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Fantasizing Reality: *Wetware*, Social Imaginaries, and Signs of Change

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MSc in Media and Communications

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Fantasizing Reality: *Wetware*, Social Imaginaries, and Signs of Change

Jennifer Cross

ABSTRACT

This project explores the link between social imaginaries and circulations of meaning in popular culture science fiction. Stories function as an important element of how individuals make sense of the world around them and integrate new ideas into their social imaginations. Media cultural texts, such as novels, offer one entry point into these mental maps. This paper offers one possible route to sense-making via social imaginaries and stories and how mediation connects the two entities. The transfer of meaning from one text to another, from one event to another and the continual signification and (re)signification of intertextualities naturalize the strange and render it familiar. This process takes fantastical realities and turns them into imaginable way of living. As these ideas are fairly abstract and empirically difficult, this project aimed to contextualize this cycle of meaning-making within the framework of technologically mediated bodies. This offered a narrower, more concrete venue through which to explore these concepts. Specifically, the concept of *wetware* was investigated at its initial inception in science fiction novels. Using elements drawn from critical discourse analysis, rhetorical analysis and literary criticism, this paper sought to address the following question: How are concepts like *wetware* introduced into social imaginaries?

Overall, my research has shown mixed results for this research question and my hypothesized cycle of theoretical elements. In general, this conceptual framework seems valid and an interdisciplinary methodology is crucial. However, the sheer amount of material in novels and the complex play of these concepts made it difficult to determine which literary device or discourse was effecting perceptions of what was familiar and what was supernatural. Reading is a very individualistic activity, so extrapolating from these results is difficult. On the positive side, there were definitely differences among the novels and the authors' treatment of *wetware*. It was possible to compare similarities and differences among the novels and investigate common elements that partially answer the research question.

1. Introduction

In 1958, in her Prologue to *The Human Condition*, Hannah Arendt defends the “non-respectable literature of science fiction” chronicling it as “a vehicle of mass sentiments and mass desires” (2); frequently telling the stories that science later creates. In the roughly 50 years since Arendt’s thoughts, science fiction¹ has remained a vehicle of the masses, but has gained much respect. Commenting on much the same debate that Arendt addressed, N. Katherine Hayles places narratives as a critical element between science and culture: “...culture circulates through science no less than science circulates through culture. The heart that keeps this circulatory system flowing is narrative—narratives about culture, narratives within culture, narratives about science, narratives within science” (1999: 21-2). From Arendt’s vehicle of mass sentiment to Hayles’ beating heart, the place of science fiction in contemporary popular culture cannot be discounted.

The central tenet of science fiction that both authors are commenting on is its imaginative character and the interplay of that quality between science and mass culture. As Etienne Wenger rightly notes: “The term imagination is sometimes used to connote personal fantasies, withdrawal from reality, or mistaken as opposed to factual conclusions. My use of the term, however, emphasizes the creative process of producing new ‘images’ and of generating new relations through time and space...” (1998: 177). Science fiction makes no claims to hard fact or complete withdrawal from reality, but rather draws on both to extend Wenger’s creative process to its fullest. This process results in fantastical narratives that offer not prophecy, but possibility.

In this paper, to explore these possibilities more fully, I will draw a sample of science fiction novels through which I will investigate how new ideas enter social imaginaries. By social imaginaries, I mean the underlying organic structures—frequently comprised of stories—through which societies make sense of the world and structure their daily lives. In this, I draw from Wenger’s “Mode of Belonging”, whereby imagination encompasses images of possibilities, images of the world, images of the past and the future, images of ourselves and “...creates a kind of community” (1998: 174, 181). Within this framework, I will seek to investigate how new images become a part of communal social imaginaries.

¹ Science fiction is also referred to by various authors as SF and sci-fi. As much as possible, I will try to discuss the term as “science fiction” unless I am drawing directly from an author’s citation, in which case their reference will be observed.

To that end, this paper is structured around several concepts. Firstly, I review the relevant literature pertaining to social imaginaries and science fiction as a medium of popular culture. Secondly, address one focus area through which the cycle of social imaginaries and science fiction will be investigated. Drawing from Arendt and Hayles' comments above, it seemed particularly appropriate to focus on technologically mediated bodies as the interplay between technology and bodies is widely debated in science and culture. Specifically, I evaluate the concept of *wetware* as a case study of how new ideas enter social imaginaries. Thirdly, I link these concepts via mediation, or the circulation of meanings (Silverstone, 1999: 13). These concepts will provide the background for my research on *wetware*. I then explain the selection and design of my methodological tools, including elements of rhetoric, discourse analysis and literary criticism. Within this process, I hypothesize that new ideas about technologically mediated bodies are introduced to social imaginaries via methods of rendering the supernatural familiar. Or in other words, in the conflation of the familiar with the supernatural in something which Jonathan Culler labels "fantasy": "the strange or unnatural that the reader accepts as another nature..." (1981:61). Finally, I discuss and analyze how the fantastical is rendered familiar and whether this proves my hypothesis or not.

2. Review of Relevant Literature, Conceptual Framing, Objectives

2.1. Bodies and Stories – Detailing Relevant Literature & Concepts

The field of mediated discourse, particularly with regards to technology and the body is much too broad to explore fully in this paper. As outlined above, I have chosen three main precepts, loosely connected and entwined, that conceptually structures this research and narrows the scope of discussion. They are: social imaginaries; the function of popular culture media, notably novels as “cultural texts”; and “new” ideas of technologically mediated bodies. My interest in these subjects derives from a personal fascination with how social imaginaries function and the powerful impact of stories (in this case, science fiction narratives about *wetware*) in popular culture. Stories lie at the heart of how people make sense of the world and their place in it. The focus of this project is investigating how those processes of sense-making change via ideas presented in novels.

2.1.1 Social Imaginaries

The concept of social imagination or social imaginaries is drawn from several threads of contemporary social and political theory. Benedict Anderson, in his *Imagined Communities* (1991), presents the idea that national structures of belonging, of national identity, are formed through processes of communal imagining. Christopher Kelty credits Charles Taylor, Michael Warner and Jürgen Habermas as suggesting that “the public, or public sphere, can be thought of as one example of a social imaginary” (2005: 186). Alberta Arthurs explains Taylor’s version of the *new social imaginary* as:

...the thinking shared within a society by ordinary people, the common understanding that makes common practices possible and legitimizes them. The social imaginary is implicit and normative; it derives from the usual, the quotidian, from everyday attitudes, behaviors, and opinion making. It flows from events and ideas, the realities that citizens live with most intimately and immediately. In Taylor’s words, the social imaginary provides the background that makes sense of any given act in daily life. (Arthurs 2003: 580, quoting Taylor: 2002:106).

She goes on to simplify this definition, offering: “the new social imaginary... [is] about how people in the everyday life of our time collectively invent and administer the systems that

surround and sustain them” (Arthurs 2003: 579). I have drawn my understanding of social imaginaries from her extension of Taylor for several reasons. Most importantly, her critique of Taylor is to illuminate multiple social imaginaries.

Though the public sphere is a powerful example, it focuses on how people engage in *political* social imaginaries. While interesting, this focus is too narrow for my purposes and inappropriate to a popular culture based question. Therefore, though I am not following Arthurs into post-colonial territory, I am going to utilize her simplification of the concept and her recognition of multiple social imaginaries. This allows me to extend the concept beyond the usual discussions of political engagement and national identity.

Darren Langdrige provides another useful element for my framework in quoting Ricoeur, that: “The social imaginary is the ensemble of stories possessed by all societies that serve to mediate human reality” (Langdrige 2006: 646, Quoting Ricoeur, 1991). Adding stories to my conceptual framework is obviously a key decision given my sample. Using stories to make sense of the world around them provides individuals with an integral mechanism to structure meaning. Langdrige (2006: 646) labels these processes “discourses of meaning [that] comprise the social imaginary”.

Kelty develops these ideas further: that social “imaginaries are not static but are ‘schematized in the dense sphere of common practice’ (quoting Taylor 2002: 106) and subject to something like a dialectical transformation” (Kelty 2005: 186). Kelty and Arthurs both structure social imaginaries as organic functions, shaped and changed by the practices of everyday life. As new ideas are introduced into social imaginaries, individuals create new stories and structure new ways of making sense of everyday acts. To this end, “social imaginaries are neither strictly ideas nor strictly institutions...”, but rather continually evolving combinations whereby “people imagine their social existence...” (Kelty 2005: 186). By drawing on elements outlined by Arthurs, Langdrige and Kelty, I understand social imaginaries to be the underlying organic structures—frequently comprised of stories—through which societies make sense of the world and administer their daily lives. These imaginaries are frequently expressed and changed through discourses and are not restricted to a *single* social imaginary but rather exist in multiplicities.

Beyond this understanding, it is important to briefly consider the character of imagination and imaginaries themselves and the research challenges associated with this

concept. John Shotter, in *Cultural Politics of Everyday Life*, defines the imaginary (derived from the imagination) as composed of entities which have the following properties:

1. *They are incomplete, ongoing, on the way to being other than what they are – in short, they are unimaginable and extraordinary.*
2. *They are non-locatable, either in space or time, but [...can...] have 'real' attributes [...and enable people...] to achieve reproducible results by the use of socially sharable procedures.*
3. *They 'subsist' only in people's practices, in the 'gaps', 'zones', or 'boundaries' between people.*
4. *...entities...which exist 'in' the world only to the extent that they can play a part in people's discourses – in short, their function is to make a way of human being, a form of life possible.*
5. *However, their 'structure' can never be made wholly rationally visible; [...] their partial structuring can only be revealed in 'grammatical' investigations.*
6. *In short, such entities – like words themselves – are sources of continuous, unforeseeable creativity and novelty... (Shotter 1993)*

These properties outline much of what Taylor, Kelty and Arthurs premise but include key aspects illuminating research challenges. Social imaginaries are useful constructs for evaluating underlying structures of communal meaning but are challenging empirically, as proving these structures exist and work in hypothesized fashions is difficult at best. This difficulty is often approached by engaging imaginaries through their cultural texts, "ensemble of stories" or "discourses of meaning" (Langdridge, 2006). Language and discourses at work within dialogue, grammar and narratives provides a relatively solid approach to the "non-locatable character of social imaginaries.

2.1.2 Popular Culture Media: Science Fiction novels

In investigating conventions of everyday pop culture that form social imaginaries, one can look at mechanisms through which people appropriate meaning. Wenger notes that, "stories, for instance, can be appropriated easily because they allow us to enter the events, the characters, and their plights by calling upon our imagination. Stories can transport our experience into the situations they relate and involve us in producing the meanings of those events as though we were participants" (1998: 203-4). As established in section II, science

fiction is one of the most contemporarily relevant and interesting genres and "tackles the problems that other genres can't reach" (McHugh, 2001: 28).

Science fiction offers an important access point to popular culture and social imaginaries. As part of Ricouer's "ensemble of stories" (1991, quoted in Langdridge, 2006: 646), "...science fiction permeates our culture. The car you drive was made in part by industrial robots; so were the plastic toys of the kid down the street. Space travel has become a reality..." (Wolfe, 2007: xx). The interplay between the narratives of the genre and the actions of everyday life is a crucial aspect of how individuals create and sustain meaning in their lives. Conventions of science fiction literature virtually guarantee new ideas or ways to think about "reality", new technologies, or alternative worlds. Brier (2006:155) describes this as:

The science fiction novel is almost always about new technological frames for a society and the social consequences of this, or shows that no matter what new technology one invents, the social problems will be the same. But they can also be imaginative about how new technologies can shape our lives and propose new problems that we will have to face in the future (for instance if robots could have emotions).

In these new imaginations, science fiction offers readers a space for reflection and opens up possibilities for new modes of sense-making.

McHugh (2001: 23) plants a broader field than Brier, extending science fiction beyond just technology and premising that:

The final attraction of SF... [is] not just as a literature of change à la Pohl but a literature that confronts change. SF does not merely raise tensions between ignorance and science, free will and determinism, it does not simply explore differences or contradictions, it confronts us with them in a way that the social and organizational sciences are loath to do...there is always confrontation (though not necessarily conflict) between every combination of person, organization, culture and environment you can imagine...Effectively then, SF makes variables out of what everyday life often treats as ontological and epistemological 'fixities'. Through the appropriation of potential realities as thought experiments SF is able to examine the implications and iterations of ideas and their applications [...].

This view of the genre not only underscores its value, but labels it as critical to societal growth. As an engine that shakes things up, science fiction constructs possible, imagined tensions. These are effectively thought experiments drawn from branches of contemporary life across a wide spectrum of issues. The depth and breadth of these experiments result in unusual combinations that may eventually come to exist in future realities. McHugh (2001: 22) further notes that "prophecy is essentially irrelevant to SF as it is more about 'what could be' than 'what will be'". This focus on what *may be* versus what *will be* is reflective of the character of stories. The fictional guise stories wear lends them the freedom to pose impossibilities and un-realities in a manner very different from other such thought experiments that would seek to introduce new ideas or shift thoughts about "fixities".

Christopher Haley, in "Science fiction and the making of the laser", calls science fiction "fanciful and playful" but seeking "to make perceptive comments about emerging technology and cultural tendencies [...] As speculative fiction or *gedankenexperiment*, it offers possible visions... [of] what awaits us if social trends are regulated or left unchecked. To be sure, many of these expectations and fears already exist within the collective unconscious, but like a parabolic mirror SF reflects these whilst bringing them into focus" (Haley 2001: 31). Whether a mirror reflecting common unconscious fears or a harbinger of "stories neither you nor I could imagine" (Wolfe, 2007: xxi), science fiction is a valuable source for investigating popular culture and social imaginaries; as Arendt assiduously defended half a century ago, the vehicle of mass sentiment and desire cannot be disregarded.

2.1.3 Technological Bodies: Mediation as a Vehicle for "New" Ideas

As noted above, one of the primary landscapes of science fiction is the field of technology. From space travel, lasers, robots and alternate universes to cyberpunk, cloning, and contemporary dystopias, science fiction draws upon aspects of science, technology and culture in fantastic, unimaginable combinations. These "thought experiments" merge into the flow of mediated discourses and re-work how societies understand the complex interplay between the three fields. Within this landscape, one of the most commonly explored themes is that of the body. "The meat"², as it is sometimes referred to in more recent works, is a

² Rucker's trilogy conceptualizes bodies as meat, indeed the new "meatbop" will be a bopper with a wetware meat body (*Wetware*, 1988). William Gibson's work is often quoted with regard to this idea, especially *Neuromancer* (1984) and his scenes with Case, the cyberspace cowboy that does not want to leave the pleasures

prevalent theme in sci-fi. More specifically, the triangle between technology, bodies and social consequences provides fertile ground for unlimited imaginaries, some optimistic and some apocalyptic.

From bionic men to cyborgs, the augmentation or invasion of bodies by technology is not a new theme, nor does this paper claim such. Rather, I am examining the introduction of "new" ideas about technological bodies into social imaginaries. The vehicle linking these two concepts is that of Roger Silverstone's mediation, or "the circulation of meaning", whereby there is "movement of meaning from one text to another, from one discourse to another, from one event to another" (Silverstone 1999: 13). Functioning as another element of social imaginaries, "...mediated meanings circulate in primary and secondary texts, through endless intertextualities, in parody and pastiche, in constant replay, and in the interminable discourses [...] in which we [...] act and interact, urgently seeking to make sense of the world..." (Silverstone, 1999: 13). This cycle of meaning acts as a continual interplay between texts, discourses and events in which one references to one are built upon another. Much like Roland Barthes' sign→ signified →signifier semiotic process³, mediation draws upon sets of meanings to create other meanings. This continual interplay feeds social imaginaries new ideas that are (re)contextualized in familiar discourses or texts.

In this manner, Wenger's "images of possibilities" links to Kelty's "dialectical transformations" and presents one progression through which cultural systems and sense-making evolve. Science fiction provides both a conduit for new imaginations in this cycle and a moment, frozen in print, through which this process can be investigated. N. Katherine Hayles (1999: 21) comments that "literary texts are not, of course, merely passive conduits. They actively shape what technologies mean and what scientific theories signify in cultural contexts". Much of the imaginative, cultural shaping of technology and what Hayles terms "the posthuman" discourse is "nowhere...explored more passionately than in contemporary speculative fiction" (Hayles, 1999: 247). Part of this exploration demarcates the work of imagination and mediation in action whereby "the literary texts often reveal, as scientific work cannot, the complex cultural, social, and representational issues tied up with conceptual shifts and technological innovations" (Hayles, 1999: 24). Tracing conceptual

of virtual reality for the meat of his body. The idea is frequently used in cyberpunk novels or novels dealing with any sort of slave theme.

³ Information taken from Stuart Hall in *Representation: Cultural representations and signifying practices* (1997). Actually derived from numerous works by Barthes. Concept is regularly associated with him, so I have not specifically cited a particular work.

shifts assumes that causality can be pinpointed and separate elements withdrawn from the tangled triangle of science, technology and culture, that fact can be separated from fiction and the influence of one on the other conclusively determined.

As Andrew Leonard notes in an interview with science fiction author William Gibson, this assumption is increasingly inappropriate, especially when reality catches up to fiction: "...by 2001, the world Gibson envisioned in *Neuromancer*⁴ had merged seamlessly with the world of pop culture. Gibson believes modern life is inseparable from mediated interpretations of that life..." (7 Feb. 2001). Silverstone's "endless intertextualities [...] in constant replay" (1999: 13), reinforce Gibson's statement and elucidate the difficulty of tracing conceptual shifts from within mediated cultural systems. To that end, I have chosen a particular concept from cyberculture literature and its inception to explore the interplay between bodies, technology, imaginaries and mediation. I have selected only one idea to maintain the focus and scope of this project though any number of concepts presented themselves. *Wetware* was a personal interest selection but provides a more than adequate example through which to focus this research.

2.1.4 *Wetware*

The concept of *wetware* functions as an interesting case study to investigate the interplay among the theoretical elements outlined above. Rudy Rucker, one of the early initiators of the concept⁵, defines it as "*the underlying generative code for an organism, as found in the genetic material, in the biochemistry of the cells, and in the architecture of the body's tissues*" (2007, author emphasis). In "The Mondo 2000 User's Guide", Rucker (1992: 280) had previously described the concept as:

The genetic program is in the DNA molecule. Instead of calling it software like a computer program, we call it wetware because it's in a biological cell where everything is wet. Your software is the abstract information pattern behind your genetic code, but your actual wetware is the physical DNA in a

⁴ *Neuromancer* (1984) is one of the most referenced contemporary novels in critical cyberculture literature and numerous other fields. Gibson is credited with coining the term "cyberspace" in this novel. The term's prominence and integration into modern societies is frequently cited as an example of the powerful influence of metaphor and bolsters the importance of the pop culture science fiction genre.

⁵ Rucker's novel, *Wetware*, is often referred to as one of the original sources of the term. Published in 1988, it was preceded by Swanwick's *Vacuum Flowers* in 1987. It is unknown if Swanwick and Rucker knew each other or were influenced by each other's work. Written a year apart, the two novels both utilize *wetware* differently. It may be that Rucker usually receives credit as his novel bears the title of the concept and hence web searches almost always hit on it when referenced.

cell. A sperm cell is wetware with a tail, but it's no good without an ovum's wetware. A fertilized seed is self-contained wetware [...].

He notes that this is his original, intended meaning but he has come to realize “that a body’s wetware is more than just its DNA. The autocatalytic system of biochemicals in each cell is a kind of wetware itself. The arrangement of a body’s cells—and the all-important tangling of the cortical neurons—is a higher-level kind of wetware as well” (Rucker, 2007). This enlargement of his original conceptualization mirrors other characterizations of wetware as a more complex, holistic, uniquely human process.

Unlike software, wetware has a biochemical element to it. Rucker (2007) further notes that “the distinction between hardware and software is somewhat artificial and conceptual when applied to a living organism. Wetware can apply either to the underlying abstract generative code, or to the emergent patterns”. This extension expands to include both the cellular and meta-cellular levels. Overall, the concept premises genetic elements, sometimes referred to as codes or patterns, as incredibly complex architectonic units found in human bodies.

Further explanation of Michael Swanwick’s and Neal Stephenson’s conceptualizations of *wetware* will be discussed in Section V. Rucker’s version is published outside of *Wetware*, though both of the above sources were also written or edited by him.

2.2. The Strange and the Familiar: Conceptually Framing Imaginaries & Mediation

Social imaginaries are fraught with intangibility and create a difficult space for analysis and interpretation. John Roberts notes that “the ‘imaginary’ is by definition a difficult dimension to write clearly about” (2005: 621). Unlike action, which can be documented and dissected, imagination offers the external observer no such platform. Interviewing and face-to-face methods may attempt to delve into this space, but individuals are rarely aware of *how* or *why* or *when* they began to imagine new constructs. The shift from imagination to action is gradual and backtracking to the first moments of a broader social imagination is often virtually impossible. The additional problem of pinpointing causality or separating the entangled paths of mediation further complicates research in this area. Bearing these difficulties in mind, the frameworks below structure the conceptual outline of this paper.

This framework begins with social imaginaries and their structuring of cultural systems. As an integral part of any cultural system, social imaginations are drawn from, and expressed through, a variety of sources, or what David Deacon, et al (1999: 2), term: "cultural forms". In their view, "exploring the patterning of the generalised public culture...and investigating the way that particular cultural forms organise meaning tell us much about the imaginative spaces we hold in common". Novels, as a cultural form, open a venue through which to enter these common spaces.

Conventions of the science fiction genre mark it as a site of the spectacular, the fantastical. In order for readers to empathize with new ideas and integrate them into their own imaginaries, there has to be an element of the familiar which contextualizes the spectacular. Much as a toddler could not imagine running a marathon, a reader cannot imagine his personality being downloaded into an S-cube and re-embodied several hundred years⁶ later if such a process is not described in terms that he can relate to. As Samuels (1996:101-6) points out, translation is not always necessary for comprehension, so it would perhaps not matter if the reader did not know what an S-cube was. If however, he held no knowledge of the idea of coding human systems and could not imagine such a process, he would be unable to relate to the strangeness of the scenario. From this point, the reader has not engaged in the willing suspension of disbelief⁷ and everything is still strange. And what is strange is not persuasive and does not engender a reciprocal affiliation on the part of the reader.

Novels, as a site where ideas are introduced and "made familiar", utilize naturalization devices such as *vraisemblance* or intextual devices such as mediation to render the supernatural familiar and ideas imaginable. Mediation here functions as a vehicle between the strange and structures of meaning. The (re)working and interplay of the familiar and the spectacular moves between and across texts, eventually cementing social imaginaries with now-familiar touchstones. In the case of *wetware*, it is only imaginable as a concept if the reader can draw upon knowledge of DNA and cellular processes in human bodies. This paper draws directly on mediation in moving meaning from texts to imaginaries via literary mechanisms and intertextualities.

⁶ This example is drawn from Rucker's novel *Wetware* where Cobb Anderson III is downloaded out of an S-cube and re-embodied as a bopper.

In looking at a specific discourse of technological bodies, i.e. *wetware*, and its inception in science fiction novels, it may be possible to decipher some of the linkages that are (often) unconsciously drawn between new ideas, imaginaries and processes of mediation. These connections result in new social imaginations and rework representations of bodies, specifically the technological/body. The complex interplay between these three concepts is highly theoretical and difficult empirically, but worthy of exploring via this “thought experiment”.

2.3. Objectives of this Research

2.3.1. Exploring Fantastical Realities and New Imaginations

Much of this research was initiated by my personal interest in science fiction and “invisible” entities like imagination. I am continually fascinated by the power and scope of imagination, especially in popular culture. Novels, fashion, music, and art all draw me into what *could* be. The process between someone else’s idea and my imagining that idea is a fascinating linkage. Though probably a fascination more applicable to cognitive psychology or neuroscience, media and communication studies provides equally fertile ground for explorations of complex theory, intangible behaviours and popular culture. Silverstone (1999: 2) posits that the media are “part of the general texture of experience”. Given this framework, there is perhaps no better ground in which to cultivate my fascinations and explore how both novels and imagination contribute to sense-making processes and social imaginaries. Ideally, such an exploration can only enhance existing research in each of these areas and perhaps offer some small insight into how popular fantasies become commonly held ideas.

Therefore, the objective of this project is to explore how new ideas, specifically relating to technology and bodies, are introduced into social imaginaries. This exploration will examine *wetware* as a particular case study relating to discourses of technologically mediated bodies and literary mechanisms (via science fiction novels) that facilitate the generation and propagation of new ideas in cultural systems. Examining these mechanisms contributes to a deeper understanding of the initial link between new ideas and imaginations. This link is crucial to further analysis of how cultural texts influence social imaginaries and

⁷ Taken from Samuel Taylor Coleridge’s *Biographia Literaria* (1817) in *Samuel Taylor Coleridge*, (Ed.) H.J. Jackson, 1985: 314.

shift perceptions or actions in the wider discursive field of popular culture. Foundationally, the initial linkage process is pivotal to understanding how cultural systems are created and meaning is constructed.

2.3.2. The Research Question – What is this project about?

This then leads to the following research question: How are concepts such as *wetware* introduced into social imaginaries? It is my hypothesis that this process occurs when the strange is rendered familiar and the reader can suspend disbelief and imagine anything. I am proposing that this happens via naturalization devices like *vraisemblance* or other devices such as mediation. Situated in the broader theoretical frames outlined above, this question will be explored via the methodologies outlined below.

3. Research Design and Methodology

3.1. Research Strategy

3.1.1. Challenges to Researching Literature

In and of itself, literature poses an interesting challenge for researchers. The format of the sample is much different from newspaper articles, magazine images, TV broadcasts, blogs or any number of other commonly researched mediums. Longer and written in a distinct style, this sample requires a creative, interdisciplinary research strategy. To that end, I have outlined several key decisions and boundaries that established a workable strategy and initiated a feasible research design. This includes the major research methodologies drawn upon; the rationale for excluded methods; and the parameters developed for this specific sample.

3.1.2. Limits and Boundaries – Why these methods?

The primary methodologies chosen for this project are drawn from literary criticism mechanisms and various practices in critical discourse analysis. The literary mechanisms are applicable to my sample, while the discursive elements explore linkages to the research question's theoretical foundations. This dual approach facilitates entry into the complex tangle of theories outlined above.

Literary Criticism and Critical Discourse Analysis (CDA) are both well-developed, prolific fields. There are any number of strands and approaches within each discipline, as well as an abundance of theory relating to both. In wading through this, several key elements emerged. Much of Norman Fairclough's work on CDA, as outlined in *Language and Power* (2001), is used in other authors' works.

Rosalind Gill, in her chapter, "Discourse Analysis" provides a simplified version of Fairclough's three main elements: *Text*, *Interaction* and *Social Context*. She states: "A discourse analysis is a careful, close reading that moves between text and context to examine the content, organization and functions of discourse...In the final analysis, a discourse analysis is an *interpretation*, warranted by detailed argument and attention to the material being studied" (2000: 188). By combining these two authors, I refined the basis of

my coding schematic and focused my theoretical precepts into categorical definitions that could be explored throughout the novels. Within the Text/Content and Interaction/Organization frames, I selected appropriate literary mechanisms and rhetorical conventions, drawing further from strands within both fields.

Silverstone, in *Why Study the Media?*, outlines "...the three principal mechanisms of textual engagement: rhetoric, poetics and the erotic. Each in turn enables attention to a particular quality of media as they seek to persuade, please and seduce us. Rhetoric, poetics and the erotic are both textual and analytical strategies..." (1999: 30). Of these three mechanisms, rhetoric and poetics (most specifically the concept of *vraisemblance*) are the most applicable to this research question.

Rhetorical mechanisms are critical to investigating a *how* research question. Gill (2000: 176) notes that "the rhetorical nature of texts directs our attention to the ways in which all discourse is organized to make itself persuasive". Joan Leach, in her chapter "Rhetorical Analysis", classifies rhetoric into three types. The third posits rhetoric as "a worldview, a belief in the power of language and discourse to fundamentally structure our thinking, our systems of representation, an even our perception of the natural world" (2000:208). In asking *how* new concepts like *wetware* are introduced to social imaginations, the analysis of persuasion is a key factor. *How* is a new idea persuasive? *How* does it encourage new ways of "imagining" bodies? For the purpose of this research, I utilized three rhetorical canons: elements of Invention, Disposition and Style (see Appendix A for coding schema, most especially style and feel of the text) in conjunction with the discourse foundation described above.

The final methodology I've drawn from is a facet of literary criticism or poetics, developed in Culler's *Structuralist Poetics* (1975), adapted by Silverstone (1999) and Samuels (1996), among others. Culler (1975: 137) outlines the "conventions of the genre" as:

*possibilities of meaning, ways of naturalizing the text and giving it a place in the world which our culture defines. To assimilate or interpret something is to bring it within the modes of order which culture makes available, and this is usually done by talking about it in a mode of discourse which a culture takes as natural. This process goes by various names in structuralist writing: recuperation, naturalization, motivation, **vraisemblablisation**.*

Vraisemblance [French. Literal meaning: the appearance of truth; verisimilitude⁸], drawn from this element of structuralism, comprises “a principle of integration between one discourse and another or several others” and forms the basis of intertextual analysis, or “the relation of a particular text to other texts” (Culler, 1975: 139). Basically, this concept links culture, texts, discourses and processes of meaning, via the linkages that individuals utilize to “naturalize” or “make real” their surroundings. With regards to this project, *vraisemblance* provides the mechanism that connects rhetorical persuasive devices with discourses about technologically mediated bodies; facilitating new interpretations and inductions of ideas like *wetware* into social imaginaries.

To utilize this mechanism, I have adapted the five levels of *vraisemblance* that Culler outlines and integrated those precepts into my coding schematic (See Appendix A for complete descriptions of these categories). By utilizing selected elements from each field, I was able to approach the challenges in this project in a structured, adaptive fashion.

3.1.3. Limits and Boundaries – Why not other methods?

Janice Radway, in *Reading the Romance*, combines various methodologies (focus groups, interviews, textual analysis, surveys, etc.) and offers readers complex, detailed insights into the romance genre, female readers, and patriarchal structures. Given the limits (time and space) of this paper, such an undertaking was not feasible. In light of these challenges, it was more practical to narrow the scope of the research question and not focus on the entire genre of science fiction and not evaluate underlying ideologies at work between industry production and reader consumption. Though such a project could emerge from this one, it would have to happen at a later time. To that end, the narrowing of the research question and specificity of the mechanism being investigated precludes other methodologies such as Radway utilized. Though interviewing may have added a ‘reader reception’ or ‘author intention’ dimension to this project, it would have also expanded it beyond the specified limit. All of these could be areas for further research and elaboration.

⁸ From Webster’s Revised Unabridged Dictionary, © 1996, 1998 MICRA, Inc.
<http://dictionary.reference.com/browse/vraisemblance>

3.1.4. Sample Selection – Why these novels?

In order to research how ideas like *wetware* enter social imaginaries and effect perceptions about technologically mediated bodies, I have chosen to focus on “cultural texts”, the “frozen moments in a continuous stream of social interactions, which embody the values and meanings in play within public culture” (Deacon, 1999: 8). Sci-fi novels have been chosen as the cultural texts/forms at work and the initial site of *wetware*.

I have chosen three primary novels for this research: *Vacuum Flowers*, by Michael Swanwick; *Wetware*, by Rudy Rucker; and *Snow Crash*, by Neal Stephenson. These particular texts were chosen for their part in introducing *wetware* or their resultant treatment of the concept. All were found by utilizing popular search engines or websites, such as Amazon, Wikipedia, and Google⁹. These sites were used to pinpoint the origin of the concept, typically credited to Rucker in his same-titled work. I chose more “popular” sites (as opposed to traditionally academic venues) as the genre resides in “pop culture”. Though academic venues¹⁰ were also searched, none provided novel titles that could be used for this sample.

Though a larger sample may have yielded more data and extended my analysis, it was important to balance that against the time and labour constraints of my chosen methods. Given the research question at hand, it was also more appropriate to choose the seminal texts that actually piloted the concept of *wetware* than to chart its dispersion in the genre over time. A more archaeological approach would suit an extension of this question and further analysis concerning the diffusion or enactment of ideas in social imaginations.

Incidentally, when describing this project to individuals outside of academia, *Snow Crash* was the most commonly mentioned title that other readers of science fiction associated with my description of *wetware*. Though Stephenson approaches the concept in a different fashion and with a different term (bioware) than Rucker and Swanwick, this

⁹ Amazon.com, Amazon.co.uk, Google.com, Google.co.uk and Wikipedia.org were all utilized. The information on Wikipedia (<http://en.wikipedia.org/wiki/Wetware>) is commonly cited on other sites, including at www.reference.com. Further validation drawn from *WIRED*, *MONDO 2000 User's Guide to the New Edge*.

¹⁰ These sites included Web of Knowledge, JSTOR, and academic library catalogues. Though these resources provided excellent theoretical information, they were unhelpful in archiving novels or providing linkages between pop culture media and concepts like *wetware*. To that end, the more “popular” sites described above were used, despite their lack of traditional academic provenance.

repetitive mention of the novel seemed to indicate that *something* had hooked individual imaginations. For this reason, I chose to retain the text in this sample.

3.2. Design of Research Tools

3.2.1. The Unit of Analysis

Designing research tools from several different methodological frameworks proved to be an exercise in restraint and discipline. Many frameworks were available, each useful in one fashion or another. The first, crucial, decision was the unit of analysis. Given the length of my samples, a macro-level (versus Fairclough's more micro-level) approach was appropriate. Initially, I designed the research around chapters in each book. This proved to be too much of a micro-level analysis and made it difficult to explore larger themes. I then attempted to outline primary themes and investigate the texts from a thematic standpoint. Though interesting, I was soon overwhelmed with information and exploring any number of other (very interesting) questions. Finally, in my third research design, I focused solely on *wetware* and evaluated everything else (other themes, textual elements, interactional devices) in relation to the concept. This framework sets the unit of analysis as the entire book but proved much more effective in terms of structuring and restricting the amount of data. As a more holistic exploration, I am sure this design misses important micro-level elements but it proved much more adaptable, feasible and appropriate to my research question. Additionally, the third version also maintained a tighter focus on the linkages between the theoretical precepts outlined in section III and the research question.

This design also still covered many of the themes I had tried to explore in the second version; now just in relation to *wetware* instead of as individual units. This still allowed for inter-textual (between chapters/themes) and intra-textual (between other texts) analysis, but was more efficient and appropriate for the sample than the more micro-level chapter or larger thematic analysis would have been.

3.2.2 Coding/Analysis Schematic

Establishing a coding schema comprised the majority of this research design. As Gill (2000: 179) notes, "the categories used for coding will obviously be determined by the question of interest". To that end, I have developed six primary areas of interest (See

Appendix A). These categories facilitate the investigation of *wetware* via textual devices from poetics, rhetoric and aspects of *vraisemblance*. Version three is a much simplified schematic from my first two incarnations and structures text/content and interaction/organization levels together. This strategy allowed for greater flexibility and was more appropriate for exploring intertextual devices and circulations of meaning within the text. Connecting these circulations with social imaginaries is the end goal of this research design and schematic version three has generated more than enough material to interpret this dynamic. This design is as inclusive, and simple, as I could make it and positions each text in relation to the research question.¹¹ Categories adapted from different sources have been identified in Appendix A, with corresponding full references in the bibliography.

I am sure that a different research question, a different methodological integration, or a different researcher would have resulted in different categories. This aspect of both literary criticism and CDA is intensely personal and specific. Further research utilizing this schematic could very well arrive at different conclusions, which is an unavoidable hazard (and frequent critique) of these methodologies.

¹¹ An example of the coding schema is included in Appendix A. Short descriptions of each category as I understood and applied them have been detailed there as well.

4. Results and Interpretation

4.1 Discussion of Key Findings

The three novels chosen for this sample are both similar and very different. With regards to the research question, they indicate a number of possible avenues through which new ideas enter social imaginaries. In evaluating this dynamic, I proposed a series of linkages or literary devices that operate between ideas, imaginaries and mediation; whereby circulations of meaning transpose and naturalize fantastical new ideas into social imaginaries. By applying methods outlined in section IV, some of these linkages and devices have been affirmed and some negated. These results will be explored more fully below, and will broadly encompass the following areas: approaches to the concept of *wetware*; literary and thematic devices that effect circulations of meaning; and reflections on *how exactly* new ideas about bodies, i.e. *wetware*, are introduced into social imaginaries.

4.1.1. Author Approaches to *wetware*; Ideas of Technological Bodies

In order to explore the three authors' conceptualization of *wetware*, the initial point at which the idea enters their respective stories is detailed below. These points have then been further analyzed to determine what the concept seems to mean to each author and whether or not that characterization shifts over the course of the novel. Lastly, I have explored the interplay among the three authors and the essential differences between their conceptualizations.

In *Vacuum Flowers*, Swanwick introduces *wetware* on the first page via Rebel's (the heroine) internal monologue describing her surroundings. The second mention is two pages later and slightly shifts the meaning of the concept.

The doctor's face loomed over her. It was thin and covered by a demon mask of red and green wetware paint that she could almost read. It had that horrible programmed smile that was supposed to be reassuring, the corners of the mouth pushing his cheeks into little round balls. He directed that death's head rictus at her. (VF, 1) [...] Now Rebel could see that the nun had been tinkering with her own wetware—her mystic functions were cranked so high she could barely function. (VF, 3)

Initially, both of these introductions phrase the concept as descriptive element. The first character is wearing “wetware paint” and is threatening. The second has been “tinkering”, implying that *wetware* can be manipulated and affects the ability to function. Within the first chapter, Swanwick uses the term, or variations of it, in the following manners: *wetware codes* [again referring to paint] (6); *the wetsurgeon* (8); *a wetware mall* (10); *a piece of developmental wetware* (10); *the wetware...the imaginative processes* (11); Deutsche Nakasone reviews a lot of *wetware* every day (13); *optioned wetsets* (13); *wetware diagram* (14); and the *supervising wettech* (14). Presented via dialogue, scene descriptions or internal character reflections, the various usages of the term identify it as a procedure and an object and a function; all of which can be performed, manipulated, created, sold, stolen or transferred. This tri-part conceptualization continues throughout the novel, moving fluidly between the different usages.

Overall, *wetware* pervades *Vacuum Flowers*. At one point, Rebel refers to this reality as a “wettechnic civilization” (59) which encapsulate perfectly the feelings garnered from the text. As a process, wetware refers to “rewiring” humans, either via wetware wafers (pre-coded attitudes, beliefs, behaviours, skills) or via wetsurgery, which seems to be much more invasive and not always consensual. As a component of humans in this society, wetware is both natural and artificial, drawn from an inherent diagram within the body but can also be “re-coded” or altered by wetware programmers. In many ways this is similar to Rucker’s notion of DNA or wetware as a genetic derivative (see section 3.1.3.a.). The crucial difference in Swanwick’s imaginary is that wetware effects persona, or the entire psyche of an individual. Sometimes this change is voluntary and sometimes involuntary, usually marking systems of domination and control. Lastly, as a product, wetware is entwined with the idea of persona and marketing copies of popular wetware programs. This illustrates flexibility in how people view themselves and utilize wetware to escape or become someone else. All of these conceptualizations, detailed above, are expressed in the first chapter and maintained in these incarnations throughout the novel, though wetware becomes increasingly linked to persona and identity as Rebel’s character is developed.

This is quite different from Rucker’s *Wetware*, where the concept focuses on processes of reproduction and trying to merge robot software with human wetware. His conceptualization comes in Chapter Three and is explained as part of Berenice’s (a bopper living in the Nest on the Moon) plot to create “meatbops”: boppers embodied in human “meat” bodies.

The pink-tank sisters had tried various methods of putting bopper software directly on such tank clones' brains, but to no avail. There seemed to be a sense in which a human's personality inheres in each cell of the body. Perhaps the secret was not to try and program a full-grown body, but rather to get the data-compressed bopper software code into the initial fertilized egg from which the body grows. As the cell divided, the bopper software would replicate along with the human DNA wetware. But the final step of building the bopper software into the human wetware had yet to be made. [...] In order to spread bopper wetware more rapidly, it will be better to go [to conquer Earth] as a male... (Wetware, 41)

This initial introduction of the concept is buried in a technical-sounding passage that, though attributed to the character of Berenice, is more of a narrative insertion by the author. This lends the description a detached, clinical feel with no emotional link. This is in direct contrast to Swanwick's method of introducing the term. In this passage, wetware is presented as an integral component of human bodies, a cellular level genetic blueprint, usually found in DNA that creates personality in individual humans. As a distinctly "human" characteristic, the formula bopper software+human wetware= bopper wetware found later in the same passage muddles this characterization.

This description, though blurry, suggests that wetware is inherently linked to notions of identity and that ephemeral, unknown "something" that makes humans, human and that can't be inserted or designed after a body is grown. This is an interesting conceptualization that comments on the nature of "meat" versus machines and on life cycle processes. The two points of entry into wetware are before identity is formed (i.e. the egg/two-tailed sperm/embryo solution that Berenice arrives at) or as identity is ending (i.e. the download of the Cobb Anderson persona and his subsequent reincarnation as Cobb III). These two phases of human life cycle processes are "wet" and further divide boppers from humans.

Rucker also conceptualizes *wetware* as a code, drawn from a human sample that encompasses the "whole biocybernetic software of the mind" (*Wetware*, 66). This meaning collapses software and the "wet" element of "meat" into wetware: biocybernetic information, in this case, the patterns of personality, identity and consciousness in an individual.

They [the boppers] had to take his [Cobb Anderson's] faltering body apart to get out the software; the leftover meat went into the pink-tanks... But

they did the brain well [record and analyze]; they teased out all its sparks and tastes and tangles, all its stimulus/response patterns—the whole biocybernetic software of Cobb’s mind. With this wetware code in hand, the boppers designed a program to stimulate Cobb’s personality. They stored the digital master of the program on an S-cube...HUMAN SOFTWARE-CONSTRUCT 225-70-2156: COBB ANDERSON. (Wetware, 66)

Lastly, *wetware* refers to a processor...a mix of the two elements above that characterizes the meatbop; both a genetic code and the biocybernetic software of the mind. This conceptualization finally clears some of the confusion wrought by the first passage, though it happens some 30 pages later. It may be that Rucker uses this as a progressive narrative tool to further expand the concept and integrate various characters into the storyline. This third conceptualization is presented by Cobb III, who has been re-embodied based on the second conceptualization to fix Berenice’s botched plot, a derivative of the muddled first conceptualization. “But what if the bopper phase was just a kind of chrysalis for a new wave of higher humans? What a thought! Bopper-built people with wetware processors! Meatbops!” [Cobb III internal monologue] (*Wetware*, 73). This circular progression of the concept’s meaning is interesting and eventually ends up having a similar tri-part character to what is developed in *Vacuum Flowers*.

Stephenson, in *Snow Crash*, offers a different term for this concept (*bioware*) but expresses similar themes to Swanwick and Rucker. He introduces the term in Chapter 15, during a conversation between Hiro (the hero) and Lagos (an information/computer human “gargoyle”).

“You’re a hacker. That means you have deep structures to worry about, too.” [Lagos]

“Deep structures?” [Hiro]

“Neurolinguistic pathways in your brain. Remember the first time you learned binary code?”

“Sure.”

“You were forming pathways in your brain. Deep structures. Your nerves grow new connections as you use them—the axons split and push their way between the dividing glial cells—your bioware self-modifies—the software becomes part of the hardware.” (SC, 126)

This conceptualization posits a transformative effect on the bioware, by the bioware. Stephenson uses the term rarely, seeming to prefer the more familiar hardware/software duality or a “pseudo-scientific” rhetoric that tangles itself around “neurolinguistic codes”, “linguistic infrastructures”, and an “information metavirus.” This overly complex language fits the literary style of the rest of the text but does little to explain bioware or wetware. This necessitates drawing a bit further back and examining the novel at a meta-level. From this perspective, the entire text becomes a metaphor for the human body and brain functioning as a computer. Entangled with discussions of language, viruses and religion, this metaphor explores several aspects of bioware; firstly that there is an inherent linguistic function built into humans. This resides in the brainstem and exists at a universal programming level. Secondly, that this aspect of a biocybernetic system can be affected by viral and biological viruses which target the central nervous system and cellular DNA, attempting to manipulate these inherent functions.

If you strip away the stylistic devices, Stephenson is saying something very similar to Rucker and Swanwick: wetware/bioware is not a singular conceptualization. It begins as an inherent entity—sometimes genetic—that holds “deep structure” (SC, 395) cellular information unique to human bodies. The transfer of this unique entity into psychological realms posits an extended conceptualization: that the two levels are interdependent and that broader human constructs such as identity, persona and consciousness derive from this information. Therefore, wetware (or bioware) is conceptualized as the unique, inherently human part of the body, regardless of whether it is seen as a process, a product, or a code. Discussions of manipulating this “wet” element—usually via bioengineering, or “wetsurgery”—is the next step in each of the novels. At this level, the discourse of technologically mediated bodies becomes re-imagined and positions itself against wholly artificial bodies, which lack the full potential encapsulated in *wetware*. For all their differences in presenting the concept, the three authors arrive at remarkably similar understandings of what *wetware* is.

4.1.2. Rendering the Strange Familiar? Natural “Feel” of the Novel

For the purposes of this project, the question then becomes an investigation of whether the way these conceptualizations were introduced reduced the spectacular and made *wetware* familiar. And, if so, does this show an interplay between the concept and

circulations of meaning? I chose to explore this particular aspect from several related vantages, drawing from both rhetorical devices and *vraisemblance*. Firstly, does the tone and “feel” of the novel seem familiar? This includes aspects of dialogue, setting, plot and general believability. Is the text presenting itself at the first level of *vraisemblance*, as “real” or of a “natural attitude”? Then what elements draw upon mediation to contextualize this aspect of the text?

Of the three texts, *Snow Crash* is the most situationally distinct. Though *Vacuum Flowers* and *Wetware* take place in outer space, Hiro and YT (the hero and heroine of *SC*) are in California, but it is a California we hardly recognize. Or rather, we knew it was coming but are surprised to see it. This is a California we can only imagine, where pizza chains rule the world; neighbourhoods have disintegrated into burbclaves; franchises and neon advertising run rampant. Everything is for sale and the Feds are the only government left in town. Even the law enforcement has been privatized and work for their own profit in a totally free market Capitalist society. On one hand, this is all very surreal and slightly sarcastic but on the other hand it feels very familiar. Doomsayers have been predicting the evils Stephenson so casually chronicles for decades. His offbeat, sarcastic style also contributes to this feeling. It seems to say, “Yeah, it sucks. But, it’s still here. And what can you do?” In this case, save it all from the evil virus that’s taking out human bioware processors and reducing individuals to babbling idiots.

So, though the textual strategies displace the reader, they also bring him closer. This is definitely an example of familiarizing the strange and connecting to underlying dystopian fears that this is exactly where modern society is headed. The text also presents itself as real, but continually pokes fun at itself. This fits with the entire tone of the novel and lends further credence to a coherent, if whacky, plot, characters, and storyline. Most importantly, however, this feeling draws the reader in and encourages them to imagine living in this reality. Continually playing across themes and intertextualities, *SC* is definitely an example of a novel that both claims on odd kind of naturalness and plays across multiple texts to (re)circulate meaning.

Vacuum Flowers, for all its fantastical setting, far out in the Oort Cloud, in a place called Eros, is the next of the three novels to achieve a “natural attitude”. Swanwick accomplishes this almost solely through his characters and their interaction in the plot. He writes in a very linear, traditional fashion and though he introduces any number of different

aspects of wetware, they never feel that over the top or strange. One of the key devices he utilizes is to introduce a lot of elements in dialogue sequences. This anchors the reader in who is speaking and contextualizes the reader's perspective with everything else that has been developed for that character. This seems to provide an emotional link between the characters and the reader and many "unreal" or "new" things that are introduced in this way achieve a natural attitude via their link to someone the reader empathizes.

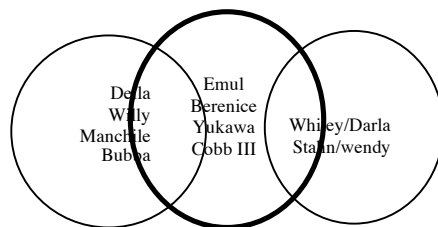
Even one of the most fantastical wetware concepts in the book goes virtually unnoticed due to this usage of a traditional framework. Wyeth, the hero, is a tetrad or "a single human mind with four distinct personalities" (VF, 65). Though this tangles the we/I dynamic of self, it is of invaluable use to Rebel, who actually did most of the wetprogramming on Wyeth in her Eucrasia persona. Ordinarily, encountering an individual with four distinct personalities means you've met a schizophrenic. Here, there are none of those connotations as Swanwick contextualizes the introduction of the tetrad through his character affiliation with Rebel, introducing the subject in dialogue between the two. The underlying love story which develops only causes the reader to feel more involved and familiar, hence more likely to accept and be caught by the next fantastical element.

The *wetware* ideas introduced in VF are fairly broad and alter entire realities about persona and identity, but there is never a sense of disassociation or resistant disbelief. This seems to be due less to overt intertextual conventions (as enacted in SC) and more with covert efforts to transfer meaning. Swanwick's overall description of his wettechnic civilization includes a "wetware mall" and "wetware wafers". These descriptions play on the reader's recognition of these items as ordinary and commonplace. What could be unfamiliar about a mall or cookies? This is a very subtle style of mediation and depends on the reader taking this as an accurate description of the civilization. Once the reader has accepted these devices, the supernatural is out of the scene and the story is "real", "natural", settling in for a story, just a good story with good characters, fighting the good fight. This is a very powerful method of rendering the strange familiar and presenting new ideas to the reader.

Rucker, in *Wetware*, goes an entirely different route from Swanwick and Stephenson. Where much of Stephenson's persuasion is a derivative of logos and ethos drawn from his scientific language or the "Librarian" character's history lessons, Rucker draws on some of the same language and creates an entirely different feel. Much like VF, the novel presents

different conceptualizations of wetware and how it fits into society. However, unlike VF, Rucker's presentation feels uneasy and off-balance.

Though randomly humorous at times, his characters never really make an emotional connection with each other or with the reader. In chronicling the text of this novel, I was struck by my inability to identify a main character in *Wetware*. There is never really a sense in the novel that any of the characters are more primary than others. All are described and interact in various ways, but it is never clear that someone is the hero or heroine. Berenice sort of comes the closest to a villain, but even that would be a stretch. Her plan to cover Earth with "meatbops" seems less out of genuine malice towards humanity and more to see if she can do it. All of the characters engage in various parts of the story and are then secondary to the next chapter or next set of characters. All are present throughout the book, but can be roughly divided up into three intersecting groups (see below). This is an interesting device on Rucker's part but it doesn't give the reader anyone to empathize with or feel camaraderie towards. This lack touches upon the characters themselves, who seem to feel little beyond the basest pleasures (sex, drugs, etc) for each other. Even Emul's declaration of love to Berenice is stilted and feels strange in comparison to Wyeth's declaration to Rebel in VF. All of this contributes to the divided, scattered feel of the novel. It is unclear if this is Rucker's intent or a function of examining one book from a series.¹²



Unfortunately, this feel contributes to the strangeness of the novel and does not attempt to render anything familiar with regards to characters, timeline, or linguistic devices. This leads me to conclude that *Wetware's* persuasive mechanism draws from another source. Even the intertextualities present in the volume are a bit overwhelming as there are so many of them. Everything from idiosyncratic speaking styles of the boppers (modeled after Edgar Allan Poe and Jack Keroac to name a few) to the dialogue between Stahn and Yukawa detailing Yukawa's brush with California law and Congress. All of these are part of the play of meanings at work in the book but none provide the reader with enough of a connection to feel settled in the story. Additionally, the timeline of the story is not

chronological or linear and jumps between multiple characters across events and retrospective explanations for events that have already occurred. This is an interesting stylistic move as it shifts the reader back and forth between interpretations by gradually releasing additional information, but leaves the reader feeling disjointed and not in a familiar position. What is unclear is if Rucker intends this for a literary purpose or if it is just the way the book is written.

As mentioned above, as part of a series of novels, some of the textual devices employed may be linked to elements and rhetorical devices presented earlier. *Wetware* can be read as a stand-alone volume, but is definitely more contextualized if read in conjunction with *Software*. That being said, *Software* is more concerned with the creation of the boppers and the coding/information and human/machine consciousness debate. *Wetware* takes up where that storyline ended and extends those topics to the merge with human wetware DNA and reverses the argument: What happens when machines build humans? Through this sequel, Rucker goes on to explore the next set of possible consequences from man's foray into creating intelligent machines. The persuasive power of Rucker's volumes may be in their totality as he has set up an interesting cycle of events that keep occurring and shifting. *Wetware* alone, however, fails to achieve the same persuasiveness that Stephenson and Swanwick achieve. Therefore, regardless of its place in the series, the literary style and naturalization devices adopted by this volume have to be seen as less effective within this cycle of ideas, imaginaries, and intertextualities.

5.2 Linking Bodies, Stories and Circulations of Meaning

Each of the three texts conceptualizes and utilizes wetware from different viewpoints. Though all three essentially agree on the basic premise of *wetware*, the different literary device each author uses to tell their story shifts the reception of the concept. Swanwick, with the earliest copyright, provides the most pervasive, fluid characterization. His story is a story in its own right and just happens to be about wetware and larger psychological features such as memory, persona and integrity.

Rucker, publishing *Wetware* a year later, is most often credited for introducing the term. His style is the most fractured and involves the reader the least. Though he ties all

¹² *Wetware* is the second book in Rucker's initial trilogy; *Software* (1983), *Wetware* (1988), *Freeware* (1997). He later expanded this to include a fourth volume, *Realware* (2000).

elements of his story to ideas of sex and reproduction, it is hard to feel any affiliation with the wide range of metaphors and practices his characters engage in. Despite that, his characterization of *wetware* is also the only one published elsewhere, though both of the outside sources quoted in this paper were also written/edited by him.¹³ Despite being the title of his volume, the actual storyline in *Wetware* is more focused on “meat” and building the “meatbop.” Though *wetware* plays a crucial role in this process (as Rucker details), the focus of the text shifts to Manchile, the embodied manifestation of biogenetic engineering and manipulation of *wetware* and larger social themes of dystopian warfare between robots and humans. It is ironic that *Vacuum Flowers* is all about *wetware*, including Swanwick’s many manifestations of the concept, but yet Rucker is perceived as the initiator of the idea.

Stephenson, in his dystopian California, focuses on a viruses, religion and information as they relate to bioware. These themes prove persuasive as well, though the mechanism and style he employs is very different from Swanwick. Stephenson’s tale is a sarcastic romp through a future not too far distant which lends him more authority in persuading the reader to his version of the software/bioware/hardware triangle.

Unfortunately, what none of these texts conclusively prove is how their conceptualization of wetware became accepted into social imaginaries. They illuminate parts of this process and how intertextual play to familiar concepts can lend persuasive authority to the text, but do not actually illuminate conclusive links. To that end, I have to conclude that the framework is likely on the right track but that the research methodology needs to be both refined and expanded. It may not be possible to study a topic like this without engaging in an archaeological approach and examining the diffusion of ideas into social imaginaries. To that end, I have outlined several reflections for future methodologies and more research in this area below.

5.3 Reflections on Strategies and Methods

Doing analysis on novels is fraught with the hazard of too much information. Richly detailed, carefully framed and engrossing, this medium offers a realm easily lost in. Science fiction does not (usually) aspire to the profundity and philosophical depths of so-called “great” literature, but what it does do is tell a mighty fine tale. Each of the three novels in

¹³ This refers to the sources quoted in Section III, Rucker’s blog and the *Mondo 2000: User’s Guide to the New Edge*, which Rucker co-edited and wrote the *wetware* article in the volume.

this sample more than succeeds in this quest. The danger of this is in trying to remain narrowly focused and attentive to *one* particular theme or idea. I designed four coding/question schematics for this research before finally simplifying to the point of focusing solely on *wetware* and evaluating all other elements in relation to that concept. Though the central research question of this project was posed within that same lens, actually delving into the sample and maintaining that focus was incredibly difficult. Primarily, I attribute this to the complex, entwined nature of themes and ideas as they are presented in novels. While fun to read, this proved to be an unexpected challenge to academic research. On the positive side, the linked multiplicity of ideas and tangled circulation of meanings within the books seems more reflective of life, popular culture, and the actual circumstances in which individuals exist and attempt to make sense of the world around them. Hence, I conclude that the sample was appropriate to the conceptual framing but unexpectedly difficult due to its inherent narrative character.

The final methodological reflection I have is the difficulty in trying to imagine how “radical” or “different” some of these ideas would have been 20 years ago. Looking back at the inception of an idea from a contemporary perspective is very difficult...would *wetware* have seemed *so* different before the advent of today’s more wired society? Before the explosion of the Web? How many of the ideas in this novel have become common to contemporary social imaginaries already? This is was an unanticipated difficulty of trying to backtrack from a different temporal location. This may be indicative of the applicability of genealogical methods, though such methods are much more intense, lengthy, and still attempt retrospection from a distant position.

5. Conclusion

David McHugh (2001: 27) posed the perfect question with which to end this paper: "What do the social sciences look for in SF? Both fields have problems with external validity and both are dependent to greater or lesser extents on the suspension of disbelief performed by audiences". I believe that in seeking to understand *how* ideas are introduced into social imaginaries, I touched upon both of these issues. Science fiction is a great medium through which to explore popular culture but it does require the reader's willing suspension of disbelief in order to present new ideas which are not so completely supernatural as to have no familiar touchstone or point of entry. The degree to which this suspension is achieved depends on many factors, not the least of which is the individual reader. That limitation puts serious pressure on the external validity of any results arrived at by the researcher. Another reader, another researcher, another interpretation. This is the hazard of having such a targeted medium that depends so heavily on individual interpretation. Of course, that is also the reason it makes such a good sample: because it is loaded with individual interpretation and reflective of larger conceptual frameworks like social imaginaries.

Within the course of this paper, I was able to discover that all these elements do work together in intuitive processes of meaning making and cycles of new ideas entering social imaginaries. According to my research, this is much harder to demonstrate empirically. Though not to the level of a "thought experiment", I cannot say that this research proved itself conclusively. Rather, it raised some interesting conceptual frameworks for future endeavours that seek to understand processes of meaning making, stories and imaginations. It seems clear that there is a link between rendering the spectacular familiar and persuading the reader to suspend disbelief and accept new ideas. Though I have outlined a series of elements and devices here that begin to explore this process, I have to conclude that there could still be much work done in this area.

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Appendix A

Coding/Analysis Schematic

- 1) Basic Text/Content of the novel
 - A. Includes main characters, plot/storyline, main themes of the book
 - B. Common assumptions/ Classification Schemes drawn upon¹⁴
(For example: Are the main characters gendered? Are bodies normal?)
(Schemes: i.e. social, cultural, linguistic, political, economic, etc.)
 - C. Style of the text¹⁵
(Includes grammar, visual devices, use of metaphor, feeling of the novel, timeline of the story, etc)
- 2) How is *wetware* initially introduced in the novel?
(i.e. Character dialogue, element of narrative setting, other mechanism)
- 3) What does the concept seem to mean in the novel? Does this meaning change?
- 4) What other themes interact with *wetware*?
 - A. How?
 - B. Are additional themes familiar or strange? Why?
 - C. Are these themes (including *wetware*) persuasive? How?
(Ethos, Pathos, Logos?)¹⁶
- 5) Are elements of *vraisemblance* present in the text or between themes?¹⁷
 - A. Presenting the "real" or "text of the natural attitude"
 - B. Cultural stereotypes or common knowledge¹⁸
 - C. Models of the sci-fi genre utilized
 - D. Reflexive nature of the text, comments on itself or the genre; process of naturalization, whereby the strange is made natural (a blur so natural it passes unnoticed); locating a proper level of *vraisemblance*.
 - E. Intertextuality/reference to other texts, claim naturalness, parody/irony
- 6) Other thoughts/notable quotes or information

¹⁴ Adapted from N. Fairclough in *Language and Power*.

¹⁵ Adapted from Joan Leach in "Rhetorical Analysis".

¹⁶ Adapted from Joan Leach in "Rhetorical Analysis".

¹⁷ Adapted from Jonathan Culler in *Structuralist Poetics*.

¹⁸ Adapted from Roger Silverstone in *Why Study the Media?*.

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