Nakamura Ryūtarō's Anime, *Serial Experiments, Lain* (1998), as an Expository Anime

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Abstract

This paper introduces Nakamura Ryūtarō's anime, *Serial Experiments, Lain* (1998) as a new type of anime, a genre nameable as an "expository anime", for the reason that it creates a diachronic story out of a synchronic aspect of a certain field of science. The overarching topic of *Experiments* is electronics, focusing on the comparison between digital and analogue communication systems. *Experiments* unfolds the rationales, potentials, and effects of the two types of communication systems using the perceptions of the major character, a thirteen-year old girl, Rein, as well as other supporting characters.

Keywords: embodiment, analogue, digital, mind, body

Izvleček

Ta članek predstavi animiran film režiserja Nakamure Ryūtarōja, *Serial Experiments, Lain* (1998), kot novo vrsto animiranega filma, žanra, ki ga lahko imenujemo "razlagalni anime", ker ustvarja diakronično zgodbo iz sinhroničnega vidika določenega področja znanosti. Pomembna tema v *Experiments* je elektronika, ki se osredotoča na primerjavo med digitalnim in analognim komunikacijskim sistemom. *Experiments* tako razgrinja principe, potenciale in efekte teh dveh vrst komunikacijskih sistemov z uporabo percepcije glavne junakinje, trinajstletne Rein, kot tudi drugih stranskih vlog.

Ključne besede: utelešenje, analogno, digitalno, razum, telo

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Introduction

> Animation is arguably the most creative form of the twenty-first century….
> Long dismissed as merely children's entertainment, only in recent years has
> there been clear recognition of animation as an art, ... as a medium of
> universal expression embraced across the globe,

says Paul Wells, author of *Animation*: *Genre and Authorship*. (Wells 2001, 1)
Meantime, and even before Wells' book, Kitano Taiitsu[1] had lamented over the
waning popularity of Japanese anime[2]. Kitano blames the loss of popularity on the
shrinking community of financial sponsors, a dying out of creative artists, and a
cooling off of audience's passion for action adventures (Kitano 2009, 168). More
thematically, echoes Katō Mikirō, the theme of justice supported by heroism
started to look archaistic. (Katō 2009a, 144)

Now that Miyazaki Hayao's *Spirited Away* has won the Academy Best
Animated Feature Award in the United States as well as the Golden Bear Prize at
the Berlin International Film Festival in 2002, and a young artist, Shinkai Makoto,
has started collecting international as well as domestic awards,[3] we may venture to
discredit Kitano's pessimism, save his prediction that CGA (computer graphic
anime) and television serials will take over the OVA (original video animation)
market. Digital composing is opening up new possibilities not only for anime but
also for feature film production.

One of the new types of anime in the VGA (Video Graphic Array)[4] format that
could give Kitano new hope was the ambitious *Serial Experiments, Lain*
(Nakamura 1998) (hereafter *Experiments*). The 104 episodes were serialized by
TV Tokyo in 1998. *Experiments* is not about the hackneyed battle between an ego
and justice, or the human versus the non-human. Neither does it neatly fit in the
existing genres of cyberpunk, *mecha*, or fantasy. Even less conventional is that the
broadcast began without a director. Nakamura Ryūtarō was scouted as the director

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[1] All the Japanese names will be typed in the Japanese order: i.e., the family name first.

[2] I am calling the animation made in Japan "anime," as versus "animation" made in other countries.

[3] Shinkai's *Kumo no mukō, yakusoku no basho* 『雲のむこう、約束の場所』 (*The Place Promised in Our Early Days*) won The 59th Mainichi Film Contest, Animation Film Prize (第 59 回毎日映画コンクール　アニメーション映画賞) in 2004, and his 5 *Centimeters Per Second* (『秒速 5 センチメートル』) won the Best Anime Prize at the Asia Pacific Film Festival and the Platinum Grand Prix at the Future Film Festival in Italy in 2007.

[4] "Video Graphic Array" is a display standard for IBM PCs, with 640 x 480 pixels in 16 colors and a 4:3 aspect ratio.

after the third layer (Konaka 1998, 30)[5] was completed. Nakamura was not[6] one of

the star artists of Miyazaki Hayao and Oshii Mamoru's type that Kitano wished to see emerge. This leads us to believe that *Experiments* deserves a new genre name, as an expository anime. The science in it does not just punctuate a diachronic narrative; rather, it sets the major and minor plots in motion. *Experiments* is essentially a synchronic exposé of the digital mechanism and its impact on humans.

The basic elements around which *Experiments* revolves are: (A) the mechanism of the human cognition system, (B) the power of electrons, and (C) the difference between analogue and digital mechanisms. *Experiments* knits these three threads to form a story, and this paper re-groups the multiple components to facilitate the explanation.
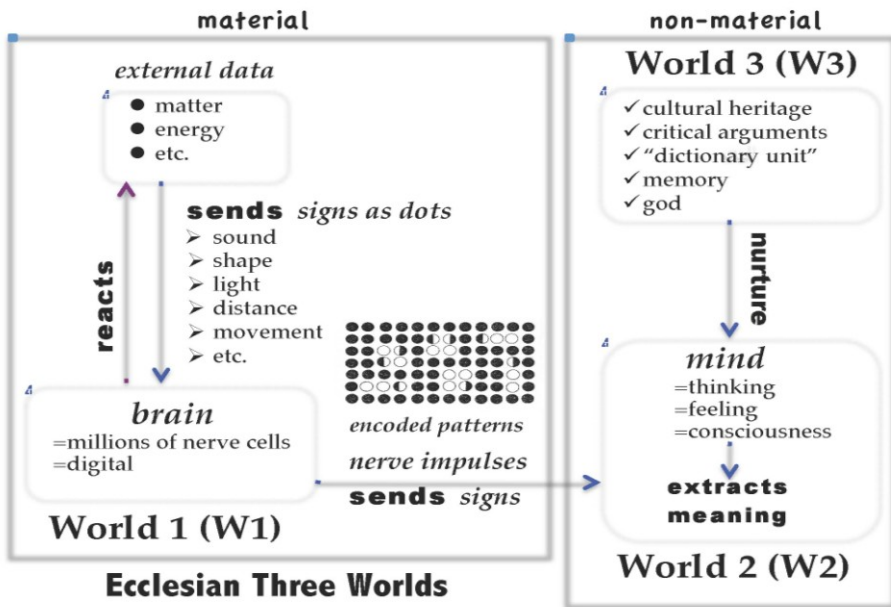
Cognition System: Eccles' Three Worlds[7]:

Figure 1: Ecclesian Three Worlds (Source: Prindle's drawing)

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[5] This anime groups the 104 episodes into 13 "layers."
[6] Nakamura passed away in 2013.
[7] Only the "encoded patterns" portion of this chart comes from Eccles (1982, 94). Prindle drew the rest in accordance with Eccles' thesis. (see Eccles and Robinson 1991, 302–3)

Nobel laureate physiologist Sir John Eccles conceives of the human mental activities as pulses that travel through three "worlds". Eccles' "World 1" (W1) consists of matter-energy that is not self-conscious. W1 belongs to the human "brain", which translates the energy that is sent to it by the eyes, ears, and other sense organs into digitally coded impulses. (Eccles 1982, 85–90) The activities on the surface of our neocortex,[8] John Eccles and Daniel Robinson continue, would show illuminated patterns of all ranges of "openness" from dark to dim to lighter to brilliant. And this pattern would be changing in a scintillating manner from moment to moment, giving a sparkling spatiotemporal pattern of millions of modules that would appear as on a TV screen. (Eccles and Robinson 1991, 302–3) A good example of this sparkling spatiotemporal pattern appears towards the end of layer 09 of *Experiments*. These designs reveal the content of a character's brain rather than the natural environment that surrounds him/her. (Shaffer 1991, 280) This anime makes itself more "expository" than, say Shinkai Makoto's "animation movie" (Katō 2009b, 120)[9] by prioritizing science.
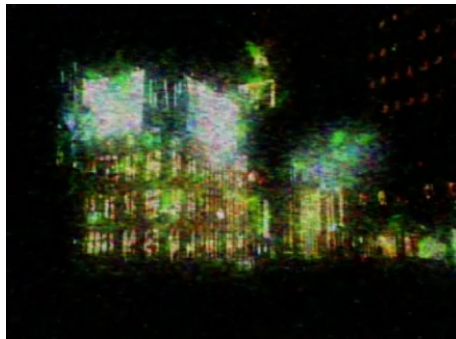

Figure 2: Café Cyberia (source: *Experiments*)

The "mind" in Ecclesian "World 2" (W2) has no shape, weight, height, width, color, mass, velocity, or temperature (Pojman 1991, 272). Its defining characteristic is the mechanism that is "beyond scientific enquiry" (Eccles 1982, 97). It organizes the consciousness or thoughts, feelings, perceptions, desires, emotions, etc. (Shaffer 1991, 280) by dint of impulses that are sent by the brain into consciousness. If translated into images, its enormous effort to organize the

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[8] Neocortex is the outer layer of human brain.
[9] Katō (2009b, 120) argues that Shinkai Makoto creates a new form of anime by blending his characters into their background scenes.

imported impulses into conscious experiences (Eccles and Robinson 1991, 303) would look something like the shot of Café Cyberia in a distant night view (L03)[10] among others. The scenery is distorted by the "mind" which is trying to give shape to the pulses Eccelsian W1 is sending.

Ecclesian "World 3" (W3) is the world of "culture," which "nurtures" the mind. It is comparable to D.E. Broadbent's "dictionary unit"[11] in that it holds information such as memory, personality, cultural norm, and the collective unconscious, which are the tools the "mind" uses to evaluate or to understand the incoming new impulses. Layer 05 of *Experiments* abounds with examples of the mind's relationship to Ecclesian World 3 and Broadbent's dictionary units. There, Rein's sister Mika melts into apraxia because her mind cannot coordinate with the "culture" that is stored in her "dictionary unit". A chain of unexplainable and unpredictable events—such as being handed a packet of promotional tissue paper on the street that says "Hell is overcrowded; the dead will have nowhere to go", seeing Rein standing still in the middle of a heavy car traffic, seeing Rein's face on a large video screen on a tall building, finding herself sitting on a heavily traveled road, seeing a group of pedestrians dissolve into ghostly smoke as they come toward her, coffee that she spills on her table moving to form the message "Fulfill the prophesy", a group of school girls in a coffee shop suddenly disappearing, the lights in the coffee shop's bathroom going on and off by themselves with a conspicuous clicking sound, writing with lipstick, "Fulfill the prophesy", appearing on an entire wall when the lights come back on, being met by another Mika in the entrance hall of her house, burst Mika's mind that tries to calibrate the busy signs against her sustained dictionary unit. The shock shatters her ability to talk or think. These subplots are animetizations of the possible activities of Ecclesian W2 and W3.

Embodiment

Important for our purposes is the concept of "embodiment", which means the "vibrant texture of our lives experienced from the inside, from feelings, emotions, and sensations" (Hayles 2004, 229) by Katherine Hayles' definition. Apparently, it

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[10] The capital "L" before a number stands for the "layer."

[11] This is D.E. Broadbent's terminology quoted by Juan Antonio Gomez in his chapter "Neurological Correlations of Some Universal Principles" (in Eccles 1982, 213, 215.) This unit in the central nerve system restructures the signals from the outside via nerve fibers. Gomez uses this term to explain the mechanism of language acquisition, but I am expanding its function to cultural acquisitions.

is a synergy of the Ecclesian three worlds. This paper will focus on the "texture" of the three major characters' embodiments in Cyberspace rather than psychoanalyzing their feelings, emotions, and sensations. In a nutshell, the texture of cyber-genius Eiri Masami is digital; that of Tachibana General Lab (henceforward "the Lab"), analogue; and protagonist Iwakura Rein's [12], more neutrally posthuman. Needless to say, analogue computers use the *magnitudes* of electric currents (or other physical entities) to represent *numbers*. Digital computers, on the other hand, use the mere presence or absence of such physical entities to represent various symbols. (MacKay 1980) [13] The former consists of physical currents and the latter wireless pulses.

When examining the overall stage, *Experiments,* it is a residential town in or near Shibuya [14] in Tokyo, and its conceptual stage is Cyberspace, which is characterized by Douglas Rushkoff as "not a world reducible to neat equations and pat answers, but an infinitely complex series of interdependencies where the tiniest change in a remote place can have systemwide repercussions" (Rushkoff 1994 PDF, 3) [15]. Katherine Hayles, who calls Rushkoff's cyberspace a posthuman world, observes that there are "no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot teleology and human goals" (Hayles 1999, 3). The presence of a building named Cyberia Café and Club [16], among others, marks the stage of *Experiments* as a cyberspace.

Embodiment: Analogue/The Lab

The communication network before the spread of the digital cyberspace used to be controlled by the Lab, represented by Kurosawa [17]. Kurosawa uses manpower for communications and computations as an interface of—so to speak—his analogue

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[12] There are two "rein"s in this anime. Konaka's scenario spells the name of the protagonist with the ideographic *kanji* 鈴音 *(rei-in)* and the other, in phonetic katakana which usually spells out words phonetically, "レ イ ン". This paper will spell the former as "Rein" and leave Lain as it is.

[13] To quote MacKay, "In analog computer, you provide yourself with a substitute for mental effort by choosing some physical magnitude (length, or weight, or volume, or electric current strength), which you can alter and combine in ways that are *analogous* to the operations you want to perform on the numbers in your problem—adding, subtracting, integrating or whatever" (MacKay 1980, 44).

[14] Shibuya is mentioned as the site of a traffic jam in L05.

[15] Because his PDF document and the bound monograph under the same title were published in the same year, I identify the PDF file as PDF and the book as book, in my citations.

[16] It is an internet café during the day and a nightclub at night.

[17] His name appears in Konaka's scenario but not in the anime (Konaka 1998, 2).

computer. Two foreigners, Karl and Tian, carry out the kind of tasks Eiri's wireless computer is programmed to do. If Kurosawa needs to talk with Rein, for instance, Karl and Tian will pick her up and drive her to Kurosawa's office. The two foreigners also do things like killing a young company executive by giving him a pressure injection in his neck.

Figure 3: Karl and Tian (Source: *Expeeriments*)

The two men's black suits, black car, and black goggles with a red video-eye, as well as Karl's comment to Mika, "You never saw us because we are not here now" (L04), outline their mission to see more than naked eyes can and to act without being seen by others. They are trying to be compatible with Eiri's hypertext[18] the best they can. When their work is done, the duo is electrocuted by Kurosawa as if the user is shutting down his computer at the end of his project. This is how the Lab's analogue system works.

Kurosawa is a pre-Cyberian who cannot keep up with the latest electronic development technically nor conscientiously. He confesses to Rein, "I just can't work up the interest to switch over to a new Navi[19]" (L07). Let alone the intrusion of the digital system into his analogue system, Kurosawa fears the day when the borders between the Ecclesian worlds erode. Without the borders, the flickering signifiers will create unexpected metamorphoses, attenuations, and dispersions (Hayles 1999, 30) everywhere. The Ecclesian three worlds will start acting randomly. Not just Mika and Rein but everyone will encounter strange happenings. Kurosawa, who knows that Rein is Lain's hologram, tells Rein: "If you are here

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[18] Hypertext refers to the web that structures many computer programs and data libraries. (see Rushkoff 1994 book, 3)
[19] "Navi" in *Experiments* is a multi-purpose information terminal equivalent to Internet. It is "datasphere" in Rushkoff's book (1994 book 5 and 34).

without a device, you know that the border between the Real World[20] and the Wired [21] is starting to crumble. We believe that to be dangerous" (L07). Kurosawa's mission is to guard the boundary between the human/analogue and posthuman/digital worlds.

Embodiment: Digital/Eiri

Eiri[22] Masami, a computer genius, used to be the Chief Researcher at Kurosawa's Lab, but was dismissed because he inserted the codified Schuman Resonance[23] into his own 7th Generation Wired Protocol[24]. The developed Schuman resonance principle allows the network users to consciously or unconsciously communicate without electronic devices[25]. Eiri's Wired is one generation beyond WELL (Whole Earth Electronic Link) which Rushkoff introduces in his *Cyberia*. (See Rushkoff's 1994 book, 35, 37, 249) "To enter it, one forsakes both body and place and becomes a thing of words alone" (Rushkoff 1994 book, 37). The network can override legal boundaries. One anonymous voice in the wired chat-room in *Experiments* distinguishes the Lab from Eiri's network: "A company as big as Tachibana Labs would not do anything illegal" (L08). Rushkoff's remark that "the implications for the legal community are an endless mire of property, privacy, and information issues, usually boiling down to one of the key conflicts between pre- and post-Cyberian mentality" (Rushkoff 1994 PDF, 28) and that the Cyberians' ability to process data being faster than the fair-use rule can be defined (Rushkoff 1994 PDF, 28) rings a bell. This is why Eiri believes that the brain and mind are better off without a "body" or the analogue system. His voice-over says: "The body is nothing but a machine. If the physical limitations of the body restrict mankind's evolution, it would be as if the fall of the species called 'man' had already been decided by God that doesn't even exist" (L12). The human body, including the brain, may as well be disposed of to let the hypertext do a better job. In the posthuman world where "there are no essential differences between bodily

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[20] "Real World" refers to the pre-digitalized world. The characters in *Experients* use the "Real World" as if it is a proper noun, although the subtitles do not capitalize it.
[21] This is equivalent to Hayles' posthuman world.
[22] *Ei* 英 in Eiri 英利, among others, means "excellent", and 利 "sharp," and "profit."
[23] Schuman Resonance refers to the constant resonance at a frequency of 8Hz in the space between the ionosphere and the Earth's surface according to a voice-over in L09 of the *Experiments*.
[24] An internet protocol is a technical agreement among the users of the mechanism of information traffic through the internet. Our generation is using IPv5; the one most people in the *Experiments* are using is Protocol 6. (see Konaka 1998, 187)
[25] See L09, for example.

existence and computer simulation, cybernetic mechanism and biological organism, robot teleology and human goals" (Hayles 1999, 3), the human bodies should step aside. Rein speaks Eiri's mind[26], "I realized I had no need for a body. To die is merely to abandon the flesh" (L10). An Accela[27] tripper also says, "Bodies are meaningless." (L11) It was to liberate their "minds" from their bodies that some people gave up their bodies.

Protocol 7 is the axis around which Eiri's Wired revolves. It functions as Ecclesian W3 for the Wired members. Scientist Eccles, scriptwriter Konaka, and Eiri agree on this point. As Eccles (Eccles and Robinson 1991, 295–6) has said, his W3 nurtures the "mind". Konaka says "It must not be wide of the mark to say that Eiri's Protocol works as a man-made god" (Konaka 1998, 188); Eiri tells Rein: "The information etched inside humans isn't only that which they themselves have acquired as individuals" (L12). Unlike the analogue system, Eiri's digital signals reach his receiver's minds from the position of Ecclesian W3. Worse yet, Eiri has imbedded in his protocol his own personal history, thoughts, memories, and emotions (L10), to establish himself as the God for the program users. When Rein speaks Eiri's mind, "There is only one truth. God," Eiri rejoins, "Yes, and that's me" (L09). Rein's fictive father, Mr. Iwakura, seems to have sensed Eiri's power. He tells Rein:

> What flows through the Wired may not be just electrical information. I have the feeling that another world emerged concurrently with that of digital and telephone systems.... In the Wired, there may be a Deus-like embodiment. (L05) The digital system, then, is far more hegemonic than the analogue system.

As God and not as a business administrator, Eiri uses the word "prophesy" rather than "goal" or "plan". Mr. Iwakura's remark that the Deus of the Wired already has enough power to affect the world in the form of prophesy" (L06) accords with what Jenny Doll in Rein's room has said: i.e., "Nothing can come into existence unless preceded by prophesy" (L05), and also with the statement of a black Malaysian god, "History is not merely a linear collection of points that we pass

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[26] Konaka's scenario says that two individuals speaking the other person's mind in a dialogue style is a type of psycho therapy and is used in Tsutui Yasutaka's fiction *The Kakinoki-zaka Intersection (Kakinoki-zaka Kōsaten)* and Daniel Waters' scenario for the film *Heathers*. (see Konaka 1998, 235)
[27] Accela is a nano-mechanism capsule that stimulates a certain hormone. It affects not only the consciousness but also the workings of the brain itself, multiplying the brain's operational capacity by two to 12 times (L02).

through on a timeline; they are made to connect" (L05). These voices seem to know that Eiri has set himself up as a choreographer of history.

Figure 4: Ghost-like human bodies (source: *Experiments*)

Experiments leaves the borderline between Eiri's Wired and the Lab's Real World vague. Not all suiciders make a clean break from the Real World, for instance.[28] And Karl's disclosure to Tian, immediately preceding the pair's death by Kurosawa, that the Lab has been going by Eiri's guidelines, further confuses the audience. Eiri's soliloquy in L13, "I'm going to quit the company that made me do crap", adds more confusion. Eiri in this back-to-the-pre-Cyberian-world scene is watching Karl and Tian in the bucket of an AWP (areal work platform) re-install a thick power cable. Who is the ringmaster here? The following inserts of a black knotted tree-trunk-like power post that morphs into a high voltage transmission unit, then into dazzlingly tangled power lines, and finally into a transformer that is buried in another set of tangled lines that stretch behind another entangled transformer does not answer our question but indicate that the situation is infinitely complex especially for an analogue schematic, and in contrast with Eiri's digital system that encodes millions of impulses with a god-like expediency.

Embodiment: Body/City Mob

The shots of the city streets congested with pedestrians without identifiable body parts but as a wave of expressionless heads that come or go smoothly together guided by the overhead traffic signals (L05), and those bodies, which dissolve into

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[28] Chisa, the girl who throws herself into an incoming train, and the boy who kills himself at Cyberia are the examples *Experiments* gives.

phantoms, underwrite Eiri's contempt for physicality. This shows how a silent majority live with an inactive body and insensitive brain. On the other end of the spectrum is a young Accela tripper. He buys the costly drug Accela to stimulate his brain and ends up shooting two party attendants to death. Like the digital system, the drug prevails over his mind beyond his control. Mika's interest is also carnal excitement. She is a bodied brainless human being who can do without Ecclesian W3 where Eiri's protocol is located. This is why she makes a good target for Eiri's henchmen Knights. We see her walk away, for example, from a young man she has slept with without even a "good bye" as the boy asks when they can meet again. Eiri's voice-over expresses disdain: "Not knowing what it is that drives them, the humans keep their bodies merely to satisfy the desires of the flesh ... That's all mankind is" (L05). At least Eiri is consistent about his contempt for the bodies that get in the way of a high-speed communication system. The enigmatic message on the PR tissue packageMika receives on a busy street, "The other side is overcrowded; the dead will overflow and have nowhere to go" (L05) spells out this situation. "The other side" must mean the Haylesian "human" world, and the "dead", the brainless bodies[29].

Chisa seems to realize this too late. The blood that flows out of her hand and spreads on the ground—her corpse is hidden under a neon signboard—reflects the bright red, green, and blue colors of the neon sign randomly, suggestive of her view of a life beyond death. But the audience's gaze, that climbs upward toward the rooftop from where Chisa jumped off, finds a small toy duck dangling innocently but forlornly from Chisa's abandoned school bag. This sequence suggests that Chisa's spirit has not quite severed its tie with the physical world. Soon Chisa begins emailing her classmates from Wired to let them know that her mind is still alive. She tells Rein that she left the physical world wishing to be with God. (L02) In all probability, she is yet to know that the God in the Wired is Eiri. Her apparition comes to see Rein repeatedly to tell her that suicide is not an easy matter. In the case of another suicider, Rein sees the girl's black blood trickling from a power line and then showering over her train. Instead of a corpse, Rein visualizes the girl's distorted—by double exposure—devilish face just before she dives in front of an oncoming train. After suicide, the girl walks through Rein's

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[29] Arisu also receives the "Fulfill the prophesy" command, but hers comes on her pocket Navi—as email should—and she is spared from the series of strange happenings. The difference may be her directed personality, unwavering affection towards her school teacher, and her determination to help out Rein.

body. Eiri's invitation to join his bodiless world may have found some followers, but their dead bodies keep drifting and "overflowing" without a place to go.

Embodiment: Knights

Neither Eiri's Wired nor Rushkoff's Cyberia is bound by the rules of a linear time line. Eiri's Wired Information Bureau may send a message, for instance, "This news report is being sent out at this moment, but please be aware that it may reach you tomorrow or possibly yesterday" (L07). Time does not flow in a chronological sequence. This is one of the reasons why the Lab disapproves of the Wired. Karl tells Rein, "The Wired shouldn't be a special world. It ought to be a field that functions as a subsystem reinforcing our world" (L10). The Lab is particularly apprehensive of a group called the Knights. It is staffed by Eiri's henchmen, or more accurately by Eiri-worshippers who legitimatize Eiri's existence as God (L10). A male voice from the Wired Information Station tells that the Knights' model is the Knights Templer[30] (L10). Like its American ancestor, the Knights in *Experiments* are blamed for just about any newsworthy cybernetic problem. One such problem is the production of an information terminal named Psyche. Psyche interprets and distorts the original data (L03). It can dramatically increase the performance of any Navi. We hear as a rumor that the Psyche was designed by the Knights (L03). Even more harmful is the dungeon-style action computer game named "Phantom". The disc jockey at Cyberia, JJ, believes that the Knights combined two existing computer games to make Phantom (L04). The new product deprives the players of the distinction between reality and fantasy. The players are chased to a corner of a building by the phantom of a little girl and end up jumping off rooftops. The police think the boys have committed suicide. Then, there is the game called KIDS that kindergarten children play on streets. Dr. Hodgeson,[31] the researcher who tried 15 years earlier to gather the Psi[32] each child emits, divulges that he smashed his KIDS equipment and threw away the schematic[33] so that it could never be rebuilt, but his schematic found its way onto the Wired, and

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[30] Wikipedia writes that "the Knights of the Lambda Calculus" is a semi-fictional organization of expert LISP and Scheme hackers. (see Wikipedia 1)
[31] This Hodgeson is fictional. Konaka writes in his scenario that he must have converted Charles Lutwidge Dodgson's (1832–98) name. Dodgson is the author of *Alice's Adventures in Wonderland* (1865) and *Through the Looking Glass* (1872). S(see Konaka 1998, 146 and Dodgson)
[32] Hodgeson explains that Psi is parapsychological ability present in most children. (L06)
[33] A schematic is a diagram of a structure, especially of an electrical system.

someone updated it even without any of the equipment he had built. Hodgeson compliments the plagiarizers—implying the Knights—for their talent.

Figure 5: Mika is framed by the Knighs (Source: *Experiments*)

The Knights are also to blame for Mika's aforementioned frightening experiences. The Knight's logo that incases Mika on a busy street proves who the framer is. If Karl and Tian are right, it is the Knights who set a parasite bomb[34] in Rein's computer cooling system. Another example of the Knights' atrocities is their murder of Nezumi (a roaming cyberkid who begs for the Knight membership). [35] The Knights delight in taking the innocent public into an "uncharted hyper-dimensional turf".[36] Because nobody, not even Rein, knows who they are, the Knights are bodiless. The public locate them in Ecclesian W3 along with Eiri's Protocol 7.

One voice from the chat-room says, "the Knights do not physically exist but they are the thoughts themselves that occur within the Wired. They can be thought of as a religion that is spreading through the Wired" (L04). And Tarō, an elementary school cyberkid says, "The Knights are users who are fighting to make the only truth there is into reality ... The truth has power because it's the truth. And it's the truth that makes it just" (L09). The bodylessness helps link the Knights with religion, truth, and even justice. An inquiry such as Nezumi's "You believe in Deus, right? I'll follow your lead. But is it true? Is God in the Wired?" (L07) does not please the Knights or Eiri; God can use only fully devoted worshippers. So they kill Nezumi. Only the sober and independent-minded few, such as Arisu,

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[34] This is an imaginary internet virus. (see Konaka 1998, 155)
[35] Nezumi's HMD (head mount display) shows the Knights' logo to prove the murderer's identity. (07)
[36] I am borrowing Rushkoff's expression from his book (1994, 5).

would suspect that the Knights are a kind of super hacker group, who usually don't work together, nor do they work for fun or money.

The *Experiments* introduces three Knights who relish subversion: a young single mother who likes to play video games with her son; a fat man who lives in a messy single room apartment which apparently has never been cleaned, and an executive of a large company. Flat on his stomach in underwear, on his futon on the floor, the fat man looks at the Knights' logo on his laptop, and laughs, "That's right, you morons. I'm better than you bozos!" (L07) The view of other tall skyscrapers from his private office speaks for the company executive's high rank. A well groomed secretary—formally dressed in a yellowish suit—comes in, sits on a pink chair in front of him in an affected manner, and summons the young executive to a banquet, "It's time for the EMA Motor Consortium banquet." The EMA Motor refers to the no-fuel electric engine Edwin Gray (Konaka 1998, 161–2) invented, so the importance of this banquet must be at an international level. Casting a brief but friendly smile at her, the man answers, "I'll be down in three minutes". As the secretary leaves, he clicks on the Knight's logo in his computer, smiles, and lets the long legged metal compass in the logo twirl, spread its legs apart, and finally settle it with its toes together. His uncovered smile spreads across the screen as he talks to the logo, "What game do you want to play this time?" The secretary's yellowish suit and the Knight's logo collectively hint at this man's libidinal indulgence in his work as a Knight. His priority is the "game," not the executive banquet. Arisu is right about the Knights being computer addicts who are not working for money.

The scene after the Wired Network News's report that "some party" has incapacitated the firewall of the Information Bureau's Information Control Center (L07) describes the wild joy of the Knights' computer simulated designs and color combinations. The busy lines, spots, patches of colors, English and other symbols, and what not pour in and out of the screen and dance around and line up to the tune of squeaking sound and a jazz drum among others. Katherine Hayles helps us understand that this confusion stems from the absence of a physical center; it is the joy of liberation from "the contemporary pressure towards dematerialization, understood as an epistemic shift toward pattern/randomness and away from presence/absence". (See Hayles 1999, 29) The Knights' delight must be the freedom to detach their minds (Ecclesian W2) from the Ecclesian W1 and W3.

Eiri lets the Real World citizens enjoy the posthuman experience in order to govern the citizens of both the Wired and the Real World.

JJ and Tarō are a couple of fringe members of the Knights. JJ appears to be a close friend of Lain. But, once he realizes that Rein is a different person, he gives Rein technical instructions and anonymously delivers the chips[37] that would enhance her computer to the level of the Knights'. Tarō refuses to identify himself as a Knight but can explain the functions of each and all the computer parts JJ has given Rein and understands how Rein has singlehandedly set up her computer, cooling system, and the like in her room.

Embodiment: Rein

The Lab, Eiri, and Rein have a morphogenetic relationship.[38] Rein is an amalgam of heterogeneous components, which undergo continuous construction and reconstruction (Hayles 1999, 3). Her embodiment is a process towards the completion of the Eccelesian three worlds and beyond. She debuts in *Experiments* as a "body", analogue, or more in the Haylesian line, as a "human form seen from the outside, from a cultural perspective striving to make representations that can stand in for bodies in general" (Hayles 2004, 229). She looks like a thirteen year-old girl in a school uniform and her voice is young. Her short hair with a small ponytail on the left side of her head gives her a personal touch. She is yet to complete her own set of W3. Until then, the scenery she sees is rather abstract and lacks realistic details[39], her own shadow may look like smoke, schoolgirls walking in front of her may fade from her vision, and plasma may shoot out of her finger tips. Things are still unpredictably unstable because Eiri has just created her out of another girl named Lain. He divulges in L10: "You were originally born in the Wired …. The Real World's Iwakura Rein is merely a hologram of the Lain in the Wired, a homunculus[40] of artificial ribosomes.[41] You never had a body to begin

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[37] He leaves or has someone leave one in Rein's school locker or hands one to her, asking her if she had dropped it.

[38] In a morphogenetic relationship, everything constantly affects everything else. (see Rushkoff 1994, 60)

[39] It is nearly monochrome with red speckles over a black patch of shadows and the cloudless sky is populated by black electric wires and transformers.

[40] A homunculus is an artificial human created by a chemist in a flask. (see Konaka 1998, 256)

[41] The ribosome is a large complex molecule which is responsible for catalyzing the formation of proteins from individual amino acids using messenger RNA as a template. This process is known as translation. Ribosomes are found in all living cells. (see Konaka 1998, 256)

with" (L10). The initial ignorance and insecurity make Rein quiet and withdrawn, and confused. At a loss about her own identity, she runs a "memory check" program in hypertext in Navi, and sees two unknown men bring a girl, who resembles Rein, to the Iwakura house. Mr. Iwakura brings the girl to Rein's room. This memory check does not help, for the girl's answer to Rein's question, "Who are those people" is "I'm you, so I don't know what you don't know" (L09). Rein on her first day in the "Real World" knows little beyond the basic geography around her house and her school. Probably because Eiri has tampered with Arisu's memory units, at least one classmate assumes the role of Rein's good friend. Rein is clueless when Arisu talks about their classmate Chisa's suicide, which their homeroom teacher had announced a week before Rein joined the class. It is Chisa's posthumous email that tells Rein that Chisa knows her: How are you Rein? I walked home with you just once. Do you remember? I have given up my body. But I'm still alive (L01). Rein lives in the same town and goes to the same school with Chisa, but has no recollection of seeing her. The newborn Rein lapses tongue-tied when the police interrogate her as a witness of a murder in the nightclub Cyberia. It takes Arisu's apology for bringing her to Cyberia for Rein to slowly recall Arisu's name "A ri su" (L03).

Although born in the "Real World," Rein is always tangentially moored to the Wired. One of such indications is her utterance, "What a racket! Can't you be quiet?" on a train. The "racket" is not something other silent passengers have been hearing. Surprised, they swing their gazes toward her. The anime audience hears the "racket" via Rein's ears immediately prior to her complaint. Rein's heckling at electric wires, "Shut up!", recurs in Layer 11 as she walks alone on a quiet road under a mesh of electric wires, but this yelling does not necessarily mean Rein is *a priori* averse to the sounds from Wired. Far from it, Rein supports Arisu's view that daily emails are the underlining foundation to social alchemies (Casalegno 2010, 124), and starts building her own powerful computer and network at home. By the sixth Layer, she becomes a "Netpal" of the voices from the Wired.

Rein fills her W3 with the knowhow of electronics. Her ultimate goal is to pin down the author of the general "dictionary" in W3. She embarks on the project with interviews of the spirits of her Jenny doll, a Malaysian god, and her fictive parents. Each informant floats in the air, facing Rein, who sits in Japanese style. The Jenny Doll tells Rein that every happening is predicated on a prophesy; the Malaysian god claims that each prophesy must be fulfilled to connect each point in

history to form a linear sequence; Mrs. Iwakura reveals that physical reality is nothing but a hologram projected by the synapses in the human brain. These informants clam up when Rein asks, "Who makes the prophesies", "Who connects the historical points", and "Are you my real Mama?" respectively. Mr. Iwakura intimates that there may be a sort of Deus-like embodiment in the Wired, and that Deus may have already developed the power to affect the Real World in the form of prophesy. (L05) This Q&A session gives Rein a rough outline of the makeup of the Wired.

Figure 6: Plasma shooting out of Rein's finger tips (Source: *Experiments*)

Rein's interest in the evolution of Cyberspace is fired by a couple of kindergarten children who raise their hands high towards the sky to conjure Rein's image from behind the clouds. However briefly, Rein, Arisu, and others see the radiant holograph of naked Rein in the sky. Annoyed by this, Rein marches into the Wired and talks with Professor Hodgeson's hologram, and goes on to meet him in person at his convalescent home.[42] This is where Hodgeson reveals his understanding that the Knights appropriated his original research.

Experiments summarizes the rest of Rein's discoveries, on the audience's behalf, in a newsreel format without her intervention. Vannevar Bush's (1890–1974) Memex[43] is a large box that stored an enormous number of microfilms that were sorted and indexed. This is the precursor of the analogue hypertext as well as the concept of information-sharing that Eiri idealizes. Then there was the unbelievable news of an extra-terrestrial aircraft crashing in the desert in New Mexico in 1947. One such alien visits Rein in her room and Rein learns to turn

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[42] See: footnote 30.
[43] The name "Memex" stands for "memory and index" or "memory and extender", published in 1945 in *The Atlantic Monthly* according to *Wikipedia* "Memex." (see Wikipedia 2)

herself into one. Rein's searching eyes do not overlook the dubious MJ-12 Document about a pact a secret committee of twelve members—who were answerable only to President Truman—concluded with the extraterrestrials in 1947. The dubious document surfaced in 1984. Around this time, John Lilly (1915–2001) began studying the human unconscious, using isolation tanks, psychedelic drugs, and dolphins. Lilly's reports of the CCC (Cosmic Coincidence Control), the SSCU (Solar System Control Unit), and the ECCO (Earth Coincidence Control Office),[44] may well have inspired Eiri to build his Wired. A natural offshoot of Bush and Lily's inquiries was Ted Nelson's mind-blowing information system named Xanadu, a giant electronic library disseminated through satellites. It was linked to the World Wide Web in 2014. This *Wikipedia*-like system may have been another item in Eiri's wish-list, judging by his favorite saying that information should be shared.

The Schumann Resonance theory elaborated by Winfried Otto Schumann (1888–1974) helps Rein understand Eiri's propaganda, "everything is connected". What Eiri tries to achieve digitally, is what the earth can do eletcromagnetically with the help of the ionosphere film around the earth. The ionosphere film bounces back the electromagnetic signals emitted from various spots on the earth to broader areas of the earth. Eiri is not the only one to see the earth as a giant biological organism. Rushkoff summarizes what James Lovelock brands the Gaia hypothesis[45]:

The planet is thought to maintain conditions for sustaining life through a complex series of feedbacks and iterations. A population of ocean microorganisms, for example, may regulate the weather by controlling how much moisture is released into the atmosphere. The Cyberians in Rushkoff's *Cyberia* believe that Gaia is becoming conscious and human beings serve as Gaia's brain cells:

> Each human being is an individual neuron, but unaware of his connection to the global organism as a whole. Evolution, then, depends on humanity's ability to link up to one another and become a global consciousness. (Rushkoff 1994 book, 82)

This reminds us of the Ecclesian map as well as Eiri's wish to unify and control his Wired without interruption by mindless bodies.

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[44] *Wikipedia* has supplied some of the details.
[45] Rushkoff notes that it is "the now well-supported notion that planet Earth is itself a giant, biological organism." (see Rushkoff 1994 book, 81)

The unravelling of the mystery of Ecclesian W3 helps Rein find her way into the Wired without legal authorization, or without reducing herself into a body part in the way most other members must (as only a mouth, one eye, one arm, one ear, or simply a voice), to visit JJ without physically being there, to shatter Karl's goggle by shouting from her upstairs window, "Go away!", to visit Arisu in the shape of an alien, to upload the emulator[46] of Navi into her own brain, and to erase people's memories. In short, she becomes cybernetically and biologically posthuman who can manoeuver all of the Ecclesian three worlds. She also learns that Eiri is the mastermind of his Wired, which some call Cyberia, and others, Gaia.

Embodiment: Lain

Still unanswered are the questions as to why Eiri made Rein out of Lain, and how perfect can Eiri's digital Wired/Cyberia/Gaia is. Lain has made JJ believe that Rein was Lain, let Tarô know when Lain slunk into Rein's body, made the Accela tripper pay for his murder of two party participants by standing in Rein's place, and made Eiri say things like, "You are just a hologram of Lain" (L08), and "Lain is not another you; she is real you" (L10). Worse yet, Lain has led Arisu and the entire school to misunderstand Rein's personality. For Rein no confusion equals in magnitude to the identity crisis caused by Lain. Psychedelic art dramatizes Rein's bursting agony of being accused by the entire school for peeking at Arisu's affair with her schoolteacher and having the news spread throughout the Wired. Rein learns about it because she also receives the message that says "Rein[47] is a peeping Tom". All her classmates and her teacher stare straight at Rein, and so do other students outside the classroom. The hallway Rein escapes to fades into pale green, with diagonal white lines shooting from windows at her face. Rein collapses on her knees, embracing her pocket Navi and calling "Arisu!" endlessly. Suddenly, a windowpane cracks and bright red, blue, yellow, and pink patches of colors confront her. As a dark blue color swallows the brighter ones, Lain's grin flashes across the screen. Rein runs up to the rooftop and cries, cradling her head in her arms that rest on her knees, "What's the other me doing?" Soon the gym behind her explodes. The background changes to a combination of yellow and orange, through which Rein walks slowly, her eyes downcast. At night, Rein watches with

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[46] An emulator translates a certain format of digital information into another.
[47] The English subtitle, that does not differentiate Lain from Rain in spelling, uses the spelling "Lain" in this scene, but the screen shows Rein in Kanji.

tear-drowned eyes lightening zipping with sparkling sounds along the power lines outside her bedroom window. Following the images of the mirror ball in Cyberia, a traffic light, and additional lightening comes a fuzzy image of Rein herself in her bear pyjamas. The Teddy Bear-like being floats in the waves of a score of colored swinging ribbons and a red, gray, and purple splotched tide. The background music is annoyingly mechanical. All of this is soon replaced by the image of Rein in her bear pyjamas hanging onto the power line outdoors, as if the innocent girl is desperately hanging onto the analogue system. Momentarily, a black background closes in on her, to scorch her into a small pink body with gray burns; her eyes are wide open but paralyzed; her hair as a patch of red and black flecks swings in a heat wave. This image of her scalded body returns when Rein pronounces that she has nothing to do with Lain. However firm may her own awareness be, Rein's identity is razed by Lain, and the psychedelic art reveals the explosion inside Rein's brain in the way the laser beams create holograms. The digital art, and the digital world, make Rein's pain greater than her body can take.

Rein and Lain converse only twice. The first time, Rein yells at Lain for making Arisu's relations with her teacher public in Rein's name. Lain's laughing off of Rein's attempt at strangling her, "I'm committing suicide!" (L08), and the human-like warmth of Lain's body make Rein recoil. Rein cannot bring herself to kill a biological body, although she can reprogram a digital entity. Lain makes a move to pool her resources with Rein only at the end of the *Experiments*. Unlike how she had been, Lain tries to pull Rein out of her despair of having lost all her friends (L13), reminding her that it was Rein's own decision to delete herself from everyone's memory, that Eiri has never been God, that his understanding of the Wired being an upper layer of the world is wrong, that Wired is just a field through which information travels, that no digital space is big enough to contain everyone's memories, that Rein is God, that it is easier to be a god than to be a human, and proposes that she and Rein should start together afresh. She does not seem to be Eiri's fan. Lain disappears for good when Rein flatly refuses to work with her. This shows Rein's decision to be a true Cyberian who does not follow another's rules. (cf. Rushkoff 1994 book, 205) But who was Lain? Dan Kottle[48] would answer that she was a part of Rein's consciousness. Kottle has told Rushkoff that consciousness is essentially digital, hence binary. A digital

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[48] Kottle is one of the original Apple engineers who is now an independent computer graphic designer. (See Rushkoff 1994 book, 26)

computer evaluates each matter by a series of yes or no, dot or dash[49]. Lain in Rein's digitalized brain acted as the negative of the binary factor. Rein's refusal to make room for Lain's input is tantamount to her preference for the analogue system.

Embodiment: Arisu

The character that helps Rein confront Eiri's second contention is Arisu. Arisu is the most conscientious of Rein's friends and she is the most sensitive to physical contact. She is tightly holding Rein's hands when Rein slowly pronounces Arisu's name at the police station. At school also, she holds Rein's hands and calls her a friend when Rein needs help. The warmth of Arisu's hands spellbounds Rein. At home, Arisu enjoys her teacher's body heat in her imagination. For her, physical warmth equals spiritual warmth. This analogue-type girl is the only one to visit Rein in her dark paint-smeared house even after her fictive family has abandoned Rein. Rein pulls herself up from under a mesh of computer wires, many still attached to her body. Arisu feels Rein's cheeks to ascertain that Rein is still alive and puts Rein's hands on her own throbbing heart. Eiri comes down from nowhere to explain why Arisu's heart is throbbing, "it is because she is afraid of losing her body." Eiri fears that Arisu may have hacked Rein's brain and offers to "debug" Rein. Bereft of the argument against Rein's disapproval of Eiri as God, Eiri resorts to a physical force, building his body up with the collection of Rein's computer parts in her room. Rein is quick to point out the inconsistency between Eiri's body-abolition propaganda and his helter-skelter assemblage of an extemporaneous body, "A body doesn't mean anything to you, right?" Her sarcasm knocks Eiri down as fatally as Rein's refusal to work together smites Lain.

The warmth of Arisu's body and soul keeps Rein from suicide. In fact, one of her sad memories is about when she became invisible to her classmates and teacher. Her desk had disappeared, too. This is why Chisa, the other girl who killed herself by jumping in front of a train, the Accela tripper, Cheshire Cat, and many other phantoms put on one shape or another to come to talk with Rein. True, Rein did say that "everyone is just an application" and "You don't need bodies" at one point (L12), but that was before Arisu's heartbeat restored humanity back in Rein's memory.

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[49] For detail, see Rushkoff 1994 book, 28.

Conclusion: Digital and Analogue

In one way or another, Lain and Eiri have proven that digital minds can be more harmful than can analogue-like ineffective bodies. Rein has protected herself from Lain and Eiri by wiping them out of her Ecclesian W3, and has deleted the memory of herself from people's memories, under the banner of "What isn't remembered never happened" (L13). Her new mental abode is now clean and peaceful. But too soon, Rein finds herself assaulted by a new uneasiness of not knowing where to locate herself in her own mind if not in others' also. The lack of identity torments her as much as Lain's existence did. But to Rein's, and the anime audience's surprise, Mr. Iwakura—father of the fictive Iwakura family of so many years ago—returns. It may be that his name, rock (岩 *iwa*) and warehouse (倉 *kura*), has kept him safe from any of the changes that took place in the three Ecclesian worlds. He fishes Rein up from the bottom of her well of despair and greets her like the yellow sunlight he appears in. The way Rein calls him "Dad", and the tears she sheds at his warm words restore human warmth in Rein's desiccated heart. His suggestion to have tea with Madeleine cookies shows his understanding of Rein's craving for physical and spiritual warmth. Madeleine, as we know, is a cookie that opens up a panorama of the narrator's memories in the "Swan's Way" chapter of Marcel Proust's novel *À la recherche du temps perdu* (*In Search of Lost Time*) (Proust 1928). An implied message is that memories connect people and balance the global organism.

The anime audience have learned through Rein's experiments that the digital mechanism can replace human intelligence, but it is the analogue system that makes joy felt. It is ironical that highly articulate computer graphics help articulate the characters' struggling emotions. Either way, it is the expository approach that has unfolded the dynamics of human cognition systems and their effects. *Experiments* prompts us to wave a flag in support of Paul Wells' remark about anime's creative power.

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