhan, *The Medium is the Massage* (New York: Simon & Schuster, 1967), p. 124.
- ⁷Alfred Schutz, *The Problem of Social Reality: Collected Papers 1* (Boston: Martinus Nijhoff, 1962), p. 224.
- ⁸Jas Morgan, "Digits Run Riot!" *Mondo 2000*, (Summer, 1990), p. 140.
- ⁹Ibid.
- ¹⁰Donald Theall, "Modernism, McLuhan and the Evolution of Cyberspace", Collected Abstracts, Second Annual Conference on Cyberspace, Santa Cruz, May, 1991.
- ¹¹Marshall McLuhan and Bruce C. Powers, *The Global Village: Transformations in World Life and Media in the 21st Century* (New York: Oxford University Press, 1989), p. 83.
- ¹²Ibid., p. 94.
- ¹³McLuhan, *Understanding Media*, p. 123.
- ¹⁴Collected Abstracts, Second Annual Conference on Cyberspace, p. i.
- ¹⁵Ibid.
- ¹⁶Ibid., p. ii
- ¹⁷Karrie Jacobs, "Design for the Real World", *Metropolis*, (September 1990), p. 65.
- ¹⁸Paracomp's Swivel 3D Users Guide, San Francisco, 1988.
- ¹⁹Micheal Hiem, "The Metaphysics of Virtual Reality", *Virtual Reality: Theory, Practice and Promise*, (eds.) Sandra Helsel and Judith Paris Roth, London: Meckler, 1990, p. 29.
- ²⁰Ibid.
- ²¹John Walker, "Through the Looking Glass", Sausalito, CA: Autodesk, Inc., 1988, p. 7.
- ²²Ivan Sutherland, "A Head-Mounted Three-Dimensional Display", *Proceedings of the Fall Joint Computer Conference*, 1968, pp. 757 - 764..
- ²³c.f. Howard Reingold, *Virtual Reality* (Toronto: Summit Books, 1990), p. 49.
- ²⁴Ibid., p. 94.
- ²⁵Ibid., p. 132.
- ²⁶Francis Balaguer, Angelo Mangili, "Virtual Environments", Swiss Federal Institute of Technology, Lausanne, 1991.

CHAPTER I: THE BODY

One characteristic of the “postmodern” age is the progression from the mind - body (or mind *versus* body) dualism, and the accompanying belief that rationality transcends bodily experience, to a view where the body is the locus of all experience and through it we understand and perceive our world. Johnson notes that “We are *rational* animals but we are also rational *animals*”¹ elucidating the concept of embodied rationality. Merleau-Ponty describes the body as “the very medium where our world comes into being”,² and Idhe notes that “the body plays an essential role in perception and ... is a concrete location from which all perspectives are had”.³ In *Orality and Literacy* Walter Ong describes the role of the body as the “frontier” between self and the world, and notes that our understanding of “interior” and “exterior” are in relation to the body.⁴ The centrality of the body in interpreting our environment is thematic to both McLuhan (through his discussion of sensory arrangement as an effector of reality apprehension and his metaphorical discussion of “technology as extensions”) and many phenomenologists (evidenced by their theoretical description of the life-world and our experiences in it that are necessarily grounded in the body and involve interaction with our embodied fellow men). The anatomical theme is also evidenced through the “phenomenological anatomy” of the lived body which characterizes regions according to their usual forms of presence-absence and the kind of world relations they permit, as Drew Leder notes.⁵ I will now examine phenomenological concepts of embodiment as interpreted by Alfred Schutz and Don Idhe and juxtapose them with McLuhan’s description of the “sensorium”. Before I begin, however, I will put the idea of the ‘living body’ into a socio-historical context.

We are reminded of the centrality of our physical body in our interactions with the world by its very nature as a living, functioning organism, demanding nourishment and revitalization. First and foremost we are carnal beings engaged in a birth-death cycle over which we have relatively little control (i.e., we know, unequivocally, that we will face death,

and often fear it). Schutz describes this experience (fear of death) as the “fundamental anxiety”⁶ out of which other inter-related systems of hope, fears, wants and satisfactions develop. However, although our mortal existence is an implicitly understood property of that which it means to be human, it does not reside in conscious awareness at all times; in fact, thoughts of death are usually relegated to our unconscious except in unusual circumstances (such as during a prolonged illness or upon the death of a loved one). If we were constantly aware of our impending death we would not be functional. This knowledge of death and awareness of our carnality has humbled us into accepting our role as part of the cyclic construct of nature, but not without resistance. Descartes himself worked to postpone his death beyond what was considered humanly possible.⁷ More recently as we move further into the cybernetic age we are looking to perfect methods of cryonics and the embodiment human intelligence in robotic systems, the mind forever preserved.⁸ It is important to note that just as our mortality recedes from awareness so does specific knowledge of our functional body. While writing, for example, I may be aware of the movement of tendons and muscles in my hand due to the physical reminder of the pressure my fingers feel against the pen, but I am probably not aware of blood moving through the veins and arteries of my left foot and even less likely to be aware of my spleen or any other internal organ (unless in a state of discomfort). Body regions relegated to a supportive role, or simply out of play at any given time are, according to Drew Leder, engaged in “background disappearances”. Instead of reinforcing the idea of disembodied rationality (how can our body be the locus of perception and experience if we are unaware of it most of the time?) these background disappearances can be seen as a necessary condition for functioning in the life-world as we would certainly be unable to function while trying to maintain awareness of our complete physiology. I will discuss this at length when I consider the phenomenon of disembodiment but it should also be kept in mind when examining phenomenological theories of embodiment.

The Body and Life-World Apprehension

A Phenomenological Interpretation

In his description of phenomenology, Idhe says it is “a philosophy concerned with the interpretation of human experience *rooted in perception and bodily activity*”⁹ (italics mine). The bodily activity - perception relationship is also a key aspect of the phenomenological understanding of Schutz’s concept of the “life-world”. Schutz’s very definition of life-world, “the region of reality in which man can engage himself and which he can change while he operates in it by means of his *animate organism*”¹⁰ (italics mine) reinforces this. The primacy of embodied relations in the life-world can be further evidenced in three concepts presented by Schutz: the idea of the ‘manipulatory zone’; the nature of the body’s relationship to our interpretation of time and space; and the necessary embodiment of our “fellow men” (that is, contemporaries) in mutual relations. Idhe develops the assumption of the importance of the body in world relations through a classification system for relationships we may have with technology which influence our perception of the world. I will now briefly look at Schutz and Idhe’s ideas.

In the everyday life-world we cannot attend to all that is occurring (or has occurred/has the potential to occur) within our immediate environment at any given time. Instead, we prioritize events based on personal relevance and temporal-spatial coordinates. That is, according to Schutz, we are most concerned with those sectors of the world which occupy the “here” and “now”.¹¹ The “here” includes elements within our immediate grasp; those things we can see and touch (as opposed to things we can see but *not* touch). Schutz calls this “the manipulatory zone” and describes it as constituting “the core of reality”.¹² Only within the manipulatory zone can the basic test of all reality, resistance, be administered. This theory of the prominence of the manipulatory zone concurs with the bodily activity - perception relationship in indicating the importance Schutz places on bodily-based experiences. It is interesting to note that the manipulatory zone is part, along with things in our range of view and scope of hearing, of what Schutz calls, “the world within reach”. What

is most striking about the composition of this “world” is its sensory foundation (things we can see, touch, and hear).

Relating to the primary role of the senses in constituting the core of reality is the importance of bodily movement in interpreting time perspective. In his essay “On Multiple Realities”, Schutz notes that bodily movements are experienced on two time planes; external and internal, or “*dureé*”. Awareness of external time (sometimes referred to by Schutz as ‘cosmic time’) occurs due to measurable bodily movements in the outer world whereas manifestations of our stream of consciousness are catalysts to awareness of *dureé*.¹³ What is most important here is Schutz’s assertion that it is through our *bodily movements* that we make the transition from *dureé* to cosmic time. This is articulated by Schutz elsewhere when he notes that we experience our self as “a body turned to the outside” but “also as a body from within.”¹⁴ Although we do not necessarily compartmentalize our inner and outer experiences, we may be aware of a division between events involving primarily one or the other.

Schutz’s third, and perhaps most important concept indicating the importance of the body in life-world activity, is that of the necessary embodiment of fellow-men in communicating feeling, willing and thinking. Only through the *body* of a fellowman may his interior self be revealed to us (or “turned to the outside”).¹⁵ This is not, however, meant to reduce available possibilities for interaction to polarized “mediate or immediate” situations. Instead, Schutz articulates gradations of immediacy ranging from a face-to-face conversation (where the highest number of signals are available) to telephone calls, exchange of letters, or news delivered by a third person, all exhibiting a decreased number of symptoms.¹⁶ Schutz’s attention to physical proximity in the constitution of relations with our contemporaries has interesting implications when discussing new electronic media. I will return to this theme below.

Our relationship to the world is, of course, never unmediated; our perceptions are almost invariably filtered through a technology (even the clothing that covers our skin prevents us

from having an “unmediated” relationship with the world). Thus, when considering the role of perception, it is essential to consider how it might be changed due to technology. Don Ihde provides a useful schema for examining this. In *Technology and the Life-World*, Ihde classifies different types of relations we can have with the world based on the extent of our engagement with technology. Underlying his system is the contention that the body is the centre of all perception and even though bodily perception is structured in such a way that certain constraints are placed on perceivability, there is still a range of “ambiguous perceptual possibilities”.¹⁷ That is, the relationships are not determined. It is important to note that Ihde identifies two distinct forms of perception; micro-perception (sensory perception) and macro-perception (what Ihde calls “cultural or hermeneutic perception”).¹⁸ There is a McLuhanesque gestalt relationship between these two forms in the sense that microperceptions are by necessity located within (and influenced by) the field of macroperceptions, and macroperceptions depend on microperceptions for specific focus.

The three categories of world relations Ihde suggests are *embodiment relations*, *hermeneutic relations* and *alterity relations*. Embodiment relations are relations in which technology assumes a transparent mediating position between self and the world. (Ihde appears to translate “transparent” in both a figurative and literal sense, in the former instance referring to the “withdrawal” of the technology to the extent that we are unaware of it and the latter referring to the material condition of physically being able to see through it.) Transparency, according to Ihde, is not only a necessary condition of embodiment relations, but also a driving desire in the users of technology (we don’t want to be aware of the technology). This transparency usually occurs after we have “learned” the technologies (or, as in the case of eyeglasses, for example, become *familiar* enough with them to the extent that our consciousness is not focused on them). The desire for technological transparency co-exists with a desire for the increased power the technology makes available. Ihde notes the inescapable contradiction between the desires embedded in the technology and the very nature of the technology; that is, its transformative effect. We may desire the transformation

eyeglasses allow (better vision) but want to be completely unaware of the glasses themselves. Embodiment relations may be represented as

(Human - Technology) --> World.

In hermeneutic relations, as in embodiment relations, a technology resides between self and the world. The difference lies in our *focal awareness* of it; that is, we now direct our attention to the technology which serves as a device for world interpretation. An example of hermeneutic relations that Idhe uses is “reading” a thermometer. While sitting inside I may look out at my thermometer and note that it reports -10° Celsius, thus “know” that it is cold outside without having to directly experience it. The problem that may arise, of course, is a failure or malfunction in the instruments through which we interpret the world (such as in the case of Three-Mile Island). Hermeneutic relations obviously characterize a change in *how* we see the world (when compared to direct self - world relations) but they also may characterize *what* we see, by making the previously unseen visible. An example of this is heat-seeking sensors that visually represent isolated areas warmer than the surrounding environment which are invisible to the unassisted eye.

Idhe notes the possibility for confusion between *perception* (which we engage through embodiment and all other relations in our interaction with the life-world) and *interpretation*, as perception is itself interpretational. He says, “to perceive is already ‘like’ reading. Yet reading is also a specialized act that receives both further definition and elaboration...”.¹⁹ In a general sense, then, embodiment and hermeneutic relations are both interpretational, although in embodiment relations we experience the world *through* a technology and in hermeneutic relations we *relate to* a technology. There may, of course, be instances where both descriptors are valid. In such instances, however, the embodiment relations may be manifest in a different way (such as if I were turning down my hearing aid and at that moment became aware of the volume controls). Hermeneutic relations can be expressed as

I --> (technology - world).

The third classification of technologically mediated world relations is alterity relations, relations *to* or *with* a technology. These relations are characterized by “technology as other” (or “quasi-other”). Lived examples of these relations are found in abundance when examining human-computer interaction. The most well-known example may be Joseph Weizenbaum’s “Eliza” program which was designed as an experimental language analysis program. In the first experiment Eliza was given the “script” of a Rogerian psychotherapist; that is, designed to ask questions based on reflecting statements back to the user.²⁰ The most surprising outcome of the experiment for Weizenbaum was the extent to which people became emotionally involved with Eliza and “how unequivocally they anthropomorphized it”.²¹ In *The Second Self*, Sherry Turkle cites several instances where she has observed computer-as-other relationships, giving examples such as video games and discussions about computers where descriptions such as “their creativity, their sensuality, their pain and pleasure”²² were used. Alterity relations can be represented as

Human --> Technology - (World).

Through the preceding brief examples of some of the elements necessary in the constitution of the life-world according to Schutz, namely the importance of the sensory-based manipulative zone, the role of the body in our interpretation of time and space, and the necessary embodiment of our fellowmen for mutual relations, I have indicated ways in which the body is necessarily involved in our experience of the life-world. To complement and refine this, I have reviewed Idhe’s classification of relations we may have with the world based on how technology is employed in these relations, or, how technology may alter our

perception of the life-world. I will now turn to McLuhan's discussion of how our sensory arrangements – and thus perception – are affected by technology.

The Body and Perception: McLuhan's Interpretation

If one had to express McLuhan's "thematic", that is, the central concept around which all his other discussions revolve or to which all other discussions are related, it would be the notion of our sensory arrangement effecting how we perceive and interact with the world. In *The Gutenberg Galaxy*, McLuhan paraphrases Blake, saying "when sense ratios change, men change".²³ McLuhan takes this a step further by adding that "sense ratios change when any one sense of bodily or mental function is externalized in technological form",²⁴ thus contending, as I suggested earlier, that our relationships with technology influences how we see the world. McLuhan traces our perceptive evolution historically, marking each era with the introduction of a new technology. According to McLuhan, in tribal society we employed each of our senses equally when perceiving the world, thus we maintained a sensory balance. This balance was the ideal state for human existence, because it allowed for the equal translation of all sense into each other. McLuhan defines this as "sensus communis", which, he says, "was the Latin definition of man in a healthy natural state, when physical and psychic energy were constant and distributed in a balanced way to all sense areas."²⁵ This balance was disturbed by the introduction of the phonetic alphabet, because emphasis was suddenly placed on sight when we began reading. McLuhan clearly distinguishes between the phonetic alphabet, which "uses semantically meaningless letters to correspond to semantically meaningless sounds" and earlier iconic-based systems which were still "an extension of the senses in that they gave pictorial expression to reality."²⁶ McLuhan saw this to have profound implications; in *The Gutenberg Galaxy* he says "no other kind of writing save the phonetic alphabet has ever translated man out of the possessive world of total interdependence and interrelation that is the auditory network."²⁷ He explicates this point by pointing to the Romans and the sense of linearity and homogeneity that extended into

both the military and civic sphere as manifest in arches, enclosed visual space, and the mass producing “citizens, statuary, and books”.²⁸ The new emphasis on sight and the consequent reduced importance of the other sense created what McLuhan later referred to as “the print made split between head and heart”.

A more drastic sensory dislocation took place in the sixteenth century with the introduction of movable type by Johannes Gutenberg. Although McLuhan acknowledges that the phonetic alphabet was an “indispensable prelude”²⁹ to movable type, the magnitude of changes wrought by the latter were far greater than the effects of the former. These changes were the product of what McLuhan called a “frontier age” that began to see the dissolution of the entrenched manuscript culture and at the same time witness the effects of the new technology, namely, *repeatability* and *quantification*. This “extreme phase of manuscript culture” thus was, according to McLuhan, a catalyst of a wide range of meta-changes which included but were not limited to nationalism, the Reformation, the whole concept of causality, Cartesian and Newtonian concepts of the universe and perspectivism.

The third phase of technological innovation (and sensory alteration) was heralded by the invention of the telegraph and continued by other innovations in electronic technology culminating with the computer. This new technology allowed for instantaneous information transmission which led to a global state of simultaneous interaction, and comprises what Arthur Kroker, writing on McLuhan, called “the technostructure... the lens through which we experience the world and... the ‘anxious object’ with which human experience has become imperceptibly, almost subliminally merged.”³⁰ Again, implications of this shift were far-reaching. Instead of further alienating us from the *sensus communis*, however, electronic technologies returned us to our blissful tribal existence, this time the entire globe becoming the tribe. Living in our new-found instantaneous tribal awareness meant the return to non-linearity and all which that implied, but also caused “acceleration and disruption”.³¹ A by-product of this acceleration was the end of space as the main factor in the orchestration of social arrangements, which caused a disruption in social relations as people tried to adapt old

forms of relating to the new environment. Television was the predominant technology responsible for reversing visual supremacy because it involved tactility through an in-depth involvement with the screen. That is, because the resolution of the television image is low, the viewer is forced to fill in the missing information which necessarily involved behaving as if we were “handling or touching the image... using [our] eyes as hands”.³² (One could assume that McLuhan would revise this assessment had he lived to see the introduction of High Definition Television.) It is possible that tactility, in this instance, is used synesthetically by McLuhan to describe the interplay between the transmission of the image and the viewer. Synesthesia is a key term McLuhan adopts in his discussion of the impact of technology on sensory arrangement. It refers to “the splashing over of impressions from one sense modality to another”.³³ In an astutely prophetic explanation of how TV could be tactile in *Understanding Media*, McLuhan notes the use of closed-circuit TV by medical schools for instruction in surgery. McLuhan reported that the students experienced the feeling of performing the surgery as opposed to watching it.

The key characteristic of the electronic age for McLuhan is its simultaneous nature which leads to the sensation that we are many places at the same time (we can “witness” ... events in Vietnam through television as easily as we can talk to our next door neighbour). There is an interesting parallel between McLuhan’s simultaneity and Schutz’s notion of the potential to experience two realms of meaning at the same time. Schutz notes that when we engage in experiences removed from the everyday life-world, (like dreams) the only way we can express the experience to others is symbolically (i.e., through speech). The act of expressing an alternate reality from the vantage point of the everyday life world creates the simultaneous experience.³⁴ This provides a slightly different perspective from McLuhan, whose simultaneity occurs at the moment of our disembodied transmission via television.

The hyperbolic and metaphorical discussion of television has wrought much criticism from people such as Jonathan Miller, who wrote “contrary to what McLuhan asserts, TV is strikingly visual and the images which it presents are curiously dissociated from all the other

senses”,³⁵ and Donald Theall, who criticized McLuhan for neglecting discussion of the dynamic interplay between the viewer and the TV set, both when television is being watched and created.³⁶ Theall’s criticism comes close to articulating the weakness in McLuhan’s observations that concern the discussion at hand, that is, the issue of interactivity, which will be discussed in detail when I examine McLuhan’s concept of the “global village”. It should be noted that even in his earlier writing, when he tended to be more optimistic, McLuhan saw a disruptive aspect to this new, albeit “balanced” sensory arrangement, evidenced through the demise of a sense of localism. For example, appearing on TV, according to McLuhan (who might well have been speaking from personal experience) disconnected one from one’s peers and community.

Another icon for McLuhan’s electronic age is the computer, into which we have succeeded in “translating our central nervous system”.³⁷ In his earlier writing McLuhan describes the computerized person as wearing “his brain outside his skull and his nervous system on top of his skin”³⁸ and the electronic world as “the final phase of the extension of man – the technological simulation of consciousness, when the creative process of knowing will be collectively and corporately extended to the whole of human society”.³⁹

This description has been enthusiastically adopted as a slogan for the age of cyberspace by virtual reality enthusiasts (see *Mondo 2000*, Issue 2, Summer, 1990). This complete ousting of inner consciousness into a state of global harmony and awareness is McLuhan’s utopic vision of the return to our tribal roots, a new tribal nature that surpasses even our historical tribal nature. Juxtaposing this, however, is McLuhan’s later, dystopic assessment of the implications of this all-at-onceness. Whereas in his earlier work McLuhan saw the return to our tribal nature as decidedly ideal, he later assesses this return as “retrogressing... into the heart of tribal darkness”⁴⁰ indicating that perhaps the new technologically structured sensorium is unable to replace the unmediated world of tribal existence.

In *The Global Village* McLuhan re-assesses the effects of speed, both the speed of change along the historical continuum bringing about the innovation of computer technology and

the speed at which we engage in multiple experiences, observing that perhaps we have not had enough time to adjust to the new temporal-spatial configurations in which we are forced to live. In the darkest assessment McLuhan wonders if the amount of information presented to us might not result in schizophrenia (the loss of contact with the environment) with our bodies in one place but our minds lost in the electronic void.⁴¹ This bifurcation could be seen as the inevitable product or the logical extension of the binary nature of the computer, that is, its ability to deal only with “yes” and “no”.⁴²

This brief summary of McLuhan’s central thesis highlights the effect our sensory arrangement has on both forms of knowledge and perception. The role of the body in interpreting our world is the first site of intersection between McLuhan and phenomenology. McLuhan’s historical review of events that have altered our sensory balance focuses on the introduction of new technologies, thus incorporating technology as a factor in shifting world views. This intersects with Idhe’s basic assertion that different kinds of relationships with technology influence our world perspective. Idhe, however, develops a schema refining these relationships and provides insights into the implications of them. There is a complementary relationship between McLuhan, Schutz and Idhe, the former using “probes” and an aphoristic style combined with disparate facts taken from history and literature to draw our attention to an environment so connected to who and what we are that we often overlook it, and the latter providing a rigorous framework for examining how we understand our world and the role that technology plays in influencing our perception, and thus understanding. I will now apply McLuhan, Schutz and Idhe’s concepts of the primary role of the body in reality apprehension to a discussion of virtual reality technology.

The Body in Virtual Reality

Manifestations of synesthetic representations of the world through technology (such as artists tools) dates back to the Romantics who associated music and painting, and can be found in many areas of artistic expression. Examples include the Futurists, who assigned

musical qualities to colours and constructed a chromatic piano that flashed coloured lights determined by the keyboard sequences, and Carlo Carra's 1911 painting "What the Streetcar Said to Me" which was an attempt to visually represent sound.⁴³ The electronic age and concomitant technologies like the computer, lend themselves to synesthetic expression through their ability to represent data in multiple forms and translate this data from one form to another. The field of "multi-media" grew out of the desire for an enhanced understanding of a subject through multi-perspectival representation (for example reading a musical score on a computer screen then hearing the piece performed). Computer-aided synesthetic representation has only been fully realized, however, with the introduction of virtual reality technology. It is this aspect of the technology that is most easily lauded as "evidence" of a contemporary realization of McLuhan's vision. Before we examine this, and other related perceptual attributes of VR, however, I will apply Idhe's classification system to VR.

Classifying single-purpose technologies is a straightforward task because of the usually unambiguous and unaltering applications they are put to. As technologies get more complex, however, the range of possible (often diverse) applications increase, making an accurate general classification impossible. But instead of the complexity of VR rendering Idhe's system ineffective, we can, in a McLuhanesque fashion, juxtapose different aspects of the technology against each other to see how they engage us and our sensory apparatus differently. We must first distinguish between two aspects of the technology which may encourage very different sets of relations – the hardware (the actual machine) and the applications (the wide range of programs supported by the hardware varying in content and purpose). On first consideration, thinking of a flight simulation application, we could classify our relationship to VR as hermeneutic; we are using the technology to understand changes in our (simulated) flight environment. The key word in this example, however, is *simulated*, reminding us that we are in fact not reading the changes in air pressure and velocity as we navigate through the computer-generated flight paths, but instead we are reading a computer

representation of them, or, a visually embodied representation of a concept. We are engaged in “reading” or interpreting the actual VR technology. This is not to say, however, that there are not instances when we may be engaged in hermeneutic relations. If we were traversing through virtual space and wanted “signposts”, thus programmed an x-y axis into our virtual world we would be using the technology to interpret an aspect of our virtual environment – space – thus engaging in hermeneutic relations. The difference between these examples may appear a matter of semantics – a technology or the representation of a technology – but in the case of VR it distinguishes between hermeneutic and non-hermeneutic relations.

Again, turning to the applications level of the technology, we can find examples of alterity relations in “virtual personalities”. Sherry Turkle attributes the fascination many of us have with computers to their “seeming ability to model or reflect qualities of mind that humans associate with intentionality”.⁴⁴ If people anthropomorphized an ascii-based ‘Eliza’, the potential relations with a “living”, walking embodied Eliza would be staggering. This is both an aspect of VR that the media have exploited (i.e., in articles like Howard Reingold’s “Teledildonics” [virtual sex]) and that has received the most criticism from cautious observers manifest through what Meredith Bricken calls “fear of confusion” (not being able to distinguish between virtual and physical beings) and “fear of abandonment” (“what if VR is so compelling that people don’t want to come out, who will mind reality?”).⁴⁵ Alterity relations may lead to the realization of what McLuhan calls, “Narcissus as Narcosis”, an expression derived from the story of the mythic youth who mistook his own reflection in the water for another person, his image numbing his perception until he became the “servomechanism of his own extended image”.⁴⁶ The challenge of building virtual worlds necessarily leads to a high level of user involvement, even when constructing the most basic worlds. Allequere Stone identifies two roles computer scientists engage in when constructing virtual worlds: the modeling of cognition (the representation of information in a generally recognizable and meaningful form) and the modelling of community.⁴⁷ Because we “inhabit” computer-generated worlds, programmers exert care in articulating assumptions

about human interaction and how these assumptions should be manifest in the coding of cyberspace. The “fear of abandonment” mentioned above may become real for programmers infatuated with their virtual creation or for non-programmers who prefer the control they can assert in the virtual worlds to the lack of control often experienced in real-world situations.

If VR is seen as the evolution of interface to a level where it is rendered invisible to the user, then it most definitely engages us in embodiment relations. Creating an environment where the user is unaware of the technical apparatus and able to slip into a convincing “virtual Vienna”, for example, is one of the goals motivating VR development. This perspective employs an aspect of the technology that is different from the previous two examples – hardware. It is at the hardware level then, that we can classify VR as engaging us in embodiment relations. It is also at this level that we must note the potential for an alteration of our sensory awareness. Hermeneutic and alterity relations both alter our world view, the former literally, by making the unseen seen, and the latter psychologically, by bringing the computer into the realm of “relations to” in the life-world. Embodiment relations also amplify (or in McLuhan’s terminology, extend) our senses. In VR we can tacitly experience exact simulations of things that previously would have been impossible; see things that previously were too small to see; hear things that were previously too far away to hear. Just as using a telephone extends one sense in an embodiment relation, VR extends many. This does not mean, however, that sensory arrangement necessarily changes. If we take for granted that VR extends all senses equally in high definition, our sensory balance remains while we move into another era of communicative possibilities. If considered within the framework of the specific relations we may have within virtual reality suggested by Idhe, we may note that hermeneutic and alterity relations involve the directing of our consciousness toward a technology, in the first instance as a way of interpreting the world and in the second instance as something we interact with as “other” or “quasi-other”. Hermeneutic relations involve mediation, alterity involves incorporation. Neither one, however, alters our sensory balance.

Embodiment relations, however, engage us by *transforming* one or more of our senses, or, in McLuhan's terminology, by *extending* our senses. Again, however, the truly revolutionary aspect of virtual reality may lie in its ability to extend all senses, in balance, actualizing McLuhan's "global village".

Our Extended Selves – Our Disembodied Selves

Throughout our history as social beings engaged in communicative practises we have been compelled to extend our range of communication beyond our immediate environment (through space) and preserve our communications for further reference (thus extending them through time). In his article "Human Replay: A Theory of the Evolution of Media" Paul Levinson articulates this impulse as part of a three-staged process in the development of communication technologies. In the first stage our communicative practises were restricted by physical limitations of the "here" and "now" as well as the limitations of our memories. Discontentment with this motivated the move to the second stage where we developed mechanisms to overcome physical limitations but sacrificed the pre-technological face-to-face communicative environment. This brought us to the third stage where we were motivated to both extend our communicative space and retrieve elements from our pre-technological communicative stage.⁴⁸ S. Tachi *et al.* agree. In "Development of an Anthropomorphic Tele-existence Slave Robot" [1989] they wrote: "It has long been a desire of human beings to project themselves in the remote environment, i.e., to have a sensation of being present or exist in a different place other than the place that they really exist at the same time".⁴⁹ Michael Hiem suggests that evidence of our evolution can be found in advances made in storing and retrieving information, which also implies technological development for an increase in power, although in a more subtle way.⁵⁰ Recent developments in electronic conferencing such as two-way video conferencing via satellite and virtual reality technology indicate we are indeed striving to "extend and retrieve" our communicative practises.

Extending our bodies – or digital reproductions of them – through space, however, leads to a different set of issues surrounding our concept of “self” as well as “other” with whom we are communicating. The second point of intersection between McLuhan and phenomenology within our discussion of the body then, focuses on McLuhan’s contention that “all of man’s artifacts of language, of laws, of ideas are extensions of the human body”⁵¹ and the phenomenological concept of disembodiment expressed by Drew Leder. Virtual reality will be discussed in the context of these ideas.

McLuhan’s Extensions

In the preceding section I examined McLuhan’s suggestion that every new technology outers and extends one of our senses, thereby disrupting our sense ratio and the way we perceive the world. I will now focus on the nature of the extensions themselves and their metaphorical affiliation with the body.

According to McLuhan, all technologies are extensions of a biological human function, “outered” in order to increase power (as in Idhe’s embodiment relations, for example). The “wheel as an extension of the foot” or “clothing as an extension of skin” are metaphorical examples McLuhan uses to both illustrate the bodily function which the given technology extends and also to emphasize the transformative nature of the technologies. The wheel, for example, is only “like” a foot in that they can both be used, in conjunction with other technologies or processes, as a mode of transportation. The wheel, however, has the potential to radically enlarge the range of spatial familiarity and effect movement of goods. Stephen Kern provides a good example of this commenting on the effects the bicycle had once it became widely available. He notes that it was four times faster than walking and that it quickened the perceptive faculties of young people. Kern quotes Paul Adams who wrote that the bicycle created a “cult of speed” for a generation that wanted to “conquer time and space.”⁵² Aside from transformation through an increase in power brought about by technologies, extensions, as discussed in the previous section, also alter the sense ratio by

stressing one function over all others. Even pre-alphabetic speech as an extension of thought is not exempt from disruptive consequences as McLuhan notes that it “interrupted that sharing of a unified, collective consciousness, experienced by pre-verbal man”.⁵³ It is interesting to juxtapose McLuhan’s extension probes with Baudrillard’s inverted thesis of internalization. Instead of exteriorizing human functioning, Baudrillard contends that we internalize media and thus “become terminals within media systems”.⁵⁴ The idea of extending self into the environment via mechanical apparati is closely linked to the phenomenologist’s concept of externalization in the sense of power, the power in the latter concept derived from the projection of our own meaning into reality.

McLuhan’s “hot” and “cool” media classification system is derived from considering the effects of imbalance among extensions. A “hot” medium extends one single sense in high definition (McLuhan defines “high definition” as being “well filled with data”) and encourages passivity among participants because they receive all the necessary sensory information thus do not need to engage in constructing it – filling in the gaps – themselves. A “cool” medium, however, provides little information, forcing the user to become a participant and fill in the missing information. Hot media, then, are low in participation and cool media are high in participation.

McLuhan distinguishes between “early” extensions, like words or print, and later extensions like electronic technology, the former being closed systems, incapable of interplay, or synesthetic interaction and the latter being “open” and simultaneous, thus conducive to translation between senses. This interaction – or potential interaction – between extensions is an essential part of the evolution of new media like computers, which are the “final extension”, that is, an extension of consciousness. One product of McLuhan’s discussion of the computer as an extension is his consideration of the necessity of “feedback”, which may imply interactivity. McLuhan contends that the computer only exists as an extension by virtue of this function, implying that perhaps we, as users of computer technology, at whom the feedback is directed, are also part of the evolutionary process of new

media, a role supposedly relegated to other extensions. It is interesting to consider the implications of self as an extension, which implies the absence of a referent (*we* are that which is being extended in McLuhan's discussion of media), something Baudrillard has written on extensively. I will return to this idea in chapter four. McLuhan's functional definition of "feedback", however, is unclear. If he is using it to refer to a technique of system adjustment designed to improve a specific performance and not involving reciprocity,⁵⁵ for example, then our relationship to computers is similar to our relationship to television or any other electronic medium; that is, not truly interactive. It is interesting to note that McLuhan sees our technological extensions as both our primary area of evolution and that which influences our evolutionary path.

The development of extensions was a necessary step in our evolution, yielding advantages including energy conservation (they have no need for nourishment), easy storage and exchangability (allowing us to move from specialism to play many roles) and communal access.⁵⁶ The characteristics cited above are implicitly in contrast to the pre-technological body which, due to inefficient energy use and transportation mechanisms as well as specialist tendencies, would have been disadvantaged and unsuited for survival. This creates a paradox between the positive transformative nature of extensions and the disruptive reconfiguration of the sensorium due to shifts in the hierarchy of senses. The ideal situation for McLuhan then is the balanced extension of kinesthetic awareness with reality apprehension occurring evenly through all sensory channels.

McLuhan continues his bodily-based technology metaphor in a discussion of adaptive strategies that occur with the introduction of new technologies. As a sensory organ is extended into the environment, it is simultaneously "amputated" or "numbed" to lessen the intensity of shock to the organism (society) allowing it time to adapt, or, as McLuhan says, "to effect immediate relief of strain of the central nervous system".⁵⁷ Schutz also uses the term "shock" to refer to that which compels us to move from the paramount reality to another province of meaning such as falling asleep or having a religious experience.⁵⁸ It is in

this way that new technologies are at first invisible (and remain so until the introduction of another technology). McLuhan's assertion that only through retrospection can new technologies be understood is articulated in the "rear view mirror" metaphor: we only see what is behind us as we move forward. It is interesting to note that McLuhan saw the metaphorical amputation as occurring like a "huge, collective surgery carried out on the social body with complete disregard for antiseptics".⁵⁹

Taking the amputation metaphor a step further, McLuhan appropriates another medical term, "phantom pain", to refer to the mass remorse that occurs when a technology obsolesces. The term refers to a medical phenomenon first noted by Weir Mitchell, a physician working with amputees after the American Civil War. Mitchell noticed that the amputees developed (or retained) an internal mental model of the shape and characteristics of the injured body part as it was before the injury. Later, Henry Head called the phenomenon "body image" and noted that articulation of the size and shape of the missing limbs was not constant, but in fact varied according to things like self confidence and self image. This created an interesting correlation between the "ego" (concept of self) and the body, suggesting a cohesion of the two where previously they were generally believed to be distinct. The "phantom limbs", as Mitchell called them, were the site of sensations such as pain and itching.⁶⁰ Schutz also cited the "phantom pain" phenomenon, but to emphasize that our actual bodily awareness (body image) is, to a degree, learned, thus variable and modifiable.⁶¹

The idea that our technologies extend and amplify bodily-based functions and processes is not a new one as the metaphor helps us understand our relationship to technology and articulate implications of that relationship. Leder notes that the lived body constantly transforms itself by acquiring new skills and habits and uses "tools and machines" to supplement itself through "annexing artificial organs".⁶² The idea that the telephone "extends" us (our voice) through space alludes to realignments in our spatial awareness (such as a perceived "shrinking" world), changes in temporal structures (due to the expectation that things be done faster and, as Stephen Kern notes, the increased imminence

and importance of the immediate future⁶³) and changing concepts of the importance of physical presence in communicative situations. In McLuhan's simultaneous electronic environment we are everywhere all at once; when using the telephone, "the sender is sent, minus a body". But being everywhere all at once implies we are nowhere in particular. Thus, McLuhan notes that electronic technology "turns the user into disembodied information." If we are able to extend a representation of our being through space, as VR technology promises to allow us to do, have we reached the epitome of disembodiment? I will discuss VR in the context of McLuhan's extensions but first refer to the phenomenological idea of disembodiment as it relates to McLuhan's extensions.

Phenomenological Disembodiment

Disembodiment is defined as, "to be divest of a body, of corporal existence or of reality" (Webster's Dictionary). With the identification of the body in the 17th century as a physical object conducive to scientific description like all other physical objects, the division between the scientific/body and humanistic/mind was easily made. Once divided, the metaphorical spatial separation set up conditions for the acceptance of a physical separation between the body and consciousness, such as those that occur with electronic technology.

As noted above, McLuhan provides examples of the disembodied characteristics of electronic technology, classifying them as "effects" of extending ourselves through space. In these instances technology assumes a mediating role between self and environment, a role, as Don Ihde notes, that can range from being transparent to overtly transformative, and allows us to be represented without being "there". By divesting us of the need for a body in relaying information, electronic technology creates the illusion of mind supremacy, a fallacy, I will argue later, rooted in the lack of attention given to how we receive and understand information.

Technology alone has not accentuated the possibility of a mind-body separation. In *Technology as Symptom and Dream* Robert Romanyshn focuses on the advent of linear

perspective and its attendant consequences like the spatialization of time and the necessary distancing of self from “the midst of things”.⁶⁴ According to Romanyszyn a necessary condition for perspectivism is the construction of a window to serve as a boundary between the perceiver and the perceived. This separation encourages the withdrawal of the spectator from the world and alienation from its sensual qualities.

In McLuhan’s discussion of the coping strategies society engages in when new technologies are introduced (amputation), he focuses on the idea of the body, or parts of it, as absent, removed from the sensory-interpretive base it usually enjoys when perceiving the world. This numbing is functionally similar to two strategies necessary for existing in the physical world outlined by Drew Leder: focal disappearances and background disappearances. These “deficient modes” are juxtaposed with our “ecstatic” involvement in the world to create what Leder calls “the radical paradox of the present - absent body”.⁶⁵ I will examine focal and background disappearances in the context of McLuhan’s thoughts on “amputation”, but first it is necessary to review the mechanisms we employ for affirming bodily *presence*.

As noted earlier, Schutz implies the centrality of visceral experience in reality apprehension through the idea of the “manipulatory zone”, through the ability we have to move from internal to external awareness of time through bodily movements, and through the importance of the embodiment of our fellowmen in world relations. Leder adds support to this argument by suggesting four examples of ways in which the body is present, giving rise to the idea of the “ecstatic body”, the body which stands out in its operations and stance, projecting outward from its place of origin.⁶⁶ He reiterates the phenomenological constant that the body is the centre point through which all experience takes place (i.e., I experience myself as situated “here”); that the body is defined through “actional fields” (things within reach); that the body is always a field of lived sensations and kinesthetic awareness; and that we are able to engage in multiple modes of self-observation mediated through, for example, mirror’s and photographs, or the gaze of others.⁶⁷ The assumption of

bodily presence supported by the very nature of our interaction with the world can be contrasted with instances, like McLuhan's amputative state, when we are phenomenologically "absent".

The first self-concealment strategy Leder identifies refers to "the self-effacement of bodily organs when they form the focal origin of a perceptual or actional field".⁶⁸ That is, a sensory organ will tend to disappear from thematic awareness and become transparent at the moment of its use (for example, the eye is invisible within the perceptual field it generates; I do not smell my nasal tissue, hear my ear or taste my taste buds, but perceive through them). Leder calls these focal disappearances "intrinsic to the perspectival nature of disembodiment".⁶⁹ The second self-concealment strategy refers to unused sensory capacities that recede from awareness, not because they are focal points (as with focal disappearances) but because they are *not* bodily foci. These bodily processes may be either relegated to a supportive role or put out of play but are essential to the working gestalt of the body. As noted in the introduction, background disappearances are essential to our ability to function in the life-world, as if complete awareness of our physiological - sensory motor processes was required the amount of information to process would render us immobile.

Both McLuhan and Leder have articulated the duality implied by our very existence as carnal beings; that we are rooted in the physical but often unaware of the very anatomical functioning that allows for perception. Both strategies are motivated by a survival instinct (without the amputory reflex, according to McLuhan, we would not be able to survive the "shock" of a new technology on the societal system, and if our sensory organs did not recede in times of use or when fulfilling a supportive role, according to Leder, we would be overloaded with information and unable to process enough to function) and both explicitly acknowledge a counter-state to bodily presence (its functional absence). This issue of intentionality is also common between McLuhan and the phenomenologists in that in both instances the amputation or disappearances occur as an unconscious, instinctual phenomenon.

McLuhan contends that a condition for disembodiment is a perceived spatial distance between our physical being and our consciousness (or manifestations of it) as evidenced, for example, in electronic technology which “creates the disembodied being of electric man who has no body”. A problematic aspect of McLuhan’s “extensions as disembodied” probes is his lack of distinction between the extensions of a bodily function (i.e., speech, via the telephone) and the transmission and reassembling of digital information (video conferencing via satellite) which is disembodied due only to its simultaneous nature (as opposed to the phone which is disembodied through its very nature as an extender). The distinction here is important if we are to understand the properties McLuhan deems necessary for disembodied situations. McLuhan also neglects to consider the dual nature of technologies as separating the body from physical experiences in the world but also reaffirming the primacy of the body through its role in interpreting information brought to us *through* technologies (we hear the interlocutor talking on the phone through our ear). These concerns will now be addressed in the context of extension - disembodiment and virtual reality technology.

The Search for a Virtual Body

When applied to communications technology, the issue of disembodiment is often regarded as an obvious attendant property of the technology, sometimes liberating, more often alienating. The term itself has become a buzz-word in post-modern jargon and a stylish notion that theorists have adopted in attempts to incorporate the issues surrounding the personal into discussions of the highly impersonal, that is, the technological. Like the plight of many other post-modern phrases, however, the notion of disembodiment often does more to alienate the “personal” from the discussion because of the imprecision with which the term is used. It is extremely difficult, if not impossible, to find a comprehensive definition that outlines the properties necessary for disembodiment. How, then, do we decide when we are disembodied? Throughout his work, McLuhan notes that the telephone, television, satellite and computer have made us disembodied beings with numerous representations of ourselves

scattered through space. McLuhan, through frequent references and allusions to the disembodied effects of modern communications technology and through his extension - amputation paradigm, acknowledges that there are consequences but does not engage in any comprehensive discourse about the issue of disembodiment itself. More fundamentally, his very classification of users of electronic technology as “discarnate beings” overlooks the necessary role of the body as the locus of synesthetic interpretation. Before I can apply McLuhan’s “theory” of disembodiment to VR technology, I will need to intersect it with phenomenological insights concerning the primacy of the body in reality apprehension. This will highlight what I see as a disembodied - re-embodied paradox present in electronic technologies. I will then apply McLuhan’s extension - amputation paradigm to the technology and use the discussion as a catalyst to examine issues of representation.

Although McLuhan makes frequent reference to the idea of disembodiment, he neglects to provide a comprehensive definition of the term and leaves one wondering if perhaps any “outering” of our consciousness, speech included, implies a disembodied state. The definition, “being divested of a body”, begs the question, “what is divested?” The logical assumption is that our mind or spirit is divested, thus existing independently. As we cannot physically demonstrate a separation of the mind from the body we must rely on symbolic or other manifestations of our mind leaving our body. One way in which we share thought processes with the external world is through speech. When speaking, then, our mind is symbolically leaving our body. Is this not disembodiment? One could say that as our voice is most certainly rooted in the physical body, void of technological intervention in its natural state, it does not lead to disembodiment. Does this change when the technology of language is employed? Is the sound of one’s voice echoing off a distant cliff disembodied? It seems evident that even basic communicated expressions of self could be seen as disembodied, but instead of succumbing to the desire for a lexically precise definition that leaves no room for reasonable interpretation, I will suggest that disembodiment occurs in degrees ranging from the totally embodied, non-communicative and unextended self to the dead body (death being

the only absolute form of disembodiment), that it is unavoidable to some extent in any communicative instance, and that it is so natural to us that we are seldom aware of being divest of a body, even in extreme instances. I will briefly turn to Schutz to illustrate the notion of gradations of disembodiment.

According to Schutz, the face-to-face situation allows us to engage in “immediate” relations with our fellowmen, relations where the greatest number of symptoms are available for exchange. It is interesting to note that the properties of this communicative environment, the spoken word in the immediate “here” and “now” , basically constitute conditions necessary for McLuhan’s orality. It would follow, then, that when technological supports are incorporated into the communicative environment, the idyllic immediate situation is distorted to an extent that depends on the nature of the technology employed. Schutz calls this “reductions in the gradations of immediacy” and provides examples of communicative media or techniques like letter writing or using the phone to show how by reducing the number of symptoms it is possible to change the nature of the communicative experience. There are obvious parallels between Schutz’s argument and the large body of literature that focuses on the transformations that took place when writing was introduced into oral societies, a discussion pioneered by Harold Innis and supported by Eric Havelock, Walter Ong and, most importantly to this discussion, McLuhan. This is important to note because it is my contention that once we employed technologies or practices which allowed us to communicate beyond the “here”, and to a lesser extent “now”, we began to encourage a more serious separation of our bodies from representations of consciousness, or mind.

McLuhan explicitly drew his arbitrary line separating the disembodiment technologies from non-disembodiment ones between the mechanical and electronic epochs. When we examine the two major differences between mechanical and electronic technology we can illuminate the properties necessary for McLuhan’s definition. They include the simultaneity of information exchange due to an increase in speed and the extension through space of one sense at the cost of the others. This instantaneous extension of our senses through space

constitutes the conditions McLuhan sees necessary for disembodiment. Before I apply this to virtual reality, I must note the oversight in McLuhan's implied definition. Although when using the telephone, for example, our ability to hear is extended and amplified, it still relies on the very carnal nature of our ears, just as seeing the images on the television screen relies on our eyes, that is, senses rooted in the body. Granted McLuhan refers to the disembodied *sender* as opposed to the *receiver*, but as we are all constantly engaged in the simultaneous information environment the distinction becomes problematic. What is most important here, however, is an acknowledgment of the role of our senses as the only channels through which our world can be interpreted.

As noted above, McLuhan contends that when one or more *senses* are *extended* a disruption in the natural sensory balance occurs, alienating us from our bodies. He does not, however, differentiate between the *extension* component and the *sensory* component, but instead notes the combination of the two. One could then assume that when perceiving the world in our idyllic, unextended state, we are necessarily receiving information in balance thus remaining embodied. It also follows that in instances where all senses are extended equally, we would remain fully embodied. This is precisely the case with VR technology; since VR allows for the extension of all our sensory apparatus in balance we enjoy what McLuhan refers to as "the translation of [our] central nervous system into electronic circuitry... the outering [of] consciousness into the computer".⁷⁰ It can also be seen as the final stage in Paul Levinson's three-staged process in the development of communication technology; the extension of our communicative space and retrieval of elements from our pre-technological communicative past. It is in this sense that VR is embodying. As mentioned earlier, unless we are dead we are grounded in our bodies through our very nature as carnal beings. Schutz notes that this is true even in fantasies, where although we may imagine ourselves as a giant or a dwarf, "freedom of discretion has its barrier at the primordial experience of the boundaries of [our] body."⁷¹ Although this is fundamentally true in VR, the illusion of changing body size may be completely convincing due to the ability to scale the

surrounding environment proportionately. Beyond size, Jaron Lanier notes that some users in virtual worlds elect to modify their actual body structure by, for example, adding a third leg. Most users are quick to adapt to the extra appendage, developing mechanisms by which they control its function and movement.⁷² There are obvious medical application to this, such as allowing a paraplegic to “walk” in VR. In this sense the technology encourages us to go beyond Schutz’s boundary.

Recalling the lexical definition of disembodiment, “to be divest of a body, of a corporal existence or of reality”, the question to ask might not be *who* is disembodied in VR, but *what* is disembodied in VR, drawing our attention to the nature of the digitally encoded, simulated worlds and the levelling process that occurs when we enter them, represented as digitally encoded information. Perhaps the very nature of this completely synthetic (and potentially alienating) environment motivates the desire for users to become re-embodied in VR, ironically by creating an electronic representation of self that contributes to the user-world fusion in an effort to become distinct from it. Allequere Stone notes that “penetrating the screen involves a state change from the physical, biological space of the embodied view to the symbolic metaphorical “consensual hallucination” of cyberspace; a space which is a locus of intense desire for re-figured embodiment”.⁷³

Amputation and the Disappearance of the Body

The idea of being absent from our bodies is common to both McLuhan and Leder, although from two distinct perspectives. McLuhan emphasizes the physical reality of absences reinforced by the medical metaphors of the “phantom limb” and “amputation”. The amputation metaphor, however, suggests that the locus of control resides outside the personal (someone else does the amputating). Leder’s “absences”, in contrast, are the result of internal cognition; either parts of our body not in “foreground” use or the organs we are perceiving with that are at the time unable to be perceived themselves. In usual circumstances

our cognitive processes are also internally controlled or inspired, implying a different set of relations than McLuhan's, where the locus of control is exterior to the body. Instead of seeing these schemata as being only in opposition to each other, McLuhan's and Leder's disappearances can compliment each other and provide a balance between the physical (body) and the cognitive (mind). When considered from this perspective, I can suggest once again that VR encourages both the total presence of our body but also creates an environment conducive to absences. The very nature of the technology causes us to be present: the peripheral devices through which we receive virtual information act as catalysts to heightened sensory experience (the glove, for example, simulates pressure by contracting and expanding). Also, because the environment in and apparatuses through which our senses are stimulated is foreign we may have a heightened sense of awareness. Schutz classifies the heightened awareness that accompanies unfamiliar experiences as one of four "imposed thematic relevances", (thematic relevances are ways in which attitudes enter into our conscious awareness). Interestingly, Schutz's second example of imposed thematic relevances is the "leap" from one province of reality to another (such as from talking to a friend to watching a theatre performance or, more relevantly, from participating in the everyday life-world to participating in a virtual world).⁷⁴ In the physical sense, then, VR encourages presence; absences, as Leder points out, occur more in the realm of cognition.

When reading a captivating book or participating in engaging conversation we often become so involved in the immediate circumstances that we lose track of time, forget the physical environment we are in, and lose our awareness of people around us who are not so engaged. We are often in this state of disembodiment. The extent to which we become dissociated from ourselves is proportionate to the intensity of the experience we are having. We often hear of computer programmers unintentionally working through the night or working for extended periods of time without eating, completely absorbed in a problem. Sherry Turkle observed this tendency in people who play video games.

When you play a video game you enter into the world of the programmer who made it. You have to do more than identify with a character on the screen, you must act for it. Identification through action has a special kind of hold. Like playing a sport, it puts people into a highly focused and highly charged state of mind. For many people what is being pursued in a video game is not just a score, but an altered state.⁷⁵

In these instances the intensity of the experience blocks our physical awareness of our bodies. Entering virtual worlds, where experiences may be fantastical, without referent to reality or, more captivating, of our own creation where highly personalized, imagined fantasies come to life, would inevitably lead to a high level of involvement. In these instances, our body may fade from awareness (this may occur only if the technology has become *transparent*: the very opposite may occur if we are having trouble orienting ourselves to the technology and navigating through the virtual worlds).

I have applied the idea of disembodiment to VR and suggested that users who enter virtual worlds may simultaneously experience disembodiment through the loss of bodily awareness and re-embodiment through the primary role the sense organs play in translating virtual experiences. We must also consider the psychological effects of existing and interacting in an environment where we are reduced to electronic code. The communicative practises and conventions that have evolved during the history of computer mediated communications, specifically the history of computer conferencing, illustrate Stone's observation of the "intense desire for reconfigured embodiment" noted earlier. Computer conferencing refers to ascii-based communication via computer. Electronic messages are keyed in and left for others to access at their convenience, from any other computer "hooked up" to the conference computer. The messages are organized around discussion topics into "conferences", some with sub-conferences or related "threads". UseNet is the largest conferencing system in the world and extends world-wide. Its membership comes from a consortium of academics who use the electronic connections made possible by international networks (such as BITNET and ARPANET) to share research and other information. A user needs only access to a mainframe computer connected to UseNet to

participate in the information sharing and generating process. When participants communicate on a regular basis they push the constraints of ascii representation for individual expression. For example, most participants on USENET have an electronic "signature" at the end of each message, many containing representational drawings and/or favourite quotes along with their name and electronic address. Conventions have evolved for expressing things like good humour or a tongue-in-cheek response, the former being represented by :-) and the latter ;-) (both have to be read with your head tilted to the left). This need for expressing "self" even through a reductionist code in narrow band width, represents attempts at re-embodiment (as much as the medium allows). Mark Poster suggests four effects that computer writing appears to have on the subject. They include: the introduction of "new possibilities for playing with identities"; the destabilization of existing hierarchies in relationships and the spatial and temporal dislocation of the subject.⁷⁶ All of these possibilities will exist in virtual worlds, the only difference being the increased power for representation in the virtual medium.

It is interesting to note that "aliases" are common practise in computer conferences (especially "dating" conferences) which raises the issue of representation (or *misrepresentation*). Working with only ascii characters on a computer screen allows for a limited amount of information to construct a "persona", and the nature of the virtual person is entirely up to each individual. As Stone notes, "constructed personalities... may bear little resemblance to the personalities or bodies of the individuals representing them".⁷⁷ This was the case with "Julie", a disabled older woman who gave insightful on-line advice to many women until it was discovered that "Julie" was in fact a middle-aged psychiatrist. The conference participants were outraged when they discovered the nature of Julie's true identity, and several stopped participating in the conference altogether.⁷⁸ Julie's story, although perhaps the most notorious example of misrepresentation, is not an isolated incident. Electronic conference participants can choose to represent themselves anyway they want, and for many it is an opportunity to express an "alter-ego" or lived fantasy. This

directly contradicts Schutz's assertion that when interacting with the life-world "the given presentation of the other's physical appearance is necessarily paired with the sensorily not given appresentation of his human experience".⁷⁹ Any technology that turns information into digital form is conducive to manipulation. This will most certainly be the case in VR where the added channels for information transmission allow for greater clarity, but also greater deception. It is beyond the scope of this paper to discuss the implications of communicating in an environment where there is no way to confirm the identity of one's communicative partner. It is, however, an area that warrants serious consideration.

The last issue I will address in my discussion of VR and disembodiment concerns a variation of VR technology called "telepresence". Although I suggested earlier that VR is just as conducive to embodiment as disembodiment, I will now argue that telepresence technology does in fact encourage "out of body" experiences.

The term "telepresence" was first used in 1979 by Marvin Minski, a researcher at MIT, to refer to the use of interactive simulations as a way to control robots. His idea was that human operators could put on a head mounted display unit and be fed the visual and auditory information that the robot moving through a different environment experienced to manipulated the robot. The controller would also wear a glove exoskeleton to control the basic arm movement of the robot. Minski saw two advantages to this method of control: first, it would make use of our sophisticated perceptual and cognitive apparatus as a means for robotic control. It would also "create a specific state of consciousness in the human users, *an experience of being present in a remote location*"⁸⁰ (Italics mine). The illusion of being present in a remote location allowed operators to direct robots to perform tasks that were not possible or safe for humans to do, such as handling radioactive materials.⁸¹ Michael McGreevy, head of NASA's Ames Virtual Environment Research Lab says of telepresence; "Instead of being like TV, which is a window you look through, this is like a door. You walk through the door and you're there." NASA is currently developing applications to visualize

the information that planetary probes send back to earth so geologists at the Centre can see exactly what the video camera sees.⁸²

The technological difference between VR and telepresence is significant; the former invites participation in simulated three dimensional worlds contained in computer memory. The latter allows users to experience and manipulate remote environments through a machine while physically remaining somewhere else. As Howard Rheingold reports,

My consciousness suddenly switched locations... from the vicinity of my head and body to a point about twenty feet away from where I normally see the world. The world I was in had depth, shadows, lighting, but was depicted in black and white.... I began to accept the odd sensation that accompanied the act of transporting my point of view to that of a machine until I swivelled my head and looked at myself and realized how odd it seems to be in two places at the same time.⁸³

¹Mark Johnson, *The Body in the Mind* (Chicago: University of Chicago Press, 1987), p. xix.

²Drew Leder, *The Absent Body* (Chicago: University of Chicago Press, 1990), p. 5.

³Idhe, Don, *Consequences of Phenomenology* (New York: State University of New York Press, 1986), p. 60.

⁴Walter Ong, *Orality and Literacy: The Technologizing of the World* (New York: Methuen, 1982), p. 73.

⁵Leder, *Absent Body*, p. 29.

⁶Alfred Schutz, *The Problem of Social Reality: Collected Papers I* (Boston: Martinus Nijhoff, 1962), p. 228.

⁷Leder, *Absent Body*, p. 40.

⁸For a comprehensive discussion of this see Hans Moravc's *Mind Children: The Future of Robot and Human Intelligence*.

⁹Don Idhe, *Technology and the Lifeworld* (Indiana: Indiana University Press, 1990), p. 21.

¹⁰Alfred Schutz and Thomas Luckman, trans. Richard M. Zaner and H. Tristram Engelhardt, Jr. *The Structures of the Life-World* (Evanston: Northwestern University Press, 1973), p. 3.

¹¹*Ibid.*, p. 222.

¹²*Ibid.*, p. 223.

¹³*Ibid.*, p. 215.

¹⁴Alfred Schutz and Thomas Luckman, translated by Richard M. Zaner and David J. Parent, *The Structures of the Life-World Volume II* (Evanston: Northwestern University Press, 1989), p. 112.

¹⁵*Ibid.*

¹⁶Schutz and Luckman, *The Structures of the Life-World*, p. 69.

¹⁷Idhe, *Technology and the Lifeworld*, p. 30.

¹⁸*Ibid.*, p. 29.

¹⁹*Ibid.*, p. 93.

²⁰Joseph Weizenbaum, *Computer Power and Human Reason* (San Francisco: W.H. Freeman and Company, 1976), p. 6.

²¹Ibid.

²²Sherry Turkle, *The Second Self* (London: Granada Publishing Limited, 1984), p. 277.

²³Marshall McLuhan, *The Gutenberg Galaxy* (Toronto: University of Toronto Press, 1962), p. 265.

²⁴Ibid.

²⁵Marshall McLuhan and Bruce C. Powers, *The Global Village: Transformations in World Life and Media in the 21st Century* (New York: Oxford University Press, 1989), p. 37.

²⁶“Playboy Interview with Marshall McLuhan”, *Playboy*, p. 105.

²⁷McLuhan, *The Gutenberg Galaxy*, p. 22.

²⁸Ibid., p. 60.

It is important to note the work of Harold Adams Innis at this point, especially *Empire and Communication* and *The Bias of Communication*. In both works Innis provides a framework for the discussion of both the shift from orality to literacy and ensuing implications as well as consideration of the medium of communication as an influence on the nature of what is communicated. In the introduction to *Bias of Communication* written by McLuhan he notes that *The Gutenberg Galaxy* is “a footnote to the observations of Innis on the subject of the psychic and social consequences, first of writing and then of printing.” (p. ix)

²⁹McLuhan, *The Gutenberg Galaxy*, p. 152.

³⁰Arthur Kroker, *Technology and the Canadian Mind* (Montreal: New World Perspectives, 1984), p. 60.

³¹Marshall McLuhan, *Understanding Media: The Extensions of Man* (Markham: Penguin Books Canada Limited, 1964), p. 95.

³²George Sanderson and Frank MacDonald eds., *Marshall McLuhan: The Man and his Message* (Colorado: Fulcrum, Inc., 1989), p. 14.

³³Matie Molinaro, Corrine McLuhan and William Toye eds., *Letters of Marshall McLuhan* (Toronto: Oxford University Press, 1987), p. 442.

³⁴Alfred Schutz, *On Phenomenology and Social Relations*, ed. Helmut R. Wagner (Chicago: University of Chicago Press, 1970), p. 42

³⁵Jonathan Miller, *McLuhan* (London: Fontana/Collins, 1971), p. 126.

³⁶Donald Theall, *The Medium is the Rear View Mirror* (Montreal: Queen's University Press, 1971), p. 130.

³⁷McLuhan and Powers, *The Global Village*, p. 94.

³⁸Ibid.

³⁹McLuhan, *Understanding Media*, p. 19.

⁴⁰George Sanderson and Frank MacDonald eds., *Marshall McLuhan: The Man and his Message* (Colorado: Fulcrum, Inc., 1989), p. 3.

⁴¹McLuhan and Powers, *The Global Village*, p. 97.

⁴²In *Turing's Man*, David Boltner deals extensively with the implications of the predominance of the binary reasoning implicit in the development of the computer.

⁴³Stephen Kern, *The Culture of Time and Space* (Cambridge: Harvard University Press, 1983), p. 202.

⁴⁴Alleccquere Rosanne Stone, “Sex and Death Among the Disembodied: How to Provide Counselling For the Virtually Preorgasmic,” (Unpublished paper, 1991), p. 6.

⁴⁵Meredith Bricken, “Virtual Education”, (Unpublished paper, 1991), p. 7.

⁴⁶McLuhan, *Understanding Media*, p. 51.

⁴⁷Stone, “Sex and Death Among the Disembodied”, p. 6.

⁴⁸Paul Levinson, “Computer Conferencing in the Context of the Evolution of Media,” *Online Education: Perspectives on a New Environment*, edited by Linda Harasim (New York: Praeger), p. 5.

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- 49 Howard Rheingold, *Virtual Reality* (Toronto: Summit Books, 1991), p. 258.
- 50 Michael Hiem, *The Electric Language* (New Haven: Yale University Press, 1987), p. 24.
- 51 McLuhan and Powers, *The Global Village*, p. 71.
- 52 Kern, *Time and Space*, p. 111.
- 53 Jean Baudrillard, *Simulations* (New York: Semiotext(e)), 1983.
- 54 Douglas Kellner, *Jean Baudrillard: From Marxism to Post Modernism and Beyond* (Stanford: Stanford University Press, 1989), p. 71.
- 55 Ursula Franklin, *The Real World of Technology* (Toronto: CBC Enterprises, 1990), p. 49.
- 56 McLuhan, *Understanding Media*, p. 59.
- 57 *Ibid.*, p. 52.
- 58 Alfred Schutz, *The Problem of Social Reality*, p. 231.
- 59 *Ibid.*, p. 70.
- 60 Stone, "Sex and Death Among the Disembodied", p. 8.
- 61 Schutz and Luckman, *The Structures of the Life-World*, p. 106.
- 62 Leder, *Absent Body*, p. 29.
- 63 Kern, *Time and Space*, p. 91.
- 64 Robert Romanyshyn, *Technology as Symptom and Dream* (New York: Routledge, 1989), p. 42.
- 65 Leder, *Absent Body*, p. 21.
- 66 *Ibid.*, p. 21.
- 67 *Ibid.*, p. 22.
- 68 *Ibid.*, p. 26.
- 69 *Ibid.*, p. 12.
- 70 McLuhan and Powers, *Global Village*, p. 94.
- 71 Schutz, *The Problem of Social Reality*, p. 239.
- 72 Presentation at the conference for Technology, Entertainment and Design, 1989.
- 73 Stone, "Sex and Death Among the Disembodied", p. 11.
- 74 Schutz and Luckman, *The Structures of the Life-World*, p. 187.
- 75 Turkle, *The Second Self*, p. 79.
- 76 Mark Poster, *The Mode of Information* (Cambridge: University of Chicago Press, 1990), p. 116.
- 77 Stone, "Sex and Death Among the Disembodied," p. 4
- 78 *Ibid.*
- 79 Schutz, *The Problem of Social Reality*, p. 31.
- 80 Rheingold, *Virtual Reality*, p. 256
- 81 *Ibid.*
- 82 Doug Stewart, "Through the Looking Glass into an Artificial World – via Computer," *Smithsonian*, (January 1991), p. 40.
- 83 *Ibid.*

CHAPTER II: THE ENVIRONMENT

In the previous section I considered the body as the locus of our perception and understanding of the world, the place where information is processed and meaning constructed. The body, however, never exists in a vacuum but instead is engaged in a constant dialectic with the environment, a relationship McLuhan alluded to when he said, “we shape our tools and our tools shape us”. Beyond our “tools”, the phenomenologists note that we alter the complete reality of the world around us; in fact, we construct it. I will now look at McLuhan’s probes on the “environment” then turn to Schutz, Berger and Luckman for a framework of how we socially construct the world around us. The theme articulated by McLuhan, that is, the often overlooked importance of our relationship with the environment, and the framework provided by the phenomenologists, that is, how we “construct” our world, are both essential to the discussion of VR technology. What will the nature of our relationship to a simulated computer environment that can be deleted or drastically changed with a key stroke be? How will virtual environments change us? Will they, as Mark Poster suggests, “threat[en] the stability of our sense of the boundary of the human body in the world... [and] create a new species of humans”?¹ What norms, if any, from the construction of the “real” world will be appropriated for use in the construction of virtual worlds? How will we negotiate meaning in shared worlds where symbols can be instantaneously and arbitrarily assigned by anyone? In this section I will start by considering the symbiotic role between environment and the players within it. We are largely unaware of the ongoing process of construction in the life-world that both the phenomenologists and McLuhan discuss. However, one of the interesting by-products of virtual worlds may be the conscientization of world-construction due to the awareness of the process that the construction of virtual worlds will demand. Will the mechanisms we take for granted in the life-world be part of our recipe for the construction of communal virtual worlds? (If we are interested in constructing “reality for one”, these mechanisms will not be as important.) I

will also look at the issue of “figure - ground” as a way of perceiving in an environment where the “ground” not only has the potential for constant change, but also the potential to embody completely new or arbitrary meaning. Before I begin the discussion I must establish the semantic intention of the terminology that both McLuhan and the phenomenologists use.

In my earlier discussion of the sensorium I noted McLuhan’s contention that new technologies create new sensory arrangements which lead to new ways of perceiving the world. These technologies envelop and penetrate us and our institutions so thoroughly that they become the *environment* in which we exist. Within this all-pervasive technological macro-environment McLuhan identifies distinct micro-environments such as “rational or pictorial space”, language, weaponry and clothing created by technologies. By presenting both the macro and micro view of the technological environment McLuhan alludes to a definition that encompasses the interplay between discrete parts and the whole.

Alfred Schutz devotes his two volumes of *Structures of the Life-World* to exploring the ways in which we develop mental constructs to give meaning to the social world, or our “life-world” (the region of reality we engage ourselves with and can change). If we apply Schutz’s term to one lexical definition of environment, “the circumstances, objects or conditions by which one is surrounded”, the life-world can be considered as an environment. If we apply it to another definition, “the aggregate of social and cultural conditions that influence the life of an individual or community”, it can again be considered as an environment, and we can note the subtle distinction between the environment that exerts *influence* over an individual and the life-world that *engages* an individual. The active-passive distinction is an important part of both the definition of the life-world and, on the surface, the difference between McLuhan and Schutz’s “environment”. The first definition above refers to things which surround us as being our environment; taking this a step further we could interpret “environment” as also meaning the context of a person or event, which implies an inter-relationship. Berger and Luckman note the importance of “context” in influencing the nature of what we are when they note that “the self cannot be adequately understood apart

from the particular social context in which they were shaped".² Interestingly, Don Idhe refers to the importance of context in defining objects, and specifically tools. He suggests that a tool exists in a complex field of "cross-relations", or involvements, that determine its nature.³

Construction of the Environment

McLuhan and the Environment as Process

McLuhan presents a confusing paradox in his discussion of our relationship to our environment. On one hand he contends that new technologies "create new environments" that "act incessantly on the sensorium"⁴ and that electronic technology "speeds up [the] process of transformation",⁵ anthropomorphizing the technology by giving it – not the individual – the control and power. These assertions lead one to believe that we are victims of the technology, unwillingly and perhaps unwittingly carried into the future by the momentum of "progress", or, as James Carey says, "that the effect on sensory organization is automatic, without resistance, subliminal. Its penetration is independent of the will and wish of men".⁶ McLuhan also talks of the "incredible pain" new environments inflict on the perceiver⁷ and, most importantly, of our lack of awareness of new environments. In "A Message to the Fish", McLuhan tells us that one thing fish know absolutely nothing about is water, as they can never leave their aquatic environment to observe it (alluding, of course, to our own condition in the electronic environment). The fish survives because it has "built in potential which eliminates all problems from its universe"⁸ and we survive because we auto-amputate our technological extensions. We only become aware of our environment, as mentioned earlier, when it is superseded by another one. So not only are we not able to mitigate the drastic effects of our all-encompassing environment, according to McLuhan we are not even *aware* of it. In a position similar to McLuhan's, Hiem suggests we react to technological innovation in one of two ways. Either we "identify totally with the new extensions of ourselves" and neglect to develop the critical apparatus to evaluate them with,

or we “react suspiciously” and again are unable to develop a critical coping strategy. In both instances, losses in the life of the psyche occur.

But McLuhan also seems to suggest that we are engaged in a process with our environment whereby it both influences and is influenced by us. He recounts part of Herman Hesse’s *Siddhartha* to note that the protagonist comes to realize that, in McLuhan’s words, “environments as inputs are profoundly shaped by the individual”.⁹ He also says, “life is not given to us ready-made but has become a task of making rather than of matching”.¹⁰ The “making not matching” theme most strongly alludes to the process of interpretation and re-interpretation of our environment, the idea that the environment itself is a process. It is difficult to reconcile McLuhan’s apparent contradiction between his description of the environment as imposed on us, something we are largely unaware of, and environment as part of a constant human process of re-definition, unless we assume that our *choice* to play an active or passive role determines the circumstances. Although McLuhan alludes to the power the environment has to penetrate all parts of society, there is an implicit assumption that it can only happen if we choose to not intervene. In *The Medium is the Message* McLuhan reminds us that “there is absolutely no inevitability unless there is a willingness to contemplate what is happening” and in *The Gutenberg Galaxy* he says, “the influence of unexamined assumptions derived from technology leads quite unnecessarily to maximal determination in human life”. This clearly indicates McLuhan’s provision that if we are *aware*, new technological environments can be manipulated and structured according to our agendas.

The Social Construction of the Life-World

McLuhan sees awareness of our environment and a desire to act in it as the key to our technological emancipation (freeing ourselves from the otherwise all-encompassing hold of the technological environment); Schutz, Berger and Luckman note the importance of interacting with our environment but contend that the human-environment dialectic exists whether we are aware of it or not. Schutz reminds us of this dialectic when he notes, “the life-

world ... is a reality which we modify through our acts and which, on the other hand, modifies our actions”¹¹ and Berger and Luckman note, “... the process of becoming man takes place in an interrelationship with an environment”. They also emphasize the two distinct components of the environment when they note that “the developing human being not only interrelates with a particular natural environment but with a particular cultural and social order”¹² and focus on the mental constructs and mechanisms we employ to socially construct our environment. It is interesting to note that O.B. Hardison feels that computers equipped with arms and gripper legs can also act on and modify the environment.¹³ The process of construction is of particular interest to this discussion because I will later use it to illustrate the mechanisms we appropriate from our construction of the life-world for use in constructing virtual worlds. Isolating the areas where life-world construction mechanisms do not overlap with virtual world creation will further clarify the unique properties of virtual environments.

One of the central issues Alfred Schutz explored was the dual nature of the social world as made up of both individual experience and pre-given patterns of social relations.¹⁴ That is, we imbue our environment with meaning through the process of individual interpretation influenced by our previous experience, our immediate experience and experiences transmitted from others (parents and teachers). Schutz refers to this interpretive schema as “biographically articulated” situations. He also notes, however, that we are born into a pre-structured, social world with pre-established interpretations of phenomenon and relationships. The tension between these competing forces results in the dynamic energy necessary to maintain the social world in which continual re-interpretation takes place. I will now look at some of the mechanisms Schutz identified in our world building process including “biographical articulation”, the role of our “stock of knowledge”, “typifications”, “motivation”, “relevance structures” and “legitimation processes”.

Earlier I established that we operate in a manipulatable zone of reality that also provides the context for our communication with others. We were born into it and operate under the

assumption that it existed before us and will continue to exist after us. Berger and Luckman call this “paramount reality”, the reality of everyday life, and define it further by contrasting it with other “realities” that exist within it, such as theatre or the make-believe world of children. These “enclaves” exist within the paramount reality and our consciousness always returns back to the paramount reality after visiting them. It is important to establish the phenomenological conception of reality as I will be using it as the assumed referent in my discussion of virtual reality (which by its name claims to be an variation of this reality). By communicating with others in the paramount reality, Schutz notes that we implicitly incorporate other assumptions about the nature of reality into our behaviour. These assumptions include: (a) that others are endowed with a corporal existence and consciousness similar to our own; (b) that things in the outer world have fundamentally the same meaning for others as for us; (c) that we can enter into meaningful relations with others and make ourselves understood by them; (d) that the social world was historically pre-given to all of us and is taken for granted as the “natural” world; and, (e) because of this, our world is only to a small degree created by us.¹⁵ Schutz illuminates the idea that although these assumptions may form the basis of our actions, we also engage in the constant process of imbuing our environment with meaning and shaping our reality to suit personal needs, although we may be largely unaware of the process by which we do this.

All interpretation of objects and phenomenon in our environment are, at a fundamental level, individually accented due to historical events and circumstances. Our “biographical articulation” is the life experience which makes the content of current experiences unique. Our past also contributes to our “stock of knowledge”, the reservoir of experiences which are constantly accessed to provide meaning in present situations. Previous experiences drawn from the stock of knowledge are made useful (and easily accessible) through what Schutz calls the process of “typification” (articulating general characteristics so something can be understood as “like” something else). Beyond general knowledge, typification also plays a role in our relations with fellowmen. For example, the initial way we understand new people is

through synthesizing information about similar others (i.e., those occupying the same role) we have met. Once the general “type” is classified, we begin to form an individualized understanding of the person based on his or her unique characteristics. The same is true of environments. In both cases, Schutz distinguishes between two types of familiarity that influence typification. First we experience familiarity with a person or object that has been previously encountered and is in fact “the same” (this information is stored in our memory). Then there is a form of familiarity in which an object or person is “like” an object or person in a previous experience (this information is derived from our stock of knowledge). One of the primary methods of typifying our experience is through language (which is discussed in the following section). Schutz distinguishes between two kinds of information that enter into the stock of knowledge, the first being experiences that are unquestioned and accepted as part of the natural attitude and the second being experiences requiring explication.

The elements of a situation we may focus on depend partly on the personal “agenda” we bring to a situation and partly on external cues that (subtly) direct our attention. Along with our biographically determined frames of reference, we bring a personal agenda to each new situation; Schutz refers to this as our “motivational structure”. It is our set of goals based on wants and needs that helps determine the course of action we may take. We are motivated by both future-directed goals and factors from the past (including, of course, our personal history).¹⁶ We also are influenced by phenomena and events in our environment that encourage us to direct our attention towards a given “theme”. In my discussion of VR and disembodiment I briefly referred to two of Schutz’s “imposed thematic relevances” as an explanation for heightened bodily awareness in virtual worlds. Specifically I referred to Schutz’s contention that the unfamiliar draws attention to itself when surrounded by the familiar, and that a “leap” from one province of reality to another will cause us to re-direct our attention. Also contributing to changes in theme are changes in the “tension of consciousness” within one province of reality and changes induced by others in our environment.¹⁷ These “thematic relevances”, along with different motivations will play a

role in determining our approach to situations in virtual worlds. Keeping in mind Schutz's theme of the dual nature of the social world as both pre-given and open for modification, we should note that regardless of the object of our attention, each situation is "open" in the sense that we can define and interpret it based on our stock of knowledge but is also "closed" or determined, as it is the product of all previous situations.

In a more general sense our action in a given situation is also motivated by a "hierarchy of plans" based on rules of logic that are "partially ontological...partially historical... and partially biographical in nature."¹⁸ That is, according to Schutz, when writing a letter, for example, we accept writing with an implement or machine as given "because we cannot write with our eyes" (the ontological element); if we lived in the 15th century it wouldn't occur to us to write with anything other than a pen (the historical element); and if we could not write legibly we may have to write with a typewriter (the biographical element). These motivational influences are useful to consider when examining our action within the perimeter of the life-world; they will also be interesting to consider when examining our action in virtual worlds which are conducive to changing ontologies, have no history, yet are still imbued with meaning based partially on biographical experience.

So far I have looked at different ways in which we phenomenologically interpret and direct situations in our environment on personal level. The life-world, however, is also the product of a much larger process that extends beyond the sum of its parts. In *The Social Construction of Reality*, Berger and Luckman focus on the way the social order itself arises, going back to the origins of institutions. I will now briefly note the elements of this process that will be useful to consider in my discussion of the construction of virtual reality technology.

Earlier when I reviewed mechanisms we use when interpreting and constructing our reality, I noted the assumption that personal realities necessarily exist in the context of the larger social order. The "larger social order" itself consisting of institutions and institutionalized norms and traditions, was, according to Berger and Luckman, the result of

the intentional interaction between “A” and “B”, who shaped a world based on their combined biography and agenda’s. While their world was under construction, A and B were capable of modifying or abolishing it and shared the realization that it was in fact a *construct*; the world was transparent to them. This sense of arbitrariness changed, however, when the world was transmitted to a new generation, who had no part in the construction and thus perceived the world as “given” and unchangeable. To the new generation, the social construct appeared as a permanent social world.

In the process of transmission, institutions are legitimated to secure their position as part of the “paramount” reality. A by-product of this is the development of a stock of transmittable knowledge (manifest in the form of rules and norms) that dictates conduct. A body of practical experience-based knowledge also develops on an individual level through those participating in the institutions. It is internalized then externalized as objective information. The whole process of transmitting constructed “meaning” is, according to Berger and Luckman, a fundamental method for the legitimization of our social world, incorporating both knowledge and values. “Legitimization is this process of explaining and justifying. Legitimization “explains” the institutional order by ascribing cognitive validity to its objective memory. [It] justifies the institution by giving normative dignity to its practical imperatives.”¹⁹ There are four levels of legitimation: (1) the legitimation of traditions (“this is how things are done”); (2) theoretical propositions (such as proverbs and wise sayings); (3) explicit theories pertaining to a body of knowledge (which often develops into pure theory), and (4) “symbolic universes”.²⁰

Symbolic universes are “bodies of theoretical tradition that integrate different provinces of meaning and encompass the institutional order in symbolic totality”.²¹ That is, processes within the symbolic universe, such as communication, may refer to different realms of reality that exist outside everyday life experiences (dreams). By understanding a dream in relation to the life-world and representing it symbolically from the perspective of the life-world (through language), we naturalize the experience in the context of the life-world. In this sense

the symbolic universe orders all experiences and assigns them a hierarchical position as well as integrates and legitimizes them.

The constituted symbolic universe, however, does not exist completely without resistance from what Berger and Luckman call “deviant versions” of reality ²² that challenge the dominant position. If these deviations attract enough support they pose both a theoretical threat to the symbolic universe (by presenting an alternate version of reality thus challenging the supremacy of it) and a practical one (through the potential dissolution of institutions and processes that exist through legitimation). It is beyond the scope of this discussion to consider how deviant versions of reality develop and how they are normalized by the dominant groups. What I am interested in is the fact that deviant conceptions and groups exist.

Berger and Luckman present the “intellectual” as an example of a deviant, marginal type, defining him or her as “an expert whose expertise is not wanted by society at large”²³ and implying there is a gap between theoretical and practical knowledge. The rejection of the intellectual may also be rooted in the fact that instead of legitimizing the social apparatus and institutions, he or she challenges them by providing alternate (theoretical) possibilities. When integration into society is impossible, Berger and Luckman note there are two basic options open to the intellectual; withdrawal into an “intellectual subsociety” or revolution. For the purposes of this discussion I am interested in the former because it raises the issue of the implication of the power position elite groups of “knowledge holders” have when their theory is found useful – or even necessary – to the larger society. By withdrawing into a subsociety the intellectual may find refuge in those who support or complement the deviant theories (thus, to an extent, legitimizing them) and is also able to maintain his or her “deviant” position without fear of annihilation. But this dichotomy may also lead to what C. P. Snow recognized as the split of modern culture due to progress into two sub-cultures, scientific and non-scientific, with no communication between the two.

The Social Construction of Virtual Worlds

When virtual reality technology was first developed, the systems were designed to support one person in a solitary environment for the purpose of skill development (i.e., flight training) or scientific visualization (i.e., molecule docking). Programmers would often develop worlds for themselves or for others who shared a common perceptual base, thus the issues of how to represent virtual objects in a form intuitively understandable and how to develop conventions for (for example) virtual navigation were not essential to maintaining a functional system. With the introduction of shared virtual spaces (heralded by VPL's "Reality Built for 2"), however, questions concerning ontological relevance (the way that realities come to be conceived as publicly identifiable and intelligible²⁴) have become a fundamental cornerstone in world construction. How do we develop a framework within which meaning can be shared and information successfully exchanged? How much of the environment that we take for granted is essential to the communicative process? And if we realize that most or all communication is dependant on the social environment, how do we construct such environments in VR? McLuhan has articulated the player-environment relationship theme, and Schutz, Berger and Luckman have developed a comprehensive framework for understanding the nature of this relationship. Contained within their framework are mechanisms that could be taken into consideration when constructing virtual worlds. By using our awareness of the construction of the life-world as a template, we may be able to replicate the properties necessary for an effective communicative environment without the spatial constraints or reliance on limited symbols that exists in paramount reality. In this instance VR would duplicate paramount reality (we can compare it loosely to the relationship between television content and paramount reality). There is, of course, a danger in modelling a new experience on that which is familiar, as it may prevent us from exploring the unique properties of the new environment – virtual space. Instead of necessarily limiting exploration, however, we could employ the phenomenological model as a starting point for world construction, from which innovative practises could develop. The relationship between VR

and paramount reality could also be taken to a more abstract level, adopting a metaphorical model, where the virtual objects may lack perceptual similarity with paramount reality but be intuitively understood through it. The third level of relationships could involve the employment of physical objects for the representation of abstract concepts.

The issues that I outlined above in the discussion of the construction of social worlds and will now apply to VR are by no means presented as a comprehensive recipe: that would go far beyond the scope of this discussion. Instead I have identified some of what I contend are the primary issues in social world construction and essential individual mechanisms we bring to the process that could be applied to the construction of virtual worlds. I will start with the meta-processes embodied in the origin of the social universe and the legitimization procedures used to maintain it.

The first thing I noted when reviewing mechanisms for the construction of institutions was that after the initial development phase their stabilization depended primarily on the process of transmitting the knowledge the institutions embody from generation to generation. In this way the institutionalized norms become sedimented in tradition and accepted as a permanent construct. The positive aspect of this process is the establishment of a common meaning structure within which certain assumptions about shared referentials can be made. For example, linguistic norms allow us to convey the meaning of a tree by representing it with the word "tree" instead of having to describe its precise properties to guarantee that the concept is understood. The other advantage is that established institutions provide an organization structure around which a society can exist (and without which it could not). The disadvantages of this sedimentation include the assumption that only one version of reality exists which may lead to stagnation or the imposition of the dominant ontology on those who may seek alternate views.

The primary characteristic of the legitimation process is a temporal one: norms and "traditions" develop over time. What then happens when virtual environments are created in a day and under constant (drastic) revision? How is a sense of shared meaning developed? An

easy (and obvious) solution would be to incorporate pre-established norms from paramount reality into virtual worlds so that a virtual tree resembles a “real” tree. If we confine ourselves to this practise, however, we would neglect to take advantage of the opportunities for what Jaron Lanier calls “post symbolic communication”; that is, our ability to create any contingency or action in reality instead of trying to describe them with words.²⁵ If, however, we venture into the world of idea representation, how will we understand that my visual construct “x” symbolizes anger while your visual construct “y” symbolizes melancholy? As with all contrived conventions for expression we will necessarily develop a “universal” protocol for representing visually what has up to now been represented linguistically. There may be many “dialects” within this visual language and the technology itself may be conducive to a wider range of representation, but the development of common meaning structures is essential if VR is to exist as a communicative space. The inter-relationships that exist between VR and paramount reality at least during the early stages of the implementation of the technology can be understood in terms of Walter Ong’s “intertextuality”. All texts, he notes, “have extratextual supports. Roland Barthes...has pointed out that any interpretation of a text has to move outside the text so as to refer to the reader: the text has no meaning until someone reads it, and to make sense it must be interpreted, which is to say related to the reader’s world”.²⁶ Although VR presents sensually a completely new form for expression, the content cannot be independent of the extra-virtual world; in fact it will depend on it.

The inter-relationship between virtual and paramount reality exists in the realm of the symbolic universe. As mentioned earlier, communication in the symbolic universe may include reference to different realms of reality that exist outside everyday experience. Conversely, experiences in the life-world can be referred to (will necessarily be referred to) through the symbolic communication process in VR. In this sense there naturally exists a dynamic interplay between the two realms. The practise of referencing the elements of paramount reality to create meaning in virtual reality will be in large part a natural inclination, as we generally understand that which is new by considering it as “like”

something else. This process of typification is evident even in attempts define the experience of VR itself ("Its like having a collaborative, lucid dream"²⁷).

Not only will virtual communications have to be interpreted according to life-world norms, the interpretation process itself will be grounded in the mechanisms we employ on an individual level in the life-world. As mentioned at the beginning of this discussion, we exist in this world as carnal beings, necessarily accepting the physical limitations of our bodies. When we enter into VR then, it is understood that we bring our bodies with us. We also bring with us our complete personal history, out of which our motivational structure and hierarchy of plans develop. We can recall that in paramount reality this hierarchy is based on a set of rules of logic that are partially ontological, partially historical and partially biographical in nature.

Aside from historical and biographical motivations, the technological specifics of VR encourage certain interpretive schemata. As type encouraged linear thought due to its sequential nature and the predominance of the eye, the predominance and simultaneous nature of the senses in VR may encourage conditions similar to the oral tradition, with the added power of communicating through space and the ability to outer our consciousness in a more comprehensive way. According to McLuhan the technology would encourage simultaneous right-brain awareness – a return to the tribe. We could, of course, choose to limit our virtual experience to one sense modality thus shifting the perceptual implications of the technology. The point to raise here is that one absolute characteristic of the technology is its potential for unlimited freedom of representation which will necessarily encourage a variety of ontological structures. But the constructing of a reality that lacks any connection to paramount reality will not be possible, due to limits in our ability to create and understand unprecedented spaces. As Bauscia, Riviera and Setaccio note,

Such limits stem from the organization of our brains, which (as stated by Maturana and Varela) is the result of thousands of years of interaction with the environment we live in (both from a phylogenetic and from an ontogenetic perspective). An implication of this observation is that *it is impossible to get completely rid of natural*

reality: it will always "be present" in the organization of the brain to the users (as well as of the designer) of any [virtual] reality.(Italics mine)

Figure and Ground

In my examination of the environment so far, I have focused on the symbiotic relationship we as players enjoy with it and the mechanisms we use to socially construct it. The phenomenologists contend that these construction mechanisms are evident in the interpretive process, which is rooted in perception. Both McLuhan and the phenomenologists emphasize that perception must be experienced and understood as the sum of discrete parts; only through a holistic approach can we understand our environment. This interpretive schema is derived from a movement that emerged before World War I called Gestalt Psychology. McLuhan and Idhe have both appropriated terminology from this movement to express their theories of environmental perception.²⁸ I will now look at McLuhan's attempt to synthesize the figure-ground dichotomy into a holistic view of the environment and Idhe's contention that the interplay of figure and ground leads to "perceptual multistability."

McLuhan's Figure and Ground

In a general sense, McLuhan calls an object of attention in a given situation "figure" and the environment which immediately supports and surrounds it "ground". We are largely unaware of the ground, and this unawareness allows the ground to act subliminally on us. For example, if we consider the car as figure, we would include highways, industrial plants and oil companies as ground.²⁹ This is a crucial point because it illustrates the interconnectedness of elements in our environment and points to the "chain reaction" that occurs when a new variable is introduced. If we consider the introduction of the car in isolation we can see the dramatic effect it had on our spatial sense (suddenly the town down the road was accessible), which effected, among other things, our social relationships, purchasing habits, and sense of "home". If we consider the car as figure in relation to the environment as ground, we see

that the effect of the car extended beyond immediately identifiable conditions to a web of more profound changes. The car needed roads and highways to travel along, the development of which lead to changes in our political/social economy. The need for fuel for cars contributed to a complex network of international dependencies and alliances and the establishment of multinational companies. (I am not suggesting that cars alone created these situations, but rather that they contributed to them.) In this sense McLuhan uses the terms “figure and ground” to draw our attention to the often unconsidered implications of a new technology on its environment.

McLuhan applies his discussion of figure-ground most rigorously to a consideration of electric technologies, which exist in a ground that is “simultaneous” and always changing due to spatial ambiguity (satellites remove us from a set environment to allow us to be in any – or all – environments) and “instantaneous transmission”. The simultaneity of ground creates what McLuhan sees as a “mosaic” structure, where we are forced to be aware of everything at once and interpret meaning from the random juxtaposition of conditions. It is interesting to note that in “The Canadian Connection II: Marshall McLuhan”, Paul Heyer notes McLuhan’s admission that his style of writing is “mosaic”, allowing for, as Heyer says, “exposition that juxtaposes divergent observations... moves back and forth across history in a comparative way”.³⁰ One characteristic in the figure-ground dichotomy in the electric age that McLuhan emphasizes is the ability of the relationship to reverse, the figure becoming ground and ground becoming figure. McLuhan’s discussion of the simultaneity of ground in the electric age in a sense provides the foundation for his probes on disembodiment, as in both cases the *context* is virtually absent. In a perceptive assessment, McLuhan says that television is “figure without ground”, suggesting that we have become alienated from immediate experiences and all information has become transferable and interchangeable. This notion of figure and ground, instead of emphasizing the global picture, as does the first example, focuses more on the interaction between the two elements (what McLuhan calls the “interface”). Implied in both examples, however is the idea that our perception of figure is

necessarily influenced by its ground, whether we are aware of the ground or not. This is something that Idhe focuses on more directly in his discussion of perceptual multidimensionality and multi-stability, which I will now address.

Phenomenological Figure and Ground

Don Idhe supports the view that the foundation of phenomenological inquiry rests in the perceptive nature of our understanding of the life-world. In a tradition pioneered by Husserl, Idhe describes a “multidimensional paradigm for perception” which includes that which is manifest and latent, or “given” and “meant”.³¹ The object of inquiry is recognized as a composite of both what is present and what is absent, the dichotomy setting the paradigm for further phenomenological analysis. Idhe sees this multidimensionality as forming the basis for all perceptual action. It is at this point that Idhe incorporates Merleau-Ponty’s notion of the perceived world as the foundation of all reality, and expands it to include the notion of *multistability*. Idhe defines multistability as “the framed ambiguity of perception”³² and relates it, via Merleau-Ponty, to the idea that perception is both sensory and cultural (we may perceive things in different ways depending on our circumstances). The foundation of perception for Merleau-Ponty, according to Idhe, lies in the idea that we selectively focus on an object (figure) drawing it out of its context (ground). Merleau-Ponty’s incorporation of the figure-ground dichotomy, according to Idhe, begins to draw together the multidimensionality and multistability of perception. That is, “the figure is always seen as both a sensory object and as a possible meaning”.³³ A classic example of the multidimensionality and multistability of perception is found in the well-known ambiguous image of the young woman/old woman’s face, the perceived image being dependent on where the focus is directed.

FIGURE TWO: WOMAN'S FACE



This example, however, is clearly a case of either-or, as the ground, whether it be the young woman or the old woman is constant. Idhe, however, increases the complexity of the model to include gradients of ground detail, which serve to reduce the possibility for perceptual ambiguity. If we were, for example, to add glasses to the face of the old woman the possibility for ambiguous interpretation would be greatly reduced.

Although McLuhan and Idhe emphasize different properties of the figure-ground gestalt (the former focusing on the macro-causational effect of figure on ground as well as the ambiguous nature of ground in the electric age, and the latter focusing on an interpretive figure-ground model) I suggest that a common interpretation of the terms exist. This is not to claim that McLuhan adopts a phenomenological stance; in fact as we shall see later, the only reference McLuhan makes to phenomenology concerns its inability as a methodology to unearth the simultaneous nature of the environment. Instead I am suggesting that there is a complementary intersection between McLuhan and Idhe's approach to perception, embodied in the figure-ground relationship. McLuhan presents examples of the effect of technology on the environment, refers to the simultaneous environment as ground and gives an example of an electric figure without ground. Idhe stabilizes McLuhan's examples in a synthesized framework that emphasizes, as McLuhan does, the multidimensional nature of the figure (its

interpretation lying in an awareness of both what is present and what is absent) and its multistability (interpretation being culturally and sensually based). McLuhan's themes will now be selectively adapted to a discussion of virtual environments and applied to Idhe's framework.

Virtual Figures and Changing Ground

As noted above, McLuhan suggests two areas in which the figure-ground gestalt can be applied to the environment: the first is a cause and effect macro-view (i.e., the "ripple effect" the introduction of the new technology has on the context in which it is placed). The second is the perceptual schema used to imbue an area of attention with meaning based on its context (ground). The latter application closely aligns with Idhe's focus and is more relevant to a discussion of the perceptual experience of VR as a medium (as opposed to the "effect" the introduction of VR may have on social/political/religious and other arrangements), which is the theme of this discussion.

Before we apply figure-ground to VR, we must establish the nature of the virtual world in question, as the implications of applying the properties to a photo-realistic world (one modeled on our paramount reality) are drastically different than applying them to a purely symbolic world where arbitrary symbols are assigned to represent concepts. In the first instance, if I enter into a virtual environment modelled on a real-world situation, for example a simulation of the Amazon Rain Forest (which I have never visited but have read about), I have a pre-established understanding of the "meaning" of a tree as well as its relationship to the earth, based on our typified experiences in paramount reality. In this case I would transfer the multistability of an object found in paramount reality into VR. If, however, I enter into a completely fanciful virtual world (not of my own creation) where the usual laws of the universe are suspended and ideas are arbitrarily assigned symbolic representation, we are forced into a different scenario where I would have to "negotiate" meaning through establishing a set of norms (derived in a large part from expectations) with others I wish to

share the virtual space with. McLuhan's "simultaneous ground" of electric technology would necessarily be tempered in the virtual world if we wanted to develop any meaning. In *Alice in Wonderland*, the worlds Alice visited were inverted (large became small, for example) but still referred the real world to allow for identification and meaning. One by-product of constructing or entering virtual worlds where conscious attention must be given to the interrelationships between objects and environment may be an increased awareness of the process by which we give meaning to objects in paramount reality based on both their multidimensionality and multistability.

Alternate Realities

Michael Hiem begins his essay, "The Metaphysics of Virtual Reality" by recounting a Taoist legend about an artist commissioned to paint a mural. The artist worked diligently each day, green forests and blue skies stretching across the grey wall that was her canvass, until her imagined world was complete. Many people gathered for the unveiling and "oo-ed" and "aw-ed" when the tarp was dropped and the colourful scene came alive. After accepting congratulations and enjoying the delighted reception of her work, the artists moved to the centre of the mural where a path emerged from the dense forest; she turned around and disappeared into the green leaves, never to be seen again.

Hiem notes two human tendencies that the story illustrates: the power of artistic illusion and our need to create alternate realities or "realities within realities".³⁴ The creation of realities within realities and our emergence in them occurs in routine aspects of our existence that we completely take for granted, such as when we read a captivating book, enjoy an engaging film or are overwhelmed by a painting. In these instances we are entering and navigating in symbolic spaces, removed from the realm of everyday reality (which, of course, according to the phenomenologists is also a symbolic space). We are also engaging our imagination in a process of world construction based on minimal information (as when we

construct an imaginative scene based on information provided to us through printed words on a page). In this sense our imagination transcends the limitations of our bodies and allows us to “escape” to other worlds. We may also transcend bodily limits and be transported to different realities when we engage in ecstatic religious experiences, have an “out of body” experience”, fantasy or dream. There are also instances when we engage in alternate realities that are encouraged by external conditions, such as taking hallucinogenic drugs. At its most sensational virtual reality has been compared to drug experiences, unlimited fantasy and a dream state through claims such as “It’s a world without limitations, a world as unlimited as dreams”³⁵ and “It’s like having a collaborative, lucid dream”.³⁶ Does virtual reality, then, deprive us of ultimate control over our environment as does the dream state, where we often “experience” situations we would rather not? Does virtual reality not adhere to a prime narrative and coherence that allows us to make sense of the environment? If compared with a drug induced state, must we not then assume that the experience of VR is largely internal and only marginally shared (two people taking the same drug will have radically different experiences of it).

McLuhan saw the metaphorical – and actual – connection between the effects of drugs and the effects of electrical technology, particularly television, both encouraging a simultaneous “all-at-onceness” with the environment. In his *Playboy* interview McLuhan notes,

The inner trip is not the sole prerogative of the LSD traveller; it’s the universal experience of TV watchers. LSD is a way of miming the invisible electronic world, and gives the potential of instant and total involvement.... The attraction of hallucinogenic drugs is a means of achieving empath with our penetrating electric environment, an environment that in itself is a drugless inner trip.³⁷

Whether or not we are all numbed in a drugless state by the technology (we can assume that the effects of technology are numbing as opposed to sense-enhancing, as we have already noted McLuhan’s assessment of the numbing effects of technology) is open for

debate. The important issue that McLuhan does raise, however, is the potential to engage in alternate forms of reality through a technology, a potential that many VR enthusiasts would assert has been realized. I will now look at Schutz's model of the life-world as consisting of multiple realities, described as "enclaves" within paramount reality. I am most interested in the properties of these enclaves, and their comparison to experiences of virtual worlds. By juxtaposing these states with VR I will address the issue of VR as an alternate reality.

Schutz's Multiple Realities

William James stated, "Our normal waking consciousness... is but one special type of consciousness, whilst all about it, parted by the filmiest of screens, there lie potential forms of consciousness entirely different",³⁸ reminding us that in the natural course of existing in the world we navigate through different realms of experience, thus different experiences of reality. James further developed the idea of the existence of different realms, eventually referring to them as "sub worlds" or "sub-universes" of meaning, and describing them as subjugated to paramount reality.³⁹ It is from this description that Schutz was inspired to investigate these sub-universes (which he ultimately called "finite provinces of meaning") and classify them in relation to the social experience of everyday life, as the "archetypal experience of reality"⁴⁰ to which all other experiences are both inferior and dependant. Schutz contends that we are aware of both the primacy of paramount reality and our ability to move through the multiple realities or enclaves that exist within it, as well as the fact that our consciousness always returns back to paramount reality and only from paramount reality can we understand and describe our alternate experiences (through, for example, the use of symbols such as language). We move from one province of reality to another by "leaping" (leaps refers to the exchange of one style of lived experience for another, due to a modification in our tension of consciousness) which is accompanied by an initial shock. These finite provinces of meaning, whether they be dreams, fantasies or religious experiences, all have a particular cognitive style and support experiences which are consistent and

compatible with each other (although not necessarily with the life-world). An example of this is our experience of *factual*, although not *logical* inconsistencies when dreaming. I may quite plausibly dream of taking an exotic cruise with an acquaintance with no sense of disbelief while I am dreaming; if, however, I dream of a flying horse, I am almost certain to note the aberration, even while dreaming. I will now look at what Schutz has identified as the distinguishing properties of both fantasy and dreams.

When we “leap” into the world of fantasy perhaps the first thing we experience is a sense of freedom from what Schutz calls the “pragmatic motive”; the sense that certain tasks must be performed or attitudes held for our harmonious existence in the life-world. Schutz does note, however, that the logical structure of harmony does remain valid in fantasy, so imagining a breach of life-world etiquette may be stressful in my fantasy world. Being free from the pragmatic motive implies that we no longer need to master the life-world and thus can turn our energy elsewhere. As noted above Schutz contends that the logical structure of harmony remains valid in fantasy, but other boundaries and conditions do not remain valid (we may imagine ourselves conducting the London symphony orchestra even if we are not musically inclined). In this sense, our fantasizing ego can “volitionally fill its empty anticipations with whatever it wants”.⁴¹ That is, we can fantasy *what* we want, *when* we want.

Schutz also notes that the time perspective of fantasy worlds differs from the time perspective of paramount reality due primarily to the lack of a stable focus.⁴² We may engage in a repeat of one fantasy over and over in one day-dreaming episode, the unity being derived from our sense of inner time which develops out of our span of attention. Also the time structure of the life-world is distorted as we may fantasy in “fast-forward”, accelerating events beyond what would be possible in paramount reality or we may fantasy in “slow-motion”, slowing events down beyond what is possible in paramount reality. The strongest tie to the time structure of paramount reality, however, lies in the fact that while I fantasy I get older and the life-world progresses according to its own rhythms and cycles; this cannot be directed of my own volition. And just as the external time structure is ultimately

imposed on us in our fantasy worlds, so is the limitation of our physical being. I may fantasy myself as a flying dwarf, but if I actually try to fly through a small open window I will quickly become aware that my fantasy finds limits at the boundary of my body.

Although Schutz describes fantasy as a *finite* province of meaning within paramount reality, we must remember that, as noted above, there is “carryover” from paramount reality. It may help us to think of the boundary of these meaning structures as a permeable membrane through which information is passed. Just as we incorporate information from paramount reality into fantasy, so does fantasy experience become incorporated into paramount reality, through our stock of knowledge, which refers back to various experiences in other provinces of reality. The suggestion that a permeable membrane separates paramount reality from the enclaves within it is an important one, because it sets the conditions for experiences we may have in VR to alter our experiences in and understanding of the life-world. I will return to this below.

Schutz describes sleep as “complete *relaxation of consciousness*... combined with complete *withdrawal from life*”.⁴³ In this state of withdrawal, we engage in “passive perceptions”⁴⁴ which remain in a state of confusion, but also determine the theme of that which is dreamt. I have noted that in fantasy worlds we can fantasy what we want, when we want; dream worlds lack this freedom. The dreamer cannot willfully fulfil desired situations as he or she is not in control of the direction (as the experience of nightmares demonstrates).

Just as the time structure of fantasy differs from the time structure of paramount reality, so too the time structure of dreams differs from that of paramount reality, dreams involving a far more complex configuration. Schutz describes the dreaming person as observing “future events as if they were past; past events are dreamed of as open and modifiable and thereby bear a clear, future character; successions can be simultaneously transformed and so forth”.⁴⁵ Dreams, then, do not coincide with the temporal structure of the life-world, but engage an inner time structure.

The dream world is a solitary one (we dream by ourselves and no two people can have the same dream), the person dreamt about becoming an object of the dream as opposed to someone with which the experience is shared. This suggests one thing about the dreamworld that we all intuitively understand; it is not a communicative environment. The fact that only in a wide awake state can dreams be communicated (through language, for example) implies an understanding that is based in the life-world (something in our dream is “like” or “the opposite of” something in reality). Thus our solitary experience of the dreamworld engages us in a finite province of meaning completely distinct from paramount reality, but communicating (and interpreting) dreams grounds us firmly in the world.

Earlier I suggested visualizing the enclaves within paramount reality as being surrounded by a permeable membrane through which certain information passes. This is complemented by Schutz’s suggestion that the relevance systems of the life-world are put into question by our experiences in various finite provinces of meaning (including, as mentioned before, dreams, fantasy, religious experiences, but also science and “non-rationalistic world views”). These enclaves may be embodied in religious or psychiatric institutions, or in carnivals or other forms of play. Through Schutz’s discussion it is evident that his finite provinces of meaning involve a directed or spontaneous shift in our internal state, although not necessarily leading to “altered” states of consciousness in the sense of a drug-induced altered state. Ecstatic religious experiences may, however, involve this kind of altered state while at the same time existing simply as a separate meaning structure within paramount reality. It is essential to establish the idea that finite provinces of meaning involve an *internal* realignment as then we can think of certain conditions as being conducive to – although not necessarily causing – a shift in consciousness. This allows the primary locus of control to rest with the participant; the nature and properties we take for granted in the life-world will not change during a religious experience unless we are receptive to these changes. I will now juxtapose the properties of dreams and fantasies that Schutz has defined with the properties and

conditions of virtual reality to assess its status as a potential finite province of meaning, then consider VR's conduciveness to encouraging "altered states" of consciousness.

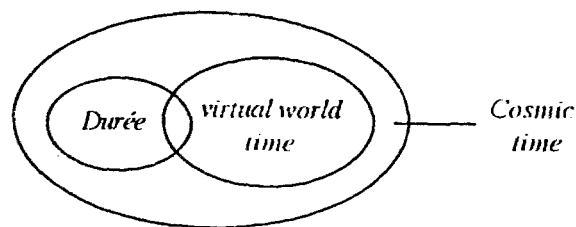
VR as a Finite Province of Meaning

Earlier it was established that Schutz's finite provinces of meaning adhere to a particular cognitive style and support consistent internal experience (not necessarily consistent with each other or paramount reality). They can be contrasted to the continuous and coherent nature of paramount reality (which implies that they possess discrete and incoherent properties), but also have their own distinct and unique set of properties. Virtual reality has a unique set of properties that can be contrasted with paramount reality, suggesting that Schutz may have considered it, too, a finite province of meaning, although distinct from dreams and fantasy.

In my discussion of dreams I noted Schutz's observation that we cannot (usually) control the content nor the way it is revealed; instead we are passive bystanders engaged in a larger narrative. I contrasted this with fantasy where the content is self-directed and the participant enjoys complete freedom, even from our life-world circumstances. If we apply the issue of control to VR, I suggest that the primary distinguishing property of VR as a finite province of meaning (and a uniquely configured environment) is illuminated; that is, the users high level of environmental control. In user-created environments a higher level of freedom is available than in pre-configured environments as the user herself can determine the nature and scope of the virtual world, although is still limited by the ontology of the technology (the presentation format and ways of experiencing the world) and the practical conditioning carried over from the life-world. In this sense a virtual world can be compared to Schutz's fantasizing. This freedom decreases, however, when users engage in pre-made worlds. Although the freedom to navigate where one wants at a self-directed speed may still exist, the environment is determined and constant. In these virtual worlds, the level of control decreases and can no longer be compared to fantasy worlds, but is not as limited as in dreams.

In the discussion of dreams I also noted the complex time structure that disregards a past-present-future continuum to engage in a simultaneous presentation of information over which the dreamer exerts no control. Time perspective when fantasizing also deviated from life-world patterns, but control of the mechanism for deviation rests primarily with the one engaged in the fantasy. The time continuum is established by the directed attention of the actor, more specifically, by his or her intensity of concentration or lack of intensity. If heavily involved in a fantasy world, or if choosing to replay fantasy over and over, cosmic time is transcended by *durée* (to return to Bergson's terminology). In this sense time perspective in fantasy is very much like time perspective in virtual worlds, where perceived rate of time passage depends on intensity of concentration. VR, however, also presents an added level to the internal-external time construct, as it acts as a micro-cosim for cosmic time. That is, there is a sense of shared time within a communal virtual world that is separate from each individual's sense of *durée*, which may or may not also involve awareness of paramount reality. But the virtual world itself also exists within the cosmic time structure of paramount reality. The configuration can be represented as:

FIGURE 3: REPRESENTATION OF VIRTUAL TIME



We have already established, through the idea of the permeable membrane, that information from the life-world enters into our dreams and fantasy's just as the content of dreams and fantasies inform our life-world experiences through the information that enters our stock of knowledge (it does, of course, enter with the mark "dream experience" or "fantasy experience"). In our discussion of elements of life-world construction we might appropriate from paramount reality into VR, I suggested that there necessarily will be a high

cross-over of information. Perhaps the most useful aspect of the technology will lie in the facilitation of information transfer from virtual worlds to paramount reality; what would be the purpose of using VR as a forum for concept representation if the knowledge could not then be incorporated into our life-world stock of knowledge? In this sense VR is unlike dreams or fantasy as the connection to paramount reality will be more pronounced, due in large part to its function as a communal as opposed to solitary environment.

¹Poster, *Mode of Information*, p. 4.

²Peter Berger and Thomas Luckman, *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*, (New York: Doubleday & Company, Inc., 1967), p. 50.

³Idhe, *Technology and the Lifeworld*, p. 32.

⁴Marshall McLuhan and Quentin Fiore, *War and Peace in the Global Village* (Toronto: Simon & Schuster Inc., 1989), p. 136.

⁵Ibid., p. 183.

⁶James Carey, "Harold Adams Innis and Marshall McLuhan", in *Antigonish Review*, Fall, 1968.

⁷McLuhan and Fiore, *War and Peace*, p. 7.

⁸Ibid., p. 175.

⁹Ibid., p. 142.

¹⁰Ibid., p. 177.

¹¹Schutz and Luckman, *The Structures of the Life-World*, p. 6.

¹²Berger and Luckman, *Social Construction of Reality*, p. 48.

¹³Hardison, *Disappearing Through the Skylight*, p. 5.

¹⁴ Schutz, *On Phenomenology and Social Relations*, p. 11.

¹⁵Schutz and Luckman, *The Structures of the Life-World*, p. 5.

¹⁶Schutz, *On Phenomenology and Social Relations*, p. 26

¹⁷Schutz and Luckman, *The Structures of the Life-World*, pp. 183 - 190.

¹⁸Ibid., p. 20.

¹⁹Berger and Luckman, *Social Construction of Reality*, p. 93.

²⁰Ibid., pp. 94 - 95.

²¹Ibid., p. 95.

²²Ibid., p. 105.

²³Ibid., p. 126.

²⁴Heim, *Electric Language*, p. 28.

²⁵Kevin Kelly, "Virtual Reality: An Interview with Jaron Lanier," *The Whole Earth Review*, (Fall 1989), p. 118.

²⁶ Ong, *Orality and Literacy*, p. 162.

²⁷Kelly, "Virtual Reality: An Interview with Jaron Lanier", p. 114.

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- ²⁸This assumption is made based on an interview with Marshall McLuhan and Louis Forrdale where McLuhan says, "It is a question of figure and ground, to use the language of Gestalt psychology". [Sanderson and MacDonald, p. 21.]
- ²⁹Ibid., p. 22.
- ³⁰Paul Heyer, *Communication and History: Theories of Media, Knowledge and Civilization* (New York: Greenwood Press, 1988), p. 131.
- ³¹Idhe, *The Consequences of Phenomenology*, p. 50.
- ³²Ibid., p. 51.
- ³³Ibid., p. 59.
- ³⁴Sandra K. Helsel and Judith Paris Roth eds., *Virtual Reality: Theory, Practise and Promise* (Westport: Meckler, 1991), p. 27.
- ³⁵Kelly, "An Interview with Jaron Lanier", p. 109.
- ³⁶Ibid., p. 114.
- ³⁷"Playboy Interview", p. 127.
- ³⁸Colin Wilson, *The Occult* (London: Grafton Books, 1978), p. 13.
- ³⁹Schutz, *On Phenomenological and Social Relations*, p. 41.
- ⁴⁰Schutz, *Collected Papers*, p. 233.
- ⁴¹Schutz, *Structure of the Life-World*, p. 131.
- ⁴²Ibid., p. 31.
- ⁴³Ibid., p. 32.
- ⁴⁴Ibid.
- ⁴⁵Ibid., p. 33.

CHAPTER THREE: THE LANGUAGE OF TECHNOLOGY

The nature of language and its role in shaping, expressing, domesticating and limiting experience has long been the subject of philosophical thought and debate. On the one hand language may be regarded as an emancipatory system through which we are able to transcend the limitations of time and space. On the other hand, language may limit our realm of experience and present a danger if we rely on it to express new cultural concepts which it is unable to represent because it has not evolved as quickly as culture. There is also a danger, as William Leiss notes, in applying “old” language to new experiences when it is inadequate to describe them.¹ For some of us an awareness of our language has been heightened by the creation of “artificial” computer language (the English language is also “artificial”, but as David Boltner notes, its creation was not as self-conscious²). We are often asked if we “know” PASCAL or BASIC in much the same manner as if whether we “know” French or Italian, the question itself emphasizing the structured and arbitrary nature of our primary system of communication. But what effect does language have in structuring our *experiences*, and what, if any, similarities are there between language influencing perception and technology influencing perception? In this chapter I will shift the perspective of my consideration of virtual reality away from subjectively based experiences of the technology to a detached consideration of the nature of the technology looked at “from the outside”. I will consider phenomenological interpretations of the role of language as a point of intersection with McLuhan’s thoughts on language, then consider the “language” of VR.

Language and the Perception of the Life-World

One element common to Berger and Luckman, Schutz and Idhe’s phenomenological interpretation of the world is the primary role of language in framing our perceptions. Berger and Luckman note: “Symbolism and symbolic language become essential constituents of the reality of everyday life and of the common sense apprehension of this reality”³; and Schutz

says, "meaning structures are determined by language", both implying that the structure, freedom and constraints inherent in language frame what we think and how we think about it. Idhe notes the nature of perception steeped in language as being problematic in that it makes all which we encounter, familiar. "Perhaps only for moments do we come face to face with that which is truly other, and then we give it a name, domesticating it into our constant interpretation which centres us in the world."⁴ A characteristic of language has been identified by Schutz, Berger and Luckman as foundational to its influence in reality apprehension: its grounding in the everyday life-world and inevitable reference back to it when describing other finite provinces of meaning. Language allows us to semantically share experiences we may have in other realities, but at the same time it naturalizes those experiences in terms of paramount reality. I will elaborate this point later.

The phenomenologists also identify several functions that language fulfils, the most fundamental being its role as a "universal cultural medium".⁵ In his consideration of language in general, Schutz was most interested in the language people used everyday to communicate with their fellowmen. He looked not only at the technical aspects (such as terms, phrases and syntactic forms) but also at how language created a broader meaning-context, "a kind of preinterpretation of the world named in these terms, characterized by these phrases, and described with the help of its grammatical and syntactic forms".⁶ The phrases, terms and syntactic forms convey culture due to their endowed meaning, but also through the public and private associational and emotional connotations they carry.⁷

Another function language fulfils, alluded to in the previous section, is its role as a legitimator in creating and maintaining the socially constructed world. Berger and Luckman note that "Language provides the fundamental superimposition of logic on the objectivated social world. The edifice of legitimations is built upon language and uses language as its principle instrumentality".⁸ This occurs due to the ability of language to make experiences available to everyone in a linguistic community, sedimenting traditions people may or may not have actually participated in. In this sense language objectivates experiences, allowing

them to be presented as 'given'. In the social world, objectivated experiences are ultimately incorporated into the collective stock of knowledge, thus further sedimented in the cultural and social history of a given community or society. A more precise method of linguistic legitimation is the process of "typification", whereby forms of action are objectivated and grouped, usually linguistically, to allow for identification with previous "similar" experiences. The process highlights the relationship of the phenomenon to "objectively available typifications of conduct",⁹ the phenomenon becoming most consciously apprehended when such typifications are unavailable (i.e., as in a new experience). New phenomena are woven into the social structure primarily through the appropriation of old (or the adoption of new) terminology sets to describe them.

In my discussion of the construction of the social world in the previous section, I briefly looked at the role of the "stock of knowledge" as a reservoir of experiences, accessed to provide meaning to current life-world situations. It was established that all experiences contribute to our personal stock of knowledge, although the precise method by which they are assimilated in it was not detailed. Berger and Luckman suggest that language plays a fundamental role in relation to our stock of knowledge through its ability to objectivate shared experiences (thus becoming an instrument in the creation and maintenance of the stock of knowledge): "The edifice of legitimation is built upon language and uses languages as its principle instrumentality".¹⁰ We can, then, consider the stock of knowledge as an embodiment of the social process that determines socially acceptable meaning structures. The fact of it being a product of the "social" life-world, however, must not imply that it is limited to incorporating and structuring only experiences that take place within paramount reality. To the contrary, it is through the potential of language as a symbolic system that we can *transcend* paramount reality and cross boundaries into fantasy and dreams and bring the experiences back to share with others. Berger and Luckman articulated this essential function; "...language is capable of transcending the reality of everyday life altogether. It can refer to experiences pertaining to finite provinces of meaning and it can span spheres of reality".¹¹

Schutz notes “Language can then provide knowledge about realities which not only transcend the current experience of the individual, but are also practically, if not also in principle, inaccessible to him. ... And finally, language can provide knowledge that refers to provinces of meaning which are in principle inaccessible in immediate experience”.¹² What is essential to note here is the inevitable naturalization of experiences when they are linguistically integrated into the constructs of the life-world. We can only describe dreams using the grammatical and syntactical confines that have been established in the life-world. Experiences that defy this logic, then, are necessarily appropriated by it or excluded from admittance into the stock of knowledge creating a paradoxical limiting-transcending function in language. However, the function of language that allows us (limited) transcendence into finite provinces of meaning, as alluded to earlier, is its symbolic foundation. I will now consider language as a symbolic medium of communication.

Berger and Luckman have defined “symbolic language” in relation to its potential to transcend. They say: “Any significative theme that thus spans spheres of reality may be defined as a symbol, and the linguistic mode by which such transcendence is achieved may be called symbolic language”.¹³ The smallest unit contributing to the process of (linguistic) transcendence is, then, the symbol. Schutz dealt extensively with the concept of the symbol (and also of mark, indication and sign) in the context of communication and expression. Although brief reference will be made to Schutz’s interpretation of “sign” I will focus here primarily on his description of symbol. Three characteristics common to all categories should be noted, as they provide the foundation for understanding the precise nature – and importance – of Schutz’s symbol. First, the symbol, sign, mark and indication all must be manifested physically and be apprehended through our senses. Second is the often overlooked fact that the physical form they take is completely arbitrary and “more or less accidental”.¹⁴ Related to this is the essential role of the human interpretive process; that is, whatever physical appearances they take, a mark, indication, sign or symbol exists and is meaningful only if we, individually or in a group, attach meaning to it.

It has already been established that the primary functionality of a symbol rests in its potential to transcend the life-world and convey news about finite provinces of meaning: its ability to refer to something which is at present not given. Schutz notes that the object or phenomenon not given may have once been given (and may be given again) or may be something that has “a different mode of givenness”¹⁵ such as an idea or dream. It is the latter possibility I am interested in; situations in which symbols serve as a bridge connecting usually discrete provinces of meaning. We have noted that experiences in “different modes of givenness” are necessarily naturalized (legitimated) by the linguistic structures of the life-world, but conceptual evolution is evidence of the reciprocity between ideas and the modification of the stock of knowledge. That is, new experiences by necessity demand symbolic representation if they are to be accessible to others in the linguistic community. If the experience is shared, a descriptive terminology set is negotiated among members of the group (the ‘group’ being those who share in the direct experience) and emerges, at first open to modification, but quickly becoming sedimented, especially when passed on to those who have not actually participated in the experience.

It is a small step from a discussion of symbolic language to a discussion of metaphors, and when we consider metaphors from the perspective of symbolic language (language constituted by arbitrary vehicles of meaning) the distinction is shaky. McLuhan noted that all words in every language are metaphors, an observation which focuses on the structural characteristics of language. If we look at the expression of meaning through metaphors from a macro-perspective (and accept as given that all language is symbolic) we can see the metaphor as both a bridge between two provinces of meaning and as the creation of a new situation constructed from old elements. The metaphor helps us understand that which is new in terms of things familiar. In a phenomenological sense it is a linguistic alternative to Idhe’s theory of multi-stable possibilities discussed in the previous section. We can recall that Idhe defines multistability as “the framed ambiguity of perception” which refers to the idea that perception is both sensory and cultural (that is, context dependant). Words, or semantic

equivalents, are also context-dependant. New ideas and concepts can be introduced through linguistic multistability as evidenced in the metaphor.

McLuhan and Language: From New Criticism to the Language of Technology

Throughout his writing, McLuhan constantly reminds us of his fascination with and dedication to language not through a concise narrative “style”, but rather through the double entendres and clever associations that characterize his aphoristic probes. The aphorisms themselves that brought him to public attention (“the medium is the message” and “the global village” being the most notorious) were modelled partly on Francis Bacon’s use of language (Bacon employed the aphorism because it was suggestive rather than conclusive, inviting the audience to engage in further investigation¹⁶). Aside from his aphoristic style, his interest in the English language is evidenced through the allusions and direct references to writers scattered throughout his writing, the most recurring being James Joyce. In *War and Peace in the Global Village* McLuhan juxtaposed his ongoing narrative with quotes from Joyce’s *Finnigan’s Wake*, perhaps to illicit non-linear thinking, as the quotes are seemingly unrelated to the body of the text. *The Gutenberg Galaxy* references the work of Shakespeare, Ezra Pound, James Joyce, Dylan Thomas, Edgar Allan Poe and William Blake, among others, as well as the text of *Don Quixote* and the *Dunciad* to illustrate such themes as the relationship between sense ratio and rationality (p. 13), and the importance of the study of paradigms and pattern recognition (p. 77). Another literary influence on McLuhan came from Mallarmé and the symbolists who reinforced for McLuhan the importance of technique over content (or the effect of “things” as opposed to “ideas”¹⁷). One of Mallarmé’s most well-know poems, “Un Coup de Dés” or “A Throw of the Dice” illustrates stylistic elements that may have illuminated the point for McLuhan. The poem is presented as a “concrete” poem, words and phrases stretching across two pages, challenging standard conventions such as justified margins and page boundaries. Mallarmé also used a

mix of upper and lower case type, all of which forces the reader into a mode where he or she must not rely on the meaning of the words themselves but instead derive meaning through the visual display. In *Disappearing Through the Skylight*, O.B. Hardison describes the theme of the poem as being “the difficulty of writing”. That is, “Language changes slowly but culture is changing rapidly. Language in its traditional forms therefore becomes less and less complementary to the world it is supposed to represent”.¹⁸ Hardison also suggests that the poem embodies the process of language creating a response to an old language unable to represent reality. In a McLuhanesque sounding assessment, Hardison notes that with traditional poems the “paper is ground” to the text (which becomes figure). In “Un Coup de Dés”, however, “the standard relationship between figure and ground is displaced. The white space is expressive – part of the message rather than a neutral field for the type”.

Major influences in McLuhan’s academic career can be traced to the time he spent at Cambridge University as a graduate student under the guidance of I.A. Richards. Richards, well respected in the field of literary criticism, captured McLuhan’s attention with his then innovative approach to the study of literature, particularly poetry. He felt poetry was a “supreme form of human communication”, thus poetic analysis should focus on how experience is communicated.¹⁹ He also noted the necessary role of *context* in eliminating unintended meanings, allowing words in themselves to communicate. In his biography of McLuhan, Philip Marchand notes that Richards, along with one of his students, William Empson, became the “godfathers” of New Criticism, a school of thought which ultimately provided McLuhan with a springboard into his study of media. Marchand notes, “If words were ambiguous and best studied not in terms of their “content” (i.e., dictionary meaning) but in terms of their effects in a given context, and if those effects were often subliminal, the same might well be true of other human artifacts – the wheel, the printing press, and so on”.²⁰ The connection between the analysis of literature and analysis of other elements in the environment was sedimented for McLuhan by another of Richards students, F.R. Leavis. In his book *Culture and Environment*, Leavis suggested that the analytic capacity of literary

critics could be extended to other areas of environmental analysis,²¹ a suggestion McLuhan adopted and employed throughout his intellectual career.

The profound influence that the study of literature had on McLuhan (Marchand goes so far as to claim that the only influence more significant than New Criticism on McLuhan's thinking was his conversion to Catholicism²²) makes it appropriate – and even necessary – to consider the insights he later developed on the role of language in relation to technology. McLuhan used the term “language” in both a metaphorical way (such as when he referred to the “language” of technology) and in a literal sense when he became interested in how language shapes perception. This latter concern was largely the result of McLuhan's discovery of the work of linguists Edward Sapir and Benjamin Whorf, who postulated that the structure of language determined the structure and scope of perception. I will now examine four themes McLuhan articulated in his consideration of language: the nature of language itself as an extension; the role of the metaphor; the three linguistic categories through which reality is experienced (which leads to) the relationship between reality and perception; and technologies as language (or the language of technologies).

In the first chapter I considered technologies as extensions of the human body as a way of understanding McLuhan's concept of disembodiment. There I noted that McLuhan saw all technologies as extensions of biological functions “outered” to increase power. He distinguished between early extensions (like print representations of language) and later extensions (electronic technologies), the former being closed systems, not conducive to synesthetic interaction and the latter encouraging simultaneous awareness. By this categorization we can assume McLuhan regards printed language as disruptive; indeed he dedicated *The Gutenberg Galaxy* to chronicling the deterioration of the psychic environment upon the introduction of movable type (which accelerated the process of disintegration that was started by the phonetic alphabet). McLuhan's objection to language embodied in print was its emphasis on the visual properties of the eye (which encouraged linearity; we can only see one thing at a time, which implies logical, left-brain thought). Language embodied in

sound, then, (Idhe notes that all language must first be embodied in sound, “heard and then spoken”²³) escapes visual emphasis, engaging instead in an ear-based world of aural domination. The aural/oral world, however, encourages simultaneous awareness, as our field of auditory perception does not isolate, but rather incorporates. Another reason for McLuhan’s preference for oral communication is the increased chance that other senses will be used. For example, when speaking we often use hand gestures and facial expressions to clarify meaning or introduce subtext, thereby invoking a wider sensory arrangement — one not possible with written communication. But even if no other sensory cues are available, McLuhan maintained that hearing is “hotter” than sight.²⁴ (It is interesting to note Husserl’s suggestion that proof of temporal integration between past and present can be found by considering a simple melody; if past notes were to entirely disappear from our audile range we could not enjoy music, as we would only hear unconnected singular notes.²⁵ Instead, the simultaneous and integrated nature of aural perception allows us to enjoy melodies.) In his consideration of language as an extension McLuhan made the very practical separation between written and oral language, which we must keep in mind when discussing the other themes to which I will now turn that deal with language at a far more abstract level.

The role of the metaphor, that is “a figure of speech in which a word or phrase literally denoting one kind of object or idea is used in place of another to suggest a likeness or analogy between them”²⁶ has been extensively considered by those interested in the role language plays in forming opinions and shaping attitudes and perceptions. In *Under Technology’s Thumb*, William Leiss notes the dual nature of metaphors:

metaphors...allow us to capture a novel or extraordinary event in forms of thought that are well-known to us, thus ‘domesticating’ it; furthermore, they encourage us to believe that we may communicate our experience to others. There is a concomitant risk, of course: metaphorical constructs limit our ability to assimilate new information, because we try to squeeze the unusual into familiar and comfortable form.²⁷

Michael Hiem agrees, as he notes that the weakness of a metaphor lies in the inevitable distortion that accompanies the reduction of meaning.²⁸ Hiem goes on to articulate the central characteristic of language which allows it to be used metaphorically; its ambiguity. This assumes the unique ability we have to use words in different ways, to “mis-take” one thing for another.²⁹ It is through metaphor that we are able to adapt to cultural and technological evolution. As Hiem says, “Metaphorical uses of language meet the world as it moves through the shifts and transformations of historical drift”.³⁰

McLuhan traces the route of the word metaphor to the Greek *meta* plus *pherin*, to carry across or transport.³¹ This transportation of meaning, however, never occurs in unaffected isolation, but instead involves a *transformative* element. As McLuhan says, “Each form of transport not only carries, but translates and transforms the sender, the receiver, and the message”.³² It is through this transformation of meaning that new ideas and concepts may be introduced. McLuhan classified all technologies as metaphors precisely because of their transformative nature. He observed that they outwardly transform the user because they establish new relationships between user and environment.³³

In a rather abstract explanation of metaphors, McLuhan looked at them from the perspective of figure and ground, suggesting that there are four parts to metaphors, which may be represented as figure-ground in relation to figure-ground. The connection between metaphors and figure-ground may lie in the metaphor’s functional position; that is, to interpret unknown ground with a common figure (or an unknown figure with a common ground). For example, it may be easier to understand the string “c: dir/w” (as figure) if we put it in the context of “computer language”. The employment of figure-ground techniques are also a way of encouraging awareness. The metaphor also encourages awareness. McLuhan notes, “Structurally speaking, a metaphor is a way of presenting one situation in terms of another situation. That is to say, it is a technique of awareness, of perception (right hemisphere), not of concepts (left hemisphere).”³⁴

Metaphors work because they access an intuitive part of human understanding, a part that lies beyond a reliance on semantics. This type of meaning, which exists independent of grammatical forms, is one of three ways McLuhan suggests that language gives evidence of its communicative properties. The other indications lie in the actual meanings of words themselves, and in the grammatical forms to which they subscribe.³⁵ When we rely only on the semantic intention of words or the grammatical forms of sentences, we use language in a way that is necessarily imperfect, because, as McLuhan notes, we succumb to “an uncritical trust in the adequacy of these words and forms as constituting the ultimate content and extent of language.”³⁶ As a symbolic system of communications, then, language itself can only approximate meaning and experience: the real communicative potential lies in its ability to evoke intuitive awareness. The grammatical forms and semantics, however, do much to influence how we perceive the world around us.

I have already noted that McLuhan’s thought was heavily influenced by I.A. Richards and New Criticism, particularly the movement toward looking at the *effect* the language of a poem — or technology — had on its environment. When McLuhan first came across the work of Edward Sapier and Benjamin Whorf, then, the parallels were obvious, and he enthusiastically supported (and was theoretically supported by) the Sapier-Whorf hypothesis. The hypothesis suggests that our interpretation of physical and social reality is shaped fundamentally by the language and grammatical constructs we use to express it. Whorf, who had investigated linguistic constructs of the Hopi, put it this way:

Human beings do not live in the objective world alone, nor alone in the world of social activity as ordinarily understood but are very much at the mercy of the particular language which has become the medium of expression for their society. It is quite an illusion to imagine that one adjusts to reality essentially without the use of language and that language is merely an incidental means of solving specific problems of communications or reflection. The fact of the matter is that the “real world” is to a large extent unconsciously built on the language habits of the group....³⁷

McLuhan, like the phenomenologists, was aware of the power evoked by the communal adoption of a shared language in “legitimizing” society. At times he saw its negative potential, such as when he noted, “the greatest propaganda in the world is our mother tongue, that which we learn as children, and which we learn unconsciously. That shapes our perceptions for life. That is propaganda at its most extreme form.”³⁸

For McLuhan, language was a technology; a means of “outering” ourselves. Like all other technologies it carried with it a bias that altered the sender and receiver of the message as well as the environment and the message itself. But just as we consider language as a technology with all the attendant properties, so must we consider technologies as languages, each one expressing reality with an individual accent and structuring what kind of information is to be emphasized. The technological parameters of an apparatus determine what may be talked about or what corner of reality may be heard. This is certainly true of VR, as I suggest in the section below.

The Language of Virtual Reality

When discussing the “language” of a technology we are inevitably brought back to one of McLuhan’s most quoted aphorisms: “the medium is the message”. In this section I will consider the way the technical properties of VR put a certain accent on the communication that takes place within it. I will focus on three fundamental properties of the technology which, to a large extent, dictate its nature: 1) the large number of sensory channels through which information is presented; 2) the potential it presents for interactivity; and 3) its lack of reference to reality.

We have already noted McLuhan’s preferred communicative environment is one which supports a “harmonious sensory balance” where the information can be translated among the senses. The phenomenologists also emphasize the importance of sensory awareness in apprehending the life-world, a sensory awareness grounded in the body. McLuhan’s thematic

criticism of technologies from movable type to the telephone was that they disrupted this potential for sensory integration. Television has perhaps come closest to integrating multiple sensory channels for extension across space, although we are limited to two senses for data interpretation – sight and hearing (possibly three if we accept McLuhan’s contention that television is also tactile). Television provides a good conceptual model for understanding VR if we can imagine ourselves, for example, interacting with the characters in their television environments. Because we receive information in VR through all our sensory channels, we have functionally returned to an oral communicative environment, combined with the advantages of electronic technology; we can project ourselves through space and keep a record of our communications. (It is interesting to note that Paul Heyer suggests that McLuhan’s ideal communicative state may have been the manuscript era, where oral ritual was combined with the ability to store information.³⁹) For a comprehensive discussion of the effects of the virtual reality environment we can refer to previous discourse on the characteristics of oral society (such as contained in Walter Ong’s *Orality and Literacy*). I will pursue McLuhan’s discussion of visual-acoustic thought in relation to orality.

According to McLuhan, one sensory implication of orality was a balance conducive to simultaneous awareness. This led, in turn, away from “linear”, visual thought to multidimensional acoustic thought. In the mid-1950’s, McLuhan began developing his notion of visual-acoustic space and published a paper titled, “Acoustic Space” in February 1955.⁴⁰ Visual space emphasized “left-brain” functioning, which meant it engaged in linear, sequential, logical thought (everything McLuhan associated with post-literate, pre-electric existence). Acoustic space, in contrast, highlighted right-brain functioning, characteristic of multidimensional, simultaneous awareness. It is possible that McLuhan would have regarded communication in virtual environments conducive to integrated, acoustic awareness due to the full range of sensory channels it encourages. Related to McLuhan’s visual-acoustic dichotomy and to this discussion of orality, is the notion of simultaneity; the integrated awareness that comes from comprehensive experience of the environment. McLuhan

contended that one of the main features of the electronic age was a return to simultaneous awareness; VR would realize this state.

I have already discussed, from several perspectives, the issue of interactivity: McLuhan alluded to it when he spoke of the global village and the phenomenologists suggested that it is the cornerstone in our ongoing dynamic relationship with the environment. Recently the perceived need for “interactivity” in our relationship to media and technology has increased – especially in the field of computer technology. But what is interactivity? Are we “interacting” with the television when we watch it, or does interactivity imply a level of user control over the environment? In his article, “A Typology for Interactive Media”, Jerome Durlack notes that media professionals seldom agree on the set of variables needed for a media or technology to be truly interactive. For the purposes of this discussion, I will define interactive as a condition whereby a user is engaged with his or her environment (i.e., technology) to the extent that they can make modifications supported by the parameters of the technology. Television is a one way process where the user (watcher) receives data, whereas *interactive* television (or interactive fiction, for example) gives the user the option of determining the outcome of a murder plot by choosing one of several possible scenarios. Although the user may not have the option of choosing a scenario perfectly compatible with his or her desired outcome, they do have the ability to modify the environment.

In VR, participants can not only modify their environments, they can create them. If they are engaged in a pre-made environment they control where they go and at what speed (one of the characteristics that has made VR an attractive educational environment). In the discussion of VR as an altered state, I suggested that it was not like a dream state because we could change VR of our own volition. The interactive nature of the technology presents the potential to create a “language” that encourages activity, thought and creativity as opposed to “broadcast” media systems which encourage passivity and acceptance.

Earlier in my discussion of disembodiment I suggested that when reading a captivating book we may lose sight of our physical environment and become immersed in our fictive

world. If, however, someone enters the room and slams the door, or if we hear what sounds like a gunshot nearby, we would probably be transported back to our immediate surroundings. Our fictive world is “fictive” in relation to the paramount reality that is in evidence all around us. When we enter *virtual* worlds, we lose our immediate physical reality as our prime referent. We only hear virtual sounds (thus would not hear a gun shot no matter how close it was if it was not a virtual one) and only see virtual images. It is this complete physical immersion which allows the exciting potential for the construction of new, emancipatory worlds but also present the possibility for a detachment from reality.

I have presented three characteristics of VR which are, in their combination, distinct from previous communication technologies, and suggested that the implications of these qualities will determine the nature of the language of VR. VR will encourage simultaneous (“acoustic”) sensory awareness, active participation and creativity in communicative environments.

¹ William Leiss, *Under Technology's Thumb* (Montreal: McGill-Queen's University Press, 1990), p. 4.

² Boltner, *Turning's Man*, p. 125.

³ Berger and Luckman, *Social Construction of Reality*, p. 40.

⁴ Idhe, *The Consequences of Phenomenology*, p. 29.

⁵ Schutz, *On Phenomenological and Social Relations*, p. 18.

⁶ Ibid., p. 18.

⁷ Ibid., p. 19.

⁸ Berger and Luckman, *Social Construction of Reality*, p. 64.

⁹ Ibid., p. 73.

¹⁰ Ibid., p. 64.

¹¹ Ibid., p. 40.

¹² Schutz, *Structures of the Life-World*, pp. 249 - 250.

¹³ Berger and Luckman, *Social Construction of Reality*, p. 40.

¹⁴ Schutz, *On Phenomenological and Social Relations*, p. 19.

¹⁵ Ibid., p. 133.

¹⁶ Marshand, Philip, *Marshall McLuhan: The Medium and the Messenger* (Toronto: Vintage Books, 1990), p. 57.

¹⁷ Ibid., p. 100.

¹⁸ Hardison, *Disappearing Through the Skylight*, p. 153.

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- ¹⁹Marchand, *Medium and the Messenger*, p. 33.
- ²⁰Ibid., p. 40.
- ²¹Ibid., p. 35.
- ²²Ibid., p. xii.
- ²³Idhe, *The Consequence of Phenomenology*, p. 41.
- ²⁴Jonathan Miller, *McLuhan* (London: Fontana/Collins, 1971), p. 9.
- ²⁵Kern, *Time and Space*, p. 44.
- ²⁶Webster's Electronic Dictionary
- ²⁷Leiss, *Technology's Thumb*, p. 40.
- ²⁸Heim, *Electric Language*, p. 113.
- ²⁹Ibid., p. 79.
- ³⁰Ibid., p. 78.
- ³¹McLuhan, *Understanding Media*, p. 91.
- ³²Ibid.
- ³³McLuhan and Powers, *The Global Village*, p. 8.
- ³⁴Ibid., p. 28.
- ³⁵McLuhan, *The Gutenberg Galaxy*, p. 231.
- ³⁶Ibid., p. 235.
- ³⁷C.F. Miller, *McLuhan*, p. 89.
- ³⁸Sanderson, *Man and Message*, p. 32.
- ³⁹Heyer, *Communication and History*, pp. 133 - 134.
- ⁴⁰Marshand, *The Medium and the Messenger*, (Toronto: Vintage Books, 1990),p. 122.

CHAPTER FOUR: A PHENOMENOLOGICALLY BASED TETRADIC ANALYSIS OF VIRTUAL REALITY

When considering points of intersection between McLuhan's themes and phenomenology, perhaps the place to start would be with McLuhan's four Laws of Media, (the "tetrad"). As I noted earlier, it is in the context of his discussion of the tetrad that McLuhan makes reference to Husserlian phenomenology, emphasizing how tetradic observations "reveal the hidden effects of artifacts on our lives", an objective shared by the process of phenomenological reduction. (Phenomenological reduction refers to the process in which all assumptions concerning causation and consequences about the world are eliminated ("bracketed") so fresh insights may be gained.) McLuhan also gives reason to compare the tetrad to phenomenological thought when he notes that the tetrad "reveals the artifacts as a product of the user's mentality". Beyond our immediate concern with the tetrad, this statement implies that all artifacts are the result of our internal processes, which ultimately suggests a significant area of intersection between McLuhan's thought and phenomenology. In this section I will examine and critique McLuhan's tetrad then apply a modified version of it to a phenomenological interpretation of virtual reality.

McLuhan's Four Laws of Media

The tetrad as a predictive device presents four questions that when asked of any artifact, media type or social process, promise to illuminate the effects of the phenomenon on the environment. This is possible, according to McLuhan, because it focuses our awareness, shifting it from the past to the present (guarding against the "rear view mirror" syndrome discussed earlier). By considering four distinct aspects of a phenomenon in relation to its environment McLuhan also suggested that the tetrad assesses the current shift between visual and acoustic space, encouraging simultaneous awareness. Enlightenment is promised if we ask the following four questions: (1) What does it enhance? (2) What does it obsolete? (3) What does it retrieve? and (4) What does it reverse? Marchand notes that the first two "laws"

are fairly intuitive – for example Optical Character Recognition scanning devices will enhance the process of data entry but obsolesce the data entry clerk – but the third and fourth laws give McLuhan’s tetrad originality. The third law (retrieval) was derived from earlier considerations of the process whereby old clichés are retrieved and made into “modern” archetypes.¹ McLuhan elaborated on this theme in *Cliche to Archetype*, his 1970 book coauthored with Wilfred Watson. The fourth law was conceived of early on and noted in *Understanding Media*, namely, that new forms are revealed just as an artifact reverses into something entirely new.² By focusing awareness on all possible areas of “effect” (McLuhan defied anyone to discover a fifth law which focused awareness on something not already considered) the tetrad was purported to bring about simultaneous awareness of figure and ground in relation to each other where traditionally only one or the other is perceived at one time. Specifically, the tetrad “raises hidden ground to visibility” by including the ground of the user – or an awareness of the user as ground. (This consideration is of phenomenological importance in that it acknowledges the perspective or context of the user as essential in “defining” the object.) McLuhan saw the structure of the tetrad itself as two figures and two grounds in balanced ratio to each other. An applied example of the tetrad is McLuhan’s consideration of the computer which enhances speeds of calculation and retrieval, obsolesces sequence, approximation perception and the present, reverses anarchy via the overlay of bureaucracy and retrieves perfect memory.³

The tetrad is the closest thing McLuhan developed to a methodology in that it is an applied procedure or system of “rules”, although whether or not it is empirical is open for debate (McLuhan insisted the process was empirical because it relied on observation, experience and precepts, even though it was not based on a theory or set of concepts⁴). Two of McLuhan’s books deal with the tetrad. *The Global Village: Transformations in the World Life and Media in the 21 Century*, was co-authored with Bruce C. Powers and published posthumously in 1989. *Laws of Media: The New Science* was co-authored with Eric McLuhan and published post-humously in 1988. The treatment of the tetrad differs slightly between the

two books primarily in the context in which it is introduced, particularly the emphasis the latter book places on the tetrad as a set of *scientific laws* (although McLuhan's claim that the tetrad is empirical is expressed in both books). *The Global Village* emphasizes the predictive and intuitive function of the tetrad and its role as a reconciliator of opposites. Both books, however, link the tetrad to phenomenology and critique the phenomenological process. In *The Global Village* McLuhan notes that "insofar as the tetrads are a means of focusing awareness on hidden or unobserved qualities in our culture and its technologies, they act phenomenologically".⁵ McLuhan then goes on to critique phenomenology because of its use of "left-hemisphere techniques" to tackle "right hemisphere" problems (the unearthing of concealed properties of artifacts). In *The Laws of Media* McLuhan makes a more direct attack on phenomenologist Martin Heidegger by suggesting that he was unable to reconcile a sense of interplay between figure and ground in his interpretation of the environment and continuously shifted from one to the other. There is no reason to assume that McLuhan's broad critique of phenomenology (or Heidegger) was based on a comprehensive understanding of the subject as McLuhan does not refer directly to phenomenology in the context of other discussions nor does he reference phenomenological writers in his bibliography.

McLuhan notes that media analysis usually consider only the first two aspects of the tetrad (enhancement and obsolescence), thus lacks a comprehensive overview of effects at best or are completely misguided at worst. The argument for an integrated approach to the analysis of the implications of new media is a strong one that deserves attention. Although simply answering the questions themselves may not generate a conclusive understanding of the technology, the tetrad does serve two important functions; (1) it focuses the area of possible consideration from a potentially infinite field to specific elements, and (2) it generates other, previously hidden issues to consider (by promoting creative, "lateral" thinking). For these reasons I have elected to use the tetrad to consider some possible implications of virtual reality technology.

McLuhan's tetrad purports to be a tool for bringing to awareness the impact an artifact has on its environment. Although this broad task is brought into focus by the specific nature of the questions asked of the artifact, McLuhan's own application of the tetrad is not focused. For example, in his "Xerox" tetrad McLuhan notes that it increases the speed of the printing press, obsolesces the assembly line book, retrieves the oral tradition, the committee, and reverses into "everybody is publisher".⁶ The area of consideration applied to each law varies from the mechanical properties to historical traditions to people's life-roles, diffusing the focus and weakening the overall effect of the analysis. A constructive implementation of the tetrad would involve an application of the laws to a consistent plane of consideration. In my tetradic analysis of virtual reality, then, I will consider only phenomenologically-based aspects of the creation and maintenance of the social world which may be enhanced, obsolesced, retrieved or reversed due to VR.

A Tetradic Analysis of Virtual Reality

The Enhancement of Awareness

In the second chapter I considered the mechanisms by which we phenomenologically "construct" our social world, including processes of legitimation, typification, biographical articulation and the role of our stock of knowledge and relevance structures. I also discussed the role of paramount reality, that is, the reality of everyday life within which "enclaves" (such as the world of fantasy or dreams) exist. The principle property of paramount reality involves its centralizing role: our consciousness is rooted in paramount reality and necessarily returns back to it after visiting the enclaves supported by it. In my discussion I outlined these phenomenological properties, making an effort to emphasize the often arbitrary nature of environmental construction to remind us that we are engaged in a dynamic relationship that offers us the potential to completely change our "reality". As traditions, institutions and society myths have become sedimented due to the historical inertia, however, we often lose sight of both the arbitrary and malleable properties of our environment. I suggest that virtual reality, by providing people with the

opportunity to actively engage in “world building” on a microcosmic level, will enhance our awareness that reality is socially constructed.

A non-computer-based parallel to the construction of virtual worlds can be found in the creative process of constructing fictive literary worlds, the process I might go through if I were a novelist, for example. Certain key features of this process are worth considering, as they provide a clue to what tools may be valuable in constructing virtual worlds. The first, and perhaps most crucial, is creating *internal consistency* within the fictive world. On a simplistic level if in my science fiction novel I establish that the planet has no gravity, then obviously the character’s actions while on that planet have to reflect the lack of gravitational force. On a psychological level, if I introduce a “three dimensional” character and assign certain attributes to her, her actions must be consistent with her characteristics in order for her – and the fictive world – to be believed. In order to bring an audience into a fictive world, I must also establish enough *detail* to make the world “alive”. If I do not scatter interesting diversions or focus on unique attributes (or mundane attributes in a unique way) throughout my fictive world, my audience will certainly lose interest and return to paramount reality. Related to the amount of detail is the issue of *setting*. I must consider the role of the setting in my fictive world, where in some instances it may be crucial and in others it may not be as important. I may want to create an interesting setting that complements the “plot” (or, in a virtual world, the *motivation* of the world, whether it be for fantasy or educational purposes) and “characters” (participants). Or I may want to downplay the setting so that other elements of my world may be highlighted. Another crucial element in my literary world construction is *point of view*. I must consider the place from which I am “telling the story”, decide on the places where I, as author, can intervene, provide more information or be selective about the information I provide. These considerations, by no means comprehensive, provide clues to mechanisms we may use to construct virtual worlds. Writers have an awareness of the building-blocks they use to shape their worlds, an awareness that often influences the way they perceive and interpret reality.

In chapter one I briefly discussed computer conferencing in relations to the desire we have for re-embodiment when we represent ourselves through ASCII characters. A process related to

computer conferencing that provides an ASCII paradigm for the construction of virtual worlds is “MUDS” (“multiple user dialogues”). MUD’s are interactive, multiple user computer games that run on a central system to which users can connect. Users adopt a persona and can engage in a variety of role-playing fantasy scenarios, similar, to the board game, “Dungeons and Dragons”. Through the ASCII systems complete worlds are constructed, attributes given to characters and symbols developed to represent phenomena or people. The dearth of sensory cues hint at the importance and power of symbols, but also remind us of the role of imagination in the construction of realities.

The phenomenologists present a rigorous case to suggest how we socially construct our world. As we move through the world, however, (trying to correct a bank error, for example) the arbitrary and malleable nature of the life-world is lost and we may feel locked in a static, determined system. But as we begin to consider the building-blocks we need to construct “inhabitable” worlds in virtual reality, our sense of awareness of the process of socially constructing our social world will be enhanced.

The Obsolescence of Temporal–Spatial Constraints in Communication

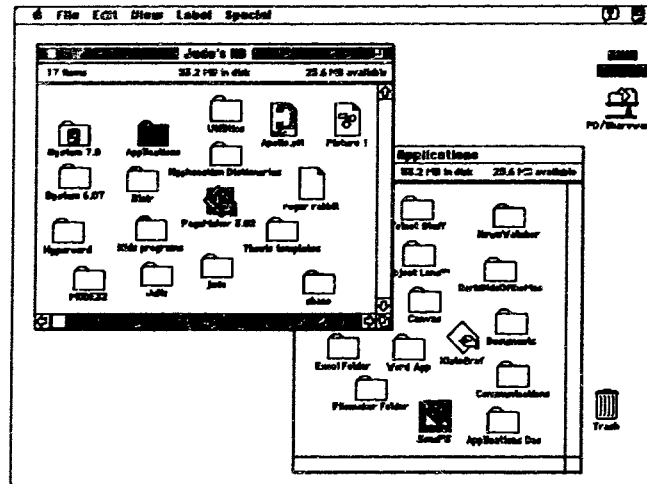
Before the early 19th century our conceptualization of space held it as an absolute, non-malleable physical entity in which we existed. As Steven Kern notes, there was only one space which held the properties described by Euclid’s axioms. But new ideas about the nature of space were beginning to emerge, ideas that challenged the notion that space was homogeneous.⁷ Several events contributed to this realignment in our attitudes, among them, the introduction of the wireless. Kern notes that the wireless “annihilated time and space” due to its ability to instantaneously unite geographically dispersed persons, creating the illusion that we could “conquer” distance (thus space). This led to the realization that “Various orders of space and time adapt themselves to man’s experience and his perceptive faculty.”⁸ D. J. Boltner echoes this when he says “Space is what each culture chooses to make of it, and what each chooses depends upon the tools and techniques available”,⁹ a

sentiment which aligns theoretically with McLuhan's dictum, "the medium is the message" and the earlier work of Harold Innis on the "bias" of the medium (the suggestion that the cultural orientation and values of a society are influenced by the predominant modes of communication). Boltner, Innis and McLuhan all pave the way for a consideration of how tools – in this case, virtual reality – can alter conceptions of space.

Before we consider the nature of our relationship to space in virtual worlds, we must ask the question "Do virtual experiences take place primarily in space?" This, of course, invites a potentially involved discussion on the very nature of space itself and its relationship to time and perception, a discussion that goes beyond the scope of this thesis. As preface to my suggestion that VR obsolesces spatial constraints, I will contend that space is defined in terms of perception. As an illustration we could consider swimming a mile: to the novice swimmer the last 200 meters may seem significantly "longer" than the first 200 meters due to increased fatigue, boredom, etc., while to a competitive swimmer the last 200 meters may seem "shorter" than the first due to the realization of a nearly-completed goal. The absolute physical space, of course, is the same for both swimmers. We could compare virtual space to dream space, where the only physical space involved may be that occupied by one's body but where the space dreamed of may be unlimited. What role, then, does "space" play in VR?

In my introduction I noted that architect Michael Benedikt contends cyberspace will likely have a geography, although he does not venture further to describe it. I suggest that cyberspace will definitely have a "geography" due to our need to create mental models for understanding relationships and for navigation (both through physical space and through, for example, information-space). This is evidenced by the spatial metaphors that have already emerged around computer technology, the most well-known being Apple Computer's desktop metaphor, where bytes of information are represented in relation to their position and function on the electronic "desktop".

FIGURE 4: APPLE DESKTOP



In *Turing's Man*, D.J. Boltner defines two kinds of computer space, the first being physical space which includes the actual properties of machines, and the second being logical space, which includes the properties that define the computer as a logical entity.¹⁰ He later makes two important observations: first, because computer space is “addressed” (that is, each byte of electronic information is given a unique identifier) it becomes easy to abstract and is thus manipulatable.¹¹ He also notes that programmers visualize their workspace as an area with physical dimensions.¹² In the context of the discussion in previous chapters which maintains that conventions from the life-world will necessarily be appropriated in VR, we can see that in terms of spatial metaphors the paradigm for information transfer has already been set in computing traditions. It is, perhaps, this need for geographic orientation that motivates articles titled “Colonizing Cyberspace” (as seen in the Summer 1989 issue of *Mondo 2000*).

I noted above that the introduction of the wireless “annihilated space” due to the illusion of “immediate connection” between people anywhere in the world. According to McLuhan other media, most notably television, intensified this illusion. More recently, the introduction of computer-mediated communication (CMC) added “time” as another dimension conquered due to “progress”. It will be useful to examine the case of CMC and its

elimination of spatial - temporal constraints in communication as it is the ASCII prototype for virtual reality.

“CMC” refers to the technological potential created by the use of computers and telecommunication networks in the communication process. Examples of CMC systems are remote databases (collections of data stored on a central computer and organized to allow users to manipulate and retrieve desired information), electronic mail (text, electronically produced and sent to a user or group of users via the computer, a modem and a telephone line or direct cable) and computer conferencing (a more organized form of electronic mail where many people receive the same message).¹³ The technology allows participants not only to access information over great distances, but, unlike the telephone, allows for *asynchronous* communication due to the computers ability to store the electronic messages until they are accessed by the recipient. In this sense, CMC also “overcomes” temporal constraints. Of course both time and space are still a factor in organizing the communication on many levels. Users cannot communicate if they do not have access to a telephone, thus very remote regions remain distanced. And of course cosmic time is not altered, only our control over it in relation to when we want to engage in the exchange of information. Other spatial-temporal constraints that remain will be discussed later.

The characteristics attributed to CMC also apply to VR (technically VR runs over networks similar to the ones used by CMC) with virtual worlds creating an added intensity due to a more complete sensory involvement. Using VR technology I can remain in Vancouver and communicate with colleagues in Toronto while enjoying the illusion that we are sitting side by side. I can also record and “re-live” the conversation at a later date if I so choose. Conceptually, it is possible for all those involved in a virtual discussion, for example, to converse in their own personal, tailored space (I may be sitting by my fireplace while colleague “X” may be sitting in a garden beside a stream) provided that our “shared” space (for example, the representation of a document we may be discussing) is common to all of us. Beyond the mundane, the implications of “unlimited real estate” are many-fold. If “space”

is not in demand, notions of ownership and value inevitably change, possibly forcing new standards of value (ones based, for example, on aesthetics and creativity). In this sense, virtual reality obsolesces spatial and temporal constraints in communicative situations. But like CMC, both space and time are still factors when considering other issues such as computer hardware constraints. Boltner notes that “lack of space is one of the two principle limitations of the electronic world. The other is computer time. Making intelligent use of the space at hand is a cardinal virtue in the craft of computer programming”.¹⁴ As mentioned in the introduction to VR, spatial constraints (i.e., limited computer memory resources) is one of the factors preventing the actualization of photo-realistic virtual worlds. In this sense, spatial constraints are still a very real issue. From the perspective of an increased (technologically supported) freedom to communicate across great distances or the ability to represent internal visions of spacial configurations, however, spatial constraints are obsolesced in virtual reality.

The Retrieval of Paramount Reality

When the curtain rises at the start of a stage play, we interpret it as a signal indicating we are abandoning the norms that govern conduct in the life-world to engage in a fictive world governed only by our imagination. This ritual – the lifting of the curtain – reminds us that, in Schutz’s terminology, we are soon to “leap” into an alternate reality. Other rites of passage indicating a shift from paramount reality to other finite provinces of meaning include the elaborate ceremonies that often accompany religious experiences or even deep breathing exercises that may accompany meditation. Less obvious transitions include slipping into a dream state (the moment of actual boundary-crossing is seldom remembered and, unless experiencing a lucid dream, the realization of being in an altered dream-state is not had) or becoming transfixed by a work of art. Even more subtle are the slight shifts in our tension of consciousness that occur when we are reading or watching television or even when we are engaged in captivating conversation. Yet all of these circumstances involve transitions, to differing degrees, into altered states of awareness.

Before the introduction of the alphabet, when information was not easily disseminated through space, we were ultimately and perhaps exclusively concerned with the “reality” that surrounded us; the reality we could interpret through our senses. For the few to whom travel was possible an awareness of differing world-views (differing realities) was evident. When information about distant regions and peoples became available to use through the written word, there was also the felt sense of contrast. If we fast-forward through history to the introduction of visual broadcast media (early film and television) we first note that a more complete understanding about other realities was possible, but we can also note that it took only a short period of time before the bombardment of distant images became “naturalized” and were incorporate into our sense of reality even when direct experience may not have been had. The actual technological imperative of television and film also allowed for the naturalization of other “altered” states through, for example, the advent of surrealistic film, which strove to represent the unconnected non-narrative of dream states. Increasingly, the boundaries between paramount reality and finite provinces of meaning were blurred.

Broadcast technologies were not the first media that allowed for the expression of altered states. For example in the preface to “A Dream Play”, playwright August Strindberg explained that

In this dream play ... the author has sought to reproduce the disconnected but apparently logical form of a dream.... Anything can happen; everything is possible and probable. Time and space do not exist; on a slight groundwork of reality, imagination spins and weaves new patterns made up of memories, experiences, unfettered fancies, absurdities and improvisation. The characters are split, double and multiply; they evaporate, crystalize, scatter and converge.¹⁵

And of course James Joyce, through his “stream of consciousness” style strove to emulate literarily our fantasy processes. The result of these attempts to represent alternate forms of consciousness combined with the barrage of media images (which in themselves are similar to an unconnected fantasy state) has been the naturalization of other states within paramount reality and a blur of boundaries between finite provinces of meaning, lessening

our awareness of paramount reality as a transcendable place from which all other experiences are had and to which we inevitably return. I suggest that through the experience of virtual reality we will retrieve a sense of the distinctive nature of paramount reality due to the possibility of contrast through juxtaposition. This retrieval will be enhanced by the ritual of entering virtual worlds and the nature of VR as a place from which reflection on paramount reality may be had.

Unlike the passage between paramount reality and dream state, or paramount reality and fictive worlds, the passage into VR currently involves a self-conscious reminder that one is entering into an altered space. First, the proper gear must be donned which, at minimum involves a head-mounted display unit and dataglove but may also involve a full body suit. Once technically “in” VR, one must become familiar with (or remind oneself of) the arbitrary hand signals used for navigation through virtual space. For example, in the VPL system, pointing one’s index finger in the desired travel direction allows for basic navigation; to increase or decrease speed, the thumb is raised or lowered accordingly. Once navigational techniques are mastered, one must adjust to unfamiliar sensations such as flying or moving through “solid” objects (in programs where there is no collision control). Beyond the technological orientation there is the issue of ontological orientation; getting used to existing in a digitized world where the potential for manipulation is beyond what is possible in the life-world.

The unique properties of virtual reality allow for participants to use it as a place from which observation and reflection on the nature of paramount reality, the archetypal experience of “reality” may be had. VR will aid in *retrieving* an awareness of the existence of paramount reality due to the pronounced nature of the threshold between the discrete realms of existence, a threshold that explicitly emphasizes the shift. Schutz notes that “the dissimilarity of realities outside everyday life is made more evident by the interpretation of the memories and indications that are brought back from there to the “normal” wide awake state.¹⁶ Virtual reality will, upon introduction and before it is “normalized” into our

collective ontological framework, present a finite province of meaning that will enhance awareness of paramount reality through juxtaposition and contrast.

The Reversal of the Symbol

In my earlier discussion of language I focused on the symbol and symbolic language as a vehicle for transcending spatial-temporal constraints to communicate information about finite provinces of meaning. I noted three characteristics of the symbol; it must be manifest physically and apprehended through the senses, although the form it takes is completely arbitrary and in fact is meaningful only if we attach meaning to it. I noted that McLuhan points out that in essence all language is symbolic, the phonetics being arbitrary characters representing the sounds which form words, from which we derive meaning.

When we consider the process by which information is communicated in virtual reality, we are confronted with a fundamental question about the nature of virtual space: do the computer-simulated models simply refer to paramount reality or are they non-referential, a “world” in themselves characterized by polygons and algorithms? The vision of computer programs as self-referential – and potentially self-generating – is a fear often portrayed in dystopic science fiction; one that many believe could become reality. It is not the purpose of this discussion, however, to engage in futuristic projections about the course the technology may take. I will only consider functions that the technology can now support and applications to which it can now be directed.

As noted throughout this discussion I contend that virtual worlds will necessarily be modeled, to varying degrees, on the constructs and conventions developed in the life-world if they are to be a forum for shared meaning. My discussion of the symbol is also based on this assumption. It is difficult, however, to keep the symbolic - non-symbolic distinction clear. Jaron Lanier, for example, suggested that VR offers a forum for “post-symbolic communication”, illustrating his claim by noting that although in “reality” we may imagine the room we are in to be a giant rose, we cannot in fact climb down a stem or sit on a petal. In

VR, however, if we want to sit on a rose petal we can “create” the rose and do so. The obvious fallacy in this argument is, of course, that the rose we create in VR is not a rose but a representation of an object that is only found in the life-world. From this perspective everything in VR modelled on paramount reality (or even slightly resembling paramount reality) is necessarily symbolic. Before I suggest why the symbol may be reversed in VR, I will consider Jean Baudrillard’s work on the proliferation of the symbol, simulations and “hyperreality”. Aside from his relevant work on hyperreality, it is appropriate to consider Baudrillard in the context of this discussion because of his relationship to Marshall McLuhan (he is considered a “post-modernist” and was influenced by McLuhan’s writing). But in his book, *Jean Baudrillard: from Marxism to Post-Modernism and Beyond*, Douglas Kellner suggests that there is a fundamental point over which Baudrillard and McLuhan diverge. “While McLuhan... celebrate[s] the new media and information technologies as purely progressive forces, with purely (or largely) beneficial results, Baudrillard sees them as producing predominantly, if not completely, baleful results.”¹⁷ It should be noted that there are many areas of concern associated with Baudrillard’s work, the most predominant being his extreme, pessimistic conclusions that leave little room for human intervention to change the course of “progress”. It will benefit this discussion, however, to present a small and useful portion of his work on the symbol.

According to Baudrillard, we have entered into an age of “cyberblitz”, where media and simulations constitute a new realm of experience and the boundary between reality and representation implodes. The overwhelming proliferation of simulations has precipitated a shift in our understanding, a shift that has lead us to substitute *signs* of the real *for* the real. This has come about due to an evolution of phases the image goes through. In the first phase, according to Baudrillard, the image is a reflection of basic reality. In the second stage it masks and perverts basic reality, which leads to the third stage, where the image masks the absence of basic reality (heralding the age of cyberblitz). In the fourth stage, the image bears no relations to reality whatsoever, but instead is pure simulation. These categories, although

perhaps hyperbolic, may be useful to consider as a possible course of evolution for the image in VR.

The reality Baudrillard describes, where signs and other modes of representation come to constitute reality, would seem to imply the proliferation of the artificial. To the contrary, however, Baudrillard claims that the simulations have come to constitute a hyperreality that is “more real than real”.¹⁸ An example suggested to illustrate this is Disneyland, where models of the United States appear ‘more real’ than their actualities in the social world.¹⁹ With this in mind it is interesting to note the cover story of a recent issue of *Time* magazine titled, “Fantasy’s Reality”, the subscript reading, “Orlando, the boomtown of the U.S. South, is growing on the model of Disneyworld: a community that imitates an imitation of a community”. (*Time*, May 27, 1991). As we move increasingly toward an environment of complete simulation, according to Baudrillard,

The very definition of the real has become: that of which it is possible to give an equivalent reproduction.... The real is not only what can be reproduced, but that which is already reproduced: that is, the hyperreal... which is entirely in simulation.²⁰

The above definition begs application to VR as it defines it as a new reality independent of its ability to represent things external. And if we consider the successive stages of the image noted earlier as one possible scenario in the evolution of VR, where we move from representing reality to creating a completely new aesthetic, the real may in fact lie entirely in simulation. Baudrillard contends that this situation would inevitably lead to an environment where signs exchange among themselves without interacting with the real, maintaining a closed system. Throughout this discussion I have suggested that elements in virtual worlds would necessarily reflect the constructs and phenomena that have evolved in paramount reality if VR were to be a communicative environment because so much of our communicative process is based on shared assumptions (as noted in chapter one) that are grounded in paramount reality. The very nature of VR as a computer-generated, simulated environment, however, *forces* all communication to take place through the exchange of

symbols. In this sense, VR realizes Baudrillard's prophetic vision of the hyperreal, but in such a self-conscious way that the negative implications of the "hyperreal" are mitigated.

So far I have suggested that VR is a symbolic environment in that communication depends on symbolic reference to a meaning-structure or phenomenon established in paramount reality. I now suggest that these conditions, that is, the complete saturation of the symbol, do in fact lead to a situation where the value of the symbol as a vehicle of representation is reversed, nullifying the act of symbolization as a unique event. Hiem comments on an implication of the overuse of the symbol when he says that "symbols can be used to bring things into awareness, but they can also, through trivialization and inflation, blend things out of awareness."²¹ Hiem later refers to this as "symbol pollution".²² Symbol pollution would only be possible, however, in conditions where the symbol could be juxtaposed with non-symbolic representations of meaning and events. I suggest that in an environment such as virtual reality where nothing is "authentic" in the sense of being non-representational and everything exists only through simulation, the very nature of the symbol reverses into its own, self-contained meaning-structure, actualizing Baudrillard's vision of hyperreality.

¹ Marchand, *Medium and Messenger*, p. 241.

² Ibid.

³ McLuhan and McLuhan, *Laws of Media*, p. 188 - 189.

⁴ Ibid., p. 116.

⁵ McLuhan and Powers, *Global Village*, p. 6.

⁶ Ibid., p. 176.

⁷ Kern, *Time and Space*, p. 132.

⁸ Ibid., p. 135.

⁹ D. J. Boltner, *Turing's Man* (Chapel Hill: University of North Carolina Press, 1980), p. 90.

¹⁰ Ibid., p. 81.

¹¹ Ibid., p. 82.

¹² Ibid., p. 85.

¹³ Robin Mason, "A Case Study of the Use of Computer Conferencing at the Open University" (Phd dissertation, Open University, 1990), p. 13.

¹⁴ Boltner, *Turning's Man*, p. 82.

¹⁵c.f. Kern, *Time and Space*, p. 201.

¹⁶Schutz and Luckman, *Structures of the Life-World*, vol. II, p. 131.

¹⁷Douglas Kellner, *Baudrillard: From Marxism to Post-Modernism and Beyond* (Stanford: Stanford University Press, 1989), p. 206.

¹⁸Ibid., p. 82.

¹⁹Ibid.

²⁰Baudrillard, *Simulations*, back cover.

²¹Hiem, *Electric Language*, p. 220.

²²Ibid., p. 228.

CONCLUSION

This thesis was initiated to consider what the nature of reality in virtual reality will be and if the intersection of media theory expounded by McLuhan and the work of select phenomenologists could provide a useful framework from which the issue could be considered. Explorations which lead to this focus unearthed two common themes that surround the VR debate: that the technology will precipitate an entirely new form of reality complete with new, “post-symbolic” communicative practises, and that we should return to the work of Marshall McLuhan to understand the implications of this new technology.

My own reading of Marshall McLuhan led me to conclude that although he articulated many important themes to consider as we move further into the electronic (and digital) age, basing a discussion of the nature of VR solely on his “probes” would be problematic at best and likely lack the scope necessary for a rigorous discussion. His innovative work on electronic media, however, can provide a focus for what could be an infinitely wide-ranging discussion.

When I began considering the nature of virtual reality I was confronted with the obvious and age old question: What is the nature of reality? I chose to answer this by turning first to Berger and Luckman’s work, *The Social Construction of Reality*, and then to Alfred Schutz and his work, *The Constructions of the Life-World*. I soon realized that the body of phenomenological literature on how we create the social (and physical) world that surrounds us would be crucial to consider when examining the construction of virtual worlds, but also realized a comprehensive consideration of the literature would be beyond the scope of my investigation. The *synthesis* of McLuhan and phenomenology, however, provided a focused and rigorous framework from which to examine the ontology of virtual reality.

Upon completion of this thesis I am able to address the issue of VR emerging as a completely new forum for communication by referring, as I have done throughout this investigation, to the phenomenological interpretation of how we socially construct our reality.

In the four points of intersection discussed in my thesis, I maintained that we will necessarily incorporate many of the constructs, institutions and interpretive processes developed in paramount reality into virtual reality. The nature of paramount reality will in turn be influenced by information and experiences gained in virtual reality, through their incorporation into our “collective stock of knowledge”. This extension of social norms into VR, however, may be juxtaposed with the unique properties of the technology which, as we learn from McLuhan, may structure experience and communication in a new way.

My synthesis and intersection of McLuhan and phenomenology leads me to suggest that McLuhan’s work, grounded as it is in the senses, and phenomenology, grounded in the philosophy of perception and experience, together provide an effective way of illuminating the ontology of virtual reality. I felt it essential to begin any investigation of virtual reality by exploring its very nature as only after the essence of a technology is grasped may we proceed to examine the crucial socio-political issues which arise from the technology.

In the public eye, due in part to recent (often sensationalized) media coverage, VR is a new technology with unlimited potential to fulfil private and collective desires; asking what one’s ultimate virtual world would be is like administering a Rorschach Ink Blot test. Some suggest, however, that the media is not solely to blame for creating and maintaining the present furor that surrounds VR, but instead that academic attention is also to blame as it legitimizes VR as an area of concern. This is a dangerous position as the momentum surrounding all technological innovation – certainly the high-tech world of computer technology – shows us that the visions of the mass media often provide a template for technological actualization. VR will certainly develop until current and future visions are realized. It is thus essential that we begin investigating the implications of this new and powerful technology. I will now suggest four areas where I see the need for exploration.

I have already alluded to the first, and perhaps most problematic area presenting itself for investigation: the role of the popular press in influencing public understanding of VR. When VR was first under development in the 1960’s the only information available about it was

found in technical journals or conference proceedings. A few years ago articles began appearing in computer trade magazines that, although not “mainstream”, had a wider audience than the earlier journals. Since then articles have appeared in general science magazines such as *Omni* and *Scientific American* and, more recently, in general news magazines and newspapers.

Making information about VR available to a general audience has increased the information flow about the technological developments and has provided a terminology-set to allow the “non-expert” to engage in the debate. It has also, however, led to the compromising of technologically authentic facts which have been replaced by the “hype” that captures readers attention and sells magazines. The simplification of technological details necessary when writing for a general audience in many instances gives way to pure speculation and embellishment, creating tension between actuality and desire which, as we saw in the development of Artificial Intelligence, may lead to a general disillusionment about the technology. The relationship, then, between media representation of VR and the technology itself is fertile ground for further investigation.

Related to media representation of VR and the development of the technology is the symbiotic relationship between the genre of science fiction and technology. Rosanne Stone, for example, notes that the pentagon holds regular forums with science fiction writers to solicit ideas for possible technological development.¹ The relationship is clearly exemplified by the influence William Gibson’s book *Neuromancer* has enjoyed over VR. In *Neuromancer*, Gibson supplies what many see as the definitive definition of cyberspace: “A concentual hallucination experienced daily by billions of legitimate operators... a graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity.”² It is interesting to note that Gibson’s dystopic vision of the technology as been appropriated by not only science fiction enthusiasts but also by many academics, who regard *Neuromancer* as the guiding vision behind VR, or at least as an influence deserving attention (see Ahrens 1990; Henderson 1990; Jacobson 1990; McManus

1990; O'Bannon 1990; Temkin 1990; Thomas and Stuart 1990; Bukatman 1991; Byrd 1991; and Kelley 1991). Further investigation in this area is warranted.

Beyond the purely technical, VR will exist and flourish only inasmuch as "artists" are realized as privileged in their roles as creators and visionaries of this new space. Traditionally alienated from participating in current technological developments and instead forced into the role of social critic, artists will be in demand as the "architects" of virtual worlds and will have the potential to express themselves synesthetically through a forum allowing for unprecedented freedom and creativity. Aside from the issue of access (artists are traditionally relegated to marginalized positions in society) issues of the nature of representation, "ethical creating" and virtual ownership demand exploration.

As with the introduction of any new technology the fundamental social question that emerges is: "Who will control the technology and who will have access to it?" As it exists now, VR is prohibitively expensive and consequentially available only to well-endowed private companies or through elite research institutions. Public participation in actual VR technology is generally only possible at trade shows and then demand for the technology far exceeds its availability. But, to use the paradigm coined by Harold Innis, what is the reaction to the functional monopoly of the technology by those economically "marginalized"? It is interesting to note the growing popularity of brickoleured VR systems assembled in basements and garages from less expensive parts such as Mattell's Power Glove (which was based on the more expensive VPL "Dataglove" used in most VR set-up's), inexpensive 3D glasses and interactive computer games. It is impossible to tell at this point in the "history" of the technology if creative solutions will indeed emerge from the margins, but the question of access is an area deserving further attention.

I have suggested four general areas for further research, areas which are by no means comprehensive. Virtual reality allows us to create and inhabit our own "worlds" and possibly because of this has captivated public curiosity and fascination. For these two reasons alone it deserves intense and ongoing scrutiny. Embedded in the technology (and our fascination

with it) are many philosophical, political, social, religious and economic assumptions which need to be unearthed and discussed. It is my hope that others in the field will accept the challenge of considering all facets of the phenomenon so we may de-mystify the technology and experience we call virtual reality.

¹Stone, "Sex and Death Among the Disembodied", p. 7.

²William Gibson, *Neuromancer* (New York: Berkley Publications Group, 1984), p. 51.

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